December 2001

ASSESSMENT REPORT

MODIFICATION PROPOSAL P40 – CALCULATION OF NEGATIVE ESTIMATES OF ANNUAL CONSUMPTION (EAC)

Prepared by the Volume Allocation Modification Group on behalf of the Balancing and Settlement Code Panel

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1 SUMMARY AND RECOMMENDATIONS

The summary and recommendations are included as a separate document in Attachment 1.

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2 INTRODUCTION

This Report has been prepared by ELEXON Ltd., on behalf of the Balancing and Settlement Code Panel ('the Panel'), in accordance with the terms of the Balancing and Settlement Code ('BSC'). The BSC is the legal document containing the rules of the balancing mechanism and imbalance settlement process and related governance provisions. ELEXON is the company that performs the role and functions of the BSCCo, as defined in the BSC.

An electronic copy of this document can be found on the BSC website, at www.elexon.co.uk

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3 PURPOSE AND SCOPE OF THE REPORT

BSC Section F sets out the procedures for progressing proposals to amend the BSC (known as 'Modification Proposals'. These include procedures for proposing, consulting on, developing, evaluating and reporting to the Authority on potential modifications.

The BSC Panel is charged with supervising and implementing the modification procedures. ELEXON provides the secretariat and other advice, support and resource required by the Panel for this purpose. In addition, if a modification to the Code is approved or directed by the Authority, ELEXON is responsible for overseeing the implementation of that amendment (including any consequential changes to systems, procedures and documentation).

The Panel may decide to submit a Modification Proposal to an 'Assessment Procedure'[1]. Under this procedure, a Modification Group is tasked with undertaking a detailed assessment of the proposal to evaluate whether it better facilitates achievement of the Applicable BSC Objectives[2]. The group may also develop an alternative proposal if it believes that the alternative would better facilitate achievement of the objectives.

The Modification Group must prepare a report for the Panel, setting out the results of the assessment of the modification proposal and any alternative. The following matter should be included (to the extent applicable to the proposal in question)[3]:

(a) an analysis of and the views and rationale of the Modification Group as to whether (and, if so, to what extent) the Proposed Modification would better facilitate achievement of the Applicable BSC Objective(s);

(b) a description and analysis of any Alternative Modification developed by the Modification Group which, as compared with the Proposed Modification, would better facilitate achievement of the Applicable BSC Objective(s) and the views and rationale of the Group in respect thereof;

(c) an assessment or estimate (as the case may be) of:

  (i) the impact of the Proposed Modification and any Alternative Modification on BSC Systems;

  (ii) any changes and/or developments which would be required to BSC Systems in order to give effect to the Proposed Modification and any Alternative Modification;

  (iii) the total development and capital costs of making the changes and/or delivering the developments referred to in paragraph (ii);

  (iv) the time period required for the design, build and delivery of the changes and/or developments referred to in paragraph (ii);

  (v) the increase or decrease in the payments due under the BSC Agent Contracts in consequence of the Proposed Modification and any Alternative Modification;

  (vi) the additional payments (if different from those referred to in paragraph (v)) due in connection with the operation and maintenance of the changes and/or developments to BSC Systems as a result of the Proposed Modification and any Alternative Modification;

[1] See BSC F2.6
[2] As defined in the Transmission Licence
[3] See BSC F2.6.4 and Annex F-1

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(vii) any other costs or liabilities associated with BSC Systems attributable to the Proposed Modification and any Alternative Modification;

(d) an assessment of:

(i) the impact of the Proposed Modification and any Alternative Modification on the Core Industry Documents;

(ii) the changes which would be required to the Core Industry Documents in order to give effect to the Proposed Modification and any Alternative Modification;

(iii) the mechanism and likely timescale for the making of the changes referred to in paragraph (ii);

(iv) the changes and/or developments which would be required to central computer systems and processes used in connection with the operation of arrangements established under the Core Industry Documents;

(v) the mechanism and likely timescale for the making of the changes referred to in paragraph (iv);

(vi) an estimate of the costs associated with making and delivering the changes referred to in paragraphs (ii) and (iv),

together with a summary of representations in relation to such matters;

(e) an assessment of:

(i) the likely increase or decrease in BSC Costs (to the extent not already taken into account in paragraph (c) above) in consequence of the Proposed Modification and any Alternative Modification;

(ii) the changes required to Systems and processes of BSCCo in order to give effect to the Proposed Modification and any Alternative Modification; and

(iii) the BSC Costs which are expected to be attributable to the implementation of the Proposed Modification and any Alternative Modification, to the extent not taken into account under any other provision above;

(f) to the extent such information is available to the Modification Group, an assessment of the impact of the Proposed Modification and any Alternative Modification on Parties in general (or classes of Parties in general) and Party Agents in general, including the changes which are likely to be required to their internal systems and processes and an estimate of the development, capital and operating costs associated with implementing the changes to the Code and to Core Industry Documents;

(g) an assessment of the Proposed Modification and any Alternative Modification in the context of the statutory, regulatory and contractual framework within which the Code sits (taking account of relevant utilities, competition and financial services legislation);

(h) a summary of the representations made by Parties and interested third parties during the consultation undertaken in respect of the Proposed Modification and any Alternative Modification and the views and comments of the Modification Group in respect thereof;

(i) a summary of the analysis and impact assessment prepared by the Transmission Company and the views and comments of the Modification Group in respect thereof;

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(j) a summary of the impact assessment prepared by relevant BSC Agents and the views and comments of the Modification Group in respect thereof;

(k) a summary of any impact assessment prepared by Core Industry Document Owners and the views and comments of the Modification Group in respect thereof;

(l) a copy of the terms of reference and any report or analysis of external consultants or advisers engaged in respect thereof;

(m) a list of the key assumptions which the Modification Group has made in formulating its views;

(n) any other matters required by the terms of reference of such Modification Group;

(o) any other matters which the Modification Group consider should properly be brought to the attention of the Panel to assist the Panel in forming a view as to whether the Proposed Modification and any Alternative Modification would better facilitate achievement of the Applicable BSC Objective(s);

(p) subject to paragraph 2.6.8 and 2.6.9 of Section F of the BSC, the proposed text to modify the Code in order to give effect to the Proposed Modification and any Alternative Modification, together with a commentary setting out the nature and effect of such text and of other areas of the Code which would be affected by the changes;

(q) the Modification Group's proposed Implementation Date(s) for implementation (subject to the consent of the Authority) of the Proposed Modification and any Alternative Modification;

(r) an executive summary of the project brief prepared by BSCCo;

(s) a recommendation (where applicable) as to whether, if the Proposed Modification or Alternative Modification is approved, Settlement Runs and Volume Allocation Runs carried out after the Implementation Date of such Approved Modification in respect of Settlement Days prior to that date should be carried out taking account of such Approved Modification or not;

(t) the proposed text (if any) to modify the Memorandum and Articles of Association of BSCCo and/or the BSC Clearer in order to give effect to the Proposed Modification and any Alternative Modification, together with a commentary setting out the nature and effect of such text and of other areas of the Memorandum and Articles of Association and/or the Code which would be affected by the changes; and

(u) a summary of any changes which would be required to Code Subsidiary Documents as a consequence of such Proposed Modification or Alternative Modification.

