



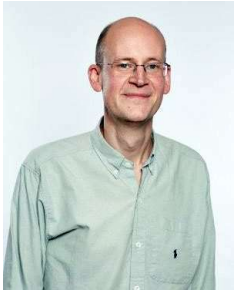
AUG Sub-Committee Early Engagement Meeting

September 11, 2020



ELECTRICITY | GAS | INDUSTRY EXPERTS

Introductions



Chris Hill

Principal Consultant
Service Delivery Lead



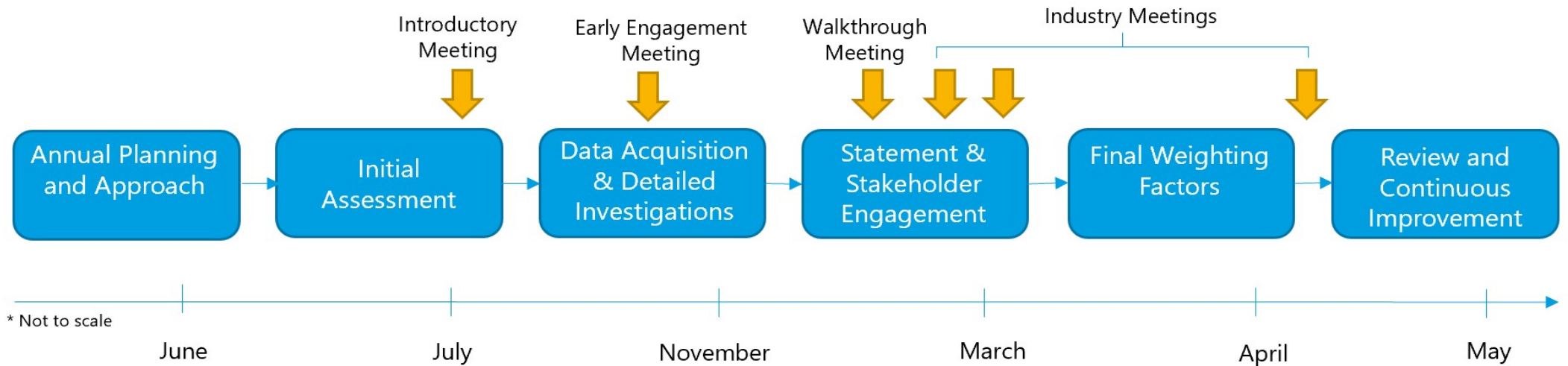
Jonathan Kiddle

Lead Consultant
Subject Matter Expert

Agenda

- ▶ **Overview of our progress**
- ▶ **Update on 6 Methodologies for contributors not subject to detailed investigation and UNC0711 impacts, if applicable**
- ▶ **Update on 4 detailed investigations**
- ▶ **Update on Data Requests**
- ▶ **Issues Log**
- ▶ **Engagement Summary**
- ▶ **Innovation and Advisory Service Terms of Reference**
- ▶ **Next Steps**

Delivery Timeline



Overview of Progress

▶ Core Service:

- ▶ The purpose of this slide deck is to appraise the AUG Sub-Committee of the work we have undertaken with regard to the contributors under investigation for the 2021/22 AUG Year and the methodologies used to analyse these.
- ▶ The methodologies for the 4 contributors identified for detailed investigation (Theft of Gas, Consumption Meter Errors, Meter Errors at LDZ Input and No Meter Read at Line in the Sand) are still in development, so a high-level view of these will be provided.
- ▶ Methodologies for the other 6 contributors not identified for detailed investigation have been validated and are discussed later within this presentation.
- ▶ The AUG Table and our model have been revised to take into account the implementation of UNC 0711, as the 2021/22 Gas Year is the first where this change will be applicable.
- ▶ We have held discussions with several industry parties, as detailed later in this presentation, and would welcome further interaction with interested stakeholders. Please contact us at auge@engage-consulting.co.uk to arrange a discussion.

▶ Innovation and Advisory Service:

- ▶ Terms of Reference have been drafted by the CDSP for discussion at the AUG Sub-Committee meeting.

