AUG Sub-Committee Extra Meeting

11th November 2020

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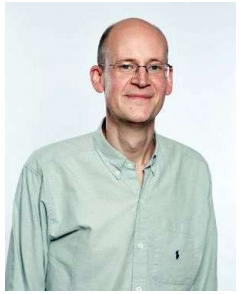
Introductions



Chris Hill

Principal Consultant

Service Delivery Lead

Jonathan Kiddle

Lead Consultant

Subject Matter Expert

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Purpose of Meeting

- This meeting has been scheduled at the request of the AUGE in order to allow us to
  - Provide a greater level of detail to stakeholders with regard to our methodologies and current thinking on the contributors that we are investigating in relation to UIG
  - Allow stakeholders to provide feedback in response to this information
  - Enable stakeholders to make use of this information for internal planning and modelling purposes
  - Ensure continued transparency around the work undertaken by the AUGE

  - For the avoidance of doubt, we are not yet in a position where we are able to provide any information in relation to weighting factors as these are still being determined. This will be provided to stakeholders at the beginning of the New Year, in line with the process described by the AUGE Framework

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Agenda

- Latest status for the updated prioritised data request
- Detailed investigation update
- Update on the 6 existing contributors not under detailed investigation
- Consumption forecast methodology and initial results
- Innovation and Advisory Service Terms of Reference
- Next steps

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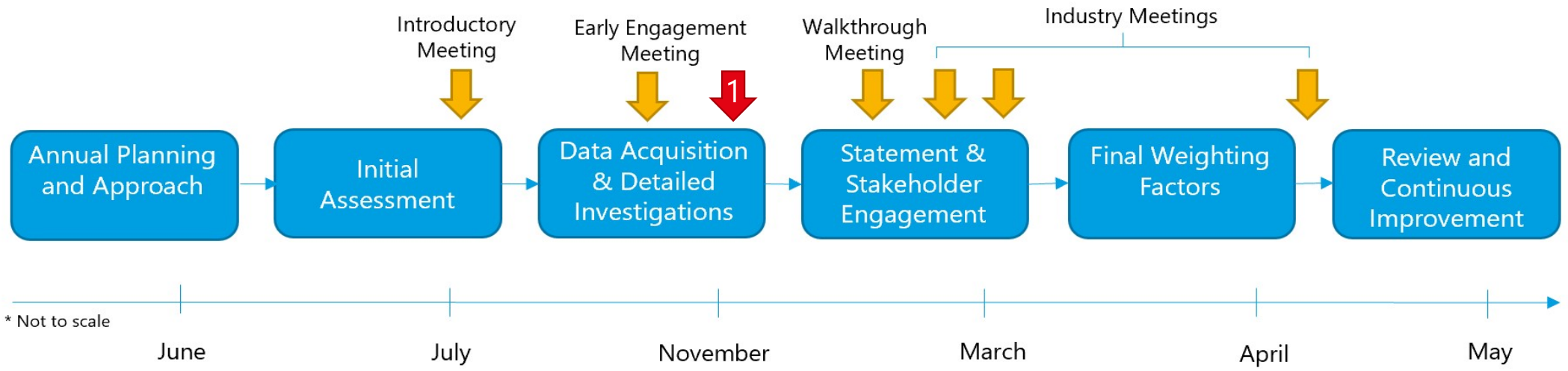
Delivery Timeline



Updated Prioritised Data Request

- Updated Prioritised Data Request sent to the CDSP on 18th September
- The majority of the files have been delivered in October
- Some late delivery of files has led to delays in our analysis
- Full details of the data request were provided with the October monthly industry report

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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
- Modification 0711 is catered for within our methodology

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
  - No Meter Read at Line in the Sand
- The definition and initial analysis findings were presented at the previous meeting
- This meeting provides a further update on the data received, analysis, proposed methodology and, where applicable, some initial results

010 - Theft of Gas

Data

- **Data currently received**
  - **TOG data from CMS**
  - **TRAS data with additional fields**
  - **Sample ETTOS data set**
  - **Theft information from a trade body to help identify the split between smart meter and traditional meter theft**
- **Shipper Proportions**
  - **We initially requested the shipper for each TRAS theft and the shipper proportions to be provided in an anonymised format. However due to the nature of the data, it was established that we would be able to identify a market participant from this**

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010 - Theft of Gas

Previous methodology

- **The previous methodology calculated a "balancing factor" which was assumed to almost exclusively contain undetected theft**
- **The estimate of this varied year on year and changed from 3,000 GWh for gas year 2017 to 7,100 GWh for 2020**
- **The change in this estimate of undetected theft comes from using a top-down calculation and assuming that the balancing factor is almost exclusively made up of unidentified gas**
- **The unidentified gas was then split back to the market based on identified theft**
- **The methodology did not include an estimate of unreported theft**
- **We do not have a top-down calculation methodology therefore could not follow their process**
- **Our investigation started with identifying a bottom-up approach to calculating unidentified gas**