This Assessment Report therefore addresses all of the above items to the extent relevant to the Modification Proposal in question.

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4 MODIFICATION GROUP DETAILS

This Definition Report has been prepared by the Volume Allocation Modification Group (VAMG). The Membership of the Modification Group was as follows:

Peter Davies	ELEXON (Chairman)
Peter Merrick	SEEBOARD (Proposer)
Bob Brown	St Clements Services
Rob Cullender	BGT
Richard Harrison	NPower
Paul Jones	Power Gen
Neil Magill	Scottish Power
Chris Pooley	Campbell Carr
Phil Russell	TXU-Europe
Colin Garland/Jerome Williams	OFGEM
Clare Talbot	NGC
John Lucas	ELEXON
David McNair	ELEXON (Secretary)

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5 DESCRIPTION AND ASSESSMENT AGAINST THE APPLICABLE BSC OBJECTIVES

This section of the report describes Modification Proposal P40, and assesses the extent to which it would better facilitate achievement of the Applicable BSC Objectives:

- Section 5.1 describes the current method for calculation of Estimated Annual Consumption (EAC) values.
- Section 5.2 describes the Proposed Modification.
- Section 5.3 assesses the Proposed Modification against the Applicable BSC Objectives.

The Modification Group also examined a number of possible alternative solutions to the issues raised by Modification Proposal P40, but concluded that none of them would constitute an appropriate Alternative Modification Proposal. Section 5.4 describes these other possible solutions considered by the Group.

5.1 Current Method For Calculation of EAC Values

Annex S-2 of the BSC specifies that each Non Half Hourly meter advance processed for settlement purposes should be converted into two separate estimates of annualised consumption:

- The Annualised Advance (AA) is used for settling those Settlement Days that fall within the period of the meter advance. It is derived by 'scaling up' the meter advance value to reflect consumption over a typical year.
- The Estimated Annual Consumption (EAC) is used to settle Settlement Days after the end of the Meter Advance Period (until such time as the next meter advance enters the settlement process).

The EAC value is intended to take into account the Annualised Advance value, but with an additional element of 'smoothing' to limit the extent to which a single AA value (which may not be representative of the customer's typical demand level) can affect the forward-looking EAC value. Annex S-2 of the BSC therefore states that an EAC value should be set equal to:

$$AAAF_{KR} * AA_{KR} + (1 - AAAF_{KR}) * PEAC_{KR}$$

where:

- AA_{KR} is the Annualised Advance (i.e. the one calculated from this meter advance);
- $PEAC_{KR}$ is the Previous EAC (i.e. the one calculated from the previous meter advance for this register)
- $AAAF_{KR}$ is an Annualised Advance Adjustment Factor, specifying the weighting that should be given to the AA. This is calculated separately for each AA, and depends upon the length of the Meter Advance Period.

5.1.1 Causes of Negative EAC Values

As the Annualised Advance Adjustment Factor is always positive, a negative EAC value can only arise if:

- The Annualised Advance is negative (which would mean that the meter advance itself is negative); and/or
- The Previous EAC value is negative.

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However, even if the immediate cause of the negative EAC is a previous negative EAC, this previous negative EAC must itself have a cause. Ultimately, any sequence of negative EAC values must start with a negative meter advance, so in all cases the ultimate cause of a negative EAC will be a negative meter advance. (The converse is not true however i.e. a negative meter advance will not necessarily lead to a negative EAC.)

The underlying causes of negative EAC values are therefore related to the underlying causes of negative meter advances. The Modification Group agreed that these underlying causes could usefully be divided into three categories:

1. Cases where the settlement processes are followed correctly, but a negative meter advance nonetheless results. The most common example of this is likely to be when a Deemed Meter Advance (calculated for example on Change of Supplier) is higher than a subsequent actual meter read, leading to a negative meter advance.
2. Cases where a process failure leads directly to a negative meter advance. An example of this would be if a Non Half Hourly Data Collector misinterpreted a meter rollover as a large negative advance.
3. Cases where a process failure leads to a large positive meter advance, which is not withdrawn prior to Final Reconciliation, and the Non Half Hourly Data Collector therefore has to correct the overall volume of energy settled by 'compensating' for the large positive advance with a negative meter advance. (This practice is consistent with ELEXON guidelines on Gross Volume Correction).

The following diagram illustrates the first of these three causes (i.e. a negative EAC caused by a Deemed Meter Advance):

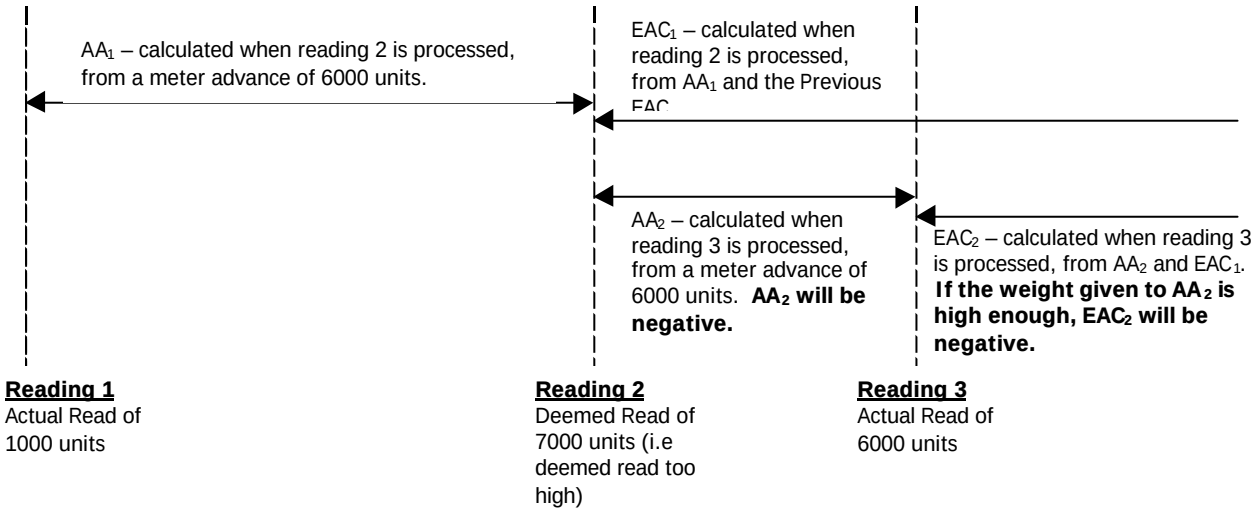

Figure 1 – Example of Negative EAC

5.1.2 Materiality of Negative EAC Values

Annex 4 of this report describes an analysis of negative EAC values (for one particular Non Half Hourly Data Aggregator in one particular GSP Group). One of the key findings of the analysis is that (for this NHHDA), Modification Proposal P40 would increase by some 0.75% the total volume of (uncorrected) Non Half Hourly energy at Initial Settlement.

