

Stage 03: Assessment Consultation on Benefits

P272 'Mandatory Half Hourly Settlement for Profile Classes 5-8'

The BSC does not currently obligate the use of Half Hourly Settlement for Meters in Non Half Hourly Profile Classes 5-8. However, some Metering Equipment is already capable of capturing Half Hourly data, and by 2014 the vast majority of such Meters will be capable due to the roll out of 'advanced' Meters with Half-Hourly and remote-reading capability.

P272 proposes to make Half Hourly Settlement mandatory for Profile Classes 5-8, as the use of Non Half Hourly data is not as accurate and masks individual customer behaviour.

This Assessment Consultation on Benefits for P272 closes:

5pm on Monday 10 September 2012

The Workgroup may not be able to consider late responses.

High Impact:



- Meter Operator Agents (MOAs)
- Half Hourly Data Collectors (HHDCs)
- Non Half Hourly Data Collectors (NHHDCs)
- Suppliers

Medium Impact:



- Licensed Distribution Service Operators (LDSOs)
- Meter Operators

Low Impact:



- ELEXON

What stage is this document in the process?

01 Initial Written Assessment

02 Definition Procedure

03 Assessment Procedure

04 Report Phase

P272
Assessment Consultation

14 August 2012

Version 1.0

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About this Document

The purpose of this P272 Assessment Consultation is to invite BSC Parties and other interested parties to provide views and additional detail on the benefits that could be realised if P272 was implemented. The P272 Workgroup will discuss these consultation responses, before making a recommendation to the Panel in November 2012 on whether to approve P272.

There are 3 parts to this document:

- This is the main consultation document. It provides details of the purpose of the consultation, a summary of the progress of P272, and an overview of the Benefits Pack.
- Attachment A contains the detailed Benefits Pack that the P272 Workgroup has compiled.
- Attachment B contains the specific questions on which the Workgroup seeks your views. Please use this form to provide your response to these questions.

Further Information

More information is available in

Attachment **A**: P272 Benefits Pack

Attachment **B**: Assessment Consultation Questions

All previous documentation on the assessment of P272 to date, including the Workgroup's previous consultations and impact assessment and market participant responses to these, can be found on the [P272](#) page of the ELEXON website.



Any questions?

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1 Purpose of this Consultation

Background

The P272 Workgroup has previously issued Impact Assessments and Consultations (these can be found on the [P272](#) page of the ELEXON website). However, when ELEXON took the Assessment Report to the Panel in January 2012, the Panel decided not to progress P272 to Report Phase and agreed to keep it in the Assessment Procedure.

The Panel noted concerns from Ofgem that there was difficulty in assessing the costs and benefits of P272 which in turn would make it difficult to make a determination on the Modification at that point in time. Furthermore, developments in the market over the coming year may make known some of the factors currently unknown, and at that stage the Workgroup would be better placed to complete further analysis of the P272 solution and return to the Panel in November 2012.¹

The Panel agreed with this and noted that they would like to see more detailed analysis of the costs and benefits. The Panel agreed that the Workgroup should undertake further scenario modelling and provide additional information so as to better understand and quantify the costs and benefits associated with the proposed change.

The Workgroup has developed the scenarios, explored the various cost categories and agreed the structure of the cost-benefit analysis. The Workgroup has also identified the most appropriate information to seek from market participants that would provide the greatest benefit to the cost-benefit analysis.

The Workgroup has already issued a consultation that focused on the cost impacts of the Proposed P272 Solution. This separate consultation examines the proposed benefits associated with P272. The results of both consultations will be assessed by the Workgroup and used as part of its cost-benefit analysis.

Benefits

The Workgroup has identified a series of benefits that could be realised should P272 be implemented. However, in order to complete their analysis of these benefits, the Workgroup seeks further information from the relevant participants. This information will enable the Workgroup to get a clearer picture of the benefits that could be realised across the industry for Suppliers, Distributors and other market participants.

An overview of the benefits identified can be found in Section 4 of this document, and the details behind each benefit can be found in Attachment A. To help the Workgroup complete its cost-benefit analysis, please answer the questions posed by the Workgroup within Section 4 of this document using the attached response form (Attachment B).

Confidentiality

If you wish your responses to remain confidential, please note this in your response. Any confidential responses will not be shared with the Workgroup, but will be shared with Ofgem. Furthermore, should you not wish to share these responses with ELEXON, you can submit these directly to Ofgem.

¹ The Panel originally agreed that the P272 Assessment Report would be returned at its September 2012 meeting, but has subsequently agreed to extend this to November 2012.



What is...

The issue?

All new metering points that fall under Profile Classes 5-8 must be capable of recording HH consumption. Additionally, all meters under PCs 5-8 must be HH-capable by 6 April 2014.

The proposed solution?

All SVA Metering Systems under PCs 5-8 shall be required to be settled using HH-metered data from 6 April 2014.

The alternate solution?

All SVA Metering Systems under PCs 5-8 shall be required to be settled using HH-metered data from 6 April 2015.

What are the current regulations?

In April 2009, the Secretary of State (through powers granted under the Energy Act 2008) modified the Standard Conditions of an Electricity Supply Licence. This change mandates that, from 6 April 2009, any new Metering Equipment installed at non-domestic premises where the Metering Point falls within Profile Classes (PCs) 5-8 must be an 'advanced' Meter that is capable of recording Half Hourly (HH) consumption and of being read remotely. Furthermore, from 6 April 2014, all Meters installed that fall under Profile Classes 5-8 will have to be such an 'advanced' Meter, regardless of when installation originally took place. The only exception to this rule is where installation has not been possible despite all reasonable steps having been taken.

Although these changes to Supply Licences mandate the installation of HH capable metering for Profile Classes 5-8, they do not mandate that HH data is actually collected and used in Settlement. As such, it is possible for Suppliers to continue to configure these Meters to record Non Half Hourly (NHH) data for use in Settlement.

What is the current process?

Currently, SVA Metered Data can be settled either Half Hourly or Non Half Hourly, depending on the circumstances. If the Metering System is defined as being 100kW or above, it must be settled as HH. If it is below 100kW then it is usually settled on a NHH basis, although the Supplier can elect to settle it on a HH basis should it wish.

For sites where NHH Meters are installed, a set of generic load profiles are used to estimate what customers with a NHH Meter would have consumed for any given half hour in a year. To determine which profile to use, all NHH Metering Systems are placed into one of eight Profile Classes. Profile Classes 1 and 2 are for domestic premises while Profile Classes 3 to 8 are for non-domestic premises. These profiles attempt to represent the average customer consumption within the chosen Profile Class.

Profile data in Settlement

Nearly all 100kW and above HH Meters will have accurate data before the Initial Settlement (SF) Run, which takes place 15 Working Days after the relevant Settlement Date. However, the majority of NHH Meters will not have been read before SF, and so their volumes are estimated based on their profile and it is these values that are entered into Settlement.

As time passes, actual Meter readings from NHH Meters become available, which will allow more accurate estimated consumption values for a given Settlement Period to be produced when the data is profiled. This takes place over a series of Reconciliation Runs, with the final run taking place 14 months after the original Settlement Day. There are four Reconciliation Runs in all (R1, R2, R3 and RF), each of which provides a continually more accurate picture of Settlement. Suppliers are required to settle 97% of their energy on actual meter reads (as opposed to estimated data) at the RF Settlement Run.

