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**Non Half Hourly Data Aggregation (NHHDA)Technical Specification**

**Version Number 23.1**

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| Non Half Hourly Data Aggregation (NHHDA)Technical Specification | | | | |
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# Introduction

## Purpose

This document [NTSPEC] is the Technical Specification of the NHHDA system.

## Scope

This document forms part of the deliverable output from the physical design stage.

## Structure of Document

This document is based on the structure for a Technical Specification defined in [PDTSPD].

## Amendment History

| Version | Details |
| --- | --- |
| 0.100 | First draft, minus sections affected by LCR030. |
| 0.900 | Issued for internal review |
| 0.990 | Addresses comments raised from Internal Review. Issued to the Pool for APP. |
| 0.991 | Inclusion of sections affected by LCR030. Submitted for internal review. |
| 0.992 | Addresses comments raised from Internal Review. Issued to the Pool for APP. |
| 0.993 | Addresses Pool APP comments dated 2/4/97. |
| 0.994 | Addresses comments from Logica Technical Manager review. |
| 1.000 | Definitive release |
| 1.001 | Updated to reflect design changes made during development. |
| 1.200 | Updated to reflect the following:  Clarifications: CLAR077; CLAR078; CLAR079; CLAR080; CLAR081; CLAR082; CLAR084; CLAR085; CLAR087; CLAR088; CLAR092; CLAR093; CLAR096; CLAR101; CLAR103; CLAR109; CLAR110; CLAR112; CLAR114  Pool defects: 10; 17; 23; 24; 27; 43; 55; 107; 113; 128; 163; 195; 197; 201; 396; 501; 502; 549; 551; 654; 753; 802; 817; 819; 875; 881; 919; 1005; 1055; 1057; 1099  Change requests LCR055  Factory Acceptance Test observation reports: R0.2/7; R0.2/16; R0.2/24; R0.2/34; R0.2/37; R0.2/41; R0.2/49; R0.2/54; R0.2/55; R0.2/67; R0.2/73; R0.2/74; R0.2/77; R0.2/78; R0.2/79; R0.2/81; R0.2/102; R0.2/109; R0.2/124; R0.2/152; R0.2/153; R0.2/160; R0.2/161; R0.2/177; R0.2/180; R0.2/205; R0.2/206; R0.2/227; R0.2/230; R0.2/233; R0.2/245; R0.2/246; R0.2/247; R0.2/248; R0.2/249; R0.2/ 254; R0.2/263; R0.2/270; R0.2/271; R0.2/272; R0.2/273; R0.2/274; R0.3/2  Performance Test observation reports: 21; 2/2  Logica internal observation reports: 212; 249; 275; 291; 297; 316; 327; 336; 344; 345; 361; 366; 378; 380; 381; 382; 385; 400; 407; 409; 423; 456; 457; 463; 478; 585; 610; 717; 751; 919; 2088 |
| 2.000 | Addressed review comments and Pool defects 404, 1184 and 1230 |
| 2.001 | Defect 818 (OR 2226/CR94/LCR24) update SECO domain values  OR 1546 participant & role in L0037 should be null  CLAR113 instruction report INR record definition  CLAR113 (OR2384) additional data separators  OR 2248 archive rules incomplete  OR 2262 ndb\_ms\_\*\_dets flag descriptions inaccurate  OR2292 remove references to Oracle clusters; update detail in NCD processing  LCR75 (CR455, OR2351) Refresh processing unit of work changed to metering system  LCR80 (CR422, OR2353) Dispute settlement code  LCR82 (CR492, OR2369) performance changes  OR2344 – instruction validation  OR2370 – removal of columns from ndb\_metering\_sys  Defect 1485 (OR2380) instruction validation  Defect 1472 (OR2382) instruction validation  OR2398 – manage instruction files form  spelling checked and corrected throughout |
| 2.100 | OR2434 (Pool defect 1500) Data Collector Appointment appointments are calendar date not settlement date based  OR2448 (Pool defects 1427, 1430, 1434, 1435, 1436, 1437, 1438, 1429, 1440, 1442, 1444, 1507) Manage Refresh – fields moved & sorting changed.  OR2444 (LCR092 CR487) Researched Average EAC now called Default EAC in documentation only  OR2455 spmatrix data is *not* deleted at end of aggregation processing  Pool Defect 1359 |
| 2.500 | Incorporating Internal Review Comments. Draft issue for external review consistent with software release R1.2  CR468 (index changes for performance)  Pool defect 817 – changes to cdb\_system\_parameter values  Pool defect 1464 – aggregation exception log ‘to’ corrected |
| 3.000 | Address Pool comments  consistent with release 1.3  Authorised Version |
| 3.990 | OR2837 – Fix and merge design documentation  NHHDA Release 4.0.0 changes:  SIR R419 / LCR021/3 – Consistency of Supplier Reporting Requirements from Data Aggregation  SIR R576 / LCR106 – ISR Agent Calendar/Timetable  SIR R654 / LCR114 – NHHDA Document/Software Inconsistency  NHHDA Release 5.0.0 changes (including LCR148):  SIR R529 / LCR094/3 – Exception handling for Full PRS Refresh  SIR R709 / LCR103/2 – Metering System Data in PRS and NHHDC  SIR R391 / LCR105 – Operational Improvements to NHHDA  SIR R692 / LCR107 – Data Aggregation – Zero AA while de-energised  SIR R715 / LCR109 – Automatic Loading of MDD  SIR R716 / LCR110 – VSCPCs in GSP Groups  SIR R575 / LCR112 – Instruction Processing – Apply Logic  SIR R991 / LCR116 – NHHDA Aggregation Robustness  SIR R295 / LCR124/2 – Predictable Outputs from NHHDA  SIR R1528 / LCR127/2 – NHHDA Manage Failed Instructions Operability  SIR R716 / LCR146 – Amend Instruction Failure Reason Code  SIR R991 / LCR148 – Amend A12 Aggregation Exception Code  Issued to the Pool for review |
| 3.991 | LCR146 Instruction Failure Reason Code NNA message changed.  OR2873 (Pool defect 168) Remove non-existent warning messages for MDD changes. |
| 3.992 | OR2886 (Pool Defect 217) Add record into MS History file.  OR2893 Added ‘Z’ consumption type for aggregation audit log.  OR2901 Added AFYC Effective To Date to SSC and Associated Items Report.  OR2906 Added L0042001 filetype to FTOT domain in cdb\_ref\_values  Incorporating Pool review comments  Moved Description, Form Structure, Action on…Form Query/Button Display/Button Print in Section ‘Select Reports’ from CTSPEC to NTSPEC  Amended ‘A12 – Exception Details’ in line with LCR148  OR2898 – New exception added for MDD complete set file load.  OR2711/LCR081 – Discrepancy between DTC / Technical Specification and Software for D0095001  Issued to Pool for Review |
| 3.999 | Incorporating Pool Review comments  Issued to Pool for review |
| 3.999a | Incorporating Pool Review comments  Incorporating changes for Pool reference: 329SCL01 |
| 4.000 | Authorised Version. URS Baseline updated in line with CCN095. |
| 4.001 | OR2953 – Addition of MDD Load Window  OR2894 – Files are processed when there are additional fields |
| 4.002 | LCR149/2 – Empty Supplier Purchase Matrices change |
| 4.003 | LCR152/3 – Altering Check Data Collector processing. |
| 4.004 | Incorporating Pool Review comments  Issued to Pool for review |
| 4.005 | Incorporating Pool Review comments |
| 4.006 | LCR157 – Inclusion Of AFYCs in NHHDA Aggregation Robustness. |
| 4.007 | Incorporating Pool Review comments. |
| 4.990 | Issued to Pool for review. |
| 5.000 | Authorised version |
| 5.001 | Incorporating OR2971 – correction of meanings of instruction state reason error codes |
| 5.002 | –LCR170/2 Upgrade to Oracle 8.1.6  Incorporating OR 3018 altering exception record sequence.  Incorporating OR 3044 adding new exception code for invalid EAC/AA values in D0019s. |
| 5.003 | Incorporating Pool review comments |
| 5.004 | LCR143/2 – NHHDA Check Data Collector Operability Improvements and LCR169 – Management of Failed Instructions by NHHDA |
| 5.005 | Incorporating Pool review comments |
| 5.006 | Incorporating additional Pool review comment |
| 5.007 | Amended in line with further Logical Design changes for LCR169 – Management of Failed Instructions by NHHDA. Incorporated change for OR3082 - Instruction Status Reasons are only selected for inclusion in the file to be returned to the originator if their Aggregator Action State is set to a value. |
| 5.008 | Incorporating Pool review comments |
| 5.009 | Incorporating Pool review comments,  OR3118 – Updating the copyright notice |
| 5.010 | Change to Office 2000 |
| 5.011 | Changes relating to ELEXON superseding The Electricity Pool |
| 6.000 | Made definitive |
| 6.001 | Updated for OR 2961, OR3106, OR3203, OR3208, OR3166, OR3213, OR3214  Updated document references and copyright notice  Updated designer 2000 to designer 6i |
| 6.990 | Version for ELEXON review |
| 6.991 | Updated for OR3214 |
| 6.992 | Incorporating ELEXON review comments  Updated for OR3226 |
| 6.993 | Incorporating ELEXON review comments |
| 6.994 | Incorporating ELEXON review comments |
| 7.000 | Authorised version. |
| 7.001 | Update document template |
| 7.002 | Changes for P62 |
| 7.003 | Updated following comments from internal review |
| 7.004 | Changes for LCR207 |
| 7.005 | Updated with comments from internal review |
| 7.006 | Updated following review of P62 code |
| 7.007 | Changes for LCR207/2 |
| 7.008 | Updated for OR3283 |
| 7.009 | Updated for OR3309 |
| 7.010 | Changes for LCR215/3  Updated for OR3310 |
| 7.011 | Updated for OR3312  Updated for OR3314  Updated for OR3259 |
| 7.012 | Updated for OR3311 |
| 7.990 | Update for OR3327  Version for ELEXON review |
| 7.991 | Updated from ELEXON review |
| 7.992 | Updated further comments from ELEXON |
| 8.000 | Authorised version |
| 8.001 | Updated for P81 |
| 8.002 | Updated following internal review. |
| 8.003 | Updated from ELEXON’s review |
| 9.000 | Made definitive |
| 9.001 | Updated LCR225 – Upgrade of NHHDA and EAC/AA software applications to Oracle 9i |
| 9.990 | Version for ELEXON review |
| 9.991 | Applied ELEXON review comments |
| 10.000 | Authorised version |
| 10.001 | Updated for LCR218 BETTA and OR3413 |
| 10.990 | Issued to ELEXON for review |
| 10.991 | Applied ELEXON review comments |
| 11.000 | Authorised version |
| 12.000 | Updating document references |
| 12.001 | Updating with LCR220 |
| 12.002 | Updated after internal review |
| 12.003 | Applied ELEXON review comments |
| 12.004 | Additional changes for LCR220 |
| 12.005 | Updated for CP1001, CP1006 and CP1016. Issued to ELEXON for review. |
| 12.006 | Further updates post review workshop on 13 Oct. |
| 12.007 | Additional amendments. Issued to ELEXON for review. |
| 12.008 | Added further amendments. Issued to ELEXON for review. |
| 12.009 | Include updated screenshots for enhanced screens. |
| 12.010 | Final updates added. Issued to ELEXON. |
| 13.000 | Authorised version. |
| 13.001 | Include updates from section 3.1.2 November 04 Release Errata7P9.0.doc |
| 13.990 | Updated for February 06 Release DCRs:  CP933– Management of System Security  CP965– Superfluous reporting of D0095 E08-E14 exceptions combined with an E01 exception  CP1047 – Warning message to highlight when no Grid Supply Point (GSP) Groups are selected for a Non Half-Hourly Data Aggregation run  CP1089 – Inappropriate “dual reporting” of E03/E04 exceptions on the Non Half Hourly Data Aggregation Report (D0095) |
| 14.000 | Authorised version. |
| 14.990 | Updated for November 06 Release DCRs:  CP1117 upgrade of NHHDA to Oracle 10g |
| 14.991 | Updated to re-introduce print button details |
| 14.992 | Updated from internal review |
| 15.000 | Authorised version |
| 15.990 | Updated for February 08 Release DCRs:  OR3659 HD064195 Removal of Ad Hoc Reports Menu Option  OR3716 HD063951 Archiving of Instruction Data  OR3728 HD064249 “Source” misspelt on Reports Instruction screen |
| 15.991 | Incorporating internal review comments. |
| 16.000 | Authorised version |
| 16.990 | Updated for February 09 Release DCRs:  CP1205 – D0095 reporting of immaterial superfluous consumption;  CP1206 – D0095 reporting of immaterial supplier inconsistencies;  CP1207- D0095 reporting in respect of past NHHDCs;  P222 – Provision of EAC Data to Distributors. |
| 17.000 | Authorised version |
| 17.010 | Updated document classification |
| 17.011 | Include corrections about calculation of the AA percentages displayed on Browse Aggregation Files; INC000000273656. |
| 17.012 | Address review comments. |
| 18.000 | Definitive version. |
| 18.1 | ––November 11 Release: P253 |
| 18.2 | P253: Updated with Elexon Review comments |
| 18.5 | Updated review comments for November 11 Release: P253 |
| 19.0 | P253 Final version |
| 20.0 | CP1383 - Updated for Tech Upgrade (Oracle DB upgrade from 10.2.0.3 to 11.2.0.3 and OAS upgrade from 10.1.2.2 to 11.1.1.6) |
| 21.0 | Updated for CP1408 implementation to include the boundary value validation for EAC and AA values |
| 21.1 | P305 – Updated for November 2015 Release |
| 22.0 | Clean version - Nov 2015 Release |
| 22.1 | CP1434 – Updated for June 2016 Release |
| 22.2 | CP1434 & P305 - Updated ELEXON comments |
| 23.0 | Clean version - June 2016 Release |
| 23.1 | Tech Upgrade Oracle 12c / Solaris 11 |

## Summary of Changes

Changes as indicated in the amendment history.

## Changes Forecast

Agreed Change Requests will be incorporated.

## References

| Mnemonic | Information | Details |
| --- | --- | --- |
| [CTSPEC] | Title:  Author: | Common Subsystems Technical Specification  Cognizant Technology Solutions |
| [DIS] | Title:  Author: | SVA Data Catalogue Volume 1: Data interfaces  Cognizant Technology Solutions |
| [NHHDAURS] | Title:  Author: | NHHDA User Requirements Specification  ELEXON |
| [NCONMOD] | Title:  Author: | NHHDA Conceptual Process Model  Cognizant Technology Solutions |
| [NFUNDEF] | Title:  Author: | NHHDA Function Definition and User Catalogue  Cognizant Technology Solutions |
| [NTSPEC] | Title:  Author: | This document  Cognizant Technology Solutions |
| [NLDATA] | Title:  Author: | NHHDA Logical Data Design  Cognizant Technology Solutions |
| [LDESPD] | Title:  Author: | Physical Design Technical Specification Product Description  Cognizant Technology Solutions |
| [TSYSARC] | Title:  Author: | Technical System Architecture  Cognizant Technology Solutions |

## Abbreviations

AA Annualised Advance

BETTA British Electricity Transmission and Trading Arrangements

COTS Commercial off the Shelf

DC Data Collector

DCP DC Performance (Report)

EAC Estimate of Annual Consumption

FTP File Transfer Protocol

ISRA Initial Settlement and Reconciliation Agency

LDSO Licensed Distribution System Operator

NHHDA Non Half Hourly Data Aggregator

POSIX IEEE Portable Operating System Interface for Computing Environments

PRS PES Registration Service

SPM Supplier Purchase Matrix

URS User Requirement Specification, e.g.: [NHHDAURS]

## Intellectual Property Rights and Copyright

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# High level design specification

## System Overview

The NHHDA system is responsible for carrying out aggregations of actual readings and predicted usage for metering systems. The aggregated results are sent to ISR Agents.

There are two main batch processing activities:

1. Instruction Processing receives and validates files of instructions from PRS Agents and Data Collectors
2. Aggregation produces the SPM output files and sends them to the ISR Agents.

Apart from these files, all data will be stored in an Oracle database and reports generated as required.

In addition, a batch process is provided to check the consistency of the Data Collector data against the PRS data. This allows for delays in data being received from the two sources.

The NHHDA system also provides an Oracle Application Server Forms Services user interface. This is used to change market domain data in the database, and schedule runs of the batch processes described above. The user interface also provides various options for reporting on data held on the NHHDA database.

## System Architecture

The NHHDA system conforms to the System Architecture which is specified in Section 2.2 of [CTSPEC]. In summary, this comprises:

**Server Tier** Hosted on aserver with aPOSIX compliant Operating System, with an Oracle 12C database, and applications written in C and Shell scripts**.**

**Middle Tier** Either hosted on the same physical server as the Server Tier or else a separate physical server which may be running the same Sun Solaris as the Server Tier or else Microsoft Windows. The Middle Tier runs two components of Oracle Application Server Forms Services: the Forms Listener Servlet and the Forms Runtime Process.

**Client Tier** A PC running the Client component of Oracle Application Server Forms Services (but this is downloaded automatically from the Middle Tier to the client and does not need to be installed). The Operating System and Web Browser may be any that are supported by Oracle for use with Oracle Application Server.

The number of active clients is assumed to be in the order of 5-10. The software will only limit the number of clients according to the licensing restrictions of the COTS products.

All communications with external systems are via file transfer. NHHDA reads and writes files in specified directories. The Common processes described in [CTSPEC] will be used for reception and transmission of files.

Note that where the term “server” is used in this document, this is always referring to the Server Tier unless the phrase “Oracle Application Server” is specifically used. Similarly the term “NHHDA System” always refers to the components of NHHDA which run on the Server Tier.

## System structure

The system structure for NHHDA is shown in the diagram below:



Figure 1: NHHDA System Overview

Each of the subsystems which make up the NHHDA system is shown as a rectangle. They are all given three letter abbreviations. Those beginning with ‘N’ are NHHDA specific; those beginning with ‘C’ are common and specified in [CTSPEC].

In addition to the subsystems shown, there are a number of underlying processes and libraries which provide services to the main subsystems. These are:

1. CSL Server Library;
2. CPH Process Harness;
3. CFM Form Templates;
4. CSC Scheduler.

The principal data flows and files are shown to set the subsystems into context.

## Subsystem Descriptions

### NAR Aggregation Run

This subsystem aggregates the EACs and AAs for each meter in the system with similar configurations. This will be done for a number of settlement dates simultaneously. The results will be written to files, which can subsequently be sent to ISR Agents.

The subsystem will also provide functionality to re-send aggregation result files on request. This will be initiated from an Oracle Form, as described in the User Interface section.

### NCD Check Data Collector Data

The NCD subsystem performs checks on the metering system data stored in the database. This involves checks for consistency between data supplied by Data Collectors and PRS Agents, and checks on the EAC/AA data supplied by (potentially multiple) Data Collectors.

The results of this processing will be written to files, which will be automatically sent to the Supplier currently responsible for the meters which have incorrect data.

### NMI Manage Instruction

The NMI Instruction Management Subsystem is responsible for validating and applying instruction files which have been received from Data Collectors and PRS Agents. A series of forms allow the Data Aggregator User to view instruction information, attempt reprocessing of failed instructions, return failed instructions to their Originator and to control the application of Refresh instructions from PRS Agents.

### NLD Load Data

The Load Data File (NLD) subsystem enables the data contained in (data) files which have been recognised by the File Receipt (CFR) subsystem to be loaded into the database in batch. It also enables the user to modify and report on the Aggregation Run Schedule.

### NGF General Forms

User interface forms. All forms are in English.

### NFR Forms and Reports

Reports and supporting forms to generate them. All reports are in English.

### NUA User Administration

The NUA subsystem allows System Manager users to list, add, edit and delete Oracle user accounts, and assign the users to the various user roles that are defined for NHHDA.

### NDP Report On EAC Data To Distributors

The subsystem enables EAC consumption data along with metering system data to be reported to Distributors. The Metering Systems selected are those registered with the Distributor on the specified report date; which will be no more than a few days before the current day.

The results of this processing will be written to files, which can then be manually sent to Distributors.

## Main Control flows

The main control flows for the NHHDA system are:

1. File Arrival. The CFR subsystem will detect the arrival of files in the appropriate directories, allocate unique identifiers for the files and record on the database their presence.
2. CSC Initiation. The common CSC Scheduler subsystem runs continuously on the system, and triggers other subsystems at times specified in the corresponding database table.
3. User Actions. The user will request file processing and report generation to take place.

In addition, the following Oracle alerts may be generated:

1. CSC\_TERMINATE\_ALERT;
2. CSC\_UPDATE\_ALERT;
3. CFS\_EXPORT\_ALERT.

These are described in [CTSPEC].

## User Interface overview

### PC Based Client

The forms software consists of an Oracle Applications Server Forms Services application plus a web browser. The user will invoke the application from the web browser (or directly using a Windows shortcut), and will be asked to log in using a username and password.

The application uses this information to tailor the displayed menu bar according to that user’s role, as defined in the database.

The look and feel of the interface is defined by the CFM Form Template subsystem in [CTSPEC].

### Reports

The NHHDA subsystems produce the following reports:

1. Extracts from DC data exceptions;
2. Extracts from Supplier Purchase Matrix files;
3. Extracts from Aggregation exceptions;
4. Extracts from Market Domain Data Load exceptions;
5. Load Timetable exceptions;
6. Failed instructions;
7. Average Fraction of Yearly Consumption;
8. Data Aggregation Run Schedule;
9. GSP Groups;
10. Distributors and Associated Items;
11. Metering System and Associated Items;
12. Metering System History, EACs and AAs;
13. SSC and Associated Items;
14. Profiles Class and Associated Items;
15. DC Performance Report;
16. EAC To Distributor Exceptions.
17. Extracts fromDisconnection Purchase Matrix Files

These are all produced in a standard machine-readable format. This can subsequently be processed by the CRP Report Formatter subsystem to produce human-readable versions. The CRP processing is controlled by report format definitions held in the database.

All reports will be generated on the server. Human readable versions will be displayed to the user using the client interface, and will conform to the templates described below.

A standard report template is provided. This is described in Section 10.2.

### Server

The server will allow the standard POSIX functions to be used for system management and searching audit logs. Access to these functions will be controlled by the COTS Operating System functions provided with the server.

## Database Overview

### Overall Database Structure

NHHDA holds data in a local file store and in an Oracle database.

The local file store holds:

1. Instruction Files and Data Files received by NHHDA from other systems;
2. Data Files generated by NHHDA to send to other systems;
3. Report Files generated by NHHDA.

All Files are archived to tape after use.

The Oracle database is populated and updated with data received in the incoming Data and Instruction Files. Most of the data is time-based, in that it only applies to Data Aggregation Runs for a certain range of Settlement Dates. This data is retained in the system until all the Data Aggregation Runs to which it relates have been completed and then archived and deleted from the database. The period of retention of data is a configurable parameter.

The Oracle database is also used to hold one temporary table, the Supplier Purchase Matrix, as it is being built up in a Data Aggregation Run. Once the run is complete, the matrix is written to an outgoing Data File, and this database table is deleted without being archived.

All archived data is retained on tape for a significant period (as advised by ELEXON on behalf of the Settlement process and further extended due to other external business considerations) and it may be restored during this time. Oracle data is restored to a separate restored data database, not the live system database

The split of files across physical discs will depend on the number of discs available at each NHHDA Installation.

### Oracle Database: Major Design Decisions

This section summarises areas where the physical database design has diverged from the logical design to improve performance. It includes the discussion of the use of table partitioning.

Details on all tables are given in Chapter 4, except for those tables which are used by those subsystems which are common to NHHDA and ISRA; these are defined in [CTSPEC].

#### Merging of Logical Entities

In most cases, there is a 1:1 correspondence between entities in the logical design and database tables in the physical design. However some tables have been merged together to improve performance by reducing the number of database reads. Summary information on what has been done is given in this section. Details of the tables are given in Chapter 4.

In particular, this affects the link entities between Metering System and other entities. In the logical design, each of these link entities has its own Effective From Settlement Date, which gives the Settlement Date from which the data in the link entity is effective. The link entities may be split into two groups: one in which Metering System is linked with data obtained from the PRS Agent and one in which Metering System is linked with data obtained from a Data Collector. For each of these groups, all the entities in the group have been combined into one database table. The table has one Effective From Settlement Date; each time the value of one of the data items in the table changes, a new row of the table is generated. Each row contains a flag for each data item to indicate whether it changes on this Settlement Date.

Also two entities which had the same primary key have been merged: Estimated Annual Consumption (DC) and Meter Advance Consumption (DC). Further there is no physical requirement to store their common master entity Settlement Register (DC) as a table, so the merged table has the foreign keys of Settlement Register (DC).

The logical table Valid Measurement Profile Class has not been implemented in the physical database as there is no direct reference to it - the two tables (ndb\_spmatrix and ndb\_av\_frac\_y\_cons) have parents of ndb\_measure\_reqs and ndb\_vsscpcs which have the same effect.

The following table summarises which entities have been merged:

| **Logical Entity** | **Database Table** |
| --- | --- |
| Metering System Energisation Status  Metering System GSP Group  Metering System Line Loss Factor Class  Metering System Measurement Class  Metering System Profile Class  Settlement Configuration | ndb\_ms\_prs\_dets |
| Metering System Energisation Status (DC)  Metering System GSP Group (DC)  Metering System Measurement Class (DC)  Metering System Profile Class (DC)  Registration (DC)  Settlement Configuration (DC) | ndb\_ms\_dc\_dets |
| Estimated Annual Consumption (DC)  Meter Advance Consumption (DC)  Settlement Register (DC) | ndb\_register\_cons |

#### Lists of Valid Values

As is common practice in physical database design, lists of valid values of various columns are all combined into one table, to avoid the proliferation of small tables. Each set of values is called a domain. Two tables are defined to hold the information: cdb\_ref\_domains holds a record for each domain and cdb\_ref\_values holds a record for each value. A domain is defined for each column which has an inclusive fixed set of valid values, for example Instruction Status.

Most of the domains were not defined as entities in the logical design. However, the following entities were and have been absorbed into cdb\_ref\_domains/cdb\_ref\_values:

1. Energisation Status;
2. Instruction Type;
3. Measurement Class;
4. Market Participant Role.

#### Other Tables with no Equivalent Entity

Additional Tables are required to support the physical implementation of the system, for example to control the scheduling of batch runs and the generation of reports. These are listed in chapter 4 and defined in [CTSPEC].

Also the table ndb\_ms\_exceptions, which holds information on exceptions recorded against Metering Systems, has no equivalent logical entity. It is defined to improve the efficiency of the Check Data Collector subsystem.

#### Extra Columns added to Improve Performance

In some cases, de-normalisation to improve performance has taken the form of maintaining extra columns in tables, duplicating data which could have been obtained anyway, but in a less efficient way.

#### Use of Oracle Clusters

Oracle Clusters are not used in NHHDA.

#### Use of Partitions and Views

For very big tables, searches on the table become inefficient, even when the table is indexed. The largest tables in NHHDA are the eight tables holding details of Metering Systems. NHHDA must be designed to handle up to 10,000,000 Metering Systems, which would mean an estimated 188,000,000 database records in ndb\_register\_cons.

To improve the performance for cases like this, the design splits such tables into several parts, with a view of the union of these tables. Thus ndb\_metering\_sys is split into ndb\_metering\_sys\_1, ndb\_metering\_sys\_2, etc., but it is still possible for a function to do a select specifying the view name ndb\_metering\_sys (without the suffix), and Oracle searches each of the underlying tables. Within the NHHDA application this is called partitioning. All eight tables holding details of Metering Systems are partitioned.

To determine in which partition a metering system is placed, a database package is invoked passing in the Metering System Id and returning a partition number. The function simply adds together all the digits of the Metering System Id, divides by the number of partitions and returns the remainder +1 to give partition numbers in the range 1 to number of partitions.

NHHDA is designed so that the number of partitions is configurable. Each installation of NHHDA will have an appropriate number of partitions for the number of Metering Systems in the database. If the number of partitions is changed, the placement of existing metering systems will be wrong.

#### Distribution of Tables over Tablespaces and Discs

The assignment of tables to tablespaces, and tablespaces to discs, is not specified in this document as the latter may vary for each installation of NHHDA depending on the target hardware and the size of the system at that installation.

For the partitioned tables, each partition is assigned to its own tablespace. This will improve the performance of concurrent access to the eight tables in the Data Aggregation Run subsystem. Index and Data are separated into different tablespaces; ndb\_instructions and ndb\_instruction\_status\_reason tables have their own pair of tablespaces as they are high volume and benefit from the isolation.

## Fallback, Backup and Recovery

The backup policy will ensure that a copy of the database and all external input and output files on the system have been written on backup media after each working day. This forms a complete record of the system state.

The CLG Logging subsystem will be activated before backing up, to dump the database audit records to a file. This file and all other audit and log files will also be backed up, to record the day’s actions. These files will be deleted after being backed up.

The backup will be used as the archive and the audit record, and each day’s full backup will be held for a specified period (typically seven years) from the date when the backup was done. The individual archive policy for each database table is detailed in Section 4.

The software versions used on the system will be recorded as part of the backup mechanism. The software will be backed up as part of a special complete backup, to be performed after installation or modification of the software.

The backup media will allow the system to be restored to a duplicate system, for disaster recovery at a second site or for auditing purposes.

Within the applications, the facilities provided by the Oracle database to roll back transactions will be used to handle failures. Each subsystem provides details of the rollback and recovery strategy to be employed in the case of controlled and uncontrolled system shutdowns.

## Error Handling

The common approach for error handling described in [CTSPEC] is applied to the NHHDA system. Specific details are given in the individual subsystem sections of this document.

## Security

The use of the NHHDA system is controlled to ensure that only authorised users are granted access to the system. The general principles for controlling access are described in [CTSPEC].

On the server, password-protected accounts and file protection will be used to ensure that users can only run functions which their role allows.

On the clients, the Oracle database will contain grant privileges associated with each database account, to control function access by user role.

The activities allowed for each role are described in [NFUNDEF], and further detailed in Section 4.

## Operational design

The main daily activities on the system are:

1. user access;
2. backup;
3. batch processing.

The batch processes to load data, manage instructions, aggregate data and check data will cause conflicting accesses to the database tables, and must run separately. They will also conflict with on-line accesses through the Forms interface. Hence they are scheduled to run outside the user access period. A simple executable will be used to add entries on the schedule queue. This will be invoked on a daily basis by placing entries in crontab.

The common CSC Scheduler queuing subsystem will be used to ensure that conflicting subsystems do not run simultaneously.

The operational schedule is defined in terms of acceptable running order; the timetable for the runs can be manipulated to change the initiation times. The provisional daily order of processing is:

1. NGF, NFR, NMI (on-line processing) - working hours only;
2. CLG Unload Audit;
3. Database shutdown, and start-up in restricted mode;
4. NLD Load Data;
5. NMI Manage Instructions (batch processing only);
6. NAR Aggregation Run (if runs requested);
7. NCD Check DC Data
8. Database shutdown, backup and start-up in normal mode;
9. Archive data deletion (if required);

The NCD processing will be scheduled to run every night, in order to update the stored exceptions table. It will additionally generate output files every two weeks on average, typically at weekends or during nights with few Aggregation runs scheduled.

The deletion of expired, archived data need not be run on a daily basis, but is shown to indicate where it should be done if required.

The Oracle database may also require maintenance. This will typically be done at weekends.

This schedule ensures that aggregation is always done with the latest data. It also ensures that the critical activities for the settlement timetable (instruction processing, data loading and aggregation) are completed first.

## Startup and shutdown

The following programs are supplied to start and stop the server processes and to submit jobs to the activity queues

### nhhda\_start

This script starts the server background processes:

1. cscd - scheduler subsystem
2. clgd - logging subsystem
3. cfrd - file receipt subsystem
4. cfsd - file send subsystem

The script assumes that the database is already running.

### nhhda\_stop

This script shuts down the server background processes. In addition to the subsystems explicitly started by nhhda\_start, any processes running under the control of the scheduler are also stopped.

### nhh\_submit.exe

This program is used to submit activities. Its usage is as follows:

nhh\_submit.exe [-v|-s|-w] job-type [@when] [-flag [-flag] ...]   
 [job-type [@when] [-flag]] ...

[] indicates optional parameters

1. nhh\_submit.exe program parameters

-v = verbose

-s = silent

-w = wait

In verbose mode, a confirmation message is output indicating the activity id of the submitted activity, the activity type and the scheduled run time.

In silent mode, no output is produced.

In wait mode the program waits for the activity to complete and exits with the activity exit status if this is non-zero

The default mode is silent.

Example message:

Activity (ID 9446) Instruction Loading/Processing scheduled to start at 19-NOV-1997 09:41

1. Job type

a = Aggregation

c = Check Data Collector Data

i = Instruction Loading/Processing

d = Data Loading

x = Archive

u = Unload audit data

Further details on the processing carried out by these activities may be found in sections

1. 5 (NAR Aggregation Run Subsystem Specification),
2. 6 (NCD Check Data Collector Data Subsystem Specification),
3. 7 (NMI Manage Instructions Subsystem Specification),
4. 8 (NLD Load Data Subsystem Specification),
5. 4.5 (Archive),
6. 4.4 (Audit Logs)
7. Run time

@when

Optional specification of time when job is to be run. This parameter must have 4 digits, and takes the form HHMM.

1. If the current time of day is before HHMM then the scheduled time is calculated as Today 00:00 + HH hours + MM minutes.
2. If the current time of day is after HHMM then the scheduled time is calculated as Tomorrow 00:00 + HH hours + MM minutes

If no time is specified, the scheduled time is system time.

1. Parameters - optional

-flag

The value flag (without the ‘-‘) will be passed as a parameter to the activity.

If the activity expects a parameter starting with ‘-‘ then use two:

--flag

All activities will run without any parameters being passed.

Aggregation accepts the following parameters:

1. run date

This specifies which runs are to be started. It is ignored if the recovery mode is not START.

NOW

Use the current system date as the run date - any runs scheduled for today or earlier which have a status of ‘Released’ will be attempted.

This is the default if no parameters are specified.

TONIGHT

If the current system time is before midday, use the current system date as the run date.

If the current system time is after midday, use the current system date +\_1 as the run date.

Any runs scheduled for tonight or earlier which have a status of ‘Released’ will be attempted.

This option allows aggregation to be scheduled to run in the evening without having to consider whether the actual run time is before or after midnight - If today is day 1 and the activity starts before midnight, the run date is tomorrow i.e. day 2 and all runs due on or before day 2 are included; if the activity starts after midnight the current day is now day 2, and the run date is today - i.e. day 2 again.

YYYYMMDD

All runs scheduled on or before DD/MM/YYYY are included. This option may be used, for example, in exception conditions where only yesterday’s runs are required.

1. recovery mode

START

Carry out ABORT processing and then start new runs according to the run date.

This is the default if no recovery mode is specified.

RESTART

Identify any aggregation runs with a status of ‘Running’. Remove any incomplete data / files created by previous aggregation processing and start processing them from the beginning

CONTINUE

Identify any aggregation runs with a status of ‘Running’. Identify which phase of processing did not complete. Remove any data / files created by the current phase and start processing them from that phase

ABORT

Identify any aggregation runs with a status of ‘Running’. Remove any incomplete data / files created by previous aggregation processing. Update the status of all such runs to ‘Failed’.

Data Loading accepts the following parameters:

1. Reprocess Data Aggregation and Settlements Timetable File

REPROCESS\_DAST

Reprocess the last DAST data file successfully processed by NHHDA before processing any newly received DAST files.

1. Validate and Apply MDD

APPLY\_MDD

This parameter will load the Market Domain Data Complete Set File and Apply the changes to the database, if and only if, no Medium or High Level Exceptions have been raised (refer to function definition N0036 [NFUNDEF] section ‘Validate and Apply’).

By default the Load will be run in ‘Validate Only’ mode (refer to function definition N0036 [NFUNDEF] section ‘Validate Only’).

1. Reprocess Market Domain Data Complete Set

REPROCESS\_MDD

This parameter will reprocess the last Market Domain Data Complete Set File where the status of the file is ‘Processed’. Unless the ‘APPLY\_MDD’ (Validate and Apply) is also specified, the reprocessing of the file will be processed in default ‘Validate Only’ mode.

# Interface specification

## External interfaces

### General

The external interface to the NHHDA System is file and user driven. The contents of external files follow the general File formats given in the Common Subsystem Technical Specification [CTSPEC]. In addition there will be operator, error and audit log files. The detailed format of these is described in [CTSPEC]. The detailed format of Instruction and Data Files is described in this section. Each externally distributed NHHDA report is listed in this section, cross-referenced to the appropriate subsystem and to its machine-readable and human-readable report specifications.

If the file received contains extra fields, appended to the end of a record and those fields are not documented in the following section, NHHDA will ignore the additional fields during processing.

The following external files are handled by the NHHDA System:

| File Type | File Description | Processed by Subsystem |
| --- | --- | --- |
| D0286001 | Data Aggregation and Settlements Timetable File | NLD |
| D0269002 | Market Domain Data Complete Set | NLD |
| D0019001 | Data Collector Instructions | NMI |
| D0209001 | PRS Instructions | NMI |
| P0238001 | MSIDs affected by Demand Control Event | NLD | |
| D0375 | Disconnected MSIDs and Estimated HH Demand Volume | NLD |

The following external files are created by the NHHDA System:

| File Type | Report Title | Generated by Subsystem |
| --- | --- | --- |
| D0095001 | Data Collector Exceptions | NCD |
| D0041001 | Supplier Purchase Matrix File | NAR |
| D0377001 | Disconnection Purchase Matrix File | NAR |
| D0023001 | Failed Instructions | NMI |
| P0147001 | Monthly D0095 Report | NFR |
| P0222001 | EAC To Distributor Data | NDP |

The repeating structure of each file is shown using Backus-Naur Form as described in [CTSPEC].

The format decimal (n,d) means n digits of which d appear after the decimal point.

### Data Aggregation and Settlements Timetable File

#### File Specification

The file may contain a number of record types intended for other organisations. These should be ignored. The only record types which are of interest to NHHDA are the following:

| **ZHD - File Header** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZHD |
| 2 | File Type | text(8) | = D0286001 |
| 3 | From Role Code | text(1) | = U |
| 4 | From Participant Id | text(4) | Id of the Pool Market Domain Data Agent originating file |
| 5 | To Role Code | text(1) | = B |
| 6 | To Participant Id | text(4) | Id of NHHDA receiving file |
| 7 | Creation Time | date/time | Time of file generation |

| **TTH - Timetable Header** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = TTH |
| 2 | First Payment Date | date | first Payment Date covered by the timetable |
| 3 | Last Payment Date | date | last Payment Date covered by the timetable |

|  |  |  |  |
| --- | --- | --- | --- |
| **PST - Pool Settlement Timetable Details** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = PST |
| 2 | Settlement Code | text(2) | Mandatory |
| 3 | Settlement Date | date | Mandatory |
| 4 | Payment Date | date | Mandatory |
| 5 | ISR Notification Deadline Date | date | Mandatory |
| 6 | Planned Data Aggregation Run Date | date | Mandatory |
| 7 | Planned SSR Run Date | date | Optional |

| **ZPT - File Footer** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZPT |
| 2 | Record count | integer(10) | Number of records in the file, including headers and footer*.* |
| 3 | Checksum | integer(10) |  |

Repeating structure of File:

Data Aggregation and Settlements Timetable ::= ZHD TTH {PST} ZPT

Sorting:

The records in the file are sorted by:

1. Payment Date (ascending).
2. Settlement Date (ascending).

#### Frequency/Volume

A typical Data Aggregation and Settlements Timetable data file will contain at least one and up to five (but usually not more than four) PST records for each Settlement Date with an associated Payment Date within the Payment Date range specified by the TTH record. This range will usually be one year in duration. There will normally be 1825 (5 \* 365) PST records in each DAST data file. If the period covered by a DAST data file is more or less than one year, the number of PST records will vary accordingly.

#### Failure/Recovery Mechanisms

The processing of the whole file is a success unit. This is described in the NLD Load Data Subsystem Specification.

### Pool Market Domain Data File

#### File Specification

The Market Domain Data Complete Set file will contain a number of record types intended for other organisations. The only record types which are of interest to NHHDA are the following:

| **ZHD - File Header** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZHD |
| 2 | File Type | text(8) | = D0269002 |
| 3 | From Role Code | text(1) | = G |
| 4 | From Participant Id | text(4) | Id of the Pool Market Domain Data Agent originating file |
| 5 | To Role Code | text(1) | = B |
| 6 | To Participant Id | text(4) | Id of NHHDA receiving file |
| 7 | Creation Time | date/time | Time of file generation |

| **MDD - Market Domain Data Version Details** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = MDD |
| 2 | MDD Version Number | integer(8) | mandatory |
| 3 | MDD Publication Date | date | mandatory |

| **THP - Threshold Parameter Details** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = THP |
| 2 | Threshold Parameter | integer(4) | mandatory |
| 3 | Effective From Settlement Date {TPAR} | date | mandatory |

| **MAP - Market Participant Details** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = MAP |
| 2 | Market Participant Id | text(4) | mandatory |
| 3 | Market Participant Name | text(40) | mandatory |
| 4 | BSC Trading Party ID | text(4) | **ignored** |

| **MPR - Market Participant Roles Details** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = MPR |
| 2 | Market Participant Role Code | text(1) | mandatory |
| 3 | Effective From Date {MPR} | Date | mandatory |
| 4 | Effective to Date {MPR} | Date | optional |
| 5 | Distributor Business ID | integer(2) | optional  If Role Code is equal to Distributor then Distributor Business ID is required. |
| 6 | Postcode | text(10) | **ignored** |

| **GSG - GSP Group Details** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = GSG |
| 2 | GSP Group ID | text(2) | mandatory |
| 3 | GSP Group Name | text(30) | mandatory |

| **GGD - GSP/Distributor Details** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = GGD |
| 2 | Distributor ID | text(4) | mandatory |
| 3 | Market Participant Role Code | text(1) | mandatory |
| 4 | Effective From Date {MPR} | Date | mandatory |
| 5 | Effective From Settlement Date {GGD} | Date | mandatory |
| 6 | Effective To Settlement Date {GGD} | Date | optional |

| **PAA - PRS Agent Appointment Details** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = PAA |
| 2 | PRS Agent ID | text(4) | mandatory |
| 3 | Market Participant Role Code | text(1) | mandatory |
| 4 | Effective From Date {MPR} | Date | mandatory |
| 5 | Effective From Date {PAA} | Date | mandatory |
| 6 | Effective To Date {PAA} | Date | optional |

| **IAA - ISR Agent Appointment Details** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = IAA |
| 2 | ISR Agent ID | text(4) | mandatory |
| 3 | Market Participant Role Code | text(1) | mandatory |
| 4 | Effective From Date {MPR} | date | mandatory |
| 5 | Effective From Date {IAA} | date | mandatory |
| 6 | Effective To Date {IAA} | date | optional |

| **LLF - Line Loss Factor Class Details** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = LLF |
| 2 | Distributor ID | text(4) | mandatory |
| 3 | Market Participant Role Code | text(1) | mandatory |
| 4 | Effective From Date {MPR} | date | mandatory |
| 5 | Line Loss Factor Class ID | text (3) | mandatory |
| 6 | Line Loss Factor Class Description | text(30) | mandatory |
| 7 | MS Specific LLF Class Indicator | text(1) | Site Specific LLFCs are to be excluded (**ignored** )from the load. **Only load types A and C.**  **A-General LLF Class Import**  **C-General LLF Class Export** |
| 8 | Effective From Settlement Date {LLFC} | date | mandatory |
| 9 | Effective To Settlement Date {LLFC} | date | optional |

| **PFC - Profile Class Details** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = PFC |
| 2 | Profile Class ID | integer(2) | mandatory |
| 3 | Profile Class Description | text(50) | mandatory |
| 4 | Switched Load Profile Class Indicator | boolean(1) | **ignored** |
| 5 | Effective From Settlement Date {PCLA} | Date | mandatory |
| 6 | Effective To Settlement Date {PCLA} | Date | optional |

| **TPD - Time Pattern Regime Details** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = TPD |
| 2 | GMT Indicator | text(1) | **ignored** |
| 3 | Time Pattern Regime ID | text(5) | mandatory |
| 4 | Tele-Switch / Clock Indicator | text(1) | **ignored** |

| **SCI - Standard Settlement Configuration Details** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = SCI |
| 2 | Standard Settlement Configuration Id | text(4) | mandatory |
| 3 | Standard Settlement Configuration Description | text(50) | mandatory |
| 4 | Effective From Settlement Date {SSC} | Date | mandatory |
| 5 | Effective To Settlement Date {SSC} | Date | optional |

| **TPR - Measurement Requirement** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = TPR |
| 2 | Time Pattern Regime Id | text(5) | mandatory |

|  |  |  |  |
| --- | --- | --- | --- |
| **VSD - Valid Settlement Configuration Profile Class Details** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = VSD |
| 2 | Profile Class Id | integer(2) | mandatory |
| 3 | Effective From Settlement Date {VSCPC} | Date | mandatory |
| 4 | Effective To Settlement Date {VSCPC} | Date | optional |

|  |  |  |  |
| --- | --- | --- | --- |
| **ASD - Average Fraction of Yearly Consumption Set Details** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ASD |
| 2 | GSP Group Id | text(2) | mandatory |
| 3 | Effective From Settlement Date {AFOYCS} | date | mandatory |
| 4 | Effective To Settlement Date {AFOYCS} | date | optional |

|  |  |  |  |
| --- | --- | --- | --- |
| **AFD - Average Fraction of Yearly Consumption Details** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = AFD |
| 2 | Average Fraction of Yearly Consumption | decimal (7,6) | mandatory |
| 3 | Time Pattern Regime Id | text(5) | mandatory  shows which TPR record is parent |

| **ZPT - File Footer** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = **ZPT** |
| 2 | Record count | integer(10) | mandatory  Number of records in the file, including headers and footer*.* |
| 3 | Checksum | integer(10) | mandatory |

Repeating structure of File:

MDD File ::= ZHD MDD\_set ZPT

MDD\_set ::= MDD {THP} {MAP\_set} {GSP\_set} {LLF} {PFC}

{TPD}{SSC\_set}

MAP\_set ::= MAP {MPR}

GSP\_set ::= GSG {GGD} {PAA} {IAA}

SSC\_set ::= SCI {TPR} {VSD {ASD {AFD}}}

Note that for each SSC, each Measurement Requirement TPR value will be contained in the corresponding AFYC set in the AFD record.

Sorting:

There are no restrictions on the ordering of records in this file.

There should be no duplicate data items in the file. All such data items will be either ignored or trapped by error handling (Please refer to relevant data item in Function Definition N0036 [NFUNDEF] for details on the handling of duplicate data).

#### Frequency/Volume

One file every two weeks. Based on average volumes of the logical entities, there will be:

| Record Type | Number of Records |
| --- | --- |
| MDD | 1 |
| THP | 2 |
| MAP | 150 |
| MPR | 262 |
| GSG | 14 |
| GGD | 28 |
| PAA | 28 |
| IAA | 28 |
| LLF | 2049 |
| PFC | 8 |
| TPD | 947 |
| SCI | 655 |
| TPR | 1037 |
| VSD | 1640 |
| ASD | 1704 |
| AFD | 3069 |
| total | 11622 |

#### Failure/Recovery Mechanisms

Each Market Domain Data Complete Set File is processed as a single success unit.

### Supplier Purchase Matrix File

#### File Specification

There will be one File Header, which will contain:

|  |  |  |  |
| --- | --- | --- | --- |
| **ZHD - File Header** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZHD |
| 2 | File Type | text(8) | = D0041001 |
| 3 | From Role Code | text(1) | = B |
| 4 | From Participant Id | text(4) | Id of NHHDA sending file |
| 5 | To Role Code | text(1) | = G or X |
| 6 | To Participant Id | text(4) | Id of ISR Agent or Supplier receiving file |
| 7 | Creation Time | date/time | Time of file generation |

There will be one Data File Additional Header, which will contain:

|  |  |  |  |
| --- | --- | --- | --- |
| **ZPD - Data File Additional Header** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZPD |
| 2 | Settlement Date | date | Mandatory |
| 3 | Settlement Code | text(2) | Mandatory |
| 4 | Run Type Code | text(2) | = D |
| 5 | Run Number | integer(7) | current version for Settlement Date, Settlement Code and GSP Group, starting at 1, multiplied by 1,000,000 and added to the internal Data Aggregation Run Number from which the file was produced |
| 6 | GSP Group | text(2) | Mandatory |

The Data Section of the file will contain the following record types:

|  |  |  |  |
| --- | --- | --- | --- |
| **SUP - Supplier Details** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = SUP |
| 2 | Supplier Id | text(4) | Mandatory |

|  |  |  |  |
| --- | --- | --- | --- |
| **SPM - Supplier Purchase Matrix Details** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = SPM |
| 2 | Profile Class Id | integer(2) | Mandatory |
| 3 | Distributor Id | text(4) | Mandatory |
| 4 | Line Loss Factor Class Id | text (3) | Mandatory |
| 5 | Standard Settlement Configuration Id | text(4) | Mandatory |
| 6 | Time Pattern Regime Id | text(5) | Mandatory |
| 7 | SPM Default EAC MSID Count | integer(8) | Mandatory |
| 8 | SPM Default Unmetered MSID Count | integer(8) | Mandatory |
| 9 | SPM Total AA MSID Count | integer(8) | Mandatory |
| 10 | SPM Total Annualised Advance | decimal (14,4) | Mandatory  MWh |
| 11 | SPM Total EAC | decimal (14,4) | Mandatory  MWh |
| 12 | SPM Total EAC MSID Count | integer(8) | Mandatory |
| 13 | SPM Total Unmetered Consumption | decimal (14,4) | Mandatory  MWh |
| 14 | SPM Total Unmetered MSID Count | integer(8) | Mandatory |

| **ZPT - File Footer** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZPT |
| 2 | Record count | integer(10) | Number of records in the file, including headers and footer*.* |
| 3 | Checksum | integer(10) |  |

Repeating structure of File:

Supplier Purchase Matrix ::= ZHD ZPD { SUP SPM {SPM}} ZPT

Sorting:

The records in the file are sorted by:

1. Supplier Id
2. Distributor Id
3. Line Loss Factor Class Id
4. Standard Settlement Configuration Id
5. Time Pattern Regime Id
6. Profile Class Id.

#### Frequency/Volume

Assuming an average of 8 Aggregation Runs per day, 10,000 SPM records per run (based on sizes for ndb\_spmatrix table), 15 GSP Groups and 5 active Suppliers per GSP Group:

*For ISR Agents:*

1 file per GSP Group

overall volume: 8 \* 10,000 records = approx. 9 MB

number of files per working day: up to 8 \* 15 = 120

*For Suppliers:*

1 file per active Supplier per GSP Group

overall volume: 8 \* 10,000 records = approx. 9 MB

number of files per working day: up to 8 \* 15 \* 5 = 600

*For all:*

6 files per GSP Group

overall volume: ~9MB + ~9MB = ~18MB

number of files per working day: up to 120 + 600 = 720

#### Failure/Recovery Mechanisms

This is described in the Aggregation Run Subsystem Specification.

### Disconnection Purchase Matrix File

#### File Specification

There will be one File Header, which will contain:

|  |  |  |  |
| --- | --- | --- | --- |
| **ZHD - File Header** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZHD |
| 2 | File Type | text(8) | = D0377001 |
| 3 | From Role Code | text(1) | = B |
| 4 | From Participant Id | text(4) | Id of NHHDA sending file |
| 5 | To Role Code | text(1) | = G or X |
| 6 | To Participant Id | text(4) | Id of ISR Agent or Supplier receiving file |
| 7 | Creation Time | date/time | Time of file generation |

There will be one Data File Additional Header, which will contain:

|  |  |  |  |
| --- | --- | --- | --- |
| **ZPD - Data File Additional Header** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZPD |
| 2 | Settlement Date | Date | Mandatory |
| 3 | Settlement Code | text(2) | Mandatory |
| 4 | Run Type Code | text(2) | = D |
| 5 | Run Number | integer(7) | current version for Settlement Date, Settlement Code and GSP Group, starting at 1, multiplied by 1,000,000 and added to the internal Data Aggregation Run Number from which the file was produced |
| 6 | GSP Group | text(2) | Mandatory |

|  |  |  |  |
| --- | --- | --- | --- |
| **73K- Demand Control Event Details** | | | |
| Field | Field Name | Type | Comments |
| 1 | Demand Control Event ID | char(30) | Unique alpha-numeric identifier for a Demand Control Event as instructed and reported by the Transmission Company in accordance with the BSC. |
| 2 | Start Date and Time | date |  |
| 3 | End Date and Time | date |  |

The Data Section of the file will contain the following record types:

|  |  |  |  |
| --- | --- | --- | --- |
| **74K - Supplier Details** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = 74K |
| 2 | Supplier Id | text(4) | Mandatory |

|  |  |  |  |
| --- | --- | --- | --- |
| **75K - Disconnection Purchase Matrix File** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = 75K |
| 2 | Profile Class Id | integer(2) | Mandatory |
| 3 | Distributor Id | text(4) | Mandatory |
| 4 | Line Loss Factor Class Id | text (3) | Mandatory |
| 5 | Standard Settlement Configuration Id | text(4) | Mandatory |
| 6 | Time Pattern Regime Id | text(5) | Mandatory |
| 7 | DPM Default EAC MSID Count | integer(8) | Mandatory |
| 8 | DPM Default Unmetered MSID Count | integer(8) | Mandatory |
| 9 | DPM Total AA MSID Count | integer(8) | Mandatory |
| 10 | DPM Total Annualised Advance | decimal (14,4) | Mandatory  MWh |
| 11 | DPM Total EAC | decimal (14,4) | Mandatory  MWh |
| 12 | DPM Total EAC MSID Count | integer(8) | Mandatory |
| 13 | DPM Total Unmetered Consumption | decimal (14,4) | Mandatory  MWh |
| 14 | DPM Total Unmetered MSID Count | integer(8) | Mandatory |

| **ZPT - File Footer** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZPT |
| 2 | Record count | integer(10) | Number of records in the file, including headers and footer*.* |
| 3 | Checksum | integer(10) |  |

### MSIDs affected by Demand Control Event

#### File Specification

|  |  |  |  |
| --- | --- | --- | --- |
| **73K- Demand Control Event Details** | | | |
| Field | Field Name | Type | Comments |
| 1 | Demand Control Event ID | char(30) | Unique alpha-numeric identifier for a Demand Control Event as instructed and reported by the Transmission Company in accordance with the BSC. |
| 2 | Start Date and Time | date |  |
| 3 | End Date and Time | date |  |

The Data Section of the file will contain the following record types:

|  |  |  |  |
| --- | --- | --- | --- |
| **Metering Systems** | | | |
| Field | Field Name | Type | Comments |
| 1 | Metering System Id | integer(13) |  |

### Data Collector Instructions

#### File Specification

The following record types appear in Data Collector instruction files:

| **ZHD - File Header** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZHD |
| 2 | File Type | text(8) | = D0019001 |
| 3 | From Role Code | text(1) | = D |
| 4 | From Participant Id | text(4) | Id of the Data Collector sending file |
| 5 | To Role Code | text(1) | = B |
| 6 | To Participant Id | text(4) | Id of NHHDA receiving file |
| 7 | Creation Time | date/time | Time of file generation |

| **ZPI - Instruction File Additional Header** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZPI |
| 2 | File Sequence Number | integer(6) |  |

| **ZIN - Instruction Header** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZIN |
| 2 | Instruction Number | integer(12) | Instruction Sequence Numbers never wrap! |
| 3 | Type Code | text(4) | EAC/AA & MS Details |
| 4 | Metering System Id | integer(13) |  |
| 5 | Market Role | text(1) | Null |
| 6 | Participant Id | text(4) | Null |

| **ISD - Significant Date** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ISD |
| 2 | Significant Date | date |  |

| **AAH - Annualised Advance Set Header** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = AAH |
| 2 | Effective From Settlement Date | date |  |
| 3 | Effective To Settlement Date | date |  |

| **AAD - Annualised Advance Details** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = AAD |
| 2 | Time Pattern Regime Id | text(5) |  |
| 3 | Annualised Advance | decimal (14,1) | kWh |

| **EAH - Estimated Annual Consumption Header** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = EAH |
| 2 | Effective From Settlement Date | date |  |

| **EAD - Estimated Annual Consumption Details** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = EAD |
| 2 | Time Pattern Regime Id | text(5) |  |
| 3 | Estimated Annual Consumption | decimal (14,1) | kWh |

| **REG - Registration Details (DC)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = REG |
| 2 | Effective From Settlement Date | date |  |
| 3 | Supplier Id | text(4) |  |

| **PSC - Profile Class/Standard Settlement Configuration** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = PSC |
| 2 | Effective From Settlement Date | date |  |
| 3 | Profile Class Id | integer(2) |  |
| 4 | Standard Settlement Configuration Id | text(4) |  |

| **IMC - Measurement Class (DC)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = IMC |
| 2 | Effective From Settlement Date | date |  |
| 3 | Measurement Class Id | text(1) |  |

| **GSP - GSP Group (DC)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = GSP |
| 2 | Effective From Settlement Date | date |  |
| 3 | GSP Group Id | text(2) |  |

| **IES - Energisation Status (DC)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = IES |
| 2 | Effective From Settlement Date | date |  |
| 3 | Energisation Status Id | text(1) |  |

| **ZPT - File Footer** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZPT |
| 2 | Record count | integer(10) | Number of records in the file, including headers and footer*.* |
| 3 | Checksum | integer(10) |  |

Repeating structure of File:

Data Collector File ::= ZHD ZPI DC\_instructions ZPT

DC\_instructions ::= EAC&AA\_Set {EAC&AA\_Set}

EAC&AA\_Set ::= ZIN ISD {AA\_set} {EAC\_set} MS\_set

AA\_set ::= AAH AAD {AAD}

EAC\_set ::= EAH EAD {EAD}

MS\_set ::= {REG} {PSC} {IMC} {GSP} {IES}

Sorting:

There are no restrictions on the order of Metering System Ids in the file.

#### Frequency/Volume

One file per day for each Data Collector that is appointed to a Metering System that the Data Aggregator is also appointed to (each Metering System appears in an average of 4 files per year).

#### Failure/Recovery Mechanisms

The processing of the instruction is a success unit. This is described in the NMI Manage Instructions Subsystem Specification.

### PRS Instructions

#### File Specification

The following record types appear in PRS Agent instruction files:

| **ZHD - File Header** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZHD |
| 2 | File Type | text(8) | = D0209001 |
| 3 | From Role Code | text(1) | = P |
| 4 | From Participant Id | text(4) | Id of the PRS Agent originating file |
| 5 | To Role Code | text(1) | = B |
| 6 | To Participant Id | text(4) | Id of NHHDA receiving file |
| 7 | Creation Time | date/time | Time of file generation |

| **ZPI - Instruction File Additional Header** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = **ZPI** |
| 2 | File Sequence Number | integer(6) |  |

| **ZIN - Instruction Header** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZIN |
| 2 | Instruction Number | integer(12) | Instruction Sequence Numbers never wrap! |
| 3 | Type Code | text(4) |  |
| 4 | Metering System Id | integer(13) | null if PRS Refresh |
| 5 | Market Role | text(1) | null unless PRS Refresh |
| 6 | Participant Id | text(4) | null unless PRS Refresh |

| **ISD - Significant Date** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ISD |
| 2 | Significant Date | date |  |

| **MSH - Metering System Header** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = MSH |
| 2 | Metering System Id | integer(13) |  |

| **SUP - Supplier Registration** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = SUP |
| 2 | Effective From Settlement Date | date |  |
| 3 | Supplier Id | text(4) |  |

| **DAA - Data Aggregator Appointment** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = DAA |
| 2 | Registration Id | date | Effective From Settlement Date of Registration |
| 3 | Effective from Settlement Date | date |  |
| 4 | Effective to Settlement Date | date | optional |

| **DCA - Data Collector Appointment** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = DCA |
| 2 | Registration Id | date | Effective From Date of Registration |
| 3 | Effective From Settlement Date | date |  |
| 4 | Data Collector Id | text(4) |  |

| **PSS - Profile Class/Standard Settlement Configuration** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = PSS |
| 2 | Registration Id | date | Effective From Settlement Date of Registration |
| 3 | Effective From Settlement Date | date |  |
| 4 | Profile Class Id | integer(2) |  |
| 5 | Standard Settlement Configuration Id | text(4) |  |

| **MCL - Measurement Class** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = MCL |
| 2 | Registration Id | date | Effective From Settlement Date of Registration |
| 3 | Effective From Settlement Date | date |  |
| 4 | Measurement Class Id | text(1) |  |

| **EST - Energisation Status** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = EST |
| 2 | Registration Id | date | Effective From Settlement Date of Registration |
| 3 | Effective From Settlement Date | date |  |
| 4 | Energisation Status Id | text(1) |  |

| **LLF - Line Loss Factor Class** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = LLF |
| 2 | Effective From Settlement Date | date |  |
| 3 | Distributor Id | text(4) |  |
| 4 | LLF Class Id | text (3) |  |

| **GGP - GSP Group** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = GGP |
| 2 | Effective From Settlement Date | date |  |
| 3 | GSP Group Id | text(2) |  |

| **ZPT - File Footer** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZPT |
| 2 | Record count | integer(10) | Number of records in the file, including headers and footer*.* |
| 3 | Checksum | integer(10) |  |

Repeating structure of File:

PRS Agent File ::= ZHD ZPI Body ZPT

Body ::= Refresh | Non\_refresh

Refresh ::= ZIN ISD { MSH DA\_Appt }

Non\_refresh ::= ZIN ISD NR\_Inst {Non\_refresh}

NR\_Inst ::= DA\_Appt | DC\_Appt | Prof\_SSC | Measure |

Energ | GSP\_group | Line\_Loss

DA\_Appt ::= {SUP} {DAA} {DCA} {PSS} {MCL}

{EST} {LLF} {GGP}

DC\_Appt ::= {DCA}

Prof\_SSC ::= {PSS}

Measure ::= {MCL}

Energ ::= {EST}

GSP\_group ::= {GGP}

Line\_Loss ::= {LLF}

Sorting:

There are no restrictions on the order of Metering System Ids in the file.

#### Frequency/Volume

One file per PRS Agent per day for each GSP Group in which the NHHDA is operating. Each file may contain anything up to one Instruction per Metering System covered by the PRS Agent (each Metering System appears in an average of 2 files per year).

#### Failure/Recovery Mechanisms

The processing of the instruction is a success unit. This is described in the NMI Manage Instructions Subsystem Specification.

### Failed Instructions

The following record types appear in Failed Instruction files:

| **ZHD - File Header** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZHD |
| 2 | File Type | text(8) | = D0023001 |
| 3 | From Role Code | text(1) | = B |
| 4 | From Participant Id | text(4) | Id of NHHDA generating file |
| 5 | To Role Code | text(1) | = D (Data Collector)  or  = P (PRS Agent) |
| 6 | To Participant Id | text(4) | Id of Data Collector or PRS Agent receiving file |
| 7 | Creation Time | date/time | Time of file generation |

| **MSH - Metering System Header** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = MSH |
| 2 | Metering System Id | integer(13) |  |
| 3 | Significant Date | date | earliest Significant Date of the set of failed instructions included for the Metering System |

| **INH - Instruction Header** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = INH |
| 2 | Instruction Sequence Number | integer(12) |  |

| **INR - Instruction Reasons for Failure** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = INR |
| 2 | Failure Reason Code | text(3) | =N followed by reason code (INSR domain) |
| 3 | Failure Reason Additional Data | text(80) | as defined in 4.3.20 Table ndb\_instruction\_status\_reason; data items are separated by semicolons |

| **ZPT - File Footer** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZPT |
| 2 | Record count | integer(10) | Number of records in the file, including headers and footer*.* |
| 3 | Checksum | integer(10) |  |

Repeating structure of File:

Error File ::= ZHD Failure\_Set ZPT

Failure\_Set ::= MSH Instr\_Set {Failure\_Set}

Instr\_Set ::= INH {INR} {Instr\_Set}

Sorting:

1. Metering System Id.
2. Significant Date
3. Instruction Sequence Number
4. Reason Sequence Number

Note: while Instr\_Set are output in Significant Date order, Significant Date

is not output within the INH or INR records.

### Data Collector Exceptions

#### File Specification

The following record types appear in Data Collector Exception files:

|  |  |  |  |
| --- | --- | --- | --- |
| **ZHD - File Header** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZHD |
| 2 | File Type | text(8) | = D0095001 |
| 3 | From Role Code | text(1) | = B |
| 4 | From Participant Id | text(4) | Id of NHHDA sending file |
| 5 | To Role Code | text(1) | = X |
| 6 | To Participant Id | text(4) | Id of Supplier receiving file |
| 7 | Creation Time | date/time | Time of file generation |

| **EXH - Exception Header** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | = EXH |
| 2 | Supplier Id | text(4) | mandatory |
| 3 | Data Collector Id | text(4) | mandatory |
| 4 | From Settlement Date | date | mandatory |
| 5 | To Settlement Date | date | mandatory |
| 6 | Count of Metering Systems with at least 1 exception of type E01 | integer(7) | mandatory |
| 7 | Count of Metering Systems with at least 1 exception of type E02 | integer(7) | mandatory |
| 8 | Count of Metering Systems with at least 1 exception of type E03 | integer(7) | mandatory |
| 9 | Count of Metering Systems with at least 1 exception of type E04 | integer(7) | mandatory |
| 10 | Count of Metering Systems with at least 1 exception of type E05 | integer(7) | mandatory |
| 11 | Count of Metering Systems with at least 1 exception of type E06 | integer(7) | mandatory |
| 12 | Count of Metering Systems with at least 1 exception of type E07 | integer(7) | mandatory |
| 13 | Count of Metering Systems with at least 1 exception of type E08 | integer(7) | mandatory |
| 14 | Count of Metering Systems with at least 1 exception of type E09 | integer(7) | mandatory |
| 15 | Count of Metering Systems with at least 1 exception of type E10 | integer(7) | mandatory |
| 16 | Count of Metering Systems with at least 1 exception of type E11 | integer(7) | mandatory |
| 17 | Count of Metering Systems with at least 1 exception of type E12 | integer(7) | mandatory |
| 18 | Count of Metering Systems with at least 1 exception of type E13 | integer(7) | mandatory |
| 19 | Count of Metering Systems with at least 1 exception of type E14 | integer(7) | mandatory |
| 20 | Count of Metering Systems with at least one exception | integer(7) | mandatory |

| **EXP - PRS Agent Identifier** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = EXP |
| 2 | PRS Agent Id | text(4) | mandatory |

| **EXM - Metering System Identifier** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = EXM |
| 2 | Metering System Id | integer(13) | mandatory |

| **E01 - Exception Details (no EAC or AA for appointed DC)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = E01 |
| 2 | Registration Effective From Settlement Date | date | mandatory |
| 3 | Data Aggregator Appointment Effective From Settlement Date | date | mandatory |

| **E02 - Exception Details (missing subsequent consumption data)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = E02 |
| 2 | Registration Effective From Settlement Date | date | mandatory |
| 3 | Data Aggregator Appointment Effective From Settlement Date | date | mandatory |
| 4 | First settlement date with no data | date | mandatory |

| **E03 - Exception Details (AA with no DAA appointment)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = E03 |
| 2 | AA Effective From Settlement Date | date | mandatory |

| **E04 - Exception Details (EAC with no DAA appointment)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = E04 |
| 2 | EAC Effective From Settlement Date | date | mandatory |

| **E05 - Exception Details (non-zero AA when de-energised)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = E05 |
| 2 | AA Effective From Settlement Date | date | mandatory |

| **E06 - Exception Details (missing preceding consumption data)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = E06 |
| 2 | First settlement date with no data | date | mandatory |

| **E07 - Exception Details (overlapping MAPs)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = E07 |
| 2 | Effective From Settlement Date for AA from specified Data Collector | date | mandatory |
| 3 | Other Data Collector Id | text(4) | mandatory |
| 4 | Effective From Settlement Date for AA from other Data Collector | date | mandatory |

| **E08 - Exception Details (Supplier incorrect)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = E08 |
| 2 | Supplier Id (DC) | text(4) | mandatory |
| 3 | Effective From Settlement Date of Last PRS Data | date | mandatory |
| 4 | Effective From Settlement Date of Last Data Collector Data | date | mandatory |

| **E09 - Exception Details (Measurement Class incorrect)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = E09 |
| 2 | Measurement Class Id (PRS) | text(1) | mandatory |
| 3 | Measurement Class Id (DC) | text(1) | mandatory |
| 4 | Effective From Settlement Date of Last PRS Data | date | mandatory |
| 5 | Effective From Settlement Date of Last DC Data | date | mandatory |

| **E10 - Exception Details (GSP Group incorrect)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = E10 |
| 2 | GSP Group Id (PRS) | text(2) | mandatory |
| 3 | GSP Group Id (DC) | text(2) | mandatory |
| 4 | Effective From Settlement Date of Last PRS Data | date | mandatory |
| 5 | Effective From Settlement Date of Last DC Data | date | mandatory |

| **E11 - Exception Details (Profile Class incorrect)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = E11 |
| 2 | Profile Class Id (PRS) | integer(2) | mandatory |
| 3 | Profile Class Id (DC) | integer(2) | mandatory |
| 4 | Effective From Settlement Date of Last PRS Data | date | mandatory |
| 5 | Effective From Settlement Date of Last DC Data | date | mandatory |

| **E12 - Exception Details (Energisation Status incorrect)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = E12 |
| 2 | Energisation Status (PRS) | text(1) | mandatory |
| 3 | Energisation Status (DC) | text(1) | mandatory |
| 4 | Effective From Settlement Date of Last PRS Data | date | mandatory |
| 5 | Effective From Settlement Date of Last DC Data | date | mandatory |

| **E13 - Exception Details (Standard Sett Config incorrect)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = E13 |
| 2 | SSC Id (PRS) | text(4) | mandatory |
| 3 | SSC Id (DC) | text(4) | mandatory |
| 4 | Effective From Settlement Date of Last PRS Data | date | mandatory |
| 5 | Effective From Settlement Date of Last DC Data | date | mandatory |

| **E14 - Exception Details (no Registration)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = E14 |
| 2 | Supplier Id (PRS) | text(4) | mandatory |
| 3 | Effective From Settlement Date of Last PRS Data | date | mandatory |
| 4 | Effective From Settlement Date of Last Data Collector Data | date | mandatory |

| **ZPT - File Footer** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZPT |
| 2 | Record count | integer(10) | Number of records in the file, including headers and footer*.* |
| 3 | Checksum | integer(10) | mandatory |

Repeating structure of File:

Data Collector Exceptions ::= ZHD EXH {PRS\_Set} ZPT

PRS\_Set ::= EXP Meter\_Set

Meter\_Set ::= EXM Ex\_Record { Ex\_Record }

Ex\_Record ::= E01 | E02 | E03 | E04 |

E05 | E06 | E07 | E08 |

E09 | E10 | E11 | E12 |

E13 | E14

Sorting:

The records in the file are sorted by:

1. PRS Agent Id
2. Metering System Id
3. Exception Type
4. Alphanumerically

#### Frequency/Volume

3000 files per NCD run (50 Suppliers \* 60 Data Collectors, as stated in [NFUNDEF]). One run every fortnight.