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5.2 Description of Proposed Modification

Modification Proposal P40 proposes that:

- The rules for calculating Annualised Advances should remain unchanged, so a negative meter advance should still lead to a negative Annualised Advance. This is necessary because, in many cases, the negative AA is compensating for a previous AA that was too high (and cannot now be withdrawn).
- The rules for calculating Estimated Annual Consumption values should be amended to replace any negative values with an appropriate default value. The rationale for this is that a negative meter advance is caused by a specific event (e.g. an error in interpreting a meter reading, or a Deemed Meter Advance being too high) and does not indicate that subsequent meter advances will also be negative. It is therefore inappropriate for the EAC (which is used in lieu of future meter advances) to take a negative value.

To be specific, Modification Proposal P40 proposes that a negative EAC value should be replaced by a default value calculated from the GSP Group Profile Class Average EAC ($GGPCAEAC_{HPC}$) for GSP Group H, Profile Class P and Standard Settlement Configuration C. The EAC value will therefore be calculated as follows:

If $(AAAF_{KR} * AA_{KR} + (1 – AAAF_{KR}) * PEAC_{KR}) >= 0$, then

$$EAC_{KR} = AAAF_{KR} * AA_{KR} + (1 – AAAF_{KR}) * PEAC_{KR}$$

else

$$EAC_{KR} = GGPCAEAC_{HPC} * AFYC_{HPR}$$

Annex 1 of this report contains draft legal text to make the above change to paragraph 4.3.7 of Annex S-2 of the Balancing and Settlement Code.

5.2.1 Technical Options for Implementation of P40

Although the calculation of EAC values is a Non Half Hourly Data Collector (NHHDC) responsibility, ELEXON provides EAC/AA calculation software that NHHDC can use to perform the calculation. There are therefore three technical options for implementing Modification Proposal P40:

- Technical Option 1 is to implement the full functionality in ELEXON's EAC/AA calculator. This minimises any change to NHHDC systems, but would require that the EAC/AA calculator be enhanced to load and store Market Domain Data (MDD).
- Technical Option 2 is to amend the EAC/AA calculator so that it replaces a negative EAC value with a null value, as a signal to NHHDC that they should substitute the Class Average EAC. This is the approach currently taken on Change of Profile Class during a Meter Advance Period.
- Technical Option 3 is to leave the EAC/AA calculator unchanged, placing the responsibility to detect a negative EAC and replace it with a Class Average EAC on the NHHDC.

The consultation paper issued by the Modification Group sought the views of Parties on which of these options was most appropriate.

5.3 Assessment of Proposed Modification

As noted in section 5.1.2 above, the existence of negative EAC values does have a small but noticeable effect on the volume of (uncorrected) Non Half Hourly energy entering settlement at Initial Settlement.

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In the case of the particular NHHDA whose data was analysed, the removal of negative EAC values (through the implementation of Modification Proposal P40) would increase this volume of energy by some 0.75%. However, the view of the Modification Group is that removing negative EAC values in this way would not better facilitate achievement of the Applicable BSC Objectives, for the following reasons:

- Although the Modification Group had some sympathy for the Proposer's view that it is inherently anomalous for a forward-looking estimate of consumption to take a negative value, they also noted that where a negative EAC value occurs, either the previous or the subsequent EAC will typically be too large. The two errors do to some extent compensate for each other, and removing only one of them runs the risk of introducing a systematic distortion into the (uncorrected) Non Half Hourly energy values entering settlement, which could hinder effective competition in the supply of electricity. Section 5.3.1 below discusses this in more detail.
- Even if one were to accept that negative EAC values are undesirable in principle, their actual effect on the accuracy of DUoS billing and settlement is extremely limited, with any inaccuracies being resolved through the mechanism of Reconciliation. The Modification Group therefore believe that the costs of making the change would outweigh the benefits (and that the cost of implementation would therefore hinder rather than promote effective competition in the supply of electricity). Section 5.3.2 below discusses this in more detail.

5.3.1 Are Negative EAC Values Inappropriate In Principle?

Modification Proposal P40 argues that it is intrinsically inappropriate for an EAC to take a negative value, given that an EAC is a forward-looking estimate of consumption, and it would never be reasonable to expect the consumption recorded on a Non Half Hourly meter to be negative on an ongoing basis.

The Modification Group accepted that there was some merit in this argument. However, even though a negative EAC can be regarded as intrinsically erroneous, it should be noted that a negative EAC normally forms one half of a pair of erroneous EAC values, one of which is too large, and one of which is too small. For instance, in the example illustrated in section 5.1.1 of this document, EAC_1 and EAC_2 form a pair of EAC values, one of which is too large, and one of which is too small. (Similarly, AA_1 and AA_2 form a pair of AA values, one of which is too large, and one of which is too small).

It can therefore be argued that removing negative EAC values from settlement, but leaving the erroneously large EAC values unchanged, is reducing the accuracy of settlement, and introducing a systematic distortion into settlement and DUoS billing[4]. The Modification Group felt that this might hinder rather than facilitate effective competition in the supply of electricity, and were therefore unconvinced that P40 would (even in principle) better facilitate achievement of the Applicable BSC Objectives.

5.3.2 How Do Negative EAC Values Affect DUoS Billing and Settlement?

In addition to discussing whether negative EAC values are in fact inappropriate, the Modification Group also attempted to understand their impact on the accuracy of settlement and DUoS billing. The key conclusions of the Group can be summarised as follows:

[4] There was some discussion at the Modification Group meeting on 25th October of whether it would be appropriate to consider an Alternative Modification Proposal that removed both negative and erroneously large EAC values from settlement. However, the Proposer expressed the view, which the Modification Group accepted, that this would be a different Modification Proposal entirely.

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- Provided that the negative EAC is replaced by an Annualised Advance prior to Final Reconciliation, the negative EAC is only a cashflow issue, in that the normal Reconciliation process will remove it from settlement and DUoS billing.
- If the negative EAC is not replaced by an Annualised Advance prior to Final Reconciliation, the negative EAC will have an effect on the energy volumes in Final Reconciliation. However, once the next meter reading does arrive, the Non Half Hourly Data Collector is obliged to deem a meter advance for that portion of the Meter Advance Period which has passed Final Reconciliation. This has the effect of ensuring that the total volume of energy entering settlement is correct. However, the distribution of energy across the Meter Advance Period will not be correct, and this will have an effect on the imbalance charges to which the Supplier is liable.
- If the negative EAC is not replaced by an Annualised Advance prior to Final Reconciliation, and the Non Half Hourly Data Collector fails to deem a meter advance correctly, then the total volume of energy entering settlement will also be wrong. ELEXON has reviewed the known audit issues identified by the BSC Auditor, and it does appear that some Non Half Hourly Data Collectors may not be complying with the requirement to deem a meter advance where the Meter Advance Period is more than fourteen months in duration.