For some GSP Groups, a further Post-Final (DF) Settlement Run may be performed to resolve any disputes that have arisen for Settlement Days that have passed RF; this Settlement Run takes place 28 months after the original Settlement Day.

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Measurement Classes

The Measurement Class of a Metering System reflects how it is settled i.e. HH, NHH or HH elective.

Measurement Class A is the predetermined Measurement Class for NHH Settled Meters. For Measurement Class A, Suppliers have set performance levels they must adhere to within the Settlement process. These performance levels are determined by the proportion of consumption through NHH Metering Systems that should be settled on actual Meter Advances (rather than estimates) at each of the Settlement Runs.

Performance Levels	
Settlement Run	Performance Level
SF	N/A
R1	30%
R2	60%
R3	80%
RF	97%

Measurement Class C is for Metering Systems at or above 100kW (unless they are 'unmetered' under Measurement Class D). Metering Systems below 100kW that have elected for HH Settlement can be classified as either Measurement Class C or E. Measurement Class C Metering Systems must submit 99% actual Meter reading data by SF (and all subsequent Reconciliation Runs). Where an actual Meter reading is unavailable, Data Collectors must provide estimated data.

Measurement Class E is a Measurement Class for Metering Systems that would fall under the 100kW limit, and therefore would be settled NHH under Measurement Class A, but their Supplier elects for them to be settled HH. The difference in Settlement terms between Measurement Classes C and E is that, for those Metering Systems that are HH elective in Measurement Class E, the Supplier only needs to get 99% actual data by RF. Furthermore, there are no Technical Assurance Agent (TAA) checks on Metering Systems below 100kW.

What is the issue?

HH capable Meters installed for Profile Classes 5-8 since April 2009 are typically not being used to provide HH data for Settlement. Generally, the automatic reading capability is only being used to read periodic meter advances without the need for a site visit. The result is that NHH profiled data is still being used in Settlement for these sites.

Profile Classes 5-8 generally include Metering Systems with larger volumes below 100kW. P272 contends that to settle such sites on average profiled data (rather than on HH data) is not as accurate as it could be, and masks individual customer behaviour.

Furthermore, it is deemed prudent that, as there is a mandate to install HH capable Meters, the Industry should make better use of the resulting HH data that is made available within Settlement.

What is the proposed solution?

P272 proposes that, as of **6 April 2014**, all SVA Metering Systems that fall under Profile Classes 5-8 shall be required to be settled using Half-Hourly Metered Volumes (where the relevant metering has been installed).

It would be left to individual Suppliers to choose how they implement the new requirement prior to 6 April 2014. However, Suppliers would be required to submit a high level transition plan to the Performance Assurance Board (PAB) by 31 May 2013 (which will be 3 months after the approval cut-off date of the Modification). This would allow the PAB to make Suppliers aware of any potential timetable clashes where a bulk Change of Measurement Class might take place.

Profiles would remain for those in Profile Class 5-8 who are unable to install an advanced meter. However, the regression equations for these Profile Classes would be 'frozen'.

A summary of the requirements of the P272 solution can be found in Appendix 2 of this document.

What is the alternate solution?

The implementation date of 6 April 2014 is an integral part of the Proposer's solution. They believe that the obligation to settle Profile Classes 5-8 should coincide with the Go-Live date of the Supply Licence obligation for 'advanced' meters to be installed at these sites.

Some members of the Workgroup believe that mandating P272 from 6 April 2014 would not provide enough time for Suppliers to resolve a number of complex issues, and that a 'transitional period' should be introduced. This transitional period would ensure that Suppliers had enough time to deal with any contractual issues of moving customers from NHH to HH, make necessary changes to data flows and consider issues with Meter maintenance. In addition, some Workgroup members also felt that Industry would not be able to cope with a 'big bang' approach, and that providing a transitional period would help avoid the risks associated with a large CoMC process.

The Workgroup therefore developed an alternative solution which would delay the mandating of HH Settlement for Profile Classes 5-8 and the related requirements until **6 April 2015**. Under this alternate solution, Suppliers would have until 31 May 2014 to submit their transition to the PAB. All other aspects of the proposed solution would be unchanged under the alternate solution.

How does P280 interact with P272?

Currently, Distributors calculate Distributor Use of System (DUoS) charges for HH settled customers on a site-specific basis – i.e. one bill per Metering Point Administration Number (MPAN). If P272 was implemented, all Metering Systems within PCs 5-8 would need to be settled HH, and so would need to be billed individually by Distributors. This would significantly increase the number of HH settled customers, each of which would need to be billed separately. This would increase costs by a significant amount, the majority of which would be passed on by Distributors to the Suppliers and, ultimately, their customers.

[P280 'Introduction of new Measurement Classes'](#) proposes to introduce three new Measurement Classes, under which Suppliers of sub-100kW HH settled customers can be

invoiced for DUoS charges on an aggregated basis. If P280 is approved,² this would allow a Supplier to opt to receive only a single aggregated DUoS invoice for all of their PC 5-8 customers following their transition to HH under P272, rather than one per MPAN, which would significantly reduce costs.³

² P280 is currently with Ofgem for decision.

³ Please see the P280 Final Modification Report for more details on the Proposed Solution to P280.

What has happened so far?

The P272 Workgroup submitted its Assessment Report to the BSC Panel at its meeting in January 2012. On the guidance of Ofgem, the Panel agreed to keep P272 within the Assessment Procedure, noting that Ofgem would return to the Panel in March 2012 with a detailed plan of what additional analysis would be needed to be conducted.

The Panel noted concerns from Ofgem that the Assessment Report has not addressed difficulties in assessing the costs and benefits of P272, which in turn would make it difficult to make a determination on the Modification at that point in time. Furthermore, developments in the market over the following year or so may make known some of the factors that are currently unknown, and at that stage the Workgroup would be in a better position to complete further analysis of the P272 solution.

In April 2012, ELEXON and the Workgroup, with guidance from Ofgem, developed an approach to assessing the costs and benefits associated with P272. The Workgroup met on 3 May 2012 to agree the approach, and unanimously agreed that conducting scenario analysis along with long-term modelling was the correct approach. However, the Workgroup raised some concerns around identifying specific costs and benefits. ELEXON undertook further work to identify specific cost categories and an approach for calculating the P272 benefits.

The Workgroup met on 25 June 2012 to define specific cost categories that would need to be identified to ensure accurate costs would be provided when industry responded to the consultation. The Workgroup also identified specific benefits and agreed a projected timescale and specific scenarios for the analysis of modelling.

However, there were still concerns surrounding the benefits element of P272 cost-benefit analysis, and the Workgroup noted the difficulty that respondents would have in providing associated 'pound signs' next to each benefit identified. Further work has been carried out to drill down on each of the benefits, and the Workgroup met on 24 July 2012 to agree the calculations for each benefit.

For this analysis, two consultations (separating costs and benefits) have needed to be undertaken. The first consultation focussed upon the cost impacts associated with P272, and this information will help facilitate the cost analysis and assessment by the Workgroup. The Workgroup and ELEXON (with support from Ofgem) have also developed a methodology for each benefit. This second consultation will seek views on these methodologies and calculated benefits and will seek specific information from market participants that will help the Workgroup to calculate the potential scale of the benefits.

How has the Workgroup agreed to assess P272?

The Workgroup agreed with Panel and Ofgem that P272 has the potential to deliver significant benefits for consumers. The Workgroup believes that a standard approach to cost-benefit analysis, by modelling the cost and benefits over a set time period, would be the appropriate course of action.