Calculation Methodology Recap

- ▶ **Bottom up calculation of the forecasted energy associated with each UIG contributor.**
- ▶ **This forecast will be the amount of UIG that will exist at line in the sand.**
- ▶ **A forecast of total UIG for the year will be carried out to reconcile against the total of all the UIG contributors.**
- ▶ **A seasonal normal forecast of the consumption for the year for each LDZ will be calculated, which will be based on the AQ of sites and potential changes between class and EUCs.**
- ▶ **The Weighting Factors for each matrix position will be calculated based on the aggregated forecasted UIG and the total forecasted consumption for that matrix position.**

UIG Initial Assessment Recap

CONTRIBUTOR ID	CONTRIBUTOR NAME	SCORE	INVESTIGATION
010	Theft Of Gas	60	Y
040	Consumption Meter Errors	56	Y
050	Meter Errors at LDZ Input	40	Y
090	No Meter Read at Line in the Sand	35	Y
100	Large Sites with Incorrect Correction Factors	22	N
030	IGT Unknown Projects	22	N
110	CV Shrinkage	20	N
080	Average Temperature Assumption	18	N
120	Meter Exchanges	17	N
020 025	Unregistered Shipperless	13	N
070	Atmospheric Pressure Assumption	9	N
060	IGT Shrinkage	5	N

Existing Contributors

Existing Contributors

- ▶ For the existing contributors identified by the previous AUGE that did not score highly enough in our initial assessment, the methodology previously used has been assessed and updated to include the effects of UNC 0711.
- ▶ Those contributors are:
 - ▶ Unregistered Sites;
 - ▶ Shipperless Sites;
 - ▶ IGT Unknown Projects;
 - ▶ IGT Shrinkage;
 - ▶ Atmospheric Pressure Assumption;
 - ▶ Average Temperature Assumption; and
 - ▶ Large Sites with Incorrect Correction Factors.
- ▶ The following slides provide a high-level overview of the methodology for each of these.

020 – Unregistered Sites

Methodology

- ▶ **The UIG associated with unregistered sites is calculated by estimating the number of sites that will be off-taking gas while remaining unregistered on central systems.**
- ▶ **There are several different scenarios catered for within the calculation, including:**
 - ▶ **Sites that are unregistered and have no supplier;**
 - ▶ **Sites that are in the process of being registered; and**
 - ▶ **Sites that are unregistered and have a supplier, but the relevant details have not been entered into central systems.**
- ▶ **The methodology calculates the proportion of orphaned sites, Shipper activity and <12 months sites likely to fall within the above categories in the forecast year that are not back-billed and is calculated based on historical trends by EUC band.**
- ▶ **The energy is then split between the classes based on the AQ proportion for the forecast year.**
- ▶ **UNC 0711 impacts the calculation of the matrix position that the UIG needs to be apportioned to.**

025 – Shipperless Sites

Methodology

- ▶ **Shipperless sites are identified when the relevant transporter finds a meter on site while trying to make the service secure as part of the GSR visit.**
- ▶ **The meter will either be the same as the one previously installed at that site or a different one. The implication of this is whether a Shipper can be back-billed for the energy off-taken.**
- ▶ **If a site is Shipperless, is off-taking gas and is not back-billed by the CDSP, this creates positive UIG.**
- ▶ **The methodology calculates the proportion of the Shipperless sites, that are not back-billed and likely to be off-taking gas but not registered in the forecast year and is calculated based on historical trends by EUC band.**
- ▶ **UNC 0711 impacts the calculation of the matrix position that the UIG needs to be apportioned to.**

030 – IGT Unknown Projects

Methodology

- ▶ **IGT Unknown Projects was an issue identified by the previous AUGE.**
- ▶ **This was created by rejections of new sites between the IGT and the CDSP.**
- ▶ **The registration process changed as part of Project Nexus and these unknown projects are no longer created.**
- ▶ **Post Nexus, individual Unregistered Sites located on IGTs are covered within the Unregistered Sites assessment.**
- ▶ **Therefore, the UIG associated with IGT Unknown Projects has been calculated to be zero.**

060 – IGT Shrinkage

Methodology

- ▶ Shrinkage from IGT sites is not currently accounted for in the settlement process, unlike shrinkage from the NTS and LDZs.
- ▶ IGT shrinkage creates positive UIG.
- ▶ To calculate IGT shrinkage volume, the leakage rates from the National Leakage Test are multiplied by the length of mains that will be live for the forecast year.
- ▶ To calculate the total energy, the volume is multiplied by the CV to derive the energy volume for the whole network.
- ▶ This energy is split between each matrix position on the basis of AQ proportion.
- ▶ We are looking to acquire a more accurate estimate of the length of main for the forecast year this AUG year.
- ▶ The impact of UNC 0711 is within the splitting of the total volume to matrix position.