5.4 Other Possible Solutions to Issues Raised by P40

In addition to P40 itself, the Modification Group also considered a number of other possible solutions to the issues raised by P40. This section 5.4 describes these other possible options, and is structured as follows:

- Sections 5.4.1 to 5.4.3 describe alternative solutions that also remove negative EAC values from settlement, but in a slightly different way to P40 itself.
- Sections 5.4.4 and 5.4.5 describe alternative solutions that seek to prevent negative meter advances from entering settlement in the first place.

However, after considering the consultation responses received, the view of the Modification Group was that none of these alternatives would better facilitate achievement of the Applicable BSC Objectives, and that therefore none of them constituted an appropriate Alternative Modification Proposal. Sections 5.4.1 to 5.4.5 explain the reasons for this.

5.4.1 Use of Previous EAC Value

One of the options identified in Modification Proposal P40 was to substitute the previous EAC for a negative EAC. However, it should be noted that one of the causes of a negative EAC is when a negative advance has been deliberately introduced into settlement to compensate for a previous erroneously large advance. Under these circumstances, the Previous EAC is the one associated with the erroneously large advance, which is likely to be erroneously large itself. For this reason, the Modification Group felt that using the Previous EAC was probably not an appropriate solution to the issues raised by Modification Proposal P40, and decided not to issue it for impact assessment.

5.4.2 Setting EAC to zero

One of the options identified in Modification Proposal P40 was to substitute a zero EAC for a negative EAC. This would still result in an under-accounting of energy in settlements, but to a lesser extent than using a negative EACs. The Modification Group felt that this was a less robust solution than P40 itself,

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but had the possible advantage of being cheaper to implement. They therefore agreed to issue it for impact assessment.

However, after considering the impact assessments received, the Group concluded that this option was essentially a minor variation on the theme of P40, and was therefore inappropriate for the same reasons as P40 itself (as described in section 5.3 of this report).

5.4.3 Implementation in NHHDA

The Modification Group discussed the possibility of preventing negative EAC values from entering settlement through changes to the Non Half Hourly Data Aggregation (NHHDA) software, rather than the NHHDC software. There would be two possible options here:

- Amending the NHHDA software so that it replaces negative EAC values with a substitute value prior to writing them to the NHHDA database.
- Writing negative EAC values to the NHHDA database as currently, but amending the Data Aggregation process so that it substitutes an appropriate value when constructing the Supplier Purchase Matrix (SPM).

Again the Group concluded that this option was essentially a minor variation on the theme of P40, and was therefore inappropriate for the same reasons as P40 itself (as described in section 5.3 of this report).

5.4.4 Tighter Validation Requirements on NHHDC

The Terms of Reference provided to the Volume Allocation Modification Group by the BSC Panel required them to look at solutions that avoided negative meter advances from arising in the first place. One such solution would be to tighten the validation requirements on Non Half Hourly Data Collectors (NHHDC), to ensure that negative advances were flagged up and trapped before entering settlement.

Philip Twiddy of ELEXON, who has been involved in the process of "cleansing" large EAC/AA values, reported to the meeting that the number of meter readings already flagged up to Non Half Hourly Data Collectors by the validation routines was already high. He expressed concern that further tightening the validation requirements might lead to their ability to process these exceptions being swamped, and suggested that the alternative approach described in section 5.4.5 of this document might be preferable.

The impact assessment responses received appeared to support this view, and the Modification Group therefore concluded that the operational burden placed on Supplier Agents by this option would hinder rather than promote effective competition in the supply of electricity.

5.4.5 Removing from Settlement Meter Advances Rejected by Suppliers

It was suggested at the Modification Group that Suppliers typically do not bill customers for negative or excessively large meter advances i.e. they have processes within their billing systems to reject advances that are clearly unreasonable. However, the fact that they have chosen not to bill on the reading does not get fed back to the Data Collector, and the erroneous reading still enters settlement.

One possible approach to preventing negative advances from entering settlement would therefore be as follows:

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- Put an obligation on Suppliers to inform the Non Half Hourly Data Collector (NHHDC) when they have decided that a meter reading is erroneous, and decided not to bill the customer on it. (It may be that a new DTC flow would be an appropriate mechanism for this.)
- Oblige the Non Half Hourly Data Collector to reconsider the meter reading under these circumstances, and withdraw it from settlement unless they have good reason to believe that it is in fact valid.

This option was included in the P40 consultation paper. However, the responses (summarised in section 12 of this document) indicated that this option would have a very considerable impact on Suppliers and their Agents. The Group therefore concluded that the costs of this option would outweigh the benefits (which are likely to be small for the reasons stated in section 5.3.2 of this report), and that therefore the cost of implementation would hinder rather than promote effective competition in the supply of electricity.

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6 IMPACT ON BSC AND BSCCO DOCUMENTATION

6.1 BSC

Modification Proposal P40 requires an amendment to paragraph 4.3.7 of Annex S-2 of the BSC, as described in Annex 1 of this report.

6.2 Code Subsidiary Documents

The impact on Code Subsidiary Documents depends upon which of the implementation options described in section 5.2.1 of this report was chosen. In particular, technical options 2 and 3 would require new obligations on Non Half Hourly Data Collectors, and would therefore require changes to the NHHDC Service Line.

6.3 BSCCo Memorandum and Articles of Association

No changes would be required to the BSSCo Memorandum and Articles of Association.

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7 IMPACT ON BSC SYSTEMS

7.1 Registration

No impact identified.

7.2 Contract Notification

No impact identified.

7.3 Credit Checking Systems

No impact identified.

7.4 Balancing Mechanism Activities

No impact identified.

7.5 Collection and Aggregation of Metered Data

No impact identified.

7.6 Supplier Volume Allocation

Modification Proposal P40 would require changes to the processes performed by Non Half Hourly Data Collectors (NHHDC).

As noted in section 5.2.1 of this report, the Modification Group identified three technical options for implementing these changes, two of which require amendments to the ELEXON-developed EAC/AA calculator. Annex 3 of this report contains the impact assessments for these software changes from the EAC/AA developer.

7.7 Settlement

No impact identified.

7.8 Clearing, Invoicing and Payment

No impact identified.

7.9 Reporting

No impact identified.