Number of Records: 3,000,000 E<n> in total split across 3000 files (based on one metering system , average 3M metering systems).

Overall volume: 3,000,000 records, average record size 40 bytes gives approximately 120 Mb

#### Failure/Recovery Mechanisms

This is described in the Check DC Data Subsystem Specification.

#### Exception Details

Exceptions are raised on a per DA appointment. This means under certain circumstances contiguous exceptions may be evident in the database. Exceptions are only stored in this manner and this fragmented format is removed for reporting. This is different to the creation of multiple exceptions.

Also, data needs to be present for both DC and PRS views, for a discrepancy to produce an exception.

**E01**

E01s should be generated when:

The PRS appointed NHHDC is not sending AAs and EACs to the PRS appointed NHHDA.

In other words:

This exception is raised when there is no AA or EAC at all.

The E01 is sent to the supplier (according to PRS) that was appointed during the period of the E01 exception. The E01 is only raised for the currently appointed Data Collector (according to the PRS) for the Supplier Registration within which the E01 exception occurs; this will be the last DC appointment not after the date when the check for exceptions is performed. (See also Note 1)

**E02**

E02s should be generated when:

The PRS appointed NHHDC is not sending AAs and EACs to the PRS appointed NHHDA.

In other words:

This exception is raised when there is an AA but where there is a period after the latest AA that does not have an AA or an EAC.

The E02 is sent to the supplier (according to PRS) that was appointed during the period of the E02 exception. The E02 is only raised for the currently appointed Data Collector (according to the PRS) for the Supplier Registration within which the E02 exception occurs; this will be the last DC appointment not after the date when the check for exceptions is performed. (See also Note 1)

**E03**

E03s should be generated when

AAs are being received from a DC that has not been appointed, or

if AAs are being received when the DA has not been appointed.

In other words:

This exception is raised when the DC that sent the AA details has not been appointed according to PRS.

This exception is raised when there is an AA that does not overlap with an NHHDA appointment, which, for the purpose of this exception includes the day before the appointment too.

The E03 is sent to the supplier according to the DC that sent the AA details.

**E04**

E04s should be generated when

EACs are being received from a DC that has not been appointed, or

if EACs are being received when the DA has not been appointed.

In other words:

This exception is raised when the DC that sent the EAC details has not been appointed according to PRS.

This exception is raised when there is an EAC that does not overlap with a NHHDA appointment, which, for the purpose of this exception includes the day after the appointment too.

The E04 is sent to the supplier according to the DC that sent the EAC details.

**E05**

E05s should be generated when

A metering system has an unexpected non zero AA.

In other words:

This exception is raised when a metering system has a non zero AA whilst it is de-energised (according to NHHDC).

The E05 is sent to the supplier, according to the PRS, at the time of the exception.

**E06**

E06s should be generated when

The PRS appointed DC has not sent an AA in the past

In other words:

This exception is raised when there is an AA but where there is a period before this AA that does not have an AA.

The E06 is sent to the supplier (according to PRS) that was appointed during the period of the E06 exception. The E06 is only raised for the currently appointed Data Collector (according to the PRS) for the Supplier Registration within which the E06 exception occurs; this will be the last DC appointment not after the date when the check for exceptions is performed. (See also Note 1)

**E07**

E07s should be generated when

Overlapping AAs are received from two NHHDC's.

In other words:

An E07 should be produced when a change of DC has failed to work correctly, resulting in overlapping AA consumption data.

The E07 is sent to the supplier, according to PRS, at the time of the exception.

**E08**

E08s should be generated when

PRS or DC hold an incorrect record of the metering systems Supplier during a period overlapping a DAA.

In other words:

An E08 should be produced if the DC (which PRS considers appointed) and PRS agent have a different view of who the Supplier is for a particular date which falls within a DAA. In order for the E08 exception to be produced, both the PRS and DC Supplier details must be present, and consumption data (EACs or AAs) must have been received from the DC in the period of the exception.

The E08 is sent to the supplier (according to PRS) who was appointed

during the period of the E08 exception. It is worth noting that an E14 is always produced when an E08 is produced (however an E14 is sent to the supplier according to the DC).

**E09**

E09s should be generated when

PRS or DC hold an incorrect record of the metering systems measurement class.

In other words:

An E09 should be produced if the DC (which PRS considers appointed) and PRS agent have a different view of what the measurement class is for a particular date, and consumption data (EACs or AAs) has been received from the DC in the period of the exception.

The E09 is sent to the supplier, according to PRS, at the time of the exception.

**E10**

E10s should be generated when

PRS or DC hold an incorrect record of the metering systems GSP Group.

In other words:

An E10 should be produced if the DC (which PRS considers appointed) and PRS agent have a different view of what the GSP Group is for a particular date, and consumption data (EACs or AAs) has been received from the DC in the period of the exception.

The E10 is sent to the supplier, according to PRS, at the time of the exception.

**E11**

E11s should be generated when

PRS or DC hold an incorrect record of the metering systems Profile Class.

In other words:

An E11 should be produced if the DC (which PRS considers appointed) and PRS agent have a different view of what the Profile Class is for a particular date, and consumption data (EACs or AAs) has been received from the DC in the period of the exception.

The E11 is sent to the supplier, according to PRS, at the time of the exception.

**E12**

E12s should be generated when

PRS or DC hold an incorrect record of the metering systems Energisation Status.

In other words:

An E12 should be produced if the DC (which PRS considers appointed) and PRS agent have a different view of what the Energisation Status is for a particular date, and consumption data (EACs or AAs) has been received from the DC in the period of the exception.

The E12 is sent to the supplier, according to PRS, at the time of the exception.

**E13**

E13s should be generated when

PRS or DC hold an incorrect record of the metering systems Standard Settlement Configuration.

In other words:

An E13 should be produced if the DC (which PRS considers appointed) and PRS agent have a different view of what the Standard Settlement Configuration is for a particular date, and consumption data (EACs or AAs) has been received from the DC in the period of the exception.

The E13 is sent to the supplier, according to PRS, at the time of the exception.

**E14**

E14s should be generated when

PRS or DC hold an incorrect record of the metering systems Supplier.

In other words:

An E14 should be produced if the DC and PRS agent have a different view of who the Supplier is for a particular date, and consumption data (EACs or AAs) has been received from the DC in the period of the exception. The E14 is only raised for the period where it overlaps the PRS Supplier Registration and either :-

* The DC has supplied an AA effective within that Registration

OR/

* The DC has supplied an EAC starting within that Registration but ignoring the first day of the Registration.

This check applies to all DCs, not just the DC who PRS considers the appointed DC.

The E14 is sent to the supplier (according to DC) who was appointed during the period of the E14 exception. In order for the E14 exception to be produced, both the PRS and DC Supplier details must be present.

**Note 1:**

**E01, E02 and E06 exceptions will need to be re-assessed when the most recent DC changes and hence NMI (Instruction Processing) will need to reset the earliest unchecked settlement date [EUSD] to the earlier of the PRS Supplier registration start date or the DC appointment start date when change of DC occurs.**

### Monthly D0095 Report

This is part of the NFR Form and Reports Subsystem and is detailed in section 10.16. It is included here as it will be distributed to external participants.

### EAC To Distributor Data

#### File Specification

The following record types appear in the files reporting EAC Data To Distributors:

| **ZHD - File Header** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZHD |
| 2 | File Type | text(8) | = P0222001 |
| 3 | From Role Code | text(1) | = B |
| 4 | From Participant Id | text(4) | Id of the NHHDA sending file |
| 5 | To Role Code | text(1) | = R |
| 6 | To Participant Id | text(4) | Id of LDSO receiving file |
| 7 | Creation Time | date/time | Time of file generation |

| **DEH – Distributor EAC Header** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = DEH |
| 2 | Settlement Date | Date | Mandatory |

| **MSD – Metering System Details** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = MSD |
| 2 | Metering System Id | integer(13) | Mandatory |
| 3 | Energisation Status | text(1) |  |
| 4 | GSP Group Id | text(2) |  |
| 5 | Distributor Participant Id | text(4) |  |
| 6 | Line Loss Factor Class ID | text (3) |  |
| 7 | Profile Class Id | integer(2) |  |
| 8 | Standard Settlement Configuration Id | text(4) |  |
| 9 | EAC Default Flag | text(1) | Y if this is a Default EAC N if this is an EAC received from the Data Collector Blank if value could not be specified |

| **EAD - Estimated Annual Consumption Details** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = EAD |
| 2 | Time Pattern Regime Id | text(5) | Mandatory |
| 3 | Estimated Annual Consumption | decimal (14,1) | kWh Blank if value could not be specified |

| **ZPT - File Footer** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZPT |
| 2 | Record count | integer(10) | Number of records in the file, including headers and footer*.* |
| 3 | Checksum | integer(10) |  |

Repeating structure of File:

EAC Data To Distributors File ::= ZHD DEH MS\_details ZPT

MS\_details ::= MSD\_Set {MSD\_Set}

MSD\_Set ::= MSD {EAD\_Set}

EAD\_set ::= EAD {EAD}

Sorting:

There are no restrictions on the order of Metering System Ids in the file.

#### Frequency/Volume

N/A

#### Failure/Recovery Mechanisms

This is described in the Report EAC Data To Distributors Subsystem Specification.

## Internal interfaces

### General

There are no interfaces between subsystems which are not via the database.

Report layouts are specified in a Section 10.

# Database specification

## General

This chapter describes the physical NHHDA database. Sections discuss:

1. Operating System Files
2. The Oracle Database
3. Audit Logs
4. Archive
5. Database Sizing

## Operating System Files

The file store within the system consists of both files received from external sources and files produced by the NHHDA system. The details of these files are given in the NHHDA External Interfaces section.

There are three types of file managed by the system:

1. Instruction Files
2. Data Files
3. Report Files

All these files are recorded in the Oracle database (using cdb\_file\_reference and associated tables). Thus each file can be referenced by a unique file identifier (file\_id).

The physical file stores are represented as rows in the cdb\_file\_directory table. For each physical store, this table contains a unique id and its associated directory name. The header information from the file is also stored in the common tables but the detailed information is not.

See [CTSPEC] section 4.2 for more information on file management.

**Instruction Files:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Source** | **Destination** | **File Type** | **Volume** | **Frequency** |
| Data Collector | NHHDA | Metering System EAC/AA Instructions | <3 MB | Every working day |
| PRS Agent | NHHDA | Registration Instructions | <200 Kb | Every working day |

**Data Files:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Source** | **Destination** | **File Type** | **Volume** | **Frequency** |
| ISR Agent | NHHDA | Market Domain Data Complete Set | 3 MB | < 1 every 2 weeks |
| Pool (also known as the Market Domain Data Agent) | NHHDA | Data Aggregation and Settlement Timetable File | <100 Kb | 1 per year |
| NHHDA | ISR Agent | Supplier Purchase Matrix | 1 MB | 1 file per GSP group per run |
| NHHDA | Supplier | Supplier Purchase Matrix | <200Kb | 1 file per GSP group per run |
| NHHDA | Supplier | Exception Report Data | 120 Mb (total for all suppliers) | 1 per Supplier every 2 weeks |
| NHHDA | Data Collector | Returned Failed Instructions | 3Mb | 1 per Data Collector every 2 weeks |
| NHHDA | PRS Agent | Returned Failed Instructions | 1.5Mb | 1 per PRS every 2 weeks |
| NHHDA | NHHDA | Monthly D0095 Report | <250Kb | 1 per month |

The Monthly D0095 Report will be send manually to external participant(s).

## The Oracle Database

### General

The following subsections describe the NHHDA Oracle database.

Additional information is produced as reports generated from the Oracle tool Designer 6i:

1. Appendix A - Physical data model diagram
2. Appendix B - User Roles
3. Appendix C - Table, Column, Key, Index details

Detailed information on database objects common to ISRA and NHHDA is given in [CTSPEC].

NHHDA specific table names are prefixed ndb\_ and the common table names are prefixed cdb\_.

Each table is given a four character alias and the primary key, foreign key and index names are made up of this followed by a suffix. For primary keys the suffix is \_pk and for foreign keys the suffix is \_fk1, \_fk2, etc. Indices associated with the foreign keys have an additional suffix \_i.

The figures for estimated number of rows given for each table are derived from the Average Occurrences figures given in [NLDATA] for the corresponding entities, except where stated.

Apart from the primary key constraints and foreign key constraints, the only check constraint identified at present is that on the partition\_id column of the partitioned tables. This constraint is detailed in section 4.3.6.

The only stored procedures and functions identified at present are for the partitioned tables. These are detailed in section 4.3.6. Additional stored program units will be detailed along with the functions they are used to implement.

The only triggers identified are for auditing (see section 4.4) and to prevent data updates while the database lock is set (see section 4.3.4.4) .

### Physical Data Model Diagram

The Physical Data Model Diagram is in Appendix A.

For tables with columns whose valid values are held in cdb\_ref\_values, no relationships to cdb\_ref\_values are shown. The common cdb\_ tables are not shown, except where they are masters linked to ndb\_ tables by a master-detail relationship.

### Oracle to C Datatype Mapping

When using host variables in a Pro\*C program the mapping of Oracle datatypes to C datatypes should be performed as shown in [CTSPEC]. However in the case of METERING\_SYSTEM\_ID an exception is made. This data item represents a structured identifier for a Metering System and is 13 digits long thus making it too long to fit into a long int C variable. Since the number it represents is an identifier and will have no arithmetic performed upon it, it is sensible to use a char C variable to store it.

### Use of common Database Tables

In addition to the ndb\_ tables, the NHHDA database contains all the cdb\_ tables defined in [CTSPEC]. The file nhh\_domains.h and the package nhh\_domains contain definitions to avoid hard coding of variable values. The following reference data will be loaded into the database as part of the database install script; a further script enables the reference fields (e.g.: descriptions) to be modified for these records.

#### NHHDA use of cdb\_report\_type:

The cdb\_report\_type will have the following rows for the NLD subsystem:

|  |  |
| --- | --- |
| File type | Report Name |
| ‘L0009001’ | ‘Load Timetable Exceptions’ |
| ‘L0011001’ | ‘GSP Groups and Ass Items’ |
| ‘L0012001’ | ‘Standard Settlement Config’ |
| ‘L0013001’ | ‘Ave Frac Yearly Consumption’ |
| ‘L0014001’ | ‘Distributors’ |
| ‘L0015001’ | ‘MS and Associated Items’ |
| ‘L0016001’ | ‘Instructions’ |
| ‘L0017001’ | ‘Data Aggregation Run’ |
| ‘L0020001’ | ‘Profile Class’ |
| ‘L0032001’ | ‘Supplier Purchase Matrix’ |
| ‘L0033001’ | ‘Data Collector Exception Log’ |
| ‘L0034001’ | ‘Aggregation Exception Log’ |
| ‘L0040001’ | Load Market Domain Data Complete Set Exceptions’ |
| ‘L0042001’ | ‘Refresh Instruction Failures’ |
| ‘L0043001’ | ‘DC Performance Report’ |
| ‘L0044001’ | ‘MS History, EACs and AAs’ |
| ‘P0147001’ | ‘Monthly D0095 Report’ |
| ‘L0053001’ | ‘EAC To Distributor Exceptions’ |

#### NHHDA use of cdb\_default\_directory:

The cdb\_default\_directory will have the following rows for the NLD subsystem:

| File type | File status |
| --- | --- |
| ‘L0000001’ (error) | “received” |
| All files generated by NHHDA: | “new” |
| ‘L0009001’ (PST load exceptions)  ‘D0041001’ (SPM)  ‘D0095001’ (DC Exceptions)  ‘L0037001’ (Aggregation Exceptions)  ‘L0038001’ (Aggregation Run Log)  ‘D0023001’ (Failed Instructions)  ’L0040001’ (MDD Load Exceptions)  ‘L0043001’ (DC Performance Report)  ‘P0147001’ (Monthly D0095 Report)  ‘L0044001’ (MS History, EACs and AAs)  report files (each file type which appears in above table) | “completed” |
| ‘L0039001’ (Refresh intermediate file) | “new” |
| All files received by NHHDA: | “received” |
| ‘D0286001’ (DAST file) | “running” |
| ‘D0269002’ (MDD Complete Set file) | “rejected” |
| ‘D0019001’ (DC Instructions)  ‘D0209001’ (PRS Instructions) | “completed” |
| All files | “archive”  “default” |

#### NHHDA use of cdb\_ref\_domains / cdb\_ref\_values:

| domain\_code | domain\_name |
| --- | --- |
| ARCD | Archive Directory Path |
| ENST | Energisation Status |
| EXDC | Exception Type (Check Data Collector Data) |
| EXTP | Exception Type (Aggregation) |
| FSTS | File Status |
| FTIN | File Type In (Incoming file types) |
| FTOT | File Type Out (Generated file types) |
| INSR | Instruction Status Reason |
| INST | Instruction Status |
| INTP | Instruction Type |
| INRP | Instruction Reprocess State |
| INRS | Instruction Status Resolution State |
| MAPR | Market Role |
| MECL | Measurement Class |
| RNST | Run Status |
| SECO | Settlement Code |
| NDPD | Directory Path For EAC To Distributor Report |

The following domain values are defined for NHHDA, in addition to those given in [CTSPEC]:

**Archive Directory Path (ARCD) Domain**

| value\_from | Description |
| --- | --- |
| /pcstore/Users/nbatch/runtime/files/archive | Archive Directory Path |

Note this is not a true domain - it is used to hold the path where archived files are moved (archive adds values of the form 999/ where 999 is a unique number for the current archive run. If the value\_from ends with ‘/’ then the number becomes a subdirectory in its own right, if not the subdirectories would be of the form archive999).

**Energisation Status (ENST) Domain**

| value\_from | Description |
| --- | --- |
| E | Energised |
| D | De-energised |

**Exception Type (EXDC) Domain**

| value\_from | Description |
| --- | --- |
| E01 | No EAC or AA for appointed DC |
| E02 | Missing subsequent consumption data |
| E03 | AA with no DAA appointment |
| E04 | EAC with no DAA appointment |
| E05 | Non-zero AA when de-energised |
| E06 | Missing preceding consumption data |
| E07 | Overlapping MAPs |
| E08 | Supplier incorrect |
| E09 | Measurement Class incorrect |
| E10 | GSP Group incorrect |
| E11 | Profile Class incorrect |
| E12 | Energisation Status incorrect |
| E13 | Standard Settlement Configuration incorrect |
| E14 | No Registration |

**Exception Type (EXTP) Domain**

| value\_from | Description |
| --- | --- |
| A01 | No EAC or AA for Metering System |
| A02 | No PRS Data Provided |
| A03 | Non-zero AA when de-energised |
| A04 | Multiple Meter Advance Periods |
| A05 | Supplier incorrect |
| A06 | Measurement Class incorrect |
| A07 | GSP Group incorrect |
| A08 | Profile Class incorrect |
| A09 | Energisation Status incorrect |
| A10 | Standard Settlement Configuration incorrect |
| A11 | AA for Unmetered Metering System |
| A12 | Metering System Excluded (due to missing data) |
| A13 | Missing AFYC |
| A14 | Missing Default EAC |

**File Status (FSTS) Domain**

|  |  |
| --- | --- |
| value\_from | Description |
| 0 | Default |
| 1 | New |
| 2 | Deleted |
| 3 | Received |
| 4 | Completed |
| 5 | Sent |
| 101 | Running |
| 102 | Rejected |
| 103 | Archived |
| 104 | Loaded |
| 105 | Processed |
| 106 | Corrupt |
| 107 | Skipped |

**Notes**

Report/Export files start with a status of New, and have their status updated to Completed when they have been written to successfully. The status of each Export file is subsequently updated to “Sent” by CFS after successfully transferring a copy of the file to the gateway.

Data files which are imported start with a status of Received, have their status updated to Running when load processing starts and have their status updated to Processed when they have been loaded successfully.

Values over 100 are NHHDA specific, others are copied from [CTSPEC].

**File Type In (FTIN) Domain**

| value\_from | Description |
| --- | --- |
| D0019001 | DC Instruction File |
| D0209001 | PRS Instruction File |
| D0286001 | Data Aggregation and Settlement Timetable File |
| D0269002 | Market Domain Data Complete Set |
| L0000001 | Corrupt / Unknown File |

**File Type Out (FTOT) Domain**

| value\_from | Description |
| --- | --- |
| D0023001 | Failed Instructions File |
| L0009001 | Load Timetable Exceptions |
| D0041001 | Supplier Purchase Matrix Data File |
| D0095001 | Data Collector Exceptions |
| L0037001 | Aggregation Exception Log |
| L0038001 | Aggregation Run Log |
| L0032001 | Supplier Purchase Matrix (Report) |
| L0043001 | DC Performance (Report) |
| L0033001 | Check Data Collector Exception Log (Report) |
| L0034001 | Aggregation Exception Log (Report) |
| L0011001 | GSP Groups (Report) |
| L0012001 | Standard Settlement Configurations (Report) |
| L0013001 | Average Fraction of Yearly Consumption (Report) |
| L0014001 | Distributors and Associated Items (Report) |
| L0015001 | Metering Systems and Associated Items (Report) |
| L0016001 | Instructions (Report) |
| L0042001 | Refresh Instruction Failures (Report) |
| L0017001 | Data Aggregation Run Schedule (Report) |
| L0044001 | Metering System History, EACs and AAs (Report) |
| L0020001 | Profile Classes (Report) |
| L0001001 | Audit Log |
| L0003001 | Formatted Report |
| L0004001 | Operator Log |
| L0005001 | Error Log |
| L0040001 | Load Market Domain Data Exception Log |
| P0147001 | Monthly D0095 Summary (Report) |
| L0051001 | EAC To Distrib Intermediate Data |
| L0052001 | EAC To Distrib Intermediate Exceptions |
| L0053001 | EAC To Distributor Exceptions |
| P0222001 | EAC To Distributor Data (Report) |

**Instruction Status Reason (INSR) Domain**

| value\_from | Description |
| --- | --- |
| 0A | Refresh accepted with validation errors |
| 0B | Instruction type is not valid for source |
| 0D | Manual discard |
| 0F | Automatic discard due to failure |
| 0I | Invalid Instruction |
| 0S | Instruction has been superseded |
| 0T | Refresh Totals |
| 0W | Wrong distributor |
| 2C | >1 DC Appt on or before Sig Date |
| 2E | >1 ES on or before Sig Date |
| 2G | >1 GSP Group on or before Sig Date |
| 2L | >1 LLFC on or before Sig Date |
| 2M | >1 MC on or before Sig Date |
| 2P | >1 PC/SSC on or before Sig Date |
| 2R | >1 Registration on or before Sig Date |
| 2Y | >1 EAC on or before Sig Date |
| 99 | 99 or more failure reasons |
| AA | DA Appt end after Registration end |
| AE | ES Start after Registration End |
| AM | MC Start after Registration End |
| AP | PC/SSC Start after Registration End |
| CA | DA Appt already ends before Sig Date |
| CE | ES change during MAP |
| CM | MC change during MAP |
| CR | Registration change during MAP |
| CS | SSC change during MAP |
| DC | Duplicate DC Appt Start |
| DE | Duplicate ES Start |
| DG | Duplicate GSP Group Start |
| DL | Duplicate Line Loss Factor Start |
| DM | Duplicate MC Start |
| DP | Duplicate PC/SSC Start |
| DR | Duplicate Registration Start |
| DY | Duplicate EAC Start |
| EA | DA Appt End before Sig Date |
| EB | DA Appt Start before Registration Start |
| EC | DC Appt Start before Registration Start |
| EE | ES Start before Registration Start |
| EM | MC Start before Registration Start |
| EP | PC/SSC Start before Registration Start |
| EX | AA End before Sig Date |
| FE | No ES for 1st consumption |
| FG | No GSP Group for 1st consumption |
| FM | No MC for 1st consumption |
| FP | No PC/SSC for 1st consumption |
| FR | No Registration for 1st consumption |
| IA | Invalid PC, SSC & GSP Group for AFYC |
| IC | DC ID not found on dB |
| IE | Invalid ES |
| IG | GSP Group ID not found on dB |
| IL | Distributor/LLFC not found on dB |
| IM | Invalid MC |
| IP | PC ID not found on dB |
| IR | Supplier ID not found on dB |
| IS | SSC ID not found on dB |
| IV | EAC/AA value outside permitted range |
| MA | DAA before Sig Date not latest on dB |
| MC | DC Appt before Sig Date not latest on dB |
| ME | ES before Sig Date not latest on dB |
| MG | GSP Group before Sig Date not latest on dB |
| ML | LLFC before Sig Date not latest on dB |
| MM | MC before Sig Date not latest on dB |
| MP | PC/SSC before Sig Date not latest on dB |
| MR | Registration before Sig Date not latest on dB |
| MX | AA before Sig Date not latest on dB |
| MY | EAC before Sig Date not latest zon dB |
| NE | ES not overlapping DA Appt |
| NG | GSP Group not overlapping a DA Appt |
| NL | Line Loss Factor not overlapping DA Appt |
| NM | MC not overlapping a DA Appt |
| NP | PC/SSC not overlapping DA Appt |
| NR | No DAA for Registration in instruction |
| OA | Overlapping DA Appts |
| OX | Overlapping MAPs |
| RA | DA Appt references unknown Registration |
| RC | DC Appt references unknown Registration |
| RE | ES references unknown Registration |
| RM | MC references unknown Registration |
| RP | PC/SSC references unknown Registration |
| SC | No DC Appt for 1st DAA in Registration |
| SE | No ES for 1st DA Appt in Registration |
| SG | No GSP Group before 1st DA Appt |
| SL | No LLFC before 1st DA Appt |
| SM | No MC for 1st DA Appt in Registration |
| SP | No PC/SSC for 1st DAA in Registration |
| TV | AA with duplicate Time Pattern Regime |
| TW | EAC with duplicate Time Pattern Regime |
| TX | AA missing for Measurement Req(s) |
| TY | EAC missing for Measurement Req(s) |
| UX | AA where Time Pattern Regime not in SSC |
| UY | EAC where Time Pattern Regime not in SSC |
| VG | GSP not appointed to Dist Business |
| VP | PC/SSC combination not on dB |
| VZ | PRS Agent not appointed in this GSP Group |
| XA | DA Appt Start after End |
| XX | AA Start after End |
| ZA | DAA on dB missing from instruction |
| ZC | DC Appt missing from instruction, |
| ZE | ES missing from instruction |
| ZG | GSP Group missing from instruction |
| ZL | LLFC missing from instruction |
| ZM | MC missing from instruction |
| ZP | C/SSC missing from instruction |
| ZR | Registration missing from instruction |
| ZX | MAP on dB missing from instruction |

The above codes are used in the tables ndb\_instruction\_status\_reason and ndb\_refr\_instr\_failure\_reason to record the reason(s) an instruction is in a particular state. The Description field appears on the Manage Failed Instruction and Manage Refresh Instruction Failures forms and in the Report Instructions and Report Refresh Instruction Failures reports. In addition, most reasons are accompanied by additional data which details the problem. For each reason, a description of what the error means and what additional data is supplied may be found in section 4.3.20. Note that in external interfaces, the above codes are prefixed by ‘N’.

**Instruction Status (INST) Domain**

| value\_from | Description |
| --- | --- |
| U | Unprocessed |
| F | Failed |
| S | Superseded |
| A | Applied |
| D | Discarded |
| V | Invalid |

The status 'Invalid' is used for a Refresh instruction with the status 'Validation Errors' - i.e.. this has been applied but for which one or more updates were not carried out due to validation rules.

**Instruction Type (INTP) Domain**

| value\_from | Description |
| --- | --- |
| NH01 | Data Aggregator Appointment Details |
| NH02 | Data Collector Appointment Details |
| NH03 | Profile Class/SSC in Registration Details |
| NH04 | Measurement Class in Registration Details |
| NH05 | Energisation Status in Registration Details |
| NH06 | GSP Group Details |
| NH07 | Line Loss Factor Class Details |
| NH08 | PRS Refresh |
| NH09 | EAC/AA & MS Details |

**Instruction Reprocess (INRP) Domain**

| value\_from | Description |
| --- | --- |
| R | Reprocess |
| X | Cannot be reprocessed |

**Instruction Status Resolution (INRS) Domain**

| value\_from | Description |
| --- | --- |
| Y | Resolvable |
| R | Resolved |
| N | Not resolvable |

**Market Roles (MAPR) Domain**

Only those roles referenced by NHHDA are included in this list.

| value\_from | Description |
| --- | --- |
| B | Non-HH Data Aggregator |
| D | Non-HH Data Collector |
| G | ISR Agent |
| P | PRS Agent |
| R | Distributor |
| U | Market Domain Data Agent |
| X | Supplier |
| Z | Pool |

**Measurement Class (MECL) Domain**

| value\_from | Description |
| --- | --- |
| A | Non half hourly metered |
| B | Non half hourly unmetered |
| C | Half hourly metered |
| D | Half hourly unmetered |

**Run Status (RNST) Domain**

| value\_from | Description |
| --- | --- |
| P | Provisional |
| A | Approved |
| R | Released |
| U | Running |
| F | Failed |
| S | Successful |
| D | Provisional Default |

**Settlement Code (SECO) Domain**

| value\_from | Description |
| --- | --- |
| II | Interim Information |
| SF | Initial Settlement |
| R1 | First Reconciliation |
| R2 | Second Reconciliation |
| R3 | Third Reconciliation |
| RF | Final Reconciliation |
| DR | Dispute |
| DF | Final Dispute |

**Directory Path For EAC To Distributor Report (NDPD) Domain**

| value\_from | Description |
| --- | --- |
| /pcstore/Users/nbatch/runtime/files | Directory Path For EAC To Distributor Report |

Note this is not a true domain - it is used to hold the path where the EAC To Distributor Report will be moved when the file has been completed.

#### NHHDA use of cdb\_system\_parameter:

The following rows have been identified for NHHDA, in addition to those given in [CTSPEC]:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| param\_type | param\_type2 | description | maintain\_ui | valid values |
| NDB | DBN | Days before Notification | Y | Number |
| NDB | VCD | Valid Calendar Days for Run | Y | Number |
| NDB | URF | Use Run Date from File | Y | TRUE, FALSE |
|  |  |  |  |  |
| ARP | DBS | Schedule based dB data period | Y | Number |
| ARP | DBA | Activity based dB data period | Y | Number |
| ARP | DAG | SPM dB table period | Y | Number |
| ARP | DBF | File reference period | Y | Number |
| ARP | FDC | DCP retention period | Y | Number |
| ARP | FSP | SPM retention period | Y | Number |
| ARP | FCE | CDCD exception period | Y | Number |
| ARP | FCS | Monthly D0095 retention period | Y | Number |
| ARP | FAU | Audit log retention period | Y | Number |
| ARP | FOP | Operator log period | Y | Number |
| ARP | FER | Error log period | Y | Number |
| ARP | FUR | User report period | Y | Number |
| ARP | FEX | Exception period | Y | Number |
| ARP | FIN | Instruction file period | Y | Number |
| ARP | FIS | Instr data retention pd | Y | Number |
| ARP | FUK | unknown/corrupt file period | Y | Number |
| ARP | FFI | Failed instruction list period | Y | Number |
| ARP | FID | Data file period | Y | Number |
|  |  |  |  |  |
| ARD | DBS | Schedule based dB data date | N | (date) |
| ARD | DBA | Activity based dB data date | N | (date) |
| ARD | DAG | SPM dB table date | N | (date) |
| ARD | DBF | File reference date | N | (date) |
| ARD | FCS | Monthly D0095 retention period | N | (date) |
| ARD | FSP | SPM retention date | N | (date) |
| ARD | FCE | CDCD exception date | N | (date) |
| ARD | FAU | Audit log retention date | N | (date) |
| ARD | FOP | Operator log date | N | (date) |
| ARD | FER | Error log date | N | (date) |
| ARD | FUR | User report date | N | (date) |
| ARD | FEX | Exception date | N | (date) |
| ARD | FIN | Instruction file date | N | (date) |
| ARD | FIS | Instr data retention date | N | (date) |
| ARD | FUK | unknown/corrupt file date | N | (date) |
| ARD | FFI | Failed instruction list date | N | (date) |
| ARD | FID | Data file date | N | (date) |
| ARD | FDC | DCP retention date | N | (date) |
|  |  |  |  |  |
| MDP | MDA | MDD Advance Load Period | Y | Number |
|  |  |  |  |  |
| NAR | LCK | database update lock | N | (LOCKED, UNLOCKED) |
| NAR | LOG | aggregation audit log | Y | ENABLED, DISABLED |
| NAR | AAV | Aggregate All Valid GSP Groups | Y | TRUE, FALSE |
|  |  |  |  |  |
| NDP | PDL | Previous days request limit | N | Number |
| NDP | ADI | NDP archive directory id | N | Number |
| NMI | EUB | EAC upper boundary value | Y | Number |
| NMI | ELB | EAC lower boundary value | Y | Number |
| NMI | AUB | AA upper boundary value | Y | Number |
| NMI | ALB | AA lower boundary value | Y | Number |

AAV - When set to TRUE, during Aggregation, all Valid GSP Groups will be considered and the schedule adjusted accordingly at the end of Aggregation when it is known which GSP Groups contained valid Metering Systems. Dispute Runs are treated differently: even if AAV is set to TRUE, only the GSP Groups specified by the user in the Schedule Aggregation Run form will be considered; however if the user specifies no GSP Groups and AAV is set to TRUE, then all GSP Groups will be considered for a dispute run.

ARD - The last date used for this parameter type by archive.

ARP - The number of days for which data should be retained on the database.

DBN - The number of days before the notification date when the aggregation run should be scheduled, if URF set to TRUE.

NDP - The PDL parameter is used for validation by the form that initiates the NDP sub-system. The ADI parameter holds the directory id that will be used by the NDP sub-system to mark report files as archived, Note cdb\_default\_directory cannot be used to hold this value as archiving updates the directory id after each run.

LCK - Lock set by NAR Aggregation at the start of processing to prevent database changes until after a backup has been taken. When set, the lock prevents:

1. Instruction Processing
2. Data Loading
3. Archive
4. Updates to Average Fractions of Yearly Consumption
5. GSP Group - Profile Class Researched Default EAC
6. Threshold Parameters

A utility is provided to permit the Data Aggregator to reset the lock once a backup has been taken:

nhh\_unlock.exe tape\_label

If tape\_label is not specified, this is asked for. The database lock is cleared and the identity of the tape as specified is reported to the operator log.

MDP - The number of days after current date for which relevant Market Domain Data should be added to the database.

URF - If set to “YES”, NLD uses the Planned Aggregation Run Date from Data Aggregation and Settlement Timetable files when scheduling runs. If set to “NO”, NLD calculates the run date using the logic described in 8.5.6.

VCD - The maximum number of days before the notification date when the aggregation run can be scheduled without being given a default run date and a Data Aggregation Run status of ‘Provisional Default’, if URF set to TRUE.

Note that the parameter CSC/CLG is specified in [CTSPEC] as having a default value of 30, for NHHDA, the default value is 20.

#### NHHDA use of cdb\_activity\_type

The following rows have been identified for NHHDA:

|  |  |  |  |
| --- | --- | --- | --- |
| activity\_type | queue | image\_name | activity description |
| NARCH | EXCLUSIVE | <path>/archive.exe | archiving |
| NARCDB | NARCDB | <path>/arc\_dbs.exe | archiving thread |
| NLDCTL | EXCLUSIVE | <path>/nld.exe | load data files |
| NCD\_CD | EXCLUSIVE | <path>/ncd\_pc.exe | check data collector data - top level |
| NCD\_CE | NCD\_CE | <path>/ncd\_ce.exe | check data collector data - calculate exceptions |
| NCD\_GO | NCD\_GO | <path>/ncd\_go.exe | check data collector data - generate output |
| NMICTL | EXCLUSIVE | <path>/nmi.exe | instruction processing - top level |
| NMIARR | NMIARR | <path>/nmi.exe | instruction file arrival |
| NMIAPP | NMIAPP | <path>/nmi.exe | instruction processing - apply |
| NMIRET | NMIRET | <path>/nmi.exe | return failed instructions |
| NMIMIF | NMIMIF | <path>/nmi.exe | update file status - invoked by manage instruction files |
| NMIRFR | EXCLUSIVE | <path>/nmi.exe | refresh instructions |
| NMIRFT | NMIRFT | <path>/nmi.exe | refresh processing thread (invoked for a single partition by refresh activity) |
| NAR\_AG | EXCLUSIVE | <path>/nar\_pc.exe | aggregation - top level |
| NAR\_CI | NAR\_CI | <path>/nar\_ci.exe | aggregation - calculate increments |
| NAR\_AD | NAR\_AD | <path>/nar\_ad.exe | aggregation - add & calculate defaults |
| NAR\_GO | NAR\_GO | <path>/nar\_go.exe | aggregation - generate output |
| NFR12 | NREPORT | <path>/naf.exe | report average fractions of yearly consumption |
| NFR13 | NREPORT | <path>/dars.exe | report data aggregation run schedule |
| NFR15 | NREPORT | <path>/gsp\_grp.exe | report GSP groups |
| NFR16 | NREPORT | <path>/instruc.exe | report instructions |
| NFR17 | NREPORT | <path>/distrib.exe | report distributors and associated items |
| NFR18 | NREPORT | <path>/msai.exe | report metering system and associated items |
| NFR21 | NREPORT | <path>/pro\_cls.exe | report profile class and associated items |
| NFR22 | NREPORT | <path>/sscai.exe | report standard settlement configuration and associated items |
| NFR24 | NREPORT | <path>/supplier\_pm.exe | report extract from supplier purchase matrix |
| NFR25 | NREPORT | <path>/dc\_except.exe | report extract from data collector exceptions |
| NFR26 | NREPORT | <path>/agg\_except.exe | report extract from aggregation exceptions |
| NFR27 | NREPORT | <path>/rfirept.exe | report Refresh Instruction failures |
| NFR28 | NREPORT | <path>/ms\_hist\_eac\_aa.exe | report metering system history, EACs and AAs. |
| NFR29 | NREPORT | <path>/dc\_summ\_except.exe | Monthly D0095 Report |
| CRPFMT | CRPFMT | <path>/crpfmt | Invoked from Select Reports form to convert machine readable files into human readable reports |
| DMPAUD | EXCLUSIVE | <path>/dump\_audit | clg dump audit (extracts database audit tables into files & delete from database) |
| NDP\_PC | EXCLUSIVE | <path>/ndp\_pc.exe | Report EAC data to distributor - top level |
| NDP\_CI | NDP\_CI | <path>/ndp\_ci.exe | Report EAC data to distributor - calculate increments |

### Oracle Parameters and Optimisation

The parameters listed below are identified as necessary for NHHDA to work correctly. Other parameters can be set to tune the Oracle instance or run it in a certain way.

| Parameter | Value | Comment |
| --- | --- | --- |
| compatible | 9.2.0 or higher | minimum Oracle release number NHHDA requires |
| log\_archive\_dest | <directory> | must be set to a directory spec - actual value unimportant |
| log\_archive\_start | true | enables archive logging |
| log\_checkpoint\_interval | larger than redo log size | ensures that checkpoints do not happen between log switches |
| log\_checkpoint\_timeout | 0 | ensures that checkpoints do not happen between log switches |
| partition\_view\_enabled | true | allows partition views |
| processes | 200 or above | number of concurrent processes that can run against database |
| row\_locking | always | enables row-level locking |

### The Partitioned Tables

#### Tables

Due to the need for fast and possibly parallel access to metering information by the Data Aggregation process, all tables that contain the METERING\_SYSTEM\_ID column have been set up as partitions.

These are:

NDB\_METERING\_SYS,

NDB\_REGISTRATIONS,

NDB\_DATA\_AGG\_APPS,

NDB\_DC\_APPS,

NDB\_REGISTER\_CONS,

NDB\_MS\_DC\_DETS,

NDB\_MS\_PRS\_DETS,

NDB\_MS\_EXCEPTIONS

This means that instead of one physical table for each of these tables there are now several tables and a unifying view for each. This allows the data to be physically spread across many disks in a highly controlled manner.

To a great extent reading data from a partition view is no different from reading data from any normal table except that in this case a partition id is provided to enable application code to determine which of the underlying tables the row lies in. A database function will be provided which will return the partition id given the METERING\_SYSTEM\_ID and this may be used in queries.

Performing data manipulation operations on one of the partition views cannot be done directly on the view itself but instead will have to done on the appropriate underlying table.

#### Using the Partition View Database Procedures

##### Names

There is one generic package containing all database procedures and functions generic to all partition views. This is called partition\_generic and contains the f\_get\_partition function.

##### Oracle\*Forms

There are no Oracle\*Forms which display the partitioned tables.

##### PL/SQL and SQL\*Plus

Queries - in any query, the partition\_id should be determined by using the f\_get\_partition\_id function as below:

part\_id := partition\_generic.f\_get\_partition\_id(variable);

SELECT \*

FROM ndb\_metering\_sys a

WHERE a.metering\_sys\_id = variable

AND a.partition\_id = part\_id;

Insert, update, delete and lock operations should use the appropriate procedure rather than issue their own statements.

##### Pro\*C

Pro\*C programs use the appropriate stored procedures/functions as above so that any changes in the algorithm for determining partition will be seen by all.

### User Access Rights

Each User Role listed in [NFUNDEF] is set up as an Oracle Role. The access rights are granted to each role for each table. Sub-roles, e.g. ‘Read All Tables’ are used to simplify the maintenance of the role to table mapping. The breakdown of roles and table access rights is given in Appendix B.

### Table ndb\_av\_frac\_y\_cons

Logical Entity: Average Fraction of Yearly Consumption.

Each row specifies the average fraction of consumption which is attributed to a particular combination of Measurement Requirement, Profile Class and GSP Group.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments**

eff\_from\_sett\_date - The first Settlement Date for which an Average Fraction of Yearly Consumption is effective.

eff\_to\_sett\_date - The last Settlement Date for which an Average Fraction of Yearly Consumption is effective.

gsp\_group\_id - The nationally unique identifier of a GSP Group.

std\_sett\_config\_id - The nationally unique identifier of a Standard Settlement Configuration.

profile\_class\_id - The nationally unique identifier of a Profile Class.

t\_p\_regime\_id - The nationally unique identifier of a Time Pattern Regime.

Estimated Number of Rows - 198,000.

### Table ndb\_check\_dc\_data\_runs

Logical Entity: No equivalent logical entity.

Each row is the record of a Check Data Collector run. This table is necessary to support the implementation of the Check Data Collector function: when the user enters a request for a Check Data Collection report, a row is created in this table. The table is read by an overnight batch process which sets off the Check Data Collector runs.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments**

sup\_participant\_id - The Market Participant Id of the Supplier for the Check Data Collector Run.

dc\_participant\_id - The Market Participant Id of the Data Collector for the Check Data Collector Run.

prs\_ag\_particpant\_id - The Market Participant Id of the PRS Agent for the Check Data Collector Run.

from\_sett\_date - The first date in the range of Settlement Dates for this Check Data Collector Run.

to\_sett\_date - The last date in the range of Settlement Dates for this Check Data Collector Run.

Estimated Number of Rows - The product of the numbers of Suppliers, Data Collectors and PRS Agents. 58 \* 100 \* 15 = 87000.

### View ndb\_data\_agg\_apps

This is a partitioned view - see section 4.3.6. This section describes the details of each partitioned table making up the view.

Logical Entity: Data Aggregator Appointment.

Each row is a record of the appointment of the NHHDA Data Aggregator to a Registration.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments :**

sup\_eff\_fr\_sett\_dt - The first settlement date of the period for which the Registration of the supplier to the Metering System is effective.

metering\_system\_id - The nationally unique id of a Metering System.

eff\_from\_sett\_date - The first settlement date of the period for which the Data Aggregator Appointment to the Registration is effective.

eff\_to\_sett\_date - The last settlement date of the period for which the Data Aggregator Appointment to the Registration is effective.

Estimated Number of Rows - 6,940,000.

### Table ndb\_data\_agg\_runs

Logical Entity: Data Aggregation Run.

Each row is the record of an aggregation run or request.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments**

data\_agg\_run\_no - The unique number automatically allocated to a data aggregation run

settlement\_code - The code which identifies an Interim Information, Initial Settlement or Reconciliation according to the Pool’s settlement timetable. The cdb\_ref\_values table holds a valid set of Settlement Codes for the ‘SECO’ (Settlement Code) domain.

settlement\_date - The date on which energy was originally supplied for which the settlement is being made.

data\_agg\_run\_date - the date and time when the Data Aggregation Run completed or date schedules if not yet run.

data\_agg\_run\_stat - The current status of the run. The cdb\_ref\_values table holds a valid set of Run Statuses for the ‘RNST’ (Run Status) domain.

Estimated Number of Rows - 4,560.

### View ndb\_dc\_apps

This is a partitioned view - see section 4.3.6. This section describes the details of each partitioned table making up the view.

Logical Entity: Data Collector Appointment.

Each row is a record of the appointment of a Data Collector to a Registration.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments :**

sup\_eff\_fr\_sett\_dt - The first settlement date of the period for which the Registration of the supplier to the Metering System is effective.

metering\_system\_id - The nationally unique id of a Metering System.

eff\_from\_date - The first date of the period for which the Data Collector Appointment to the Registration is effective. Note this is a *calendar date*  not a  *settlement date.*

dc\_participant\_id - The Market Participant Id of the Data Collector.

Estimated Number of Rows - 6,940,000.

### Table ndb\_exception\_data

Logical Entity: no direct equivalent logical entity..

Each row contains an exception type and a count of the number of Metering System Ids with that exception type. An exception type of ‘TOT’ represents a row containing a count of metering systems where there is at least one exception.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments**

Supp\_id - The Supplier Id that has caused the exception.

Dc\_id - The Data Collector Id where data causes the exception.

From\_sett\_date - The first settlement date of the period for which the exception applies.

To\_sett\_date - The last settlement date of the period for which the exception applies.

Except\_type - The type of the exception. The cdb\_ref\_values table holds a valid set of Exception Types between E01 and E14 for the ‘EXTP’ (Exception Type) domain. An additional exception type of ‘TOT’ will be used to record the total count of metering systems with at least one exception for this combination of supp\_id, dc\_id and settlement dates.

File\_creation\_date - The date of the data collector data exceptions file.

Msid\_count - The actual number of Metering Systems for this exception type, this settlement date range, supplier and data collector. For exception type of ‘TOT’, this value represents the number of metering systems with at least one exception.

Estimated Number of Rows – t.b.a.

### Table ndb\_gspg\_pc\_av\_eac

Logical Entity: GSP Group Profile Class Researched Default EAC.

Each row defines the average Estimated Annual Consumption for a GSP Group / Profile Class combination.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments :**

eff\_from\_sett\_date - The first Settlement Date for which the Researched Default EAC is effective.

gsp\_group\_id - The unique id of a GSP Group.

profile\_class\_id - The nationally unique identifier of a Profile Class.

researched\_av\_eac - The Researched Default Estimated Annual Consumption for the GSP Group / Profile Class combination (this is referred to as average EAC in various places for historical reasons - CR487).

Estimated Number Of Rows - 740.

### Table ndb\_gsp\_groups

Logical Entity: GSP Group.

Each row defines a group of one or more Grid Supply Points which together serve all or part of a distribution system.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments :**

gsp\_group\_id - The nationally unique id of a GSP Group.

Estimated Number Of Rows - 15.

### Table ndb\_gsp\_groups\_dis

Logical Entity: GSP Group Distributor.

Each row defines which Distributor owns and operates the distribution system supplied via a GSP Group, and the associated PRS Agent.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments :**

eff\_from\_sett\_date - The first settlement date for which the Distributor is appointed to the distribution system supplied via the GSP Group

eff\_to\_sett\_date - The last settlement date for which the Distributor is appointed to the distribution system supplied via the GSP Group

gsp\_group\_id - The unique id of a GSP Group.

dis\_participant\_id - The unique Market Participant Id of the Distributor.

prs\_participant\_id – The Market Participant Id of the associated PRS Agent (this is the same value as the distributor Id).

Estimated Number Of Rows - 20 (allows for small number of updates).

### Table ndb\_gsp\_groups\_run

Logical Entity: GSP Group in Aggregation Run.

Each row defines a GSP Group which is included in a Data Aggregation Run.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments :**

gsp\_group\_id - The unique id of a GSP Group.

data\_agg\_run\_no - The unique number automatically allocated to a data aggregation run

Estimated Number Of Rows - 68400.

### Table ndb\_agg\_gsp\_temp

Logical Entity: None - holds number of Metering Systems for a given GSP Group/Run for each partition so that nar\_pc can sum to determine the total for each run.

Each row records the number of Metering Systems within a Run for a GSP Group and Partition.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments :**

gsp\_group\_id - The unique id of a GSP Group.

data\_agg\_run\_no - The unique number automatically allocated to a data aggregation run

partition\_id - The number of the partition the Metering Systems come from

msid\_count - The actual number of Metering Systems considered in the run

Estimated Number Of Rows - 900 \* number of partitions.

### Table ndb\_instructions

Logical Entity: Instruction.

Each row holds information on an Instruction contained in an Instruction File which NHHDA has received. It does not hold the instruction itself.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments :**

instr\_seq\_no - The sequence number of the instruction.

file\_id - Unique id of the file, allocated by the File Receipt Manager (described in [CTSPEC]).

partition\_id - When the instruction is for a Metering System, the partition in which that Metering System's data is stored; for refresh instructions has no meaning.

instr\_stat - The status of the instruction. The cdb\_ref\_values table holds a valid set of Instruction Statuses for the ‘INST’ (Instruction Status) domain.

metering\_system\_id - The nationally unique id of a Metering System that this instruction is for.

instruction\_offset - The offset of the instruction within the instruction file, for use by fseek.

instr\_type - The type of the instruction. The cdb\_ref\_values table holds a valid set of Instruction Types for the ‘INTP’ (Instruction Type) domain.

dist\_participant\_id - For a Refresh Instruction, the Participant id of distributor that this refresh instruction relates to; otherwise the Participant id of the distributor associated with this Metering System determined by using the first two digits of the metering system id to match the Distributor Short Code.

significant\_date - The date on which the first of the changes made by this instruction process occurs.

reprocess\_flag - Signifies if the instruction is to be reprocessed (see INRP domain)

resend\_request\_flag - Indicates if instruction should be included in a failed instruction report.

resend\_request\_date - Date that instruction was included in a failed instruction report.

Resent\_file\_id – The latest file id containing the failed instruction.

estimated Number Of Rows - 3,160,000 (to cater for the exceptional case where the PRS Agent sends an instruction for every Metering System).

### Table ndb\_instruction\_status\_reason

Logical Entity: includes "Refresh Summary Details"

Contains 1 or more failure reasons for an instruction.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments**

reason\_seq\_no - The sequence of the failure for this instruction.

instr\_stat\_reason - The reason for the instruction having the status that it does. The cdb\_ref\_values table holds a valid set of Instruction Status Reasons for the “INSR” (Instruction Status Reason) domain.

instr\_stat\_reason\_data - Data related to reason for instruction status.

Data\_agg\_action\_state - Status of action on failure by data aggregator.

Estimated Number of Rows = 948000 (= 10% of instructions have 1 failure and 10% have 2 failures)

The following table explains the meaning of each error code, and the additional data which will be supplied.

| Code | Description | Meaning | Additional Data |
| --- | --- | --- | --- |
| 0A | Refresh accepted with validation errors | User has manually set the instruction to Applied (using the Manage Instruction Files form) | username |
| 0B | Instruction type is not valid for source | Instruction type is not valid for source |  |
| 0D | Manual discard | User has manually set the instruction to discard (using the Manage Instruction Files form) | username |
| 0F | Automatic discard due to failure | Application of refresh failed - system has set instruction to discard |  |
| 0I | Invalid Instruction | Instruction contents are invalid. Additional data identifies where the problem is e.g. DAA 1 2 means there is a problem with the second field in the first DAA record in the instruction | record type;  record count of record type;  field number |
| 0S | Instruction has been superseded | Instruction has been superseded | Participant Id from superseding instruction ;  Instruction Sequence No of superseding instruction |
| 0T | Refresh Totals | Apply of a refresh has been attempted. This reason contains a summary of what happened. There is an entry for each partition plus a total for the whole refresh | partition\_id ('Total' for total);  number Metering Systems for partition in refresh;  number of Metering Systems for partition not updated due to validation errors;  number of Metering Systems in partition on database but not in instruction;  number of Metering Systems in partition on database but not in instruction which are not updated due to validation rules |
| 0W | Wrong distributor | Metering system is not a member of distribution business | Distributor short code - for metering systems not owned by specified distributor  Distributor id – for metering systems where the distributor in the LLFC record is incorrect |
| 2C | >1 DC Appt before Sig Date | More than one Data Collector Appointment in the instruction has a Start Date on or before the Significant Date | Start Date (first item before Significant Date);  Start Date (second item before Significant Date) |
| 2E | >1 ES before Sig Date | More than one Energisation Status in the instruction has a Start Date on or before the Significant Date | Start Date (first item before Significant Date);  Start Date (second item before Significant Date) |
| 2G | >1 GSP Group before Sig Date | More than one GSP Group in the instruction has a Start Date on or before the Significant Date | Start Date (first item before Significant Date);  Start Date (second item before Significant Date) |
| 2L | >1 LLFC before Sig Date | More than one Line Loss Factor Class in the instruction has a Start Date on or before the Significant Date | Start Date (first item before Significant Date);  Start Date (second item before Significant Date) |
| 2M | >1 MC before Sig Date | More than one Measurement Class in the instruction has a Start Date on or before the Significant Date | Start Date (first item before Significant Date);  Start Date (second item before Significant Date) |
| 2P | >1 PC/SSC before Sig Date | More than one Profile Class/Standard Settlement Configuration set in the instruction has a Start Date on or before the Significant Date | Start Date (first item before Significant Date);  Start Date (second item before Significant Date) |
| 2R | >1 Registration before Sig Date | More than one Registration in the instruction has a Start Date on or before the Significant Date | Start Date (first item before Significant Date);  Start Date (second item before Significant Date) |
| 2Y | >1 EAC before Sig Date | More than one Estimated Annual Consumption in the instruction has a Start Date on or before the Significant Date | Start Date (first item before Significant Date);  Start Date (second item before Significant Date) |
| 99 | 99 or more failure reasons | 99 or more failure reasons encountered - not all reasons recorded (this is logged in place of the 99th reason, no further reasons are logged) |  |
| AA | DA Appt end after Registration end | Data Aggregator Appointment End Date is after Registration End Date (i.e. after the next Registration starts) | Registration Start Date;  DAA Start Date |
| AE | ES Start after Registration End | Energisation Status clause Start Date is after Registration End Date (i.e. after the next Registration starts) | Registration Start Date;  ES Start Date |
| AM | MC Start after Registration End | Measurement Class clause Start Date is after Registration End Date (i.e. after the next Registration starts) | Registration Start Date;  MC Start Date |
| AP | PC/SSC Start after Registration End | Profile Class/Standard Settlement Configuration clause Start Date is after Registration End Date (i.e. after the next Registration starts) | Registration Start Date;  PC/SSC Start Date |
| CA | DA Appt already ends before Sig Date | Data Aggregator Appointment with Effective From Settlement Date before Significant Date is on the database but database has Effective To Settlement Date before Significant Date | DAA Start Date;  DAA End Date (database) |
| CE | ES change during MAP | Instruction contains a change to Energisation Status within a Meter Advance period | ES Start Date;  MAP Start Date |
| CM | MC change during MAP | Instruction contains a change to Measurement Class within a Meter Advance period | MC Start Date;  MAP Start Date |
| CR | Registration change during MAP | Instruction contains a change to Registration detected within a Meter Advance period | Registration Start Date;  MAP Start Date |
| CS | SSC change during MAP | Instruction contains a change to Standard Settlement Configuration detected within a Meter Advance period | SSC Start Date;  MAP Start Date |
| DC | Duplicate DC Appt Start | Duplicate Data Collector Appointment Start Date in instruction | Start Date |
| DE | Duplicate ES Start | Duplicate Energisation Status Start Date in instruction | Start Date |
| DG | Duplicate GSP Group Start | Duplicate GSP Group Start Date in instruction | Start Date |
| DL | Duplicate Line Loss Factor Start | Duplicate Line Loss Factor Start Date in instruction | Start Date |
| DM | Duplicate MC Start | Duplicate Measurement Class Start Date in instruction | Start Date |
| DP | Duplicate PC/SSC Start | Duplicate Profile Class/Standard Settlement Configuration Start Date in instruction | Start Date |
| DR | Duplicate Registration Start | Duplicate Registration Start Date in instruction | Start Date |
| DY | Duplicate EAC Start | Duplicate Estimated Annual Consumption Start Date in instruction | Start Date |
| EA | DA Appt End before Sig Date | Data Aggregator Appointment End Date in the instruction is before significant date | Start Date |
| EB | DA Appt Start before Registration Start | Data Aggregator Appointment Start Date is before Registration Start Date | Registration Start Date;  DAA Start Date |
| EC | DC Appt Start before Registration Start | Data Collector Appointment Start Date is before Registration Start Date | Registration Start Date;  DCA Start Date |
| EE | ES Start before Registration Start | Energisation Status Start Date is before Registration Start Date | Registration Start Date;  ES Start Date |
| EM | MC Start before Registration Start | Measurement Class Start Date is before Registration Start Date | Registration Start Date;  MC Start Date |
| EP | PC/SSC Start before Registration Start | Profile Class/Standard Settlement Configuration Start Date is before Registration Start Date | Registration Start Date;  PC/SSC Start Date |
| EX | AA End before Sig Date | Annual Advance End Date in the instruction is before significant date | Start Date |
| FE | No ES for 1st consumption | This instruction will leave no Energisation Status effective at the start of the earliest consumption | Earliest MAP/EAC Start Date |
| FG | No GSP Group for 1st consumption | This instruction will leave no GSP Group ID effective at the start of the earliest consumption | Earliest MAP/EAC Start Date |
| FM | No MC for 1st consumption | This instruction will leave no Measurement Class effective at the start of the earliest consumption | Earliest MAP/EAC Start Date |
| FP | No PC/SSC for 1st consumption | This instruction will leave no Profile/SSC effective at the start of the earliest consumption | Earliest MAP/EAC Start Date |
| FR | No Registration for 1st consumption | This instruction will leave no Registration effective at the start of the earliest consumption | Earliest MAP/EAC Start Date |
| IA | Invalid PC, SSC & GSP Group for AFYC | Values of the GSP Group, PC and SSC in the instruction will not have corresponding AFYC values for all of the settlement days possible within the DAA. | GSP Group; Profile Class Id; SSC; Start Date of period not covered; End Date of period not covered. |
| IC | DC ID not found on dB | Data Collector ID in the instruction does not exist on database | DC ID;  Start Date |
| IE | Invalid ES | Invalid Energisation Status in instruction | ES ID;  Start Date |
| IG | GSP Group ID not found on dB | GSP Group ID in the instruction does not exist on database | GSP Group ID;  Start Date |
| IL | Distributor/LLFC not found on dB | Distributor ID/Line Loss Class ID in the instruction does not exist on database | Distributor Id;  LLF Class ID;  Start Date |
| IM | Invalid MC | Invalid Measurement Class in the instruction | MC ID;  Start Date |
| IP | PC ID not found on dB | Profile Class ID in the instruction does not exist on database | Profile Class ID;  Start Date |
| IR | Supplier ID not found on dB | Supplier ID in the instruction does not exist on database | Supplier ID;  Start Date |
| IS | SSC ID not found on dB | Standard Settlement Configuration ID in the instruction does not exist on database | SSC ID;  Start Date |
| IV | EAC/AA value outside permitted range | The EAC value in the file is outside the EAC boundary values defined in the system parameter table or the AA value in the file is outside the AA boundary values defined in the system parameter table . | TPR ID;  EAC/AA value;  EAC/AA Start Date;  AA End Date (if available) |
| MA | DAA before Sig Date not latest on dB | Data Aggregation Appointment with Effective From Settlement Date before Significant Date is not already in the database | Registration Start Date;  DAA Start Date |
| MC | DC Appt before Sig Date not latest on dB | Data Collector Appointment with Effective From Settlement Date before Significant Date is not on the database and the Registration has a Data Aggregator Appointment before the significant date | DC ID;  Start Date |
| ME | ES before Sig Date not latest on dB | Energisation Status with Effective From Settlement Date before Significant Date affects a DAA (PRS instruction) or AA/EAC (DC instruction) which is before the significant date and is not on the database | ES ID;  Start Date |
| MG | GSP Group before Sig Date not latest on dB | GSP Group with Effective From Settlement Date before Significant Date affects a DAA (PRS instruction) or AA/EAC (DC instruction) which is before the significant date and is not on the database | GSP Group ID;  Start Date |
| ML | LLFC before Sig Date not latest on dB | Line Loss Factor Class with Effective From Settlement Date before Significant Date affects a DAA (PRS instruction) or AA/EAC (DC instruction) which is before the significant date and is not on the database | Distributor Id;  LLF Class ID;  Start Date |
| MM | MC before Sig Date not latest on dB | Measurement Class with Effective From Settlement Date before Significant Date affects a DAA (PRS instruction) or AA/EAC (DC instruction) which is before the significant date and is not on the database | MC ID;  Start Date |
| MP | PC/SSC before Sig Date not latest on dB | Profile Class/Standard Settlement Configuration with Effective From Settlement Date before Significant Date affects a DAA (PRS instruction) or AA/EAC (DC instruction) which is before the significant date and is not on the database | PC Id;  SSC Id;  Start Date |
| MR | Registration before Sig Date not latest on dB | Registration with Effective From Settlement Date before Significant Date affects a DAA (PRS instruction) or AA/EAC (DC instruction) which is before the significant date and is not on the database | Start Date |
| MX | AA before Sig Date not latest on dB | Annualised Advance in instruction has Effective From Settlement Date before Significant Date but there is no corresponding (identical) set of records on the database | Start Date |
| MY | EAC before Sig Date not latest on dB | Estimated Annualised Consumption in instruction has Effective From Settlement Date before Significant Date but there is no corresponding (identical) set of records on the database | Start Date |
| NE | ES not overlapping DA Appt | Energisation Status change is not required as it does not overlap any Data Aggregation Appointments | Start Date |
| NG | GSP Group not overlapping a DA Appt | GSP Group change is not required as it does not overlap any Data Aggregation Appointments | Start Date |
| NL | Line Loss Factor not overlapping DA Appt | Line Loss Factor change is not required as it does not overlap any Data Aggregation Appointments | Start Date |
| NM | MC not overlapping a DA Appt | Measurement Class change is not required as it does not overlap any Data Aggregation Appointments | Start Date |
| NP | PC/SSC not overlapping DA Appt | Profile Class/Standard Settlement Configuration change is not required as it does not overlap any Data Aggregation Appointments | Start Date |
| NR | No DAA for Registration in instruction | Registration does not have an associated Data Aggregator Appointment in the present instruction | Start Date |
| OA | Overlapping DA Appts | The instruction contains overlapping Data Aggregator Appointments | Start Date (first item);  Start Date (second item) |
| OX | Overlapping MAPs | The instruction contains overlapping Meter Advance Periods | Start Date (first item);  Start Date (second item) |
| RA | DA Appt references unknown Registration | Registration referenced by Data Aggregator Appointment in the instruction does not exist on the database and is not created by this instruction | Registration Start Date;  DAA Start Date |
| RC | DC Appt references unknown Registration | Registration referenced by Data Collector Appointment in the instruction does not exist on the database and is not created by this instruction | Registration Start Date;  DCA Start Date |
| RE | ES references unknown Registration | Registration referenced by Energisation Status in the instruction does not exist on the database and is not created by this instruction | Registration Start Date;  ES Start Date |
| RM | MC references unknown Registration | Registration referenced by Measurement Class in the instruction does not exist on the database and is not created by this instruction | Registration Start Date;  MC Start Date |
| RP | PC/SSC references unknown Registration | Registration referenced by Profile Class/Standard Settlement Configuration in the instruction does not exist on the database and is not created by this instruction | Registration Start Date;  PC/SSC Start Date |
| SC | No DC Appt for 1st DAA in Registration | This instruction will leave no Data Collector Appointment for this Registration effective at the start of the first Data Aggregator Appointment for the Registration | Registration Start Date |
| SE | No ES for 1st DA Appt in Registration | This instruction will leave no Energisation Status effective at the start of the Data Aggregator Appointment | Registration Start Date;  DAA Start |
| SG | No GSP Group before 1st DA Appt | This instruction will leave no GSP Group effective at the start of the Data Aggregator Appointment | DAA Start Date |
| SL | No LLFC before 1st DA Appt | This instruction will leave no Line Loss Factor effective at the start of the Data Aggregator Appointment | DAA Start Date |
| SM | No MC for 1st DA Appt in Registration | This instruction will leave no Measurement Class effective at the start of the Data Aggregator Appointment | Registration Start Date;  DAA Start |
| SP | No PC/SSC for 1st DAA in Registration | This instruction will leave no Profile Class/Standard Settlement Configuration effective at the start of the Data Aggregator Appointment | Registration Start Date;  DAA Start |
| TV | AA with duplicate Time Pattern Regime | This instruction contains an Annualised Advance set which has more than one consumption figure for the same Time Pattern Regime Id | MAP Start Date;  Duplicated TPR |
| TW | EAC with duplicate Time Pattern Regime | This instruction contains an Estimated Annualised Consumption set which has more than one consumption figure for the same Time Pattern Regime Id | EAC Start Date;  Duplicated TPR |
| TX | AA missing for Measurement Req(s) | This instruction contains an Annualised Advance set where data is missing for one or more Measurement Requirements of the Standard Settlement Configuration | MAP Start Date |
| TY | EAC missing for Measurement Req(s) | This instruction contains an Estimated Annualised Consumption set where data is missing for one or more Measurement Requirements of the Standard Settlement Configuration | EAC Start Date |
| UX | AA where Time Pattern Regime not in SSC | This instruction contains an Annualised Advance set which contains consumption for a Time Pattern Regime Id which is not a Measurement Requirement for the Standard Settlement Configuration | MAP Start Date;  Illegal TPR |
| UY | EAC where Time Pattern Regime not in SSC | This instruction contains an Estimated Annual Consumption set which contains consumption for a Time Pattern Regime Id which is not a Measurement Requirement for the Standard Settlement Configuration | EAC Start Date;  Illegal TPR |
| VG | GSP not appointed to Dist Business | GSP group does not have an appointment to the Distribution Business for Metering System on the Effective From Settlement Date. | GSP Group ID;  Start Date |
| VP | PC/SSC combination not on dB | Profile Class/Standard Settlement Configuration combination does not exist on the database | Profile Class ID;  SSC Id |
| VZ | PRS Agent not appointed in this GSP Group | Instruction source (PRS Agent) not appointed to Distribution Business as determined from the first two digits of the Metering System Id. | Dist ID |
| XA | DA Appt Start after End | The instruction contains a Data Aggregator Appointment which has a Start Date later than the End Date | Start Date |
| XX | AA Start after End | The instruction contains an Annual Advance set which has a Start Date later than the End Date | Start Date |
| ZA | DAA on dB missing from instruction | A Data Aggregation Appointment exists in the database which is active on the Significant date but is not in the instruction (for Refresh, this is informational message) | Start Date |
| ZC | DC Appt missing from instruction, | There is no Data Collector Appointment in the instruction for the earliest Date on or after the Significant Date for which there is also a Data Aggregator Appointment | Date for which Data Collector Appointment required;  Registration Start Date |
| ZE | ES missing from instruction | There is no Energisation Status in the instruction for the earliest Date on or after the Significant Date for which there is also a Data Aggregator Appointment / consumption | Date for which Energisation Status required |
| ZG | GSP Group missing from instruction | There is no GSP Group in the instruction for the earliest Date on or after the Significant Date for which there is also a Data Aggregator Appointment / consumption | Date for which GSP Group required |
| ZL | LLFC missing from instruction | There is no Line Loss Factor Class in the instruction for the earliest Date on or after the Significant Date for which there is also a Data Aggregator Appointment / consumption | Date for which Line Loss Factor Class required |
| ZM | MC missing from instruction | There is no Measurement Class in the instruction for the earliest Date on or after the Significant Date for which there is also a Data Aggregator Appointment / consumption | Date for which Measurement Class required |
| ZP | PC/SSC missing from instruction | There is no Profile Class/SSC in the instruction for the earliest Date on or after the Significant Date for which there is also a Data Aggregator Appointment / consumption | Date for which PC/SSC required |
| ZR | Registration missing from instruction | There is no Registration in the instruction for the earliest Date on or after the Significant Date for which there is also a Data Aggregator Appointment / consumption | Date for which Registration required |
| ZX | MAP on dB missing from instruction | A Meter Advance Period exists on the database which is active on the Significant Date but is not in the instruction | Start Date |

Note that in external interfaces, the above codes are prefixed by ‘N’.