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010 - Theft of Gas

Theft characteristics

What we think makes up theft

TYPE OF THEFT	SUB TYPE
Reported Theft	Identified theft in Settlement (TOG)
	Identified TOG Theft and TRAS
	Theft that is happening and will be reported but has not been found yet
Unreported Theft	Identified theft in TRAS but not in Settlement (TOG)
	Identified theft by supplier but does not get into Settlement or TRAS
	Theft that is happening and will be identified but has not been found yet
Undetected Theft	Theft that is happening where the supplier is not identifying but other suppliers would find it
	Controllable undetected theft
	Uncontrollable undetected theft

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010 - Theft of Gas

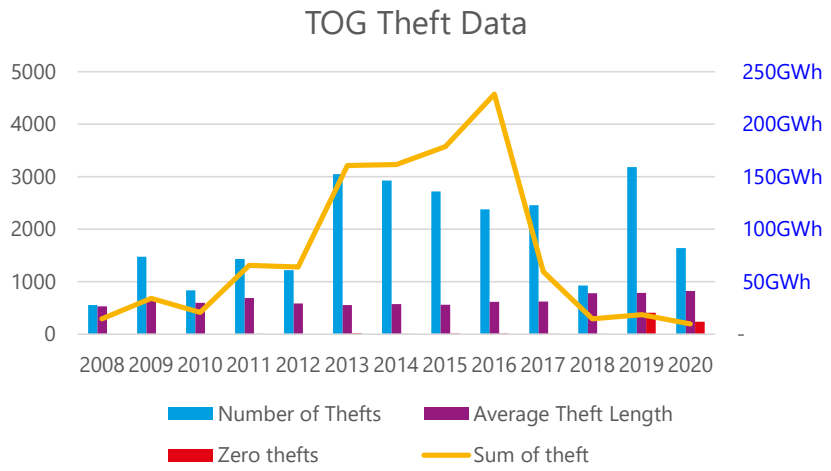
Analysis

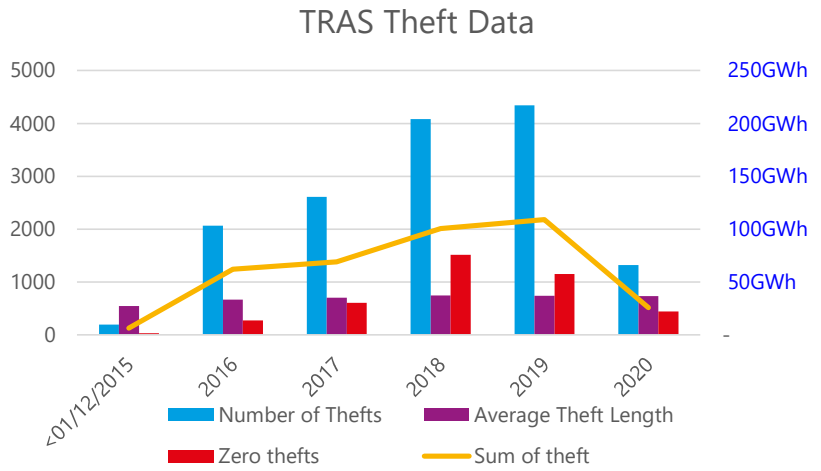
- **TOG data of theft that goes into Settlement**
- **Significant drop off after 2016**

010 - Theft of Gas

Analysis TOG and TRAS confirmed theft data

- **Identified that reported theft estimate is going down over time but number of confirmed thefts is staying high**
- **Drop off in theft into settlement since 2016**





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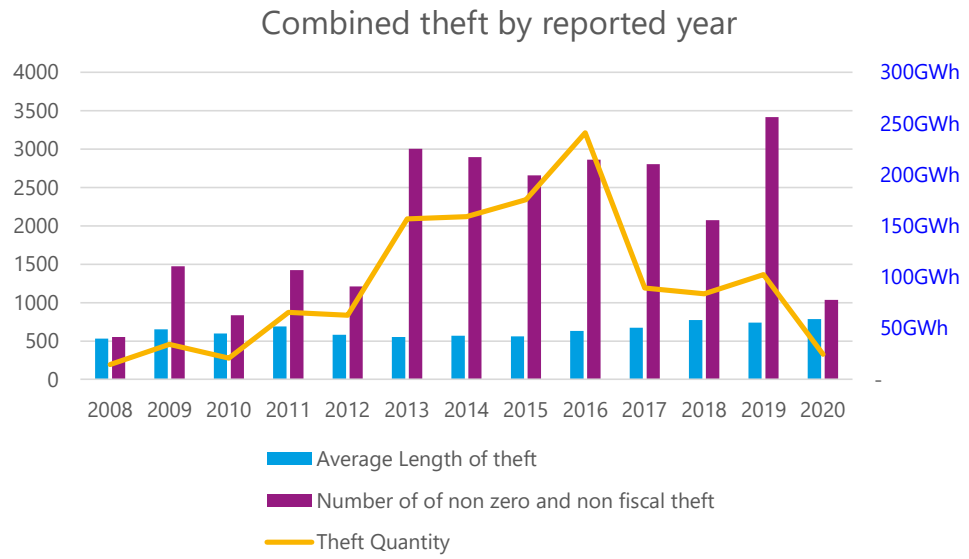
010 - Theft of Gas