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8 IMPACT ON CORE INDUSTRY DOCUMENTS AND SUPPORTING ARRANGEMENTS

The Modification Group believes that neither Modification Proposal P11 nor the Alternative Modification Proposal would require amendments to Core Industry Documents. In particular, none of the following documents would be affected:

- Grid Code;
- Master Connection and Use of System Agreement (MCUSA);
- Supplemental Agreements;
- Ancillary Services Agreements (ASAs);
- Master Registration Agreement (MRA);
- Data Transfer Services Agreement (DTSA);
- British Grid Systems Agreement (BGSA);
- Use of Interconnector Agreement;
- Pooling and Settlement Agreement (PSA);
- Settlement Agreement for Scotland (SAS)[5];
- Distribution Codes;
- Distribution Use of System Agreements (DUoSAs); and
- Distribution Connection Agreements

[5] Strictly speaking, Modification Proposal P40 relates purely to the BSC, and has no impact on the Settlement Agreement for Scotland (SAS). However, it should be noted that the SAS includes Trading Arrangements very similar to those in Section S of the BSC. If Modification Proposal P40 were to be approved, SESL and the Scottish Modification Panel might well choose to consider whether a similar change should be made to the SAS. However, this would be done under the Scottish change control procedures, outside the scope of the BSC.

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9 IMPACT ON ELEXON

No impact has been identified on ELEXON processes or systems.

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10 IMPACT ON PARTIES AND PARTY AGENTS

10.1 Parties

Modification Proposal P40 does not mandate any change to Party processes. However, as described on section 12.5 of this report, some Parties have stated that it would have an impact on their systems.

10.2 Party Agents

The impact on Code Subsidiary Documents depends upon which of the implementation options described in section 5.2.1 of this report was chosen. In particular, technical options 2 and 3 would require new obligations on Non Half Hourly Data Collectors, and would therefore require changes to NHHDC processes.

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11 LEGAL ISSUES

Modification Proposal P40 is not believed to raise any issues with regard to the statutory, regulatory and contractual framework within which the Code sits.

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12 SUMMARY OF REPRESENTATIONS

On 6th November 2001 (following the meeting of the Volume Allocation Modification Group on 25th October 2001), a consultation paper on Modification Proposal P40 was issued to parties on the Modification contact list for consultation, and to BSC Change Administrators (BCAs) and Party Agent Change Administrators (PACAs) for impact assessment.

The Volume Allocation Modification Group then met on 22nd November 2001 to consider the responses.

12.1 Summary of Responses received

The following parties sent a response to the Consultation Paper and the HLIA in CPC 63:-

- Utility Link Ltd
- London Electricity Group
- Western Power Distribution
- TXU Europe
- SEEBOARD
- NPower Ltd
- Scottish and Southern Energy Plc
- Powergen UK Plc

The following parties sent a response to the HLIA in CPC 63 only:

- Yorkshire Electricity Distribution
- IMServ
- GPU Power
- ELEXON
- Siemens Metering (Ruddington)
- Siemens Metering (Wollaton)
- Northern Electric Distribution.

Annex 2 of this document contains the full text of these responses. The remainder of this section 12 summarises the responses, and the views and comments in respect of those responses, as follows:

- Section 12.2 has a overview table showing which respondents supported P40, which openly rejected, and which didn't express a view directly on the Modification Proposal itself (but made comments on aspects of it).
- Section 12.3 discusses in more depth the views expressed in the overview table directly relating to which modification proposal, if any, better facilitates achievement of the Applicable BSC Objectives. Responses to questions 3 and 5 to 9 on the pro-forma are discussed in this section.
- Section 12.4 discusses the responses from parties to whether they had experienced negative EACs in some way, whether they believe this was an ongoing problems, and which was the most appropriate technical solution.

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- Section 12.5 tabulates the amount of notice required for each party to prepare for each of the 3 technical options and 2 alternative options that were submitted for impact assessment.

12.2 Overview Table

Party	Support P40	No View Expressed	Reject P40
Consultation Responses and HLIA responses			
Utility Link Ltd			•
London Electricity Group	•		
Western Power Distribution	•		
TXU Europe	•		
SEEBOARD	•		
NPower Ltd		•	
Scottish & Southern Energy plc		•	
Powergen UK plc	•		
Additional HLIA Responses			
Yorkshire Electricity Distribution	•		
IMServ		•	
GPU Power		•	
ELEXON		•	
Siemens Metering (Ruddington)		•	
Siemens Metering (Wollaton)		•	
Northern Electric Distribution	•		

12.3 Core Proposal and Alternatives

Questions 3 and 5 to 9 on the pro-forma related to the issue of which modification proposal, if any, best facilitates achievement of the Applicable BSC Objectives. The following views were expressed.

- London Electricity Group, Western Power Distribution, TXU Europe, SEEBOARD and Powergen UK plc responded from the Consultation Paper to say that they support the Modification Proposal P40. In addition, Yorkshire Electricity Distribution and Northern Electric Distribution also support P40 via CPC 36.

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- Scottish and Southern didn't express an opinion on P40, and NPower expressed concerns that the root causes of the negative EACs were not going to be addressed.
- Utility Link disagreed with P40, and disagreed with the Mods group that making the changes to the NHHDA systems would be too complex. They suggested that as the NHHDA already substituted class averages for other reasons, and issues a D0095, the alternative modification in Q7 was the most cost effective way to meet the objectives.
- Powergen, while supporting P40, doubt if the benefits to BSC parties will justify the costs of the developments proposed.

In summary, despite a few concerns, the respondents were mostly behind P40. However, for the reasons described in section 5.3 of this report, the view of the Modification Group was that neither Modification Proposal P40 nor any of the other solutions better facilitated the Applicable BSC objectives.

12.4 Negative EAC experience and technical solutions

Questions 1 and 2 related to any experience parties may have had of negative EACs, and question 4 asks for comment on the various technical solutions outlined.

12.4.1 Negative EAC experience

The level of negative EAC experiences varies from party to party. These levels are detailed, together with the parties that experienced them.

- Seeboard have partially quantified the effect of negative EACs, and they believe the full picture indicates a much greater effect than has been gauged so far.
- Western Power, TXU Europe are aware of the potential distortion by Negative EACs, but have no way of quantifying it, or have yet to undertake such a venture.
- Utility Link, are aware of only minimal distortion with regards to the effects of negative EACs.
- NPower believe that Erroneously high positive EACs, as well as negative EACs, significantly distort settlement.
- Yorkshire Electricity Distribution believe they are able to gauge the effects of negative EACs.

In summary, the majority of responding parties are aware of some effect of negative EACs, although there is no consensus on the level of the effect.

12.4.2 Technical Options

The technical options formulated by the modifications group are assessed by the parties as below:-

- London Electricity Group, Western Power Distribution, TXU Europe, SEEBOARD, NPower Ltd, and Yorkshire Electricity Distribution believe that technical option 1 (incorporating all the functionality into ELEXON's EAC/AA calculator) would be the most effective solution.
- London electricity believe that the cost of option 1 should be shared by all parties.
- SEEBOARD suggest that as other modification' developments could overlap technical option 1 (namely P43) delays could occur. They suggest amalgamating workload wherever possible.