To do this the Workgroup has identified five steps that they would need to progress through in order to complete the analysis of P272.

Step 1: Establish potential take-up scenarios

To complete Step 1, the Workgroup sought to define the drivers behind take up, such as costs, benefits and any impact upon completion. It also took into account a range of counterfactual (or base case) scenarios for comparison purposes and to help identify the detailed costs and benefits.

There are 4 scenarios being examined (1 for P272 and 3 counterfactual) as follows:

- **Scenario 1:** P272 is implemented as of 1 April 2014;
- **Scenario 2:** P272 is not implemented and the HH market for elective remains at the same level (as of July 2012) – this scenario can be considered a 'no-change' scenario;
- **Scenario 3:** All PC 5-8 customers move to elective Half Hourly by 2020; and
- **Scenario 4:** 50% of PC 5-8 customers move to elective Half Hourly by 2020.

The fundamental proposition behind this step is that costs and benefits are driven by the level of take-up. By comparing the proposed P272 implementation approach with alternative scenarios, the Workgroup can assess the potential impact of implementation.

Step 2: Establish how industry costs would change according to the level of take up

The questions in the Costs Consultation aimed to gather information of the cost according to the level of take up (see Step 1). From this information, the Workgroup will be able to extrapolate whether there are specific barriers involved with the cost of take up that would either prevent or encourage further take up.

Step 3: Estimate benefits, and quantify these where possible

The Panel specifically wanted the Workgroup to examine in further detail all possible benefits related to the introduction of P272, again by examining the benefits associated with each of the above scenarios, to allow comparison. The Workgroup has identified a full range of potential benefits, which are detailed in this Benefits Consultation document.

In order to do this the Workgroup prioritised its assessment by examining:

- Which benefits could be quantified;
- Where were the biggest wins; and
- The link between benefits and take up (where possible).

The Workgroup aimed to be clear about the approach to qualitative impacts by defining:

- What is the effect;
- Whether this is sensitive to the scenarios; and
- The links between this and any quantitative assessment (where possible).

Step 4: Compare the P272 implementation scenario with the counterfactual scenarios

Once the Workgroup has compiled the associated costs and benefits of P272, it will compare the implementation costs and benefits with the counterfactual scenarios and undertake sensitivity testing.

The Workgroup is aware of the need to deal with uncertainty. For example, the original Assessment Report identified Distribution Use of System (DUoS) charging as a key barrier to Half Hourly Settlement. To overcome this, the Workgroup is conducting on-going work to address two specific areas:

- Site-specific billing; and
- Structure of the charging methodology.

The analysis that will be undertaken once the two consultations have been completed will accommodate uncertainty, as they have a range of scenarios which will reflect a range of outcomes. Additionally, the cost aspect of the analysis will quantify the impact of site-specific billing.

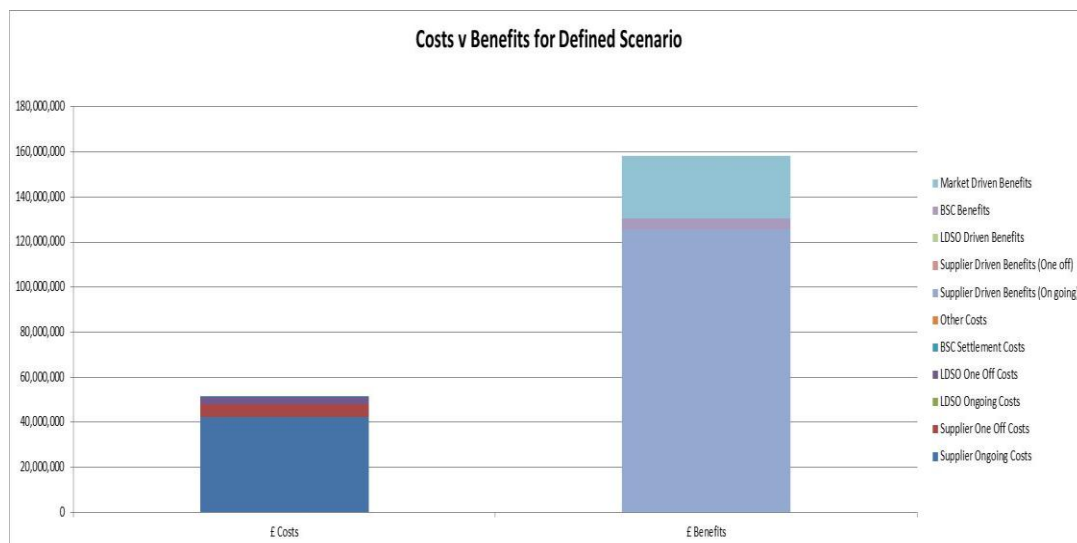
Step 5: Assess any impacts on competition and the distribution of costs & benefits

The Workgroup will need to consider competitive and distributional impacts of P272. The Workgroup has identified specific areas to explore:

- Portfolio impacts (impacts on costs) – variability, and the impact on tariff offers;
- The differences in customer base – unwinding cross-subsidies and the associated impact on tariff offers;
- Procurement of metering services; and
- Revisit PSRG analysis on DUoS charging.

What are the aims of this analysis?

The aim of the cost-benefit analysis is to give an overall cost or benefit of P272 compared to each of the counterfactual scenarios. The following graph illustrates a potential cost comparison in tabular form for the implementation of P272. It shows the various costs and benefits components.





Assessment Consultation on Benefits

This section summarises the benefit identified by the Workgroup and the questions to which the Workgroup seeks your views on.

For details on each benefit, please see the Benefits Pack in Attachment A.

To respond to this consultation, please use the response form in Attachment B.

Introduction

The Benefits Pack describes the approach and detailed workings on the quantification and assessment of the potential benefits of P272. This Benefits Pack forms the basis of this consultation, with the main aim of the consultation being to test the methodologies and assumptions. The results of both the Costs Consultation and this Benefits Consultation will be fed into a model developed by ELEXON (the Cost-Benefits Analysis (CBA) Model) to produce the costs and benefits for the P272 and counterfactual scenarios.

Benefits Pack approach

The output of the analysis will be collated and presented back to the Workgroup for further consideration and agreement, and the final results incorporation into the P272 Assessment Report.

The P272 Workgroup has reviewed the Benefits Pack and agreed the detailed quantification of the potential benefits. This section provides an overview of the structure of these benefits and the approach that will be used to quantify each benefit. It also describes three categories of benefits:

- Benefits for the market as a whole;
- Benefits for Suppliers; and
- Benefits for Distribution Businesses.

It also details the various benefits in each category, including the hypothesis (or logic) behind each benefit and a high level summary of the methodology that will be used to quantify (calculate) the benefit.

Attached to this consultation document are the detailed benefit templates, describing in further detail the proposed quantification of each benefit. You can find these in Attachment A. For each benefit, the template sets out a hypothesis, any key assumptions, the proposed calculation/data required and an extrapolation of the potential benefits identified for P272 and the counterfactual scenarios.

The next section describes each potential benefit and lists the hypothesis on how the benefit is derived/realise, for example, by having HH data Suppliers can better forecast their outturn demand. It also describes the methodology for the calculation of the benefit, for example, the calculation of the amount of energy Suppliers can better predict their demand is related to the energy that is incorrectly settled in a half hour due to profiling in comparison to and actual HH energy value.