Additional Data is separated by semicolons.

### Table ndb\_isr\_agent\_apps

Logical Entity: ISR Agent Appointment.

Each row details the appointment of an ISR Agent to a GSP Group.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments :**

eff\_from\_date - The first date of the period for which the PRS Agent is appointed to the GSP Group.

gsp\_group\_id - The unique id of a GSP Group.

eff\_to\_date - The last date of the period for which the PRS Agent is appointed to the GSP Group.

isr\_participant\_id - The Market Participant Id of the ISR Agent.

Estimated Number of Rows - 46.

### Table ndb\_llf\_classes

Logical Entity: Line Loss Factor Class.

Each row defines a Line Loss Factor Class, its description, and the identity of the distributor who defined the class.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments :**

llf\_class\_id - The id of a Line Loss Factor Class within a Distributor’s system.

dis\_participant\_id - The Market Participant Id of the Distributor.

llf\_class\_desc - The description of the Line Loss Factor Class.

Estimated Number Of Rows - 720.

### Table ndb\_measure\_reqs

Logical Entity: Measurement Requirement.

Each row defines a valid combination of Standard Settlement Configuration Id and Time Pattern Regime Id.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments :**

std\_sett\_config\_id - The nationally unique id of a Standard Settlement Configuration..

t\_p\_regime\_id - The nationally unique id of a Time Pattern Regime.

Estimated Number of Rows - 2104.

### View ndb\_metering\_sys

This is a partitioned view - see section 4.3.6. This section describes the details of each partitioned table making up the view.

Logical Entity: Metering System.

Each row defines a Metering System, i.e.: a commercial item subject to electricity supply trade.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments**

earliest\_unchecked\_sett\_date - the earliest settlement date for this metering system for which the exception check has not been run. The Instruction Processing Subsystem sets it to the earliest date affected by a new instruction (if that date is earlier than the current value in the column). The Check Data Collector Subsystem sets it to null when all exception checks have been successfully completed for this subsystem.

Estimated Number Of Rows - 3,000,000.

### View ndb\_ms\_dc\_dets

This is a partitioned view - see section 4.3.6. This section describes the details of each partitioned table making up the view.

Logical Entities: Metering System Energisation Status (DC); Metering System GSP Group (DC); Metering System Measurement Class (DC); Metering System Profile Class (DC); Registration (DC); Settlement Configuration (DC).

Each row contains information about the Metering System supplied by a Data Collector, and the settlement date from which the information is effective. A series of flags indicate which columns have different values to the values they had in the previous record (i.e.: with next most recent Effective Settlement Date) for the same Metering System.

It should be noted that prior to the Archive Date the first row of data for a particular Metering System may not always have the change flags set. This means that the ‘Effective from date’ and ‘Change Flag’ combination to indicate an Effective From Settlement Date of a data item, cannot be relied upon if it is the first record in the database table and its Effective from Date is prior to the Archive Date.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments :**

eff\_from\_sett\_date - The first settlement date of the period for which this information is effective.

metering\_system\_id - The nationally unique id of a Metering System.

dc\_participant\_id - The Market Participant Id of the Data Collector supplying the information in this row.

energisation\_stat - the Energisation Status of the Metering System. The cdb\_ref\_values table holds a valid set of Measurement Classes for the ‘ENST’ (Energisation Status) domain.

gsp\_group\_id - The nationally unique identifier of the GSP Group.

measure\_class\_id - The identifier of the Measurement Class. The cdb\_ref\_values table holds a valid set of Measurement Classes for the ‘MECL’ (Measurement Class) domain.

profile\_class\_id - The nationally unique identifier of the Profile Class.

sup\_participant\_id - The Market Participant Id of the Supplier.

std\_sett\_config\_id - The nationally unique identifier of the Standard Settlement Configuration.

es\_changed - Set to ‘Y’ if energisation\_stat value was specified in an instruction as being effective from eff\_from\_sett\_date, otherwise null.

gg\_changed - Set to ‘Y’ if gsp\_group\_id value was specified in an instruction as being effective from eff\_from\_sett\_date, otherwise null.

mc\_changed - Set to ‘Y’ if measure\_class\_id value was specified in an instruction as being effective from eff\_from\_sett\_date, otherwise null.

pc\_changed - Set to ‘Y’ if profile\_class\_id value was specified in an instruction as being effective from eff\_from\_sett\_date, otherwise null.

sup\_changed - Set to ‘Y’ if sup\_participant\_id value was specified in an instruction as being effective from eff\_from\_sett\_date, otherwise null.

ssc\_changed - Set to ‘Y’ if std\_sett\_config\_id value was specified in an instruction as being effective from eff\_from\_sett\_date, otherwise null.

Estimated Number of Rows - 15,500,000 (assumptions: for each Metering System, this information changes twice per year, and data is held on line for 25 months: 3,000,000 \* (1 + 2\*(25/12)) = 15,500,000).

### View ndb\_ms\_exceptions

This is a partitioned view - see section 4.3.6. This section describes the details of each partitioned table making up the view.

Logical Entity: no direct equivalent logical entity.

Each row contains details of an exception which has been recorded against a Metering System. The table is provided to improve the speed with which this data can be obtained.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments :**

eff\_from\_sett\_date - The first settlement date of the period for which the exception applies.

eff\_to\_sett\_date - The last settlement date of the period for which the exception applies.

metering\_system\_id - The nationally unique id of the Metering System to which the exception applies.

partition\_id - Id of the partition this row is allocated to.

exception\_type - The type of the exception. The cdb\_ref\_values table holds a valid set of Exception Types for the ‘EXTP’ (Exception Type) domain.

current\_supp\_id - The Supplier Id as provided by the PRS Agent for the Effective From Settlement Date.

current\_dc\_id - The Data Collector Id where data causes the exception.

dist\_participant\_id - The distributor responsible for this metering system.

exception\_item\_id - Additional information on the exception. Dependent on exception\_type, this could be a Measurement Class Id, Profile Class Id, Standard Settlement Configuration Id or Market Participant Id.

Estimated Number of Rows - 28,000,000 (assumptions: for each Metering System, one exception for each meter reading, i.e.: four times per year, and data is held on line for 25 months: 3,000,000 \* (1 + 4\*(25/12)) = 28,000,000).

### View ndb\_ms\_prs\_dets

This is a partitioned view - see section 4.3.6. This section describes the details of each partitioned table making up the view.

Logical Entities: Metering System Energisation Status; Metering System GSP Group; Metering System Line Loss Factor Class; Metering System Measurement Class; Metering System Profile Class; Settlement Configuration.

Each row contains information about the Metering System supplied by the PRS Agent, and the settlement date from which the information is effective. A series of flags indicate which columns have different values to the values they had in the previous record (i.e.: with next most recent Effective Settlement Date) for the same Metering System.

It should be noted that prior to the Archive Date the first row of data for a particular Metering System may not always have the change flags set. This means that the ‘Effective from date’ and ‘Change Flag’ combination to indicate an Effective From Settlement Date of a data item, cannot be relied upon if it is the first record in the database table and its Effective from Date is prior to the Archive Date.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments :**

eff\_from\_sett\_date - The first settlement date of the period for which this information is effective.

metering\_system\_id - The nationally unique id of a Metering System.

energisation\_stat - the Energisation Status of the Metering System. The cdb\_ref\_values table holds a valid set of Measurement Classes for the ‘ENST’ (Energisation Status) domain.

gsp\_group\_id - The nationally unique identifier of the GSP Group.

llf\_class\_id - The id of the Line Loss Factor Class within the Distributor’s system.

dis\_participant\_id - The Market Participant Id of the Distributor.

measure\_class\_id - The identifier of the Measurement Class. The cdb\_ref\_values table holds a valid set of Measurement Classes for the ‘MECL’ (Measurement Class) domain.

profile\_class\_id - The nationally unique identifier of the Profile Class.

std\_sett\_config\_id - The nationally unique identifier of the Standard Settlement Configuration.

es\_changed - Set to ‘Y’ if energisation\_stat value was specified in an instruction as being effective from eff\_from\_sett\_date, otherwise null.

gg\_changed - Set to ‘Y’ if gsp\_group\_id value was specified in an instruction as being effective from eff\_from\_sett\_date, otherwise null.

mc\_changed - Set to ‘Y’ if measure\_class\_id value was specified in an instruction as being effective from eff\_from\_sett\_date, otherwise null.

pc\_changed - Set to ‘Y’ if profile\_class\_id value was specified in an instruction as being effective from eff\_from\_sett\_date, otherwise null.

ssc\_changed - Set to ‘Y’ if std\_sett\_config\_id value was specified in an instruction as being effective from eff\_from\_sett\_date, otherwise null.

llf\_changed - Set to 'Y' if llf\_class\_id - dis\_participant\_id pair value was specified in an instruction as being effective from eff\_from\_sett\_date, otherwise null.

Estimated Number of Rows - 9,250,000 (assumptions: for each Metering System, this information changes once per year, and data is held on line for 25 months: 3,000,000 \* (1 + 1\*(25/12)) = 9,250,000).

### Table ndb\_nar\_files

This is an internal table used for recovery of a data aggregation run. It records all files created by NAR Calculate Increments.

### Table ndb\_nar\_file\_location

This table defines where temporary files created by NAR Calculate Increments are to be placed. There is an entry for each partition. This mechanism is used instead of the normal cdb\_default\_directory mechanism in order that files may be placed on different physical disks for different partitions.

### Table ndb\_m\_participants

Logical Entity: Market Participant.

Each row in the table defines an organisation that participates in the Market.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments :**

participant\_id - The nationally unique identifier for a Market Participant. The assumption at this stage is that it is a user defined id, not system generated.

participant\_name - The name of the Market Participant. Note that a Market Participant has one name regardless of how many roles it has.

dist\_short\_code - An alternative short code used to identify a Market Participant who has the Distributor role. Forms the first two characters of Metering System Id. Null for Market Participants who are not Distributors.

last\_prs\_non\_ref\_instr\_sent - obsolete.

dc\_flag - Set to ‘Y’ if the Market Participant is a Data Collector, otherwise null.

dist\_flag - Set to ‘Y’ if the Market Participant is a Distributor, otherwise null.

isr\_ag\_flag - Set to ‘Y’ if the Market Participant is an ISR Agent, otherwise null.

pool\_fa\_flag - Set to ‘Y’ if the Market Participant is a Pool Market Domain Data Agent, otherwise null.

prs\_ag\_flag - Set to ‘Y’ if the Market Participant is a PRS Agent, otherwise null.

supp\_flag - Set to ‘Y’ if the Market Participant is a Supplier, otherwise null.

Estimated Number of Rows - 200.

### Table ndb\_profile\_classes

Logical Entity: Profile Class

Each row defines a Profile Class. Profile Class is one of the dimensions of the Supplier Purchase Matrix. It represents an exclusive category of customers whose consumption may be approximated to a common profile.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments :**

profile\_class\_id - The nationally unique identifier of the Profile Class.

profile\_class\_desc - The description of the Profile Class, e.g.: ‘domestic, economy 7’.

Estimated number of rows: 16.

### Table ndb\_refresh\_instr\_failure

Logical Entity: Refresh Instruction Failure

Contains 1 or more Metering System level validation failure for PRS Refresh Instructions.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments**

file\_id - the unique id of the file (allocated by the File Receipt Manager and described in [CTSPEC]).

instr\_seq\_no - the sequence number of the Refresh Instruction.

metering\_system\_id - the nationally unique id. of the Metering System for which the refresh failed validation.

significant\_date - the date on which the first of the changes made by this Instruction occurs.

resend\_request\_flag - indicates if the refresh failure should be included in a failed Instruction report.

resend\_request\_date - latest date that the failure was included in a failed Instruction report.

### Table ndb\_refr\_instr\_failure\_reason

Logical Entity: Refresh Instruction Failure Reason

Contains 1 or more Metering System level validation failure reasons for the PRS Refresh Instruction failures recorded in ndb\_refresh\_instr\_failure.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments**

file\_id - the unique id. of the file (allocated by the File Receipt Manager and described in [CTSPEC]).

instr\_seq\_no - the sequence number of the Refresh Instruction.

metering\_system\_id - the nationally unique id. of the Metering System for which the refresh failed validation.

instr\_stat\_reason - the 2-character failure code for the failure reason (as described in 4.3.18).

instr\_stat\_data - additional data related to the failure reason.

include\_flag - indicates if the failure reason should be included when reporting the failure in a failed Instruction report.

### Table ndb\_report\_parameters

Logical Entity: none

Internal table used in reporting to store temporary parameters.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments:**

None.

### Table ndb\_report\_agg\_exceptions

Logical Entity: none

Internal table used in reporting to store temporary aggregation exceptions.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments:**

None.

### View ndb\_register\_cons

This is a partitioned view - see section 4.3.6. This section describes the details of each partitioned table making up the view.

Logical Entities: Estimated Annual Consumption (DC); Meter Advance Consumption (DC).

Each row is a specific Data Collector’s view of the Annualised Advance or Estimated Annual Consumption of one of the Settlement Registers of a Metering System.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments :**

eff\_from\_sett\_date - The first settlement date of the period from which the annual consumption is calculated.

metering\_system\_id - The nationally unique id of a Metering System.

std\_sett\_config\_id - The nationally unique id of a Standard Settlement Configuration..

t\_p\_regime\_id - The nationally unique id of a Time Pattern Regime.

dc\_participant\_id - The Market Participant Id of the Data Collector whose view of the data is held in this record.

eff\_to\_sett\_date - For an Annualised Advance, the last settlement date of the period from which the annual consumption is calculated. For Estimated Annual Consumption is the last date on which the consumption data is effective (i.e.: the day before the next EAC supplied by the same Data Collector), set to MAX DATE if this is the latest EAC from the Data Collector.

eac - The Estimated Annual Consumption for the period given by eff\_from\_sett\_date and eff\_to\_sett\_date. Null if record is for an Annualised Advance.

aa - The Annualised Advance for the period given by eff\_from\_sett\_date and eff\_to\_sett\_date. Null if the record is for an Estimated Annual Consumption.

EAC\_AA Indicator ‘A’ and ‘E’ – ‘A’ is used to represent the Annualised Advance for the period given and ‘E’ represents the Estimated Annual Consumption

Note that exactly one of eac and aa will always be null.

Estimated Number of Rows - 56,300,000 (equal to the occurrences of Meter Advance Consumption).

### View ndb\_registrations

This is a partitioned view - see section 4.3.6. This section describes the details of each partitioned table making up the view.

Logical Entity: Registration.

Each row is a record of the Registration of a Supplier to a Metering System.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments :**

eff\_from\_sett\_date - The first settlement date of the period for which the registration is effective.

metering\_system\_id - The nationally unique id of a Metering System.

sup\_participant\_id - The Market Participant Id of the Supplier.

Estimated Number of Rows - 4,560,000.

### Table ndb\_settlements

Logical Entity: Settlement.

Each row defines a set of Settlement Date and Settlement Code for which acalculation of the funds to be cleared between Suppliers and Generators in respect of electricity traded through the Pool on a Settlement Day. This includes Interim Information, Initial Settlement and Reconciliation.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments :**

settlement\_code - A code which identifies which of the Interim Information, Initial Settlement or Reconciliation runs for the Settlement Date this row is for. The cdb\_ref\_values table holds a valid set of Settlement Codes for the ‘SECO’ (Settlement Code) domain.

settlement\_date - The date on which energy was supplied and for which Settlement is taking place.

isr\_deadline\_date - The date by which the ISR Agent must receive the Supplier Purchase Matrix produced for this Settlement.

payment\_date - The date on which funds must be transferred.

Estimated Number Of Rows - 4560.

### Table ndb\_spmatrix

Logical Entity: Supplier Purchase Matrix.

Each row contains the Annualised Advance and Estimated Annual Consumption information for one of the cells in the five-dimensional matrix. The dimensions of the matrix are: Supplier, Line Loss Factor Class, Measurement Requirement, Profile Class and GSP Group / Aggregation Run.

The data in this table is temporary, calculated during a Data Aggregation Run. Once the run is complete, the data is written to files. It is deleted by the archive process - typically a few days after the run occurred.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments :**

llf\_class\_id - The id of a Line Loss Factor Class within a Distributor’s system.

dis\_participant\_id - The Market Participant Id of a Distributor.

sup\_participant\_id - The Market Participant Id of a Supplier.

std\_sett\_config\_id - The nationally unique identifier of a Standard Settlement Configuration.

t\_p\_regime\_id - The nationally unique identifier of a Time Pattern Regime.

profile\_class\_id - The nationally unique identifier of the Profile Class

gsp\_group\_id - The nationally unique identifier of a GSP Group.

data\_agg\_run\_no - The unique number automatically allocated to a data aggregation run.

spm\_total\_eac - The sum of EACs from metered Metering Systems contributing to this cell of the Supplier Purchase Matrix.

spm\_eac\_ms\_cnt - The number of Metering Systems contributing to spm\_total\_eac.

spm\_def\_eac\_ms\_cnt - The number of Metering Systems contributing to spm\_total\_eac.

spm\_total\_unm\_cons - The sum of EACs from unmetered Metering Systems contributing to this cell of the Supplier Purchase Matrix.

spm\_unm\_ms\_cnt - The number of Metering Systems contributing to spm\_total\_unm\_cons.

spm\_def\_unm\_ms\_cnt - The number of Metering Systems contributing to spm\_total\_unm\_cons.

spm\_total\_aa - The sum of AAs from all metered Metering Systems contributing to this cell of the Supplier Purchase Matrix.

spm\_aa\_ms\_cnt - The number of Metering Systems contributing to spm\_total\_aa.

Estimated Number of Rows - 10,000 (assumptions: 4284 valid measurement requirement profile class \* 1 line loss factor class per vmrpc \* 1.5 distributors per GSP group \* 1.5 suppliers per SSC i.e. 4284\*1.5\*1.5=9639, say 10,000).

### Table ndb\_std\_sett\_cfgs

Logical Entity: Standard Settlement Configuration.

Each row defines a Standard Configuration which Metering Systems may assume.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments :**

std\_sett\_config\_id - A nationally unique, user defined, identifier used to identify a Standard Configuration.

configuration\_desc - A description of the configuration used.

Estimated Number Of Rows - 964.

### Table ndb\_threshold\_pars

Logical Entity: Threshold Parameter.

Each row details a Threshold Parameter and the Settlement Date from which it is valid. The Threshold Parameter is used in the calculation of EAC values for Metering System Settlement Registers which do not have a valid EAC or AA provided by the appointed Data Collector.

If it is statistically valid to use an average of the valid EACs/AAs that have been provided, this average is used. Otherwise the GSP Group Profile Class Researched Default EAC (pro rated to take into consideration the Average Fraction of Yearly Consumption) is used.

The threshold parameter defines the number of valid EACs/AAs that must have been provided for an average to be statistically valid.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments :**

eff\_from\_sett\_date - The first settlement date for which the Threshold Parameter applies.

Estimated Number of Rows - 5.

### Table ndb\_t\_p\_regimes

Logical Entity: Time Pattern Regime.

Each row defines a valid Time Pattern Regime Id. A Time Pattern Regime defines the periods during the day when a Settlement Register is recording consumption.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments :**

Estimated Number of Rows - 2104.

### Table ndb\_vsscpcs

Logical Entity: Valid Settlement Configuration Profile Class.

Each row defines a valid combination of Standard Settlement Configuration and Profile Class.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments :**

std\_sett\_config\_id - The nationally unique id of a Standard Settlement Configuration.

profile\_class\_id - The nationally unique identifier of a Profile Class.

Estimated Number of Rows - 1640.

### Table ndb\_temp\_mdd\_load\_audit

Logical Entity: none

Internal table used in reporting to temporary mdd load audit records.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments:**

None.

### Table cdb\_return\_parameter

Logical Entity: none

Internal table used to maintain a count of the number of instructions resent from the nmi resend instructions process.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments:**

The table holds a count of the total number of instructions resent from the Manage Failed Instructions screen. The data is temporary and is deleted by the form after it has been read.

Estimated number of rows - < 1000

### Table cdb\_resend\_access

Logical Entity: none

Internal table used to contain the user roles and file types available for which the ‘Resend’ button may be used in the ‘Browse File Extraction and Transmission Statuses’ and ‘Browse Aggregation Files’ screens.

**Table Description**

The columns, keys and indices of the table are listed in Appendix C.

**Comments:**

The table holds the file types that the corresponding user role is allowed to send using the ‘Resend’ button from the ‘Browse File Extraction and Transmission Statuses’ and ‘Browse Aggregation Files’ screens.

Estimated number of rows - < 1000

## Audit Logs

### Forms interface and batch processing

Details of the format and contents of the audit logs and the mechanism used to write to them are described in [CTSPEC], sections 2.7.3, 3.1.4, 4.4 and 7.

In NHHDA, the audit log is written to for all the tables which are updated from the Forms interface, and the same audit log is written to when these tables are updated from batch data file processing. NHHDA does not write table-level audit information for all tables during instruction processing; the only batch audit information logged is for updates to ndb\_instructions and ndb\_instruction\_status\_reason.

The following table lists the audited tables and the audit codes which identify them in the audit logs:

| Table Name | Audit Code |
| --- | --- |
| ndb\_av\_frac\_y\_cons | NAF |
| ndb\_data\_agg\_runs | NDR |
| ndb\_gsp\_groups | NGG |
| ndb\_gsp\_groups\_dis | NGD |
| ndb\_gsp\_groups\_run | NGR |
| ndb\_gspg\_pc\_av\_eac | NGP |
| ndb\_isr\_agent\_apps | NIA |
| ndb\_llf\_classes | NLC |
| ndb\_m\_participants | NMP |
| ndb\_measure\_reqs | NMR |
| ndb\_profile\_classes | NPC |
| ndb\_settlements | NSE |
| ndb\_std\_sett\_cfgs | NSS |
| ndb\_threshold\_pars | NTP |
| ndb\_t\_p\_regimes | NTR |
| ndb\_vsscpcs | NVS |
| ndb\_check\_dc\_data\_runs | NDC |
| ndb\_instructions | NIS |
| ndb\_instruction\_status\_reason | NIR |
| ndb\_refresh\_instr\_failure | NRF |
| ndb\_refr\_instr\_failure\_reason | NRR |
| ndb\_user\_roles (View) | NUR |

Note that the field order is determined from the database definition - see Appendix C.

### MDD Load Audit

In NHHDA, the ndb\_temp\_mdd\_load\_audit log is written to for tables which are updated from batch data file processing for the mdd load process. NHHDA does not write table-level audit information for all tables during instruction processing. The following table lists the audited tables

| Table Name |
| --- |
| ndb\_av\_frac\_y\_cons |
| Ndb\_gsp\_group |
| Ndb\_gsp\_group\_dis |
| Ndb\_isr\_agent\_apps |
| Ndb\_llf\_classes |
| Ndb\_measure\_reqs |
| Ndb\_m\_participants |
| Ndb\_profile\_classes |
| Ndb\_std\_sett\_cfgs |
| Ndb\_threshold\_pars |
| Ndb\_t\_p\_regimes |
| Ndb\_vsspcs |

A complete record will be reported on, not just individual field changes.

## Archive

### Overview

As defined in [CTSPEC], archive and restore consists of two parts:

1. saving the data on long term media
2. deleting the online copy of the data

The first part of this process is satisfied by keeping the backups of the Oracle database and Operating System files from just prior to the deletion process. In determining the data to be deleted, two types of data must be considered:

1. data stored in the Oracle database
2. data stored in Operating System files

Each can be considered separately. Firstly, for data in the Oracle database, a set of rules can be derived which will determine the interaction of the individual data items and therefore what can be deleted and what cannot even if it meets other (time based) criteria. For data stored in Operating System files the consideration is simpler and is restricted to determining if the whole file can be deleted.

### Oracle Database Data - Time Based Criteria

The determination of archive data is primarily time based. The data can be grouped into areas each of which have their own time period for archive (called Archive groups). For each of these Archive Groups it is necessary to store both a time period and a date on which the last archive of this sort of data was performed. In this way it is possible both for the archive process to know what period to archive and for other processes to know the period of validity of the data currently in the database. Therefore to determine if any record is old enough to consider for deletion, the formula will be:

IF (date on record <= (system date - archive period))

THEN

record is deletion candidate so

perform other checks and maybe delete record

ENDIF

It is intended that for each Archive Group the archive period and last archive date should be stored as system variables, with only the archive period able to be changed by the system users. The last archive date should be automatically changed by the archive process when it runs. However, if the Archive Group is not FIS or FIN and the archive period is changed such that the last run date is now later than the archive period suggests it should be, then no data deletions or updates of the last archive date can take place until the system date has ‘caught up’ to the change. So an overall check must be added to the start of any archive routine:

IF ( (system date - archive period) > last archive date))

THEN

continue with archive routine

.

.

.

set last archive date = system date – archive period

ENDIF

Instruction Data (Archive Group FIS / FIN) is an exceptional case. The archive routine will always consider this group, regardless of the last archive date. This is because Instruction Data cannot be deleted until the corresponding Instruction File has been archived, and Instruction Files become available for archiving according to rules which are not purely time-based (see section 4.5.4). Thus it could be several years before an Instruction File can be archived. When archiving runs, any number of old Instruction Files may have become available for archiving for the first time. Being able to specify an archive period prior to the last run date enables the number of files to be archived to be controlled.

### Oracle Database Data - Rule Based Criteria

As previously stated most records in the Oracle database have deletion criteria in addition to the age of the record. These correspond to a set of rules associated either with records in an individual table or with group of tables. To fully specify these rules it is simplest to list the tables that archiving will be applied to, the date column(s) that time based criteria applies to and the deletion rules that apply. In the following table the value of archive\_date is system date - archive period. The actual archive period is determined by a system parameter corresponding to the Archive Group (see section 4.3.4.4 Database specification) as noted in the table.

| Table | Date Column(s) | Archive Group | Deletion Rule(s) |
| --- | --- | --- | --- |
| ndB\_exception\_ data | file\_creation\_date | DBS | archive\_date >= file\_creation\_date. |
| ndb\_ms\_prs\_dets | eff\_to\_sett\_date | DBS | archive\_date >= eff\_to\_sett\_date. |
| ndb\_ms\_dc\_dets | eff\_to\_sett\_date | DBS | archive\_date >= eff\_to\_sett\_date. |
| ndb\_data\_agg\_apps | eff\_to\_sett\_date | DBS | archive\_date >= eff\_to\_sett\_date.  if removing last record for this metering system then additionally remove all records from ndb\_ms\_prs\_dets, ndb\_registrations and ndb\_dc\_apps for this metering system. |
| ndb\_registrations | eff\_to\_sett\_date | DBS | archive\_date >= eff\_to\_sett\_date  additionally, delete all records from ndb\_dc\_apps for any deleted registration |
| ndb\_ms\_exceptions | eff\_to\_sett\_date | DBS | archive\_date >= eff\_to\_sett\_date. |
| ndb\_instructions, ndb\_instructions­\_status\_reason | greatest (creation\_time, received\_time, process\_send\_time) on cdb\_file\_reference table | FIS / FIN | Instruction Files: ARCHIVE\_DATE (based on the FIN value) >= file date  Instruction Data: NDB\_INSTRUCTIONS and NDB\_INSTRUCTION\_STATUS\_REASON rows deleted if the archive date (based on the FIS value) >= file date AND the corresponding instruction file has been archived. |
| ndb\_register\_cons (Annualised Advances) | eff\_to\_sett\_date | DBS | archive\_date >= eff\_to\_sett\_date. |
| ndb\_register\_cons (Estimated Annual Consumption) | eff\_from\_sett\_date | DBS | archive\_date >= eff\_from\_sett\_date and  *either* there is a later EAC record with archive\_date >= eff\_from\_sett\_date from an appointed Data Collector  *or* there are no ndb\_data\_agg\_apps for the metering system with eff\_to\_sett\_date >= this record’s eff\_from\_sett\_date |
|  |  |  | If deleting a record from ndb\_register\_cons leaves a metering system with no record in ndb\_register\_cons from the same data collector, all records in ndb\_ms\_dc\_dets for that metering system from the same data collector are also deleted |
| ndb\_settlements ndb\_data\_agg\_runs ndb\_spmatrix | settlement\_date | DBS | archive\_date >= settlement\_date  also delete all child records in ndb\_data\_agg\_runs, ndb\_gsp\_groups\_run, ndb\_spmatrix |
| ndb\_isr\_agent\_apps | eff\_to\_date | DBS | archive\_date >= eff\_to\_date |
| ndb\_gsp\_groups\_dis | eff\_to\_sett\_date | DBS | archive\_date >= eff\_to\_sett\_date |
| ndb\_av\_frac\_y\_cons | eff\_to\_sett\_date | DBS | archive\_date >= eff\_to\_sett\_date |
| ndb\_threshold\_pars | eff\_from\_sett\_date | DBS | archive\_date >= eff\_FROM\_sett\_date and this is not the latest record prior to or on the archive\_date. |
| ndb\_gspg\_pc\_av\_eac | eff\_to\_sett\_date | DBS | archive\_date >= eff\_to\_sett\_date |
| cdb\_activity | schedule\_time | DBA | archive\_date >= schedule\_time also delete any child records in cdb\_activity\_parameter |
| cdb\_file\_reference, cdb\_data\_file, cdb\_file\_export, cdb\_report\_file, cdb\_instruction\_file | greatest (creation\_time, received\_time, process\_send\_time) on cdb\_file\_reference table | DBF | Records in cdb\_file\_reference, cdb\_data\_file, cdb\_file\_export, cdb\_report\_file, cdb\_instruction\_file are not deleted before the corresponding file has been archived and taken off line. |
| ndb\_metering\_sys |  | N/A | If there are no details in ndb\_ms\_prs\_details, ndb\_ms\_dc\_details, ndb\_registrations, ndb\_register\_cons or ndb\_instructions then delete ndb\_metering\_system and any child records in ndb\_ms\_exceptions. |

Note that the mechanism for deletion of ndb\_metering\_sys uses triggers on its details - whenever a detail is deleted, the trigger sets a flag to indicate that the ndb\_metering\_sys needs checking; whenever a detail is added or modified, the flag is cleared. This mechanism means that if either archive or instruction processing removes the last detail of a metering system, the archive process will then remove the metering system record itself.

### File Data

Data stored in Operating System files is treated on a file by file basis. That is to say that an entire file is deleted in one go rather than individual data items within it. The decision to delete a file is based on data held about the file in the common Oracle database tables and is based on separate criteria for each file type. The actual archive period is determined by a system parameter corresponding to the Archive Group (see section 4.3.4.4 Database specification) as noted in the table. The archive period is specified as a number of days since the last activity on the file, i.e.: greatest (creation\_time, received\_time, process\_send\_time ). Note that this value yields a date-time value whereas the archive date is a date only (implied time 00:00:00). So a file with a creation date-time of 1 Dec 1997 13:10 will not be archived when the archive date is 1 Dec 1997.

| File Type | Archive Group | Deletion Rule(s) |
| --- | --- | --- |
| instruction file | FIN | Must have status of ‘PROCESSED’, ‘CORRUPTED’ or ‘SKIPPED’ To allow NHHDA to determine handling of the next file, do not delete the last ‘processed’ file from a data source. Corresponding Instruction data will not be archived before Instruction files are archived |
| data file | FID | To allow for reprocessing, do not delete the last file of each data file type processed by NLD. |
| unknown/corrupt file | FUK |  |
| supplier purchase matrix | FSP |  |
| failed instruction list | FFI |  |
| check data collector data exceptions | FCE |  |
| audit log | FAU |  |
| operator log | FOP |  |
| error log | FER |  |
| user generated reports | FUR |  |
| exception reports | FEX |  |
| DC Performance Report | FDC |  |
| Monthly D0095 Report | FCS |  |

When archived, a file is not actually deleted. It is moved to an archive directory (a new archive directory is used for each run of the archive process and an operator message issued to identify the directory at the end of the run). The operator is responsible for transferring the files onto tape. The system has to be told that this has been done using the utility “arc\_path”. This utility is run at the Operating System command line and has the following definition:

arc\_path -m <mode> [-u <username>] [-p <password>]   
 [-f archive\_directory] [-t archive\_media]

The utility is used to

1. notify the system of the identity of the archive media (requires specification of the archive\_directory and the archive\_media) [mode = media];

arc\_path -m media [-u <username> -p <password>]   
 [-f archive\_directory] [-t archive\_media]

1. notify the system that the contents of the archive directory have been deleted or removed (requires specification of the archive\_directory) [mode = offline];

arc\_path -m offline [-u <username> -p <password>]   
 [-t archive\_media]

arc\_path -m media -m offline   
 [-u <username> -p <password>] [-f archive\_directory]  
 [-t archive\_media]

1. notify the system that an archive has been restored (requires specification of the archive\_directory and the archive\_media). Note that the data need not be restored into the original archive\_directory [mode = online].

arc\_path -m online [-u <username> -p <password>]   
 [-f archive\_directory] [-t archive\_media]

### Archive Groups

It is obvious from the above that there are several different archive periods required and each should be configurable by the system operators. These are stored as system variables in the cdb\_system\_parameter table as listed in section 4.3.4.4 (parameter 1 - “ARP”). The archive program stores the archive\_date value used in the corresponding “ARD” set of parameters.

## Database Sizing

Please refer to the Installation Guide ningde Appendix –NHHDA Oracle Database Tablespaces for detailed database sizing.

Summary of sizing totals.

| Sizes in Gb | Initial | End | Max |
| --- | --- | --- | --- |
| space for tables | 9.17 | 31.69 | 47.51 |
| space for indexes | 12.72 | 43.00 | 43.23 |
| Size | 21.89 | 74.69 | 90.74 |

## File Sizing

The following table shows the sizes of the files used by NHHDA. All sizes are based on [NHHDAURS]:

10,000,000 metering systems

270,000 instructions per day (based on logical design)

48,000,000 supplier purchase matrix cells

All database fields are assumed to be fully filled with data. All reports are run on a totally ad hoc basis so no volumetric information can be derived for these files.

| Name | Record Length (bytes) | Number of Records per Copy | Average Number of Copies per Day | Approx. Daily Volume (Mb) |
| --- | --- | --- | --- | --- |
| Instruction Input File | 137 | 270,000 | 1 | 37 |
| Instruction Audit Information | 200 | 270,000 | 1 | 54 |
| Aggregation Exception Log (machine format) | 40 | 10,000,000 | 8 | 3,200 |
| Check data collector data (machine format) | 40 | 10,000,000 | 1/14 | 29 |
| Supplier Purchase Matrix | 119 | 48,000,000 | 8 | 45,000 |
| Failed Instructions | 50 | 27,000 | 1 | 1 |
| **Monthly D0095 Report** | **100** | **1,500** | **1 per month** | **1** |
| **Total** |  |  |  | **48,322** |

The number of Metering Systems and SPM cells is very high and in practice it is unlikely that these numbers of records will ever be reached. More realistic numbers are 3,000,000 meters, 80,000 Instructions and 10,000 SPM cells. Using these figures :

| Name | Record Length (bytes) | Number of Records per Copy | Average Number of Copies per Day | Approx. Daily Volume (Mb) |
| --- | --- | --- | --- | --- |
| Instruction Input File | 137 | 80,000 | 1 | 11 |
| Instruction Audit Information | 200 | 80,000 | 1 | 16 |
| Aggregation Exception Log (machine format) | 40 | 3,000,000 | 8 | 960 |
| Check data collector data (machine format) | 40 | 3,000,000 | 1/14 | 9 |
| Supplier Purchase Matrix | 119 | 10,000 | 8 | 10 |
| Disconnection Purchase Matrix File | 119 | 10,000 | 8 | 10 |
| Failed Instructions | 50 | 8,000 | 1 | 1 |
| **Total** |  |  |  | **1007** |

## Total Sizes

|  | expected | maximum |
| --- | --- | --- |
| Database: | 21 Gb | 100 Gb |
| Files (assume 14 days kept): | 14 Gb | 676 Gb |
| Reports (depends on volume of reporting and archive period): | 1 Gb | 20 Gb |
| **TOTAL:** | **36 Gb** | **796 Gb** |

# NAR Aggregation Run Subsystem Specification

## Introduction

The Aggregation Run subsystem aggregates the metering system data for specified settlement days and generates files to send to ISR Agents and Suppliers.

The NAR subsystem performs the following actions:

1. recovery of previous failed runs;
2. activation of multiple aggregation sub-processes;
3. reading of meter system data, optimised for the database partitioning;
4. calculation of the consumption of a meter on a settlement day, to be charged to a supplier;
5. aggregation of sets of similar meters into Supplier Purchase Matrix cells;
6. generation of sets of structured files of Supplier Purchase Matrices for sending to ISR Agents and Suppliers;
7. generation of DC Performance Report.

The subsystem is initiated by the CSC Scheduler process, and runs in batch mode.

The process control module recovers disk and database data from the last run, if it did not complete successfully. It then initiates processes to create the required Supplier Purchase Matrix files, in a format suitable for exporting to other Market Participants.

It is also possible to re-run the final part of the subsystem separately, to regenerate the output files from the SPM table in the database.

The facilities of the common subsystems are used for process control, file management and file export. Communication between separate executables of the subsystem is done using the common scheduling functions.

**NOTE:** In this section ISR Agent is determined by the BETTA Start Date for Scottish GSPs. For settlement dates before the BETTA Start Date the ISR Agent for Scottish GSPs will be that stored in the ‘SPI’ system parameter (i.e IAR), for settlement dates on or after the BETTA Start Date for Scottish GSPs the ISR Agent will be the same as for English and Welsh GSPs.

## Subsystem Context

### Subsystem Context Diagram

The context diagram for this subsystem is shown in Figure 2:



Figure 2: Context Diagram for Aggregation Run

### Interfaces

#### CSC Scheduler

This process activates the Aggregation Run subsystem, according to events scheduled using the utility nhh\_submit.exe. All data for the run is held in pre-defined locations in the database.

The Scheduler is responsible for ensuring that the Aggregation process does not run at the same time as other processes submitted on the Exclusive queue.

The main NAR process keeps an active entry on the Exclusive queue, while submitting multiple sub-processes to non-exclusive queues to perform the aggregation. The wait functions of CSC Scheduler are used to synchronise the stages of the processing.

#### CFS File Sender

The CFS.EXPORT function is called to send Supplier Purchase Matrix Data files when required.

#### Database

A number of database tables are accessed and written within the subsystem. The exact identities are specified in the Data Usage section of this document.

The high level data flows are as follows:

| Flow Name | Direction | Description |
| --- | --- | --- |
| SPM Data | Input  Output | The aggregated data. It is created from the meter data, and read back to form the structured files |
| Run Definition | Input | The details of the GSP Groups and Settlement Dates for which Aggregation Runs are required. |
| Meter Data | Input | The meter appointments, details and EACs/AAs which contribute to the SPMs. |
| Reference Data | Input | Fixed Pool data definitions (for example, Metered |Unmetered flags). Also AFYCs and thresholds, which are not assigned to individual meters. |
|  |  |  |

#### Output Files

The table below lists the files which are created during the NAR processing. Multiple instances of each file type may be created.

| Flow Name | Direction | Description |
| --- | --- | --- |
| Supplier Purchase Matrix Data File | Output | These are structured files, holding Supplier Purchase Matrices in a suitable form for sending to ISR Agents and Suppliers. One file will be created for each Supplier and the ISR Agent for each GSP group/Settlement run combination in the NAR execution. Supplier files only contain data about the Supplier to which they are sent, ISRA files contain data about all Suppliers. |
| Aggregation Records | Input  Output | These are temporary files, used during the aggregation processing. They are deleted during the later stages of the NAR processing. The number of files created will be decided during implementation and optimisation. |
| Aggregation Exception Log | Output | These files hold records of predefined exceptions affecting the settlement runs, for audit purposes. One set (1 file per run) of files will be created for each ‘calculate increments’ process initiated by CSC - i.e. each file contains the exceptions for one run-partition combination. |
| Aggregation Audit Log | Output | These files hold records of the data used in the settlement runs. When enabled, each ‘calculate increments’ process creates an Audit log for each run; additionally each ‘calculate defaults’ process creates an Audit Log. For each run there is, then, an Audit Log for every partition plus an Audit Log for the default processing |
| Error Log | Output | This file records unexpected processing errors encountered during NAR processing. The file will be written using CLG functions. |
| Operator Log | Output | This file records major events during the NAR processing, as is written using CLG functions |
| DC Perfornance Report | Output | This file records counts and sub-totals of EACs and AAs per suppliers for a DC. |
| Demand Purchase Matrix Data file | Output | The Demand purchase matrix flow i.e. D0377 will only be created when the metering system id associated with DCE for the settlement period that aggregation is run, is present in the demand control event table loaded by Load Demand Control Event flow (P0238) but not in the ndb\_hh\_dd\_volumes loaded by the estimated HH demand disconnection volume flow (D0375). |

The Aggregation Audit Logs are required for audit purposes on an occasional basis. For this purpose, a backup of the database is taken after each set of aggregation runs. The auditor may restore the backup and re-run the Aggregation Run without deleting the Aggregation Records. These records may then be viewed using standard Operation System tools. On re-run, the SPM generated is compared with that from the original run to confirm the same data has been used.

Only the Supplier Purchase Matrix Data Files are part of the external NHHDA interface (see Section 3.)

The Aggregation Exception Log is specified in the following section.

### Aggregation Exception Log File

#### File Specification

The following record types appear in Aggregation Exception Log files:

|  |  |  |  |
| --- | --- | --- | --- |
| **ZHD - File Header** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZHD |
| 2 | File Type | text(8) | = L0037001 |
| 3 | From Role Code | text(1) | = B |
| 4 | From Participant Id | text(4) | Id of NHHDA |
| 5 | To Role Code | text(1) | null |
| 6 | To Participant Id | text(4) | null |
| 7 | Creation Time | date/time | Time of file generation |

|  |  |  |  |
| --- | --- | --- | --- |
| **ZPD - Data File Additional Header** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZPD |
| 2 | Settlement Date | date | Settlement Date for Aggregation Run |
| 3 | Settlement Code | text(2) | Settlement Code for Aggregation Run |
| 4 | Run Type Code | text(2) | = D (Run Type Code for Aggregation Run) |
| 5 | Run Number | integer(7) | Run identifier internal to NHHDA |
| 6 | GSP Group | text(2) | null |

| **AXH - Aggregation Exception Header** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | = AXH |
| 2 | Activity Identifier | integer(10) | identifier of the activity which created the file |
| 3 | Partition Identifier | integer(3) | partition aggregated by the specified activity |

| **EXM - Metering System Identifier** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = EXM |
| 2 | Metering System Id | integer(13) | mandatory (Except with exceptions A13 and A14 where this will be NULL) |

| **A01 - Exception Details (no EAC or AA for Metering System)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = A01 |
| 2 | Appointed Data Collector Id | text(4) | mandatory |
| 3 | Registration Effective From Settlement Date | date | mandatory |
| 4 | Data Collector Appointment Effective From Settlement Date | date | mandatory |

| **A02 - Exception Details (no PRS Data Provided)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = A02 |
| 2 | Data Collector Id | text(4) | mandatory |
| 3 | Effective From Settlement Date of DC Details | date | mandatory |

| **A03 - Exception Details (non-zero AA when de-energised)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = A03 |
| 2 | Data Collector Id | text(4) | mandatory |
| 3 | AA Effective From Settlement Date | date | mandatory |

| **A04 - Exception Details (multiple MAP)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = A04 |
| 2 | Data Collector Id | text(4) | mandatory |
| 3 | Effective From Settlement Date for AA from specified Data Collector | date | mandatory |

| **A05 - Exception Details (Supplier incorrect)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = A05 |
| 2 | Data Collector Id | text(4) | mandatory |
| 3 | Supplier Id (PRS) | text(4) | mandatory |
| 4 | Supplier Id (DC) | text(4) | mandatory |
| 5 | Effective From Settlement Date of PRS Data | date | mandatory |
| 6 | Effective From Settlement Date of Data Collector Data | date | mandatory |

| **A06 - Exception Details (Measurement Class incorrect)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = A06 |
| 2 | Data Collector Id | text(4) | mandatory |
| 3 | Measurement Class Id (PRS) | text(1) | mandatory |
| 4 | Measurement Class Id (DC) | text(1) | mandatory |
| 5 | Effective From Settlement Date of PRS Data | date | mandatory |
| 6 | Effective From Settlement Date of DC Data | date | mandatory |

| **A07 - Exception Details (GSP Group incorrect)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = A07 |
| 2 | Data Collector Id | text(4) | mandatory |
| 3 | GSP Group Id (PRS) | text(2) | mandatory |
| 4 | GSP Group Id (DC) | text(2) | mandatory |
| 5 | Effective From Settlement Date of PRS Data | date | mandatory |
| 6 | Effective From Settlement Date of DC Data | date | mandatory |

| **A08 - Exception Details (Profile Class incorrect)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = A08 |
| 2 | Data Collector Id | text(4) | mandatory |
| 3 | Profile Class Id (PRS) | integer(2) | mandatory |
| 4 | Profile Class Id (DC) | integer(2) | mandatory |
| 5 | Effective From Settlement Date of PRS Data | date | mandatory |
| 6 | Effective From Settlement Date of DC Data | date | mandatory |

| **A09 - Exception Details (Energisation Status incorrect)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = A09 |
| 2 | Data Collector Id | text(4) | mandatory |
| 3 | Energisation Status (PRS) | text(1) | mandatory |
| 4 | Energisation Status (DC) | text(1) | mandatory |
| 5 | Effective From Settlement Date of PRS Data | date | mandatory |
| 6 | Effective From Settlement Date of DC Data | date | mandatory |

| **A10 - Exception Details (Standard Sett Config incorrect)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = A10 |
| 2 | Data Collector Id | text(4) | mandatory |
| 3 | SSC Id (PRS) | text(4) | mandatory |
| 4 | SSC Id (DC) | text(4) | mandatory |
| 5 | Effective From Settlement Date of Last PRS Data | date | mandatory |
| 6 | Effective From Settlement Date of Last DC Data | date | mandatory |

| **A11 - Exception Details (AA for Unmetered Metering System)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = A11 |
| 2 | Data Collector Id | text(4) | mandatory |
| 3 | AA Effective From Settlement Date | date | mandatory |

| **A12 - Exception Details (Metering System Excluded)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = A12 |
| 2 | Metering System Id | integer(13) | The MSID of the excluded Metering System |
| 3 | Supplier | text(4) | The ID of the Supplier; will be null if no Registration record exists for Data Aggregator Appointment |
| 4 | Effective From Settlement Date of Registration | date | Will be null if no Registration record exists for Data Aggregator Appointment |
| 5 | Effective From Settlement Date (data aggregator appointment) | date | mandatory |

| **A13 - Exception Details (Missing AFYC)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = A13 |
| 2 | GSP Group Id | text(2) | mandatory |
| 3 | Profile Class Id | integer(2) | mandatory |
| 4 | SSC Id | text(4) | mandatory |
| 5 | Time Pattern Regime Id | text(5) | mandatory |
| 6 | Metering System Default Count | integer(7) | mandatory |

| **A14 - Exception Details (Missing Default EAC)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = A14 |
| 2 | GSP Group Id | text(2) | mandatory |
| 3 | Profile Class Id | integer(2) | mandatory |
| 4 | Metering System Default Count | integer(7) | mandatory |

| **ZPT - File Footer** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZPT |
| 2 | Record count | integer(10) | Number of records in the file, including headers and footer*.* |
| 3 | Checksum | integer(10) | mandatory |

Note:

The “Effective From Settlement Date of DC Data” date field of Aggregation Exceptions A05 to A09 refers to the Effective From Settlement Date of the latest Data Collector details record in the database before the Aggregation Run Settlement Date, as does the “Effective From Settlement Date of Last DC Data” date field of Aggregation Exception A10.

The A13 and A14 exceptions will be produced in a second exception file, that maintains the same structure as detailed above. This exception file will not be produced per partition but on a per run basis.

Repeating structure of File:

Aggregation Exception Log ::= ZHD ZPD AXH {Meter\_Set} ZPT

Meter\_Set ::= EXM Ex\_Record { Ex\_Record }

Ex\_Record ::= A01 | A02 | A03 | A04\_Set |

A05 | A06 | A07 | A08 | A09 |

A10 | A11 | A12 | A13 | A14

A04\_Set ::= A04 A04 {A04}

Sorting:

The file is not explicitly ordered, but written as exceptions are encountered. All exceptions for a single metering system will appear within one Meter\_Set, but not in any particular order. Additionally as the processing currently reads Metering System Ids in order, the file will be sorted on Metering System. Note that this ordering may not be retained following future code revisions.

#### Frequency/Volume

Maximum of 1500 files per NAR run (50 partitions \* 30 Aggregation Runs).

Number of Records: 90M records – 3M Metering Systems \* 30 Aggregation Runs, one exception per Metering System per settlement day.

Overall volume: 90,000,000 records, average record size 40 bytes gives approximately 3.6 Gb.

#### Failure/Recovery Mechanisms

This is described in the specification of the NAR Calculate Increments module.

### Aggregation Audit Log File

#### File Specification

The following record types appear in Aggregation Audit Log files:

|  |  |  |  |
| --- | --- | --- | --- |
| **ZHD - File Header** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZHD |
| 2 | File Type | text(8) | = L0038001 |
| 3 | From Role Code | text(1) | = B |
| 4 | From Participant Id | text(4) | Id of NHHDA |
| 5 | To Role Code | text(1) | null |
| 6 | To Participant Id | text(4) | null |
| 7 | Creation Time | date/time | Time of file generation |

|  |  |  |  |
| --- | --- | --- | --- |
| **ALH - Aggregation Log Header** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ALH |
| 2 | Activity Id | integer(10) | Id of activity creating file |
| 3 | Partition Id | integer(2) | (null for defaults section) |
| 4 | Settlement Date | date |  |
| 5 | Settlement Code | text(1) |  |
| 6 | Run Number | integer(7) | data aggregation run number (NHHDA internal number) |
| 7 | Threshold Parameter | integer (7) | (null for consumptions section) |

|  |  |  |  |
| --- | --- | --- | --- |
| **ALM - Metering System** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ALM |
| 2 | Metering System Id | integer() |  |
| 3 | Data Collector Id | text(4) | the Data Collector supplying the consumption used (or the one supplying an AA for an unmetered metering system even though that data is not actually used); null if no consumption available (consumption type - default) |
| 4 | Supplier Id | text(4) |  |
| 5 | Profile Class Id | integer(2) |  |
| 6 | Distributor Id | text(4) |  |
| 7 | Line Loss Factor Class Id | text (3) |  |
| 8 | Standard Settlement Configuration Id | text(4) |  |
| 9 | GSP Group Id | text(2) |  |
| 10 | Measurement Class | text(1) |  |
| 11 | Energisation Class | text(1) |  |
| 12 | Consumption Type | text(1) | A = AA for metered  E = EAC for metered  U = EAC for unmetered  D = default for metered  V = default for unmetered  N = deenergised and no AA (i.e. Metering System does NOT contribute in any way to the SPM)  Z = Zero AA for deenergised metered. |

|  |  |  |  |
| --- | --- | --- | --- |
| **ALQ - Consumption Details** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ALQ |
| 2 | Time Pattern Regime Id | text(5) |  |
| 3 | Consumption | decimal (14,1) | kWh  null if Consumption Type is default |

|  |  |  |  |
| --- | --- | --- | --- |
| **ALE - Metering System Excluded** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ALE |
| 2 | Metering System Id | integer(13) | The MSID of the excluded Metering System |

|  |  |  |  |
| --- | --- | --- | --- |
| **ALS - SPM Cell Header** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ALS |
| 2 | Supplier Id | text(4) |  |
| 3 | Profile Class Id | integer(2) |  |
| 4 | Distributor Id | text(4) |  |
| 5 | Line Loss Factor Class Id | text (3) |  |
| 6 | Standard Settlement Configuration Id | text(4) |  |
| 7 | GSP Group Id | text(2) |  |
| 8 | Time Pattern Regime Id | text(5) |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **ALD - Default Details** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ALD |
| 2 | Consumption Type | text(1) | D = default for metered  V = default for unmetered |
| 3 | Number Defaults | integer(7) | Number of Metering Systems contributing to this cell for which default consumption of this type is required |
| 4 | Default Consumption | decimal (14,1) | default consumption used for this cell (kWh )  This is calculated as either  field 6 / field 5  or  field 7 x field 8  the former is used if field 5 exceeds the threshold parameter, otherwise the latter is used. |
| 5 | Number of Metering Systems in cell | integer(7) | number of Metering Systems contributing to this cell for which default consumption of this type is NOT required |
| 6 | total actual consumption | decimal (14,1) | total consumption for all Metering Systems contributing to this cell for which default consumption of this type is NOT required (kWh)  null if Number of Metering Systems in cell below threshold parameter |
| 7 | GSP group - Profile Class Researched Default EAC | decimal (14,1) | Researched Default EAC used in derivation of default consumption  null if Number of Metering Systems in cell above threshold parameter |
| 8 | Average Fraction of Yearly Consumption | decimal (7,6) | proportion of Researched Default EAC used for cell  null if Number of Metering Systems in cell above threshold parameter |

| **ZPT - File Footer** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZPT |
| 2 | Record count | integer(10) | Number of records in the file, including headers and footer*.* |
| 3 | Checksum | integer(10) | mandatory |

Repeating structure of File:

Aggregation Audit Log ::= ZHD Audit Details ZPT

Audit Details ::= Partition Log | Defaults Log

Partition Log ::= ALH {ALE | (ALM {ALQ})}

Defaults Log ::= ALH {ALS {ALD}}

Sorting:

The file is not explicitly ordered, but as the processing currently reads Metering System Ids in order, the files for partitions will be sorted on Metering System. Note that this ordering may not be retained following future code revisions. There is no ordering performed by the code when deriving defaults, so the defaults log will not be ordered.

When Aggregation Audit is enabled, for each run there will be one partition log created for each partition plus one defaults log created.

### Special Considerations

The following assumptions and principles will be used in this physical design and the subsequent implementation:

1. A large proportion of meters will contribute to a small number of Supplier Purchase Matrix entries;
2. Adequate performance with a large database takes precedence over fast performance with a small database. Some database tuning may be required on installation to achieve this;
3. Reads and writes to slow storage media will be done in large blocks to reduce access times;
4. The database tables will be partitioned evenly across the available disks;
5. Any dynamic allocation of memory will be done once per aggregation run, not for each metering system;
6. The database will contain exceptions as defined in the URS, at the rate of one per metering system per day (maximum);
7. The records in the database will all be valid according to the checks specified for instruction processing;
8. The database may not contain sufficient PRS Agent and/or Data Collector data to allow the inclusion of a Metering System in the aggregation process. If this is the case, aggregation will continue but the Metering System will be excluded and an entry appended to the aggregation audit log recording its MSID;
9. The database may contain errors in the data, such as ranges of values (and not including the defined exceptions detected by the NCD subsystem). These errors will result in error log entries. The database row containing the invalid data will be ignored, and default values used where appropriate;
10. In order to support audit requirements, the database is locked against update when an Aggregation Run starts. The lock is not released until a database backup has been completed and the Data Aggregator has informed the system that the lock is to be released;
11. Audit data information indicating which SPM cell was updated for each Metering System along with the source of consumption data (if appropriate) and the nature of the update is enabled by specifying a parameter to the aggregation process.
12. A missing AFYC value or Default EAC value will not cause an Aggregation run to fail. A message will be sent to the operator log to highlight the presence of the exception and the number of MSIDs affected. The exception will be detailed in the Aggregation Exception Log File.

## Subsystem Processing

### Major Components

The separate modules provided by the subsystem are identified in Figure 3. All of these may be called by CSC Scheduler, although only *NAR Aggregate EACs and AAs* and *NAR Generate SPM Output* can be scheduled from the user interface.



Figure 3: Subsystem Decomposition for Aggregation Run

The processing performed by each executable is described in 5.3.3.

### Flow Control

The subsystem may run multiple instances of the same executables simultaneously. This is controlled by the top-level functions of this subsystem, using the facilities of CSC Scheduler, as shown in Figure 4.



Figure 4: NAR Processing Flow

The numbers against the processes indicate the order in which the processes will be activated. The number of concurrent processes of each type is tuneable, according to the hardware configuration.

Note that each instance of NAR Calculate Increments runs against a single Metering System partition.

All the NAR Calculate Increments processes complete before any Aggregate Data processes are started; all of the Aggregate Data processes complete before Calculate Defaults is invoked. Generate SPM Output is invoked once Calculate Defaults completes.

Note that NAR Aggregate Data and NAR Calculate Defaults are combined into a single activity (NAR\_AD) which performs the Aggregate Data and then the Calculate Defaults.

### Detailed Process Descriptions

#### NAR Aggregate EACs and AAs

Figure 5 shows the structure of the controlling procedure for Aggregation.

Each iteration process (indicated with a ‘\*’) calls the external interface (from Figure 3) with the same name (prefixed by NAR).



Figure 5: NAR Aggregate EACs and AAs

This process provides the external subsystem interface to process N0008 of [NFUNDEF]. It initialises the aggregation run, and performs the following actions:

1. Evaluate Last Run performs any actions necessary to recover from previous failed runs (including deletion of incomplete files and database entries) and returns the list of processing still to be done;
2. Calculate Increments, Aggregate Data, Calculate Defaults and Generate SPM Output are run according to this list. Whichever function is run, the functions to the right of it become mandatory to complete the aggregation run.

The structure of these four functions is similar:

1. work out the total set of aggregations required, to generate parameter lists for the sub-processes;
2. submit calls to the NAR <function name> process (see Figure 3) using CSC Scheduler;
3. wait for the sub-processes to complete;
4. return success or fail code.

#### NAR Calculate Increments

This process accepts a parameter list including details of the aggregations to be performed and meters to be processed. It initialises the database reads and creates output files to hold increment records.

It then loops through each metering system in turn, within the range given by the activation parameters. For each of the meter’s measurement requirements, it creates a record for each scheduled run’s settlement date. This contains updates to the SPM fields due to this meter’s consumption on this settlement date.

Each set of metering system data is checked for the defined exception conditions. Any exceptions found are written to an exception report file.

The resulting records will be aggregated directly to a file on disk.

Recovery of this stage must be performed by deleting all temporary files, and restarting the complete aggregation run.

#### NAR Aggregate Data

This process reads files of SPM update records generated by the Calculate Increments process, and aggregates them to create SPM records. The aggregated values are added to the database when all files allocated to the process have been read.

Recovery of this stage must be performed by restarting all failed instances of the subprogram. Updates to the database SPMs will not have been committed by failed sub-processes, as they occur in a single database commit block at the end of processing.

This process also generates the DC Performance Report.

#### NAR Calculate Defaults

This process reads the threshold parameter, average fractions of yearly consumption and Researched Default EAC tables and updates the default values for all SPM records generated in this run. Recovery of this stage involves restarting the complete stage. Updates to the database SPMs will not have been committed by failed sub-processes, as they occur in a single database commit block.

#### NAR Generate SPM Output

This process provides the external subsystem interface to process N0005 of [NFUNDEF].

This process uses the input definition of the aggregation run to find the SPM records generated. These records are written to files, sorted by Supplier and GSP group. The AA% for each file will be calculated and stored to be available for display later.

When all output files are completed and closed, CFS File Sender is used to export the files to the external gateway.

## Data Usage

### System Data

#### Database

The following NHHDA database tables are accessed directly. Where a table is partitioned, access will use generic read and write functions. Selects from these tables will be optimised according to the partition structure to control disk reading in multiple disk systems.

1. ndb\_av\_frac\_y\_cons (read);
2. ndb\_data\_agg\_apps (read);
3. ndb\_data\_agg\_runs (read, update);
4. ndb\_dc\_apps (read);
5. ndb\_gsp\_groups\_run (read);
6. ndb\_gspg\_pc\_av\_eac (read);
7. ndb\_isr\_agent\_apps (read);
8. ndb\_measure\_reqs (read);
9. ndb\_metering\_sys (read);
10. ndb\_ms\_dc\_dets (read);
11. ndb\_ms\_prs\_dets (read);
12. ndb\_nar\_file location (read)
13. ndb\_nar\_files (create, read, update, delete)
14. ndb\_register\_cons (read);
15. ndb\_registrations (read);
16. ndb\_spmatrix (create, read, update, delete);
17. ndb\_threshold\_pars (read);

Where possible, common tables will be accessed using the common functions provided for this purpose. The common tables accessed directly by this subsystem are:

1. cdb\_activity (read);
2. cdb\_data\_file (update)
3. cdb\_file\_reference (read);
4. cdb\_system\_parameter (read).

The subsystem accesses the system clock, to compare the current date with the settlement dates of Aggregation Runs. This is done through the csl\_read\_datetime function defined in [CTSPEC].

The shutdown\_requested global process variable will be read at regular intervals by each main process, to detect requests to terminate the process.

### Local Data

#### Aggregation Runs

This is a local copy of the GSP groups vs Settlement Dates required to be aggregated.

#### Meter System Data

This data item holds data from the database which defines a single metering system. The exact contents of this storage area will be determined when the algorithms for each process are defined.

#### Aggregation Records

This is a set of files used as working storage. It contains data from individual settlement registers, appropriate to the settlement dates and GSP Groups for a run, which will be aggregated into an SPM.

#### Aggregation Run GSP Group Metering System Count

This is an array containing the number of valid Metering Systems within a GSP Group for a given Aggregation Run.

#### Exception Logs

This is a set of files which contain exceptions encountered during aggregation.

#### Aggregation Audit Log

These files are generated according to [CTSPEC], using the common functions provided for this purpose.

## Procedure Details

### Procedure NAR Aggregate EACs and AAs Specification

Procedure Name: NAR Aggregate EACs and AAs

Inputs: Scheduled working date of aggregation run

Outputs: None

This procedure provides an external interface to the NAR subsystem.

Populate Aggregation Runs local store from the ndb\_data\_agg\_runs table, to remove duplicate runs and ensure that all scheduled runs are aggregated in a single pass through the meter data.

If the System Parameter AAV (Aggregate All Valid GSP Groups) is set to FALSE but no GSP Groups have been assigned to this run, then no GSP Groups are retrieved and this is a fatal error.

Set run status flag using a call to Evaluate Last Run to tidy up incomplete runs and return a flag to indicate the processing required to complete the scheduled run

According to run status flag:

IF (flag = new run) THEN

CALL Calculate Increments

END IF

IF success or (flag = increments calculated) THEN

CALL Aggregate Data

CALL Calculate Defaults

END IF

IF success or (flag = defaults calculated) THEN

CALL Generate SPM Output

END IF

The identities and parameter lists for the scheduled sub-processes are calculated using system constants and the database partitioning of metering systems.

If any called function returns a fatal error status then report the failure.

Tidy up working files to start of failed stage

Report failure

Update run status in ndb\_data\_agg\_runs to failed

EXIT

This procedure will be implemented using Pro\*C.

### Procedure NAR Calculate Increments

Procedure Name: NAR Calculate Increments

Inputs: Partition Id

Date of Run

Outputs: None

This procedure implements the detailed functionality required to calculate SPM increments for each meter.

It results in a number of disk files holding individual update records for aggregation.

CALL Read Meter to initialise tables for Partition Id

Create working disk files, named by (activity id, SPM range)

FOR each metering system in this partition

Read all DC data into local arrays

Read all exception data into local array

FOR all settlement dates (descending order)

Write exceptions for settlement date to file

Get PRS dets, appointments for settlement date

IF DAA exists THEN

Get PRS data

IF (meter GSP Group in settlement run

or

Sys. Par. NAR/AAV set to TRUE and not a dispute run with GSP Groups assigned) THEN

Get AA or EAC to be used [see NFUNDEF)

IF value found THEN

Calculate SPM updates for all MRs

Add increments to files

OTHERWISE

Report exception for meter

Add 1 to default count in file

END IF

END IF

Next (earlier) settlement date

END FOR

Next metering system

END FOR

This procedure will be implemented using Pro\*C.

### Procedure NAR Aggregate Data Specification

Procedure Name: NAR Aggregate Data

Inputs: SPM Range

Outputs: None

This procedure aggregates the individual SPM increments into SPM records in the database.

Open all files whose names hold SPM Range

FOR each file

FOR each record in file

Add usage/count increments to SPM record locally

END FOR

END FOR

Write SPM records to database

Generate the DC Performance Report

This procedure will be implemented using Pro\*C.

### Procedure NAR Calculate Defaults

Procedure Name: NAR Calculate Defaults

Inputs: SPM Range

Outputs: Status

FOR each SPM in SPM range LOOP

Read SPM

IF threshold value > default meter count THEN

Get AFYC data & Researched Default EAC for SPM

IF data not found for AFYC & Researched Default

EAC

Write exception

END IF

ELSE

calculate averages from SPM values

END IF

Update SPM with calculated usage for defaulted meters

END FOR

This procedure will be implemented using Pro\*C. When the AFYC or Researched Default EAC data is missing, the AFYC or EAC will be set to zero and the metered or unmetered EAC count will not be incremented. The default count will be set to zero in the SPM.

### Procedure NAR Generate SPM Output Specification

Procedure Name: Generate SPMs

Inputs: Date of Run

Outputs: Status

The aggregation runs will be selected from ndb\_data\_agg\_runs. For each run, the appropriate SPM entries from ndb\_spmatrix will be selected, grouped by GSP group. While generating each SPM file the AA percentage will be calculated and stored in the aa\_percentage column of the cdb\_data\_file table. The AA percentage is calculated as:

AA Percentage = (Sum(SPM total AA) / (Sum(SPM total EAC) + Sum(SPM total AA))) \* 100

where

SPM total AA = total energy of AA metering system for the supplier purchase matrix file

and

SPM total EAC = total energy of EAC metering system for the supplier purchase matrix file.