070 - Atmospheric Pressure Assumption

Methodology

- ▶ **Atmospheric Pressure is assumed to have a static value of 1013.25 mbars.**
- ▶ **If the pressure is higher than this static value, positive UIG is created. If it is lower, negative UIG is created.**
- ▶ **Any site with equipment that corrects for changes in pressure installed does not generate UIG in relation to this contributor.**
- ▶ **The methodology uses pressure information from 2012-2018 to calculate the “pressure error”. The “pressure error” is the difference between the static value and the pressure recorded on an LDZ basis adjusted for altitude.**
- ▶ **This pressure error is multiplied by the consumption estimate for those sites that do not have corrective equipment installed to calculate an estimate of UIG.**
- ▶ **UNC 0711 impacts the number of matrix positions that the UIG is split between and the proportion of sites with corrective equipment installed.**

080 – Average Temperature Assumption

Methodology

- ▶ Temperature is assumed to have a static value of 12.2°C.
- ▶ If the temperature is lower than the static value, it will create positive UIG. If the temperature is higher than the static value, negative UIG is created.
- ▶ Any site that has equipment that corrects for changes in temperature installed does not generate UIG in relation to this contributor.
- ▶ For each matrix position, the appropriate temperature study needs to be identified.
- ▶ Domestic temperatures are taken from the Domestic Meter Temperature Survey and non-domestic temperatures from the I&C Temperature Study (ICTS). The internal or external meter location is required for domestic sites, due to the effect this has on temperature.
- ▶ The “temperature error” is the difference between the applicable study temperature and the assumed temperature.
- ▶ The UIG is the “temperature error” multiplied by the estimated offtake by sites with no temperature correction equipment installed for the forecast year.
- ▶ UNC 0711 simplifies the selection of the appropriate study to be used in the calculation.

100 – Large Sites with Incorrect Correction Factors

Methodology

- ▶ Sites with an AQ of greater than 732,000 kWh are meant to have a site-specific correction factor based on the altitude of the site and the pressure of the gas at the meter.
- ▶ It is assumed that any site falling into the above category and using the default correction factor of 1.02264 will be incorrect.
- ▶ If the factor is too low, it will create positive UIG. If the factor is too high, negative UIG will be created.
- ▶ There is also a minimum correction factor value based on the formulas contained within The Gas (Calculation of Thermal Energy) Regulations 1996.
- ▶ For each matrix position, the average correction factor is calculated and the “correction factor error” is the difference between this and the default correction factor of 1.02264.
- ▶ The UIG for this contributor is calculated by multiplying the difference between the correction factor error for the relevant matrix position by the AQ of sites, using the standard correction factor in the forecast year.
- ▶ There is no impact from UNC 0711 on this contributor as it only applies to sites in EUC04 and above.

Investigation Topics

Investigation Topics

- ▶ **Four topics were identified for further assessment this year as part of our initial assessment:**
 - ▶ Theft of Gas;
 - ▶ Consumption Meter Errors;
 - ▶ LDZ Meter Errors; and
 - ▶ No Meter Read at Line in the Sand.
- ▶ **The following slides provide a definition of the contributor, a summary of the investigation so far and some initial findings.**

010 - Theft of Gas

Definition

- ▶ **Theft of gas is intended to cover a scenario whereby a person tampers with the relevant metering equipment so that the volume of gas off-taken is not correctly recorded by that equipment.**
- ▶ **In most scenarios, the meter under-records which creates positive UIG.**
- ▶ **We are investigating two scenarios which affect settlement at line in the sand;**
 - ▶ **Undetected theft; and**
 - ▶ **Unreported theft.**
- ▶ **Undetected theft is any theft that is not identified.**
- ▶ **Unreported theft is theft that is detected but not reported into settlement. Two variations of unreported theft have been identified:**
 - ▶ **Identified Thefts reported to TRAS but not CMS; and**
 - ▶ **Identified Thefts reported not reported to TRAS or CMS.**

010 - Theft of Gas

Analysis

▶ Undetected Theft

- ▶ Previous methodology under validation.
- ▶ Queried ETTOS data.
- ▶ Received up to date data set of TOG data.
- ▶ Updated TRAS Data due September 2020.
- ▶ Data has been provided by a number of Shippers, we are also establishing other potential sources of theft data.