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- TXU Europe, while favoring technical option 1 believe that technical option 2 (amending the EAC/AA software to produce a NULL on receipt of a negative EAC) is the more proven solution, as it has been used before.
- Utility Link Ltd, and Powergen UK believe that technical option 3 (incoperating all the functionality into NHHDC systems) would be the most effective solution. Yorkshire Power, while prefering technical option 1, believe that option 3 could catch the problem as early as possible.

In summary, the vast majority of respondants prefer incorporating the functionality into the EAC/AA calculator.

12.5 Effect of options under Impact Assessment

This table shows how much notice each party would require with each technical option of the main proposal, plus the two alternative proposals. Please note that these figures are given in man days and are approximate.

	Notice required for implementation of options (man days)				
Party	**Technical Option 1**	**Technical Option 2**	**Technical Option 3**	**Alternative Proposal 1**	**Alternative Proposal 2**
Utility Link Ltd	no impact	no impact	no impact	no impact	**180**
London Electricity Group	**30**	no impact	no impact	no impact	no impact
Western Power Distribution	no impact	no impact	no impact	no impact	no impact
TXU Europe	no impact	no impact	no impact	no impact	**Several Months**
SEEBOARD	**15**	**90**	**90**	**90**	**Unknown impact**
NPower Ltd	**240**	**240**	**240**	**240**	**240**
Scottish & Southern Energy plc	no impact	no impact	no impact	no impact	no impact
Powergen UK plc	no impact	no impact	no impact	no impact	**180**

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13 PROJECT BRIEF

In view of the Modification Group's recommendation to reject Modification Proposal P40, no Project Brief has been prepared.

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ANNEX 1 – PROPOSED TEXT TO MODIFY THE BSC

Proposed text to amend the BSC is as follows. It should be noted that this has not yet been legally reviewed. In view of the Modification Group's recommendation that Modification Proposal P40 be rejected, it is proposed (subject to the approval of the Panel and the Authority) that legal review of the draft text is not required.

ANNEX S-2: SUPPLIER VOLUME ALLOCATION RULES

4.3 Non Half Hourly Data Collection

No changes until...

4.3.7 For the purposes of this paragraph 4.3.7 the Previous Estimated Annual Consumption ($PEAC_{KR}$) shall be defined as the effective value of EAC_{KR} for each Settlement Day in the Meter Advance Period which applies before a new value is determined in accordance with this paragraph. An Annualised Advance Adjustment Factor ($AAAF_{KR}$) and a new Estimated Annual Consumption shall be determined as follows using the value of Annualised Advance determined pursuant to paragraph 4.3.4:

(a) $AAAF_{KR} = \max(0, \min((FYC_{KR} * SPAR), 1.0))$; and

(b) **if $(AAAF_{KR} * AA_{KR} + (1 - AAAF_{KR}) * PEAC_{KR}) >= 0$, then**

$$EAC_{KR} = AAAF_{KR} * AA_{KR} + (1 - AAAF_{KR}) * PEAC_{KR}$$

else

$$EAC_{KR} = GGPCAEAC_{HPC} * AFYC_{HPR}$$

where:

(a) SPAR is the value of the Smoothing Parameter set from time to time by the Panel applicable on the last Settlement Day of the Meter Advance Period;

(b) $GGPCAEAC_{HPC}$ is the value of the GSP Group Profile Class Average Estimated Annual Consumption for the GSP Group "H", Profile Class "P" and Standard Settlement Configuration "C" applying to the metering system on the Settlement Day following the last Settlement Day of the Meter Advance Period; and

(c) $AFYC_{HPR}$ is the value of the Average Fraction of Yearly Consumption for the GSP Group "H", Profile Class "P" and Standard Settlement Configuration and Time Pattern Regime combination "R" applying to the metering system on the Settlement Day following the last Settlement Day of the Meter Advance Period.

The Effective From Settlement Date for each such value of Estimated Annual Consumption shall be the date of the Settlement Day following the last Settlement Day of the Meter Advance Period and shall replace any previous Estimated Annual Consumption effective on such Settlement Days.

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ANNEX 2 – CONSULTATION RESPONSES

The consultation and impact assessment responses received during the Assessment Procedure are included as a separate document in Attachment 3.

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ANNEX 3 – BSC AGENT IMPACT ASSESSMENTS

The impact assessments received from the developer of the EAC/AA and Non Half Hourly Data Aggregation (NHHDA) software during the Assessment Procedure are included as a separate document in Attachment 3.

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ANNEX 4 – MATERIALITY OF NEGATIVE EAC VALUES

INTRODUCTION

ELEXON performed analysis to determine the extent and the effect of negative EACs upon Settlement using data provided by one NHHDA.

This analysis is intended to provide understanding of the:

- profile of the size of negative EACs being used in Settlement;
- the impact upon the Supplier Purchase Matrix (SPM) (which indicates the impact on DUoS and Supplier liabilities) of implementing a solution that replaces negative EACs with zero or class average EACs;
- number of negative EACs being used in Settlement; and
- profile of the duration and age of negative EACs being used in Settlement;

SUMMARY OF FINDINGS

- Approximately 50% of negative EACs are between 0 and – 1,000 kWh.
- Approximately 85 – 90% of negative EACs are between 0 and – 10,000 kWh.
- Substituting negative EACs with zero EACs would initially increase energy in the SPM by 0.3%.
- Substituting negative EACs with class average EACs would initially increase energy in the SPM by 0.75%.

DETAIL OF FINDINGS

This remainder of this Annex details the findings of the analysis performed.