The P272 Workgroup has reviewed the hypothesis and methodology for each benefit, and has worked through in detail the underlying assumptions, calculations and the extrapolation methodologies. Specifically, the Workgroup has agreed the various assumptions, including the price streams to be used in the applicable benefits' calculations, e.g. market price, retail price, etc.

Benefits definition

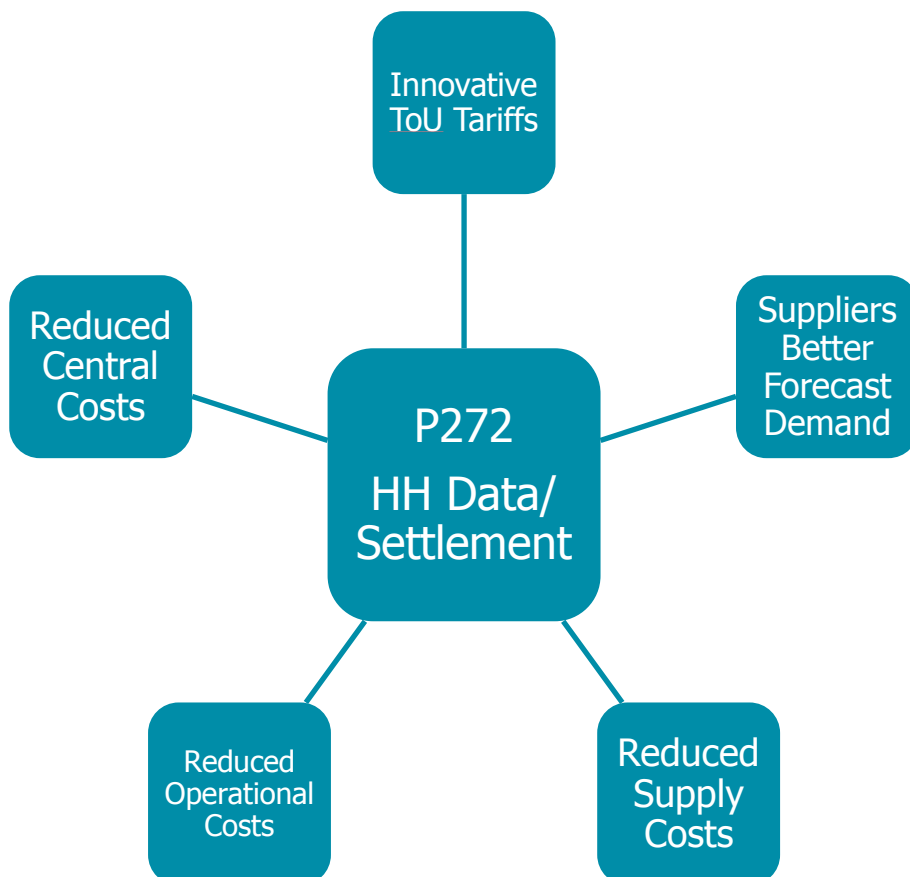
There are 3 main areas of potential benefits:

- **Market Benefits:** These are reductions (or avoided future increases) in energy costs or central administration costs. These would benefit the market as a whole, and would feed either directly to the customer or via the Supplier to the customer. For example, P272 may lead innovative Time of Use (ToU) tariffs that to result in reduced demand or relocated demand which directly benefits the consumer;
- **Supplier Benefits:** These are where a Supplier realises cost reductions in running their Supply business, either in terms of reduction in costs to supply or operational costs (and therefore these benefits could be passed onto the customer in lower tariffs); and
- **Distribution Business Benefits:** These are benefits where the Distribution Business (LDSO) can fulfil their licence obligations in a more cost efficient manner, such as network planning, losses management, etc.

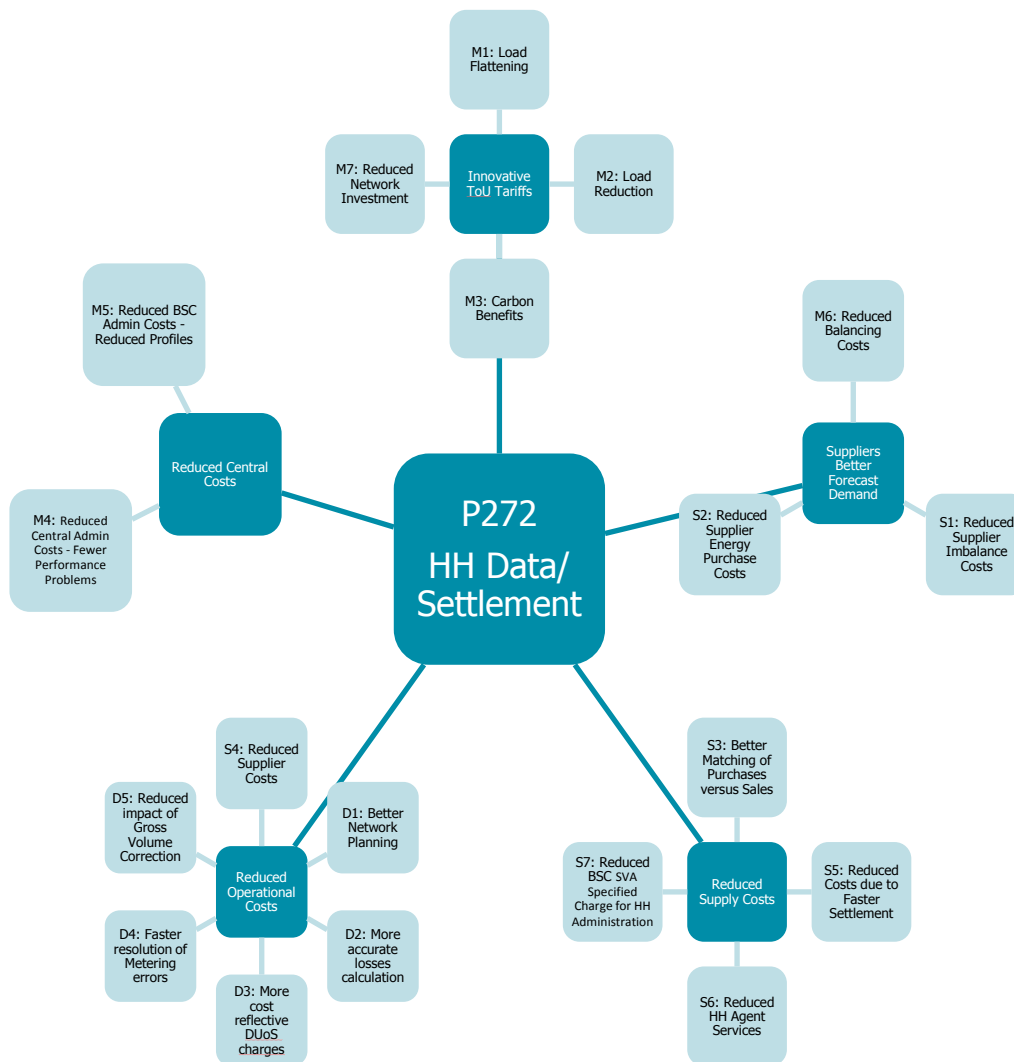
It should be noted that some benefits have a trigger point where they begin to be realised (or are capped) – please see Appendix 1 for explanation of the trigger points used in the benefits quantification.