▶ Unreported Theft

- ▶ Commenced Identification of potential sources of data to investigate.
- ▶ This could be impacted by UNC 0711.

▶ Impact of Smart metering

- ▶ We are planning to validate the impact on theft of the installation of smart / AMR meters.
- ▶ Additional data sources for this are under investigation.

040 - Consumption Meter Errors

Definition

- ▶ **Three potential sources of consumption meter error are:**
 - ▶ Meter incorrectly recording at the extremes of use;
 - ▶ Meter manufactured with a built-in bias; and
 - ▶ Meter becoming faulty over time, leading to inaccurate recording of gas off-taken.
- ▶ **These sources create UIG if the meter is not recording accurately and the identified error does not enter settlement by line in the sand.**
- ▶ **If the meter is under-recording, it will create positive UIG. If it is over-recording, negative UIG will be created.**

040 - Consumption Meter Errors

Analysis

- ▶ **Existing data for extremes of use received.**
 - ▶ Previous methodology under validation.
- ▶ **Additional data sources under investigation for meter bias and drift over time. These include;**
 - ▶ Meter Manufacturers;
 - ▶ Meter Operators;
 - ▶ Testing laboratories;
 - ▶ Meter Asset Managers; and
 - ▶ Datalogger Maintenance.

050 - Meter Errors at LDZ Input

Definition

- ▶ Each DNO is responsible for measuring and determining the volume of gas entering its network.
- ▶ If the meter recording the volume is not accurate, there is an impact on UIG.
- ▶ We are investigating two scenarios:
 - ▶ Meter error is identified and not passed to settlement; and
 - ▶ Meter error is not identified.
- ▶ If a meter is over-recording, positive UIG is created. If a meter is under-recording, negative UIG is created.

050 - Meter Errors at LDZ Input

Analysis

▶ Initial data set received:

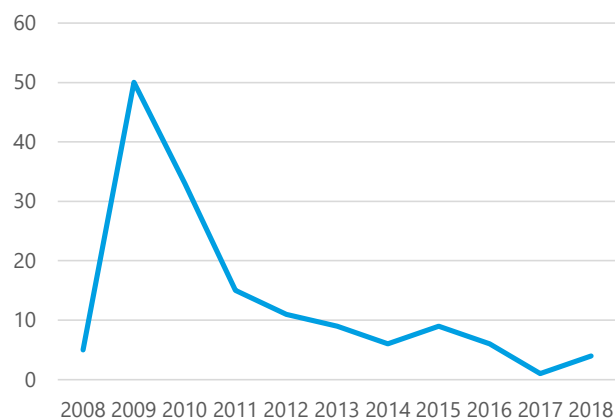
- ▶ Historical identified meter errors; and
- ▶ Number, location and type of LDZ input meters.

050 - Meter Errors at LDZ Input

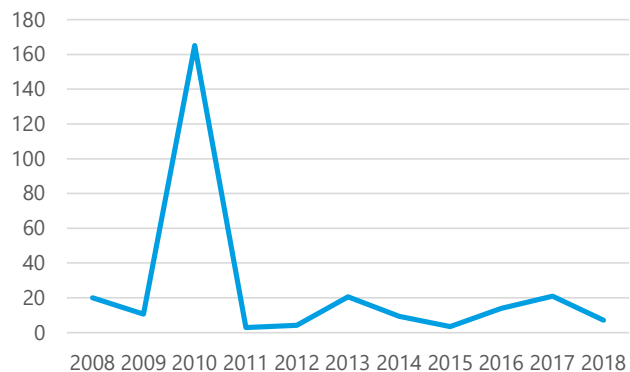
Initial findings

- ▶ **The number of detected errors has decreased over time.**
- ▶ **The average estimate quantity is affected by individual errors.**
- ▶ **The average discovery time has slightly decreased over time.**