Structured files will be written (using CSL functions) as required by the ISR Agents and Suppliers. CFS.EXPORT will then be used to send the files to their target Market Participants. For Scottish GSPs the target ISR Agent depends on the BETTA Start Date. For settlement dates before the BETTA Start Date the ISR Agent for Scottish GSPs will be IAR, for settlement dates on or after the BETTA Start Date for Scottish GSPs the ISR Agent will be retrieved from table nbd\_isr\_agent\_apps. Any SPMs containing no data will not be created and a warning message issued to the Operator Log.

This procedure will be implemented in Pro\*C.

# NCD Check Data Collector Data Subsystem Specification

## Introduction

The NCD Check DC Data subsystem checks all metering system data, from PRS agents and Data Collectors. It produces report files for sending to Suppliers, or displaying to the Data Aggregator.

The NCD subsystem performs the following functions:

1. activation of multiple data checking sub-processes;
2. reading of metering system data, optimised for the database partitioning, where the exception records are out of date;
3. evaluation of the validity of these metering system records;
4. activation of report generation processes for the requested NCD runs;
5. generation of sets of structured files of Data Collector Exceptions for sending to Suppliers

The subsystem is initiated by the CSC Scheduler process, and runs in batch mode.

Errors occurring during processing are handled by the database rollback/commit facilities. In addition, incomplete files will be logged in the common database tables, and tidied up by the next run of the subsystem.

Processing failures when checking the metering system data will be recorded using the CLG functions to write to the error log. This may result in exceptions being omitted from the report files, but will not result in out of date exceptions being reported.

The facilities of the common subsystems are used for process control, file management, file export and error logging. Communication between separate executables of the subsystem is done using the common scheduling functions.

## Subsystem context

### Subsystem Context Diagram

The context diagram for this subsystem is shown in Figure 6.



Figure 6: Context Diagram for Check DC Data

The Operator Log and Error Log files are written using the functions provided by the CLG Logging subsystem. The Data Collector Exceptions file is written using the functions of CSL Server Library.

### Interfaces

#### CSC Scheduler

This process activates the Check DC Data subsystem. This is triggered by a queue entry generated by the previous run of the subsystem, or by the Check Data Collector Data form. The definitions for any reports to be generated during the run are held in the ndb\_check\_dc\_data\_runs table in the database.

The Scheduler is responsible for ensuring that the Check DC Data process does not conflict with other processes scheduled using the Exclusive queue.

The main NCD process keeps an active entry on the Exclusive queue, while submitting multiple sub-processes to non-exclusive queues to perform the DC data checking. The WAIT\_ALL function of CSC Scheduler is used to synchronise the stages of processing.

#### Database

A number of database tables are accessed and written within the subsystem. The exact identities are specified in the Data Usage section of this document.

The high level data flows are as follows:

| Flow Name | Direction | Description |
| --- | --- | --- |
| Meter Status | Input  Output | The metering system Id and earliest unchecked settlement date (which is updated on successful updating of the exception for that metering system) |
| File Status | Input  Output | The details of report files are read directly, and updated using CSL Delete File, to recover failed runs. |
| Meter Data | Input | The meter appointments, details and EAC/AAs for metering systems which require checking. |
| Exceptions | Input  Output | Read stored exceptions, delete those which are out of date and write updates to exceptions for meters. |

#### Output Files

The table below lists the files which are created during the NCD processing. Multiple instances of each file type may be created.

| Flow Name | Direction | Description |
| --- | --- | --- |
| Error Log | Output | Unexpected data or processing errors generated during processing, written using CLG Logging functions. |
| Operator Log | Output | Progress of the Check DC data run, and major events within it, written using CLG Logging functions. |
| Data Collector Exceptions | Output | A structured file of the expected data exceptions, for sending to the appropriate Supplier, written using CSL Server Library functions. |

Only the Data Collector Exceptions file forms part of the external NHHDA interface (see Section 3).

### Special Considerations

The following assumptions are made in this design:

1. The table of stored exceptions will be kept up to date each day, regardless of whether Supplier reports have been requested;
2. The number of changes to metering system data in each working day will be no larger than the estimates in the Logical Design;
3. Meters will average one exception outstanding for any settlement date, as specified in the URS;
4. The records in the database will be valid according to the checks specified for instruction processing;
5. Where errors in the data occur which are not covered by standard exceptions (for example, invalid range of a value), this will be logged and the corresponding database row ignored.

## Subsystem processing

### Major Components

The major components of the subsystem are identified in Figure 7.



Figure 7: Subsystem Decomposition for Check DC Data

The processing performed by each module is described in section 6.3.3.

### Flow Control

The subsystem may run multiple instances of the same executables simultaneously. This is controlled by the NCD Control process, using the facilities of CSC Scheduler.

A single invocation of NCD Check DC Data is made from the Exclusive queue of CSC Scheduler. The NCD Control function determines how many partitions are used to store the metering system data and then submits a CSC queue entry for NCD Update Exceptions, one for each partition, on a non-exclusive queue.

The NCD Check DC Data process waits for the NCD Update Exceptions processes to complete, using the WAIT\_ALL function in CSC Scheduler. It then submits CSC queue entries on the Non Exclusive queue for the NCD Generate Output processes.

The NCD Check DC Data process waits for the NCD Generate Output processes to complete, using the WAIT\_ALL function in CSC Scheduler. It then finishes the run, releasing the Exclusive queue.

### Detailed Process Descriptions

#### NCD Check DC Data

The NCD Check DC Data process provides the external subsystem interface to process N0010 of [NFUNDEF]. It logs the activation of the process, tidies up incomplete files from the previous run and then calls NCD Control to activate sub-processes to carry out the exception checking and reporting.

#### NCD Control

This module determines how many partitions have been used to divide up the database tables containing metering system data. It will set off an NCD Update Exceptions process for every database partition. When all of these have completed (so that all metering system exceptions are up to date) then the NCD Control process will set off NCD Generate Output processes to generate the Data Collector Exceptions output files.

#### NCD Update Exceptions

This module provides the external interface to the process which performs the updating of the exception records. It logs its activation, and the data this instance of the module will be checking.

It finds all metering systems on the current partition which have out of date exceptions, and for each metering system it calls NCD Calculate Exceptions to perform the checks. A record is made in the operator log of each call and its returned status.

#### NCD Calculate Exceptions

This module deletes the exceptions stored in the ndb\_ms\_exceptions table, which have a later date than the earliest unchecked settlement date (as stored in ndb\_metering\_sys) for the meter specified in the input.

It then uses the functions provided by NCD Read Meter to get the metering system records, and calculates the new set of exceptions for the meter. These are inserted into the ndb\_ms\_exceptions table.

For exceptions E08-E14 there is additional processing. If these exceptions are found, then the data held in memory for the Data Collector to whom the exception applies is scanned to check whether EACs and AAs were received from that Data Collector during the period of the exception. If no EACs or AAs were received, then the exception is not inserted as it is not applicable.

The ndb\_metering\_sys table is updated to show that the metering system’s exceptions are up to date.

These transactions will be committed once for each meter, at the end of processing for that meter. This means that the meter data remains consistent, and obviates the need for explicit recovery processes.

#### NCD Generate Output

This process is invoked by CSC Scheduler, with the parameters for the output files to be generated. It gets the run details from the database tables, then selects all exceptions from ndb\_ms\_exceptions which match these details.

These exceptions are counted and written to a structured file, along with records of the number of exceptions of each type. CFS.EXPORT is then called to send the file.

Once the file has been successfully generated, the corresponding run details record is deleted.

For each exceptions file created a record is added to NDB\_EXCEPTION\_DATA table. This table is used to create the D0095 Monthly Report (see 10.16).

## Data usage

The following data is used by this subsystem.

### System Data

#### Database

The subsystem accesses the following database table directly:

1. ndb\_ms\_exceptions (create, read, delete)
2. ndb\_check\_dc\_data\_runs (read, update, delete)
3. ndb\_metering\_sys (read, update)
4. ndb\_registrations (read)
5. ndb\_data\_agg\_apps (read)
6. ndb\_exception\_data (create)
7. ndb\_dc\_apps (read)
8. ndb\_register\_cons (read)
9. ndb\_ms\_dc\_dets (read)
10. ndb\_ms\_prs\_dets (read)
11. ndb\_gsp\_groups\_dis (read)

Indirect database accesses are made to various cdb database tables through the Common system interfaces. In addition, the following are accessed directly:

1. cdb\_activity (read)
2. cdb\_file\_reference (read)

The shutdown\_requested global process variable will be read at regular intervals by each main process, to detect requests to terminate the process.

#### Files

The subsystem creates a number of Data Collector Exception output files. These are all structured files (as defined by [CTSPEC]).

### Local data

The subsystem will use local data storage to hold the input parameters and database records required to define processing, and to buffer database reads and writes as necessary.

## Procedure details

The external interfaces to the NCD subsystem are described in more detail in the following sections. All procedures are implemented as Pro\*C procedures.

### Procedure NCD Check DC Data specification

Procedure Name: NCD Check DC Data

Inputs: None

Outputs: Status

Call CLG.log\_operator to log process start in Operator log

Delete incomplete files from previous runs where file type is

that specified for NCD reports and file status is “new”

Call NCD Control

Call CLG.log\_operator to log Status returned from NCD Control

### Procedure NCD Control specification

Procedure Name: NCD Control

Inputs: None

Outputs: Status

Read partition identifiers for metering system tables

FOR each partition

Submit job (NCD Update Exceptions, Partition Id) to

CSC Scheduler

END FOR

Call CSC.wait\_all (NCD Update Exceptions Identifiers)

Read ndb\_check\_dc\_data\_runs for scheduled runs

Calculate the set of unique Supplier Ids to be processed

FOR each Supplier Id

Submit job (NCD Generate Output, Supplier Id) to

CSC Scheduler

END FOR

Call CSC.wait\_all (NCD Generate Output Identifiers)

End Run

### Procedure NCD Update Exceptions specification

Procedure Name: NCD Update Exceptions

Inputs: Partition Identifier

Outputs: Status

Select Metering System Ids from ndb\_metering\_sys where

partition Id = specified partition AND  
 earliest unchecked settlement date IS NOT NULL AND

earliest unchecked settlement date <= today

FOR each metering system

Call NCD Calculate Exceptions (Partition Id,

Metering System Id)

END FOR

### Procedure NCD Calculate Exceptions specification

Procedure Name: NCD Calculate Exceptions

Inputs: Metering System ID

Partition Identifier

Outputs: Status

Delete from ndb\_ms\_exceptions where settlement date >=

earliest unchecked settlement date for meter

Call NCD Read Meter functions as required, to read all data

for this meter

Calculate new exceptions, according to function N0010

of [NFUNDEF]

Write exceptions to ndb\_ms\_exceptions

Update earliest unchecked settlement date for metering

system to null

### Procedure NCD Generate Output specification

Procedure Name: NCD Generate Output

Inputs: Supplier

Outputs: Status (OUT)

Get NCD run definitions from ndb\_check\_dc\_data\_runs where

Supplier = input Supplier

Get the set of Data Collectors referred to in these runs

FOR each Data Collector in set

Open structured file for Data Collector Exception report

Select exceptions from ndb\_ms\_exceptions where

Supplier = Input Supplier and

Data Collector = loop value

IF no exceptions are found THEN

Do not create report if the Data Collector was not specified when requesting the report and an MSID is not attached to Input Supplier/Data Collector combination

(Select 1 from ndb\_ms\_dc\_dets where dc\_participant\_id = loop value data collector and sup\_participant\_id = input supplier)

END IF

Count number of unique metering system Ids appearing

against each exception type

Where the count is > 0 write the the exception type and count to the ndb\_exception\_data.

Write counts to structured file

Write exceptions to structured file

Close file

Call CFS.export to send file

END FOR

# NMI Manage Instructions Subsystem Specification

## Introduction

The Manage Instructions (NMI) subsystem consists of the following parts:

1. Instruction Processing : 3 processes

‘Control’ - which is run periodically. This checks for newly arrived files and instructions for (re)processing; it then spawns ‘Instruction File Arrival’ and ‘Apply Instructions’ processes as required;

‘Instruction File Arrival’ - which validates instruction files and, where appropriate, loads new instruction details;

‘Apply Instructions’ - which updates the database according to instructions from valid market participants.

1. Manage Failed Instructions : 1 form

‘Manage Failed Instructions’ - provides facilities for users to: select failed instructions (by various selection criteria). The selected instructions can be marked for resend or marked and sent via a D0023 file to the originator (the file contains all instructions marked for return to originator, for a specified originator). Alternatively, mark the selected instructions for reprocessing. [Reprocessing of instructions is handled within the ‘Apply Instructions’ process. Reprocessing takes place when instruction processing is next run.]

1. Report Instructions : 1 form

‘Report Instructions’ - provides facilities for users to select and view instruction details available on the database.

1. Report Refresh Instruction Failures: 1 form
2. ‘Report Instructions’ - provides facilities for users to report on refresh instructions failures and associated reasons for failure available on the database. .
3. Manage Refresh Instructions : 1 form + 2 processes

‘Manage Refresh Instructions’ form - provides facilities for users to select and view the details on the database for unprocessed “PRS Refresh” instructions and discarded “PRS Refresh” instructions which may still legally be applied. An attempt to apply the instruction may be made (spawning ‘Process Refresh’), or the instruction may be marked as “Discarded”.

‘Process Refresh’ process - applies the specified PRS Refresh instruction, metering system by metering system, reporting on any inconsistencies. This process reads in the instruction and writes a separate file for each partition containing those metering systems from the “PRS Refresh” instruction for that partition. A separate processing activity is then invoked to apply the changes to each partition. Refresh writes error reasons and database changes to its output (this output therefore appears in the activity log file).

1. Manage Instruction Files : 1 form

‘Manage Instruction Files’ - provides facilities for users to resolve failures with Instruction Files. Files with a status of “Rejected” may be selected and marked for reprocessing as if newly arrived, or marked as “Corrupt”. Additionally files may be marked as “Skipped” - such files are then treated as if they contained no instructions.

1. Manage Failed Refresh Instructions : 1 form

‘Manage Failed Refresh Instructions’ - provides facilities for users to select failed Refresh Instructions (by various selection criteria) and mark them and their associated reasons for failure for return to the Instruction’s originator on a per Metering System basis [Return of Instructions is handled by ‘Manage Failed Instructions’ (see above)].

The forms are part of the General Forms (NGF) subsystem. They are described briefly to show the interaction between the subsystems.

### Instruction Processing

It is essential that instruction files from the same market participant are processed in a single stream and that the processes run exclusively. Therefore automatic processing is not configured for the valid instruction file types which may be received by the NHHDA system. Instead, there is a controlling process for instruction processing, ‘Control’, which runs in the EXCLUSIVE queue and is initiated by the Scheduler (CSC) subsystem. This submits an ‘Instruction File Arrival’ job for each new instruction file in order and waits for these to complete. Once these activities are complete, the controlling process submits an ‘Apply Instructions’ process for each instruction file originator. Once these activities are complete, the controlling process completes. This mechanism is described in more detail in the Scheduler (CSC) subsystem.

This subsystem may receive instruction files from market participants in Data Collector and PRS Agent roles. The following types of instruction file may be loaded into the NHHDA database via this subsystem:

| File Type | File Description | File Contents |
| --- | --- | --- |
| D0019001 | Data Collector Instruction File | Changes to existing Metering Systems  Deletion of EAC/AA details for an existing Metering System |
| D0209001 | PRS Instruction File | Changes to existing Metering Systems  Refresh of existing Metering Systems  Deletion of existing Metering Systems  Deletion of Data Aggregator Appointments |

### Manage Failed Instructions

A form is provided to view failed instructions and associated failure reasons. The user may select failed instructions and mark the selected instructions for:

1. Reprocessing

The instructions are reprocessed when next instruction processing is run.

1. Resend to instruction originator

The instructions can be marked for resend or actually resend the selected instructions to their originator. Resending instructions generates a file of the following type:

| File Type | File Description | File Contents |
| --- | --- | --- |
| D0023001 | Failed Instructions | Failed Instructions for Return to originator |

If this file is created (if there is nothing to send, no file will be created), the CFS.EXPORT() function is used to send the file to the local gateway.

The form updates the database for the instructions that have been selected.

The Operator Log contains the count of Non-refresh and Refresh instructions resent.

This form is part of the General Forms (NGF) subsystem.

### Report Instructions

A form is provided to view instruction details once the instruction has been loaded from a file.

The form performs no database updates.

This form is part of the General Forms (NGF) subsystem.

### Manage Refresh Instructions

A form is provided to view Refresh instructions which are outstanding. The user may select one Refresh instruction and either:

1. mark the selected instruction Discarded
2. submit a ‘Process Refresh’
3. mark the selected instruction Applied (only allowed if current instruction status is 'Validation Errors')

The form performs no database updates.

The process updates the database for the instructions that have been selected.

### Manage Instruction Files

A form is provided to view all Instruction Files. Instruction file displayed can also be restricted to ‘Rejected’, ‘Received’ and ‘Processed’. The following can be performed on Instructions Files with a status of ‘Rejected’:

1. update the file status as if it had just arrived,
2. mark the file as corrupt,
3. mark the file, and optionally subsequent files, to be skipped (and treat the marked files as if they contained no instructions).

The form updates the database for the files that have been selected.

This form is part of the General Forms (NGF) subsystem.

### Manage Failed Refresh Instructions

A form is provided to view Refresh Instruction failures and the reasons for those failures on a per Metering System basis. The user may select failed Instructions and mark them and the associated failure reasons for return to the Instruction’s originator.

The form updates the database for the Instructions that have been selected.

This form is part of the General Forms (NGF) subsystem.

### Report Refresh Instruction Failures

A form is provided to report refresh instruction failures and their associated reasons.

The form performs no database updates.

This form is part of the Report Forms (NFR) subsystem.

## Subsystem Context

### Subsystem Context Diagram

The following diagram shows the context for this subsystem:



### Interfaces

#### User Interface / Forms

The following forms are provided:

1. Manage Failed Instructions;
2. Report Instructions;
3. Manage Refresh Instructions;
4. Manage Instruction Files;
5. Manage Failed Refresh Instructions.

#### Scheduler (CSC) Interface

The Scheduler (CSC) subsystem initiates the ‘Control’ process. This then submits an ‘Instruction File Arrival’ process for each newly received instruction file. It then informs the Scheduler to respond when all such “child” processes have completed The ‘Control’ process then submits an ‘Apply Instructions’ process for each data originator (PRS agent or Data Collector). It then informs the Scheduler to respond when all of these “child” processes have completed. The initiation of all “child” process is performed by the Scheduler (CSC) subsystem.

#### Database Interface

Instruction and File records are retrieved from the database and displayed in the various forms. Some of the forms also update these records. Details of these interactions are included in the relevant form description sections.

All other database interactions within this subsystem are handled by batch processes initiated by the Scheduler (CSC). Details of these interactions are included in the relevant procedure sections.

#### File Interfaces

##### Instruction Files

Instruction file receipt is handled by the File Receipt Subsystem (CFR). These files are manipulated using functions from the Server Library (CSL) subsystem.

Section 3 provides the details of instruction files which may be received.

##### Failed Instructions

When the user selects instructions to be returned to source, a machine-readable report file is created. The CFS.EXPORT() function is used to initiate transfer of the created file to the gateway machine.

Section 3 provides details of this file’s structure.

#### Logging (CLG) Interface

The NMI subsystem uses the Logging (CLG) subsystem to write to the operator and error logs.

Operator log entries will relate to the run-time information about the batch process (i.e: file identification information of the instruction file being processed and lists of any global parameters obtained from the database) plus messages relaying thehigh level progress of the process.

Error log entries will relate to fatal errors which are encountered such as file handling problems.

### Special Considerations

#### Database

Since some database tables have been de-normalised for performance reasons (Section 2.7.2), an approach has been taken that:-

1. loads the required table images into memory prior to the application of an instruction (or if ‘Refresh’ a single metering system clause),
2. applies the changes to this in memory structure,
3. updates the database in line with the new memory structure.

This memory structure is sized at the worst possible case of 1 change every day for 2 years.

#### Default Values

For performance reasons, an ‘Effective To’ field is present in many database tables. Where this is the case and an end date is not yet known (i.e.: it is sometime in the future), the maximum date value (31st December 4712) will be inserted until such time as a ‘real’ value can replace it. This ensures Effective To dates for ‘current’ records are not in the past.

#### Error Handling

A simple approach has been adopted for this subsystem. Where an error is detected in a low-level procedure an error\_code and error\_reason will be set and the procedure will return to the calling routine. An error\_code returned from a lower level routine will (normally) cause the procedure to return to its calling routine passing the error\_code and error\_reason. The error itself will be logged at the higher levels of the processing viz. ‘Process Instructions’ and/or ‘Reprocess Instructions’. When an error is detected while validating an instruction, this will not prevent subsequent validation checks, but will prevent application of the instruction.

#### Recovery

To protect against problems should an error occur during processing:

1. the set of database updates associated with each individual Instruction (other than PRS Refresh) are handled as a single transaction;
2. each instruction has an independent status which is updated when the instruction has been processed;
3. processing of individual instructions is initiated when the ‘Control’ process finds file records where the file status is “Loaded” (i.e.: there may be outstanding instructions to process);
4. only when all instructions within a file have been processed, is the status of the file changed to “Processed” to prevent further attempts to handle the file.

Using this approach, instructions not applied in a particular run of the ‘Apply Instructions’ process will be attempted in a subsequent run.

#### Interaction with Aggregation

Before any Instruction Processing can start, the database lock flag is checked. If it is set the process writes a message to the error log and exits.

#### Refresh

As a Refresh Instruction may update data for a large number of Metering Systems, each Metering System is processed as a success unit. Prior to processing of a refresh instruction, a backup of the database must be made. If the database is restored from this backup, the database will indicate that the refresh instruction has not been applied. There are three possible error conditions which should be handled by the user:

Refresh completes with validation errors, in which case two actions are possible:

1. The new state of the database is considered to be acceptable, and the validation errors are resolved via the Manage Failed Refresh Instructions mechanism.
2. The new state of the database is considered to be unacceptable, in which case the database is manually restored to its state prior to the application of the refresh instruction; the refresh instruction should then be discarded.

Refresh fails (e.g. due to running out of space for one partition), leaving the database is in an unknown state. The database must be manually restored to its state prior to the application of the refresh, then one of the following actions can take place:

1. The problem is addressed (e.g. extending storage available for partition) and refresh is applied.
2. The refresh is discarded to allow processing of other instructions to continue.

System fails during refresh, leaving the database in an unknown state. The database must be manually restored to its state prior to application of the refresh, then one of the following actions can take place:

1. The refresh is applied.
2. The refresh is discarded.

As refresh instructions are large, the implementation of apply refresh has been optimised to exploit the multi-partition metering system tables. A temporary file (type L0039001) is created for each partition. Processing reads the instruction one metering system at a time and writes the metering system data to the appropriate temporary file. A processing activity is then submitted for each temporary file. On completion, the temporary files are deleted. The format of the refresh processing log is described in section 7.3.

## Refresh Processing Log

The refresh processing log is created automatically by the scheduler (refer CSC in [CTSPEC]). This log file will contain copies of all messages written to the Operator Log and Error Log. In addition, the refresh activities will record all changes made to the database.

Note that there will be a Refresh Processing Log created for each partition when a “PRS Refresh” instruction is applied.

The report will contain all records *deleted* and *inserted* and both the before (*old*) and after (*new*) versions of records which are changed by the instruction.

To dates are blank for open-ended end dates (although they are stored on the database as 31 Dec 4712).

### Changes made to table ndb\_registrations

Type Metering Sys Eff.From Eff. To Supplier

NREG OLD 1234567890123 YYYYMMDD YYYYMMDD XXXX

NREG NEW 1234567890123 YYYYMMDD YYYYMMDD XXXX

NREG DELETE 1234567890123 YYYYMMDD YYYYMMDD XXXX

NREG INSERT 1234567890123 YYYYMMDD YYYYMMDD XXXX

### Changes made to table ndb\_data\_agg\_apps

Type Metering Sys Eff.From Eff. To Sup.From

NDAA OLD 1234567890123 YYYYMMDD YYYYMMDD YYYYMMDD

NDAA NEW 1234567890123 YYYYMMDD YYYYMMDD YYYYMMDD

NDAA DELETE 1234567890123 YYYYMMDD YYYYMMDD YYYYMMDD

NDAA INSERT 1234567890123 YYYYMMDD YYYYMMDD YYYYMMDD

### Changes made to table ndb\_ms\_prs\_dets

Type Metering Sys Eff.From ES GSP MC PC LLF Dis. SSC ES|GG|MC|PC|LF|SC

NMPD OLD 1234567890123 YYYYMMDD X XX X XXXX XXXX XXXX XXXX Y| Y| Y| Y| Y| Y

NMPD NEW 1234567890123 YYYYMMDD X XX X XXXX XXXX XXXX XXXX Y| Y| Y| Y| Y| Y

NMPD DELETE 1234567890123 YYYYMMDD X XX X XXXX XXXX XXXX XXXX Y| Y| Y| Y| Y| Y

NMPD INSERT 1234567890123 YYYYMMDD X XX X XXXX XXXX XXXX XXXX Y| Y| Y| Y| Y| Y

Note that the change flags are either Y or blank - Y indicates that the value changes on the Effective From Settlement Date of the record, blank indicates that it does not change. See section 4.3.27 for a fuller explanation of these flags.

### Changes made to table ndb\_dc\_apps

Type Metering Sys Eff.From Sup.From Participant

NDCA OLD 1234567890123 YYYYMMDD YYYYMMDD XXXX

NDCA NEW 1234567890123 YYYYMMDD YYYYMMDD XXXX

NDCA DELETE 1234567890123 YYYYMMDD YYYYMMDD XXXX

NDCA INSERT 1234567890123 YYYYMMDD YYYYMMDD XXXX

### Instruction failure reasons

Failure reasons are stored in the database using the tables ndb\_refresh\_instr\_failure and ndb\_refr\_instr\_failure\_reason.

Processing continues after an error unless that error is a physical file format error (0I - Invalid Instruction) in which case processing stops immediately. Dates before 1900 are treated as invalid format.

### Totals summary

Refresh thread: partition 12

1234567890 metering systems in file

1234567890 (100.00%) failed validation

1234567890 metering systems on database not in file

1234567890 (100.00%) not deleted due to validation rules

At the end of each partition's log file a summary will appear.

These figures are repeated in the refresh control processes log file as a table, for example:

Partition Metering Systems Failed Validation Not in file Not deleted

1 0 0 1 0

2 1 1 1 0

3 2 0 1 0

TOTAL 3 1 3 0

Refresh completed with validation errors

If any metering systems (whether in the refresh instruction or not) were not updated, the instruction status is updated to a status of 'Validation Errors'. The user must either restore the database to the state immediately before the apply, or use the Manage Failed Refresh Instruction form to inform instruction source of problems and the Manage Refresh form to set the status to Applied.

## Subsystem Processing

There are effectively three batch processing components to this subsystem:

1. Instruction Processing;
2. ‘Process Refresh’;
3. ‘Return Instructions’.

The interactions of the various components within this subsystem is as follows. Interactions with other subsystems are detailed for the individual procedure, where appropriate.

### Instruction Processing



| Instruction | Procedures called (in order) |
| --- | --- |
| “Data Aggregator Appointment Details” | extract\_MS(PRS)  validate\_PRS\_data  validate\_Registrations(PRS) apply\_Registrations(PRS)  validate\_DA\_appts apply\_DA\_appts  validate\_DC\_appts apply\_DC\_appts  validate\_PCs\_SCCs(PRS) apply\_PCs\_SSCs(PRS)  validate\_Measure\_Classes(PRS) apply\_Measure\_Classes(PRS)  validate\_Energ\_Status(PRS) apply\_Energ\_Status(PRS)  validate\_LLFs apply\_LLFs  validate\_GSP\_groups(PRS) apply\_GSP\_groups(PRS)  validate\_AFYC(PRD)  reapply\_MS(PRS) |
| “Data Collector Appointment Details” | extract\_MS(PRS)  validate\_PRS\_data  validate\_DC\_appts apply\_DC\_appts  reapply\_MS(PRS) |
| “EAC/AA & MS Details” | extract\_MS(DC)  validate\_DC\_data  validate\_AAs apply\_AAs  validate\_EACs apply\_EACs  validate\_Registrations(DC) apply\_Registrations(DC)  validate\_PCs\_SCCs(DC) apply\_PCs\_SSCs(DC)  validate\_Measure\_Classes(DC) apply\_Measure\_Classes(DC)  validate\_GSP\_groups(DC) apply\_GSP\_groups(DC)  validate\_AFYC(DC)  validate\_Energ\_Status(DC) apply\_Energ\_Status(DC)  reapply\_MS(DC) |
| “Energisation Status Details” | extract\_MS(PRS)  validate\_PRS\_data  validate\_Energ\_Status(PRS) apply\_Energ\_Status(PRS)  reapply\_MS(PRS) |
| “GSP Group Details” | extract\_MS(PRS)  validate\_PRS\_data  validate\_GSP\_groups(PRS) apply\_GSP\_groups(PRS)  validate\_AFYC(PRS)  reapply\_MS(PRS) |
| “LLFC Details” | extract\_MS(PRS)  validate\_PRS\_data  validate\_LLFs apply\_LLFs  reapply\_MS(PRS) |
| “Measurement Class Details” | extract\_MS(PRS)  validate\_PRS\_data  validate\_Measure\_Classes(PRS) apply\_Measure\_Classes(PRS)  reapply\_MS(PRS) |
| “Profile Class/SCC Details” | extract\_MS(PRS)  validate\_PRS\_data  validate\_PCs\_SCCs(PRS) apply\_PCs\_SSCs(PRS)  validate\_AFYC(PRS)  reapply\_MS(PRS) |

It should be noted that Oracle Database data is not inserted or validated unless it crosses the archive date or is after the archive date.

### Return Instructions



### Process Refresh



| Instruction | Procedures called (in order) |
| --- | --- |
| “PRS Refresh Details” | extract\_MS(PRS)  validate\_PRS\_data  validate\_Registrations(PRS) apply\_Registrations(PRS)  validate\_DA\_appts apply\_DA\_appts  validate\_DC\_appts apply\_DC\_appts  validate\_PCs\_SCCs(PRS) apply\_PCs\_SSCs(PRS)  validate\_Measure\_Classes(PRS) apply\_Measure\_Classes(PRS)  validate\_Energ\_Status(PRS) apply\_Energ\_Status(PRS)  validate\_LLFs apply\_LLFs  validate\_GSP\_groups(PRS) apply\_GSP\_groups(PRS)  validate\_AFYC(PRS)  reapply\_MS(PRS) |

## Data Usage

### General

#### Instruction File Status Transitions

The following changes to the status of an instruction file may be made by this subsystem:

| Transition | Reason | Comment |
| --- | --- | --- |
| Received to Loaded | All instructions in file are loaded | It is not possible to selectively load instructions |
| Loaded to Processed | All instructions in the file have been addressed | This transition occurs when instruction processing completes processing of the file and determines that all instructions have been addressed. |
| Received to Rejected | Failed validation checks within ‘Instruction File Arrival’ |  |
| Rejected to Corrupt | User Operation | Discard File |
| Rejected to Received | User Operation | Treat file as if newly arrived |
| Rejected to Skipped | User Operation | File is ignored - treat file as if it contained no instructions |
| Received to Skipped | 1. User Operation (file having sequence number within specified sequence number range was already present in received state) | File is ignored - treat file as if it contained no instructions |
|  | 1. 'Instruction File Arrival' determines that a file with the same sequence number exists with a status of Skipped |  |

All transitions are made using the library routine csl\_update\_file.

If there is an error from csl\_update\_file, the transition may be applied to the database directly.

#### Instruction Status

In addition to the Unprocessed, Applied, Discarded, Failed and Superseded major states, ‘Failed’ instructions have two independent types of sub states:

1. null, ‘Return to Source’ (i.e.: whether the “Failed” Instruction and its reasons for failure are to be reported to the Source);
2. null, ‘Reprocess’, or ‘Cannot Reprocess’ (i.e.: whether the system is to attempt to reapply the “Failed” Instruction, or cannot due to successful processing of a subsequent Instruction).

### System Data

#### Database

| Table | Total  (so far) | Form “Manage Failed Instructions” | Form “Report Instructions” | Form “Report Refresh Instruction Failures” |
| --- | --- | --- | --- | --- |
| cdb\_file\_reference |  |  |  |  |
| cdb\_instruction\_file |  |  |  |  |
| ndb\_data\_agg\_apps |  |  |  |  |
| ndb\_dc\_apps |  |  |  |  |
| ndb\_instructions | RU | RU | R |  |
| ndb\_metering\_sys |  |  |  |  |
| ndb\_ms\_dc\_dets |  |  |  |  |
| ndb\_ms\_prs\_dets |  |  |  |  |
| ndb\_register\_cons |  |  |  |  |
| ndb\_registrations |  |  |  |  |
| ndb\_m\_participants |  |  |  |  |
| ndb\_instruction\_ status\_reason | RU | RU | R |  |
| ndb\_refresh\_instr\_failure | RU |  |  | RU |
| ndb\_refr\_instr\_failure\_reason | R |  |  | R |
| cdb\_return\_parameter |  | CRU |  |  |

| Table | Total  (so far) | Form “Manage Refresh Instructions” | Form “Manage Instruction Files” | close\_ files | validate\_ file |
| --- | --- | --- | --- | --- | --- |
| cdb\_file\_reference | RU |  | RU | U | RU |
| cdb\_instruction\_file | R |  | R |  | R |
| ndb\_data\_agg\_apps |  |  |  |  |  |
| ndb\_dc\_apps |  |  |  |  |  |
| ndb\_instructions | RU | R |  |  | R |
| ndb\_metering\_sys |  |  |  |  |  |
| ndb\_ms\_dc\_dets |  |  |  |  |  |
| ndb\_ms\_prs\_dets |  |  |  |  |  |
| ndb\_register\_cons |  |  |  |  |  |
| ndb\_registrations |  |  |  |  |  |
| ndb\_m\_participants | R |  |  |  | R |
| ndb\_instruction\_ status\_reason | RU |  |  |  |  |
| ndb\_refresh\_instr\_failure | RU |  |  |  |  |
| ndb\_refr\_instr\_failure\_reason | R |  |  |  |  |

| Table | Total  (so far) | complete\_ instruction | control | extract\_ MS | open\_ files |
| --- | --- | --- | --- | --- | --- |
| cdb\_file\_reference | RU |  | R |  | U |
| cdb\_instruction\_file | R |  |  |  |  |
| ndb\_data\_agg\_apps | R |  |  | R |  |
| ndb\_dc\_apps | R |  |  | R |  |
| ndb\_instructions | RU | U |  |  |  |
| ndb\_metering\_sys | R |  |  | R |  |
| ndb\_ms\_dc\_dets | R |  |  | R |  |
| ndb\_ms\_prs\_dets | R |  |  | R |  |
| ndb\_register\_cons | R |  |  | R |  |
| ndb\_registrations | R |  |  | R |  |
| ndb\_m\_participants | R |  |  |  |  |
| ndb\_instruction status\_reason | RU |  |  |  |  |
| ndb\_refresh\_instr\_failure | RU |  |  |  |  |
| ndb\_refr\_instr\_failure\_reason | R |  |  |  |  |

| Table | Total  (so far) | instruction\_ file\_ arrival | process\_ instructions | process\_ refresh | reapply\_ MS |
| --- | --- | --- | --- | --- | --- |
| cdb\_file\_reference | RU | U |  |  |  |
| cdb\_instruction\_file | R |  |  |  |  |
| ndb\_data\_agg\_apps | CRUD |  |  |  | CRUD |
| ndb\_dc\_apps | CRUD |  |  |  | CRUD |
| ndb\_instructions | RU |  | R | R |  |
| ndb\_metering\_sys | CR | C |  |  |  |
| ndb\_ms\_dc\_dets | CRUD |  |  |  | CRUD |
| ndb\_ms\_prs\_dets | CRUD |  |  |  | CRUD |
| ndb\_register\_cons | CRUD |  |  |  | CRUD |
| ndb\_registrations | CRUD |  |  |  | CRUD |
| ndb\_m\_participants | R |  |  |  |  |
| ndb\_instruction status\_reason | CRUD |  | CD | C |  |
| ndb\_refresh\_instr\_failure | CRU |  |  | C |  |
| ndb\_refr\_instr\_failure\_reason | CR |  |  | C |  |

| Table | Total  (overall) | supersede | load\_ files | Form “Manage Refresh Instruction Failures” |
| --- | --- | --- | --- | --- |
| cdb\_file\_reference | RU |  | U |  |
| cdb\_instruction\_file | R |  |  |  |
| ndb\_data\_agg\_apps | CRUD |  |  |  |
| ndb\_dc\_apps | CRUD |  |  |  |
| ndb\_instructions | CRU | U | C |  |
| ndb\_metering\_sys | CR |  | CR |  |
| ndb\_ms\_dc\_dets | CRUD |  |  |  |
| ndb\_ms\_prs\_dets | CRUD |  |  |  |
| ndb\_register\_cons | CRUD |  |  |  |
| ndb\_registrations | CRUD |  |  |  |
| ndb\_m\_participants | R |  |  |  |
| ndb\_instruction status\_reason | CRUD |  |  |  |
| ndb\_refresh\_instr\_failure | CRUD | D |  | RU |
| ndb\_refr\_instr\_failure\_reason | CRUD | D |  | RU |

All updates to cdb\_file\_reference are made using the library routine csl\_update\_file.

Indirect database access is also made through common subsystems.

### Local Data

Within the ‘Apply Instructions’ and ‘Process Refresh’ processes the following specific process global data is used :

1. file header details : RECORD
2. significant date : DATE
3. current instruction (or MS clause) : ARRAYS of RECORDS

Each instruction or , if a PRS Refresh, individual Metering System clause, is read in with each set of details held in an array. Arrays are pre-allocated at maximum size and reused.

1. current data for target MS : ARRAYS two per physical table

For each instruction or, if a PRS Refresh, individual Metering System clause, an image of the database tables for the target Metering System is loaded into a series of arrays, and then an array of pointers to each entry is generated.

These arrays are statically allocated and sized to the theoretical maximum of one change per day for 2 years. This approach simulates a linked list without the need for dynamic memory allocation or complex memory management

## Procedure Details

This section describes the various components of the Manage Instruction (NMI) subsystem. A description of the procedures within the subsystem is included in this section. All procedures are implemented in Pro\*C.

Note that although the logical entities do not have end dates, the physical ones do so checks on ‘End Date’ are valid.

Where procedure details describe validation of instructions against business rules, the exact rules are those specified in [NFUNDEF]. Note that the processing described here may be incomplete.

### Control

This procedure controls the submission of instruction loading and processing jobs.

It runs in the EXCLUSIVE queue and is run periodically by the Scheduler (CSC) Subsystem.

#### Processing

Joins cdb\_file\_reference and cdb\_instruction\_file selecting all Instruction Files with a status of “Received”, (ordered by Participant Id, Market Role and Instruction File Sequence Number).

For each file it CSC.SUBMITs an immediate ‘Instruction File Arrival’ job. Once all files have been dealt with, it invokes CSC.WAIT\_ALL to wait for their completion. (Note that only one job is submitted at a time per source so that files are processed in receipt order for a given source).

Looks up the number of database partitions and for each partition CSC.SUBMITs an immediate ‘Apply Instructions’ job. It then invokes CSC.WAIT\_ALL to wait for their completion.

Joins cdb\_file\_reference and cdb\_instruction\_file selecting all Instruction Files with a status of “Loaded”.

For each file it checks whether there are any instructions in ndb\_instructions with a status of either "Failed" or "Unprocessed". If there are none, the file status is updated to "Processed".

#### Input / Output

input:

none

output:

error\_status

### Instruction File Arrival

This procedure validates and loads newly received instruction files.

#### Processing

Call validate\_instruction\_file

If valid, Call load\_file

If invalid or load failed, log message to operator

exit

#### Input / Output

input:

File Id

output:

error\_code

### Process Instructions

This procedure is the main instruction processing engine.

#### Processing

Call open\_files

While there are instructions to process:

Select instruction from ndb\_instructions for the specified file with lowest Instruction Sequence Number which is either “Unprocessed” or, “Failed” with the ‘Reprocess’ flag set.

If the instruction is not a PRS Refresh then,

1. Load the instruction data into the memory structure, checking that the physical structure of the instruction is correct and that following the last record read the next record is either another instruction header or a file footer.
2. Call process\_current\_instruction with : ‘Reprocess’ flag state
3. Call set\_instruction\_state with : Applied | Failed
4. If the ‘Reprocess’ flag was set, update the ndb\_instructions record to clear it.
5. If the instruction was successful then,
6. Call supersede\_instructions with : metering system id, instruction sequence number, instruction type.

If the instruction is a PRS Refresh, log message to operator

When all instructions for the file have been considered, or a PRS Refresh encountered:

Call close\_files with : applied = more

exit

#### Input / Output

input:

File Id

output:

error\_code

### Process Refresh

This procedure is the PRS Refresh processing engine. It is invoked by the Manage Refresh Instructions form.

Note that a database backup must be made before applying a refresh as updates for each Metering System are applied as a success unit. In the event of a failure, a restore will be required.

#### Processing

Call open\_files

Check that the file originator is a PRS Agent, and that the PRS agent is appointed to the subject Distribution Business.

Select specified instruction from ndb\_instructions

Check that the instruction is indeed a PRS Refresh.

Make a list of all current Metering Systems for the Distribution Business

Create a temporary file for each database partition

While there are Metering System clauses within the PRS Refresh:

Establish the partition for the Metering System

copy all records for the Metering System into that partition’s  
 temporary file

For each partition

submit a sub-activity to process each temporary file

wait for all sub-activities to complete.

If no errors were encountered

1. Call set\_instruction\_state with : Applied
2. Delete all Metering Systems details with an Effective From Date on or after the Significant Date
3. Call close\_files with : done

If only validation errors were encountered

1. Call set\_instruction\_state with : Validation Errors
2. Call close\_files with : more

Otherwise,

1. Call set\_instruction\_state with : Discarded
2. Call close\_files with : more

exit.

**Each sub-activity processes as follows:**

While there are Metering System clauses within the temporary file:

Read details of next Metering System into memory structure.

Load the instruction data into the memory structure, checking that the physical structure of the instruction is correct and that following the last record read the next record is either another metering system header or a file footer.

Remove Metering System from the list.

Call process\_current\_refresh\_MS

If business errors occurred, set business error flag

Else Call Supersede Instructions

When there are no more Metering System clauses or an error occurred reading in Metering System details:

If no errors were encountered,

1. For each MS remaining in the list for the current partition

Read details of Metering System into memory structure

Call process\_current\_refresh\_MS (passing a null instruction - i.e. MSID, Significant Date and no data)

If business errors occurred, set business error flag

Else Call Supersede Instructions

Delete the temporary file

If any errors were encountered or business error flag set

exit (failure)

otherwise

exit (success)

#### Input / Output

input:

instruction sequence number  
file\_id

output:

error\_code

### Process Current Refresh MS

This procedure applies the validation and database updates appropriate to an individual Metering System in a Refresh instruction which has been read into memory.

#### Processing

Check Metering System is in the subject Distribution Business

Call extract\_MS

The Metering System update clause is now validated and applied to the in memory structure. Failure of any stage will return an error\_code and error\_reason which will be used to insert new ndb\_refresh\_instr\_failure and ndb\_refr\_instr\_failure\_reason records.

Call validate\_Registrations(PRS)  
Call apply\_Registrations(PRS)

Call validate\_DA\_appts  
Call apply\_DA\_appts

Call validate\_DC\_appts  
Call apply\_DC\_appts

Call validate\_PCs\_SCCs(PRS)  
Call apply\_PCs\_SSCs(PRS)

Call validate\_Measure\_Classes(PRS)  
Call apply\_Measure\_Classes(PRS)

Call validate\_Energ\_Status(PRS)  
Call apply\_Energ\_Status(PRS)

Call validate\_LLFs  
Call apply\_LLFs

Call validate\_GSP\_groups(PRS)  
Call apply\_GSP\_groups(PRS)

Call validate\_AFYC(PRS)

If there have been no errors,

1. Call reapply\_MS(PRS)
2. return SUCCESS

otherwise

1. return FAILURE

#### Input / Output

input:

none

output:

Error Status

### Process Current Instruction

This procedure applies the validation and database updates appropriate to a single instruction (other than Refresh) which has been read into memory.

#### Processing

The instruction is validated and applied to the in memory structure. Failure of any stage will return an error\_code and error\_reason which will be used to insert a new ndb\_instruction\_status\_reason record.

If originator is a “PRS Agent”,

1. delete any ndb\_instruction\_status\_reason records for this instruction
2. Call extract\_MS(PRS)
3. Call validate\_PRS\_data
4. For “Data Agg. Appt. Details”:
5. If there is only one DA Appointment, and the Effective To Date is the same as the Significant Date and the Data Aggregator Appointment exists and has an Effective To Date of the maximum value,
6. Validate the Effective To Date is on or after the Effective From Date
7. Update the DA Appointment Effective To Date to the Significant Date
8. delete Profile Class, SSC, Measurement Class, Energisation Status, Line Loss Factor Class, and GSP Group details for the Metering System where the Effective From Date is after the Significant Date
9. Otherwise (i.e.: not the special case)
10. delete Registration, Data Collector Appointment, SSC, Measurement Class, Energisation Status, Line Loss Factor Class, and GSP Group details for the Metering System where the Effective From Date current on the Significant Date
11. Call validate\_Registrations(PRS)  
    Call apply\_Registrations(PRS)
12. Call validate\_DA\_appts  
    Call apply\_DA\_appts
13. Call validate\_DC\_appts  
    Call apply\_DC\_appts
14. Call validate\_PCs\_SSCs(PRS)  
    Call apply\_PCs\_SSCs(PRS)
15. Call validate\_Measure\_Classes(PRS)  
    Call apply\_Measure\_Classes(PRS)
16. Call validate\_Energ\_Status(PRS)  
    Call apply\_Energ\_Status(PRS)
17. Call validate\_LLFs  
    Call apply\_LLFs
18. Call validate\_GSP\_groups(PRS)  
    Call apply\_GSP\_groups(PRS)
19. Call validate\_AFYC(PRS)
20. For “Data Collector Appointment Details”
21. Call validate\_DC\_appts  
    Call apply\_DC\_appts
22. For “Profile Class/SSC in Registration Details”
23. Call validate\_PCs\_SCCs(PRS)  
    Call apply\_PCs\_SSCs(PRS)
24. Call validate\_AFYC(PRS)
25. For “Measure. Class in Registration Details”
26. Call validate\_Measure\_Classes(PRS)   
    Call apply\_Measure\_Classes(PRS)
27. For “Energ. Status in Registration Details”
28. Call validate\_Energ\_Status(PRS)  
    Call apply\_Energ\_Status(PRS)
29. For “GSP Group Details”
30. Call validate\_GSP\_groups(PRS)  
    Call apply\_GSP\_groups(PRS)
31. Call validate\_AFYC(PRS)
32. For “Line Loss Factor Class Details”
33. Call validate\_LLFs  
    Call apply\_LLFs
34. For “PRS Refresh” or unrecognised instruction
35. log message to operator

If the originator is a “Data Collector”,

1. delete any ndb\_instruction\_status\_reason records for this instruction
2. Call extract\_MS(DC)
3. For “EAC/AA & MS Details”
4. Call validate\_DC\_data
5. Call validate\_AAs  
   Call apply\_AAs
6. Call validate\_EACs  
   Call apply\_EACs
7. Call validate\_Registrations(DC)  
   Call apply\_Registrations(DC)
8. Call validate\_PCs\_SCCs(DC)  
   Call apply\_PCs\_SSCs(DC)
9. Call validate\_Measure\_Classes(DC)  
   Call apply\_Measure\_Classes(DC)
10. Call validate\_GSP\_groups(DC)  
    Call apply\_GSP\_groups(DC)
11. Call validate\_AFYC(DC)
12. Call validate\_Energ\_Status(DC)  
    Call apply\_Energ\_Status(DC)
13. For unrecognised instruction
14. log message to operator

If the originator is not a PRS Agent or Data Collector, log message to operator.

If there have been no errors,

1. return SUCCESS

otherwise

1. return FAILURE

#### Input / Output

input:

none

output:

Error Status

### Open Files

This procedure opens the instruction file to be processed and reads the header.

#### Processing

Call CSL Common Server Library routines to:

1. Open the file.
2. Read file header records

Data is stored in global variables

#### Input / Output

input:

Instruction File Id

output:

Error Status

### Load Files

This procedure loads a validated instruction file.

#### Processing

Using CSL Common Server Library routines:

Call open\_files

Read next record

While record is not File Footer

1. If the record is an Instruction Header
2. extract the record details
3. If the instruction is not a PRS Refresh,
4. select record for target Metering System in ndb\_metering\_system
5. if none exists, create it
6. determine the file offset
7. Insert a record into ndb\_instructions with the record and offset details
8. Read next record

Close the file

Update file status to “Loaded”

#### Input / Output

input:

Instruction File Id

output:

Error Status

### Validate Instruction File

This procedure checks that it is valid to load an instruction file.

#### Processing

Join the cdb\_file\_reference and cdb\_instruction\_file records for the specified file and select the details

If the Participant Id and Market Role combination does not exist in ndb\_m\_participants,

1. log message to operator (Unknown Originator)
2. Call csl\_update\_file to set the file status to “Rejected”
3. exit

If the originator is a PRS Agent,

1. select the last instruction from this PRS Agent
2. If the instruction is a “PRS Refresh” and is “Unprocessed”,
3. log message to operator (Processing Suspended until Refresh Handled)
4. exit

Select files in cdb\_file\_reference with this file’s originator and File Sequence Number and the File Status is “Skipped”

If any files are found,

1. Call csl\_update\_file to set the file status to “Skipped”
2. log message to operator (file skipped)
3. exit

Select files in cdb\_file\_reference with this file’s originator and a File Sequence Number >= this files Sequence Number and File Status is not “Corrupt”

If any files (other than this one) are found,

1. Call csl\_update\_file to set the file status to “Rejected”
2. log message to operator (File Sequence Number Error)
3. exit

select files in cdb\_file\_reference with this file’s originator and a File Sequence Number one less than this file’s Sequence Number and File Status is “Received” or “Skipped”

If no files are found,

1. Call csl\_update\_file leave the file status as “Received”
2. log message to operator (Earlier File Missing)
3. exit

Join the cdb\_file\_reference and cdb\_instruction\_file and select files in with this file’s originator and a File Sequence Number one less than this file’s Sequence Number, i.e.: the previous file.

Check that the First Instruction Sequence Number is one greater than the Last instruction Sequence Number of the previous file.

(CSL will already have checked that the Instruction Sequence Numbers in the file are contiguous and that the checksum is correct)

Using CSL Common Server Library routines:

Call open\_files

Read next record

While record is not File Footer

1. If the record is an Instruction Header
2. If the originator is a PRS Agent,
3. If the instruction is a PRS Refresh, check that First Instruction Sequence Number = Last instruction Sequence Number for this file i.e.: there is only one instruction
4. check the instruction type is Data Aggregator Appointment, Data Collector Appointment, Profile Class/SSC, Measurement Class, Energisation Status, GSP Group, or Line Loss Factor Class Details
5. If the originator is a Data Collector
6. check the instruction type is EAC/AA and Metering System Details
7. Read next record

Close the file

If all checks pass,

1. return Success

Otherwise,

1. return Failure

#### Input / Output

input:

File Id

output:

error\_code

### Close Files

This procedure invokes Server Library (CSL) procedures to close the instruction file and updates the file status detail if appropriates.

#### Processing

Using CSL Common Server Library routines:

Close the file

If there are outstanding instructions (i.e.: Processing Status is not DONE),

1. Update file status to “Processed”

#### Input / Output

input:

Processing Status MORE|DONE  
Instruction File Id

output:

Error Status

### Complete Instruction

This procedure records the success, failure, or other changes to the status of an instruction.

#### Processing

Update the appropriate ndb\_instructions with the new status.

#### Input / Output

input:

instruction\_seq\_no  
instruction\_file\_id  
new\_instruction\_status APPLIED|FAILED

output:

error\_code

### Extract MS

This procedure extracts the current state of the database for a given metering system. The data is stored in global data structures.

#### Processing

For each of the tables appropriate to role/instruction type:

PRS ndb\_registrations\_n

ndb\_dc\_apps\_n \*

ndb\_ms\_prs\_dets\_n

ndb\_data\_agg\_apps\_n

ndb\_dc\_apps\_n

DC ndb\_register\_cons\_n

ndb\_ms\_dc\_dets\_n

( \* Data Aggregator Appointment, Data Collector Appointment & Refresh Instructions only)

Fill the pointer array and table array with nulls

Determine the partition for the Metering System. The actual table names of the tables are as listed above but in the trailing '\_n', n is replaced by the partition number (eg for partition 4 the tables are ndb\_registrations\_4 etc.).

Read all records for the Metering System, starting from the one active on the Significant Date (for the \_dets\_ tables, read all records) and ordered by date into the table array

Create the array of pointers to entries in table array

#### Input / Output

input:

Metering System Id  
Instruction Type  
 Originator Role

output:

error\_code  
error\_reason

### Reapply MS

This procedure updates the database to match the current contents of global data structures. If the instruction was a PRS Refresh, any changes are reported to the Data Aggregator.

Processing

For each appropriate subset of the arrays:

Construct a physical view from the logical arrays, inserting and deleting records and updating flags as needed

Compare this view with the current database representation (record by record)

For each difference

1. If instruction was PRS Refresh, report difference.
2. Insert / Delete or Update record as appropriate (do not update tables where no change is necessary)

If the database update results in the Metering System having no details (other than in ndb\_ms\_exceptions), the code does *not* delete the Metering System. This is performed by the archive function.

#### Input / Output

input:

Metering System Id  
 Originator Role  
Instruction Type  
 Was Refresh (boolean)

output:

error\_code  
error\_reason

### Apply Data Aggregator Appointments

This procedure creates specified Data Aggregator Appointments and, if necessary the Registrations specified in the Instruction.

N.B. changes are made in memory structure.

#### Processing

Using the array for ndb\_data\_agg\_apps

Search (via the list of pointers) for the first record with an Effective To Date >= Significant Date. For that pointer (and all subsequent pointers) fill the record pointed with nulls and null the pointer.

For each detail in the instruction, copy the details into the first null record in the data array and add the new pointer

#### Input / Output

input:

none - all required data is global

output:

error\_code  
error\_reason

### Apply Data Collector Appointments

This procedure performs the processing associated with an instruction to create a new Data Collector Appointment. Any appointments with effective dates after the Significant Date of the instruction are deleted.

N.B. changes are made in memory structure.

#### Processing

Sort the array for ndb\_dc\_apps by DCA Effective From Settlement Date.

Search (via the list of pointers) for the first record with an Effective From Date >= Significant Date. For that pointer (and all subsequent pointers) fill the record pointed with nulls and null the pointer.

For each detail in the instruction, search the array for an existing appointment. If none is found, copy the details into the first null record in the data array and add the new pointer.

Resort the array by Registration ID and DCA Effective From Settlement Date.

#### Input / Output

input

none - all required data is global

output

error\_code  
 error\_reason

### Apply Est. Annual Consumption

This procedure applies sets of Estimated Annual Consumption changes.

N.B. changes are made in memory structure.

#### Processing

Using the array for ndb\_register\_cons

Search (via the list of pointers) for the last record with an Effective From Date <= Significant Date. For that pointer (and all subsequent pointers) fill the record pointed with nulls and null the pointer.

For each detail in the instruction, copy the details into the first null record in the data array and add the new pointer

#### Input / Output

input:

none - all required data is global

output:

error\_code  
 error\_reason

### Apply Annualised Advances

This procedure applies sets of Annual Advance and Estimated Annual Consumption changes.

N.B. changes are made in memory structure.

#### Processing

Using the array for ndb\_register\_cons

Search (via the list of pointers) for the first record with an Effective To Date >= Significant Date. For that pointer (and all subsequent pointers) fill the record pointed with nulls and null the pointer.

For each detail in the instruction, copy the details into the first null record in the data array and add the new pointer

#### Input / Output

input:

none - all required data is global

output:

error\_code  
 error\_reason

### Apply Energisation Statuses

This procedure applies changes to the energisation status of a Metering System; deleting changes after the new effective from date before applying the change.

N.B. changes are made in memory structure.

#### Processing

Using the array for ndb\_ms\_prs\_dets or ndb\_ms\_dc\_dets as appropriate

Search (via the list of pointers) for the first record with an Effective From Date >= min(Significant Date, earliest Energisation Status Effective From Data in Instruction). For that pointer (and all subsequent pointers) fill the record pointed with nulls and null the pointer.

If the last remaining record does not overlap a Data Aggregator Appointment (PRS data) or Meter Advance Period (DC data), fill that record with nulls and null the pointer.

For each detail in the instruction, copy the details into the first null record in the data array and add the new pointer

#### Input / Output

input:

none - all required data is global

output:

error\_code  
 error\_reason

### Apply GSP Groups

This procedure applies changes to a Metering System’s GSP group; deleting changes after the new effective from date before applying any change.

N.B. changes are made in memory structure.

#### Processing

Using the array for ndb\_ms\_prs\_dets or ndb\_ms\_dc\_dets as appropriate

Search (via the list of pointers) for the first record with an Effective From Date >= min(Significant Date, earliest GSP Group Effective From Data in Instruction). For that pointer (and all subsequent pointers) fill the record pointed with nulls and null the pointer.

If the last remaining record does not overlap a Data Aggregator Appointment (PRS data) or Meter Advance Period (DC data), fill that record with nulls and null the pointer.

For each detail in the instruction, copy the details into the first null record in the data array and add the new pointer

#### Input / Output

input:

none - all required data is global

output:

error\_code  
 error\_reason

### Apply Line Loss Factor Classes

This procedure applies changes to the Line Loss Factor associated with a Metering System. Changes after the new effective from date are purged before applying any change.

N.B. changes are made in memory structure.

#### Processing

Using the array for ndb\_ms\_prs\_dets

Search (via the list of pointers) for the first record with an Effective From Date >= min(Significant Date, earliest Line Loss Factor Class Effective From Data in Instruction). For that pointer (and all subsequent pointers) fill the record pointed with nulls and null the pointer.

If the last remaining record does not overlap a Data Aggregator Appointment (PRS data) or Meter Advance Period (DC data), fill that record with nulls and null the pointer.

For each detail in the instruction, copy the details into the first null record in the data array and add the new pointer

#### Input / Output

input:

none - all required data is global

output:

error\_code  
 error\_reason

### Apply Measurement Classes

This procedure applies changes to the Measurement Class for a Metering System. Changes after the new effective from date are purged before the new Measurement Class is recorded.

N.B. changes are made in memory structure.

#### Processing

Using the array for ndb\_ms\_prs\_dets or ndb\_ms\_dc\_dets as appropriate

Search (via the list of pointers) for the first record with an Effective From Date >= min(Significant Date, earliest Measurement Class Effective From Data in Instruction). For that pointer (and all subsequent pointers) fill the record pointed with nulls and null the pointer.

If the last remaining record does not overlap a Data Aggregator Appointment (PRS data) or Meter Advance Period (DC data), fill that record with nulls and null the pointer.

For each detail in the instruction, copy the details into the first null record in the data array and add the new pointer

#### Input / Output

input:

none - all required data is global

output:

error\_code  
 error\_reason

### Apply Profile Class/SSC Details

This procedure applies changes to a Metering System’s Profile Class and Standard Settlement Configuration. Changes after the new effective from date are purged before the new attribute is recorded.

N.B. changes are made in memory structure.

#### Processing

Using the array for ndb\_ms\_prs\_dets or ndb\_ms\_dc\_dets as appropriate

Search (via the list of pointers) for the first record with an Effective From Date >= min(Significant Date, earliest Profile Class/SSC Effective From Data in Instruction). For that pointer (and all subsequent pointers) fill the record pointed with nulls and null the pointer.

If the last remaining record does not overlap a Data Aggregator Appointment (PRS data) or Meter Advance Period (DC data), fill that record with nulls and null the pointer.

For each detail in the instruction, copy the details into the first null record in the data array and add the new pointer

#### Input / Output

input:

none - all required data is global

output:

error\_code  
 error\_reason

### Apply Registrations

This procedure applies a set of Supplier Registrations specified in the Instruction.

N.B. changes are made in memory structure.

#### Processing

For DC data, using the array for ndb\_ms\_dc\_dets:

Search (via the list of pointers) for the first record with an Effective From Date >= min(Significant Date, earliest Registration Effective From Data in Instruction). For that pointer (and all subsequent pointers) fill the record pointed with nulls and null the pointer.

If the last remaining record does not overlap a Meter Advance Period (DC data), fill that record with nulls and null the pointer.

For PRS data, using the array for ndb\_registrations:

Search (via the list of pointers) for the first record with an Effective From Date >= Significant Date. For that pointer (and all subsequent pointers)

1. Search the array for ndb\_data\_agg\_appts for any record which is a detail of the current ndb\_registrations record; fill that record with nulls and null the pointer;
2. Search the array for ndb\_dc\_appts for any record which is a detail of the current ndb\_registrations record; fill that record with nulls and null the pointer;
3. fill the record pointed with nulls and null the pointer.

For each detail in the instruction, copy the details into the first null record in the data array and add the new pointer

#### Input / Output

input:

none - all required data is global

output:

error\_code  
 error\_reason

### Supersede Instructions

This procedure marks as Superseded all earlier Instructions for a Metering System which have not been successfully applied but can now be disregarded.

#### Processing

If current Instruction is from a PRS

1. Select all “Discarded” Instructions with the same subject distribution business as the current Instruction
2. For each selected Instruction which is a candidate for supersede (i.e.: *either* the Instruction is from the same PRS Agent and has a lower Instruction Sequence Number, *or* the originator PRS Agent has no future appointment to the Distribution Business):
3. Update “Failed” Instruction, setting Reprocess Flag to “Cannot Reprocess”

If current Instruction Type is “Data Aggregator Appointment Details” or "PRS Refresh",

1. Select all “Failed” PRS Instructions with the same subject metering system as the current Instruction (DAA) or current Metering System (Refresh)
2. For each selected Instruction which is a candidate for supersede:
3. If the Significant Date of the “Failed” Instruction is < Significant Date of current Instruction.
4. Update “Failed” Instruction, setting Reprocess Flag to “Cannot Reprocess”
5. Otherwise,
6. Update “Failed” Instruction, setting Status to “Superseded”
7. Delete all Instruction Status Reason records for this Instruction
8. Insert new Instruction Status Reason for this Instruction to record that the Instruction was superseded by the current Instruction
9. Select all Refresh Instruction Failures for the same Metering System as the current Instruction (DAA) or current Metering System (Refresh).
10. For each selected Refresh Instruction Failure:
11. if the Significant Date of the Refresh Instruction is equal to or later than that of the current Instruction and either
12. Refresh Instruction is from the same PRS Agent as the current Instruction and has an earlier Instruction Sequence Number or
13. Refresh Instruction is from a PRS Agent which has no future appointment to the Distribution Business
14. delete the Refresh Instruction Failure and all associated Refresh Instruction Failure Reasons.

If current Instruction Type is from a PRS Agent but is not “PRS Refresh” or “Data Aggregator Appointment Details”,

1. Select all “Failed” Instructions with the same subject metering system as the current Instruction and *either* the same Instruction Type as the current Instruction *or* with Type = “Data Aggregator Appointment”
2. For each selected Instruction which is a candidate for supersede:
3. If *either* the “Failed” Instruction is a “Data Aggregator Appointment” *or* Significant Date of the “Failed” Instruction is < Significant Date of current Instruction.
4. Update “Failed” Instruction, setting Reprocess Flag to “Cannot Reprocess”
5. Otherwise,
6. Update “Failed” Instruction, setting Status to “Superseded”
7. Delete all Instruction Status Reason records for this Instruction
8. Insert new Instruction Status Reason for this Instruction to record that the Instruction was superseded by the current Instruction

If Instruction Type is “EAC/AA & MS Details”,

1. Select all “Failed” DC Instructions with the same subject Metering System and from the same Data Collector as the current Instruction
2. for each selected Instruction,
3. If the Significant Date of the “Failed” Instruction is < Significant Date of current Instruction.
4. Update “Failed” Instruction, setting Reprocess Flag to “Cannot Reprocess”
5. Otherwise,
6. Update “Failed” Instruction, setting Status to “Superseded”
7. Delete all Instruction Status Reason records for this Instruction
8. Insert new Instruction Status Reason for this Instruction to record that the Instruction was superseded by the current Instruction

#### Input / Output

input:

none - all required data is global

output:

error\_code  
 error\_reason

### Validate PRS data

This procedure performs validation common to all PRS Agent generated instructions.

#### Processing

Check the Originator is current PRS Agent for the Distribution Business for this MS

If Instruction Type is “Data Aggregator Appointment”,

1. Check there is no Data Aggregator Appointment active at the Significant Date unless it is also in the instruction
2. If there is only 1 Data Aggregator Appt. with Start & End Date Only,
3. Check that the Data Aggregator Appt exists with same Start Date and the End Date is {max}
4. Check that there are no other records in the instruction

#### Input / Output

input:

none - all required data is global

output:

error\_code  
 error\_reason

### Validate DC data

This procedure performs validation common to all Data Collector generated instructions.

#### Processing

Check this instruction will not leave the Metering System without a Registration, Profile Class, SSC, Measurement Class, Energisation Status or GSP group during any of the time period covered by the EAC or AA

If the significant date is within an existing AA effective period, Check that said AA is updated within the instruction.

Check there is no change to SSC, Energisation Status, Registration or Measurement Class during a Meter Advance period

#### Input / Output

input:

none - all required data is global

output:

error\_code  
 error\_reason

### Validate Data Aggregator Appointments

This procedure performs checking associated with sets of Data Aggregator Appointments.

#### Processing

Check:

Start date <= End Date

Registrations exist

End Date > Significant Date OR Start Date >= Significant Date

If one has Start Date < Significant Date,

1. That one must exist with an End Date >= Significant Date
2. All others must have a Start Date > Significant Date

Start Date >= Registration Start Date

End Date <= Registration End Date

No appointments overlap and Start Dates are unique

Check there is at least one Data Aggregator Appointment for every Registration ending on or after the Significant Date

Check that after applying the Instruction, for each Settlement Date within a Data Aggregator Appointment there will be an AFYC for the SSC/PC/GSP Group combination of the Metering System on that date

#### Input / Output

input:

none - all required data is global

output:

error\_code  
 error\_reason.

### Validate Data Collector Appointments

This procedure performs the validation specific to Data Collector Appointments.

#### Processing

Check:

All DCs are valid

Registrations exist

If one has Start Date < Significant Date, all others for the same Registration must have Start Date > Significant Date

Start Date >= Registration Start Date

If Start Date < Significant Date the Data Collector Appointment must already exist on the database and must be the latest appointment on the database for the Registration which starts before the Significant Date

No registration will be without a Data Collector Appointment for any date within a Data Aggregator Appointment

Start Dates are unique within each Registration

#### Input / Output

input:

none - all required data is global

output:

error\_code  
error\_reason

### Validate Estimated Annual Consumption

This procedure performs the validation specific to sets of Estimated Annual Consumptions.

#### Processing

Check:

EACs are for Time Pattern Regimes in SSC

Start Dates are unique

End Date > Significant Date OR Start Date >= Significant Date

If one has Start Date < Significant Date,  
 All others must have Start Date > Significant Date

Check that after applying the Instruction, for each Settlement Date within a Data Aggregator Appointment there will be an AFYC for the SSC/PC/GSP Group combination of the Metering System on that date

Check that the EAC value is within the boundary values defined in the system\_parameter table

#### Input / Output

input:

none - all required data is global

output:

error\_code  
 error\_reason

### Validate Annualised Advances

This procedure performs validation specific to sets of Annualised Advances.