Benefits sources

There are a number of sources which drive the potential benefits that are created from having HH data in Settlement (either mandated through P272 or increased HH elective). The diagram below depicts these sources, each of which may drive a number of benefits.



The following diagram links each of the benefit sources to the specific benefit, e.g. 'Innovative ToU Tariffs' is linked to Market Benefit M1 'Load Flattening'.



The links between sources and benefits is summarised in the following table:

Benefit Sources	
Benefit Source	Related Benefits
Innovative ToU Tariffs	M1 M2 M3 M7
Supplier Better Forecast Demand	M6 S1 S2
Reduced Supply Costs	S3 S5 S6 S7
Reduced Operational Costs	S4 D1 D2 D3 D4 D5
Reduced Central Costs	M4 M5

To help understand the source for the various benefits and ensure there are no overlaps for the benefit calculation, the sources are shown in the hypothesis for each potential benefit in **bold**.

Market Benefits

There are seven potential benefits that P272 would bring that impact on the whole electricity market:

Market Benefits	
No	Benefit
M1	Load Flattening
M2	Load Reduction
M3	Carbon Benefits
M4	Reduced Central Admin Costs – Fewer Performance Problems
M5	Reduced BSC Admin Costs – Reduced Profiles
M6	Reduced Balancing Costs
M7	Reduced Network Investment

This section details the hypothesis and methodology for each benefit; you can find more details in Attachment A. The hypothesis describes the source of each benefit and the rationale for the gain. The methodology summarises the calculation of the proposed benefit.

The Workgroup is keen to understand respondents' views on the hypothesis behind each potential benefit. Furthermore, views are sought on the methodology for each benefit and the key assumptions. The Workgroup has chosen to ask a question covering all the benefits, and respondents are asked for their views on each benefit. Where respondents can provide views, they should do so with supporting rationale.

Assessment Consultation on Benefits Question

Do you agree with the hypothesis, methodology and assumptions used for each Market Benefit?

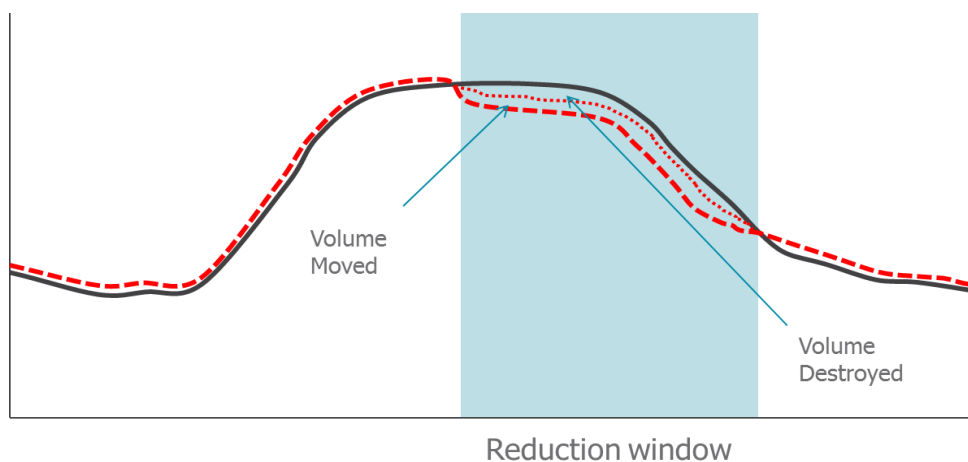
If 'No', please state which element(s) you disagree with and the rationale for your disagreement.

The Workgroup invites you to give your views using the response form in Attachment B

M1: Load Flattening

Hypothesis: By having HH data, Suppliers can offer more **innovative ToU tariffs**, thus promoting customers to use less energy at the time of peak (when wholesale prices are higher) and use more energy off peak, thereby flattening their demand shape.

Methodology: This is where energy is moved from one period in the day (high cost) to other periods (lower costs). A percentage volume reduction is calculated from the peak wholesale price period of the day, e.g. between 16:00 and 19:00 hrs in Winter. This energy reduction is then split into two parts: one where the energy is moved to the rest of the day (load moved); and the other which is classed as energy destroyed (load reduction and calculated through Market Benefit M2). The unadjusted and adjusted HH volumes are then multiplied by a HH reference price (forward wholesale market prices) and differenced to give an annual cost benefit.



M2: Load Reduction

Hypothesis: By having HH data, Suppliers can offer more **innovative ToU tariffs** (and other products, such as demand side reduction). This promotes customers to use less energy overall.

Methodology: This uses the same calculation as for M1 above, with the second part of the energy reduction, a percentage volume between 16:00 and 19:00 hrs, being removed (energy destroyed). The unadjusted and adjusted HH volumes are then multiplied by a HH reference price (forward wholesale market prices) and differenced to give an annual cost benefit.

M3: Carbon Benefits

Hypothesis: By having HH data, Suppliers can offer more **innovative ToU tariffs** and other products, thus promoting customers to use less energy overall and thus save on carbon costs.

Methodology: This uses the volume of energy from the load reduction calculation in M2 above, and converting into cost of carbon savings. The conversion factor used (converts energy reduction to cost of carbon saving) is based on the carbon costs of coal fired plant, as it is assumed this is a higher merit order plant, and will be plant that will not be used due to the energy reduction.

Assessment Consultation on Benefits Question

Do you believe that Market Benefits M1, M2 and M3 will have an impact on Distribution System tariffs or Transmission Use of System charges?

Please explain the reason(s) for your view, including, if 'Yes', what you believe these impacts will be.

The Workgroup invites you to give your views using the response form in Attachment B

Assessment Consultation on Benefits Question

Do you believe there are any qualitative benefits that would arise from Market Benefits M1, M2 and M3?

(For example, due to load reduction at peak, would there be reduced generation cost due to impact on peak generation plant required?)

Please explain the reason(s) for your view, including, if 'Yes', what you believe these impacts will be.

The Workgroup invites you to give your views using the response form in Attachment B

M4: Reduced Central Admin Costs – Fewer Performance Problems

Hypothesis: By having more customers settled HH, there are less performance problems for Code Administrators to manage. This covers BSCCo, MRASCo and DCUSA Agent, **thus reduced central administration costs.**

Methodology: There is a central administration cost saving based on FTE reduction due to a reduced number of performance problems.

M5: Reduced BSC Admin Costs – Reduced Profiles

Hypothesis: By settling HH there is no need for profiles to be produced year on year for Profile Classes 5-8, **thus reduced central administration costs.**

Methodology: There are BSCCo service and relevant Agent savings in the production of profiles based on current service costs. It should be noted that the Workgroup believes that there are no quantitative benefit for M5.

M6: Reduced Balancing Costs

Hypothesis: By having HH data, Suppliers can **better forecast their demand**, leading to lower imbalance volumes in general. These lower imbalance volumes would reduce the overall balancing requirements by the System Operator. Also, if Suppliers can better predict their actual demand, they will contract more accurately for the generation they need, resulting in generators' FPNs being more accurate, meaning less balancing actions will be required. This leads to two benefits:

1. less energy balancing actions costs; and
2. lower imbalance prices and less overall market imbalance costs.