Combined theft data set

- **Combined data set with theft matches, zero thefts and fiscal theft removed**



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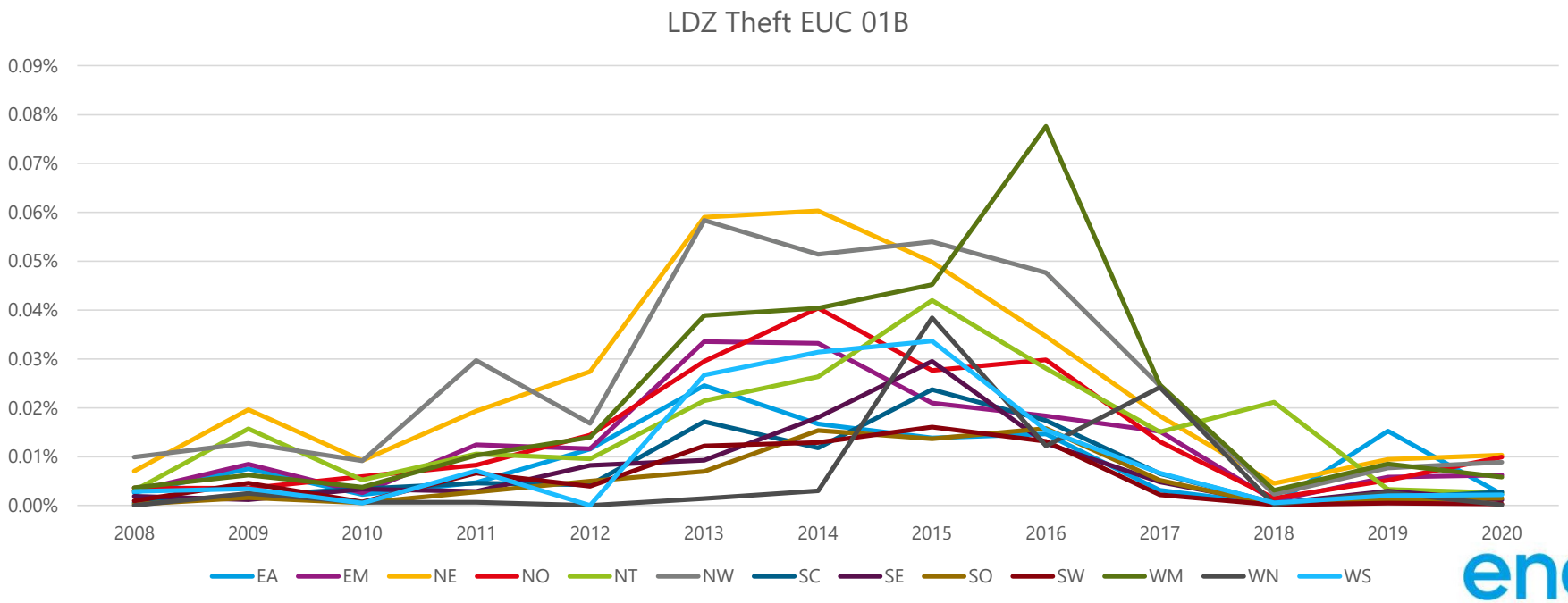
010 - Theft of Gas

LDZ Analysis

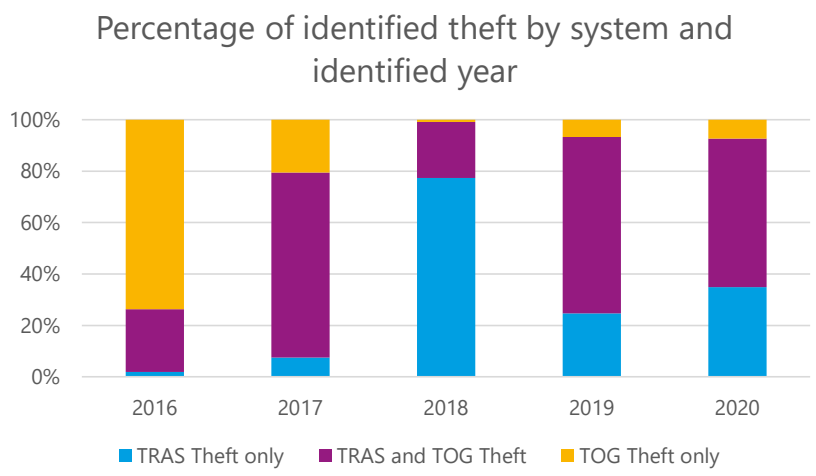
- **No significant trend in LDZ theft over time**