#### Processing

Check:

Effective from Settlement Date <= Effective to Settlement Date

AAs are for Time Pattern Regimes in SSC

Meter Advance periods do not overlap

End Date > Significant Date OR Start Date >= Significant Date

If one has Start Date < Significant Date,  
 All others must have Start Date > Significant Date

Check that after applying the Instruction, for each Settlement Date within a Data Aggregator Appointment there will be an AFYC for the SSC/PC/GSP Group combination of the Metering System on that date

Check that the AA value is within the boundary values defined in the system\_parameter table

#### Input / Output

input:

none - all required data is global

output:

error\_code  
 error\_reason

### Validate Energisation Statuses

This procedure performs the validation specific to changes to energisation statuses.

#### Processing

Check:

Energisation Status is ‘D’ or ‘E’

If PRS Agent,  
 Registrations Exist

End Date > Significant Date OR Start Date >= Significant Date

If one has Start Date < Significant Date,  
 All others must have Start Date > Significant Date

If PRS Agent,  
 Start Date >= Registration Start Date  
 Start Date <= Registration End Date  
 Overlap at least one Data Aggregator Appointment  
 No Registrations will be without a Energisation Status   
 on a Settlement Day within a Data Aggregator Appointment

Start Dates unique

If DC,  
 Metering System will not be left without Energisation Status  
 on a Settlement Day within an AA or EAC

#### Input / Output

input:

none - all required data is global

output:

error\_code  
 error\_reason

### Validate GSP Group

This procedure performs validation particular to changes in GSP group details.

#### Processing

Check:

GSP Groups exist

If PRS Agent,  
 Metering Systems Exist

End Date > Significant Date OR Start Date >= Significant Date

If one has Start Date < Significant Date,  
 All others must have Start Date > Significant Date

If PRS Agent,  
 Overlap at least one Data Aggregator Appointment  
 No Metering Systems will be without a GSP Group   
 on a Settlement Day within a Data Aggregator Appointment

Start Dates unique

If DC,  
 Metering System will not be left without GSP Group  
 on a Settlement Day within an AA or EAC

Check that after applying the Instruction, for each Settlement Date within a Data Aggregator Appointment there will be an AFYC for the SSC/PC/GSP Group combination of the Metering System on that date

Check that the Distributor is valid for this GSP group on the Start Date

If PRS,

Check that the Distributor is valid for this GSP group for all dates   
 which overlap a DAA

#### Input / Output

input:

none - all required data is global

output:

error\_code  
 error\_reason

### Validate Line Loss Factor Classes

This procedure performs validation specific to Line Loss Factor Class changes.

#### Processing

Distributors exist and matches Distributor according to the short code of the Metering System ID (ie first two digits)

LLFs Exist

End Date > Significant Date OR Start Date >= Significant Date

If one has Start Date < Significant Date,  
 All others must have Start Date > Significant Date

Overlap at least one Data Aggregator Appointment

No Metering Systems will be without a LLF Class   
 on a Settlement Day within a Data Aggregator Appointment

Start Dates unique

#### Input / Output

input:

none - all required data is global

output:

error\_code  
 error\_reason

### Validate Measurement Classes

This procedure performs validation specific to changes in Measurement Class.

#### Processing

Measurement Classes Exist

If PRS Agent,  
 Registrations Exist

End Date > Significant Date OR Start Date >= Significant Date

If one has Start Date < Significant Date,  
 All others must have Start Date > Significant Date

If PRS Agent,  
 Start Date >= Registration Start Date  
 Start Date <= Registration End Date  
 Overlap at least one Data Aggregator Appointment  
 No Registrations will be without a Measurement Class   
 on a Settlement Day within a Data Aggregator Appointment

Start Dates unique

If DC,  
 Metering System will not be left without a Measurement Class  
 on a Settlement Day within an AA or EAC

#### Input / Output

input:

none - all required data is global

output:

error\_code  
 error\_reason

### Validate Profile Class/SSC Details

This procedure validates changes to Profile Class and/or Standard Settlement Configuration.

#### Processing

Profile Classes Exist

SSCs Exist

Profile Class/SSC combination valid

If PRS Agent,  
 Registrations Exist

End Date > Significant Date OR Start Date >= Significant Date

If one has Start Date < Significant Date,  
 All others must have Start Date > Significant Date

If PRS Agent,  
 Start Date >= Registration Start Date  
 Start Date <= Registration End Date  
 Overlap at least one Data Aggregator Appointment  
 No Registrations will be without a Profile Class or SSC  
 on a Settlement Day within a Data Aggregator Appointment

Start Dates unique

If DC,  
 Metering System will not be left without a Profile Class or SSC  
 on a Settlement Day within an AA or EAC

Check that after applying the Instruction, for each Settlement Date within a Data Aggregator Appointment there will be an AFYC for the SSC/PC/GSP Group combination of the Metering System on that date

#### Input / Output

input:

none - all required data is global

output:

error\_code  
 error\_reason

### Validate Registrations

This procedure validates registrations.

#### Processing

Supplier Ids Exist

End Date > Significant Date OR Start Date >= Significant Date

If one has Start Date < Significant Date,  
 All others must have Start Date > Significant Date

Start Dates unique

If PRS Agent,  
 least one Data Aggregator Appointment per Registration

If DC,  
 Metering System will not be left without a Registration  
 on a Settlement Day within an AA or EAC

#### Input / Output

input:

none - all required data is global

output:

error\_code  
 error\_reason

### Return Instruction

This function writes all Instructions marked “Return to Source” for a specified Instruction originator to a file which will be sent to the originator.

#### Processing

Select

1. all ndb\_instructions and
2. all ndb\_refresh\_instr\_failure and
3. ndb\_refr\_instr\_failure\_reason records

for the originator where the instruction is marked “Return to Source”.

Call csl\_create\_file

Use csl routines to write file header(s)

For each Instruction

1. Use csl routines to write Instruction details
2. For each failure reason associated with the Instruction
3. Use csl routines to write details of the failure reasons

Use csl routines to write file footer

Call csl\_close\_file

Call CFS.EXPORT

#### Input / Output

input:

Market Participant Id

Metering System Id

output:

error\_code

# NLD Load Data Subsystem Specification

## Introduction

The Load Data File (NLD) subsystem enables the data contained in (data) files with a status of ‘Received’ (i.e.: those new files which have been recognised by the File Receipt (CFR) subsystem) to be loaded into the database in batch. It also enables the user to modify and report on the Aggregation Run Schedule and to reprocess the last successfully loaded data file.

This subsystem may only receive data files from The Pool Market Domain Data Agency or the ISR Agent. There are two valid types of data file which may be loaded into the NHHDA database via this subsystem:

|  |  |  |  |
| --- | --- | --- | --- |
| File Type | Source | File Description | File Contents |
| D0286001 | Pool Market Domain Data Agent | Data Aggregation and Settlement Timetable File | One Pool Settlement Timetable |
| D0269002 | ISR Agent | Market Domain Data Complete Set | As specified in the Interface Specification |

The background processes responsible for the loading of the data and generating logs will be written in Oracle Pro\*C. The communications between the PC client and the Oracle Database on the Server is established and controlled via Oracle Net8.

## Subsystem Context



### Scheduler (CSC) Interface

For data loading, the Scheduler (CSC) subsystem initiates the data loading control process, nld\_control. The data loading control process itself is submitted as described in 2.11 Operational design.

This process submits the appropriate data load process for each of the data files available for loading in order, and waits for each ‘child’ process to complete before initiating the next. The initiation of each ‘child’ process is performed by the Scheduler (CSC) subsystem.

Other subsystem processing is controlled via the user interface. If the user requests a report, the report parameters are stored. The initiation of the ‘child’ process is performed by the Scheduler (CSC) subsystem.

### User Interface

The user may modify and report on the Aggregation Run Schedule, controlled via the following forms:

1. Schedule Aggregation Run
2. Browse Data Aggregation Run Schedule
3. Report Data Aggregation Run Schedule

Note that the user may modify and report on Market Domain Data via the following forms which are part of the Maintain Standing Data (NSD) subsystem:

1. Define/Browse GSP Groups
2. Define/Browse Line Loss Factor Classes
3. Define/Browse Profile Classes
4. Define/Browse Market Participant
5. Define/Browse Threshold Parameters
6. Define Standard Settlement Configuration
7. Browse Standard Settlement Configuration
8. Report Standard Settlement Configuration and Associated Items
9. Define Average Fractions of Yearly Consumption
10. Report Average Fractions of Yearly Consumption

### Database Interface

The database interactions within this subsystem are handled by batch loading processes initiated by the Scheduler (CSC) or via the user interface. Details of batch loading interactions are included in the NLD procedure section. Details of on-line and reporting interactions are described in the relevant Forms and Reports specifications respectively.

Data loaded from files may be amended subsequently via the user interface. The volume of data concerned is small so, for ease of keeping the audit trail together, the online auditing option will be invoked for database changes whether these are as result of data loading or made via the user interface. The mechanism for capturing audit data will be database triggers on the tables concerned.

### File Interfaces

#### Data Loading

New (unprocessed) files which have been recognised by the File Receipt (CFR) subsystem have a status of ‘Received’. The NHHDA External Interfaces section provides the details of data files which may be received.

Files are manipulated using functions from the Server Library (CSL) subsystem. (The interface with this subsystem is not shown in the context diagram.)

Following processing, the status of each data file may remain as ‘Received’ (if the file concerned is not the next of that type to be processed from its source) or changed to:

1. Processed - files which have been processed successfully (but not necessarily applied to the database).
2. Rejected - files whose contents cannot be loaded.

Each invocation of nld\_load\_pst or nld\_load\_mdd will result in messages being written to the current Operator Log using functions from the Logging (CLG) subsystem. (The interface with this subsystem is not shown in the context diagram.) Operator messages from this subsystem will relate to the run-time information about the batch process (i.e.: file identification information of the data file being processed and lists of any global parameters obtained from the database) plus messages relaying thehigh level progress of the batch process, such as the file details of the Exception Report if one is created.

Each invocation of the nld\_load\_pst or nld\_load\_mdd may result in a machine-readable report file being created. The Report Formatter subsystem (CRP) handles the production of a human-readable version of this report file where required.

#### User Invoked

The following reports are available as specified in the NFR Forms and Reports Subsystem:-

Report Data Aggregation Run Schedule

Report Average Fractions of Yearly Consumption

Report Distributors and Associated Items

Report GSP Groups

Report Line Loss Factor Class

Report SSC and Associated Items

Report Profile Class and Associated Items.

### Special Considerations

Batch data loading processes are likely to conflict with both Aggregation and Instruction processing, and therefore it is necessary for the control process to run in the EXCLUSIVE queue. Although data files of different file types act on separate areas of the database and are not thought likely to conflict, the files concerned are small and are received infrequently. Therefore, it has been decided that all data files are loaded in a single stream. Automatic processing should not be configured for the valid data file types which may be received by the NHHDA system. Instead, the controlling process for data loading, nld\_control, will be configured to run using the EXCLUSIVE queue.

If the database is locked, the operator will be informed (via the Error Log) and no updates will be performed.

## Subsystem Processing

This subsystem consists of the following components:

1. Data File Loading
2. Schedule Aggregation Run
3. Report Data Aggregation Run Schedule

‘Schedule Aggregation Run’ and ‘Report Data Aggregation Run Schedule’ are described in NGF General Forms Subsystem Specification (section 9) and NFR Forms and Reports Subsystem Specification (section 10). The control process for ‘Data File Loading’ is as follows:



## Data Usage

### System Data

The following tables give the data usage mapping for the NHHDA subsystems, excluding most common database table accesses which are made through the common library functions. Where a common database table access is made, via a common library function, which has a material effect on a subsystem’s functionality, it is shown in brackets. An example of the distinction made is that the update of file status would be included but not the manipulation of the cdb\_queue table.

|  | Total | nld\_  control | nld\_validate\_  data\_file\_  version | nld\_initiate\_  data\_file |
| --- | --- | --- | --- | --- |
| cdb\_data\_file |  |  |  |  |
| cdb\_file\_reference | R(M) | R(M) | R | R(M) |
| cdb\_ref\_values |  |  |  |  |
| cdb\_system\_parameter |  |  |  |  |
| cdb\_return\_parameter |  |  |  |  |
| ndb\_av\_frac\_y\_cons |  |  |  |  |
| ndb\_data\_agg\_runs |  |  |  |  |
| ndb\_gsp\_groups |  |  |  |  |
| ndb\_gsp\_groups\_run |  |  |  |  |
| ndb\_measure\_reqs |  |  |  |  |
| ndb\_profile\_classes |  |  |  |  |
| ndb\_settlements |  |  |  |  |
| ndb\_std\_sett\_cfgs |  |  |  |  |
| ndb\_t\_p\_regimes |  |  |  |  |
| ndb\_vsscpcs |  |  |  |  |
| ndb\_m\_participants |  |  |  |  |
| ndb\_threshold\_pars |  |  |  |  |
| ndb\_llf\_classes |  |  |  |  |
| ndb\_gsp\_groups\_dis |  |  |  |  |
| ndb\_isr\_agent\_apps |  |  |  |  |

|  | Total | nld\_  load\_  mdd | nld\_  load\_  pst | nld\_  terminate\_  data\_file | nld\_  schedule\_  run |
| --- | --- | --- | --- | --- | --- |
| cdb\_data\_file | R |  | R |  |  |
| cdb\_file\_reference | R(M) | R |  | R(M) |  |
| cdb\_ref\_values | R |  | R |  |  |
| cdb\_system\_parameter | R | R | R |  |  |
| ndb\_av\_frac\_y\_cons | RCU | RCU |  |  |  |
| ndb\_data\_agg\_runs | RCD | R | RD |  | C |
| ndb\_gsp\_groups | R | R | R |  |  |
| ndb\_gsp\_groups\_run | RCD | R | D |  | C |
| ndb\_measure\_reqs | RC | RC |  |  |  |
| ndb\_profile\_classes | RCU | RCU |  |  |  |
| ndb\_settlements | RCU | R | RU |  | C |
| ndb\_std\_sett\_cfgs | RCU | RCU |  |  |  |
| ndb\_t\_p\_regimes | RCU | RCU |  |  |  |
| ndb\_vsscpcs | RC | RC |  |  |  |
| ndb\_m\_participants | RCU | RCU |  |  |  |
| ndb\_threshold\_pars | RCU | RCU |  |  |  |
| ndb\_llf\_classes | RCU | RCU |  |  |  |
| ndb\_gsp\_groups\_dis | RCU | RCU |  |  |  |
| ndb\_isr\_agent\_apps | RCU | RCU |  |  |  |

### Local Data

Arrays to load inserts and updates to be applied to the database.

GSP\_array

1. 1 element per GSP Group on the database
2. contains GSP Group Id for the GSP Group

GSP\_latest

1. 1 element per GSP Group on the database
2. contains latest Effective From Settlement Date of all AFYCs for the GSP Group identified in the corresponding element of GSP\_array

ndb\_AFYC\_temp

1. database table used to hold temporary copy of all AFYCs for current SSC when SSC already exists on the database.

TPR\_array

1. 1 element per Measurement Requirement on the database for the current SSC
2. contains Time Pattern Regime id

TPR\_found

1. 1 element per Measurement Requirement on the database for the current SSC
2. boolean indicating ‘found’ state of TPR in corresponding element of TPR\_array

PC\_array

1. 1 element per valid SSC Profile Class on the database for the current SSC
2. contains Profile Class Id

PC\_found

1. 1 element per valid SSC Profile Class on the database for the current SSC
2. boolean indicating ‘found’ state of Profile Class in corresponding element of PC\_array

### Exception Files

Processing of data files results in the creation of exception files. These report that processing has been attempted along with warnings and/or error messages.

The format of the exception files is as follows

#### Load Settlement Timetable Exception File

| ZHD - File Header | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =ZHD |
| 2 | File Type | text(8) | =L0009001 |
| 3 | From Role Code | text(1) | =B (Non half hourly data aggregator) |
| 4 | From Participant Code | text(4) | market participant id of the non half hourly data aggregator |
| 5 | To Role Code | text(1) | null |
| 6 | To Participant Code | text(4) | null |
| 7 | Creation Time | date/time | Time of file generation |

| FNI - File Name and Id | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =FNI |
| 2 | File Name | text(14) | original name of file (from cdb\_file\_reference.alternative\_filename) |
| 3 | File Id | integer |  |

| XXX - Rejection Reason | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =XXX |
| 2 | Position | integer | location to allow technical support to identify exactly where this reason was detected |
| 3 | Reason | text(80) | text explaining why the file has been rejected |

| DND - Dispute run Not Deleted | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =DND |
| 2 | Run Date | date |  |
| 3 | Settlement Date | date |  |
| 4 | Settlement Code | text(2) |  |

This run has not been deleted because it has a dispute type Settlement Code.

| AAP - Aggregation Already Performed | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =DBP |
| 2 | Run Date | date |  |
| 3 | Settlement Date | date |  |
| 4 | Settlement Code | text(2) |  |

This run has not been deleted because the Aggregation Run has already been performed.

| NIA - Run not inserted (Duplicate run already performed) | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =NIA |
| 2 | Settlement Date | date |  |
| 3 | Settlement Code | text(2) |  |
| 4 | Run Date | date | Run date (as determined by NLD processing) for Aggregation Run that was not inserted |
| 5 | Existing Run Date | date | Run date for existing Aggregation Run |

This run was not inserted because an Aggregation Run for the same Settlement Date and Code has already been performed.

| NID - Run not inserted (Duplicate run already on database) | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =NID |
| 2 | Settlement Date | date |  |
| 3 | Settlement Code | text(2) |  |
| 4 | Run Date | date | Run date (as determined by NLD processing) for Aggregation Run that was not inserted |
| 5 | Existing Run Date | date | Run date for existing Aggregation Run |

This run was not inserted because an Aggregation Run for the same Settlement Date and Code already exists on the database. This exception should occur very rarely and only under unusual circumstances.

| NIP - Run not inserted (no Payment Date) | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =NIP |
| 2 | Settlement Date | date |  |
| 3 | Settlement Code | text(2) |  |
| 4 | Run Date | date | Run date (as determined by NLD processing) for Aggregation Run that was not inserted |
| 5 | Existing Run Date | date | Run date for existing Aggregation Run |

This run was not inserted because an Aggregation Run for the same Settlement Date and Code already exists on the database but does not have a Payment Date in the corresponding ndb\_settlements record and so was not considered for deletion. For example, runs scheduled using the “Schedule Aggregation Run” form will not have an associated Payment Date.

| DPD - Defaulted to Provisional Default | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =DPD |
| 2 | Run Date | date |  |
| 3 | Settlement Date | date |  |
| 4 | Settlement Code | text(2) |  |

The system could not derive enough working days to schedule this run so it has instead been scheduled to run on the Planned Data Aggregation Run Date held in the PST record and has been given a status of ‘Provisional Default’.

| SYS - System Parameter value | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =SYS |
| 2 | Param\_Type | text(3) |  |
| 3 | Param\_Type2 | text(3) |  |
| 4 | Value | text(20) |  |

The value of this System Parameter was used during the DAST loading process.

| GSP - GSP Group In Run | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =GSP |
| 2 | GSP Group ID | text(2) |  |
| 3 | GSP Group Name | text(30) |  |

This GSP Group was included in all Aggregation Runs scheduled during the loading of the DAST file.

| ZPT - File Trailer | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =ZPT |
| 2 | Record count | integer(10) | Number of records in file, including the headers and footer |
| 3 | Checksum | integer(10) |  |

Repeating structure of File:

Load PST Exceptions ::= ZHD FNI {SYS} {GSP}

{Exception} ZPT

Exception ::= XXX|DND|AAP|NIA|NID|

NIP|DPD

Sorting:

There is no defined sorting for this file. The records in the file appear in the order they were encountered.

#### Load Market Domain Data Complete Set Exception File

| ZHD - File Header | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =ZHD |
| 2 | File Type | text(8) | =L0040001 |
| 3 | From Role Code | text(1) | =B (Non Half Hourly Data Aggregator) |
| 4 | From Participant Code | text(4) | Market Participant ID of the Non Half Hourly Data Aggregator |
| 5 | To Role Code | text(1) | null |
| 6 | To Participant Code | text(4) | null |
| 7 | Creation Time | date/time | Time of file generation |

| FNI - File Name and Id | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =FNI |
| 2 | File Name | text(14) | original name of file (from cdb\_file\_reference.alternative\_filename) |
| 3 | File Id | integer(9) |  |

| XXX - Rejection Reason | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =XXX |
| 2 | Position | integer | location to allow technical support to identify exactly where this reason was detected |
| 3 | Reason | text(80) | text explaining why the file has been rejected |

| MDD - MDD Exception Report Header Information | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Market Domain Data File Header | text(3) | =MDD |
| 2 | MDD Version Number | integer(8) |  |
| 3 | MDD Load Date | date | this is the date when the data in the file is supposed to go live. |
| 4 | Information | text(80) | MDD Processing Information |

| M01 - Warning:- Market Participant and Role On Database Is Missing From File | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M01 |
| 2 | Market Participant ID | text(4) |  |
| 3 | Market Participant Role Code | text(1) |  |
| 4 | Distributor Short Code | text(2) | The Distributor Short Code field is only populated if the Market Participant is acting in the role of Distributor. |

{ MPRL1}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M02 - Error:- Failed to Update Distributor Short Code From File | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M02 |
| 2 | Market Participant ID | text4) |  |
| 3 | Market Participant Role Code | text(1) |  |
| 4 | Distributor Short Code | text(2) | only populated when MP Role is equal to Distributor Role Code. |

{ MPRH1}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M03 - Warning:- Modified Threshold Parameter has been used in a Final Initial Settlement | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M03 |
| 2 | Threshold Parameter | integer(7) |  |
| 3 | Effective From Settlement Date | date | {TPAR} |

{ THPL1}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M04 - Warning:- Threshold Parameter On Database Is Missing From File | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M04 |
| 2 | Threshold Parameter | integer(7) |  |
| 3 | Effective From Settlement Date | date | {TPAR} |

{THPL2}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M05 - Warning:- GSP Group In File is Missing From Database | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M05 |
| 2 | GSP Group ID | text(2) |  |
| 3 | GSP Group Name | text(30) |  |

{GSGL1}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M06 - Warning:- GSP Group On Database Is Missing From File | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M06 |
| 2 | GSP Group ID | text(2) |  |

{GSGL2}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M07 - Warning:- GSP Group/Distributor Relationship On Database Is Missing From File | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M07 |
| 2 | GSP Group ID | text(2) |  |
| 3 | Distributor Participant ID | text(4) |  |
| 4 | Effective From Settlement Date | date |  |

{GGDL1}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M08 - Error:- Invalid Distributor for GSP Group/Distributor Relationship | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M08 |
| 2 | GSP Group ID | text(2) |  |
| 3 | Distributor Participant ID | text(4) |  |
| 4 | Market Participant Role Code | text(1) |  |
| 5 | Effective From Settlement Date | date | {GGD} |

{GGDM1}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M09 - Error:- Unable to Update Distributor Appointment (MSID has open DAA) | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M09 |
| 2 | GSP Group ID | text(2) |  |
| 3 | Distributor  Participant ID | text(4) |  |
| 4 | Effective From Settlement Date | date | {GGD} |

{GGDH1}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M10 - Error:- Distributor Appointment Effective To Settlement Date is less then Effective From Settlement Date | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M10 |
| 2 | GSP Group ID | text(2) |  |
| 3 | Distributor Participant ID | text(4) |  |
| 4 | Effective From Settlement Date | date | {GGD} |
| 5 | Effective To Settlement Date | date | {GGD} |

{GGDH2} ( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M14 - Error :- Invalid PRS Agent for PRS Agent Appointment to Distributor | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M14 |
| 2 | GSP Group ID | text(2) |  |
| 3 | PRS Agent ID | text(4) |  |
| 4 | Market Participant Role Code | text(1) |  |

{PAAM1}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M15 - Error :- No Distributor Appointment for GSP Group corresponding to PRS Agent Appointment | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M15 |
| 2 | GSP Group ID | text(2) |  |
| 3 | PRS Agent ID | text(4) |  |

{PAAM2}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M19 - Warning :- ISR Agent Appointment on Database Is Missing From File | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M19 |
| 2 | GSP Group ID | text(2) |  |
| 3 | ISR Agent ID | text(4) |  |
| 4 | Effective From Date | date |  |
| 5 | Effective To Date | date |  |

{IAAL1}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M20 - Error :- Invalid ISR Agent for ISR Agent Appointment | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M20 |
| 2 | GSP Group ID | text(2) |  |
| 3 | ISR Agent ID | text(4) |  |
| 4 | Market Participant Role Code | text(1) |  |
| 5 | Effective From Date | date | {IAA} |

{IAAM1}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M21 - Error :- ISR Agent Appointment Effective To Settlement Date is less than Effective From Settlement Date. | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M21 |
| 2 | GSP Group ID | text(2) |  |
| 3 | ISR Agent ID | text(4) |  |
| 4 | Effective From Date | date | {IAA} |
| 5 | Effective To Date | date | {IAA} |

{IAAH1}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M22 - Error :- Date overlap exists between two or more ISR Agent Appointments in the file | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M22 |
| 2 | GSP Group ID | text(2) |  |
| 3 | ISR Agent ID | text(4) | first appointment |
| 4 | Effective From Date | date | {IAA} first appointment |
| 5 | Effective To Date | date | {IAA} first appointment |
| 6 | ISR Agent ID | text(2) | second appointment |
| 7 | Effective From Date | date | {IAA} second appointment |
| 8 | Effective To Date | date | {IAA} second appointment |

{IAAH2}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M23 - Error :- ISR Agent Appointment on database overlaps Appointment in the file. | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M23 |
| 2 | GSP Group ID | text(2) |  |
| 3 | ISR Agent ID | text(4) | on database |
| 4 | Effective From Date | date | on database |
| 5 | Effective To Date | date | on database |
| 6 | ISR Agent ID | text(4) | from file |
| 7 | Effective From Date | date | from file |
| 8 | Effective To Date | date | from file |

{IAAH3}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M24 - Warning:- Profile Class on Database is Missing From File | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M24 |
| 2 | Profile Class ID | integer(2) |  |

{PFCL1}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M25 - Warning:- Time Pattern Regime on Database is Missing From File | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M25 |
| 2 | Time Pattern Regime ID | text(5) |  |

{TPDL1}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M26 - Warning :- LLF Class/Distributor Relationship on Database is Missing From File | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M26 |
| 2 | LLFC ID | text(3) |  |
| 3 | Distributor Participant ID | text(4) | Market Participant ID of the Distributor |

{ LLFL1}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M27 - Error :- Invalid LLFC Distributor ID | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M27 |
| 2 | Distributors Market Participant ID | text(4) | Market Participant ID of the Distributor |
| 3 | LLFC ID | text(3) |  |
| 4 | Effective From Settlement Date | date | {LLFC} |

{ LLFM1}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M28 - Warning:- SSC on Database is Missing From File | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M28 |
| 2 | SSC ID | text(4) |  |

{ SCIL1}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M29 - Warning:- Measurement Requirement TPR on Database is Missing From File | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | M29 |
| 2 | Standard Settlement Configuration Id | text(4) |  |
| 3 | Time Pattern Regime Id | text(5) |  |

{ TPRL1}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M30 - Error:- Invalid Measurement Requirement TPR Value | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | M30 |
| 2 | Standard Settlement Configuration Id | text(4) |  |
| 3 | Effective From Settlement Date | date | {SSC} |
| 4 | Time Pattern Regime Id | text(5) |  |

{ TPRM1}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M31 - Error:- Invalid Update of Measurement Requirement Used by Metering System | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | M31 |
| 2 | Standard Settlement Configuration Id | text(4) |  |
| 3 | Effective From Settlement Date | date | {SSC} |
| 4 | Time Pattern Regime Id | text(5) |  |

{TPRH1}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M32 - Warning:- VSCPC On Database Is Missing From File | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | M32 |
| 2 | Standard Settlement Configuration Id | text(4) |  |
| 3 | Profile Class Id | integer(2) |  |

{VSDL1}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M33 - Error:- Invalid VSCPC Profile Class Value | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | M33 |
| 2 | Standard Settlement Configuration Id | text(4) |  |
| 3 | Effective From Settlement Date | date | {SSC} |
| 4 | Profile Class Id | integer(2) |  |
| 5 | Effective From Settlement Date | date | {VSCPC} |

{VSDM1}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M34 - Warning:- Update/insert of AFYC set before latest date which has been used in Final Initial Settlement | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | M34 |
| 2 | Standard Settlement Configuration Id | text(4) |  |
| 3 | Effective From Settlement Date | date | {SSC} |
| 4 | Profile Class ID | integer(2) |  |
| 5 | Effective From Settlement Date | date | {VSCPC} |
| 6 | GSP Group ID | text(2) |  |
| 7 | Effective From Settlement Date | date | {AFOYCS} |
| 8 | Effective To Settlement Date | date | {AFOYCS} |
| 9 | Time Pattern Regime Id | text(5) |  |
| 10 | Average Fraction of Yearly Consumption | decimal (7,6) |  |

{ASDL1}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M35 - Warning:- AFYC set for GSP Group Exists On Database Is Missing From File | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | M35 |
| 2 | Standard Settlement Configuration Id | text(4) |  |
| 3 | Profile Class ID | integer(2) |  |
| 4 | GSP Group ID | text(2) |  |
| 5 | Effective From Settlement Date | date |  |
| 6 | Effective To Settlement Date | date |  |

{ASDL2}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M36 - Error:- MDD Load Would Cause Missing AFYC Data During DAA Appointment | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | M36 |
| 2 | Standard Settlement Configuration Id | text(4) |  |
| 3 | Effective From Settlement Date | date | {SSC} |
| 4 | Profile Class ID | integer(2) |  |
| 5 | Effective From Settlement Date | date | {VSCPC} |
| 6 | GSP Group ID | text(2) |  |
| 7 | Effective From Settlement Date | date | {AFOYCS} |
| 8 | Effective To Settlement Date | date | {AFOYCS} |
| 9 | Date Range Start | date | start of range of dates which would not be covered by any AFYC sets for the SSC/PC/GSP |
| 10 | Date Range End | date | end of range of dates which would not be covered by any AFYC sets for the SSC/PC/GSP |

{ASDH1}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M37 - Error:- AFYC Set Effective To Settlement Date is less than Effective From Settlement Date | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | M37 |
| 2 | Standard Settlement Configuration Id | text(4) |  |
| 3 | Effective From Settlement Date | date | {SSC} |
| 4 | Profile Class ID | integer(2) |  |
| 5 | Effective From Settlement Date | date | {VSCPC} |
| 6 | GSP Group ID | text(2) |  |
| 7 | Effective From Settlement Date | date | {AFOYCS} |
| 8 | Effective To Settlement Date | date | {AFOYCS} |

{ASDH2}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M38 - Error:- Date overlaps exist between two or more sets of AFYCS for the same GSP Group | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | M38 |
| 2 | Standard Settlement Configuration Id | text(4) |  |
| 3 | Effective From Settlement Date | date | {SCI}first ssc record |
| 4 | Profile Class ID | integer(2) |  |
| 5 | Effective From Settlement Date | date | {VSCPC} first vscpc record |
| 6 | GSP Group ID | text(2) |  |
| 7 | Effective From Settlement Date | date | {AFOYCS} first AFYC set |
| 8 | Effective To Settlement Date | date | {AFOYCS} first AFYC set |
| 9 | Effective From Settlement Date | date | {SCI}second ssc record |
| 10 | Effective From Settlement Date | date | {VSCPC} first vscpc record |
| 11 | Effective From Settlement Date | date | {AFOYCS} second AFYC set |
| 12 | Effective To Settlement Date | date | {AFOYCS} second AFYC set |

{ASDH3}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M39 - Error:- AFYCS in file overlaps an AFYCS on the database | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | M39 |
| 2 | Standard Settlement Configuration Id | text(4) |  |
| 3 | Profile Class ID | integer(2) |  |
| 4 | GSP Group ID | text(2) |  |
| 5 | Effective From Settlement Date | date | on database |
| 6 | Effective To Settlement Date | date | on database |
| 7 | Effective From Settlement Date | date | {SCI} from file |
| 8 | Effective From Settlement Date | date | {VSCPC} from file |
| 9 | Effective From Settlement Date | date | {AFOYCS} from file |
| 10 | Effective To Settlement Date | date | {AFOYCS} from file |

{ASDH4}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M40 - Error:- AFYC Set Does Not Sum to 1.0000 | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M40 |
| 2 | Standard Settlement Configuration Id | text(4) |  |
| 3 | Effective From Settlement Date | date | {SCI} |
| 4 | Profile Class Id | integer(2) |  |
| 5 | Effective From Settlement Date | date | {VSCPC} |
| 6 | GSP Group Id | text(2) |  |
| 7 | Effective From Settlement Date | date | {AFOYCS} |
| 8 | Effective To Settlement Date | date | {AFOYCS} |
| 9 | Sum of all AFYCs in set | decimal (8,6) | Field size defined to allow for sum of 48 fractions each with the value 1.000000 (!) |

{AFDM1}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M41 - Error:- Incorrect Additional Measurement Requirement for SSC | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M41 |
| 2 | Standard Settlement Configuration Id | text(4) |  |
| 3 | Effective From Settlement Date | date | {SCI} |
| 4 | Profile Class Id | integer(2) |  |
| 5 | Effective From Settlement Date | date | {VSCPC} |
| 6 | GSP Group Id | text(2) |  |
| 7 | Effective From Settlement Date | date | {AFOYCS} |
| 8 | Time Pattern Regime Id | text(5) |  |

{AFDM2}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M42 - Error:- Incorrect Duplicate Measurement Requirement in AFD record for SSC | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M42 |
| 2 | Standard Settlement Configuration Id | text(4) |  |
| 3 | Effective From Settlement Date | date | {SCI} |
| 4 | Profile Class Id | integer(2) |  |
| 5 | Effective From Settlement Date | date | {VSCPC} |
| 6 | GSP Group Id | text(2) |  |
| 7 | Effective From Settlement Date | date | {AFOYCS} |
| 8 | Time Pattern Regime Id | text(5) |  |

{AFDM3}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M43 - Error:- Incorrect Missing Measurement Requirement for SSC | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M43 |
| 2 | Standard Settlement Configuration Id | text(4) |  |
| 3 | Effective From Settlement Date | date | {SCI} |
| 4 | Profile Class Id | integer(2) |  |
| 5 | Effective From Settlement Date | date | {VSCPC} |
| 6 | GSP Group Id | text(2) |  |
| 7 | Effective From Settlement Date | date | {AFOYCS} |
| 8 | Time Pattern Regime Id | text(5) |  |

{AFDM4}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M44 - Error:- Invalid Update of Measurement Requirement for Which There is Already One or More Sets of AFYCs | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M44 |
| 2 | Standard Settlement Configuration Id | text(4) |  |
| 3 | Effective From Settlement Date | date | {SCI} |
| 4 | Time Pattern Regime Id | text(5) | New Measurement Requirement which may not be added |

{TPRH2}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M45 - Error:- Measurement Requirement specified which is not specified for another SCI for the same Standard Settlement Configuration | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M45 |
| 2 | Standard Settlement Configuration Id | text(4) |  |
| 3 | Effective From Settlement Date | date | {SCI} from file |
| 4 | Time Pattern Regime Id | text(5) | Measurement present in set for specified SCI record, but not present in another set. |
| 5 | Effective from Settlement Date | date | {SCI} from file  for SCI which has specified TPR missing from its measurement requirements. |

{TPRM2}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M46 - Error:- Illegal Duplicate Measurement Requirement in TPR record for SSC | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M46 |
| 2 | Standard Settlement Configuration Id | text(4) |  |
| 3 | Effective From Settlement Date | date | {SCI} |
| 4 | Time Pattern Regime Id | text(5) |  |

{TPRM3}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M48 - Error:-No corresponding Distributor to PRS Agent | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M48 |
| 2 | Market Participant ID | text4) |  |
| 3 | Market Participant Role Code | text(1) |  |

{MPRH2}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M49 - Error:-No corresponding PRS Agent to Distributor | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M49 |
| 2 | Market Participant ID | text4) |  |
| 3 | Market Participant Role Code | text(1) |  |
| 4 | Distributor Short Code | text(2) |  |

{MPRH3}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M50 - Error:- Missing PRS Agent Appointment for Distributor appointment to GSP Group | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M50 |
| 2 | GSP Group ID | text(2) |  |
| 3 | Distributor Participant ID | text(4) |  |
| 4 | Effective From Settlement Date | date | {GGD} |
| 5 | Effective To Settlement Date | date | {GGD} |

{GGDM2}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M51 - Error:- Distributor Appointment on database overlaps Appointment in the file | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M51 |
| 2 | GSP Group ID | text(2) |  |
| 3 | Distributor Participant ID | text(4) |  |
| 4 | Effective From Settlement Date | date | on database |
| 5 | Effective To Settlement Date | date | on database |
| 6 | Effective From Settlement Date | date | from file |
| 7 | Effective To Settlement Date | date | from file |

{GGDH4}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M52 - Error:- Reappointment of the same Distributor in the same GSP Group | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M52 |
| 2 | GSP Group ID | text(2) |  |
| 3 | Distributor Participant ID | text(4) |  |
| 4 | Effective From Settlement Date | date | {GGD} |
| 5 | Effective To Settlement Date | date | {GGD} |

{GGDH5}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M54 - Error:- Reappointment of the same PRS Agent in the same GSP Group | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M54 |
| 2 | GSP Group ID | text(2) |  |
| 3 | PRS Agent Participant ID | text(4) |  |

{PAAH5}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M55 - Error:- Failed to Insert due to dup. Dist Short Code From File | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M55 |
| 2 | Market Participant ID | text4) |  |
| 3 | Market Participant Role Code | text(1) |  |
| 4 | Distributor Short Code | text(2) |  |

{MPRH4}( as specified in Function Definition N0036 Load Pool Market Domain Data )

| M56 – Database changes resulting from load | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =M56 |
| 2 … | Tablename | text | Name of database table updated.(variable length field with a maximum length of 30 chars). |
| 3 | Operation | Text(8) | Type of Database Operation (UPDATE, INSERT or DELETE). |
| 4 | Data | Text | Data changed with the individual fields separated by commas.  For UPDATE/INSERT data after amendment.  For DELETE the record deleted.  Variable length field. |

| MGD – Warning :- GSP Grp/Dist appt. on DB is missing from File. | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =MGD |
| 2 | GSP Group ID | text(2) |  |
| 3 | Distributor Participant ID | text(4) |  |
| 4 | Effective from settlement date | date |  |
| 5 | Effective to settlement date (file) | date |  |
| 6 | Effective to settlement date (database) | date |  |

There is no equivalent to this exception in the logical design, this is a physical data issue.

| MID - Metering System Details | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =MID |
| 2 | Metering System ID | integer(13) |  |

| ZPT - File Trailer | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | =ZPT |
| 2 | Record count | integer(10) | Number of records in file, including the headers and footer |
| 3 | Checksum | integer(10) |  |

Repeating structure of File:

Load MDD Exceptions ::= ZHD FNI [MDD] {Exception}

[MDD] ZPT

Exception ::= XXX|M01|M02|M03|M04|M05|  
 M06|M07|M08|M09\_set|M10|

M14|M15|

M19|M20|M21|M22|M23|

M24|M25|M26|M27|M28|M29|

M30|M31\_set|M32|M33|M34|

M35|M36\_set|M37|M38|M39|

M40|M41|M42|M43|M44|M45|

M46|M48|M49|M50|M51|M52|

M54|M55

M09\_set ::= M09 MID {MID}

M31\_set ::= M31 MID {MID}

M36\_set ::= M36 MID {MID}

The MDD record in the L0040001 file is optional as it is derived from the D0269002 MDD record. In the scenario where the incoming data is missing a load failure due to the file structure will occur. The MDD record will not be output to the exception file as it is the cause of the file rejection.

Sorting:

There is no defined sorting for this file. The records in the file appear in the order they were encountered.

## Procedure Details

This section describes the various components of the Load Data File (NLD) subsystem. All procedures are implemented using Pro\*C.

### Procedure nld\_control

The inputs to this procedure are: none

It returns an Error Status*.*

This procedure controls the submission of data loading jobs. It runs in the EXCLUSIVE queue. It selects all incoming Market Domain Data Complete Set and Data Aggregation and Settlements Timetable Files with a status of ‘Received’, ordered by Market Role, Participant Id, File Type, Creation Time, (as held in cdb\_file\_reference).

Invoke NAR\_DB\_LOCK.P\_CHECK\_DB\_LOCK

(this will raise a fatal Oracle exception if the database is locked and abort processing)

For each file:

1. validate that the Source Address identifies the Pool Market Domain Data Agency
2. invoke nld\_validate\_data\_file\_version
3. If any of these validation checks failed, reject the file as follows:
4. log an error to the operator log
5. change the file\_status to ‘Rejected’

otherwise:

1. SUBMIT an immediate job for the File Id and Activity Type
2. invoke WAIT\_ALL on the Activity Id returned by the Scheduler
3. if the activity completes successfully, continue with next file of the same file type for the source otherwise start with the next file type for the source.

Once all activities are complete, then exit.

### Procedure nld\_initiate\_data\_file

The inputs to this procedure are: Data File Id

It returns: Exception Report File Id and an Error Status.

This procedure identifies the file to be loaded and invokes Server Library (CSL) procedures to:

1. create and open an exception report file,
2. open the data file and update its file status details to ‘Running’
3. read past the file headers.
4. commit changes to the database (i.e.: ensure status change is recorded)

### Procedure nld\_validate\_data\_file\_version

The inputs to this procedure are: File Id, File Type, Market Role, Participant Id, Creation Time.

It returns an Error Status.

This procedure performs a number of checks on a data file’s version (as defined by its creation date-time stamp). An error code will be returned if:

1. an incoming data file of the same file type exists from the same source with a status of ‘Running’ (a previous load failed).
2. the Creation Time of this file is less than that of the last successfully loaded (i.e., status not ‘Received’ or ‘Running’) data file of this type from the same source. Note: there might not be one.

### Procedure nld\_terminate\_data\_file

The inputs to this procedure are: Data File Id, Next Status for Data File, Exception Report File Id, Next Status For Exception Report File

It returns an Error Status.

This procedure invokes Server Library (CSL) procedures to close the data and exception report files, if they have been opened and updates their file status details according to Next Status for Data File and Next Status For Exception Report File. These changes are committed to the database*.*

### Procedure nld\_load\_mdd

Procedure Name: Load Market Domain Data

The inputs to this procedure are: file id, exception file id, mdd\_load\_mode

It returns an Error Status.

The procedure nld\_load\_mdd can be run in two different modes. By default, nld\_load\_mdd will run in ‘Validate Only’ mode. If required the system may run nld\_load\_mdd in ‘Validation and Apply’ mode. This procedure accepts a data file containing the Pool Market Domain Data. If the mdd\_load\_mode is not equal to ‘APPLY\_MDD’ then the system will only process the file in default ‘Validate Only’ mode. If the mdd\_load\_mode is equal to ‘APPLY\_MDD’ then the system will process the file in ‘Validate and Apply’ mode.

Only a subset of this data is relevant to the NHHDA system. The data of relevance to NHHDA is as specified in section ‘Interface Specification’. The file will contain a snapshot of all elements of the Market Domain Data. The Market Domain Data loaded into NHHDA will be a refresh of data currently on the database, within the time period specified by the ‘MDD Load Window’ ( as specified in Function Definition N0036 [NFUNDEF] ).

Data Items in the file which are not considered for loading are ignored by the MDD load process. This may cause exception messages to be generated when the appropriate data is in the file. These exception messages will be displayed in the format of the exception number, the type of data missing, for example Threshold Parameter, and an explanation that the data is on the database but missing from the file. Examples of these data items are those outside the load window or Site Specific Line Loss Factor Classes.

The information written to the exception report for this procedure will include:

1. the reason why the file was rejected
2. the key of each record which could not be created, plus the exception reason

Note that exceptions at medium or high level (i.e. exceptions that are not Warnings only) will cause the file to fail processing and as a result no database updates will be made. If only Exception Warnings are generated, then the file may be processed successfully. The exception file will contain any problems encountered for each group of data e.g. Record Group ‘Market Participant Role Details’ which it has rejected. Any problems encountered at a particular level of the file will mean that child data held in the relevant lower level record groups, will not be validated. Only when parent data is validated successfully will the processing go on to validate the child related record groups as specified in the NHHDA Function Definition N0036.

The processing for this procedure is split into three phases. The functionality of each phase is summarised below:

1. **Pre-processing:**
2. invoke nld\_initiate\_data\_file. Resume at Post-processing if an error was detected.
3. verify that the relevant record types follow the data structure expected for the File Type, as specified in section ‘External Interfaces’, ignoring record types which are not defined. If record types do not conform to the record structure, log exception, set Next Status for Data File = ‘Rejected’, Next Status for Exception Report File = ‘Completed’ and skip to Post-processing.
4. **Data processing:**

read all data from the input file

apply validation as defined in Function Definition N0036 Load Pool Market Domain Data.

Report exceptions to exception file

record required database changes

IF pmode = apply\_mdd AND no medium or high level exceptions exist THEN

apply changes to the database

END IF

1. **Post-processing:**

invoke nld\_terminate\_data\_file. The file statuses will depend on whether the pre-processing detected verification errors, or whether or not the data-processing completed successfully.

### Procedure nld\_load\_pst

The inputs to this procedure are: file id

It returns an Error Status.

This procedure accepts a data file containing the default schedule for a Data Aggregation and Settlements Timetable or subsequent revisions to it. The procedure loads the timetable.

The information written to the operator’s log for this procedure will include:

1. the values for Use Run Date from File, Days before Notification, and Valid Calendar Days for Run.
2. a list of any working days derived from existing entries in ndb\_settlements, if any. (A working day is defined as any date which appears as an ISR Notification Date.)
3. a list of GSP Group Ids which were used.

The information written to the exception report for this procedure will include:

1. the reason why the file was rejected (if it was rejected)
2. the key of each record which could not be deleted, plus the exception reason
3. the key of each ndb\_data\_agg\_runs record which was created with a ‘Provisional Default’ status, plus the exception reason.
4. the key of each record which could not be created plus the exception reason.

The processing for this procedure is split into three phases, each of which is a success unit. This ensures that the File details are retained if the database changes are rolled back. (NB File rejection criteria are checked during pre-processing to avoid the need to ‘roll back’ the exception report.) The functionality of each phase is summarised below:

1. Pre-processing:
2. invoke nld\_initiate\_data\_file. Resume at Post-processing if an error was detected.
3. read file header information from cdb\_data\_file
4. verify that:
5. the record types are as expected for the file type, as defined in Section 3, External Interfaces.
6. the Payment Dates are within the timetable range specified by the ‘TTH’ record.
7. the Settlement Dates are before their associated Planned Data Aggregation Run Dates.
8. the Planned Data Aggregation Run Dates are before their associated ISR Notification Dates.
9. the ISR Notification Dates are before their associated Payment Dates.
10. the Settlement Codes are known to the system.

If any check 1-6 fails, log exception (‘XXX’), set Next Status for Data File = ‘Rejected’, Next Status For Exception Report File = ‘Completed’ and skip to Post-processing.

1. read the system configuration parameters: Days before Notification and Max Days before Notification.
2. if Days before Notification > 0, attempt to derive this number of unique isr\_deadline\_dates from existing entries in ndb\_settlements. Whenever there is a gap between ISR Notification Dates in the data file, the database is interrogated for possible values which fill the gap.
3. read all GSP Group IDs into a data structure.
4. Data processing:
5. select all ndb\_data\_agg\_runs and ndb\_gsp\_groups\_run records with Payment Date within the range covered by the timetable.
6. For each ndb\_data\_agg\_runs record selected

If the run has a dispute type Settlement Code, write an exception record. [DND]

If the run has already been performed, write an exception record. [AAP]

otherwise (not a dispute and has not already been performed)

delete the record and all associated records in ndb\_gsp\_groups\_run.

For each PST record in the data file:

1. If the user configurable parameter “Use Run Date from File” is “FALSE”, the Data Aggregation Run Date is calculated as “Days before Notification for Aggregation Run” working days before the corresponding ISR Notification Deadline Date. If no working day can be found or the working day calculated is more than a user configurable number (‘Max Days before Notification for Aggregation Run’) of calendar days before the ISR Notification Deadline Date, then the Data Aggregation Run Date is set to the date held in the Planned Data Aggregation Run Date field of the PST Details record, the run is given a status of ‘Provisional Default’ and a report is made to the exception log.
2. If the user configurable parameter “Use Run Date from File” is “TRUE”, the date held in the Planned Data Aggregation Run Date field of the PST Details record is used as the Data Aggregation Run Date.
3. If there is already a Data Aggregation Run for the same Settlement Date/Code as for the current PST record, write an exception record (This will be because the run has already been performed [NIA], the associated ndb\_settlements record has no Payment Date and so was not considered for deletion [NIP], or there is already an Aggregation Run scheduled for this Settlement Date/Code [NID]). Otherwise, call nld\_schedule\_run.
4. Post-processing
5. invoke nld\_terminate\_data\_file. The file statuses will depend on whether the pre-processing detected verification errors, or whether or not the data-processing completed successfully.

### Procedure nld\_schedule\_run

The inputs to this procedure are: settlement\_date, settlement\_code, isr\_deadline\_date, payment\_date, data\_agg\_run\_date, data\_agg\_run\_stat, gsp\_group\_data\_structure

It returns an Error Status.

This procedure

1. inserts or updates a record in ndb\_settlements,
2. inserts a record in ndb\_data\_agg\_runs. (The data\_agg\_run\_stat will be set to ‘Released’ unless a status of ‘Provisional Default’ is passed into this procedure.)
3. inserts a record in ndb\_gsp\_groups\_run for each GSP Group.

# NGF General Forms Subsystem Specification

## Forms Overview

### Navigation

Navigation within Forms is handled at four levels; screen, block, record and field. Navigation to each screen is generally handled in two ways, either via the NHHDA application menu where each screen is explicitly invoked from a menu option or from one screen to another via a button. On entry to a screen the user is placed into the first enterable field of the first enterable block (some blocks are for display only purposes and therefore do not allow the user into them). Block, record and field navigation are handled via the mouse or via the Forms Menu (see Block, Record and Field menu options).

### Querying

There are two types of queries that can be carried out by the user; a global query and a user defined query. A global query fetches all records that are applicable to the block from the database to the screen. A user defined query will fetch all records that meet the query criteria entered by the user. There are two functions that allow this to be carried out, an enter query function and an execute query function. Enter query function places the form into enter query mode. This mode passes control over to the user so that they can enter query criteria with which to perform a query - it differs from the forms normal mode of operation in that the only task that can be carried out is the entering of query criteria, no other processing is possible. The execute query function actually carries out the query with the criteria entered. A global query can be performed by invoking execute query without first invoking enter query. The number of records returned from the database to the screen is controlled internally and is invisible to the user, the perception is that all records retrieved from the database are available for viewing.

### Commit Processing

When an operator uses a form, any modifications are not recorded in the database but are recorded in the Forms own workspace. In order to make these modifications permanent the user must explicitly save the contents of the workspace to the database by issuing a save via the Forms menu (Action -> Save). The save command issues a commit to the database. When a commit is issued data that has been entered or modified is validated. Forms navigates to each block in sequence, validating data in each record that is new or has been modified. If the data is invalid, Forms displays error message to the user and fails commit processing else if the data is valid it is saved to the database.

### Validation

Validation within Forms is handled at three levels; entry of a value into a field, entry of a record and commit time. Field validation has generally been handled by displaying a valid list of values to the user in response to an incorrect entry. This is achieved by providing a list of values for the required fields and setting their LOV For Validation property to True, Forms then handles the rest. Record and commit time validation is handled programmatically and, if required, will be specified in the relevant sections of the Forms technical specification below (Forms Structure details field and record validation and Action on Insert / Update / Delete commit time validation).

The cdb\_ref\_values table, defined in the common subsystem [CTSPEC], is designed to hold values for a particular domain. NHHDA reference data that exists in these tables is used throughout the screens for lookup and validation purposes. A common NHHDA routine will exist in the common Forms library, std\_lib, that will populate pop lists based on fields that require lists and validation from values held in the cdb\_ref\_values table. This generic routine is called when a form is initially started for each of these fields. The routine accepts a domain code which is used to populate a pop list with values held in cdb\_ref\_values for the domain code passed. Pop lists only allow selection of a valid item and therefore by using this mechanism any values defined in cdb\_ref\_values can be validated generically. A full list of all domains held in cdb\_ref\_values can be found in section 4.3.4 Use of common Database Tables.

Some fields are subject to numeric range checks. The valid ranges are held in the cdb\_ref\_values table within the value\_from and value\_to fields. Each field requiring the range check has a domain associated with it, against which the range is specified. If a field requires such validation then it will be detailed in the Forms Structure section of the Forms technical specification below.

### Error Handling

Errors are handled generically across all of the screens using a common error handling routine held in the standard Forms library (std\_lib). This function will return from cdb\_error\_messages a predefined Confirmation, Information, Warning, Error or Fatal message that is invoked programmatically from the Forms. Warning and Information messages display the error message to the user without failing processing whilst Error and Fatal messages fail processing. The response to confirmation messages may affect what action is taken next.

### Forms Infrastructure

All of the NHHDA Forms have a common infrastructure that enables code and Forms objects to be shared and standardised across the system. Common Forms objects such as the Toolbar and Object Classes are held in ref\_form. Common code falls into two categories, code held on the server and code held on the client. Code held on the server will include PL/SQL that must access the database. Code held on the client will include Forms specific code that is not required to access the database. Code on the server will be located in a number of packages including the common package, pkg\_common (see Procedure pkg\_common below) where code common to all Forms will be held. Code on the client is held in the common library, std\_lib, each form references the library in order to access the code.

### Browse Functions

ORACLE Forms can be called in two modes, a maintenance mode and a query mode where access is restricted to query only. The browsing functions will be handled at the physical level by calling the maintenance Forms in query only mode from the menu.

## Menu Structure

### Overview

This section will provide details of the menu structure for screens which will be used for browsing, maintaining and reporting on NHHDA standing data. In addition, it outlines the general approach to Forms functionality, the tables maintained by each of the Forms and menu security before giving a detailed specification of each of the Forms.

### The NHHDA Forms Menu

Actions permitted on each block (querying, inserting, updating, deleting and navigation) are controlled via the toolbar and the NHHDA Forms menu by greying out the relevant buttons on the toolbar and disabling the associated menu options. The toolbar is common across all three systems and is therefore defined in the Common Subsystems Technical Specification [CTSPEC] document. The NHHDA Forms menu is detailed below.

#### Action Menu

This provides form-level operations. Clear All carries out a global clear to the form, this is useful for rolling back any user modifications since the last Save. Save commits any new records, changes to existing records or deletes to the database. Print prints the current screen. Exit exits the form after first prompting the user to commit any outstanding changes.



#### Edit Menu

This provides the standard cut, copy, paste functionality and an option to open up the default Forms Editor on a field.



#### Block Menu

This allows navigation between blocks within the form and allows the User to Clear the current block.



#### Field Menu

This provides field navigation (Previous, Next), duplication of a field value from a previous record and clearing of the current field.



#### Record Menu

This allows record navigation and manipulation. Navigation to the previous and next record is carried out by selecting the Previous or Next menu option. Scroll Up and Scroll Down allows scrolling of records that have been retrieved from the database. Clear will clear the current record from the screen, it does not delete it from the database. Remove removes the record from the screen and deletes the record from the database. Insert creates an empty record ready for user input. Duplicate, copies record details from the previous record to the current one.



#### Query Menu

This provides the Querying facility for the form. Enter places the form into enter query mode. This mode passes control over to the user so that they can enter query criteria with which to perform a query. The Cancel option takes the user out of enter query mode, clearing any query criteria from the screen. Count Hits displays the expected number of records that will be returned if the query is executed. The Execute option actually carries out the query.



#### Window Menu

This provides standard Microsoft™ functionality to manipulate windows.



#### Help Menu

This provides a list of available keys (Keys), help text (Help), and the facility to popup a list of values where applicable (List).



### NHHDA Application Menu Structure

The following application menu will provide access to the NHHDA subsystems.

|  |  |  |  |
| --- | --- | --- | --- |
| Top Level Menu Option | Second Level Menu Option | Third Level Menu Option | Form/Report/Function Invoked |
| **File** | Exit |  |  |
| **Edit Standing Data** | Average Fraction of Yearly Consumption |  | Define/Browse Average Fraction of Yearly Consumption |
|  | GSP Groups |  | Define/Browse GSP Groups |
|  | Line Loss Factor Classes |  | Define/Browse Line Loss Factor Classes |
|  | Market Participant |  | Define/Browse Market Participant |
|  | Profile Classes |  | Define/Browse Profile Class |
|  | Standard Settlement Configuration |  | Define/Browse Standard Settlement Configuration |
|  | System Parameters |  | [CTSPEC] Maintain System Parameters |
|  | Threshold Parameter |  | Define/Browse Threshold Parameters |
| **View Standing Data** | Average Fraction of Yearly Consumption |  | Define/Browse Average Fraction of Yearly Consumption (read only) |
|  | GSP Groups |  | Define/Browse GSP Groups (read only) |
|  | Line Loss Factor Classes |  | Define/Browse Line Loss Factor Classes (read only) |
|  | Market Participant |  | Define/Browse Market Participant (read only) |
|  | Profile Classes |  | Define/Browse Profile Class (read only) |
|  | Standard Settlement Configuration |  | Define/Browse Standard Settlement Configuration (read only) |
|  | System Parameters |  | [CTSPEC] Maintain System Parameters (read only) |
|  | Threshold Parameter |  | Define/Browse Threshold Parameters (read only) |
| **Reports** | Request Standing Data | Average Fraction of Yearly Consumption | Report Average Fraction of Yearly Consumption |
|  |  | Distributors and Associated Items | Report Distributors |
|  |  | GSP Groups | Report GSP Groups |
|  |  | Profile Class and Associated Items | Report Profile Class and Associated Items |
|  |  | Standard Settlement Configuration and Associated Items | Report SSC and Associated Items |
|  | Request Metering System | MS and Associated Items | Report Metering System and Associated Items |
|  |  | MS History, EACs and AAs | Report Metering System History, EACs and AAs |
|  |  |  |  |
|  | Select Reports |  | [CTSPEC] CRP Report Formatter |
|  | Request Monthly D0095 Report |  | Report monthly D0095 exceptions summary |
| **Aggregation** | Schedule Aggregation Run |  | Schedule Aggregation Run |
|  | Check Data Collector Data |  | Check Data Collector Data |
|  | Browse Aggregation Run Schedule |  | Schedule Aggregation Run (read only) |
|  | Report Aggregation Run Schedule |  | Report Data Aggregation Run Schedule |
|  | Generate Supplier Purchase Matrix Data |  | Generate Supplier Purchase Matrix |

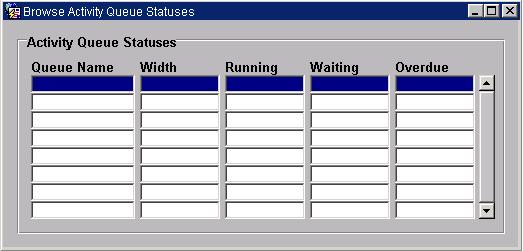
|  |  |  |  |
| --- | --- | --- | --- |
| Top Level Menu Option | Second Level Menu Option | Third Level Menu Option | Form/Report/Function Invoked |
| **External Files** | Browse File Extraction and Transmission Status |  | Browse File Extraction and Transmission Statuses |
|  | Browse Aggregation Files |  | Browse Aggregation Files |
|  | Browse File Loading Status |  | Browse File Loading Status |
|  | Manage Failed Instructions |  | Manage Failed Instruction |
|  |  |  |  |
|  | Manage Refresh Instructions |  | Manage Refresh Instructions |
|  | Manage Failed Refresh Instructions |  | Manage Failed Refresh Instructions |
|  | Manage Instruction Files |  | Manage Instruction Files |
|  | Report Instructions |  | Report Instruction |
|  | Report Refresh Instruction Failures |  | Report Refresh Instruction Failures |
|  |  |  |  |
| **Activities** | Browse Activity Queue Statuses |  | Browse Activity Queue Statuses |
|  | Browse Activity Statuses |  | Browse Activity Statuses |
| **Account Management** | User Management |  | User Management |
|  | Change Password |  | Change Password |
| **Help** | Contents |  |  |
|  | About |  |  |

#### Menu Security

Access to the interface modules will be handled via database roles. These roles will be assigned to the relevant menu options. If the user does not have access to a particular option, then it will be greyed out. The roles are defined in chapter four of this document.

## Browse Activity Queue Statuses

### Screen layout



### Screen behaviour

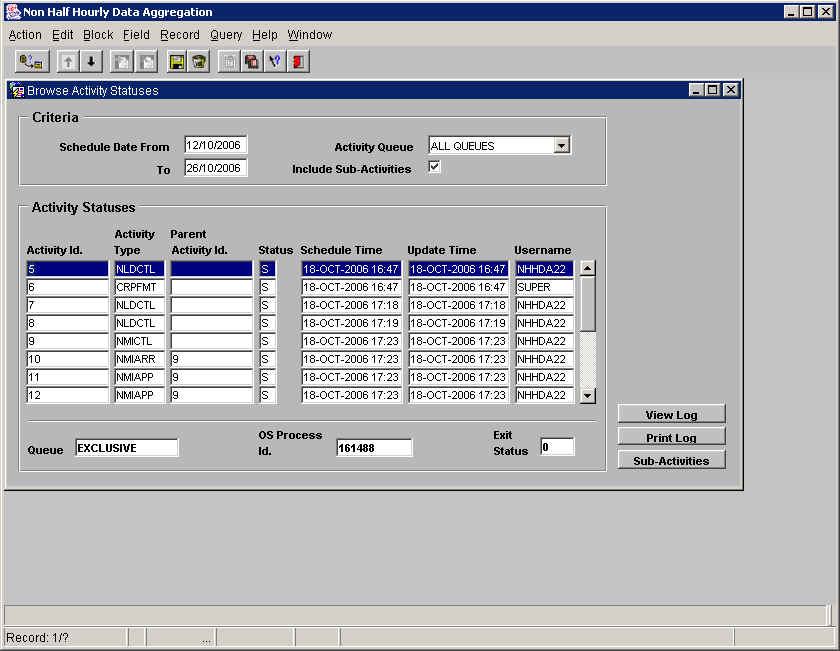
This form provides facilities to allow users to browse the NHHDA activity queue statuses.

The form displays a list showing each queue’s identifier, width (the maximum number of activities which may run concurrently on the queue), the number of running activities, the number of activities waiting to run with a start date-time that has passed and the number of activities waiting to run with a start date-time which has not yet passed.

The user may update the list by re-running the query.

## Browse Activity Statuses

### Screen layout



### Screen behaviour

This form provides facilities to allow users to browse the NHHDA activities schedule.

On entry to the form, the user must specify a date range (default: ± 7 days from date) and whether or not sub-activities (activities scheduled by parent activities) are to be included in the list (default: include sub-activities).

The user may optionally restrict the list to a single queue, otherwise activities scheduled on all queues will be displayed.

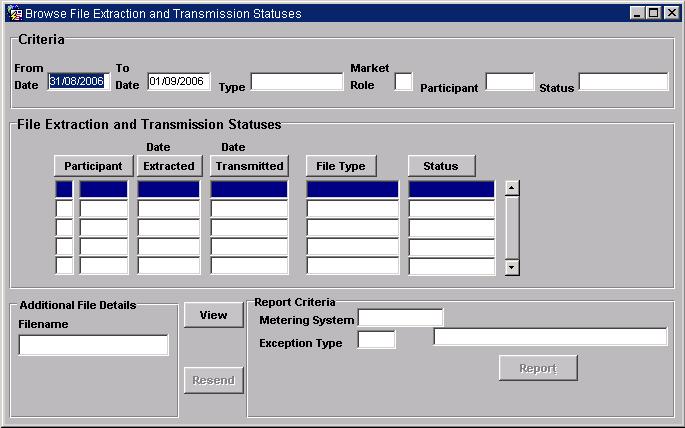
Once the user has provided the selection criteria, a list is displayed, ordered by scheduled run date-time and then activity identifier, showing the following for each activity satisfying the criteria.

1. scheduled run date-time
2. activity identifier
3. type
4. host operating system process id.
5. parent activity identifier
6. update time
7. username
8. status
9. exit code

The user may select a row from the list and view the associated activity’s log file by pressing the ‘View Log’ button or print the log by pressing the ‘Print Log’ button. A snapshot of the activity log is transferred from the server to the client using CRP.FETCH\_ACTIVITY\_LOG (as specified in [CTSPEC]) and viewed or printed using the client’s configured viewing and printing utilities.

## Browse File Extraction and Transmission Statuses

### Screen layout



### Screen behaviour

This function is invoked by the NHHDA user to allow reporting of the status of all non aggregation files generated by the system.

On entry, a user will select a file type and/or destination. The destination being the Market Role and Participant. A user can also select the date or a range of dates on which the files were extracted and / or transmitted, or select all files which have a specified status.

The file type, market role code, participant id and file status will be selected via a list of values. Dates will be entered manually and will have default values set to yesterday’s date for the From date and the current date for the To date.

The second section (file extraction and transmission statuses block) will display all records corresponding to the selected criteria. The file type, date extracted, date transmitted, market role and participant and status are multi row items. The Additional Data block displays the filename. This is a single row item. The single row value changes as the user scrolls between the multi row records.

Once the records corresponding to the selected criteria information have been displayed the user will have the options to request a report to be generated (which can then be printed via the Reports for Viewing screen) or to view more specific information relating to the currently displayed records, or to Resend a file The buttons displayed on the form will allow the user to carry out these operations, dependant on the conditions below :

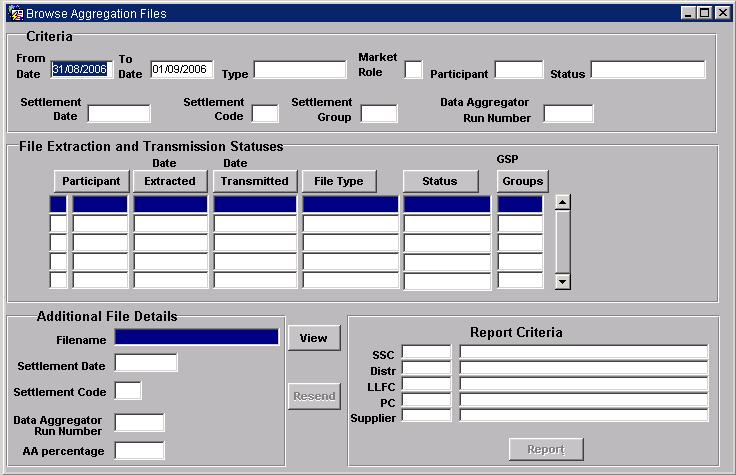
The View button will be enabled for all file types.

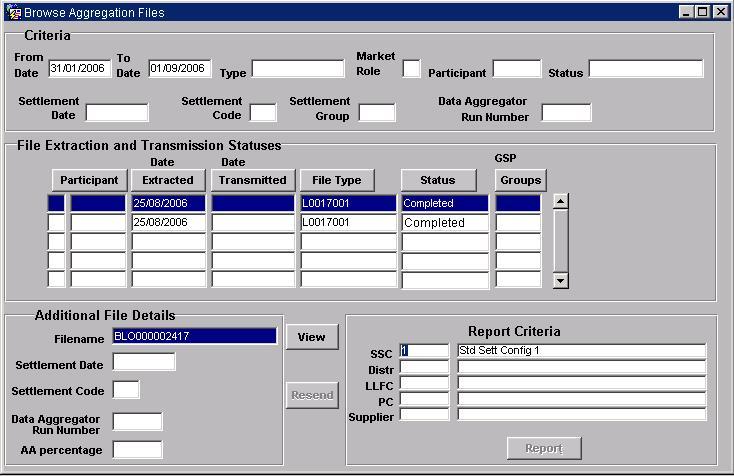
The Report button will be greyed out, and the Report bevel disabled until a file type of D0095 (Data Collector Exceptions) is chosen, whereupon they and will be enabled.

The Resend button will be greyed out unless the file type selected and user role combination (applicable to the user logged into the application) exists in the cdb\_resend\_access table, whereupon it will be enabled. If the Resend button is pressed, a warning that the file is about to be resent will be displayed. The file will be queued for resending.

## Browse Aggregation Files

### Screen layout





### Screen behaviour

This function is invoked by the NHHDA user to allow reporting of the status of all aggregation files generated by the system.

On entry, a user will select a file type and/or destination. The destination being the Market Role and Participant. A user can also select the date or a range of dates on which the files were extracted and / or transmitted, or select all files which have a specified status.

The file type, market role code, participant id and file status will be selected via a list of values. Dates will be entered manually and will have default values set to yesterday’s date for the From Date value and the current date for the To date value.