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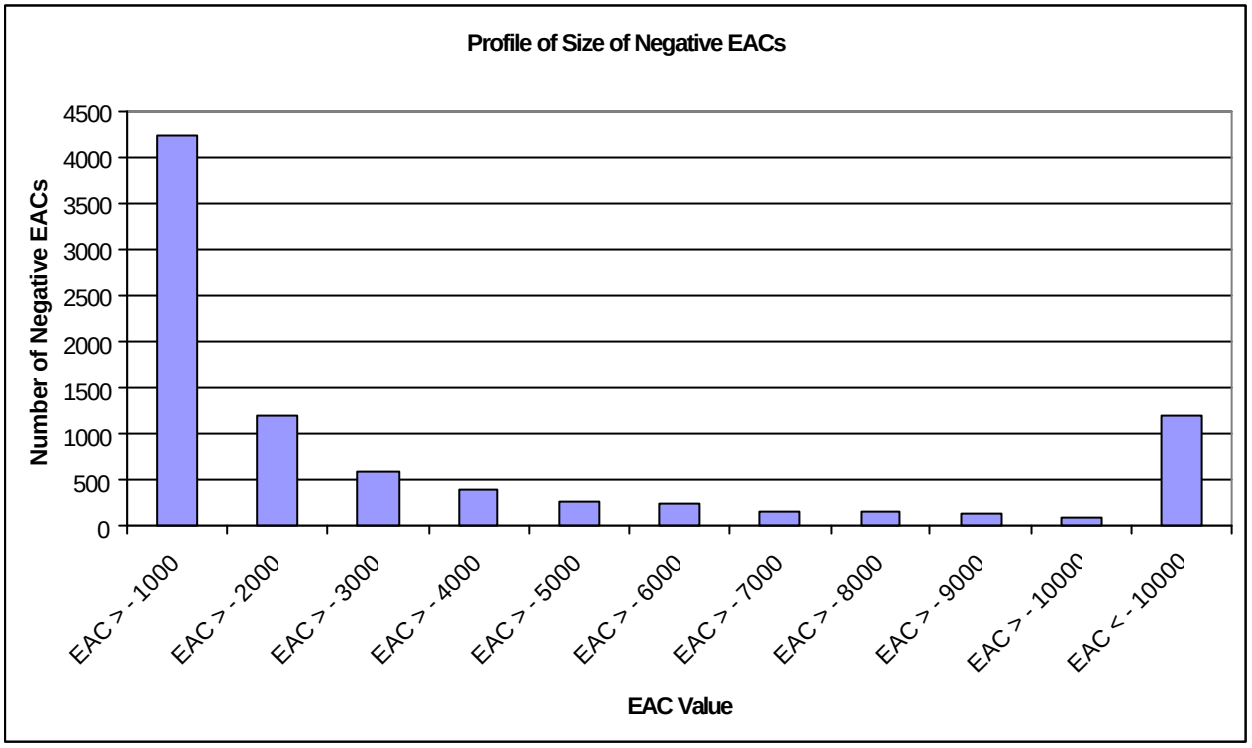
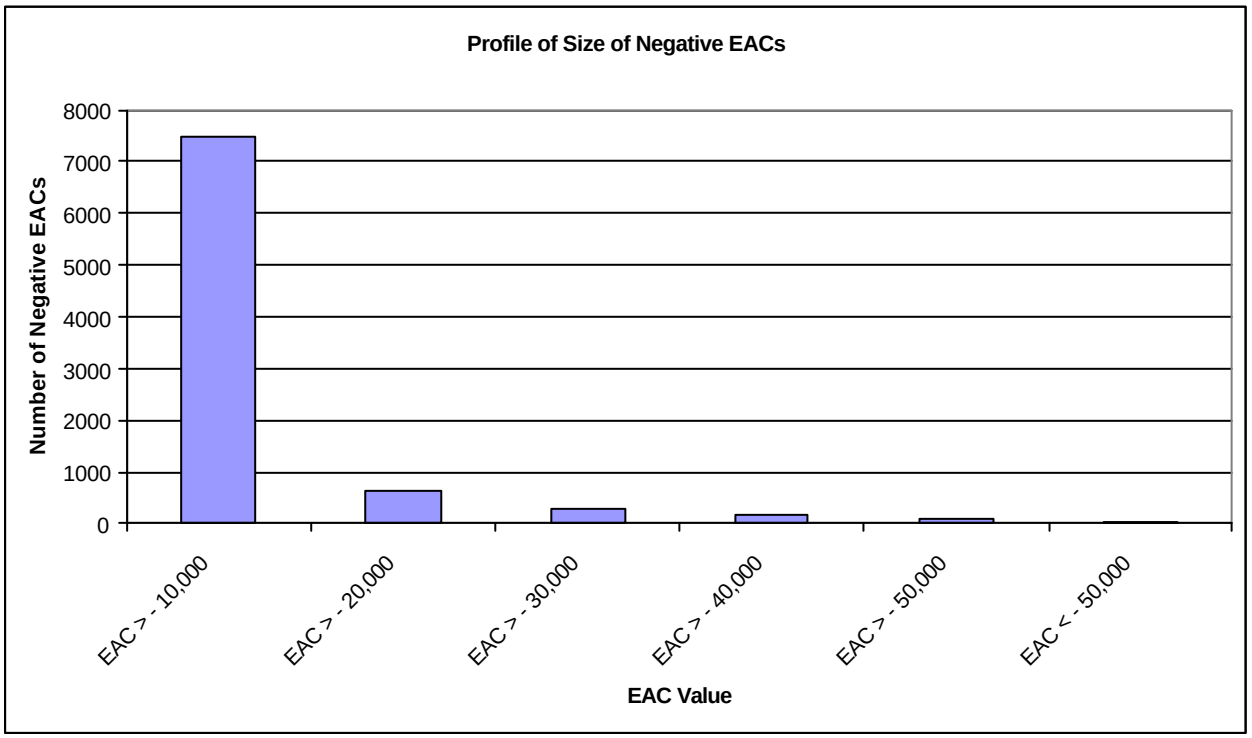
Profile of the size of negative EACs being used in Settlement

As mentioned above, approximately 50% of negative EACs are between 0 and – 1,000 kWh and approximately 85 – 90% of negative EACs are between 0 and – 10,000 kWh.

The profile of negative EACs is shown in the following two graphs.





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Impact upon the Supplier Purchase Matrix (SPM)

The impact upon the Supplier Purchase Matrix (SPM) (which indicates the impact on DUoS and Supplier liabilities) of implementing a solution that replaces negative EACs with zero or class average EACs was analysed.

In summary, the effect on the energy in the SPM of:

- **Resetting negative EACs to zero is a 0.31% increase; and**
- **Resetting negative EACs to average EAC is a 0.75% increase.**

An SPM provided by the NHHDA for Settlement purposes was used for this analysis.

The impact of setting negative EACs to zero were calculated using:

- The aggregate value of negative EACs reported by the NHHDA that appear to be used for Settlement purposes. This was approximately 36 thousand MWh.
- The aggregate value of AAs and EACs in the SPM. This was approximately 11.4 million MWh.

The impact of setting negative EACs to class averages were calculated using:

- The aggregate value of negative EACs reported by the NHHDA that appear to be used for Settlement purposes. This was approximately 36 thousand MWh.
- The average value of EACs used in the SPM. This was approximately 6150kWh.
- The number of negative EACs reported by the NHHDA that appear to be used for Settlement purposes. This was approximately 8000 meters.

Number of Negative EACs being used in Settlement

The total number of negative EACs that were reported as being used in Settlement at any stage in the last two years was 8,688.

The number of negative EACs that were reported as being used in Settlement at Final Reconciliation (RF) was 1,820. It is estimated (using an SPM submitted by the NHHDA for an RF run) that approximately 140,000 EACs are being used at RF.

The number of negative EACs that were reported as being used in Settlement at Initial Settlement (SF) was 7,997. It is estimated (using an SPM submitted by the NHHDA for an SF run) that approximately 1,800,000 EACs are being used at SF.