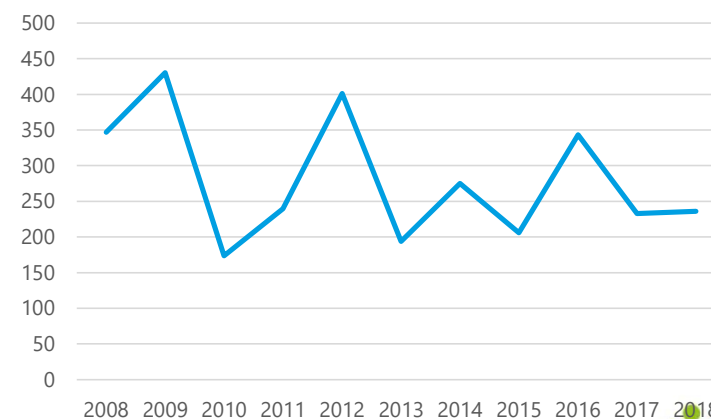
Count of Errors



Average of Absolute Estimated quantity of error (GWh)



Average of Discovery Time



090 - No Meter Read at Line in the Sand

Definition

- ▶ If any period has not been reconciled to an actual read, there is a risk that the energy that was allocated to a site based on its AQ will not match its actual use. If any of that period is prior to line in the sand, this will not be reconciled to actual usage and therefore has the potential to create UIG.
- ▶ If the AQ is understated, this will contribute to positive UIG. If the AQ is overstated, this will contribute to negative UIG.
- ▶ We are investigating the scale of the potential issue and, should this be of sufficient size, will forecast the UIG for the forecast year.
- ▶ For our forecast year, this will include any site that has not been read since April 2018.
- ▶ All classes of sites and EUCs are within scope of the investigation.

090 - No Meter Read at Line in the Sand

Analysis

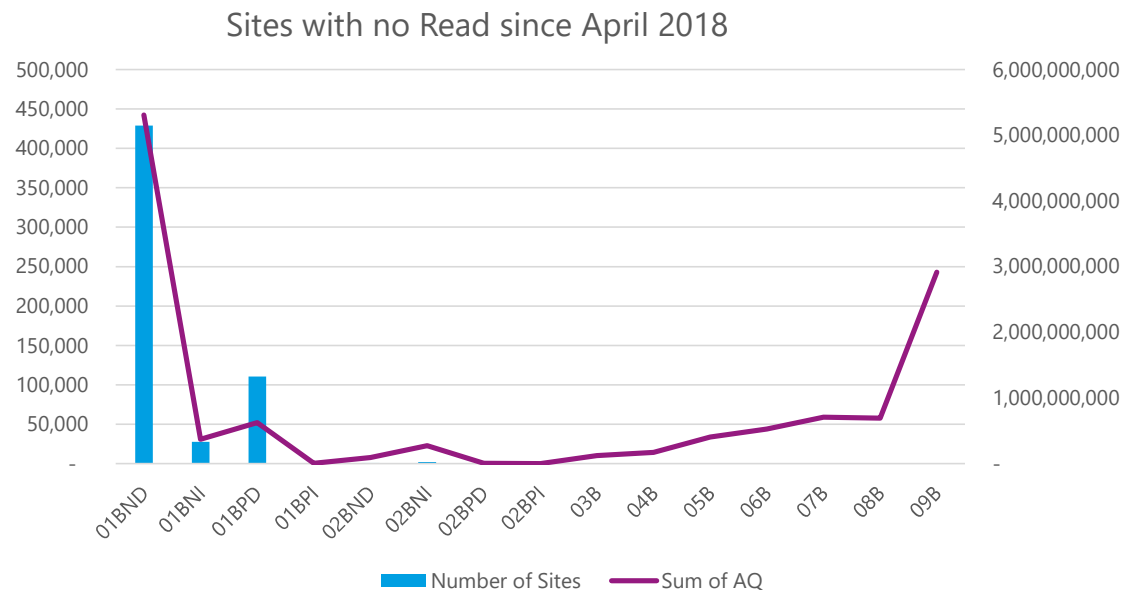
▶ Initial data set received:

- ▶ Sites that have not received a read since April 2018;
- ▶ Changes in AQ since Nexus; and
- ▶ Reconciliation percentages.