For supplier purchase matrix data files only the user can select the settlement date and / or settlement code to which the file(s) refer, or the data aggregation run number of the run which produced the data in the file, and the GSP Group. The settlement code and the Data Aggregator Run Number and GSP Group will be populated by using a list of values.

The second section (file extraction and transmission statuses block) will display all records corresponding to the selected criteria. The file type, date extracted, date transmitted, market role , gsp group and participant are multi row items. The Filename Data Aggregator Run Number, Settlement Date Settlement Run Type and AA percentage(calculated by the aggregation run subsystem) are displayed in the Additional Items block and are single row items. The single row value changes as the user scrolls between the multi row records.

Once the records corresponding to the selected criteria information have been displayed the user will have the option of printing a report, resending a file or viewing more specific information relating to the currently displayed records. The buttons displayed on the form will allow the user to carry out this operation when suitable file types are chosen, until then, the buttons will be greyed out.

If a file of type D0041 ‘supplier purchase matrix data’ is currently selected the the ‘Report’ button and the report bevel will be enabled. In this instance this will allow the user to specify Supplier Purchase Matrix Data details (namely the Supplier id and description, the distributor id for line loss factor class and description, the line loss factor class id and description, the profile class id and description and the standard settlement configuration id and description). A list of values will be available for these fields to enable the user to select a specific supplier, distributor, LLFC, profile class or SSC to report on. The Report is invoked by pressing the Report button, this report only contains SPM data which matches the specified criteria.

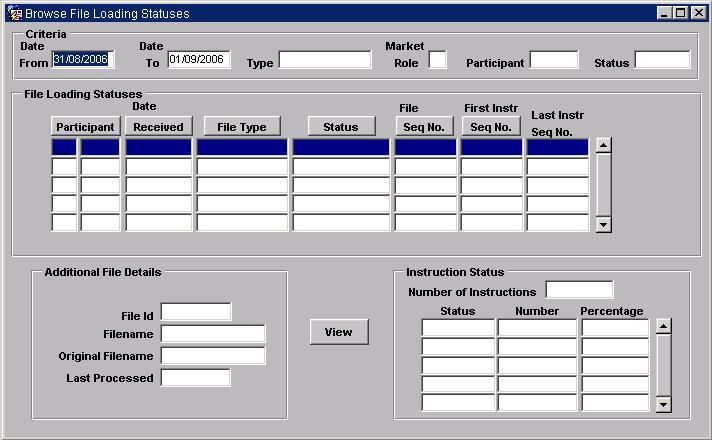
If a file of L0037 ‘aggregation exception log’ is selected in the initial window the ‘Report’ button and Report bevel will be enabled, allowing the user to enter a Metering System Id and exception types. A list of values will be available for exception type. They will then be able to report on the selected records by pressing the Report button.

The Resend button will be greyed out unless the file type selected and user role combination (applicable to the user logged into the application) exists in the cdb\_resend\_access table , whereupon it will be enabled. If the Resend button is pressed, a warning that the file is about to be resent will be displayed. The file will be queued for resending.

**Note :** If a report is requested, the report will be generated, but it can only be printed via the Reports for Viewing screen.

## Browse File Loading Statuses

### Screen layout



### Screen behaviour

This function is invoked by the NHHDA user to allow browsing of the loading status of the files received by the system.

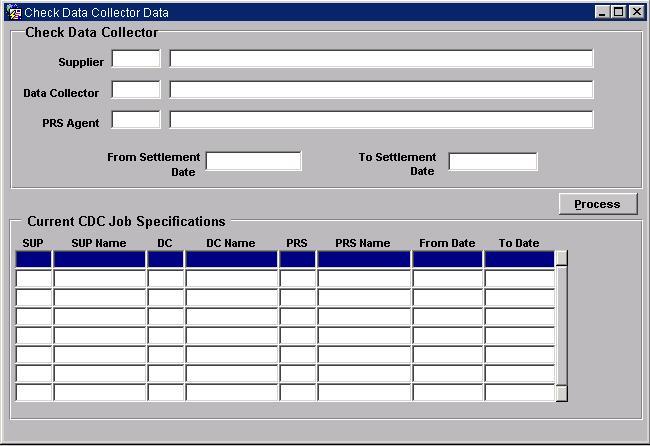
On entry, a user may select a file type, a market role, a participant and a range of dates. They will also be able to specify whether they wish to view only files which have a specified status. The market role and participant information make up the file source.

The user will select the type, market role and participant using the Forms ‘enter query’ mode or via a list of values. Dates will be entered manually and will default to the current date for ‘Date To and yesterday for ‘Date From.

For each qualifying file, the type, date received, source, loading status, file sequence number, first and last instruction sequence numbers are displayed. As each file is selected additional information about the file is displayed, these are the file id, file name, original file name, last processed date. The selected file can also be viewed by selecting the ‘View’ button. For successfully loaded instruction files, the total number of instructions in the file, and the number and percentage of instructions of each possible instruction status (unprocessed, failed, validation errors, discarded, superseded or applied) are displayed. Note that the status "Validation Errors" is shown as "Invalid".

## Check Data Collector Data

### Screen layout



### Screen behaviour

This function is invoked by the exception administrator to request a report identifying any inconsistencies between data received from a data collector and metering system data received from a PRS, or to amend or delete previously submitted report requests.

A list of supplier Ids and their corresponding names is displayed via a list of values. The user may select one of them. This field is not mandatory.

Next a list of data collector Ids and their corresponding names is displayed via a list of values. The user may select one of them. This field is not mandatory.

A list of PRS Agent Ids and their corresponding names is displayed via a list of values. The user selects one of them. These fields are not mandatory.

The user selects a range of dates. These dates default to the current date. These fields are mandatory.

The user may then press the Process button to request the generation of the report meeting the specified criteria.

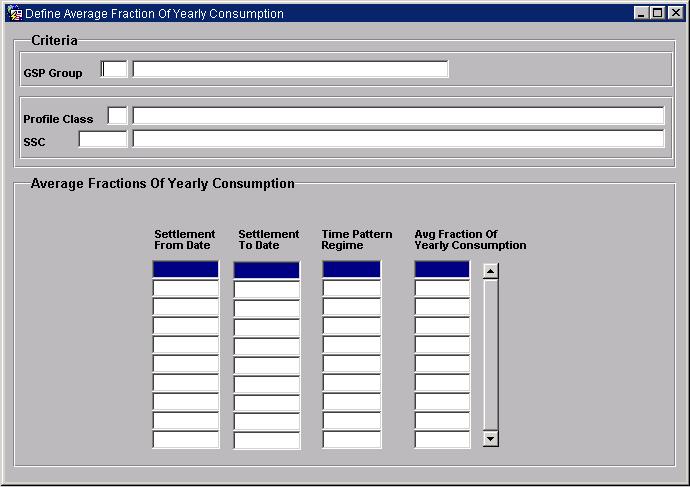
Alternatively, the user may use Execute Query to display a list of the report requests currently awaiting processing that match the specified criteria. The user may then modify details of these requests and press the Process button. If the NCD Check DC data process is not running, the changes are committed. Otherwise, an error message is displayed and the changes are not committed.

Processing is carried out in batch mode; the output of this process is an exception log. This log is automatically sent to the supplier when the process completes.

Note that this form adds a report request to the database, or modifies or deletes report requests already in the database. Processing of these requests is only carried out when the system manager invokes the NCD batch process.

## Define/Browse Average Fraction of Yearly Consumption

### Screen layout



### Screen behaviour

This function is invoked by a suitably authorised NHHDA user to allow browsing and maintenance of the Average Fractions of Yearly Consumption assigned to each Measurement Requirement for a particular Standard Settlement Configuration, Profile Class and GSP Group combination.

On entry, the user must enter a GSP Group. A list of valid values is available to assist the user whilst in query mode. The user may not create, modify or delete GSP Groups using this form.

Next, the user has to enter a valid Profile Class and SSC combination (once again, a list of valid values is available to help the user choose valid Profile Classes and SSCs). The user may not create, modify or delete Profile Class/SSC combinations using this form.

Once both a GSP Group and Profile Class/SSC combination have been entered by the user, the form displays the Average Fractions of Yearly Consumption (if any) associated with the combination. The user may now create, modify or delete Average Fraction of Yearly Consumption rows.

The following validation is applied to any changes that the user makes to Average Fractions of Yearly Consumption for the current GSP Group/SSC/Profile Class combination.

1. For each Effective From Settlement Date, there must be an entry for every Time Pattern Regime of the Standard Settlement Configuration.
2. The effective periods of each Time Pattern Regime’s Average Fractions of Yearly Consumption must not overlap.
3. For all Settlement Dates within any Data Aggregator Appointment, no Metering System may be without an effective AFYC.
4. For each Effective From Settlement Date, the Time Pattern Regime rows must be unique.
5. The Effective To Settlement Date must be on or after the Effective From Settlement Date.
6. The Effective To Settlement Date must be the same for all TPRs with the same Effective From Settlement Date.
7. The sum of the Average Fractions of Yearly Consumption must equal one for each Effective From Settlement Date.

The user will not be allowed to save their changes to the database until their changes have passed the above validation. This effectively means the user must enter all changes to Average Fraction of Yearly Consumption data for a GSP Group, Profile Class, SSC and Effective From Settlement Date combination before saving any of their changes to the database.

The user may select a new GSP Group without having to repeat all the other selections.

Time Pattern Regime will have a list of valid values which prompts the user with the Time Pattern Regimes that must be entered for any given GSP Group, Profile Class and SSC combination.

Average Fractions of Yearly Consumption data may not be updated if it has been used in a ‘Final Initial Settlement’ except by the Superior Market Domain Data Administrator. Any such change is reported to the operator log.

## Define/Browse GSP Groups

### Screen layout



### Screen behaviour

This function is invoked by a suitably authorised NHHDA user, and allows details of GSP Groups and their associated distributor/PRS agent and ISR Agent appointments to be browsed and maintained.

A user will select a GSP Group Id and its corresponding name by using the Forms ‘enter query’ mode option or via a list of values. The user then selects one of them to amend, delete, or creates a new one.

This form has a master/detail relationship. The top GSP Groups section being the master block and the lower distributor/PRS agent and ISR Agent sections being the detail blocks. Details are only displayed for the corresponding master.

For creation the user enters the GSP Group Id and GSP Group name. This is for the master. The user may also enter the GSP Groups detail records information if required. This being the distributor details and the ISR Agent details.

If the detail records information is not known at the time this can be entered later using the amendment facility.

For amendment, deletion and browsing, the GSP Group Id and name are displayed together with the corresponding detail records. The detail records will have a list of values available for the distributor Id/PRS Agent Id and ISR Agent Id fields.

If a GSP Group is deleted and there are any associated ISR Agent appointment, GSP Group distributors, GSP Group profile class Researched Default EACs or average fraction of yearly consumption then these are also deleted. The user will be able to confirm this action.

An error message is displayed to the user if a new or changed distributor Id is not already defined on the system.

When amending distributor assignments, a message is displayed to the user if any of the metering systems in the GSP Group have an open data aggregator appointment. A distributor appointment will not be allowed to be deleted or terminated if it previously covered a period of a DAA appointment.

An error message is displayed to the user if a new or changed ISR agent Id is not displayed on the system.

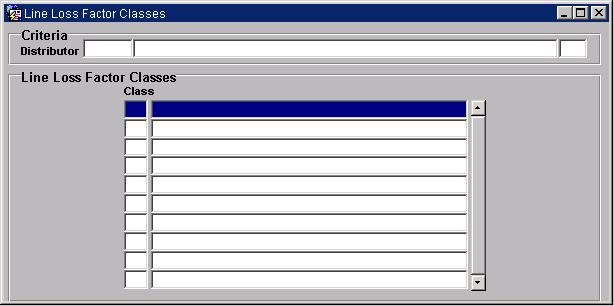
The appointment of a new distributor with a GSP group will not automatically terminate a previous appointment.

Users may delete a GSP Group if it has no associated occurrences of Metering System GSP Group, Metering System GSP Group (DC), or GSP Group in Aggregation runs.

Insertion, modification or deletion of a distributor relationship to a GSP group will automatically insert, modify or delete a PRS agent appointment to the distributor for the same settlement period.

## Define/Browse Line Loss Factor Classes

### Screen layout



### Screen behaviour

This function is invoked by the NHHDA user to allow browsing and maintenance of the set of valid line loss factor classes for each distributor. A list of existing line loss factor classes for the distributor is displayed.

A user will select a distributor and its corresponding name and short code by using the Forms ‘enter query’ mode option or via a list of values.

This form has a master/detail relationship. The top criteria section being the master block and the lower line loss factor class section being the detail block. Details are only displayed for the corresponding master.

The user selects a line loss factor class to amend, delete, browse or creates a new one.

For creation a user enters a new line loss factor class Id and line loss factor class name.

Validation rules for creating new line loss factor class Id:

1. LLFC IDs will be combinations of the digits 0-9 and the capital letters A-Z excluding I and O. Combinations that include I and O or use any other characters, including lower case letters and special characters, are invalid.
2. LLFC IDs can be string of either one (e.g. ‘A’), two (e.g. ‘AB’) or three (e.g. ‘ABC’) valid characters. Strings longer than this are invalid.
3. LLFC IDs cannot begin with ‘0’ (zero) or ‘00’ (double zero). This includes the specific IDs ‘0’, ‘00’ and ‘000’. Any such combinations are invalid.

If any validation rules fail, below message would be displayed to notify the user.

*“The LLFC ID entered is invalid. A valid LLFC ID may not contain leading 0s, the letters I and O, lower case letters, or special characters”*

For amendment, deletion and browsing, the distributor Id, distributor name, short code, line loss factor class Id and line loss factor class description are displayed. The user may either amend the line loss factor class description or delete the line loss factor classes.

The detail line loss factor class block will have a list of values associated with the line loss factor class id field.

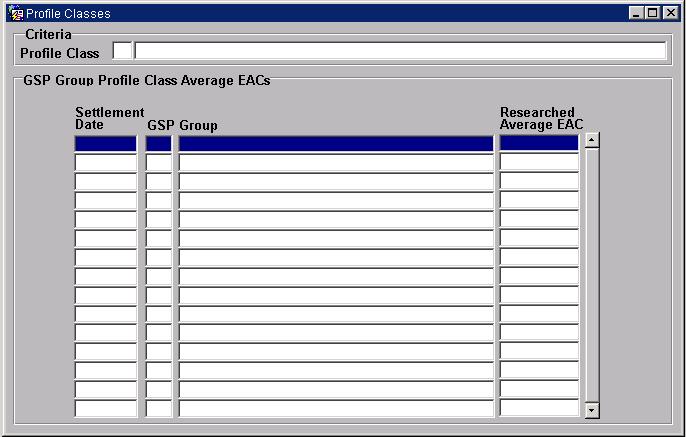
Users may only delete a line loss factor class if it has no associated metering system line loss factor classes or supplier purchase matrix data. If a deletion cannot occur an error message will inform the user.

New line loss factor classes can only occur for existing distributors. New line loss factor classes must also be unique for the same distributor.

An error message will be displayed to the user if a new line loss factor class is not unique for the same distributor.

## Define/Browse Profile Class

### Screen layout



### Screen behaviour

This function is invoked by a suitably authorised NHHDA user to allow browsing and maintenance of the set of valid profile classes and their associated GSP Group profile class Researched Default EACs (Note that for historical reasons, the form uses the title 'Average EAC' - CR487).

A user will select a profile class Id and its corresponding description by using the Forms ‘enter query’ mode option or via a list of values. The user then selects one of them to amend, delete, or creates a new one.

This form has a master/detail relationship. The top criteria section being the master block and the lower GSP Group section being the detail block. Details are only displayed for the corresponding master.

For creation the user must enter the profile class Id and profile class description, for the master records. The user may also enter the profile classes detail record’s information if required: This being the GSP Group profile class Researched Default EAC information and consists of Effective from Settlement Date, GSP group Id, and the Researched Default EAC.

The Effective from Settlement Date has the current date as the default date as an aid to the user.

If the detail records information is not known at the time this can be entered later using the amendment facility.

For amendment, deletion and browsing, the profile class Id and description are displayed together with the Effective from Settlement Date, GSP group name, GSP group Id and the Researched Default EAC. This allows both master and detail records to be manipulated.

For amendment, the user is able to change the profile class description and add or delete existing GSP group profile class Researched Default EACs. When existing GSP group profile class Researched Default EACs are edited the user can change either or both the Effective from Settlement Date and the Researched Default EAC. Both of these values must be entered when creating a new record.

For deletion, the user deletes the Profile class and all of its associated GSP group profile class Researched Default EACs are deleted automatically.

An error message will be reported to the user if a new profile class entered is not unique.

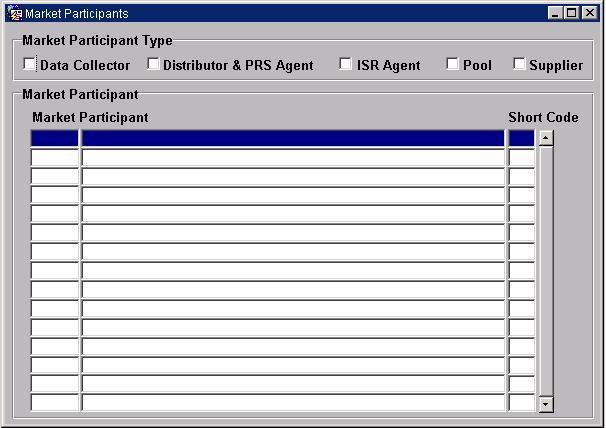
An error message will also be reported to the user if a new GSP Group Id does not exist already on the system.

A check will also be made to ensure that data has not been updated if it has been used in a ‘final initial settlement’, unless the user has sufficient authority. Any such change is reported to the operator log. An error message will be displayed if there are any associated valid settlement configuration profile classes, or occurrences of metering system profile class (DC)s or metering system profile classes with a profile class before it is deleted.

A warning will also be issued if an attempt is made to delete a profile class which has GSP Group Researched Default EACs defined.

## Define/Browse Market Participant

### Screen layout



### Screen behaviour

On entry, the user may enter the Id and Name of a new Market Participant. The user will then check the Market Participant Types which apply to the new Market Participant. Alternatively, the user may enter query mode and specify a Market Participant Id and/or Market Participant Name (or wild card) and/or one or more Market Participant Types. All Market Participants matching the specified Id and Name (if any) and any of the specified Market Participant Types will be displayed.

When a Market Participant is selected, the appropriate Market Participant Types will be checked and, if the Market Participant is a Distributor, the Short Code is displayed.

A Market Participant’s roles may be changed by checking or unchecking the appropriate Market Participant Type boxes. Note that unchecking a Type performs a logical delete and so invoked the validation listed for deletion of that type of Market Participant in the same way as deletion of a Market Participant which has that Market Participant Type checked.

The user may create, amend or delete Market Participants, restrictions on these actions are as follows:

Users may only amend Market Participant Names and Short Codes.

All Market Participants Ids must be unique.

Market Participants must have an Id and name specified.

For all Distributors that are inserted a Short Code is mandatory.

Distributor short codes must be unique.

The distributor short code may not be changed if there are any metering systems which are details of this distributor.

Market Participants of type Supplier cannot be deleted if it has any associated registrations, registration (DC)s or Supplier Purchase Matrix.

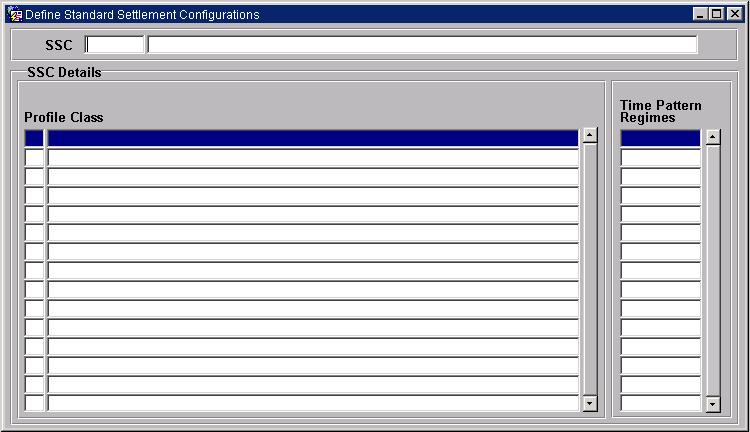
Market Participants of type Data Collector cannot be deleted if they have any associated Data Collector Appointments, Metering System Measurement Class (DC)s, Registration (DC)s, Metering System GSP group (DC)s, Metering System Energisation Status (DC)s, Metering System Profile Class (DC)s, Settlement Configuration (DC)s or Settlement Register (DC)s.

Market Participants of type Distributor cannot be deleted if it has any associated Line Loss Factor Classes, GSP Group Distributors or metering systems.

Market Participants of type ISR Agent cannot be deleted if it has any associated ISR Agent Appointments.

## Define/Browse Standard Settlement Configuration

### Screen layout



### Screen behaviour

This function is invoked by the NHHDA user to allow browsing and maintenance of standard settlement configurations and their associated time pattern regimes and profile classes. Each associated time pattern regime is recorded by an occurrence of measurement requirement.

This is a master/detail form displaying Standard Settlement Configurations and its corresponding Profile Classes of all associated Valid Settlement Configuration Profile Classes and Time Pattern Regimes of all Measurement Requirements belonging to that Standard Settlement Configuration.

Standard Settlement Configurations will be displayed in a single row in the master block and Profile Classes and Time Pattern Regimes will be displayed in the detail blocks.

The user will select a Standard Settlement Configuration from a List Of Values or as query criteria in Enter Query mode and will then be allowed to insert, update or delete Standard Settlement Configurations, Profile Classes and Time Pattern Regimes.

On creating a new Standard Settlement Configuration the user enters a Standard Settlement Configuration Id and description. A Profile Class is entered by entering a Profile Class Id or using a List of Values. Time Pattern Regimes may also be entered and these will also have a List of Values associated with them or will be manually input.

For amendment, deletion and browsing, the standard settlement configuration Id and description are displayed, together with the time pattern regime Ids of all associated measurement requirements and the profile class Ids of all associated valid settlement configuration profile classes.

On amendment the user is able to query back a Standard Settlement Configuration and amend its description or assign/de-assign Profile Classes and Time Pattern Regimes.

A user can add to, or delete from the lists of time pattern regime Ids and profile class Ids assigned to that standard settlement configuration; or delete the standard settlement configuration and all of its associated measurement requirements and valid settlement configuration profile classes.

Standard Settlement Configurations may be deleted by the user and this will consequently delete all associated Profile Classes and Time Pattern Regimes. Deletion of Standard Settlement Configurations will not be allowed if there are associated Settlement Configurations or Settlement Configuration (DC)s. The user will be able to confirm this action.

It will only be possible to change (i.e. Add, Modify or Delete) a Measurement Requirement for a Standard Settlement Configuration if no Metering Systems or Supplier Purchase Matrix data are assigned to any Measurement Requirements for the Standard Settlement Configuration and if no Average Fraction of Yearly Consumption data exists for the Standard Settlement Configuration.

Valid Settlement Configuration Profile Class and Measurement Requirement need to be kept in step such that for each occurrence of Valid Settlement Configuration Profile Class there is an occurrence of Valid Measurement Requirement Profile Class corresponding to each occurrence of Measurement Requirement associated with a Standard Settlement Configuration.

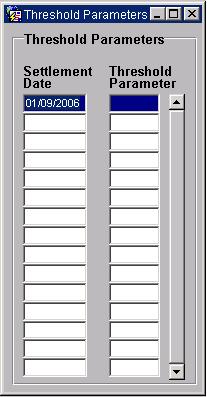
Standard Settlement Configurations can only be assigned to existing Profile Classes; a new Time Pattern Regime Id may be entered if the required Id does not already exist.

An error message will be displayed if an attempt is made to delete a Standard Settlement Configuration which has Settlement Configurations or Settlement Configuration (DC)s associated with it.

It will only be possible to allow a Standard Settlement Configuration to be unassigned from a Profile Class if Metering Systems or Supplier Purchase Matrix data are assigned to that combination of Standard Settlement Configuration and Profile Class.

## Define/Browse Threshold Parameters

### Screen layout



### Screen behaviour

This function is invoked by a suitably authorised NHHDA user to allow browsing and maintenance of the threshold parameters.

A list of existing effective from settlement dates and threshold parameters is displayed. The user then selects one of them to amend, delete or creates a new one.

The user has the option of selecting a specific threshold parameter by using the Forms ‘enter query’ mode option or via a list of values.

For creation the user must enter the effective from settlement date and the threshold parameter. The settlement date will default to the current date.

For amendment, deletion and browsing, the effective from settlement date and threshold parameter are displayed. The user either amends the threshold parameter and effective from settlement date or deletes the record.

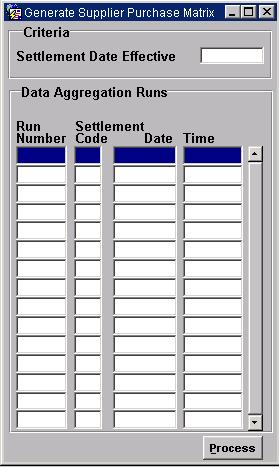
Threshold parameters cannot be negative. A message will be displayed to the user if a negative threshold parameter is displayed.

An error message will be displayed to the user if a new effective from settlement date entered is not unique.

An error message will be displayed if data which has been used in a ‘final initial settlement’ is attempted to be updated if the user does not have sufficient authority. Any such change is reported to the operator log.

## Generate Supplier Purchase Matrix

### Screen layout



### Screen behaviour

This function allows the data aggregation administrator to trigger the extract of supplier purchase matrix data for a previously performed data aggregation run.

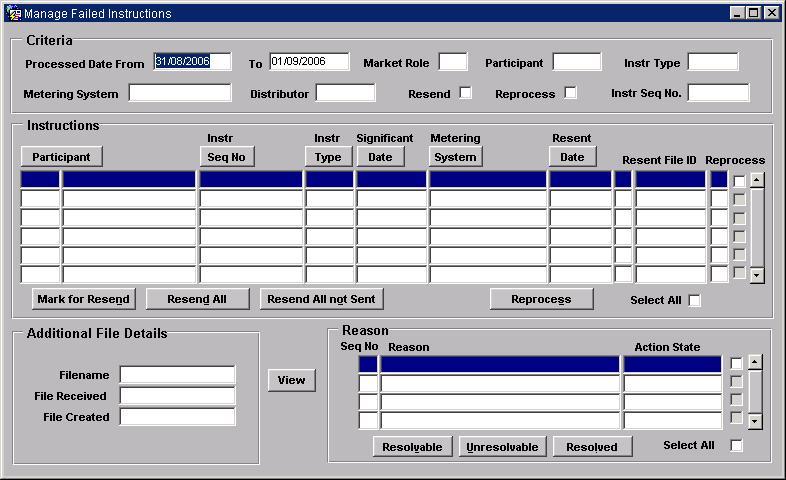
A user will enter a settlement date. For the selected settlement date a list of data aggregation runs is displayed. The user then selects a data aggregation run for which to produce a data file for each GSP Group included in that data aggregation run.

This form has a master/detail relationship. The top criteria section being the master block and the lower GSP Group section being the detail block. Details are only displayed for the corresponding master.

The system will contain controls to ensure that data cannot be sent for a data aggregation run which is not the latest for that settlement day, unless the user explicitly acknowledges and overrides a warning message.

## Manage Failed Instruction

### Screen layout



### Screen behaviour

This function is invoked by the NHHDA user to allow reprocessing, or returning of failed instructions.

The user can restrict the number of instructions displayed by entering a market role and participant, instruction type, instruction sequence number, processed date from and to, metering system or distributor. Instructions displayed can also be restricted to those flagged for ‘Resend’ or ‘Reprocess’ by ticking the check box.

Once the selection criteria has been entered by the user a list of all instructions satisfying the criteria is displayed, sorted by Instruction Sequence number within subject (Metering System Id or PRS Agent). The user can change sort order by selecting the button above each column. This sorts the block in ascending order of the column selected. Selecting the same button again will resort the block in reverse sort order.

From this list the user may then either

* Select one or more of the Instructions for reprocessing (Reprocess All button)
* Mark one or more Instructions for resend (Mark for Resend button). Saving the changes will set the resend flag for all the instructions selected in the Instructions block .
* Select one or more Instructions for return to their source (Resend button). This option sends all instructions which are marked for resend (resend flag is ‘Y’) or currently selected (checkbox is ‘Y’) to their originator. The resent date is set to today, resent file id is populated with the file id of the resent file, resend flag is set to null. It also causes the Aggregator Action State to be set to “Unresolvable” for any Instruction Status Reasons whose Aggregator Action State is not set to any value. However, if the Aggregator Action State has been set before it remains its current value. It also causes a D0023 “Failed Instructions” report to be generated for each different PRS and DC listed. Upon pressing this button a warning message is displayed to inform that not only the records displayed on the screen will be resent. A final message is displayed once processing is complete, this displays a count of the number of non refresh records and refresh records resent.
* Resend one or more instructions to the originator (Resend All not Sent button). This option sends all instructions with a null file resent date (i.e has never been sent), those marked for resend (resend flag is ‘Y’) or currently selected (checkbox is ‘Y’). The resent date is set to today, resent file id is populated with the file id of the resent file and the resend flag is set to null. It also causes the Aggregator Action State to be set to “Unresolvable” for any Instruction Status reason whose Aggregator Action State is blank. A D0023 “Failed Instructions” report is generated for each different PRS and DC listed. If there are no records displayed in the instruction section of the screen, all marked for resend PRS failed refresh instructions are resend to their originator. Upon pressing the ‘Resent All not Sent button a warning message is displayed to inform that not only the records displayed on the screen will be resent. A final message is displayed once processing is complete, this displays a count of the number of non refresh records and refresh records resent.

Following a resend of instructions the Operator Log contains a count of Refresh and Non-refresh instructions resent.

Again when making these selections, the user has the fast path option of ‘select all’ and ‘deselect all’.

The ‘View’ button allows the user to display the file containing the selected instruction

For each Instruction Status Reason, the user may change the Aggregator Action State by making use of the Resolvable, Unresolved or Resolved buttons.

Again when making these selections, the user has the fast path option of ‘select all’ and ‘deselect all’.

The user may request that the enquiry be repeated (using the same selection criteria) and the display is refreshed.

This form has a master/detail relationship. The master block is the Instructions block with the detail records being the Reasons associated with the Master instruction.

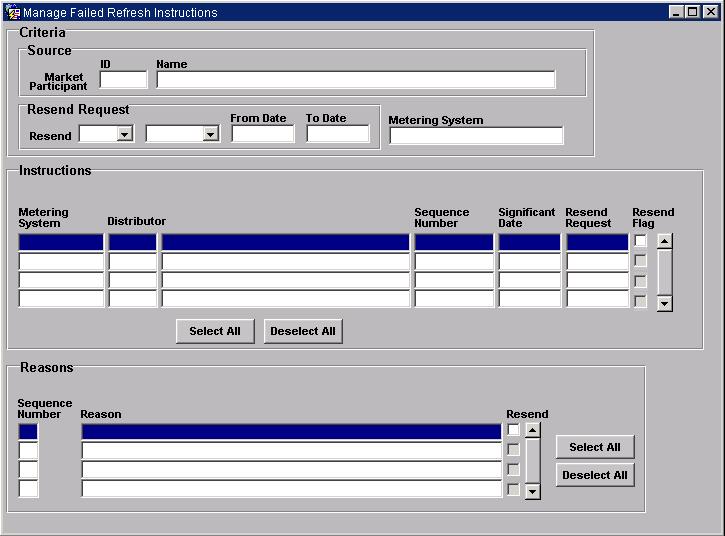
A master/detail relationship also exist between the Instructions block (the master block) and the file reference block which displays the additional file details which include the file name, received time and creation time.

As the user scrolls between master records, their corresponding detail records are displayed.

When instructions are marked for reprocessing a confirmation is issued indicating the number of instructions marked by the user (i.e. the count of checked records), how many of those were actually updated and how many could not be updated because they were marked as ‘cannot reprocess’.

## Manage Failed Refresh Instructions

### Screen layout



### Screen behaviour

This form provides facilities for users to select failed Refresh Instructions and then mark them and their associated reasons for failure for return to the Instruction’s originator on a per Metering System basis.

On entry to the form, the user may select a Refresh Instruction source (a PRS Agent). A list of values will be used.

The user may also specify the subject Metering System Id., the status of the Resend Request Flag (selected via a drop-down menu) and whether to include or exclude Refresh Instruction Failures with a Resend Request Date between two dates.

Once the user has entered the selection criteria, a list of all Refresh Instruction Failures satisfying the criteria is displayed, sorted by Instruction Sequence Number and then subject Metering System Id.

The user may select Refresh Instruction Failures from this list for inclusion or exclusion when Instruction failures are reported to the originator.

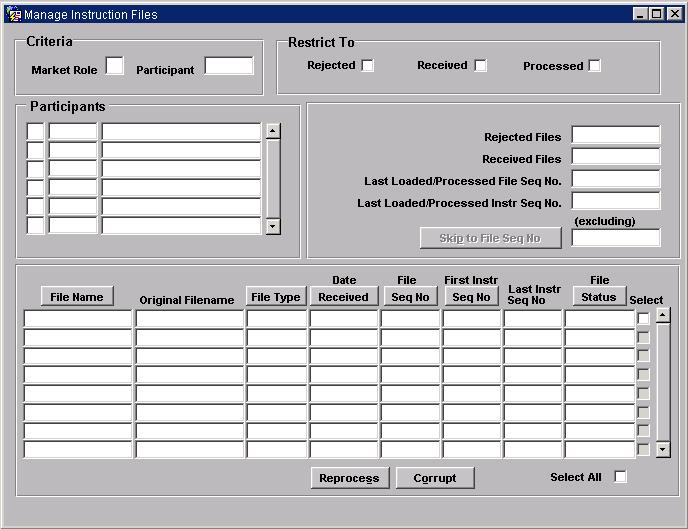
A list of Refresh Instruction Failure Reasons for the selected Refresh Instruction Failure is displayed below the Refresh Instruction Failure list. The user may select individual Refresh Instruction Failure Reasons for inclusion or exclusion when Instruction failures are reported to the originator.

The user may request that the enquiry be repeated (with the same selection criteria) and the display is refreshed.

This form has a master/detail relationship. The master block is the Refresh Instruction Failure block and the detail block is the Refresh Instruction Failure Reasons block showing the failure reason records associated with the master Refresh Instruction Failure record.

## Manage Instruction Files

### Screen layout



### Screen behaviour

This function is invoked by an NHHDA user to resolve failures of Instruction files.

The user may enter a specific role (D or P) or a specific market participant id or a combination of both market role and participant id to restrict the displayed list of participants and their associated Instruction files

Instruction files can also be restricted to ‘Rejected’, ‘Received’ or ‘Processed’ by ticking the check box. The user invokes Execute Query.

A list of all participants (matching the criteria if entered) is displayed.

Selecting each participant displays instruction file details associated with that participant.

The user may choose how to resolve the error:

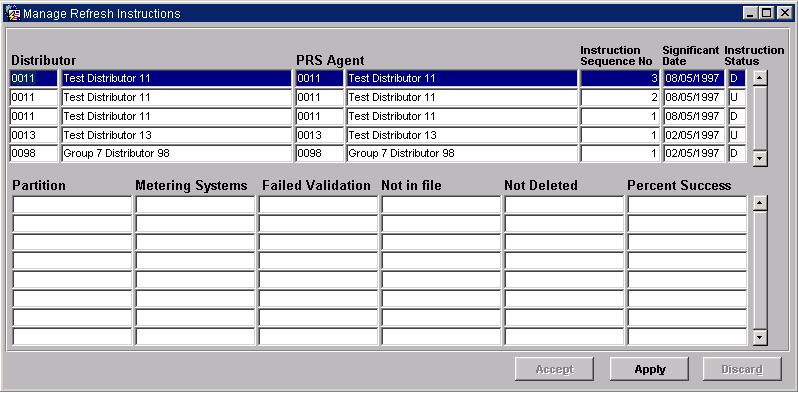
1. attempt to reprocess the file as if it had arrived again - set the file status to Received so that instruction processing will regard the file as newly arrived and (re)apply validation checks
2. mark the file as corrupt - set the file status to Corrupt so that instruction processing will ignore the file and therefore look for a replacement
3. tell the system to skip the file, and which other files to skip;

To skip a file, a market participant (both market role and participant id) can be entered in the criteria bevel or a participant selected from the list of participants. The user then enters the Instruction Sequence Number of the next file to be processed in the box next to the ‘Skip to File Seq No’ button. For each Instruction File Sequence Number from the current file up to but not including the number entered by the user, if there is an Instruction File, set File Status to “Skipped” otherwise, create an empty Instruction File with a File Status of “Skipped”. Instruction processing will treat all skipped files as if they contained no instructions. If a file from the same source with the sequence number specified as “Skip To” already exists and has a status of Loaded or Processed the Skip will not be allowed. If the “Skip To” sequence number is not greater than the selected file, the Skip will not be allowed. Note that when a file arrives where there is already an entry for the same sequence number/source which is set to skipped, the new file will also be set to skipped.

When the user clicks on the Skip to File Seq No button, an activity is submitted to carry out the requested updates. When that activity completes, the form refreshes the display.

## Manage Refresh Instructions

### Screen layout

Instructions are ordered by Distributor, and by Instruction Sequence Number (descending) within each distributor).

### Screen behaviour

This module is invoked by an NHHDA user to allow application of a “PRS Refresh” instruction.

All Refresh Instructions which have an Instruction Status of “Unprocessed” are displayed (these are the ones which have not been applied); all Refresh Instructions with an Instruction Status of "Validation Errors" are displayed (these are the ones which have been attempted but for which there were validation errors preventing all Metering Systems from being updated); also all Refresh Instructions which have an Instruction Status of “Discarded” and which are not flagged as “cannot reprocess” are also displayed (these are the ones which have failed or been manually discarded but which may still legally by applied.

The user selects one Instruction and chooses whether to attempt to apply the instruction (if currently Unprocessed or Discarded), to mark it as “Discarded” (if currently Unprocessed) or to accept the validation errors and mark it as "Applied" (if currently has Validation Errors).

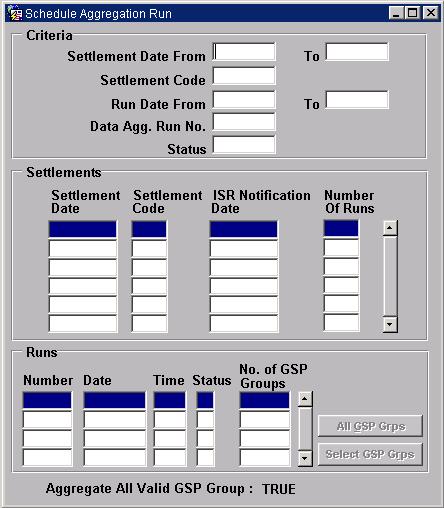
If the selected Instruction has a status of "Validation Errors", the second block on the form is populated with summary information detailing for the whole Instruction, and for each partition, the numbers of Metering Systems contained in the Instruction, the number of those which failed validation, the number of Metering Systems on the database which were *not* in the Instruction, the number of those which were not updated due to the validation rules, and finally the percentage of Metering Systems which were updated out of those considered for updated.

Note that a backup must be taken prior to applying a refresh. The user is asked whether such a backup exists before processing starts. If a refresh fails with Validation Errors, the user has the choice of restoring from the database backup (and then discarding the refresh) or of accepting the refresh despite the errors.

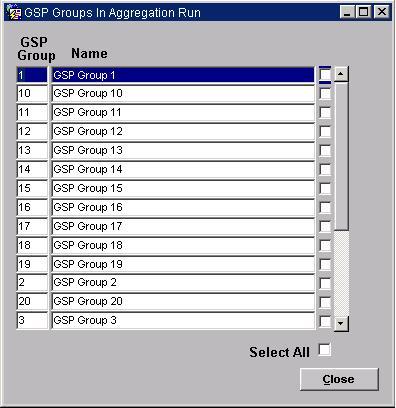
The user is informed when a refresh activity has been submitted and the form is closed.

## Schedule Aggregation Run

### Screen layout



Pop up window displaying GSP Group information:



### Screen behaviour

The default schedule is prepared by the settlement timetable, which is automatically loaded (N0024). This function is invoked by the data aggregation administrator to allow data aggregation runs to be re-scheduled, new runs scheduled or the status of a scheduled run to be changed. No run will actually start until the status of the run is set to released (through a DAST file load or a manual operator action) . For data aggregation runs of the correct status the system will perform data aggregation run during the next invocation of NAR with a ‘run date’ on or after the date requested (note that when running overnight, the run date is taken to be the next day if the run starts before midnight).

Before a run has started the user will have the option of modifying the status, rescheduling or cancelling the run, and adding or removing the GSP Groups to be included in the run.

On entry a user will have the option of entering a settlement date range, a run date range, settlement code, status, or data aggregation run number. A list of settlements and runs is then displayed based on the criteria date information which has been entered by the user.

For the settlement information displayed to the user the settlement date, settlement code, ISR notification date and the number of runs is displayed. The user can add, remove or edit these records.

For the run information displayed to the user, the number, date, time (only for runs which have occurred), status and number of GSP Groups is displayed.

If the user wishes to view the GSP Groups relating to a run, this can be achieved by pressing the Select GSP Group button. For GSP Groups, the GSP Group Id and GSP Group name is displayed. The user can add or remove these records selecting or deselecting the check box. The user then saves the changes. (The user has the option of selecting all GSP Groups by selecting the ‘All GSP Group button.) When the changes are saved the ‘No of GSP Groups’ displayed on the screen changes to the new value

The Data Aggregation Administrator will have the option of scheduling a new Data Aggregation Run (i.e.: Inserting a new row) or rescheduling, modifying the Status, cancelling or browsing an existing one.

When inserting a new Settlement, the Settlement Date will default to today’s date and the Settlement Code will default to ‘Initial Settlement’.

When inserting a new Aggregation Run the Run Number will be allocated automatically by the system and the user may not change it. The settlement date and code will be those for the currently selected row in the Settlement block; the Status will default of ‘Provisional’, the Aggregation Date will default to today’s date. All defaults may be changed by the user. The new run must be saved before GSP groups are assigned to it.

If adding or modifying a Data Aggregation Run, the user may also select GSP groups to add or remove from the run. This is achieved by selecting or deselecting rows from the GSP Group data block.

The date for a Data Aggregation Run to occur must not be earlier than the current date.

The system will not allow a Data Aggregation Run to be cancelled or rescheduled if it has already taken place.

The status of a run may only be changed from provisional, provisional (default), approved or released to approved, released or provisional.

GSP Groups may only be added or removed from aggregation runs and run date may only be changed for runs which are provisional.

The user may query Data Aggregation run by any combination of Settlement Date, Settlement Code, Run Number, Aggregation Date, and Status.

Once a Aggregation Run has been selected the user may restrict the GSP groups displayed by GSP Group but not but GSP Name.

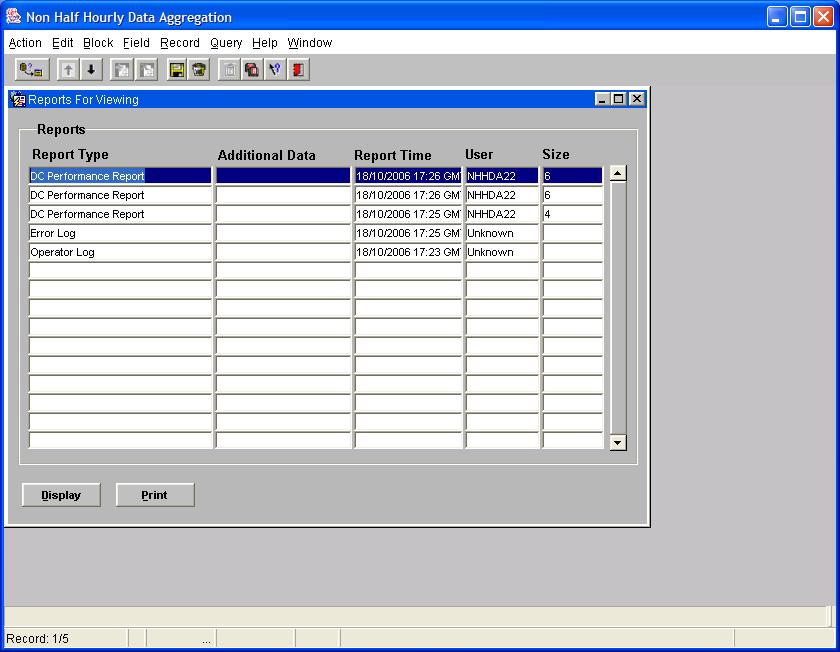
A settlement may not be deleted if there are any data aggregation runs scheduled for that settlement.

If the System Parameter “Aggregate All Valid GSP Groups” is set to FALSE and the user has not included any GSP Groups, then a warning message is displayed. If the run is a dispute run and the user has not included any GSP Groups, then a warning message is displayed regardless of the value of the System Parameter “Aggregate All Valid GSP Groups”.

## Select Reports

### Screen layout

The screen layout, excluding the standard menu and toolbar is as shown in the following figure:



### Screen behaviour

The form displays a selection of reports that have been completed on the server as well as the operator and error logs. This selection only contains report types which the user has been authorised to view. These are displayed in reverse order of creation (i.e., the most recently created reports are displayed at the top of the list).

The user can move through the list but cannot change the data displayed. The row on which the cursor is placed is treated as the currently selected report when any of the buttons on the form are pressed.

With a report selected, the user can press a button to:

1. display the report - invoking the web browser to view the specified file. A check is carried out to verify that the rep size does not exceed the allowed size set in system parameters. If the size is exceeded, the user is given the option to proceed or cancel. It is also possible to view multiple reports at a time.
2. print the report - sending the selected file to the default printer

If the report has not previously been formatted into human-readable form, the report will first be formatted. Snapshots of the operator and error logs will be transferred to the application server when the user requests that the logs be displayed or printed.

Note that, with the exception of the operator and error logs, only files with types included in ‘cdb\_report\_type’ and have a status of ‘completed’ will be displayed.

Authorisation to view particular report types is checked using the Oracle view ‘user\_role\_privs’. By joining this with ‘cdb\_report\_access’, a list of report types which the current user may access is produced. The current user is determined by retrieving the user who submitted the activity that produces the underlying machine readable report.

The ‘additional data’ field displays information about the criteria used to generate the report.

The ‘size’ field give an indication of the report size by showing the number of records in the machine readable report file. The field will be left blank if this information is unavailable.

### Description

This form is provided to satisfy the requirements to display and print human-readable versions of certain reports. It provides a mechanism for selecting one of the completed reports on the server and obtaining a copy of that report on the application server for viewing or printing.

Note that deletion of the created files on the client is considered a separate, user operation - see System Management Guide.

### Form structure

|  |  |
| --- | --- |
| **Field Name** | **Description** |
| **Block:** TOOLBAR | Contains standard buttons as described in [CTSPEC] section 10.5.1 |
|  |  |
| **Block:** REPORTS | Block contains a table of all reports available for viewing |
| Field Report Type | cdb\_report\_type.report\_name |
| Field Additional Data | cdb\_file\_refrence.additional\_information |
| Field Report Time | cdb\_file\_reference.creation\_time |
| Field User | cdb\_activity.username |
| Field Size | cdb\_file\_reference.number\_records |
| Button Display | Triggers the display action described below |
| Button Print | Triggers the print action described below |

### Action on Form Query

Displays a list of all reports match the query criteria, eg:

SELECT DISTINCT p.username, t.report\_name,

f.creation\_time, f.number\_records, f.file\_id, f.additional\_information

FROM cdb\_file\_reference f, cdb\_report\_type t,

cdb\_activity p, cdb\_report\_access a,

USER\_ROLE\_PRIVS u

WHERE t.report\_name matches any criteria specified

AND f.creation\_time matches any criteria specified

AND p.username matches any criteria specified

AND f.file\_type = t.file\_type

AND f.status = *completed*

AND p.activity\_id = f.activity\_id

AND f.file\_type = a.file\_type

AND a.user\_role = u.granted\_role

ORDER BY f.creation\_time DESC

Note that only file types which are included in cdb\_report\_type will be included in the list of reports. Furthermore, only reports that have status ‘completed’ will be included. The reports displayed are further limited to those for which the user is authorised.

The authorisation check uses the Oracle View “USER\_ROLE\_PRIVS”, which contains all the roles granted to the current user. By joining this to cdb\_report\_access, a list of report types which the current user may access is determined. Since a user may have multiple roles assigned, with more than one of these allowing access to a particular report, “SELECT DISTINCT” is used to remove duplicate result rows.

The user who initiated the report is determined by looking up the user who submitted the activity which caused the underlying machine readable report to be created.

The size field gives a “relative” indication of the likely report size, based on the number of records in the underlying machine readable file. Where no size information is available (i.e.: the database field is null), this field will be left blank.

Implementation of this form may be simplified by defining a database view for the underlying query (i.e.: without the criteria specified).

### Action on Button Display

SELECT r.file\_id

FROM cdb\_report\_file r

WHERE source\_file\_id = selected row file\_id

IF a record is not found (i.e.: not yet formatted)

CALL CRP.FORMAT\_REPORT to format the report

END IF

Call CRP\_FETCH.IS\_FILE\_TOO\_BIG to check if report size exceed value set in system parameter.

CALL CRP.DISPLAY\_REPORT for human-readable report file\_id to bring the report up for display

### Action on Button Print

SELECT r.file\_id

FROM cdb\_report\_file r

WHERE source\_file\_id = selected row file\_id

IF a record is not found (i.e.: not yet formatted)

CALL CRP.FORMAT\_REPORT to format the report

END IF

CALL CRP.PRINT\_REPORT to queue the report to the local default printer

# NFR Forms and Reports Subsystem Specification

## Overview

All NHHDA human readable reports will be based on report templates as discussed in the following section.

All NHHDA machine readable reports include a table showing all fields included in that report, all fields are mandatory unless otherwise stated.

Selection Criteria includes User requesting report, which will always be present, other criteria depend on user specification.

The structure of the report is described using BNF format as per [CTSPEC]

Type decimal (n,d) means n digits of which d are after the decimal point

When the REPORT button is pressed, a process is queued on the server to generate a machine readable report. The user subsequently views the report output using the Select Reports option from the menu which invokes the CRP Select Reports form (see [CTSPEC]).

## Report Templates

### Description

There is a standard template which will be used by NHHDA reports.

#### Template Items

All NHHDA reports will use this template.

The items which appear on each report are as follows:

| Template Item | Description |
| --- | --- |
| Date and Time of Report Request | The Date and Time the report was produced.  Format DD/MM/YYYY HH:MM GMT  For example, 02/11/1998 17:34 is equivalent to 2 November 1998 at 5:34pm |
| Name of User Running Report | The application user’s id who invoked the report, for example BLOGGSJ |
| Name of Organisation | The name of the organisation producing the report. This will be denoted by showing the organisation’s participant name, for example:  Eastern Electricity Board |
| Report Title | This is the main title of the report, for example:  Data Aggregation Run |
| Page Number | Page numbering will be shown on the footer of the page and will show the current page, for example:  Page 3 |
| Report Criteria | These are the lines of the report body, appropriate to the report type. |

Figure 8 shows how template items will appear on reports.

The fields Report Title, Name of Organisation and Date and Time of Report Request will be displayed on every page, whereas Name of User Running Report and Report Criteria fields will only be displayed on the first page.

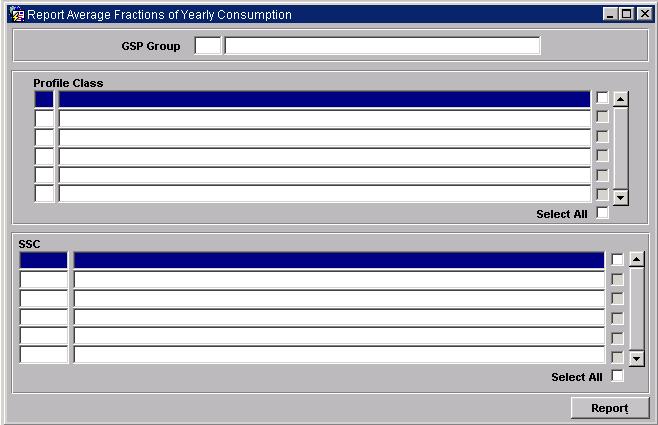


Figure 8: Standard Report Template

## Report Average Fraction of Yearly Consumption

### Form

#### Screen layout



#### Screen behaviour

This function allows reporting of a set of average fractions of yearly consumption.

A list of GSP Group Ids and descriptions is displayed. The user selects one GSP Group to report on.

Specific GSP Groups to be reported on are identified by using Forms ‘enter query’ mode or via a list of values.

Next a user will select one, a range or all of the Profile Classes to report on.

As Profile Classes and Standard Settlement Configuration records have a many-many relationship, when the user scrolls between profile class records its associated valid Standard Settlement Configuration records change. Upon querying the database all profile class records and their corresponding detail records will be displayed.

Finally the user selects one, a range, or all of the Standard Settlement Configurations to report on.

### Report

#### Description

This report is invoked by an NHHDA user to allow reporting of a set of Average Fractions Of Yearly Consumption.

#### Input Parameters

The following parameters will be passed to the report using the parameter entry Form:

| Parameter | Parameter Type |
| --- | --- |
| GSP Group Id | Single Id  Mandatory |
| Profile Class | Range of Profile Class Ids  Non-Mandatory |
| Standard Settlement Configuration Id | Range of Standard Settlement Configuration Ids  Non-Mandatory |

#### Physical Access

The following tables will need to be accessed in order to retrieve data for the main body of the report:

| Tables | Columns |
| --- | --- |
| ndb\_gsp\_groups | gsp\_group\_id  gsp\_group\_name |
| ndb\_profile\_classes | profile\_class\_id  profile\_class\_desc |
| ndb\_std\_sett\_cfgs | std\_sett\_config\_id  configuration\_desc |
| ndb\_av\_frac\_y\_cons | av\_frac\_y\_cons  effective\_from\_sett\_date  effective\_to\_sett\_date  t\_p\_regime\_id  gsp\_group\_id  profile\_class\_id |

#### Physical Design

This report will use the standard report template.

A list of existing GSP Group Ids and descriptions is displayed. The user selects one of them to report.

A list of Profile Class Ids and descriptions is displayed and the user selects one, a range, or all.

A list of existing Standard Settlement Configuration Ids and descriptions is displayed for the selected Profile Class (as recorded in Valid Settlement Configuration Profile Class). The user selects one, a range, or all of them to report.

A list of all the Time Pattern Regime Ids is Reported for the selected Profile Class and Standard Settlement Configurations (as recorded in Valid Settlement Requirement Profile Class) together with their Average Fraction of Yearly Consumption, Effective From Settlement Date {AFYC}s and Effective To Settlement Date {AFYC}s for the selected GSP Group, if any (from entity Average Fraction of Yearly Consumption).

The report will be ordered by GSP Group Id for GSP Groups, Profile Class Id, SSC Id, Effective From Date (descending) and Time Pattern Regime for the main body of the report.

The User name and query criteria will only be displayed on the first page of the report. The Report Title, Organisation, Time of Report Run and column headings for repeating groups and context information will be displayed on each page of the report.

#### User Roles

Exception Administrator, Auditor.

### Structure

#### Human Readable Report Layout

Ave Fract Yearly Consumption XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY HH:MM GMT

User

XXXXXXXX

GSP Group

XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Profile Class

XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

SSC

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

GSP Group

== ==============================

XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Profile Class

== ==============================

XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

From To Time Average Fraction of

Standard Settlement Configuration Settlement Date Settlement Date Pattern Regime Yearly Consumption

==== ====================================== =============== =============== =============- ===================

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY DD/MM/YYYY XXXXX 0.999999

XXXXX 0.999999

DD/MM/YYYY DD/MM/YYYY XXXXX 0.999999

XXXXX 0.999999

DD/MM/YYYY DD/MM/YYYY XXXXX 0.999999

XXXXX 0.999999

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY DD/MM/YYYY XXXXX 0.999999

XXXXX 0.999999

DD/MM/YYYY DD/MM/YYYY XXXXX 0.999999

XXXXX 0.999999

#### Machine Readable Layout

| **ZHD - File Header** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZHD |
| 2 | File Type | text(8) | =L0013001 |
| 3 | From Role Code | text(1) | =B (Non half hourly data aggregator) |
| 4 | From Participant Code | text(4) | market participant id of the non half hourly data aggregator |
| 5 | To Role Code | text(1) | null |
| 6 | To Participant Code | text(4) | null |
| 7 | Creation Time | date/time | Time of file generation |

| **SEL - Selection Criteria** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =SEL |
| 2 | Criteria title | text(80) |  |
| 3 | Criteria value | text(80) |  |

| **VPC - GSP Group header** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =VPC |
| 2 | GSP Group Id | text(2) |  |
| 3 | GS P Group Name | text(30) |  |

| **PRC - Profile Class** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =PRC |
| 2 | Profile Class Id | integer(2) |  |
| 3 | Profile Class Name | text(30) |  |

| **AFC - Average Fraction of Yearly Consumption** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =AFC |
| 2 | SSC Id | text(4) | Optional - null if SSC and Profile Class same as previous record |
| 3 | SSC Description | text(50) | Optional - null if SSC and Profile Class same as previous record |
| 4 | Effective From Settlement Date | date | Optional - null if SSC, Profile Class and Effective From Settlement Date same as previous record |
| 5 | Effective To Settlement Date | date | Optional - null if SSC, Profile Class and Effective From Settlement Date same as previous record |
| 6 | Time Pattern Regime Id | text(5) |  |
| 7 | Average Fraction of Yearly Consumption | decimal (7,6) |  |

| **ZPT - File Trailer** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZPT |
| 2 | Record count | integer(10) | Number of records in file, including the headers and footer |
| 3 | Checksum | integer(10) |  |

Repeating structure of Report File:

NBR AFYC ::= ZHD SEL {SEL} VPC {PRC {AFC}} ZPT

Sorting:

The records in the file are sorted by:

1. Profile Class Id
2. Standard Settlement Configuration Id
3. Effective From Settlement Date (descending)
4. Time Pattern Regime Id

## Report Data Aggregation Run Schedule

### Form

#### Screen layout



#### Screen behaviour

This function is invoked by an NHHDA user to allow reporting of settlements and associated data aggregation runs for each GSP Group listed for that aggregation run.

The user will select either a range of settlement dates or a range of data aggregation run dates.

For each data aggregation run selected the run details are output along with the GSP Groups included in each run.

### Report

#### Description

This report is invoked by an NHHDA user to allow reporting of Settlements and associated Data Aggregation Runs for each GSP Group listed for that Aggregation Run.

#### Input Parameters

The following parameters will be passed to the report using the parameter entry Form:

| Parameter | Parameter Type |
| --- | --- |
| Settlement Date From | Settlement Date |
| Settlement Date To | Settlement Date |
| Run Date From | Run Date |
| Run Date To | Run Date |
|  | Note: Mandatory to have either  Settlement Date From  Settlement Date To or  Run Date From  Run Date To |

#### Physical Access

The following tables will need to be accessed in order to retrieve data for the main body of the report:

| Tables | Columns |
| --- | --- |
| ndb\_settlements | settlement\_code  settlement\_date |
| ndb\_data\_agg\_runs | settlement\_date  settlement\_code  data\_agg\_run\_stat  data\_agg\_run\_no  data\_agg\_run\_date |
| ndb\_gsp\_groups\_run | gsp\_group\_id  data\_agg\_run\_no |
| ndb\_gsp\_groups | gsp\_group\_id  gsp\_group\_name |

#### Physical Design

This report will use the standard report template.

The user will enter a Settlement Date which will return all Settlements for that Settlement Date.

The user may then select either a single Settlement, or all Settlements for the Settlement Date. If a single Settlement is selected, all Aggregation Runs for that Settlement are listed and the user may select a single run or all runs for that Settlement.

For each settlement selected, the settlement details are output and for each aggregation run selected, the run details and the GSP Groups for each Aggregation Run will also be output.

The report will be ordered by Run Code (descending).

The User name and query criteria will only be displayed on the first page of the report. The Report Title, Organisation, Time of Report Run and column headings for repeating groups and context information will be displayed on each page of the report.

##### User Roles

Exception Administrator, Market Domain Data Administrator

### Structure

#### Human Readable Report Layout

Data Aggregation Run XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY HH:MM GMT

User

XXXXXXXX

Settlement Date From

DD/MM/YYYY

Settlement Date To

DD/MM/YYYY

Settlement

Date

===========

DD/MM/YYYY

ISR Notification Data Aggregation Data Aggregation Number of

Settlement Code Date Run Number Run Date Time Status GSP Groups

== ============================== ================ ================ ========== ======== = ============================== ==========

XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY 9999999 DD/MM/YYYY HH:MM:SS X XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 99

GSP Group

== ==============================

XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

#### Machine Readable Layout

| **ZHD - File Header** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZHD |
| 2 | File Type | text(8) | =L0017001 |
| 3 | From Role Code | text(1) | =B (Non half hourly data aggregator) |
| 4 | From Participant Code | text(4) | market participant id of the non half hourly data aggregator |
| 5 | To Role Code | text(1) | null |
| 6 | To Participant Code | text(4) | null |
| 7 | Creation Time | date/time | Time of file generation |

| **SEL - Selection Criteria** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =SEL |
| 2 | Criteria title | text(80) |  |
| 3 | Criteria value | text(80) |  |

| **SHD - Settlement Header** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =SHD |
| 2 | Settlement Date | date |  |

| **SCD - Settlement Code** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =SCD |
| 2 | Settlement Code | text(2) |  |
| 3 | Settlement Code Description | text(30) |  |
| 4 | ISR Notification Date | date |  |
| 5 | Run Number | integer(7) | may be null if range is on Settlement |
| 6 | Run Date | date | Date and there is a Settlement |
| 7 | Run Time | time | Date/Code combination but there are no |
| 8 | Run Status Code | text(1) | runs scheduled for that combination |
| 9 | Run Status Description | text(30) |  |
| 10 | Number of GSP Groups in run | integer(2) |  |

| **GSP - GSP Groups in Aggregation Run** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =GSP |
| 2 | GSP Group Id | text(2) |  |
| 3 | GSP Group Name | text(30) |  |

| **ZPT - File Trailer** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZPT |
| 2 | Record count | integer(10) | Number of records in file, including the headers and footer |
| 3 | Checksum | integer(10) |  |

Repeating structure of Report File:

NBR Data Aggregation Run Schedule ::=

ZHD SEL {SEL} {SHD {SCD {GSP}}} ZPT

Sorting:

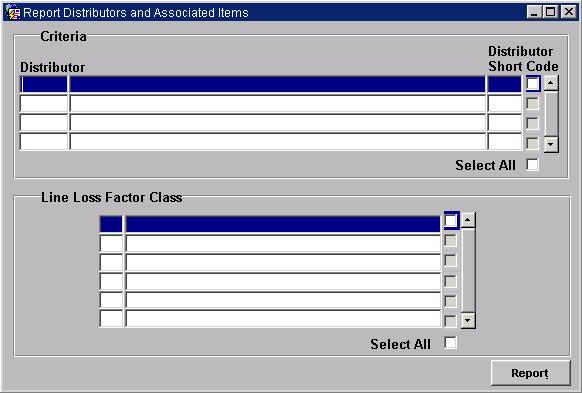
The records in the file are sorted by:

1. Settlement Date
2. Settlement Code
3. Run Date (ascending)
4. Data Aggregation Run Number

## Report Distributors and Associated Items

### Form

#### Screen layout



#### Screen behaviour

This function is invoked by a NHHDA user to allow reporting of the set of valid distributors, their Line Loss Factor Classes, GSP Groups and PRS Agent Appointments.

A list of Distributor Ids, names and short codes is displayed. The user selects one, a range, or all of them to report.

Specific Distributors to be reported on are identified by using Forms ‘enter query’ mode.

For each Distributor displayed, the second block is enabled, allowing the user to restrict the report to a subset of line loss factor classes for that distributor.

### Report

#### Description

This report is invoked by a NHHDA user to allow reporting of Distributors and their associated Line Loss Factor Classes, GSP Groups and PRS Agent Appointments.

#### Input Parameters

The following parameters will be passed to the report using the parameter entry Form:

| Parameter | Parameter Type |
| --- | --- |
| Distributor Id | Range of Distributor Ids  Mandatory |
| Line Loss Factor Class Id | Range of Line Loss Factor Class Ids  Non-Mandatory |

#### Physical Access

The following tables will need to be accessed in order to retrieve data for the main body of the report:

| Tables | Columns |
| --- | --- |
| ndb\_m\_participants | participant\_id  participant\_name  dist\_short\_code  dist\_flag  prs\_ag\_flag |
| ndb\_llf\_classes | llf\_class\_id  llf\_class\_desc  dis\_participant\_id |
| ndb\_gsp\_groups\_dis | gsp\_group\_id  dist\_participant\_id  eff\_from\_sett\_date  eff\_to\_sett\_date  prs\_participant\_id |

#### Physical Design

This report will use the standard report template.

The report will display the set of Distributors and their associated PRS Agent Appointments.

The output will consist of Distributor Id, Distributor Name and Distributor Short Code for each Distributor followed by PRS Agent Id, PRS Agent Name, GSP Group ID, GSP Group Name, Effective From Settlement Date and Effective To Settlement Date for GSP Groups.

This report will be ordered by Distributor Id, Line Loss Factor Class Id, GSP Group and Effective From Settlement Date.

The User name and query criteria will only be displayed on the first page of the report. The Report Title, Organisation, Time of Report Run and column headings for repeating groups and context information will be displayed on each page of the report.

#### User Roles

Exception Administrator, Auditor

### Structure

#### Human Readable Report Layout

Distributors XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY HH:MM GMT

User

XXXXXXXX

Distributor

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Line Loss Factor Class

XXXX

Distributor Short Code

==== ======================================== ==========

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XX

Line Loss Factor Classes

==== ==============================

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

PRS Agent Appointment Details

PRS Agent

==== ========================================

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

GSP Group Details

GSP Group From Calendar Date To Calendar Date

==== ======================================== ================== ================

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY DD/MM/YYYY

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY DD/MM/YYYY

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY DD/MM/YYYY

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY DD/MM/YYYY

#### Machine Readable Layout

| **ZHD - File Header** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZHD |
| 2 | File Type | text(8) | = L0014001 |
| 3 | From Role Code | text(1) | =B (Non half hourly data aggregator) |
| 4 | From Participant Code | text(4) | market participant id of the non half hourly data aggregator |
| 5 | To Role Code | text(1) | null |
| 6 | To Participant Code | text(4) | null |
| 7 | Creation Time | date/time | Time of file generation |

| **SEL - Selection Criteria** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =SEL |
| 2 | Criteria title | text(80) |  |
| 3 | Criteria value | text(80) |  |

| **DIS - Distributor** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | = DIS |
| 2 | Distributor Id | text(4) |  |
| 3 | Distributor Name | text(40) |  |
| 4 | Distributor Short Code | text(2) |  |

| **LLF - Line Loss Factor Class** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =LLF |
| 2 | Line Loss Factor Class Id | text (3) |  |
| 3 | Line Loss Factor Class Description | text(30) |  |

| **PAA - PRS Agent Appointments** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | = PAA |
| 2 | PRS Agent Id | text(4) |  |
| 3 | PRS Agent Name | text(40) |  |

| **GSP – GSP Groups** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | = GSP |
| 2 | GSP Group Id | text(2) |  |
| 3 | GSP Group Name | text(30) |  |
| 4 | Effective From Settlement Date | date |  |
| 5 | Effective To Settlement Date | date |  |

| **ZPT - File Trailer** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZPT |
| 2 | Record count | integer(10) | Number of records in file, including the headers and footer |
| 3 | Checksum | integer(10) |  |

Repeating Structure of Report File:

DIST :: = ZHD SEL {SEL} {DIS {LLF} {PAA} {GSP}} ZPT

Sorting:

The records in the file are sorted by:

1. Distributor Id
2. Line Loss Factor Class Id (within Distributor)
3. GSP Group Effective From Settlement Date (within Distributor) (descending)

## Report on Batch Output Files

### Description

This report is invoked by the NHHDA user to report on output data from batch processing. Output files which may be reported on include the following:

1. Supplier Purchase Matrix
2. Aggregation Exception Log
3. Check Data Collector Data Exception Log

The user selects the file they wish to report on from the form “Report File Extraction and Transmission Statuses.