The difference between number of EACs being used in RF and SF is due to meter reading cycles.

Approximately 1.3% of EACs at RF were negative, against 0.4 to 0.5% being negative at SF. This may be a consequence of improvement of data quality and improved consumption history causing less negative EACs to be calculated.

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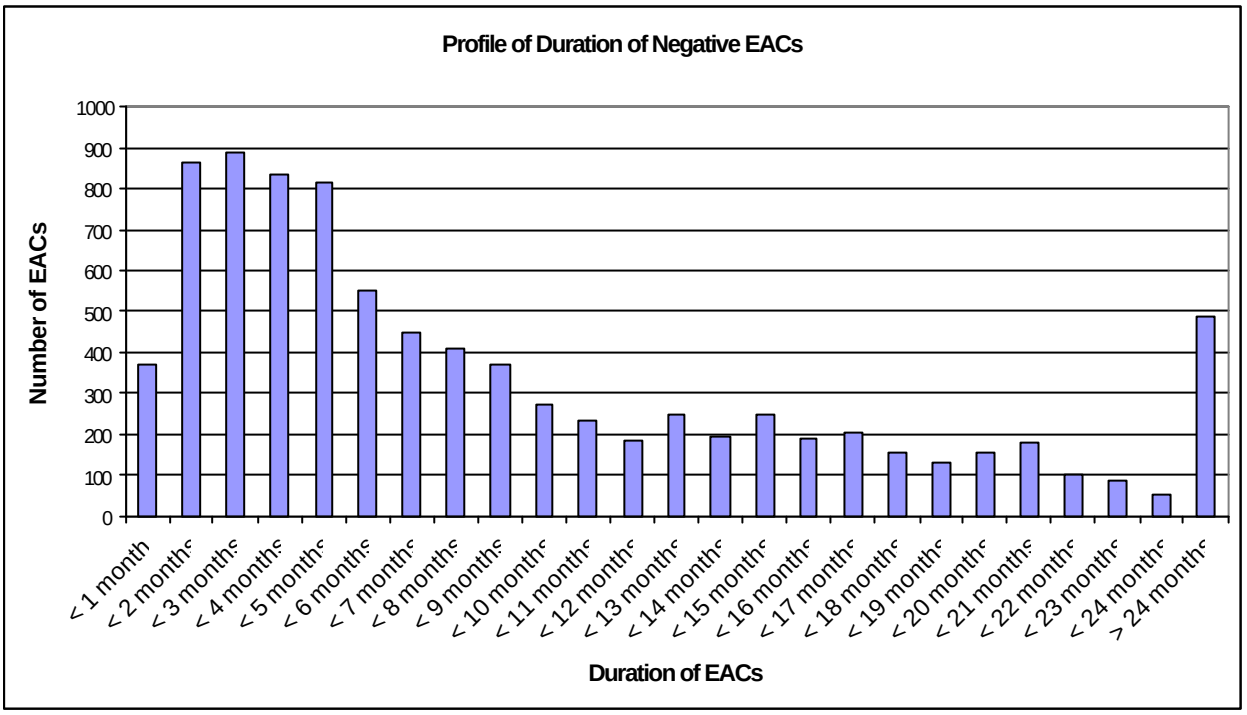
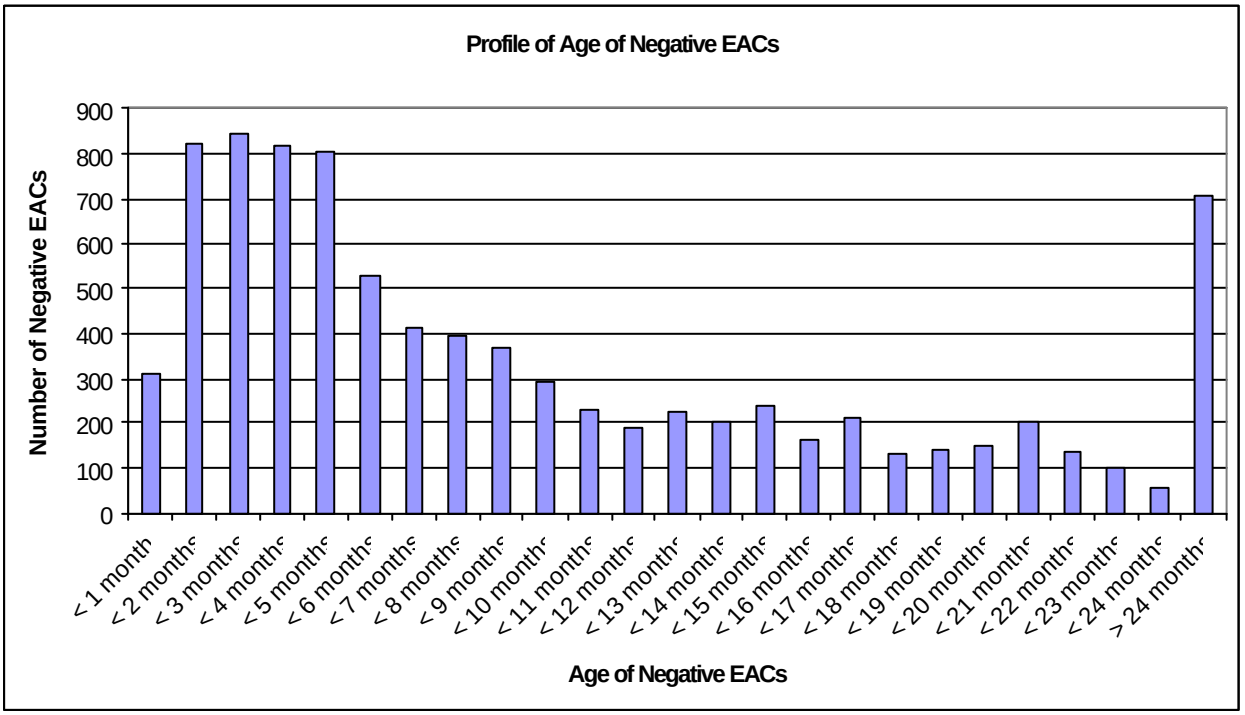
Profile of the duration and age of negative EACs being used in Settlement

Due to constraints that meant it was not feasible to account for all aggregation rules. This could mean that EACs are either not used in Settlement or are not used from the Effective From Date or are replaced by AAs which we do not have a view of. This means that this section should be used as guidance only.





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RISKS AND ASSUMPTIONS

The output reports negative EACs within the NHHDA database that are used for Settlement purposes. For operational reasons, not all aggregation rules have been used to interrogate the NHHDA database. For this reason, some negative EACs may have been used in the analysis that are not used in Settlement and therefore the analysis may overstate the number and effect of negative EACs.

Due to the constraint, above, the accuracy of the age and duration of negative EACs is not assured.

The data within the NHHDA database is assumed to be representative of data within other NHHDAs' databases.

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