Methodology: This uses the calculation within the PSRG Profile Class 5-8 CBA. This stated that there is 0.9TWh of energy out of 17.5TWh of annual energy that will be correctly allocated to the right Settlement Period (5% of 17.5TWh) if PCs 5-8 are settled HH. So by settling HH data, the Supplier's portfolio of PCs 5-8 customers' demand is settled in the correct half hour compared with non Half Hourly profiles, which may put a proportion of that energy in the wrong half hour. The following logic then applies:

1. 0.9TWh equates to an average of 50 MWh that is settled in the wrong half hour. By settling HH, that 50MWh is removed, which reduces the average imbalance volume in that half hour by 50MWh (note that sensitivity analysis will be done on this value);
2. This reduction is applied in every half hour, both when the market is long and when the market is short;

3. If the yearly balancing costs are £Xm, this could mean an annual reduction of £Ym;
4. Furthermore there is an impact on imbalance prices (less bids and offers in the stack), which again could reduce imbalance prices and therefore annual imbalance costs by £XX/MWh and £XXm;
5. It should be noted that these two cost reductions are separate from the Supplier benefit of Reduced Imbalance Costs, even though they are all driven by the same benefit source that Suppliers would **better forecast their demand**.

Proposed Calculation: This calculation will be undertaken by National Grid using a regression model over a year's worth of data to work out the impact on balancing costs and imbalance prices. The model allows the examination of the sensitivity of energy costs (including operating margin costs) to a number of key parameters.

M7: Reduced Network Investment

Hypothesis: By having HH data Suppliers, can offer more **innovative ToU tariffs**, thus promoting customers to use less energy at time of peak which will lead to reduced Peak Demand. Reducing peak demand will lead to a benefit for the System Operator and Distributors through reduced network investment costs. Use of System tariffs are calculated to apportion the cost of network re-enforcement to different market sectors. Hence, the likely reduction in Distribution Use of System (DUoS) and Transmission Network Use of System (TNUoS) charges associated with the reduction in load and load flattening are likely to be reflective of the cost savings to the System Operator and Distributors in reducing the re-enforcement requirements.

Methodology and Proposed Calculation: The Load Reduction and Load Flattening calculations (M1 and M2) are multiplied by a matrix of red, amber and green DUoS changes for HH Low Voltage (LV) customers to get the revised DUoS charge estimate for Supplier of customers in Profile Classes 5-8. The same calculation is made on the unadjusted volumes. The out-turn values are differenced to get the benefit. For TNUoS, the reduction in average price for HH TNUoS per MPAN is calculated based on the load reduction and extrapolated across the HH customers that were in Profile Classes 5-8.

Supplier Benefits

There are seven potential benefits for Suppliers:

Supplier Benefits	
No	Benefit
S1	Reduced Supplier Imbalance Costs
S2	Reduced Supplier Energy Purchase Costs
S3	Better Matching of Purchases versus Sales
S4	Reduced Supplier Costs
S5	Reduced Costs due to Faster Settlement
S6	Reduced HH Agent Services
S7	Reduced BSC SVA Specified Charge for HH Administration

This section details the hypothesis and methodology for each benefit; you can find more details in Attachment A. The hypothesis describes the source of each benefit and the rationale for the gain. The methodology summarises the calculation of the proposed benefit.

Assessment Consultation on Benefits Question

Do you agree with the hypothesis, methodology and assumptions used for each Supplier Benefit?

If 'No', please state which element(s) you disagree with and the rationale for your disagreement.

The Workgroup invites you to give your views using the response form in Attachment B

S1: Reduced Supplier Imbalance Costs

Hypothesis: By having HH data, Suppliers can **better forecast their demand** and benefit from reduced imbalance volumes and hence imbalance costs.

Methodology: There is a percentage reduction in overall imbalance costs for Suppliers, due to Suppliers predicting their demand more accurately. For example, if the annual market imbalance cost is £670m, the proportion of imbalance cost that is due to Suppliers is 50%, equating to £335m. The proportion of demand in PCs 5-8 is 10% of energy, equating to £34m. If HH data gives a 10% reduction in imbalance costs per Settlement Period, this therefore would give a £3.4m benefit per annum across all Suppliers.

S2: Reduced Supplier Energy Purchase Costs

Hypothesis: By having HH data, Suppliers can **better forecast their demand** and contract forward better. This reduction in purchase costs would be based on the difference between the costs of a Supplier of contracting forward compared with those of the System Operator of procuring close to real time.

Methodology: The cost reduction is based on the Suppliers' proportion of the total annual imbalance volume attributable to the PC 5-8 market which can be improved by having HH data, multiplied by the cost differential of Suppliers' forward purchases and the SO's procurement close to real time. This uses the same imbalance volume behind the calculation of imbalance costs in Benefit S1. For example, if the cost differential is £5/MWh and the imbalance volume improvement is 0.1TWh, the annual benefit is £0.5m.

S3: Better Matching of Purchases versus Sales

Hypothesis: By having HH data, Suppliers can better match what they are getting paid for from the customer against what energy they are purchasing and any other costs they are paying for, such as imbalance costs, DUoS charges (and any other costs incurred to serve the customer). This better match of purchases and sales results in **reduced Supply costs** due to using the same source of meter data for billing (no EACs/AA or use of profiles) and purchasing.

Methodology: Calculation of the benefit to Supply businesses on better matching purchases versus sales is based on improvement in annual imbalance volume due to HH data (0.9TWh) multiplied by the retail energy price (£110/MWh) and then an opportunity

cost of 5% gives an annual benefit of £4.95m. The opportunity cost figure is taken from the Workgroup's view on the quantifiable benefit to the Supplier based on consideration of avoided costs, improvements in cashflow, credit cover, the cost of debt and the risk a Supplier is exposed from purchase and sales not being matched.

S4: Reduced Supplier Costs

Hypothesis: By having HH data, Suppliers can **reduce operational costs**. This is based on the activities the Supplier has to undertake in serving the customer HH compared with NHH and the resource savings. There are a number of sources for these operational savings as follows, and these are primarily driven by there being fewer issues in the HH market:

- **Better matching of purchases versus sales:** In the HH market there is no disconnection between purchases and sales, e.g. it is a like for like; buy apples, sell apples;
- **Better billing for customers:** In comparison to the NHH market, in HH there are fewer queries from customers, leading to greater retention of customers and less costs in gaining new customers;
- **Reduced Assurance costs:** This is due to less work needed on performance assurance activities in the HH market compared to the NHH market;
- **Reduced costs due to faster Settlement:** By having faster settlement of the consumption for customers that were in PCs 5-8, Suppliers gain a reduction in FTE due to less work needed on these reconciliation activities; and
- **Reduced costs due to less Change of Supply issues:** By having HH data, Suppliers will have less work on CoS activities, e.g. less problems when they change supply for a HH customer.

Methodology: Calculation of reduction in FTE from having HH data for PCs 5-8 customers. This based on a percentage reduction on the annual costs to serve a PC 5-8 customer multiplied by the number of PC 5-8 customers settled HH. For example if the cost to serve is £65 per customer per year and the number of PC5-8 customers is 154,500 and the percentage improvement is 5%, total annual benefit = £500k

S5: Reduced Costs due to Faster Settlement

Hypothesis: By having faster Settlement of the consumption for customers that were in PCs 5-8, Suppliers realise cash flow and credit cover benefits (and any reduction in FTE due to less work on these activities), resulting in the benefit of **reduced Supply costs**.

Methodology: The current percentage of actual data for PCs 5-8 is 97% at RF and 90% at R1. With an advanced meter, the assumption is that this will stay at 90% at R1. However, under P272, this would increase to 99% at R1. That movement of 9% gives less error and more certainty, resulting in further benefits, such as less queries on the bill, improved credit cover, better imbalance and bills up front, etc.