### Supplier Purchase Matrix

#### Input Parameters

The following parameters will be passed to the report using the parameter entry Form:

| Parameter | Parameter Type |
| --- | --- |
| Filename | Single File Name  Mandatory |
| Path | Single Path  Mandatory |
| SSC Id | Single Standard Settlement Configuration Id  Optional |
| Line Loss factor Class Id | Single Distributor Id & Line Loss Factor Class Id  Optional |
| Profile Class Id | Single Profile Class Id  Optional |
| Supplier | Single Supplier Id  Optional |

#### Physical Access

The following tables will need to be accessed in order to retrieve data for the main body of the report:

| Tables | Columns |
| --- | --- |
| N/A as information is stored in an Operating System File. |  |

#### Physical Design

Using the parameters passed into the report, the process will use Operating System functionality to filter the records required. The filter parameters are Standard Settlement Class, Line Loss Factor Class, profile Class and Supplier.

The User name and query criteria will only be displayed on the first page of the report. The Report Title, Organisation, Time of Report Run and column headings for repeating groups and context information will be displayed on each page of the report.

#### User Roles

Exception Administrator, Auditor

#### Structure

##### Human Readable Report Layout

SPM (Report) XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY HH:MM GMT

User

XXXXXXXX

Standard Settlement Configuration

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Distributor

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Line Loss Factor Class

XXX

Profile Class

XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Supplier

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Settlement Settlement Run Run GSP

Date Code Code Number Group

========== ========== ======= ======= =====

DD/MM/YYYY XX D 9999999 XX

Supplier

========

XXXX

Profile Line Loss Time P Default Default AA AA EAC EAC EAC EAC

Class Distr Class SSC Regime Metered Unmetered Metered Metered (Mwh) Metered (Mwh) Metered Unmetered (Mwh) Unmetered

======= ===== ========= ==== ====== ======== ========= ======== =============== =============== ======== =============== =========

XX XXXX XXX XXXX XXXXX 99999999 99999999 99999999 9999999999.9999 9999999999.9999 99999999 9999999999.9999 99999999

XX XXXX XXX XXXX XXXXX 99999999 99999999 99999999 9999999999.9999 9999999999.9999 99999999 9999999999.9999 99999999

XX XXXX XXX XXXX XXXXX 99999999 99999999 99999999 9999999999.9999 9999999999.9999 99999999 9999999999.9999 99999999

XX XXXX XXX XXXX XXXXX 99999999 99999999 99999999 9999999999.9999 9999999999.9999 99999999 9999999999.9999 99999999

XX XXXX XXX XXXX XXXXX 99999999 99999999 99999999 9999999999.9999 9999999999.9999 99999999 9999999999.9999 99999999

XX XXXX XXX XXXX XXXXX 99999999 99999999 99999999 9999999999.9999 9999999999.9999 99999999 9999999999.9999 99999999

##### Machine Readable Layout

| **ZHD - File Header** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZHD |
| 2 | File Type | text(8) | =L0032001 |
| 3 | From Role Code | text(1) | =B (Non half hourly data aggregator) |
| 4 | From Participant Code | text(4) | market participant id of the non half hourly data aggregator |
| 5 | To Role Code | text(1) | null |
| 6 | To Participant Code | text(4) | null |
| 7 | Creation Time | date/time | Time of file generation |

| **SEL - Selection Criteria** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =SEL |
| 2 | Criteria title | text(80) |  |
| 3 | Criteria value | text(80) |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **SPD - Data File Additional Header** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = SPD |
| 2 | Settlement Date | date | copied from ZPD record of SPM file |
| 3 | Settlement Code | text(2) | copied |
| 4 | Run Type Code | text(2) | copied |
| 5 | Run Number | integer(7) | copied |
| 6 | GSP Group | text(2) | copied |

| **Supplier Purchase Matrix Body** |
| --- |
| Supplier Purchase Matrix details can be found in the NAR sub-system |

| **ZPT - File Trailer** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZPT |
| 2 | Record count | integer(10) | Number of records in file, including the headers and footer |
| 3 | Checksum | integer(10) |  |

Repeating Structure of Report File:

NBR SPV ::= ZHD SEL {SEL} SPD <SPM Body> ZPT

Sorting:

The order of data presented in the report will be that in which it appears in the original SPM file.

### Check Data Collector Data Exception Log

#### Input Parameters

The following parameters will be passed to the report using the parameter entry Form:

| Parameter | Parameter Type |
| --- | --- |
| Filename | Single File Name  Mandatory |
| Path | Single Path  Mandatory |
| Metering System Id | Single Metering System Id  Optional |
| Exception Type | Single Exception Type  Optional |

#### Physical Access

The following tables will need to be accessed in order to retrieve data for the main body of the report:

| Tables | Columns |
| --- | --- |
| N/A as information is stored in an Operating System File. |  |

#### Physical Design

Using the parameters passed into the report, the process will use Operating System functionality to filter the records required. The filter parameters are Metering System and Exception Type.

The User name and query criteria will only be displayed on the first page of the report. The Report Title, Organisation, Time of Report Run and column headings for repeating groups and context information will be displayed on each page of the report.

#### User Roles

Exception Administrator, Auditor

#### Structure

##### Human Readable Report Layout

Data Collector Exception LogXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY HH:MM GMT

User

XXXXXXXX

Metering System

9999999999999

Exception Type

XXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Data From To

Supplier Collector Settlement Date Settlement Date

======== ========= =============== ===============

XXXX XXXX DD/MM/YYYY DD/MM/YYYY

Count of Metering Systems with E01 (no EAC or AA for appointed DC) 999999

Count of Metering Systems with E02 (missing subsequent consumption data) 999999

Count of Metering Systems with E03 (AA with no DAA Appointment) 999999

Count of Metering Systems with E04 (EAC with no DAA Appointment) 999999

Count of Metering Systems with E05 (non-zero AA while de-energised) 999999

Count of Metering Systems with E06 (missing preceding consumption data) 999999

Count of Metering Systems with E07 (Overlapping Meter Advance Periods) 999999

Count of Metering Systems with E08 (Supplier mismatch) 999999

Count of Metering Systems with E09 (Measurement Class mismatch) 999999

Count of Metering Systems with E10 (GSP Group mismatch) 999999

Count of Metering Systems with E11 (Profile Class mismatch) 999999

Count of Metering Systems with E12 (Energisation Status mismatch) 999999

Count of Metering Systems with E13 (SSC mismatch) 999999

Count of Metering Systems with E14 (no PRS registration) 999999

Count of Metering Systems with any exceptions 999999

PRS Agent

=========

XXXX

Metering System

===============

9999999999999

E01 Registration From Settlement Date DD/MM/YYYY

Data Aggregator Appointment From Settlement Date DD/MM/YYYY

E02 Registration From Settlement Date DD/MM/YYYY

Data Aggregator Appointment From Settlement Date DD/MM/YYYY

First date with no data DD/MM/YYYY

E03 Meter Advance Period From Settlement Date DD/MM/YYYY

E04 EAC From Settlement Date DD/MM/YYYY

E05 Meter Advance Period From Settlement Date DD/MM/YYYY

E06 First date with no data DD/MM/YYYY

E07 Meter Advance Period From Settlement Date DD/MM/YYYY

Other Data Collector XXXX

Other Data Collector’s Meter Advance Period From Settlement Date DD/MM/YYYY

E08 Supplier according to Data Collector XXXX

PRS Data From Settlement Date DD/MM/YYYY

Data Collector From Settlement Date DD/MM/YYYY

E09 Measurement Class according to PRS X

Measurement Class according to Data Collector X

PRS Data From Settlement Date DD/MM/YYYY

Data Collector From Settlement Date DD/MM/YYYY

E10 GSP Group according to PRS XX

GSP Group according to Data Collector XX

PRS Data From Settlement Date DD/MM/YYYY

Data Collector From Settlement Date DD/MM/YYYY

E11 Profile Class according to PRS XX

Profile Class according to Data Collector XX

PRS Data From Settlement Date DD/MM/YYYY

Data Collector From Settlement Date DD/MM/YYYY

E12 Energisation Status according to PRS X

Energisation Status according to Data Collector X

PRS Data From Settlement Date DD/MM/YYYY

Data Collector From Settlement Date DD/MM/YYYY

E13 SSC according to PRS XXXX

SSC according to Data Collector XXXX

PRS Data From Settlement Date DD/MM/YYYY

Data Collector From Settlement Date DD/MM/YYYY

E14 Supplier according to PRS Agent XXXX

PRS Data From Settlement Date DD/MM/YYYY

Data Collector From Settlement Date DD/MM/YYYY

##### Machine Readable Layout

| **ZHD - File Header** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZHD |
| 2 | File Type | text(8) | =L0033001 |
| 3 | From Role Code | text(1) | =B (Non half hourly data aggregator) |
| 4 | From Participant Code | text(4) | market participant id of the non half hourly data aggregator |
| 5 | To Role Code | text(1) | null |
| 6 | To Participant Code | text(4) | null |
| 7 | Creation Time | date/time | Time of file generation |

| **SEL - Selection Criteria** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =SEL |
| 2 | Criteria title | text(80) |  |
| 3 | Criteria value | text(80) |  |

| **Check Data Collector Data Exception Log** |
| --- |
| Check Data Collector Data Exception Log details can be found in the NCD sub-system |

| **ZPT - File Trailer** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZPT |
| 2 | Record count | integer(10) | Number of records in file, including the headers and footer |
| 3 | Checksum | integer(10) |  |

Repeating Structure of File:

NBR CDV ::= ZHD SEL {SEL} <Check DC Data Log> ZPT

Sorting:

The order of records in the file will be that in which they appear in the Data Collector Exception file from which they are extracted. Additionally, note that the EXH record will always contain totals for all exception types and all metering systems regardless of any selection criteria specified.

### Aggregation Exception Log

#### Input Parameters

The following parameters will be passed to the report using the parameter entry Form:

| Parameter | Parameter Type |
| --- | --- |
| Filename | Single File Name  Mandatory |
| Path | Single Path  Mandatory |

#### Physical Access

The following tables will need to be accessed in order to retrieve data for the main body of the report:

| Tables | Columns |
| --- | --- |
| N/A as information is stored in an Operating System File. |  |

#### Physical Design

Using the parameters passed into the report, the process will use Operating System functionality to create a machine readable file of the Aggregation Exception Log. This report will contain exception data across all partitions for the selected Aggregation run, and not just the exceptions contained in the selected exceptions file.

The User name and query criteria will only be displayed on the first page of the report. The Report Title, Organisation, Time of Report Run and column headings for repeating groups and context information will be displayed on each page of the report.

#### User Roles

Exception Administrator, Auditor

#### Structure

##### Human Readable Report Layout

Aggregation Exception Log-Rpt XXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY HH:MM GMT

User

XXXXXXXX

Metering System

XXXXXXXXXXXXX

Exception Type

XXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Settlement Settlement Run Run

Date Code Code Number

========== ========== ======= =======

DD/MM/YYYY XX D 9999999

Metering System

===============

XXXXXXXXXXXXX

A01 Appointed Data Collector XXXX

Registration From Settlement Date DD/MM/YYYY

Data Collector Appointment From Calendar Date DD/MM/YYYY

A02 Data Collector XXXX

Data Collector Data From Settlement Date DD/MM/YYYY

A03 Data Collector XXXX

Meter Advance Period From Settlement Date DD/MM/YYYY

A04 Meter Advance Period From Settlement Date DD/MM/YYYY

Data Collector XXXX

A05 Data Collector XXXX

Supplier according to PRS XXXX

Supplier according to Data Collector XXXX

PRS Data From Settlement Date DD/MM/YYYY

Data Collector From Settlement Date DD/MM/YYYY

A06 Data Collector XXXX

Measurement Class according to PRS X

Measurement Class according to Data Collector X

PRS Data From Settlement Date DD/MM/YYYY

Data Collector From Settlement Date DD/MM/YYYY

A07 Data Collector XXXX

GSP Group according to PRS XX

GSP Group according to Data Collector XX

PRS Data From Settlement Date DD/MM/YYYY

Data Collector From Settlement Date DD/MM/YYYY

A08 Data Collector XXXX

Profile Class according to PRS XX

Profile Class according to Data Collector XX

PRS Data From Settlement Date DD/MM/YYYY

Data Collector From Settlement Date DD/MM/YYYY

A09 Data Collector XXXX

Energisation Status according to PRS X

Energisation Status according to Data Collector X

PRS Data From Settlement Date DD/MM/YYYY

Data Collector From Settlement Date DD/MM/YYYY

A10 Data Collector XXXX

SSC according to PRS XXXX

SSC according to Data Collector XXXX

PRS Data From Settlement Date DD/MM/YYYY

Data Collector From Settlement Date DD/MM/YYYY

A11 Data Collector XXXX

Meter Advance Period From Settlement Date DD/MM/YYYY

A12 Metering System Excluded XXXXXXXXXXXXX

A12 Supplier XXXX

A12 Supplier effective from settlement date DD/MM/YYYY

A12 Data Aggregator Appointment effective from settlement date DD/MM/YYYY

A13 GSP Group ID XX

Profile Class ID XX

SSC ID XXXX

Time Pattern Regime Id XXXXX

Metering System Default Count XXXXXXX

A14 GSP Group ID XX

Profile Class ID XX

Metering System Default Count XXXXXXX

##### Machine Readable Layout

| **ZHD - File Header** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZHD |
| 2 | File Type | text(8) | =L0034001 |
| 3 | From Role Code | text(1) | =B (Non half hourly data aggregator) |
| 4 | From Participant Code | text(4) | market participant id of the non half hourly data aggregator |
| 5 | To Role Code | text(1) | null |
| 6 | To Participant Code | text(4) | null |
| 7 | Creation Time | date/time | Time of file generation |

| **SEL - Selection Criteria** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =SEL |
| 2 | Criteria title | text(80) |  |
| 3 | Criteria value | text(80) |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **SPD - Data File Additional Header** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = SPD |
| 2 | Settlement Date | date | copied from ZPD record of Aggregation Exception Log file |
| 3 | Settlement Code | text(2) | copied |
| 4 | Run Type Code | text(2) | copied |
| 5 | Run Number | integer(7) | copied |
| 6 | GSP Group | text(2) | copied |

| **Aggregation Exception Log** |
| --- |
| Aggregation Exception Log details can be found in the NAR sub-system |

| **ZPT - File Trailer** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZPT |
| 2 | Record count | integer(10) | Number of records in file, including the headers and footer |
| 3 | Checksum | integer(10) |  |

Repeating Structure of Report File:

NBR CDV ::= ZHD SEL {SEL} SPD <Aggregation Exception Log> ZPT

Sorting:

For reports which only include exception type A12 (“Metering System Excluded due to missing DC or PRS details”):The order of records in this file will be sorted by Supplier ID.

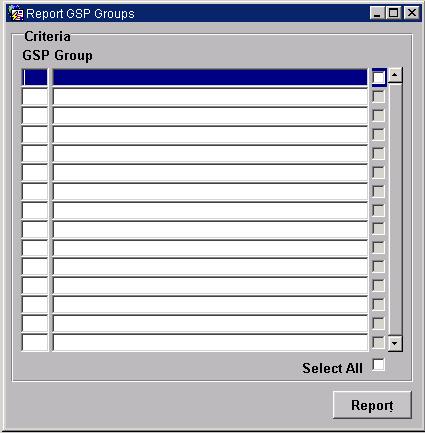
For all other reports:

The order of records in this file will be that of the original log.

## Report GSP Groups

### Form

#### Screen layout



#### Screen behaviour

A list of GSP Group Ids and Names is displayed. The user selects one, a range, or all of them to report. The GSP Group Id and name are reported along with the associated Distribution Businesses and appointed ISR Agents.

Specific GSP Groups to be reported on are identified by using Forms ‘enter query’ mode or via a list of values.

### Report

#### Description

This report is invoked by an NHHDA user to allow reporting of the set of valid GSP Groups and their associated Distributor details and ISR Agent Appointments.

#### Input Parameters

The following parameters will be passed to the report using the parameter entry Form:

| Parameter | Parameter Type |
| --- | --- |
| GSP Group Id | Range of GSP Group Ids  Non-Mandatory |

#### Physical Access

The following tables will need to be accessed in order to retrieve data for the main body of the report:

| Tables | Columns |
| --- | --- |
| ndb\_gsp\_groups | gsp\_group\_id  gsp\_group\_name |
| ndb\_isr\_agent\_apps | isr\_participant\_id  gsp\_group\_id  eff\_from\_date  eff\_to\_date |
| ndb\_gsp\_groups\_dis | dis\_participant\_id  gsp\_group\_id  eff\_from\_settlement\_date  eff\_to\_settlement\_date |
| ndb\_m\_participants  (for Distributor, ISR Agent, PRS Agent) | participant\_id  participant\_name |

#### Physical Design

This report will use the standard report template.

A list of GSP Group Ids is displayed. The user selects one, a range, or all of them to report.

The GSP Group Id and Name are reported along with all associated Distributor Details and ISR Agent Appointment Details.

The report will be ordered on GSP Group Id for GSP Groups, Effective From Settlement Date (descending) for Distributors and Effective From Date (descending) for ISR Agent Appointments.

The User name and query criteria will only be displayed on the first page of the report. The Report Title, Organisation, Time of Report Run and column headings for repeating groups and context information will be displayed on each page of the report.

#### User Roles

Exception Administrator, Auditor

### Structure

#### Human Readable Report Layout

GSP Groups and Ass Items XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY HH:MM GMT

User

XXXXXXXX

GSP Group

== ==============================

XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Distributor Details

Distributor From Settlement Date To Settlement Date

==== ======================================== ==================== ------------------

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY DD/MM/YYYY

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY DD/MM/YYYY

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY DD/MM/YYYY

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY DD/MM/YYYY

ISR Agent Appointments

ISR Agent From Calendar Date To Calendar Date

==== ======================================== ================== ================

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY DD/MM/YYYY

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY DD/MM/YYYY

#### Machine Readable Layout

| **ZHD - File Header** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZHD |
| 2 | File Type | text(8) | =L0011001 |
| 3 | From Role Code | text(1) | =B (Non half hourly data aggregator) |
| 4 | From Participant Code | text(4) | market participant id of the non half hourly data aggregator |
| 5 | To Role Code | text(1) | null |
| 6 | To Participant Code | text(4) | null |
| 7 | Creation Time | date/time | Time of file generation |

| **SEL - Selection Criteria** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =SEL |
| 2 | Criteria title | text(80) |  |
| 3 | Criteria value | text(80) |  |

| **GSP - GSP Group** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =GSP |
| 2 | GSP Group Id | text(2) |  |
| 3 | GSP Group Name | text(30) |  |

| **DIS - Distributor** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =DIS |
| 2 | Distributor Id | text(4) |  |
| 3 | Distributor Name | text(40) |  |
| 4 | Effective From Settlement Date | date |  |
| 5 | Effective To Settlement Date | date |  |

| **ISR - ISR Agent Appointments** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =DIS |
| 2 | ISRA Id | text(4) |  |
| 3 | ISRA Name | text(40) |  |
| 4 | Effective From Settlement Date | date |  |
| 5 | Effective To Settlement Date | date |  |

| **ZPT - File Trailer** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZPT |
| 2 | Record count | integer(10) | Number of records in file, including the headers and footer |
| 3 | Checksum | integer(10) |  |

Repeating structure of Report File:

NBR GSP Groups ::= ZHD SEL {SEL} GSP\_set {GSP\_set} ZPT

GSP\_set ::= GSP {DIS} {ISR}

Sorting:

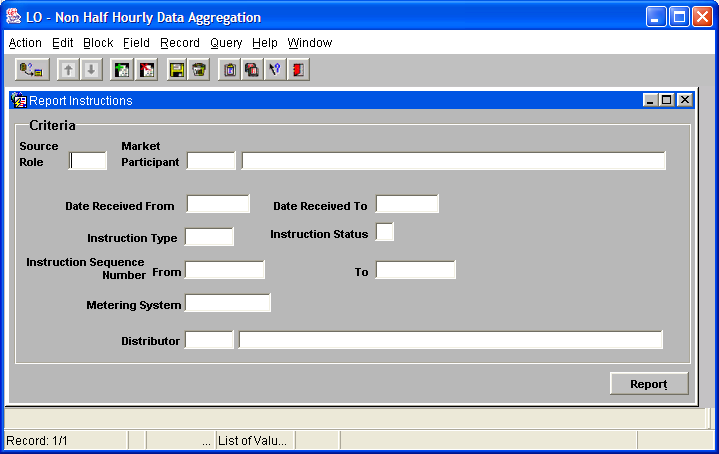
The records in the file are sorted by:

1. GSP Group Id
2. Distributor Effective From Settlement Date (within GSP Group) (descending)
3. ISR Appointment Effective From Settlement Date (within GSP Group) (descending)

## Report Instruction

### Form

#### Screen layout



#### Screen behaviour

This form is invoked by an NHHDA user to allow reporting of instructions received by the system. The user will enter the appropriate query criteria and press the report button to invoke the “Report Instructions” Report.

The user may select any combination of the following:

1. Instruction Source and sequence number range
2. Received date range
3. Instruction type
4. Instruction Subject (instruction subjects are all metering systems, except for the “PRS Refresh” instruction which acts on a Distribution Business)
5. Instruction Status

Enterable fields are:-

1. Source (id) which must be a valid market participant id, the Source name is automatically completed by the system. A list of valid values is available.
2. Sequence Number which must be a valid positive number
3. Date Received range which must be equal to or earlier than today’s date and in standard date format
4. Instruction type which must be a valid type, a lists of valid values is provided.
5. Instruction status which must be selected from the drop down list.
6. Metering system which must be a valid metering system id.
7. Distributor id which must be a valid distributor id.

The user has the option of entering a Metering System Id or a Distributor Id since they are both mutually exclusive in this context (Note that if both a Metering System and a Distribution Business are entered, only non-refresh instructions will be included, furthermore the report will be empty if the metering system is not associated with the specified Distribution Business).

To run the report the user presses the Report button.

### Report

#### Description

This report is invoked by a NHHDA user, reporting instructions and any related instruction reasons associated with that instruction.

#### Input Parameters

The following parameters will be passed to the report using the generic parameter entry Form:

| Parameter | Parameter Type |
| --- | --- |
| Instruction Source | Single Instruction Source  Non-Mandatory |
| Instruction Sequence Number | Range of Sequence Numbers  Non-Mandatory |
| Received Date | Range of Dates  Non-Mandatory |
| Instruction Type | Single Instruction Type  Non-Mandatory |
| Instruction Subject | Single Instruction Subject  Non-Mandatory |
| Instruction Status | Single Instruction Status  Non-Mandatory |

#### Physical Access

The following tables will need to be accessed in order to retrieve data for the main body of the report:

| Tables | Columns |
| --- | --- |
| ndb\_instructions | instr\_seq\_no  file\_id  instr\_stat  metering\_system\_id  instr\_type  dist\_participant\_id  significant\_date |
| cdb\_ref\_values | description  domain\_code |
| cdb\_file\_reference | file\_id  received\_time  market\_role  participant\_id |
| ndb\_instruction\_status\_reason | instr\_seq\_no  instr\_stat\_reason  instr\_stat\_data  data\_agg\_action\_state |

#### Physical Design

This report will use the standard report template.

For each instruction meeting the selection criteria, the following items are displayed: date received, source, sequence number, instruction type, subject (metering system id or distributor Id and name), significant date and instruction status (note: instruction type and instruction state codes will be translated to meaningful names).

Also all instruction reasons will be displayed for each instruction, this will include instruction status reason, instruction status date, data aggregation action state (note: instruction status reason codes will be translated to meaningful names).

The report will be ordered by Date Received (descending).

The report header will only be displayed on the first page of the report. Column headings for repeating groups and context information will be displayed on each page of the report.

#### User Roles

Exception Administrator, Auditor

### Structure

#### Human Readable Report Layout

Instructions XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY HH:MM GMT

User

XXXXXXXX

Instruction Source

XXX XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Date Received From

DD/MM/YYYY

Date Received To

DD/MM/YYYY

Instruction Type

XXXXXXXXXX

Instruction Status

XXXXXXXXXX

Instruction Sequence From

XXXXXXXXXXXX

Instruction Sequence To

XXXXXXXXXXXX

Metering System

XXXXXXXXXXXXX

Distributor

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Date Source Sequence Type Status Significant Date Subject

========== ================================= ============ ========== ========== ================ ===========

DD/MM/YYYY XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXX XXXXXXXXXX XXXXXXXXXX DD/MM/YYYY XXXXXXXXXXX

Status Reason XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX Action State XXXXXXXXXXXXXXXXXXXXXXXXX

Status Reason XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX Action State XXXXXXXXXXXXXXXXXXXXXXXXX

Status Reason XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX Action State XXXXXXXXXXXXXXXXXXXXXXXXX

Status Reason XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX Action State XXXXXXXXXXXXXXXXXXXXXXXXX

#### Machine Readable Layout

| **ZHD - File Header** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZHD |
| 2 | File Type | text(8) | =L0016001 |
| 3 | From Role Code | text(1) | =B (Non half hourly data aggregator) |
| 4 | From Participant Code | text(4) | market participant id of the non half hourly data aggregator |
| 5 | To Role Code | text(1) | null |
| 6 | To Participant Code | text(4) | null |
| 7 | Creation Time | date/time | Time of file generation |

| **SEL - Selection Criteria** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =SEL |
| 2 | Criteria title | text(80) |  |
| 3 | Criteria value | text(80) |  |

| **INS - Instructions** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record type | text(3) | =INS |
| 2 | date received | date |  |
| 3 | source | text(33) |  |
| 4 | sequence no | integer(12) |  |
| 5 | Instruction Type | text(10) |  |
| 6 | Instruction Status | text(10) |  |
| 7 | Significant Date | date |  |
| 87 | Subject | text(11) | Metering System Id or Distributor Id and Name |

| **INR - Instruction Reasons** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record type | text(3) | =INR |
| 2 | Instruction Status Reason | text(40) | Description of instruction status reason from cdb\_ref\_values (INSR) |
| 3 | Instruction Status Data | text(40) | If database field exceeds 40 a second INR record is required - this will contain the additional text. In this case the other fields in this record will be null |
| 4 | Data Aggregation Action State | text(50) |  |

| **ZPT - File Trailer** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZPT |
| 2 | Record count | integer(10) | Number of records in file, including the headers and footer |
| 3 | Checksum | integer(10) |  |

Repeating structure of Report File:

NBR IP ::= ZHD SEL {SEL} {INS {INR}} ZPT

Sorting:

The records in the file are sorted by:

1. Market Role (DC / PRS)
2. Participant Id
3. Instruction Sequence Number (descending)

## Report Line Loss Factor Class (obsolete)

Note that this report has been combined with Report Distributors and Associated Items (see Section 10.5)

## Report Metering System and Associated Items

### Form

#### Screen layout



#### Screen behaviour

This function is invoked by the NHHDA user to allow reporting of all the information held about a Metering System for a selected settlement date.

The user enters a Metering System and Settlement Date for which they wish to see the information.

The supplier Registration in effect for the Metering System on the entered date is determined and a list of all the Data Collectors appointed during the Registration is displayed and the user selects one to report.

A report is produced when the user presses the report button reporting the items associated to the Metering System on the Date according to the PRS Agent and the specified Data Collector. (Report Metering Systems and Associated Items).

Once a list of Data Collectors has been retrieved the user is allowed to select only one Data Collector to report on.

### Report

#### Description

This function is invoked by the NHHDA user to allow reporting of all the information held about a Metering System for a selected settlement date.

A report is produced reporting the items associated to the Metering System on the Date according to the PRS Agent and the specified Data Collector.

#### Input Parameters

The following parameters will be passed to the report using the parameter entry Form:

| Parameter | Parameter Type |
| --- | --- |
| Metering System Id | Single Metering System  Mandatory |
| Date (for Supplier Registration) | Single Date  Mandatory |
| Data Collector Id | Single Data Collector  Mandatory |

#### Physical Access

The following tables will need to be accessed in order to retrieve data for the main body of the report:

| Tables | Columns |
| --- | --- |
| ndb\_std\_sett\_cfgs | std\_sett\_config\_id  configuration\_desc |
| ndb\_vsscpcs | profile\_class\_id  std\_sett\_config\_id |
| ndb\_profile\_classes | profile\_class\_id  profile\_class\_desc |
| ndb\_measure\_reqs | std\_sett\_config\_id  t\_p\_regime\_id |
| ndb\_gsp\_groups | gsp\_group\_id  gsp\_group\_name |
| ndb\_av\_frac\_y\_cons | av\_frac\_y\_cons  eff\_from\_sett\_date  gsp\_group\_id  profile\_class\_id  std\_sett\_config\_id  t\_p\_regime\_id |

#### Physical Design

This report will use the standard report template.

A list of Metering System Ids is displayed, and the user selects one to report. (The use of wildcards is available to limit the number of Metering System Ids returned).

The user also enters the date for which they wish to see the information.

The supplier Registration in effect for the Metering System on the entered date is determined and a list of all the Data Collectors appointed during the Registration is displayed and the user selects one to report.

The output consists of the Metering System Id, Supplier Id and Name and Data Collector Id and Name, together with details of the entities selected below. One occurrence of each of the following entities is selected, where its effective date is the latest one prior or equal to the entered date:

Settlement Configuration & Settlement Configuration (DC) Metering System Profile Class and Metering System Profile Class (DC)

Metering System Line Loss Factor Class

Metering System GSP Group and Metering System GSP Group (DC)

Metering System Energisation Status and Metering System Energisation Status (DC)

Metering System Measurement Class and Metering System Measurement Class (DC)

Registration and Registration (DC) (Registration already selected).

Ordering is in alphabetical order for each item, Data Aggregator Appointments and Data Collector Appointments will be in Date Effective From (descending) order.

The User name and query criteria will only be displayed on the first page of the report. The Report Title, Organisation, Time of Report Run and column headings for repeating groups and context information will be displayed on each page of the report.

#### User Roles

Exception Administrator, Market Domain Data Administrator

### Structure

#### Human Readable Report Layout

MS and Associated Items XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY HH:MM GMT

User

XXXXXXXX

Metering System

XXXXXXXXXXXXX

Settlement Date

DD/MM/YYYY

Data Collector

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Source Item

Item Role Id Description

========================= ====== ==== ========================================

GSP Group PRS XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

DC XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Supplier PRS XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

DC XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Profile Class PRS XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

DC XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

SSC PRS XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

DC XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Measurement Class PRS X XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

DC X XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Energisation Status PRS X XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

DC X XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Line Loss Factor Class PRS XXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Distributor PRS XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

#### Machine Readable Layout

| **ZHD - File Header** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZHD |
| 2 | File Type | text(8) | =L0015001 |
| 3 | From Role Code | text(1) | =B (Non half hourly data aggregator) |
| 4 | From Participant Code | text(4) | market participant id of the non half hourly data aggregator |
| 5 | To Role Code | text(1) | null |
| 6 | To Participant Code | text(4) | null |
| 7 | Creation Time | date/time | Time of file generation |

| **SEL - Selection Criteria** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =SEL |
| 2 | Criteria title | text(80) |  |
| 3 | Criteria value | text(80) |  |

| **MSD - Metering System Detail** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =MSD |
| 2 | Item Name | text(25) | Optional - null if same as previous record |
| 3 | View | text(3) | "PRS" or "DC" |
| 4 | Id | text(4) | of Item |
| 5 | Description or Name | text(50) | of Item |

| **ZPT - File Trailer** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZPT |
| 2 | Record count | integer(10) | Number of records in file, including the headers and footer |
| 3 | Checksum | integer(10) |  |

Repeating structure of Report File:

NBR MS ::= ZHD SEL {SEL} {MSD} ZPT

Sorting:

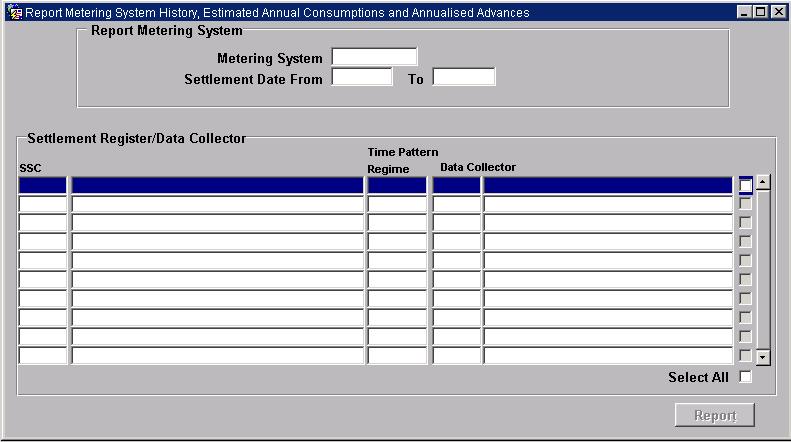
The records in the file are ordered as follows:

1. GSP Group PRS
2. GSP Group DC
3. Supplier PRS
4. Supplier DC
5. Profile Class PRS
6. Profile Class DC
7. SSC PRS
8. SSC DC
9. Measurement Class PRS
10. Measurement Class DC
11. Energisation Status PRS
12. Energisation Status DC
13. Line Loss Factor Class PRS
14. Distributor (second part of key of Line Loss Factor Class)

## Report Metering System History, EACs and AAs

### Form

#### Screen layout



#### Screen behaviour

This form allows an NHHDA user to report on Metering System History, Estimated Annual Consumptions and Annualised Advances.

The user enters a Metering System and Settlement Date From and To in the first block which returns a list of Settlement Register and Data Collector combinations for the Metering System entered.

The user then selects one, a range, or all Settlement Register / Data Collector combinations by clicking the corresponding check-box(es) or Select All and then presses the report button which passes parameters to the ‘Report Metering System History, EACs and AAs’ report. If no Settlement Register/Data Collector details are retrieved, although Metering System History data is present, the report is generated as normal, including the Settlement Register/Data Collector titles. In this instance the Settlement Register/Data Collector titles are shown but without any data.

#### Description

The first block is a Control block which consists of the Metering System item, Settlement Date From and To.

The second block is based on the NDB\_REGISTER\_CONS table and consists of the following database columns: Standard Settlement Configuration, Time Pattern Regime and Data Collector.

#### Form structure

|  |  |
| --- | --- |
| **Field Name** | **Description** |
| **Block:** *REG\_CONS* | **Table:** NDB\_REGISTER\_CONS |
| *Standard Settlement Configuration Id* | (std\_sett\_config\_id)  Base-table, queriable |
| *Configuration Description* | Non-base table lookup (NDB\_M\_PARTICIPANTS) of Standard Settlement Configuration Id.  Non-base table, non-updatable |
| *Time Pattern Regime Id* | (t\_p\_regime\_id)  Base-table, queriable, insert allowed |
| *Data Collector Id* | (dc\_participant\_id)  Base-table, queriable |
| *Data Collector Name* | Non-base table lookup (NDB\_M\_PARTICIPANTS) of Data Collector Name  Non-base table, non-updatable |
| *Metering System* | Number item, Non-Base Table, Number, Mandatory, Enterable, Query disallowed. |

#### Action on Form Load

None. Default Forms functionality.

#### Action on Query

Disabled

#### Action on Update

Disabled

#### Action on Insert

Disabled

#### Action on Delete

Disabled

#### Action on Button

Report\_But

This button has a WHEN\_BUTTON\_PRESSED trigger associated with it. This trigger will pass the parameters for reporting to the ‘Report Metering System History, EACs and AAs’ report.

### Report

#### Description

This form allows an NHHDA user to report on Metering System Estimated Annual Consumptions and Annualised Advances.

#### Input Parameters

The following parameters will be passed to the report using the parameter entry Form:

| Parameter | Parameter Type |
| --- | --- |
| Metering System Id | Metering System for which EACs and AAs will be reported.  Mandatory |
| Settlement date From | Settlement Date (lowest of range) from which to report  Mandatory |
| Settlement date To | Settlement Date (highest of range) to which to report  Mandatory |
| Standard Settlement Configuration Id | Standard Settlement Configuration Id which is part of the Settlement Register selected by the user.  Optional |
| Time Pattern Regime Id | Time Pattern Regime Id which is part of the Settlement Register selected by the user.  Optional |
| Data Collector Id | Data Collector assigned to the chosen Settlement Register  Optional |

#### Physical Access

The following tables will need to be accessed in order to retrieve data for the main body of the report:

| Tables | Columns |
| --- | --- |
| ndb\_register\_cons | Metering System Id |
|  | std\_sett\_config\_id |
|  | t\_p\_regime\_id |
|  | dc\_participant\_id |
|  | eff\_from\_sett\_date |
|  | eff\_to\_sett\_date |
|  | EAC |
|  | AA |
| ndb\_m\_participants | participant\_id |
|  | participant\_name |
|  | dist\_short\_code |
| ndb\_metering\_sys\_x | metering\_system\_id |
| ndb\_ms\_prs\_dets\_x | energisation\_stat  gsp\_group\_id  llf\_class\_id  measure\_class\_id  profile\_class\_id  std\_sett\_config\_id |
| ndb\_ms\_dc\_dets\_x | energisation\_stat  gsp\_group\_id  llf\_class\_id  measure\_class\_id  profile\_class\_id  std\_sett\_config\_id |
| ndb\_registrations | eff\_from\_sett\_date  metering\_system\_id  sup\_participant\_id |
| ndb\_gsp\_groups | gsp\_group\_id  gsp\_group\_name |
| ndb\_llf\_classes | llf\_class\_id  llf\_class\_desc  dis\_participant\_id |
| ndb\_profile\_classes | llf\_class\_id  llf\_class\_desc |
| ndb\_data\_agg\_apps | metering\_system\_id  eff\_from\_sett\_date  eff\_to\_sett\_date  supp\_eff\_fr\_sett\_dt |
| ndb\_dc\_apps | sup\_eff\_fr\_sett\_dt  metering\_system\_id  eff\_from\_date  dc\_partition\_id |

#### Physical Design

This report will use the standard report template.

When reporting only on a metering system’s history, the report will display GSP Group, Supplier, Profile Class, Standard Settlement Configuration, Measurement Class, Energisation Status, Line Loss factor Class and Distributor for the Metering System and Settlement Date range entered by the user.

When reporting on EACs and AAs, once the user has entered the report criteria (Metering System Id and Settlement Register / Data Collector combination) the report output will consist of the Metering System’s History data as above, and the Settlement Date Effective, Settlement Date To, Annualised Advance and Estimated Annual Consumption.

The User name and query criteria will only be displayed on the first page of the report. The Report Title, Organisation, Time of Report Run and column headings for repeating groups and context information will be displayed on each page of the report.

#### User Roles

Exception Administrator, Auditor

### Structure

#### Human Readable Report Layout

MS History, EACs and AAs XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY HH:MM GMT

User

XXXXXXXX

Metering System

XXXXXXXXXXXXX

Settlement Date From

DD/MM/YYYY

Settlement Date To

DD/MM/YYYY

Time

Standard Settlement Configuration Pattern Data Collector

==== ================================================== ======= ==== ========================================

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXX XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Settlement Date To Annualised Estimated Annual

Effective Settlement Date Advance (Kwh) Consumption (KWh)

=============== =============== ============= =================

DD/MM/YYYY DD/MM/YYYY 99999999999.9 99999999999.9

DD/MM/YYYY DD/MM/YYYY 99999999999.9 99999999999.9

DD/MM/YYYY DD/MM/YYYY 99999999999.9 99999999999.9

DD/MM/YYYY DD/MM/YYYY 99999999999.9 99999999999.9

Source From

Role Id Name Settlement Date GSP Group

==== ==== ============================== =============== == ==============================

PRS XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

DC XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

DC XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

PRS XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

DC XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Source From

Role Id Name Settlement Date Supplier

==== ==== ============================== =============== ==== ========================================

PRS XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

DC XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

DC XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

DC XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

PRS XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

DC XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

DC XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Appointments for Registration starting DD/MM/YYYY

Data Aggregator Appointments

From To

Settlement Date Settlement Date

=============== ===============

DD/MM/YYYY DD/MM/YYYY

DD/MM/YYYY DD/MM/YYYY

DD/MM/YYYY DD/MM/YYYY

DD/MM/YYYY DD/MM/YYYY

Data Collector Appointments

Data Collector From Calendar Date

==== ============================== ==================

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY

Source From

Role Id Name Settlement Date Profile Class

==== ==== ============================== =============== == =============================================

PRS XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

DC XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Source From

Role Id Name Settlement Date Standard Settlement Configuration

==== ==== ============================== =============== ==== =============================================

PRS XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

DC XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Source From

Role Id Name Settlement Date Measurement Class

==== ==== ============================== =============== = ==============================

PRS XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY X XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

DC XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY X XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Source From

Role Id Name Settlement Date Energisation Status

==== ==== ============================== =============== = ==============================

PRS XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY X XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

DC XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY X XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Source

Role Id Name

==== ==== ==============================

PRS XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Effective

From Date LL Description Distributor

========== == ============================== ==== ==============================

DD/MM/YYYY XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Note that this report does *not* output any selection criteria in the report header apart from the metering system id. The headings containing Standard Settlement Configuration, Time Pattern Regime Id and Data Collector appear for each selected item and their presence implies that they were selected.

#### Machine Readable Layout

| **ZHD - File Header** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZHD |
| 2 | File Type | text(8) | =L0044001 |
| 3 | From Role Code | text(1) | =B (Non half hourly data aggregator) |
| 4 | From Participant Code | text(4) | market participant id of the non half hourly data aggregator |
| 5 | To Role Code | text(1) | null |
| 6 | To Participant Code | text(4) | null |
| 7 | Creation Time | date/time | Time of file generation |

| **SEL - Selection Criteria** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =SEL |
| 2 | Criteria title | text(80) |  |
| 3 | Criteria value | text(80) |  |

| **MEH - Metering EAC/AA Header** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =MEH |
| 2 | Standard Settlement Configuration Id | text(4) |  |
| 3 | Standard Settlement Configuration Description | text(50) |  |
| 4 | Time Pattern Regime Id | text(5) |  |
| 5 | Data Collector Id | text(4) |  |
| 6 | Data Collector Name | text(40) |  |

| **MAA - Metering System Annualised Advance or Estimated Annual Consumption** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =MAA |
| 2 | Effective From Settlement Date | date | Optional - null if same as previous record |
| 3 | Effective To Settlement Date | date | null if record is an EAC |
| 4 | Annualised Advance | decimal (12,1) | null if record is an EAC |
| 5 | Estimated Annual Consumption | decimal (12,1) | null if record is an AA |

| **MGG - Metering System GSP Groups** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =MGG |
| 2 | Source Role | text(3) | "PRS" or "DC" |
| 3 | Source Id | text(4) |  |
| 4 | Source Name | text(40) |  |
| 5 | Effective From Settlement Date | date |  |
| 6 | GSP Group Id | text(2) |  |
| 7 | GSP Group Name | text(30) |  |

| **MSR - Metering System Supplier Registrations** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =MSR |
| 2 | Source Role | text(3) | "PRS" or "DC" |
| 3 | Source Id | text(4) |  |
| 4 | Source Name | text(40) |  |
| 5 | Effective From Settlement Date | date |  |
| 6 | Supplier Id | text(4) |  |
| 7 | Supplier Name | text(40) |  |

| **XXX - Metering System Data Separator** | | | |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =XXX |

| **MAH - Metering System Appointments Header** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =MAH |
| 2 | Registration Effective From Settlement Date | date |  |

| **MDA - Metering System Data Aggregator Appointments** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =MDA |
| 2 | Data Aggregator Appointment Effective From Settlement Date | date |  |
| 3 | Data Aggregator Appointment Effective To Settlement Date | date |  |

| **MCA - Metering System Data Collector Appointments** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =MCA |
| 2 | Data Collector Id | text(4) |  |
| 3 | Data Collector Name | text(40) |  |
| 4 | Data Collector Appointment Effective From Settlement Date | date |  |

| **MPC - Metering System Profile Classes** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =MPC |
| 2 | Source Role | text(3) | "PRS" or "DC" |
| 3 | Source Id | text(4) |  |
| 4 | Source Name | text(40) |  |
| 5 | Effective From Settlement Date | date |  |
| 6 | Profile Class Id | text(4) |  |
| 7 | Profile Class Description | text(50) |  |

| **MSC - Metering System Settlement Configurations** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =MSC |
| 2 | Source Role | text(3) | "PRS" or "DC" |
| 3 | Source Id | text(4) |  |
| 4 | Source Name | text(40) |  |
| 5 | Effective From Settlement Date | date |  |
| 6 | Standard Settlement Configuration Id | text(4) |  |
| 7 | Standard Settlement Configuration Description | text(50) |  |

| **MMC - Metering System Measurement Classes** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =MMC |
| 2 | Source Role | text(3) | "PRS" or "DC" |
| 3 | Source Id | text(4) |  |
| 4 | Source Name | text(40) |  |
| 5 | Effective From Settlement Date | date |  |
| 6 | Measurement Class Id | text(1) |  |
| 7 | Measurement Class Description | text(30) |  |

| **MES - Metering System Energisation Status** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =MES |
| 2 | Source Role | text(3) | "PRS" or "DC" |
| 3 | Source Id | text(4) |  |
| 4 | Source Name | text(40) |  |
| 5 | Effective From Settlement Date | date |  |
| 6 | energisation Status Id | text(1) |  |
| 7 | Energisation Status Description | text(30) |  |

| **MLP - Metering System Line Loss Factor Class PRS Agent** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =MLP |
| 2 | Source Role | text(3) | "PRS" or "DC" |
| 3 | Source Id | text(4) |  |
| 4 | Source Name | text(40) |  |

| **MLL - Metering System Line Loss Factor Classes** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =MLL |
| 2 | Effective From Settlement Date | date |  |
| 3 | Line Loss Factor Class Id | text (3) |  |
| 4 | Line Loss Factor Class Description | text(40) |  |
| 5 | Distributor Id | text(4) |  |
| 6 | Distributor Name | text(40) |  |

| **ZPT - File Trailer** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZPT |
| 2 | Record count | integer(10) | Number of records in file, including the headers and footer |
| 3 | Checksum | integer(10) |  |

Repeating structure of Report File:

NBR MS ::= ZHD SEL {SEL} ZPT

NBR MS History ::= ZHD SEL {SEL} {MEH {MAA}} {MGG} {MSR}  
 {XXX MAH {MDA} {MCA}} {MPC} {MSC}  
 {MMC} {MES} {MLP {MLL}} ZPT

Sorting:

The records in the file are sorted as follows:

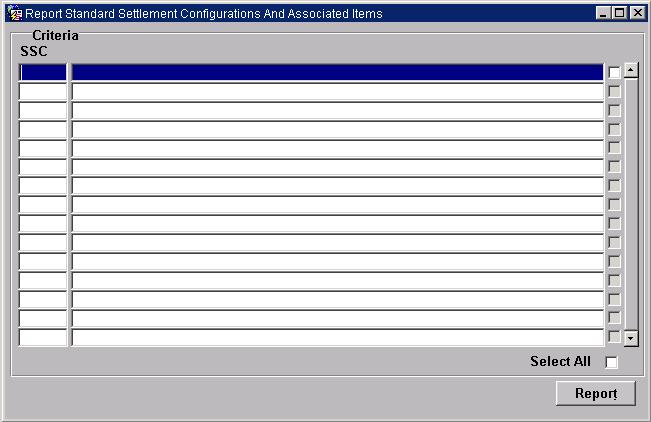
1. Standard Settlement Configuration Id
2. Time Pattern Regime Id
3. Data Collector Id
4. Consumption Effective From Settlement Date (descending)



## Report SSC and Associated Items

### Form

#### Screen layout



#### Screen behaviour

This function allows reporting of a set of Standard Settlement configurations with associated measurement requirements, valid settlement configuration profile classes and average fractions of yearly consumptions.

A list of standard settlement configuration Ids and descriptions is displayed. The user selects one, a range, or all of them to report.

Specific standard settlement configurations to be reported on are identified by using Forms ‘enter query’ mode or via a list of values.

This form is ordered by standard settlement configuration Ids.

### Report

#### Description

This report allows an NHHDA user to report a set of Standard Settlement Configurations with associated Measurement Requirements, Valid Settlement Configuration Profile Classes and Average Fractions of Yearly Consumptions.

#### Input Parameters

The following parameters will be passed to the report using the parameter entry Form:

| Parameter | Parameter Type |
| --- | --- |
| Standard Settlement Configuration Id | Range of Standard Settlement Configuration Ids  Non-Mandatory |

#### Physical Access

The following tables will need to be accessed in order to retrieve data for the main body of the report:

| Tables | Columns |
| --- | --- |
| ndb\_std\_sett\_cfgs | std\_sett\_config\_id  configuration\_desc |
| ndb\_vsscpcs | profile\_class\_id  std\_sett\_config\_id |
| ndb\_profile\_classes | profile\_class\_id  profile\_class\_desc |
| ndb\_measure\_reqs | std\_sett\_config\_id  t\_p\_regime\_id |
| ndb\_gsp\_groups | gsp\_group\_id  gsp\_group\_name |
| ndb\_av\_frac\_y\_cons | av\_frac\_y\_cons  eff\_from\_sett\_date  eff\_to\_sett\_date  gsp\_group\_id  profile\_class\_id  std\_sett\_config\_id  t\_p\_regime\_id |

#### Physical Design

This report will use the standard report template.

A list of Standard Settlement Class Ids is displayed. The user selects one, a range, or all of them to report.

For each selected Standard Settlement Configuration, the Id and Description are output. For each Valid Settlement Configuration Profile Class the Profile Class Id and Description are output. For each Measurement Requirement the Time Pattern Regime Id is output. All Average Fractions of Yearly Consumption are output, ordered by Profile Class, GSP Group, Time Pattern Regime and Effective From Settlement Date.

The report will be ordered by SSC Id, Profile Class Id for Valid Profile Classes, Time Pattern Regime for Valid Measurement Requirements and Profile Class Id, GSP Group id, and Effective From Date (descending) for the associated SSC items.

The User name and query criteria will only be displayed on the first page of the report. The Report Title, Organisation, Time of Report Run and column headings for repeating groups and context information will be displayed on each page of the report.

#### User Roles

Exception Administrator, Auditor

### Structure

#### Human Readable Report Layout

Standard Settlement Config XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY HH:MM GMT

User

XXXXXXXX

Standard Settlement Configuration

==== ==================================================

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Profile Class

== ==================================================

XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Measurement Requirements

(Time Pattern Regimes)

========================

XXXXX

XXXXX

XXXXX

Profile Time From To

Class GSP Group Pattern Settlement Date Settlement Date AFYC

======= == ============================== ======== =============== =============== ========

XX XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXX DD/MM/YYYY DD/MM/YYYY 0.999999

XXXXX DD/MM/YYYY DD/MM/YYYY 0.999999

XX XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXX DD/MM/YYYY DD/MM/YYYY 0.999999

XXXXX DD/MM/YYYY DD/MM/YYYY 0.999999

#### Machine Readable Layout

| **ZHD - File Header** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZHD |
| 2 | File Type | text(8) | =L0012001 |
| 3 | From Role Code | text(1) | =B (Non half hourly data aggregator) |
| 4 | From Participant Code | text(4) | market participant id of the non half hourly data aggregator |
| 5 | To Role Code | text(1) | null |
| 6 | To Participant Code | text(4) | null |
| 7 | Creation Time | date/time | Time of file generation |

| **SEL - Selection Criteria** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =SEL |
| 2 | Criteria title | text(80) |  |
| 3 | Criteria value | text(80) |  |

| **SSC - Standard Settlement Configuration** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =SSC |
| 2 | SSC Id | text(4) |  |
| 3 | SSC Description | text(50) |  |

| **VPC - Valid Profile Classes** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =VPC |
| 2 | Profile Class Id | integer(2) |  |
| 3 | Profile Class Description | text(50) |  |

| **VMR - Valid Measurement Requirements** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =VMR |
| 2 | Time Pattern Regime Id | text(5) |  |

| **AFY - Average Fraction of Yearly Consumption** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =AFY |
| 2 | Profile Class Id | integer(2) | Optional - null if same as previous record |
| 3 | GSP Group Id | text(4) | Optional - null if GSP group and Profile Class same as previous record |
| 4 | GSP Group Name | text(50) | Optional - null if GSP group and Profile Class same as previous record |
| 5 | Time Pattern Regime Id | text(5) | Optional - null if GSP group, Profile Class and Time Pattern Regime same as previous record |
| 6 | Effective From Settlement Date | date |  |
| 7 | Effective To Settlement Date | date |  |
| 8 | Average Fraction of Yearly Consumption | decimal (7,6) |  |

| **ZPT - File Trailer** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZPT |
| 2 | Record count | integer(10) | Number of records in file, including the headers and footer |
| 3 | Checksum | integer(10) |  |

Repeating structure of Report File:

NBR SSC ::= ZHD SEL {SEL} SSC\_set ZPT

SSC\_set ::= SSC {VPC} {VMR} {AFY}

Sorting:

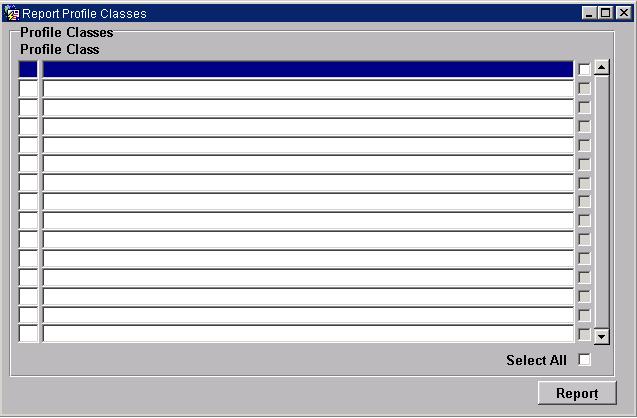
The records in the file are ordered as follows:

1. Standard Settlement Configuration Id
2. Profile Class Id (Profile Class within SSC)
3. Time Pattern Regime Id (Measurement Requirements within SSC)
4. Profile Class Id
5. GSP Group Id
6. Effective From Settlement Date (descending)
7. Time Pattern Regime Id

## Report Profile Class and Associated Items

### Form

#### Screen layout



#### Screen behaviour

This screen will allow an NHHDA user to report on Profile Classes and associated GSP group Researched Default EACs (Note that for historical reasons - CR487 - in the report, "Researched Default EAC" is referred to as "Average EAC"). It will invoke the ‘Report Profile Classes’ report.

The user will select one, a range or all profile classes listed by clicking on the corresponding check-box or by clicking on the ‘Select All’ check-box to select all Profile Classes.

Once the user is satisfied with their request they will then press the Report button which will invoke the Report Profile Classes report.

### Report

#### Description

This report will allow an NHHDA user to report on Profile Classes. The report will display each Profile Class and GSP Group Profile Class Average.

#### Input Parameters

The following parameters will be passed to the report using the parameter entry Form:

| Parameter | Parameter Type |
| --- | --- |
| Profile Class | The Profile Class the report is based on.  Mandatory |

#### Physical Access

The following tables will need to be accessed in order to retrieve data for the main body of the report:

| Tables | Columns |
| --- | --- |
| ndb\_profile\_classes | profile\_class\_id |
|  | profile\_class\_desc |
| ndb\_gspg\_pc\_av\_eac | gsp\_group\_id |
|  | profile\_class\_id |
|  | reasearched\_av\_eac |
|  | eff\_from\_sett\_date |
| ndb\_gsp\_groups | gsp\_group\_id |
|  | gsp\_group\_name |

#### Physical Design

This report will use the standard report template.

This report is based on three tables, NDB\_PROFILE\_CLASSES, NDB\_GSPG\_PC\_AV\_EAC and NDB\_GSP\_GROUPS. The report will display each Profile Class and Profile Class Description together with each GSP Group, Effective Settlement Date and Researched Default EAC.

The report will be ordered by Profile Class and GSP Group.

The User name and query criteria will only be displayed on the first page of the report. The Report Title, Organisation, Time of Report Run and column headings for repeating groups and context information will be displayed on each page of the report.

#### User Roles

Exception Administrator, Auditor

### Structure

#### Human Readable Report Layout

Profile Class XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY HH:MM GMT

User

XXXXXXXX

Profile Class

== ==================================================

XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

From Researched Average Estimated

GSP Group Settlement Date Annual Consumption (KWh)

== ============================== =============== =============================

XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY 99999999999.9

DD/MM/YYYY 99999999999.9

DD/MM/YYYY 99999999999.9

XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY 99999999999.9

XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY 99999999999.9

XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY 99999999999.9

XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY 99999999999.9

DD/MM/YYYY 99999999999.9

XX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY 99999999999.9

#### Machine Readable Layout

| **ZHD - File Header** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZHD |
| 2 | File Type | text(8) | =L0020001 |
| 3 | From Role Code | text(1) | =B (Non half hourly data aggregator) |
| 4 | From Participant Code | text(4) | market participant id of the non half hourly data aggregator |
| 5 | To Role Code | text(1) | null |
| 6 | To Participant Code | text(4) | null |
| 7 | Creation Time | date/time | Time of file generation |

| **SEL - Selection Criteria** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =SEL |
| 2 | Criteria title | text(80) |  |
| 3 | Criteria value | text(80) |  |

| **PCL - Profile Class** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =PCL |
| 2 | Profile Class Id | integer(2) |  |
| 3 | Profile Class Description | text(50) |  |

| **PCG - Profile Class GSP Group** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =PCG |
| 2 | GSP Group Id |  | Optional - null if same as previous record |
| 3 | GSP Group Name |  | Optional - null if same as previous record |
| 4 | Effective From Settlement Date | date |  |
| 5 | Researched Average Estimated Annual Consumption | decimal (12,1) |  |

| **ZPT - File Trailer** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZPT |
| 2 | Record count | integer(10) | Number of records in file, including the headers and footer |
| 3 | Checksum | integer(10) |  |

Repeating structure of Report File:

NBR PC ::= ZHD SEL {SEL} {PCL {PCG}} ZPT

Sorting:

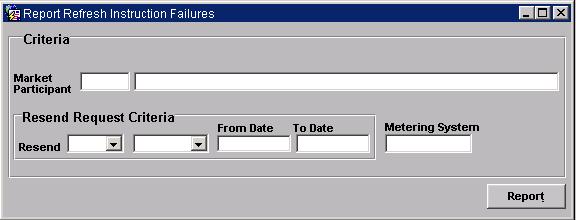
The records in the file are ordered as follows:

1. Profile Class Id
2. GSP Group Id
3. Effective From Settlement Date (descending)

## Report Refresh Instruction Failures

### Form

#### Screen layout



#### Screen behaviour

This form allows reporting of Refresh Instruction validation failures which are yet to be resolved.

On entry to the form, the user may enter zero or more of the following selection criteria.

1. Refresh Instruction source (a PRS Agent);
2. a subject Metering System Id.;
3. the status of the Resend Request Flag;
4. include or exclude Refresh Instruction Failures with a Resend Request Date between two given dates.

A lists of valid values is available for selecting the Instruction source (a PRS Agent). The Resend Request Flag criteria is set using a list box, as is the include/exclude option of the Resend Request Date criteria.

Having entered the required selection criteria, the user may press the ‘Report’ button to invoke the ‘Refresh Instruction Failures’ report.

### Report

#### Description

The report details Refresh Instruction validation failures and the reasons for those failures.

#### Input Parameters

The following parameters are passed to the report.

| **Parameter** | **Parameter Type** |
| --- | --- |
| Instruction Source | Single Instruction source (PRS Agent)  Optional |
| Subject Metering System | Single Metering System Id.  Optional |
| Resend Request Flag | Single Resend Request Flag state  Optional |
| Include/Exclude Resend Request Date Range | Single include/exclude flag and a date range  Optional |

#### Physical Access

The following tables need to be accessed in order to retrieve data for the main body of the report.

| **Table** | **Column(s)** |
| --- | --- |
| cdb\_file\_reference | file\_id  market\_role  participant\_id |
| ndb\_refresh\_instr\_failure | file\_id  metering\_system\_id  instr\_seq\_no  significant\_date  resend\_request\_flag  resend\_request\_date |
| ndb\_refr\_instr\_failure\_reason | file\_id  metering\_system\_id  seq\_no  instr\_stat\_reason  instr\_stat\_data  include\_flag |

#### Physical Design

This report will use the standard report template.

For each Refresh Instruction validation failure meeting the selection criteria, the following items are shown.

1. Instruction source.
2. Instruction sequence number.
3. Significant Date.
4. Subject Metering System Id.
5. Resend Request Date (if applicable).

This information will be followed by a list of validation failure reasons consisting of the following items.

1. Failure reason (translated to meaningful name from internal 2-character code format).
2. The failure reason’s additional data.
3. Include Reason Flag status

The report header will only be displayed on the first page of the report. Column headings for repeating groups and context information will be displayed on each page of the report.

#### User Roles

Exception Administrator

Auditor

### Structure

#### Human Readable Report Layout

Refresh Instruction Failures XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY HH:MM GMT

User

XXXXXXXX

Instruction Source

XXX XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Metering System

XXXXXXXXXXXXX

Resend Request Flag

X

Resend Request Date

XXXXXXX From DD/MM/YYYY To DD/MM/YYYY

Source Sequence Significant Date Subject Resend Request Date

=============================================== ============ ================ ============= ===================

XXX XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXX DD/MM/YYYY XXXXXXXXXXXXX DD/MM/YYYY

Failure Reason XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX Include X

Failure Reason XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX Include X

Failure Reason XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX Include X

Failure Reason XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX Include X

#### Machine Readable Layout

| **ZHD - File Header** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZHD |
| 2 | File Type | text(8) | =L0042001 |
| 3 | From Role Code | text(1) | =B |
| 4 | From Participant Code | text(4) | Market Participant Id of the Non-Half Hourly Data Aggregator |
| 5 | To Role Code | text(1) | NULL |
| 6 | To Participant Code | text(4) | NULL |
| 7 | Creation Time | date/time | Time of file generation |

| **SEL - Selection Criteria** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =SEL |
| 2 | Criteria title | text(80) |  |
| 3 | Criteria value | text(80) |  |

| **RIF - Refresh Instruction Failure** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =RIF |
| 2 | Instruction Source | text(33) | a PRS Agent |
| 3 | Instruction Sequence No. | integer(12) |  |
| 4 | Significant Date | date |  |
| 5 | Subject MS | text(11) | Metering System Id. |
| 6 | Resend Request Date | date | Resend Request Date (optional) |

| **RFR - Refresh Instruction Failure Reason** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =RFR |
| 2 | Failure Reason Code | text(3) | 'N' plus instr\_stat\_reason from ndb\_refr\_instr\_failure\_reason. |
| 3 | Failure Reason Addtional Data | text(40) | If database field exceeds 40 characters, additional INR records are used - these will contain the additional text. In this case the other fields in this record will be NULL. |
| 4 | Include Flag Status | text(1) | Optional. |

| **ZPT - File Trailer** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZPT |
| 2 | Record count | integer(10) | Number of records in file, including the headers and footer |
| 3 | Checksum | integer(10) |  |

Repeating structure of Report File:

NBR IP ::= ZHD SEL {SEL} {RIF {RFR}} ZPT

Sorting:

The records in the file are sorted by:

1. Instruction Source
2. Significant Date
3. Instruction Sequence Number (descending)
4. Failure Reason Code
5. Failure Reason Additional Data

## DC Performance Report

### Structure

#### Human Readable Report Layout

DC Performance Report Cognizant 05/05/2004 14:05 GMT

Settlement Settlement Run Run

Date Code Code Number

========== ========== ======= =======

01/08/2000 SF D 1004

Data Collector

==============================

SWEB

Supplier Def EAC Def Unmetered Total AA Total EAC Total Unmetered

Count Count Count Count Count

======== ========== ============= ========== ========== ===============

AQES 6 0 4 0 0

BGAS 6 0 2 2 0

FORT 4 0 6 0 0

MANP 4 0 4 2 0

Total 20 0 16 4 0

Data Collector

==============================

YELG

Supplier Def EAC Def Unmetered Total AA Total EAC Total Unmetered

Count Count Count Count Count

======== ========== ============= ========== ========== ===============

AQES 2 0 4 2 0

BGAS 2 0 6 2 0

ECON 2 0 2 4 0

Total 6 0 12 8 0

-- End of Report --

Page 1

#### Machine Readable Layout

| **ZHD - File Header** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZHD |
| 2 | File Type | text(8) | =L0043001 |
| 3 | From Role Code | text(1) | =B |
| 4 | From Participant Code | text(4) | Market Participant id of the NHHDA |
| 5 | To Role Code | text(1) | Null |
| 6 | To Participant Code | text(4) | Null |
| 7 | Creation Time | date/time | Time of file generation |

|  |  |  |  |
| --- | --- | --- | --- |
| **ZPD - Data File Additional Header** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZPD |
| 2 | Settlement Date | date | Settlement Date for Aggregation Run |
| 3 | Settlement Code | text(2) | Settlement Code for Aggregation Run |
| 4 | Run Type Code | text(2) | = D (Run Type Code for Aggregation Run) |
| 5 | Run Number | integer(7) | Run identifier internal to NHHDA |
| 6 | GSP Group | text(2) | Null |

| **NDC – Non Half Hourly Data Collector** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | = NDC |
| 2 | NHHDC id | text(4) | The MSID counts in the subsequent SUP and TOT records are counts of those Metering Systems for which this NHHDC was responsible on the calendar day the report was generated.  Mandatory |
| 3 | Market Participant Name | text(40) | Mandatory |

| **SUP – Supplier** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | = SUP |
| 2 | Supplier Id | text(4) | Mandatory |
| 3 | SPM Default EAC MSID Count | integer(8) | Mandatory |
| 4 | SPM Default Unmetered MSID Count | integer(8) | Mandatory |
| 5 | SPM Total AA MSID Count | integer(8) | Mandatory |
| 6 | SPM Total EAC MSID Count | integer(8) | Mandatory |
| 7 | SPM Total Unmetered MSID Count | integer(8) | Mandatory |

| **TOT – Total for all Suppliers** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | = TOT |
| 2 | SPM Default EAC MSID Count | integer(8) | Mandatory |
| 3 | SPM Default Unmetered MSID Count | integer(8) | Mandatory |
| 4 | SPM Total AA MSID Count | integer(8) | Mandatory |
| 5 | SPM Total EAC MSID Count | integer(8) | Mandatory |
| 6 | SPM Total Unmetered MSID Count | integer(8) | Mandatory |

| **ZPT - File Trailer** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZPT |
| 2 | Record count | integer(10) | Number of records in file, including the headers and footer |
| 3 | Checksum | integer(10) |  |

Repeating structure of File:

NHHDC Performance ::= ZHD ZPD { NDC SUP {SUP} TOT } ZPT

Sorting:

The records in the file are sorted by:

1. Non Half Hourly Data Collector;
2. Supplier.

## Request Monthly D0095 Report

### Form

10.16.1.1 Screen Layout



* + - 1. Screen behaviour

This form is invoked by the NHHDA user to enter a date restriction criteria for the D0095 exception report monthly summary.

The user enters a creation date range and clicks on the report button.

### Report

#### Description

The report produces a monthly summary of the D0095 exception report based on the date range entered.

#### Input Parameters

The following parameters will be passed to the report using the parameter entry Form:

| Parameter | Parameter Type |
| --- | --- |
| From Date | File creation From Date  Mandatory |
| To Date | File creation To Date  Mandatory |

#### Physical Access

The following tables will need to be accessed in order to retrieve data for the main body of the report:

| Tables | Columns |
| --- | --- |
| ndb\_exception\_data | supp\_id  dc\_id  from\_sett\_date  to\_sett\_date  exception\_type  file\_creation\_date  msid\_count |

#### Physical Design

For each Data Collector Exception the following items are shown:

* Supplier Id
* Data Collector Id
* From Settlement Date
* To Settlement Date
* File Creation Date

This information will be followed by a Summary of Metering Systems Ids with D0095 Exception consisting of the following items:

* Type
* Description
* MSID Count

The summary concludes with:

* Total Metering System ID Exceptions

#### User Roles

Exception Administrator, Auditor.