090 - No Meter Read at Line in the Sand

Initial findings

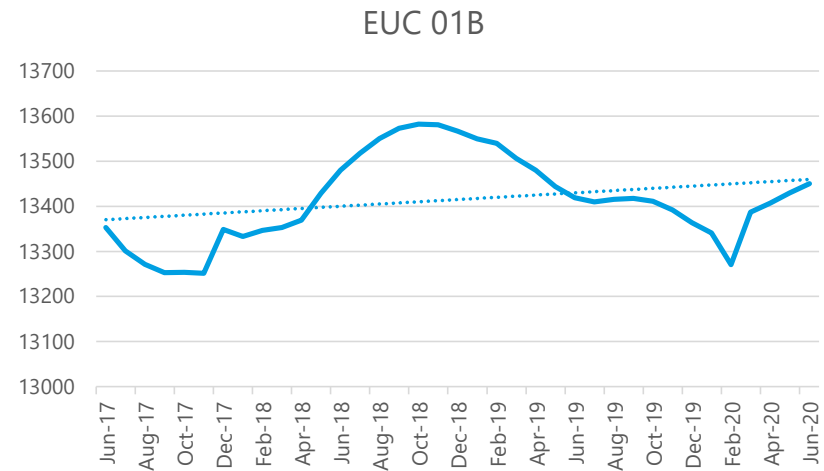
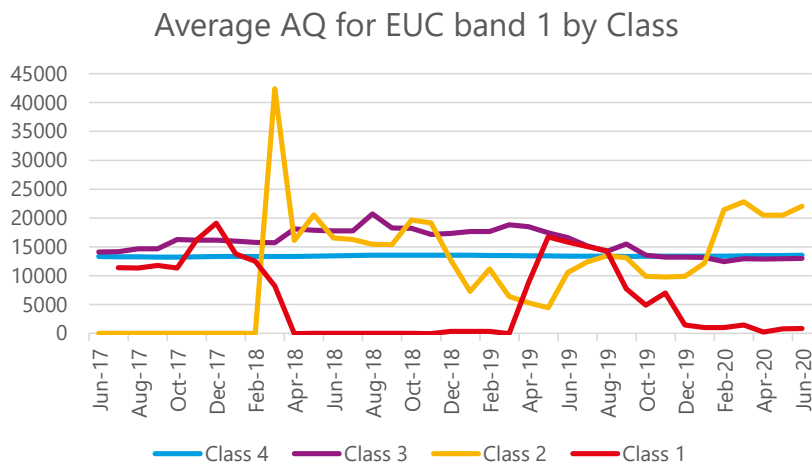
- Sites from all classes and EUCs will not have a read by line in the sand (April 2018 for our target year).



090 - No Meter Read at Line in the Sand

Initial findings (2)

- Some classes will need to be combined to find valid trends.



Matrix position populations

Number of sites and associated AQ (MWh) - June 2020

CLASS	1		2		3		4	
	SITES	AQ	SITES	AQ	SITES	AQ	SITES	AQ
1ND	-	-	-	-	3,800,368	48,497,859	17,784,487	245,083,900.8
1PD	-	-	-	-	39,831	445,888.1	2,125,760	20,587,360.2
1NI	3	2.6	9	198.4	61,644	1,823,077.9	488,754	10,430,073.2
1PI	-	-	-	-	21	566	3,688	42,460.6
2ND	-	-	-	-	2,168	233,723.5	41,004	4,498,098.3
2PD	-	-	-	-	20	2,068.7	1,605	169,192.8
2NI	1	268.5	8	1,709.7	43,752	6,530,445.2	113,927	15,894,865.8
2PI	-	-	-	-	9	1,639.4	53	6,363.2
3	-	-	20	10,403.4	12,868	5,692,528.9	32,194	14,555,113.8
4	2	4,089.8	37	51,133.6	4,078	4,817,270.8	14,648	17,623,116
5	6	23,632.3	56	233,948.5	692	2,274,735.2	3,862	13,203,252.1
6	26	270,535.4	132	1,358,714.4	163	1,430,739	1,326	11,909,229.9
7	41	807,470.6	113	2,403,695.7	64	1,316,067.6	488	9,930,507.4
8	67	3,116,672.6	127	5,274,965.9	21	822,857.8	246	9,706,283.1
9	340	89,609,471.9	15	1,823,252.5	5	306,436.4	23	1,556,319.6

Prioritised Data Request

- ▶ Initial Prioritised Data Request sent to the CDSP on 30 June.
- ▶ Data provided in July and August.
- ▶ Full details of the data request were provided with the August monthly industry report.
- ▶ A few files are currently in query.
- ▶ Updated Prioritised Data Request will be provided to the CDSP before 30 September.