S6: Reduced HH Agent Services

Hypothesis: By having an extra 150,000 MPANs settled HH, the average costs of HH services reduces, thereby giving benefits to all currently HH settled customers (>100kW market), hence **reduced Supply costs** for Suppliers.

Methodology: Using an estimate of the reduction in HH services costs and multiply this by the number of metering systems being settled HH (HH mandatory).

S7: Reduced BSC SVA Specified Charge for HH Administration

Hypothesis: The benefit derived from having the HH element of the Supplier Specified Charge calculated over more MPANs will reduce the cost per MPAN to existing Suppliers with HH customers, thereby **reduced Supply costs**.

Methodology: Calculation of reduction in SVA Specified Charge from increase in Metering Systems being settled HH.

Distributor Benefits

There are five potential benefits for Distribution Businesses:

Distributor Benefits	
No	Benefit
D1	Better Network Planning
D2	More accurate losses calculation
D3	More cost-reflective DUoS charges
D4	Faster resolution of Metering errors
D5	Reduced impact of Gross Volume Correction

The main hypothesis underpinning these potential benefits is that more accurate HH Metered Volumes will benefit a Distribution Business in fulfilling its licence obligations.

This section details the hypothesis and methodology for each benefit; you can find more details in Attachment A. The hypothesis describes the source of each benefit and the rationale for the gain. The methodology summarises the calculation of the proposed benefit. It should be noted that the Workgroup believes that only D4 has a quantitative benefit.

Assessment Consultation on Benefits Question

Do you agree with the hypothesis, methodology and assumptions used for each Distributor Benefit?
If 'No', please state which element(s) you disagree with and the rationale for your disagreement.

The Workgroup invites you to give your views using the response form in Attachment B

D1: Better Network Planning

Hypothesis: From having HH data, Distribution Businesses can better plan their networks and **reduce operational costs**.

Methodology: There is a percentage reduction in network planning costs.

D2: More accurate losses calculation

Hypothesis: From having HH data rather than NHH estimates, Distribution Businesses can better reconcile energy input onto the Distribution System with energy taken off, which leads to a more accurate losses calculation and **reduced operational costs**.

Methodology: There is a percentage reduction in losses.

D3: More cost-reflective DUoS charges

Hypothesis: From having HH data rather than NHH estimates, Distribution Businesses can better calculate Distribution Use of System (DUoS) charges, allowing DUoS tariffs for these customers to be modelled more accurately within the CDCM and **reduce operational costs**.

Methodology: There is a more cost reflective set of DUoS charges.

D4: Faster resolution of Metering errors

Hypothesis: Having accurate HH data rather than NHH estimates leads to the ability to identify metering issues sooner, and potentially avoid or resolve disputes to faster timescales and **reduce operational costs**. The benefit is derived by the Distribution Business avoiding losses incentive payments associated with a longer resolution.

Methodology: There is an avoided cost to Distribution Business from their incentive scheme.

D5: Reduced impact of Gross Volume Correction

Hypothesis: From having accurate HH data rather than NHH estimates, this group of customers will no longer be in the NHH market and therefore will not give rise to any Gross Volume Correction (GVC), the losses from which can impact LDSOs. The benefit is derived by the Distribution Business avoiding losses incentive payments associated with the longer resolution and **reduces operational costs**.

Methodology: There is an avoided cost to Distribution Business from their incentive scheme.

Assessment Consultation on Benefits Question

How do you currently use HH and NHH data in the processes described in the Distributor Benefits?

The Workgroup invites you to give your views using the response form in Attachment B

Assessment Consultation on Benefits Question

Will having an extra 10% of Consumption settled on HH have an impact on your processes, in terms of FTE reduction or accuracy of calculations?

Please explain the reason(s) for your view, including, if 'Yes', what you believe these impacts will be.

The Workgroup invites you to give your views using the response form in Attachment B

Assessment Consultation on Benefits Question

In the current HH market, have you seen evidence that the use of the Red, Amber and Green charges have incentivised customers to shift or reduce their load?

Please explain the reason(s) for your view, including, if 'Yes', what evidence of customer load change you have seen.

The Workgroup invites you to give your views using the response form in Attachment B

Assessment Consultation on Benefits Question

What percentage of your PC 5-8 customers are whole current meters (or do not have Current/Voltage Transformers) in each of the GSP Groups that you operate in?

Please provide the percentage for each applicable GSP Group and supporting rationale.

The Workgroup invites you to give your views using the response form in Attachment B

Appendix 1: Rationale for Benefits Triggers

This Section provides a rationale for the trigger that is used in some of the benefits calculations. These are for benefits S1, S2 and S5, and determines various levels on when benefits start to be realised or when a cut off is reached. The following section gives the detailed calculation for these trigger levels.

Rationale for the Benefits Triggers

The Benefits Pack contains a number of 'triggers' when either a benefit will start to be realised or when a benefit is realised to a level where more 'information' does not provide an incremental benefit. The P272 Workgroup has considered this rationale as follows.

For example in Benefit S1 (by having HH data, Suppliers can **better forecast their demand** and benefit from reduced imbalance volumes and costs), there is an assumption that the benefit will not be reasonably realised until 30% of the Profile Class 5 to 8 Customers have moved to elective HH Settlement.

The 30% figure has been considered and agreed by the Workgroup and is proposed at around 30% in the Benefits Pack on the following basis:

When each of the Big 6 Suppliers have 30% of their PC 5-8 customers in each GSP Group settled HH then, using a rough calculation:

$$154.5 \text{ k (PC 5 to 8 Customers)} * 30\% = 46,350 \text{ Customers}$$

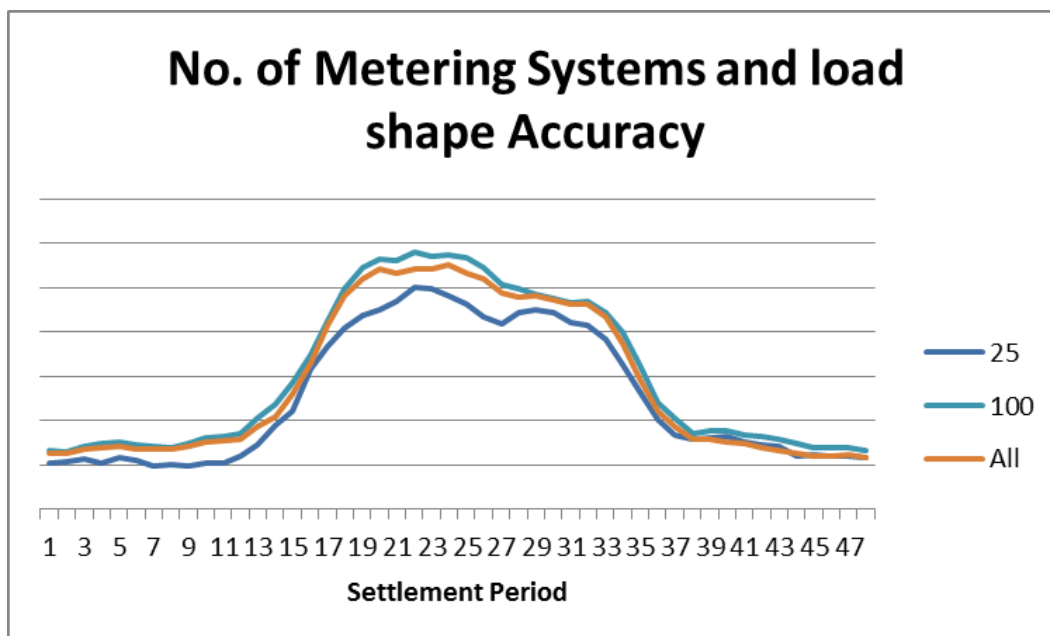
$$\text{Approx. in each GSP Group: } 46,350 \text{ Customers} / 14 \text{ GSP Groups} = 3,311 \text{ Customers}$$

$$\text{Divided by Big 6 Suppliers} = 3,111 \text{ Customers} / 6 \text{ Suppliers} = 552 \text{ Customers}$$