#### Structure

##### Human Readable Layout

D0095 Summary Report XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY HH:MM GMT

Supplier Data Collector From Settlement To Settlement File Creation

Id Id Date Date Date

======== ============== =============== ============= ==============

XXXX XXXX DD/MM/YYYY DD/MM/YYYY DD/MM/YYYY HH:MM

Summary of Metering System Ids with D0095 Exceptions

====================================================

Type Description MSID Count

==== =========== ==========

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 999

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 999

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 999

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 999

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 999

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 999

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 999

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 999

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 999

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 999

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 999

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 999

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 999

XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 999

Total Metering System ID Exceptions 999

##### Machine Readable Layout

| **ZHD - File Header** | | | |
| --- | --- | --- | --- |
| **Field** | **Field Name** | **Type** | **Comments** |
| 1 | Record Type | text(3) | =ZHD |
| 2 | File Type | text(8) | =P0147001 |
| 3 | From Role Code | text(1) | =B (Non half hourly data aggregator) |
| 4 | From Participant Code | text(4) | ID of NHHDA |
| 5 | To Role Code | text(1) | =Z(Non-Core – PA Administrator |
| 6 | To Participant Code | text(4) | POOL |
| 7 | Creation Time | date/time | Time of file generation |

| **EXH – Exception Header** | | | |
| --- | --- | --- | --- |
| 1 | Record Type | Text(3) | *=EXH* |
| 2 | Supplier ID | text(4) |  |
| 3 | Data Collector ID | text(4) |  |
| 4 | From Settlement Date | date |  |
| 5 | To Settlement Date | date |  |
| 6 | Count of metering System with at least 1 exception of type 01 | int(7) |  |
| 7 | Count of metering System with at least 1 exception of type 02 | int(7) |  |
| 8 | Count of metering System with at least 1 exception of type 03 | int(7) |  |
| 9 | Count of metering System with at least 1 exception of type 04 | int(7) |  |
| 10 | Count of metering System with at least 1 exception of type 05 | int(7) |  |
| 11 | Count of metering System with at least 1 exception of type 06 | int(7) |  |
| 12 | Count of metering System with at least 1 exception of type 07 | int(7) |  |
| 13 | Count of metering System with at least 1 exception of type 08 | int(7) |  |
| 14 | Count of metering System with at least 1 exception of type 09 | int(7) |  |
| 15 | Count of metering System with at least 1 exception of type 10 | int(7) |  |
| 16 | Count of metering System with at least 1 exception of type 11 | int(7) |  |
| 17 | Count of metering System with at least 1 exception of type 12 | int(7) |  |
| 18 | Count of metering System with at least 1 exception of type 13 | int(7) |  |
| 19 | Count of metering System with at least 1 exception of type 14 | int(7) |  |
| 19 | Count of metering System with at least 1 exception | int(7) |  |

Backus – Naur Form

D0095 Summary::=ZHD {EXH} ZPT

Sorting:

The records are sorted by:

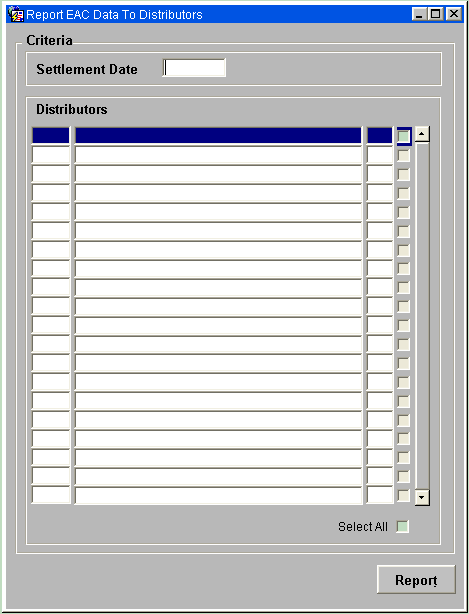
1. Supplier Id

Data Collector

## Request Report On EAC Data For Distributors

### Form

#### Screen layout



#### Screen behaviour

A list of participants who have been assigned the role of Distributor is displayed. Each row lists the following details for a Distributor: Id, name and short code. The NHHDA user specifies the date for which data will be reported, and selects one or more Distributors to indicate which Distributors are to receive the EAC Data report.

The report date will default to the current date, and can be changed to date a few days before the current day. The maximum number of days in the past that the report date can be set to is defined by the system parameter “Previous days request limit”.

Once the report date and one or more records have been selected the report button will allow the report to be requested. Pressing the report button will result in a message being displayed warning that the report runs on the same exclusive queue as NAR aggregation, and the message gives the option to continue or cancel the report submission. If the user chooses to run the report a request will be submitted scheduling the NDP Report EAC Data for Distributors.

### Report

#### Description

The NDP subsystem will produce the P0222 EAC To Distributor Data report and the L0053 EAC To Distributor Exceptions. Only the L0053 will be available to view as a human readable report.

#### Input Parameters

The following parameters will be passed to the report using the parameter entry Form:

| Parameter | Parameter Type |
| --- | --- |
| Settlement Date | Date |
| Participant Ids | Range of Participant Ids  Mandatory |

#### Physical Access

Refer to NDP subsystem Report EAC Data to Distributors.

#### Physical Design

Refer to NDP subsystem Report EAC Data to Distributors.

#### User Roles

Data Aggregation Administrator, Exception Administrator.

#### Structure

##### Human Readable Layout

Distributor EAC Exception Log XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DD/MM/YYYY HH:MM GMT

Activity XXXXXXXX

Settlement Date DD/MM/YYYY

Run Number XXXXXX

Distributor MSID Filename

Id Count

=========== ========= ===============

XXXX XXXXXXXX XXXXXXXXXXXXXX

XXXX XXXXXXXX XXXXXXXXXXXXXX

XXXX XXXXXXXX XXXXXXXXXXXXXX

Metering System

===============

XXXXXXXXXXXXX

A01 Appointed Data Collector XXXX

Registration From Settlement Date DD/MM/YYYY

Data Collector Appointment From Calendar Date DD/MM/YYYY

A05 Data Collector XXXX

Supplier according to PRS XXXX

Supplier according to Data Collector XXXX

PRS Data From Settlement Date DD/MM/YYYY

Data Collector From Settlement Date DD/MM/YYYY

A06 Data Collector XXXX

Measurement Class according to PRS X

Measurement Class according to Data Collector X

PRS Data From Settlement Date DD/MM/YYYY

Data Collector From Settlement Date DD/MM/YYYY

A07 Data Collector XXXX

GSP Group according to PRS XX

GSP Group according to Data Collector XX

PRS Data From Settlement Date DD/MM/YYYY

Data Collector From Settlement Date DD/MM/YYYY

A08 Data Collector XXXX

Profile Class according to PRS XX

Profile Class according to Data Collector XX

PRS Data From Settlement Date DD/MM/YYYY

Data Collector From Settlement Date DD/MM/YYYY

A09 Data Collector XXXX

Energisation Status according to PRS X

Energisation Status according to Data Collector X

PRS Data From Settlement Date DD/MM/YYYY

Data Collector From Settlement Date DD/MM/YYYY

A10 Data Collector XXXX

SSC according to PRS XXXX

SSC according to Data Collector XXXX

PRS Data From Settlement Date DD/MM/YYYY

Data Collector From Settlement Date DD/MM/YYYY

A12 Metering System Excluded XXXXXXXXXXXXX

Supplier XXXX

Supplier effective from settlement date DD/MM/YYYY

Data Aggregator Appointment effective from settlement date DD/MM/YYYY

Metering System

===============

A13 GSP Group ID XX

Profile Class ID XX

SSC ID XXXX

Time Pattern Regime Id XXXXX

Metering System Count XXXXXXXX

A14 GSP Group ID XX

Profile Class ID XX

Metering System Count XXXXXXXX

##### Machine Readable Layout

Refer to NDP subsystem Report EAC Data to Distributors.

# Subsystem NUA Specification

## Introduction

This subsystem provides two Oracle forms. One provides a facility for a user to change his own password. The other one provides the NHHDA System Manager with a facility to manage users.

The forms work on standard Oracle database tables. No application database tables are involved. All the work is done directly from the form. No batch process is involved.

## Subsystem Context

User Administration

(NUA) Subsystem

D

A

T

A

B

A

S

E

USER

### User Interface

The interaction between the NHHDA user and the User Administration (NUA) subsystem is achieved via the forms NUA\_MSS and NUA\_UPC.

The form NUA\_MSS is used by the System Manager for database administration and the form NUA\_UPC is used by users to change their own passwords.

### Database Interface

The interaction between the various forms in this subsystem with the database are handled by Oracle SQL\*Net. The data passed to the forms by the user will be defined in the form specification section.

### Audit Log Interface

Certain actions performed using the form NUA\_MSS will be logged for audit purposes: creation of users; removal of users; granting roles to users; revoking roles from users.

This will be achieved by the form, which will call the common CLG subsystem database procedures ONLINE\_AUDIT and AUDIT\_DETAIL to write the alterations to the data to an online audit log database table, which periodically get unloaded into audit log files. The details of the user who made the change and the date and time of the amendment are also written to this audit log. The records created by the NUA\_MSS forms are identified in the audit log by the “table code” ‘NUR’.

For each audited operation, there will be the following two log entries:

<audit\_id>|<timestamp>|’NUR’|<modification\_type>|<user id>

<audit\_id>|1|<username>

where <audit\_id> is a sequence allocated by the system (same in each record); <timestamp> identifies the time when the change was mode;<modification-type> is ‘I’ (insert), ‘U’ (update) or ‘D’ (delete); <user id> is the user who made the change; and <username> is the username of the user being created, modified or deleted.

If the operation is a user creation or modification where roles were changed, there will follow a further record for each role changed:

<audit\_id>|<role\_seq\_num>|<role\_op>:<role\_name>

where <role\_seq\_num> is 2 for the first role and increments for each record;<role\_op> is ‘G’ (grant) or ‘R’ (revoke); and <role\_name> is the name of the role being granted or revoked.

## Subsystem Processing

There are no interfaces within this subsystem to discuss.

## Data Usage

The System Data section provides a cross reference for the components of the subsystem and their mode of access.

The Local Data section contains the details of the audit data maintained by this subsystem.

### System Data

The details of the standard Oracle tables accessed by this subsystem are as follows:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Form / Procedure | Table / View | Insert | Modify | Delete | Read |
| FORM NUA\_MSS | dba\_users | X | X | X | X |
|  | dba\_role\_privs |  | X |  | X |
| FORM NUA\_UPC | dba\_users |  | X |  |  |

### Local Data

The form NUA\_MSS logs certain actions as described in section 11.2.3.

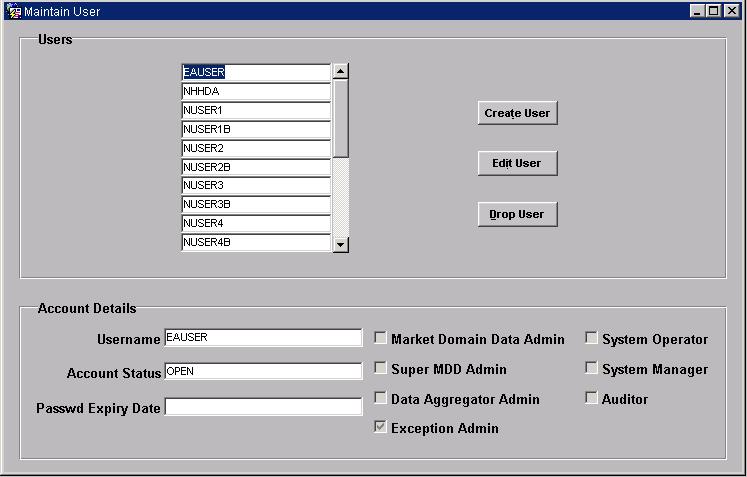
## Procedure Details

The details of the forms and report contained within this subsystem are given in the following sections.

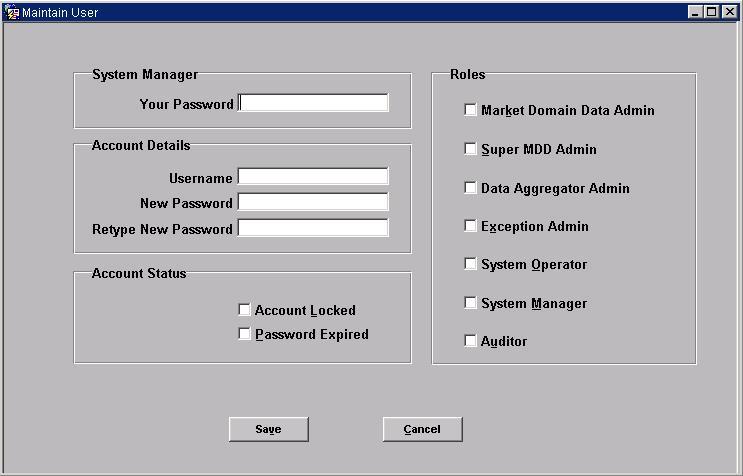
### FORM NUA\_MSS

#### Screen Layout

The form NUA\_MSS is activated from the Maintain System Security menu item.



When the Create User or Edit User button is pressed, a second canvas is displayed:



#### Screen Behaviour

The form NUA\_MSS allows NHHDA System Manager users to manage the NHHDA user accounts. Only NHHDA users with the System Manager role can use this form.

The table below outlines all the possible actions associated with the form NUA\_MSS:

|  |  |
| --- | --- |
| **Form Action On** | **Form Response** |
| Selection of Form | Display the first three blocks of the form (View Users canvas), and execute a query in the VIEW\_USER\_MASTER\_BLK Block. |
| Selecting a Row | Populate the VIEW\_USER\_DETAIL\_BLK block with the details for this user. |
| Moving to Next Record | Move to the next displayed row. |
| Moving to Previous Record | Move to the previous displayed row. |
| Tabbing | If on the Add/Edit User canvas, move the cursor to the next field, validating the field just entered as described in the Form Structure section. |
| Clicking On Scroll Bar | Highlight the record corresponding to the position of the scroll bar. |
| Function Key | Display mapping of logical functions to physical keys. |
| Help Key | Invokes NHHDA System help. |
| Clicking on Create User Button | Display the Add/Edit User canvas, with all the fields blank, and the cursor in the Your Password field. |
| Clicking on Edit User Button | Display the Add/Edit User canvas, with the fields populated for the user being edited, and the cursor in the Your Password field. |
| Clicking on Drop User Button | Ask the user to confirm that he wants to drop this user. If the confirmation is made, then drop the user and redisplay the list of users. If the User is one of the standard Oracle users SYS, SYSTEM, OUTLN, DBSNMP or PERFSTAT, then do not allow the user to be dropped. |
| Clicking on Save Button | Carries out the Add User or Edit User operation, and returns from the Add/Edit User canvas to the View Users canvas, and requeries. Writes entries to the Audit Log if necessary. |
| Clicking on Cancel Button | Abandons the Add User or Edit User operation, and returns from the Add/Edit User canvas to the View Users canvas. |

#### Description

This form allows an NHHDA System Manager user to manage the NHHDA user accounts.

It contains six blocks:

* Tool Bar Block, this block contains short cut buttons, simplifying the selection of allowed functionality of the form.

On the “View Users” canvas:

* VIEW\_USER\_MAST\_BLK Block contains a list of usernames;
* VIEW\_USER\_DTL\_BLK contains details of the user selected on the list;
* VIEW\_USER\_CTL\_BLK contains buttons to add, drop or edit the user selected on the list.

On the “Add/Edit Users” canvas:

* ADD\_EDIT\_USER\_BLK Block contains the details of the user being added or edited;
* ADD\_EDIT\_USER\_CTL\_BLK contains Save and Cancel buttons.

Only the NHHDA System Manager user role can access this form.

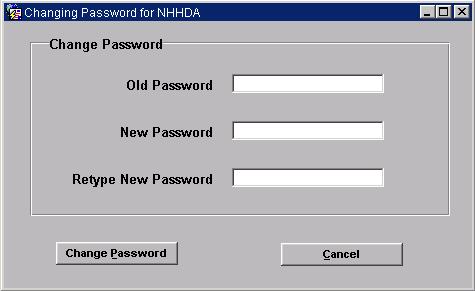
Form Structure

|  |  |
| --- | --- |
| **Field Name** | **Description** |
| **Block:** VIEW\_USER\_MAST\_BLK | Block contains a list of users, which is read-only. |
| Field USER\_NAME | dba\_users.username |
| **Block:** VIEW\_USER\_DTL\_BLK | Block contains details of the selected user. All fields are read-only. |
| Field USER\_NAME | dba\_users.username : must be less than or equal to 8 characters long in NHHDA |
| Field ACCOUNT\_STATUS | dba\_users.account\_status |
| Field EXPIRY\_DATE | dba\_users.expiry\_date  (Note that a user can continue to log on to his account after the expiry date for the number of days given by the grace period, which is defined in the user’s profile). |
| Field MARKET\_DOMAIN\_DATA\_ADMIN | dba\_privs.granted\_role : ticked if the user selected has the mkt\_dmn\_data\_admin role |
| Field SUPER\_MDD\_ADMIN | dba\_privs.granted\_role : ticked if the user selected has the sup\_mkt\_dmn\_data\_admin role |
| Field DATA\_AGGREGATOR\_ADMIN | dba\_privs.granted\_role : ticked if the user selected has the data\_agg\_admin role |
| Field EXCEPTION\_ADMIN | dba\_privs.granted\_role : ticked if the user selected has the exception\_admin role |
| Field SYSTEM\_OPERATOR | dba\_privs.granted\_role : ticked if the user selected has the system\_operator role |
| Field SYSTEM\_MANAGER | dba\_privs.granted\_role : ticked if the user selected has the system\_manager role |
| Field AUDITOR | dba\_privs.granted\_role : ticked if the user selected has the auditor role |
| **Block:** VIEW\_USER\_CTL\_BLK | Block contains buttons to add, drop or edit the selected user. |
| Button CREATE\_USER | Displays the Add/Edit Users canvas, with all the fields blank. |
| Button EDIT\_USER | Displays the Add/Edit Users canvas, with all the fields populated with the values for the user being edited. |
| Button DROP\_USER | Asks the user to confirm then drops the user and requeries on the VIEW\_USER\_MAST\_BLK. An entry is written to the Audit Log. Users may not drop their own accounts. |
| **Block:** ADD\_EDIT\_USER\_DTL\_BLK | Block contains details of the user being added or edited. Fields are writeable. |
| Field YOUR\_PASSWORD | dba\_users.password – for the System Manager user who is carrying out the change – this field is concealed with asterisks |
| Field USER\_NAME | dba\_users.username – this field can only be entered if a new user is being added. It must be at least 4 characters long, but no more than 8 charactesr long. |
| Field NEW\_PASSWORD | dba\_users.new\_password – this field is concealed with asterisks and must be at least 6 characters long |
| Field RE\_ENTER\_NEW\_PASSWORD | dba\_users.new\_password – this field is concealed with asterisks and must match the NEW\_PASSWORD field |
| Field MARKET\_DOMAIN\_DATA\_ADMIN | dba\_privs.granted\_role : ticked if the user selected has the mkt\_dmn\_data\_admin role |
| Field SUPER\_MDD\_ADMIN | dba\_privs.granted\_role : ticked if the user selected has the sup\_mkt\_dmn\_data\_admin role |
| Field DATA\_AGGREGATOR\_ADMIN | dba\_privs.granted\_role : ticked if the user selected has the data\_agg\_admin role |
| Field EXCEPTION\_ADMIN | dba\_privs.granted\_role : ticked if the user selected has the exception\_admin role |
| Field SYSTEM\_OPERATOR | dba\_privs.granted\_role : ticked if the user selected has the system\_operator role |
| Field SYSTEM\_MANAGER | dba\_privs.granted\_role : ticked if the user selected has the system\_manager role |
| Field AUDITOR | dba\_privs.granted\_role : ticked if the user selected has the auditor role |
| Field ACCOUNT\_LOCKED | dba\_users.account\_status :ticked if status is locked. |
| Field ACCOUNT\_EXPIRED | dba\_users.account\_status :ticked if status is expired (this includes where the expiry date has passed but the current date is still within the grace period). An expired account can only be change to unexpired if a new password has been entered. |
| **Block:** ADD\_EDIT\_USER\_CTL\_BLK | Block contains Save and Cancel buttons |
| Button SAVE | Does the validation specified for the individual fields, and makes sure that the user has at least one of the four roles granted.  Carries out the user creation or user edits, returns to the View Users canvas and requeries the VIEW\_USER\_MAST\_BLK. If a user has been created, or roles have been granted or revoked, appropriate entries are written to the Audit Log.  New users created are assigned the profile PROF\_EACAA. |
| Button Cancel | Returns to the View Users canvas without making any edits. |
| **Block:** TOOLBAR | Block contains shortcut buttons, simplifying the selection of allowed functionality of the form |
| Button NEXT\_RECORD | Moves the cursor to the next row of the “VIEW\_USER\_MAST\_BLK” Block, highlighting the row. |
| Button PREVIOUS\_RECORD | Moves the cursor to the previous row of the “VIEW\_USER\_MAST\_BLK Block, highlighting the row. |
| Button FUNCTION\_KEYS | Invokes standard Oracle function to display mapping of logical functions to physical keys. |
| Button HELP | Invokes NHHDA System help. |
| Button EXIT | Invokes standard Oracle function to exit the form. |

### FORM NUA\_UPC

#### Screen Layout

The form NUA\_UPC is activated from the Change Password menu item on the File menu.



#### Screen Behaviour

The form behaves as though it was a modal dialogue box. All NHHDA users can use this form.

The table below outlines all the possible actions associated with the form NUA\_UPC:

|  |  |
| --- | --- |
| **Form Action On** | **Form Response** |
| Selection of Form | Display the two blocks of the form and puts the cursor in the Old Password field |
| Clicking on Change Password Button | Alters the user’s password and exits the form |
| Clicking on Cancel Button | Exits the form without altering the password |

#### Description

This form allows NHHDA users to change their passwords.

It contains one block, the CHANGE\_PASSWORD\_BLK.

Form Structure

|  |  |
| --- | --- |
| **Field Name** | **Description** |
| **Block:** CHANGE\_PASSWORD\_BLK |  |
| Field OLD\_PASSWORD | dba\_users.password – this is validated to ensure it does match the password in the database – field is concealed with asterisks |
| Field NEW\_PASSWORD | dba\_users.password – must be at least 6 characters long – field is concealed with asterisks |
| Field NEW\_PASSWORD\_CONFIRM | dba\_users.password – must match NEW\_PASSWORD – field is concealed with asterisks |
| Button CHANGE\_PASSWORD | Validates the fields as described under the individual fields. Alters the user’s password, puts up a confirmation box with the text “Password Changed Successfully” and exits the form |
| Button CANCEL | Exits the form without altering the password |

# NDP EAC Data For Distributors Subsystem Specification

## Introduction

The NDP subsystem retrieves the metering system data for the specified Distributors on the settlement day and generates files to send to the Licensed Distribution System Operator (LDSO).

The NDP subsystem performs the following actions:

1. Removal of previous intermediate files from failed runs;
2. activation of multiple sub-processes to retrieve metering system data;
3. reading of meter system data, optimised for the database partitioning;
4. generation of EAC To Distributor reports.

The subsystem is initiated by the CSC Scheduler process, and runs in batch mode.

The facilities of the common subsystems are used for process control, file management and file export. Communication between separate executables of the subsystem is done using the common scheduling functions.

## Subsystem Context

### Subsystem Context Diagram

The context diagram for this subsystem is shown in Figure 9:



Figure 9: Context Diagram for EAC Data For Distributors

### Interfaces

#### CSC Scheduler

This process activates the NDP subsystem in response to user submitted events scheduled using the *Request Report On EAC Data For Distributors*. All data for the run will be passed as parameters via the database.

The Scheduler is responsible for ensuring that the NDP process does not run at the same time as other processes submitted on the Exclusive queue.

The main NDP process keeps an active entry on the Exclusive queue, while submitting multiple sub-processes to non-exclusive queues to retrieve the metering system data. The wait functions of CSC Scheduler are used to synchronise the stages of the processing.

#### Database

A number of database tables are accessed and written within the subsystem. The exact identities are specified in the Data Usage section of this document.

The high level data flows are as follows:

| Flow Name | Direction | Description |
| --- | --- | --- |
| Meter Data | Input | The meter appointments, details and EACs/AAs which contribute to the SPMs. |
| Reference Data | Input | Fixed Pool data definitions (for example, Metered |Unmetered flags). Also AFYCs and thresholds, which are not assigned to individual meters. |

#### Output Files

The table below lists the files which are created during the NDP processing. Multiple instances of each file type may be created.

| Flow Name | Direction | Description |
| --- | --- | --- |
| EAC To Distributor Data Report | Output | These are structured files, holding metering system and EAC data for a Distributor. One file will be created for each Distributor where metering system data was found. |
| EAC To Distributor Exception Log | Output | This file holds details of EAC To Distributor Data Report files created, and records of predefined exceptions encountered during the run; for audit purposes. One file will be created containing details for all partitions. |
| EAC To Distrib Intermediate Data | Input  Output | These are temporary files created for each ‘calculate increments’ process initiated by CSC - i.e. each file contains the metering system data for one partition. They are deleted during the later stages of the NDP processing. |
| EAC To Distrib Intermediate Exceptions | Input  Output | These are temporary files created for each ‘calculate increments’ process initiated by CSC - i.e. each file contains the exceptions for one partition. They are deleted during the later stages of the NDP processing. |
| Error Log | Output | This file records unexpected processing errors encountered during NDP processing. The file will be written using CLG functions. |
| Operator Log | Output | This file records major events during the NDP processing, as is written using CLG functions |

Only the *EAC To Distributor Data (Report) Files* are part of the external NHHDA interface (see Section 3.)

The *EAC To Distributor Exception Log* and the intermediate files are specified in the following sections.

### EAC To Distrib Intermediate Data File

#### File Specification

The following record types appear in the files:

|  |  |  |  |
| --- | --- | --- | --- |
| **ZHD - File Header** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZHD |
| 2 | File Type | text(8) | = L0051001 |
| 3 | From Role Code | text(1) | = B |
| 4 | From Participant Id | text(4) | Id of NHHDA |
| 5 | To Role Code | text(1) | Null |
| 6 | To Participant Id | text(4) | Null |
| 7 | Creation Time | date/time | Time of file generation |

|  |  |  |  |
| --- | --- | --- | --- |
| **RPH – Distributor Partition Log Header** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = RPH |
| 2 | Activity Id | integer(10) | Id of activity creating file |
| 3 | Partition Id | integer(2) | Partition processed by activity |
| 4 | Settlement Date | date | Mandatory |
| 5 | Run Number | integer(7) | Run identifier internal to NHHDA |

|  |  |  |  |
| --- | --- | --- | --- |
| **RLM - Metering System** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = RLM |
| 2 | Metering System Id | integer() | Mandatory |
| 3 | Data Collector Id | text(4) | The Data Collector supplying the consumption used; null if no consumption available |
| 4 | Supplier Id | text(4) |  |
| 5 | Profile Class Id | integer(2) |  |
| 6 | Distributor Id | text(4) |  |
| 7 | Line Loss Factor Class Id | text (3) |  |
| 8 | Standard Settlement Configuration Id | text(4) |  |
| 9 | GSP Group Id | text(2) |  |
| 10 | Measurement Class | text(1) |  |
| 11 | Energisation Status | text(1) |  |
| 12 | Consumption Type | text(1) | E = EAC for metered  U = EAC for unmetered  D = default for metered  V = default for unmetered  S = No AFYC found to calculate default EAC split for TPRs  X = No default EAC available |

|  |  |  |  |
| --- | --- | --- | --- |
| **RLQ - Consumption Details** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = RLQ |
| 2 | Time Pattern Regime Id | text(5) | Mandatory |
| 3 | Consumption | decimal (14,1) | kWh |

| **ZPT - File Footer** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZPT |
| 2 | Record count | integer(10) | Number of records in the file, including headers and footer*.* |
| 3 | Checksum | integer(10) | mandatory |

Repeating structure of File:

Intermediate Data File ::= ZHD RPH Meter Data ZPT

Meter Data ::= RLM {RLQ}

Sorting:

The file is not explicitly ordered, but as the processing currently reads Metering System Ids in order, the files for partitions will be sorted on Metering System. Note that this ordering may not be retained following future code revisions. There is no ordering performed by the code when deriving defaults, so the defaults log will not be ordered.

### EAC To Distrib Intermediate Exceptions File

#### File Specification

The following record types appear in the files:

|  |  |  |  |
| --- | --- | --- | --- |
| **ZHD - File Header** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZHD |
| 2 | File Type | text(8) | = L0052001 |
| 3 | From Role Code | text(1) | = B |
| 4 | From Participant Id | text(4) | Id of NHHDA |
| 5 | To Role Code | text(1) | null |
| 6 | To Participant Id | text(4) | null |
| 7 | Creation Time | date/time | Time of file generation |

|  |  |  |  |
| --- | --- | --- | --- |
| **RPH – Distributor Partition Log Header** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = RPH |
| 2 | Activity Identifier | integer(10) | Id of activity creating file |
| 3 | Partition Identifier | integer(3) | Partition processed by activity |
| 4 | Settlement Date | date | Settlement Date for the Run |
| 5 | Run Number | integer(7) | Run identifier internal to NHHDA |

| **EXM - Metering System Identifier** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = EXM |
| 2 | Metering System Id | integer(13) | mandatory (Except with exceptions A13 and A14 where this will be NULL) |

| **A01 - Exception Details (no EAC or AA for Metering System)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = A01 |
| 2 | Appointed Data Collector Id | text(4) | mandatory |
| 3 | Registration Effective From Settlement Date | date | mandatory |
| 4 | Data Collector Appointment Effective From Settlement Date | date | mandatory |

| **A05 - Exception Details (Supplier incorrect)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = A05 |
| 2 | Data Collector Id | text(4) | mandatory |
| 3 | Supplier Id (PRS) | text(4) | mandatory |
| 4 | Supplier Id (DC) | text(4) | mandatory |
| 5 | Effective From Settlement Date of PRS Data | date | mandatory |
| 6 | Effective From Settlement Date of Data Collector Data | date | mandatory |

| **A06 - Exception Details (Measurement Class incorrect)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = A06 |
| 2 | Data Collector Id | text(4) | mandatory |
| 3 | Measurement Class Id (PRS) | text(1) | mandatory |
| 4 | Measurement Class Id (DC) | text(1) | mandatory |
| 5 | Effective From Settlement Date of PRS Data | date | mandatory |
| 6 | Effective From Settlement Date of DC Data | date | mandatory |

| **A07 - Exception Details (GSP Group incorrect)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = A07 |
| 2 | Data Collector Id | text(4) | mandatory |
| 3 | GSP Group Id (PRS) | text(2) | mandatory |
| 4 | GSP Group Id (DC) | text(2) | mandatory |
| 5 | Effective From Settlement Date of PRS Data | date | mandatory |
| 6 | Effective From Settlement Date of DC Data | date | mandatory |

| **A08 - Exception Details (Profile Class incorrect)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = A08 |
| 2 | Data Collector Id | text(4) | mandatory |
| 3 | Profile Class Id (PRS) | integer(2) | mandatory |
| 4 | Profile Class Id (DC) | integer(2) | mandatory |
| 5 | Effective From Settlement Date of PRS Data | date | mandatory |
| 6 | Effective From Settlement Date of DC Data | date | mandatory |

| **A09 - Exception Details (Energisation Status incorrect)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = A09 |
| 2 | Data Collector Id | text(4) | mandatory |
| 3 | Energisation Status (PRS) | text(1) | mandatory |
| 4 | Energisation Status (DC) | text(1) | mandatory |
| 5 | Effective From Settlement Date of PRS Data | date | mandatory |
| 6 | Effective From Settlement Date of DC Data | date | mandatory |

| **A10 - Exception Details (Standard Sett Config incorrect)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = A10 |
| 2 | Data Collector Id | text(4) | mandatory |
| 3 | SSC Id (PRS) | text(4) | mandatory |
| 4 | SSC Id (DC) | text(4) | mandatory |
| 5 | Effective From Settlement Date of Last PRS Data | date | mandatory |
| 6 | Effective From Settlement Date of Last DC Data | date | mandatory |

| **A12 - Exception Details (Metering System Excluded)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = A12 |
| 2 | Metering System Id | integer(13) | The MSID of the excluded Metering System |
| 3 | Supplier | text(4) | The ID of the Supplier; will be null if no Registration record exists for Data Aggregator Appointment |
| 4 | Effective From Settlement Date of Registration | date | Will be null if no Registration record exists for Data Aggregator Appointment |
| 5 | Effective From Settlement Date (data aggregator appointment) | date | mandatory |

| **A13 - Exception Details (Missing AFYC)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = A13 |
| 2 | GSP Group Id | text(2) | mandatory |
| 3 | Profile Class Id | integer(2) | mandatory |
| 4 | SSC Id | text(4) | mandatory |
| 5 | Time Pattern Regime Id | text(5) | mandatory |
| 6 | Metering System Default Count | integer(7) | mandatory |

| **A14 - Exception Details (Missing Default EAC)** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = A14 |
| 2 | GSP Group Id | text(2) | mandatory |
| 3 | Profile Class Id | integer(2) | mandatory |
| 4 | Metering System Default Count | integer(7) | mandatory |

| **ZPT - File Footer** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZPT |
| 2 | Record count | integer(10) | Number of records in the file, including headers and footer*.* |
| 3 | Checksum | integer(10) | mandatory |

Note:

The “Effective From Settlement Date of DC Data” date field of Exceptions A05 to A09 refers to the Effective From Settlement Date of the latest Data Collector details record in the database before the Run Settlement Date, as does the “Effective From Settlement Date of Last DC Data” date field of Exception A10.

Repeating structure of File:

Intermediate Exceptions File ::= ZHD RPH {Meter\_Set} ZPT

Meter\_Set ::= EXM Ex\_Record { Ex\_Record }

Ex\_Record ::= A01 | A05 | A06 | A07 |

A08 | A09 | A10 | A12 |

A13 | A14

Sorting:

The file is not explicitly ordered, but written as exceptions are encountered. All exceptions for a single metering system will appear within one Meter\_Set, but not in any particular order. Additionally as the processing currently reads Metering System Ids in order, the file will be sorted on Metering System. Note that this ordering may not be retained following future code revisions.

### EAC To Distributor Exceptions Log

#### File Specification

The following record types appear in the files:

|  |  |  |  |
| --- | --- | --- | --- |
| **ZHD - File Header** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZHD |
| 2 | File Type | text(8) | = L0053001 |
| 3 | From Role Code | text(1) | = B |
| 4 | From Participant Id | text(4) | Id of NHHDA |
| 5 | To Role Code | text(1) | null |
| 6 | To Participant Id | text(4) | null |
| 7 | Creation Time | date/time | Time of file generation |

|  |  |  |  |
| --- | --- | --- | --- |
| **RXH – Distributor Log Header** | | | |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = RXH |
| 2 | Activity Identifier | integer(10) | Id of activity creating file |
| 3 | Settlement Date | date | Settlement Date for the Run |
| 4 | Run Number | integer(7) | Run identifier internal to NHHDA |

| **RXF – Distributor Report Files** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = RXF |
| 2 | Distributor  Participant Id | text(4) |  |
| 3 | Metering System  Count | integer() |  |
| 4 | Filename | text(14) | Blank if no metering systems were found. |

| **RXM - Metering System** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = RXM |
| 2 | Metering System Id | integer(13) | mandatory (Except with exceptions A13 and A14 where this will be NULL) |

| **Axx - Exception Details** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = Axx |
|  |  |  |  |

| **ZPT - File Footer** | | | |
| --- | --- | --- | --- |
| Field | Field Name | Type | Comments |
| 1 | Record Type | text(3) | = ZPT |
| 2 | Record count | integer(10) | Number of records in the file, including headers and footer*.* |
| 3 | Checksum | integer(10) | mandatory |

Note:

The record “Axx - Exception Details” indicates where the exceptions from the “EAC To Distrib Intermediate Exceptions File” will be located. For a full list of exceptions refer to the file specification in section 12.4.2.1.

This file aggregates together all the exceptions details from EAC To Distrib Intermediate Exceptions File along with details of EAC To Distributor Data (Report) files created. Refer to file specification for the EAC To Distrib Intermediate Exceptions File for details of the exceptions.

Repeating structure of File:

Exceptions Log ::= ZHD RXH RXF {RXF} {Meter\_Set} ZPT

Meter\_Set ::= RXM Ex\_Record { Ex\_Record }

Ex\_Record ::= A01 | A05 | A06 | A07 | A08 |

A09 | A10 | A12 | A13 | A14

Sorting:

The file is not explicitly ordered, but written as exceptions have been aggregated from the *EAC To Distrib Intermediate Exceptions File* created for each partition. All exceptions for a single metering system will appear within one Meter\_Set, but not in any particular order.

### Special Considerations

The same consideration relating to the *NAR Aggregation Run Subsystem* will apply here as well.

## Subsystem Processing

### Major Components

The separate modules provided by the subsystem are identified in Figure 10. *NDP Report EAC To Distributor* will be invoked from the user interface.



Figure 10: Subsystem Decomposition for NDP

The processing performed by each module is described in 12.3.3.

### Flow Control

The *NDP Report EAC To Distributor* module is the main controlling process and Figure 11 shows the modules it calls to perform the processing. The subsystem may run multiple instances of the *NDP Calculate Increments* simultaneously, and this is controlled by the top-level functions of this subsystem using the facilities of CSC Scheduler.

Note that *NDP Report EAC To Distributor* and *NDP Generate Reports* are implemented in a single activity (NDP\_PC) which is the main controlling process.



Figure 11: NDP Processing Flow

The numbers against the processes indicate the order in which the processes will be activated. The number of concurrent processes of each type is tuneable, according to the hardware configuration.

Note that each instance of *NDP Calculate Increments* runs against a single Metering System partition.

All the *NDP Calculate Increments* processes must complete successfully before *NDP Generate Reports* is invoked.

### Detailed Process Descriptions

#### NDP Report EAC To Distributor

Figure 12 shows the structure of the controlling process, and process that will have several instances are indicated with \*.



Figure 12: NDP Aggregate EACs and AAs

This process provides the external subsystem interface to process N1055 of [NFUNDEF]. It initialises the report run and performs the following actions:

1. Startup Checks performs any actions necessary to recover from previous failed runs (including deletion of intermediate files and database entries), and check that the destination directory matches the *Directory Path For EAC To Distributor Report* (NDPD) Domain;
2. Generate parameter lists for *Calculate Increments* sub-processes;
3. Submit calls to the NDP\_CI using CSC Scheduler;
4. Wait for the sub-processes to complete;
5. Call *Generate Reports* to create the *EAC To Distributor Reports* and the *Exception Log*;
6. The *EAC To Distributor Reports* will be manually distributed and the status will be set to archived; indicating the system will perform no further processing.
7. Remove the intermediate files and database entries;
8. Return success or fail code.

#### NDP Calculate Increments

This process accepts a parameter list which defines the meters to be processed. It initialises the database reads and creates output files to hold intermediate metering system data.

It then loops through each metering system in turn, within the range given by the activation parameters. For each of the meter’s measurement requirements it creates a record for the settlement date. Failure to identify consumption values will result in the average fraction of yearly consumption and GSP Group Profile Class Default EAC being used to calculate a default value.

Each set of metering system data is checked for the defined exception conditions. Any exceptions found are written to an exception report file.

The resulting records will be written directly to a file on disk.

Failure at this stage will require restarting the report run, and the report will start from beginning again and will delete all temporary files from the failed run.

#### NDP Generate Reports

This module uses the input report parameters to determine which distributors requested reports, and will process the intermediate files to identify the metering system records for each Distributor. The module will create an *EAC To Distributor Data Report* for each Distributor, provided metering system data is found, and a single *EAC To Distributor Exceptions Log* will be created.

## Data Usage

### System Data

#### Database

The following NHHDA database tables are accessed directly. Where a table is partitioned, access will use generic read and write functions. Selects from these tables will be optimised according to the partition structure to control disk reading in multiple disk systems.

1. ndb\_av\_frac\_y\_cons (read);
2. ndb\_data\_agg\_apps (read);
3. ndb\_dc\_apps (read);
4. ndb\_gsp\_groups\_run (read);
5. ndb\_gspg\_pc\_av\_eac (read);
6. ndb\_isr\_agent\_apps (read);
7. ndb\_measure\_reqs (read);
8. ndb\_metering\_sys (read);
9. ndb\_ms\_dc\_dets (read);
10. ndb\_ms\_prs\_dets (read);
11. ndb\_register\_cons (read);
12. ndb\_registrations (read);

Where possible, common tables will be accessed using the common functions provided for this purpose. The common tables accessed directly by this subsystem are:

1. cdb\_activity (read);
2. cdb\_file\_reference (read);
3. cdb\_system\_parameter (read).

The shutdown\_requested global process variable will be read at regular intervals by each main process, to detect requests to terminate the process.

### Local Data

#### Meter System Data

This data item holds data from the database which defines a single metering system. The exact contents of this storage area will be determined when the algorithms for each process are defined.

#### Intermediate Data Files

This is a set of files which contain metering system data, and will contain data from a single partition.

#### Intermediate Exception Files

This is a set of files which contain exceptions encountered during retrieval of metering system data, and will contain exceptions for a single partition.

## Procedure Details

### Procedure NDP Report EAC To Distributors Specification

Procedure Name: NDP Report EAC To Distributors

Inputs: Distributors requesting the report

Settlement Date

Outputs: None

This procedure provides an external interface to the NDP subsystem.

Check the cdb\_file\_reference table for any files created by the process with a status of new. Remove the files and database entries as these files would be from a failed run.

Retrieve the Directory Path For EAC To Distributor Report (NDPD Domain) from cdb\_ref\_values table, and compare against the directory associated with completed EAC To Distributor Data Reports from cdb\_file\_directory table. If the directories differ then create the directory defined by the NDPD Domain, and update the default directory for completed reports to use the directory.

FOR each metering system partition:

CALL Calculate Increments passing Distributor and Settlement Data parameters

END FOR

IF all Calculate Increments process were successful THEN

CALL Generate Reports

END IF

IF Generate Reports was successful THEN

Move the completed EAC To Distributor Report files to named sub-directories which correspond to the recipient of the report; ready for manual distribution.

Update all the completed EAC To Distributor Report files to indicate they are archived.

END IF

Delete the intermediate data and exception files and remove them from the database.

The identities and parameter lists for the scheduled sub-processes are calculated using system constants and the database partitioning of metering systems.

This procedure will be implemented using Pro\*C.

### Procedure NDP Calculate Increments

Procedure Name: NDP Calculate Increments

Inputs: Partition Id

Distributors requesting the report

Settlement Date

Outputs: None

This procedure implements the detailed functionality required to gather metering system data required for the report. It results in a number of disk files holding data for each partition.

CALL Read Meter to initialise tables for Partition Id;

Create working disk files using common library routines;

FOR each metering system in this partition for the specified distributors DO

Get PRS DA appointments for the report date

IF DA appointment exists THEN

Get PRS metering system data, supplier registration and DC appointment for the report date;

Report an exception if any of the data cannot be found and go onto the next metering system;

Get Current EAC to be used [see NFUNDEF]

IF value found THEN

Read DC metering system data;

Report exception for differences between DC and PRS metering system data;

Add details to data file;

ELSE

Report exception for the metering system;

Read measurement requirements for the metering system;

Get AFYC data & Researched Default EAC for SPM;

IF data found for AFYC & Researched Default EAC THEN

Calculate default value;

Add details to data file;

ELSE

Update exception for default count in file;

END IF

END IF

END IF

DONE

This procedure will be implemented using Pro\*C.

### Procedure NDP Generate Report Specification

Procedure Name: Generate SPMs

Inputs: Distributors requesting the report

Outputs: Status

This procedure implements the detailed functionality required to create the *EAC To Distributor Report* files and *EAC To Distributor Exceptions Log* file. This is achieved by aggregating together the data in the files generated by Calculate Increments for each partition.

FOR each intermediate data file:

Open the file

FOR each metering system record:

Identify the Distributor

IF a file does not exist for the Distributor THEN

Use common library routines to create an EAC To Distributor Report file

END IF

Write all the records for the metering system to the file, and increment the metering system count for the Distributor

END FOR

Close the file

END FOR

Close all the EAC To Distributor Report files.

Use common library routines to create an Exception Log file

Record details of metering system counts and files created for each Distributor who requested the report.

FOR each exception data file:

Open the file

Read each exception record:

Write the record to the file

Close the file

END FOR

Close the Exception Log file.

This procedure will be implemented in Pro\*C.

# Cross Reference

## Requirements Mapping

| **Req. No.** | **Logical Design Reference** | **Physical Design Reference** |
| --- | --- | --- |
| **Functional** | | |
| F1 | N0001  N0006  N0012  N0013  N0014  N0015  N0019  N0020  LDATA | 4.3  9.7  9.9  9.10  9.11  9.12 |
| F2 | N0036 | 8.3 |
| F3 | N0016  LDATA | 9.8  4.3 |
| F4 | N0001  LDATA | 9.9  4.3 |
| F5 | N0004  N0031  N0032  N0034  NC010 | 7.3  9.16 |
| F6 | N0032  N0034  LDATA | 7.3  9.16  4.3 |
| F7 | Requirement removed as a result of LCR030 |  |
| F8 | Requirement removed as a result of LCR030 |  |
| F9 | Requirement removed as a result of LCR030 |  |
| F10 | Requirement removed as a result of LCR030 |  |
| F11 | N0004  N0031  N0032  N0034  N1032  N1033  NC010 | 7.3  9.14  9.16  10.8 |
| F12 | Requirement removed as a result of LCR030 |  |
| F13 | N0004  N0032  N0034  N0035  N0038 | 7.3  9.14  9.15  9.16  9.17 |
| F14 | N0004  N0031  N0032  N0033  N0034  NC010 | 7.3  9.14  9.16  9.18 |
| F15 | Requirement removed as a result of LCR030 |  |
| F16 | Requirement removed as a result of LCR030 |  |
| F17 | N0031  NC010 | 7.3 |
| F18 | N0032  N0034 | 7.3 |
| F19 | N0032  N0034 | 7.3 |
| F20 | Requirement removed as a result of LCR030 |  |
| F21 | Requirement removed as a result of LCR030 |  |
| F22 | Requirement removed as a result of LCR030 |  |
| F23 | Requirement removed as a result of LCR030 |  |
| F24 | N0034 | 7.3 |
| F25 | N0031  NC010 | 7.3 |
| F26 | N0032 | 7.3 |
| F27 | N0032 | 7.3 |
| F28 | N0010  N1054 | 6.3  10.16 |
| F29 | N0008 | 5.3 |
| F30 | N0022  LDATA | 9.19  4.3 |
| F31 | N0024 | 8.3 |
| F32 | N0008  N0024 | 5.3  CTSPEC Section 6 |
| F33 | N0008  N0026 | 5.3  CTSPEC Section 8 |
| F34 | N0008 | 5.3 |
| F35 | N0008 | 5.3 |
| F36 | N0005  N0008  N0026 | 5.3  CTSPEC Section 8 |
| F37 | N0008  N0026 | 5.3 |
| F38 | N0005 | 5.3 |
| F39 | LDATA | 4.3 |
| F40 | LDATA | 4.3 |
| F41 | N0032 | 7.3 |
| F42 | LDATA | 4.3 |
| F43 | N0005  N0026 | 5.3 |
| F44 | N0036 | 8.3 |
| P222 | N1055 | 12.3 |
| **Non Functional** | | |
| N1 | N0036  N0024  N0031  N1011  NC010 | 8.3  7.3  9.4  CTSPEC Section 5 |
| N2 | N0026  N0010  N0005  N1040  N0033  N0038 | 5.3  7.3  3  6.3  CTSPEC Section 8 |
| N3 | N0026  N0010  N0005  N1040  N0033  N0038 | 5.3  7.3  3  6.3  CTSPEC Section 8 |
| N4 | N0031  NC009 | 7.3 |
| N5 |  | 2.8  2.10  4.4  4.5 |
| N6 |  | CTSPEC Section 7  CTSPEC Section 8  TSYSARC |
| N7 | N0032  NC003  N0034 | 4.4 |
| N8 | N0009 | 4.5 |
| N9 | N0008  N0026  N0005 | 3  5.3 |
| N10 | N0008  N0026  N0005 | 3  5.3 |
| N11 | N0008 | 2.11 |
| N12 | N0008  N0027  N0028 | 5.3  10.6 |
| N13 | N0008  N0027  N0028  NC003 | 5.3  10.6 |
| N14 | N0008  N0027  N0028 | 5.3  10.6 |
| N15 | N0001  N0036  N0011  N0020  NC006 | 9.6  9.9  9.12  8.3 |
| N16 | N0001  N0036  N0011  N0020  NC006 | 9.6  9.9  9.12  8.3 |
| N17 | N0001E  N0006E  N0012E  N0014E  N0004  N0011  N0013E  N0015E  N0016E  N0019E  N0020E  N0027  N0028  N0038  N1001  N1002  N1003  N1004  N1005  N1006  N1007  N1008  N1009  N1011  N1014  N1015  N1016  N1018  N1021  N1023  N1025  N1026  N1027  N1028  N1029  N1030  N1031  N1032  N1033  N1036  N1037  N1038  N1039  N1040  N1042  N1045  N1046  N1047  N1052 | 9  10 |
| N18 | N0028  N0033  N0038  N1014  N1015  N1016  N1018  N1023  N1025  N1026  N1027  N1028  N1029  N1030  N1031  N1033  N1037  N1039  N1042  N1045  N1046  N1047  NC009  N1052 | 10 |
| N19 | N0028  N0033  N0038  N1014  N1015  N1016  N1018  N1023  N1025  N1026  N1027  N1028  N1029  N1030  N1031  N1033  N1037  N1039  N1042  N1045  N1046  N1047  N1052 | 10 |
| N20 | N0028  N0033  N0038  N1014  N1015  N1016  N1018  N1023  N1025  N1026  N1027  N1028  N1029  N1030  N1031  N1033  N1037  N1039  N1042  N1045  N1046  N1047  N1052 | 10 |
| N21 | N0028  N0033  N0038  N1014  N1015  N1016  N1018  N1023  N1025  N1026  N1027  N1028  N1029  N1030  N1031  N1033  N1037  N1039  N1042  N1045  N1046  N1047  N0028  N1052 | 10 |
| N22 | N0023  NC006 | 2.10 |
| N23 | NC006  NC009 | 2.10  4.4 |
| N24 | N0035  N0038  NC002  NC003 | 4.4  CTSPEC Chapter 7  11 |
| N25 | NC006  NC009 | 2.10 |
| N26 | N0008  N0009 | 4.5  4.6  4.7 |
| N27 | N0008  N0009  N0003 | 5.3  4.5 |
| N28 | N0009 | 2.8  4.5 |
| N29 | N0003 | 2.8  4.5 |
| N30 | N0009 | 4.5 |
| N31 |  | 2.8  CTSPEC 2.8 |
| N32 |  | 2.8  2.9 |
| N33 |  | 5.3  6.3  7.3 |
| N34 |  | 2.11  5.3 |
| N35 |  | 2.9 |
| N36 | N0008 | 5.3 |
| N37 |  | 10.1  10.2 |
| **Operational Requirements** | | |
| O1 | see O3 |  |
| O2 | see O3 |  |
| O3 | N0008 | 5.3  4.6  4.7 |
| O4 | see O5 |  |
| O5 |  | 4.6 |
| O6 | see O7 |  |
| O7 |  | 4.6 |
| O8 |  | 7.3 |
| O9 |  | 5.3  9.13 |
| O10 | see O12 |  |
| O11 | see O12 |  |
| O12 |  | 5.3  8.3  4.6  4.7 |
| O13 |  | 4.6 |
| O14 | see O15 |  |
| O15 |  | 5.3  7.3  8.3  4.6 |
| O16 | N0008  N0010 | 7.3  4.6  4.7 |
| O17 |  | 7.3  4 |
| O18 |  | 4.5  4.6  2.11 |
| O19 |  | 2.11  5.3 |
| O20 |  | 2.4 |
| O21 | N1049  N1050 | 9.3  9.4 |
| O22 | N1051 | 9.23 |
| O23 | N0008 | 5.3 |
| O24 | N0008 | 5.3 |
| **Design Constraints** | | |
| D1 |  | Compliant with Technical Systems Architecture |
| D2 |  | 3.1 |

## Usage of Data

The following table gives the data usage mapping for the NHHDA subsystems, excluding most common database table accesses which are made through the common library functions. Where a common database table access is made, via a common library function, which has a material effect on a subsystem’s functionality, it is shown in brackets. An example of the distinction made is that the update of file status would be included but not the manipulation of the cdb\_queue table.

| Table | NAR  Access | NCD  Access | NMI  Access | NLD  Access | NGF  Access | NFR  Access |
| --- | --- | --- | --- | --- | --- | --- |
| cdb\_activity | R | R |  |  | R |  |
| cdb\_data\_file |  |  |  | R | R |  |
| cdb\_file\_reference | R | R | RU | R(M) | R |  |
| cdb\_instruction\_file |  |  | R |  |  |  |
| cdb\_report\_file |  |  |  |  |  | C |
| cdb\_ref\_values |  |  |  | R |  |  |
| cdb\_resend\_access | R |  |  |  | R |  |
| cdb\_system\_parameter |  |  |  | R |  | R |
| ndb\_av\_frac\_y\_cons | R |  |  | RCU | CRUD | R |
| ndb\_check\_dc\_data\_runs |  | RUD |  |  |  |  |
| ndb\_data\_agg\_apps | R | R | CRUD |  |  | R |
| ndb\_data\_agg\_runs | RU |  |  | RCD | CRUD | R |
| ndb\_dc\_apps | R | R | CRUD |  |  | R |
| ndb\_exception\_data |  | C |  |  |  | R |
| ndb\_gsp\_groups |  |  |  | R | CRUD | R |
| ndb\_gsp\_groups\_dis |  |  |  | RCU | CRUD | R |
| ndb\_gsp\_groups\_run | R |  |  | RDC | CRD | R |
| ndb\_gspg\_pc\_av\_eac | R |  |  |  | CRUD | R |
| ndb\_isr\_agent\_apps | R |  |  | RCU | CRUD | R |
| ndb\_instruction\_status\_reason |  |  | CRUD |  |  |  |
| ndb\_instructions |  |  | CRU |  | R | R |
| ndb\_llf\_classes |  |  |  | RCU | CRUD | R |
| ndb\_m\_participants |  |  | R | RCU | CRUD | R |
| ndb\_measure\_reqs | R |  |  | RC |  | R |
| ndb\_metering\_sys | R | RU | CR |  |  | R |
| ndb\_ms\_dc\_dets | R | R | CRUD |  |  | R |
| ndb\_ms\_exceptions |  | CRD |  |  |  |  |
| ndb\_ms\_prs\_dets | R | R | CRUD |  |  | R |
| ndb\_nar\_file\_location | R |  |  |  |  |  |
| ndb\_nar\_files | CRUD |  |  |  |  |  |
| ndb\_profile\_classes |  |  |  | RCU | CRUD | R |
| ndb\_refresh\_instr\_failure |  |  | CRUD |  | RU | RU |
| ndb\_refr\_instr\_failure\_reason |  |  | CRUD |  | RU | RU |
| ndb\_register\_cons | R | R | CRUD |  |  | R |
| ndb\_registrations | R | R | CRUD |  |  | R |
| ndb\_report\_agg\_exceptions |  |  |  |  |  | CDR |
| ndb\_report\_parameters |  |  |  |  |  | CDR |
| ndb\_settlements |  |  |  | RCU | CRUD | R |
|  |  |  |  |  |  |  |
| ndb\_spmatrix | CRUD |  |  |  |  |  |
| ndb\_std\_sett\_cfgs |  |  |  | RCU | CRUD | R |
| ndb\_t\_p\_regimes |  |  |  | RCU |  |  |
| ndb\_threshold\_pars | R |  |  | RCU | CRUD |  |
| ndb\_vsscpcs |  |  |  | RC | CRUD | R |

## Logical - Physical mapping

| Logical Function | Heading in NTSPEC |
| --- | --- |
| N0001 Define Profile Classes | Define Profile Classes |
| N0001E Browse Profile Classes | Define Profile Classes |
| N0003 Restore | Database |
| N0004 Manage Failed Instructions | Manage Failed Instructions (includes Resend and Return Failed Instructions) |
| N0004 Manage Failed Instructions | NMI |
| N0005 Generate Supplier Purchase Matrix | Generate Supplier Purchase Matrix |
| N0006 Define Suppliers | Maintain Market Participant |
| N0006E Browse Suppliers | Maintain Market Participant |
| N0008 Aggregate EACs and AAs | NAR |
| N0009 Archive Settlement Data | Database |
| N0010 Check Data Collector Data | Check Data Collector Data |
| N0010 Check Data Collector Data | NCD |
| N0011 Define Average Fraction Of Yearly Consumption | Define Average Fraction Of Yearly Consumption |
| N0011E Browse Average Fraction Of Yearly Consumption | Define Average Fraction Of Yearly Consumption |
| N0012 Define Data Collectors | Maintain Market Participant |
| N0012E Browse Data Collectors | Maintain Market Participant |
| N0013 Define Distributors and PRS Agents | Maintain Market Participant |
| N0013E Browse Distributors and PRS Agents | Maintain Market Participant |
| N0014 Define GSP Groups | Define GSP Groups |
| N0014E Browse GSP Groups | Define GSP Groups |
| N0015 Define ISR Agents | Maintain Market Participant |
| N0015E Browse ISR Agents | Maintain Market Participant |
| N0016 Define Line Loss Factor Classes | Define Line Loss Factor Classes |
| N0016E Browse Line Loss Factor Classes | Define Line Loss Factor Classes |
| N0019 Define Standard Settlement Configuration | Define Standard Settlement Configuration |
| N0019E Browse Standard Settlement Configuration | Define Standard Settlement Configuration |
| N0020 Define Threshold Parameters | Define Threshold Parameters |
| N0020E Browse Threshold Parameters | Define Threshold Parameters |
| N0022 Schedule Aggregation Run | Schedule Aggregation Run |
| N0023 Specify Data Accessible to Ad-Hoc Reports | Database |
| N0024 Load Pool Settlement Timetable | NLD |
| N0026 Automatically Send Supplier Purchase Matrix | NAR |
| N0027 Browse Exception Data | Browse File Extraction And Transmission Statuses |
| N0027 Browse Exception Data | Report Exceptions |
| N0028 Report Exception Data | Browse File Extraction And Transmission Statuses |
| N0028 Report Exception Data | Report Exceptions |
| N0029 Maintain System Configuration Data | Common |
| N0030 System Initialisation | Database |
| N0031 Instruction File Arrival | NMI |
| N0032 Process Instructions | NMI |
| N0034 Manage Refresh Instructions | Manage Refresh Instructions |
| N0035 Manage Instruction Files | Manage Instruction Files |
| N0036 Load Pool Market Domain DataN0007 Load Standard Settlement Configurations | NLD |
| N0037 Manage Refresh Instruction Failures | Manage Failed Refresh Instructions |
| N1001 Browse MS Energisation Statuses (PRS and DC) | Report MS History, EAC and AAs |
| N1002 Browse MS Settlement Configurations (PRS and DC) | Report MS History, EAC and AAs |
| N1003 Browse MS Profile Classes (PRS and DC) | Report MS History, EAC and AAs |
| N1004 Browse MS Regns (PRS and DC) & DC & DA Appts | Report MS History, EAC and AAs |
| N1005 Browse MS GSP Groups (PRS and DC) | Report MS History, EAC and AAs |
| N1006 Browse MS Measurement Classes (PRS and DC) | Report MS History, EAC and AAs |
| N1007 Produce Ad-Hoc Reports | Oracle Report |
| N1008 Produce Ad-Hoc Audit Reports | Operating System Tools |
| N1008 Produce Ad-Hoc Audit Reports | Oracle Report |
| N1009 Browse Data Aggregation Run Schedule | Schedule Aggregation Run |
| N1011 Browse File Loading Statuses | Browse File Loading Statuses |
| N1014 Report GSP Groups | Report GSP Groups |
| N1015 Report Profile Classes | Report Profile Class and Associated Items |
| N1016 Report SSC and Associated Items | Report SSC and Associated Items |
| N1018 Report Average Fractions Of Yearly Consumption | Report Average Fractions Of Yearly Consumption |
| N1021 Browse MS and Associated Items | Report MS and Associated Items |
| N1023 Report Line Loss Factor Classes | Report Distributor and Associated Items |
| N1025 Report MS and Associated Items | Report MS and Associated Items |
| N1026 Report MS Energisation Statuses (PRS and DC) | Report MS History, EAC and AAs |
| N1027 Report MS Profile Classes (PRS and DC) | Report MS History, EAC and AAs |
| N1028 Report MS Regns (PRS and DC) & DC & DA Appts | Report MS History, EAC and AAs |
| N1029 Report MS GSP Groups (PRS and DC) | Report MS History, EAC and AAs |
| N1030 Report MS Measurement Class (PRS and DC) | Report MS History, EAC and AAs |
| N1031 Report MS Settlement Configurations (PRS and DC) | Report MS History, EAC and AAs |
| N1032 Browse Instructions | Report Instructions |
| N1033 Report Instructions | Report Instructions |
| N1036 Browse MS Line Loss Factor Classes | Report MS History, EAC and AAs |
| N1037 Report MS Line Loss Factor Classes | Report MS History, EAC and AAs |
| N1038 Browse MS EAC's and AA's | Report MS History, EAC and AAs |
| N1039 Report MS EAC's and AA's | Report MS History, EAC and AAs |
| N1040 Browse File Extraction And Transmission Statuses | Browse File Extraction And Transmission Statuses |
| N1042 Report Settlements | Report Data Aggregation Run Schedule |
| N1045 Report GSP Group Distributors | Report GSP Groups |
| N1046 Report ISR Agent Appointments | Report GSP Groups |
| N1047 Report PRS Agent Appointments | Report Distributors and Associated Items |
| N1048 Report Refresh Instruction Failures | Report Refresh Instruction Failures |
| N1049 Browse Activity Schedule | Browse Activity Statuses |
| N1050 Browse Activity Queue Statuses | Browse Activity Queue Statuses |
| N1051 Browse Operator and Error Logs | Select Reports |
| N1052 Report on NHHDC Performance | DC Performance Report |
| N1053 Browse Aggregation Files | Browse Aggregation Files |
| N1054 Monthly report on D0095 Reports | Request Monthly D0095 Report |

## Physical - Logical mapping

| Heading in NTSPEC | Logical Function |
| --- | --- |
| Browse Activity Queue Statuses | N1050 Browse Activity Queue Statuses |
| Browse Activity Statuses | N1049 Browse Activity Schedule |
| Browse File Extraction And Transmission Statuses | N0027 Browse Exception Data |
| Browse File Extraction And Transmission Statuses | N0028 Report Exception Data |
| Browse File Extraction And Transmission Statuses | N1040 Browse File Extraction And Transmission Statuses |
| Browse File Loading Statuses | N1011 Browse File Loading Statuses |
| Check Data Collector Data | N0010 Check Data Collector Data |
| Common | N0029 Maintain System Configuration Data |
| Database | N0003 Restore |
| Database | N0009 Archive Settlement Data |
| Database | N0023 Specify Data Accessible to Ad-Hoc Reports |
| Database | N0030 System Initialisation |
| DC Performance Report | N1052 Report on NHHDC Performance |
| Define Average Fraction Of Yearly Consumption | N0011 Define Average Fraction Of Yearly Consumption |
| Define Average Fraction Of Yearly Consumption | N0011E Browse Average Fraction Of Yearly Consumption |
| Define GSP Groups | N0014 Define GSP Groups |
| Define GSP Groups | N0014E Browse GSP Groups |
| Define Line Loss Factor Classes | N0016 Define Line Loss Factor Classes |
| Define Line Loss Factor Classes | N0016E Browse Line Loss Factor Classes |
| Define Profile Classes | N0001 Define Profile Classes |
| Define Profile Classes | N0001E Browse Profile Classes |
| Define Standard Settlement Configuration | N0019 Define Standard Settlement Configuration |
| Define Standard Settlement Configuration | N0019E Browse Standard Settlement Configuration |
| Define Threshold Parameters | N0020 Define Threshold Parameters |
| Define Threshold Parameters | N0020E Browse Threshold Parameters |
| Generate Supplier Purchase Matrix | N0005 Generate Supplier Purchase Matrix |
| Maintain Market Participant | N0006 Define Suppliers |
| Maintain Market Participant | N0006E Browse Suppliers |
| Maintain Market Participant | N0012 Define Data Collectors |
| Maintain Market Participant | N0012E Browse Data Collectors |
| Maintain Market Participant | N0013 Define Distributors and PRS Agents |
| Maintain Market Participant | N0013E Browse Distributors and PRS Agents |
| Maintain Market Participant | N0015 Define ISR Agents |
| Maintain Market Participant | N0015E Browse ISR Agents |
| Manage Failed Instructions | N0004 Manage Failed Instructions (includes Resend and Return Faailed Instructions) |
| Manage Failed Refresh Instructions | N0037 Manage Refresh Instruction Failures |
| Manage Instruction Files | N0035 Manage Instruction Files |
| Manage Refresh Instructions | N0034 Manage Refresh Instructions |
| NAR | N0008 Aggregate EACs and AAs |
| NAR | N0026 Automatically Send Supplier Purchase Matrix |
| NCD | N0010 Check Data Collector Data |
| NLD | N0036 Load Pool Market Domain Data |
| NLD | N0024 Load Pool Settlement Timetable |
| NMI | N0004 Manage Failed Instructions |
| NMI | N0031 Instruction File Arrival |
| NMI | N0032 Process Instructions |
| Operating System Tools | N1008 Produce Ad-Hoc Audit Reports |
| Oracle Report | N1007 Produce Ad-Hoc Reports |
| Oracle Report | N1008 Produce Ad-Hoc Audit Reports |
| Report Average Fractions Of Yearly Consumption | N1018 Report Average Fractions Of Yearly Consumption |
| Report Data Aggregation Run Schedule | N1042 Report Settlements |
| Report Distributors and Associated Items | N1023 Report Line Loss Factor Classes |
| Report Distributors and Associated Items | N1047 Report PRS Agent Appointments |
| Report Exceptions | N0027 Browse Exception Data |
| Report Exceptions | N0028 Report Exception Data |
| Report GSP Groups | N1014 Report GSP Groups |
| Report GSP Groups | N1045 Report GSP Group Distributors |
| Report GSP Groups | N1046 Report ISR Agent Appointments |
| Report Instructions | N1032 Browse Instructions |
| Report Instructions | N1033 Report Instructions |
| Report MS and Associated Items | N1021 Browse MS and Associated Items |
| Report MS and Associated Items | N1025 Report MS and Associated Items |
| Report MS History, EAC and AAs | N1038 Browse MS EAC's and AA's |
| Report MS History, EAC and AAs | N1039 Report MS EAC's and AA's |
| Report MS History, EAC and AAs | N1001 Browse MS Energisation Statuses (PRS and DC) |
| Report MS History, EAC and AAs | N1002 Browse MS Settlement Configurations (PRS and DC) |
| Report MS History, EAC and AAs | N1003 Browse MS Profile Classes (PRS and DC) |
| Report MS History, EAC and AAs | N1004 Browse MS Regns (PRS and DC) & DC & DA Appts |
| Report MS History, EAC and AAs | N1005 Browse MS GSP Groups (PRS and DC) |
| Report MS History, EAC and AAs | N1006 Browse MS Measurement Classes (PRS and DC) |
| Report MS History, EAC and AAs | N1026 Report MS Energisation Statuses (PRS and DC) |
| Report MS History, EAC and AAs | N1027 Report MS Profile Classes (PRS and DC) |
| Report MS History, EAC and AAs | N1028 Report MS Regns (PRS and DC) & DC & DA Appts |
| Report MS History, EAC and AAs | N1029 Report MS GSP Groups (PRS and DC) |
| Report MS History, EAC and AAs | N1030 Report MS Measurement Class (PRS and DC) |
| Report MS History, EAC and AAs | N1031 Report MS Settlement Configurations (PRS and DC) |
| Report MS History, EAC and AAs | N1036 Browse MS Line Loss Factor Classes |
| Report MS History, EAC and AAs | N1037 Report MS Line Loss Factor Classes |
| Report Profile Class and Associated Items | N1015 Report Profile Classes |
| Report Refresh Instruction Failures | N1048 Report Refresh Instruction Failures |
| Report SSC and Associated Items | N1016 Report SSC and Associated Items |
| Request Monthly D0095 Report | N1054 Monthly Report on D0095 Reports |
| Schedule Aggregation Run | N0022 Schedule Aggregation Run |
| Schedule Aggregation Run | N1009 Browse Data Aggregation Run Schedule |
| Select Reports | N1051 Browse Operator and Error Logs |