Core Service Summary

- ▶ **4 Contributors are under investigation with varying levels of analysis.**
- ▶ **Updates on the progression of the analysis will be provided in the monthly industry reports.**
- ▶ **6 Contributors have been taken on and we are in the process of generating output for our model based on updated industry information.**
- ▶ **Impacts of UNC 0711 have been analysed and are being taken into account for this year's statement.**
- ▶ **Most of the data within the prioritised data request has been received and validated. The updated prioritised data request will be provided to the CDSP before the end of the month.**

Industry Issues

Industry Issues Log

ISSUE NUMBER	ISSUE	LATEST UPDATE	STATUS	DATE OPENED	DATE CLOSED
1	Modification 0711 - Update of AUG Table to reflect new EUC bands	Approved by the CDSP, work to reflect this in the AUG Statement and Table is ongoing	Live	01/06/2020	
2	COVID 19	Situation is being monitored, along with the output of associated UNC modifications	Live	01/06/2020	

AUGE Meetings with Stakeholders

▶ Meetings held:

- ▶ Energy UK – UIG Working Group (23rd July) – High level discussion around general methodology, identified contributors, level of theft from smart / AMR meters and dataloggers on DM sites.
- ▶ ICoSS – Monthly Meeting (13th August) – High level discussion around general methodology, identified contributors, level of theft from smart / AMR meters.
- ▶ British Gas (20th August) – Effectiveness of proactive theft investigation as compared to reactive theft investigation, level of theft from smart / AMR meters, possible extent of theft detected but unreported.

▶ Upcoming meetings:

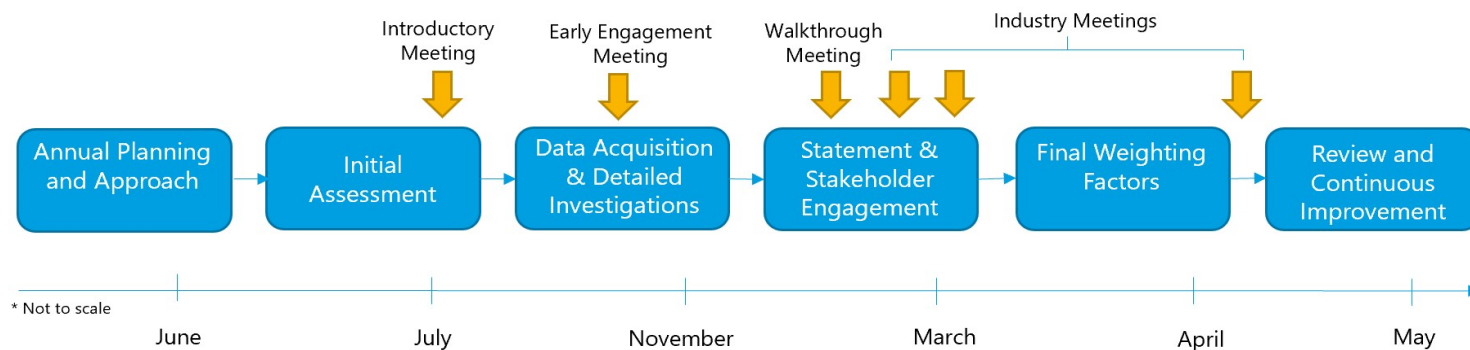
- ▶ Utility Warehouse (8th September) – Discussion of the level of theft from smart / AMR meters, Retail Energy Code and theft, approach to undetected theft and approach to determining PPM factors.

Innovation and Advisory Service

- ▶ **Our Innovation Service is designed to identify fairer and more equitable ways of allocating UIG. In Year 1, the identification of potential innovations will take place later this year.**
- ▶ **Our Advisory Service is designed to provide stakeholders, including relevant industry groups, with expert advice from the AUGE.**
- ▶ **A Terms of Reference for both the Innovation and Advisory Service has been drafted by the CDSP for discussion at the AUG Sub-Committee meeting.**

Next Steps

- An updated prioritised data request will be provided to the CDSP by the end of this month.
- The draft AUG Statement, including the draft AUG Table, will be provided to the AUG Sub-Committee by the end of December following prior review by the CDSP.
- This will be formally presented to industry at the January AUG Sub-Committee Meeting.
- Responses to the draft AUG Statement will be required by the middle of February.
- Engagement with stakeholders will continue throughout the process, we can be reached at any time by contacting us at auge@engage-consulting.co.uk.





engage 

ELECTRICITY | GAS | INDUSTRY EXPERTS