Using the ratios in the total population:

Distributor Benefits				
All	PC5	PC6	PC7	PC8
154,513	37,750	54,536	25,361	36,866
-	24%	35%	17%	24%
552	132	194	94	132

So the large Suppliers can be assumed to have approaching 100 customers in each GSP Group. This quantity of customers should provide a reasonable estimate of the profile for the customers in PCs 5-8 that have not yet moved to HH in that GSP Group. This level of information can be used to start to allow Suppliers to predict their outturn demand more accurately, as per the hypothesis.



In the above example, using Profile Class 5 customer data, the benefit of using 25 customer data is compared to using 100.

Having the upper trigger at 60% means that when you have 60% of the data to predict the remaining 40% of customers that have not yet moved HH, then the additional benefit of more customers moving adds little to the benefit already realised since Suppliers can already predict their outturn demand to a high level of accuracy with 60% of the data.

Appendix 2: Solution Requirements

Detailed Requirements

Below is a summary of the requirements for the proposed solution to P272.

Requirement 1: All HH capable Metering Systems in Profile Classes 5-8 will be settled HH by 6 April 2014

With effect from 6 April 2014, customers in Profile Classes 5-8 with HH capable Metering Equipment installed must be settled on a HH basis.

Suppliers would have to update the relevant Metering System registration data through the Change Of Measurement Class (CoMC) process, in order to define the Profile Class as '00' rather than '05' to '08'. This would change the customer's MPAN.

Requirement 2: Supplier will plans for the transition to HH to PAB

Individual Suppliers will be able to choose how they phase in the new requirement ahead of 6 April 2014. For example, a Supplier may choose to switch customers to HH Settlement as soon as they install advanced metering, or they choose to perform a bulk CoMC process on or just before 6 April 2014.

However, Suppliers will be required to produce a high-level plan on how they intend to complete their transition, which will need to be presented to the PAB by 31 May 2013. This will enable the PAB to obtain a better view of the impacts of the transition and better advise Suppliers who wish to avoid any problems with a bulk CoMC. This will help facilitate an efficient transition from NHH to HH.

Requirement 3: HH elective Metering Systems will not be able to revert to NHH

Those Metering Systems under the 100kW limit that would otherwise be within PCs 5-8 but for which their Supplier has elected to be settled HH will not be able to switch back to being settled NHH (unless they leave Profile Classes 5-8 for Classes 1-4) after the approved Implementation Date for P272.

For the avoidance of doubt, assuming that the Modification is approved, until the approved Implementation Date any HH elective customers will still have the option of reverting to being settled NHH.

Requirement 4: 99% of energy will be settled on actual data at R1

Suppliers will be required to achieve 99% of energy settled on actual data by the First Reconciliation (R1) Run for Measurement Class E, instead of the current 99% by the Final Reconciliation (RF) Run. The existing Performance Assurance Reporting and Monitoring system (PARMS) Serial SP08c will be amended accordingly.

Requirement 5: Resolution of relevant DTC Flows will be increased

The DTC Flows that contain HH meter data will need increased resolution to ensure low HH volumes are accurately processed. The format for the relevant data items is currently set to one decimal place. It is proposed that these are changed to a three decimal place resolution to avoid rounding issues and energy being inaccurately accounted for in Settlement.

The following data flows/items would be amended to increase the format for HH meter readings from one to three decimal places:

Pros and Cons	
Data Item	Data Flow(s)
J0177 (Period Meter Consumption)	D0036 (Validated Half Hourly Advances for Inclusion in Aggregated Supplier Matrix) D0275 (Validated Half Hourly Advances)
J0021 (Meter Period Value)	D0003 (Half Hourly Advances)
J0281 (Total kWh (and kVArh) of Estimated Periods)	D0022 (Estimated Half Hourly Data Report)

The P272 Workgroup has decided against including D0010 (Meter Readings) in this requirement as the D0010 flow is used in both HH and NHH markets. The data it holds is an advance (over many HH periods), not a HH value, so it is less susceptible to rounding issues.

Requirement 6: The profiles for PCs 5-8 will be 'frozen'

The Profile Administrator will discontinue load research for PCs 5-8. The regression equations for the BSC Year 2014/15 will therefore be 'frozen', and apply to all subsequent years. These frozen profiles will be used for those customers who do not have an advanced Meter installed, as well as for other types of customer currently settled on these profiles, such as NHH unmetered supply and micro-generation profiling. It may also be used for estimation of missing data by HH Data Collectors.

Although the regression profiles will be frozen, the Default Period Profile Coefficients will still need to be determined annually as they are based on the calendar for each year. ELEXON will develop a process for this to occur, which would likely form part of the annual refresh.

For clarification, the intention is to freeze the regression coefficients for PCs 5-8. This means that the Profile Administrator will no longer collect sample data for customers within these Profile Classes, and no new regression coefficients will be created. The regression data in Market Domain Data (MDD) and the SVAA systems will then be used to create the out-turn profile coefficients for these Profile Classes by selecting the regression coefficients for the appropriate season and day-type, and evaluating them at out-turn temperature and sunset variable, as they would currently do.

The regression data would also be used with long run temperatures to calculate date specific Default Profile Coefficients' for the HH market. Again this is no change from normal practice, with the only change being that the underlying data will not be updated.

Requirement 7: PARMS Serial SP04 will be expanded to include advanced Meters being settled NHH after 6 April 2014

PC 5-8 Metering Systems with an advanced Meter that are being settled on a NHH basis after 6 April 2014 will be included within the scope of PARMS Serial SP04.

Serial SP04 'Installation of HH Metering' relates to the obligation to install a HH Meter at sites which have qualified for mandatory HH metering. Currently the standards include:

- Number of days for which a HH Meter should have been installed;
- Number of days for which HH Meter was not installed when it should have been; and
- Percentage of days for which a HH Meter was not installed when it should have been.

For the avoidance of doubt, this means that the Supplier Charge associated with Supplier Serial SP04 would be payable in respect of any Metering System that is subject to the Licence condition requiring an advanced Meter, has an advanced Meter installed, but is not being settled HH for Settlement Dates on or after 6 April 2014.

Requirement 8: A new PARMS Serial will be created to monitor sites where an advanced Meter has not been installed

A new PARMS Serial will be created for PC 5-8 Metering Systems that do not have an advanced Meter (e.g. those where the Supplier has been unable to install one, despite taking all reasonable steps to do so, as required by the Licence Condition). This Serial is for monitoring purposes only, and will not have an associated Supplier Charge. This will enable the PAB to understand the number (and hence the impact on Settlement) of residual NHH metered customers.