010 - Theft of Gas

Analysis – Detected Theft

- **Based on theft size we have calculated that unreported theft is 30% of the identified theft for the target year**
- **We have estimated that 20% of theft may be being detected by suppliers and not entering either TRAS or TOG**
- **Our unreported theft estimate for the target year is 34 GWh. We are currently assuming that this will not enter settlement and therefore we will apportion it by previously unreported theft**



2019	Class		
		3	4
EUC	01BND	18%	30%
	01BNI	0%	15%
	01BPD	0%	29%
	02BND	0%	1%
	02BNI	4%	3%
	02BPD	0%	0%
	03B	0%	1%

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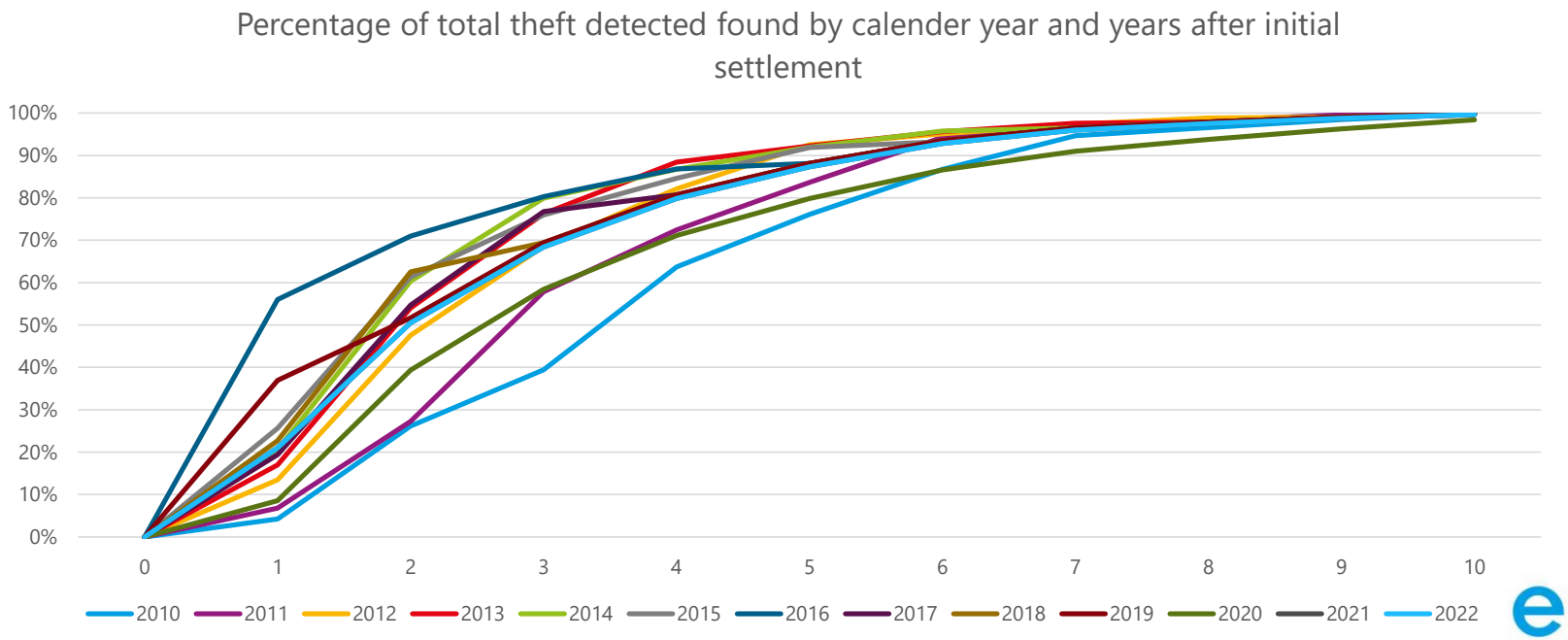
010 - Theft of Gas

Analysis – Length of time for theft to be discovered

- **Analysis of previous years has indicated that theft takes up to 10 years to be discovered**
- **Just over 50% is found 2 years after the initial settlement year**



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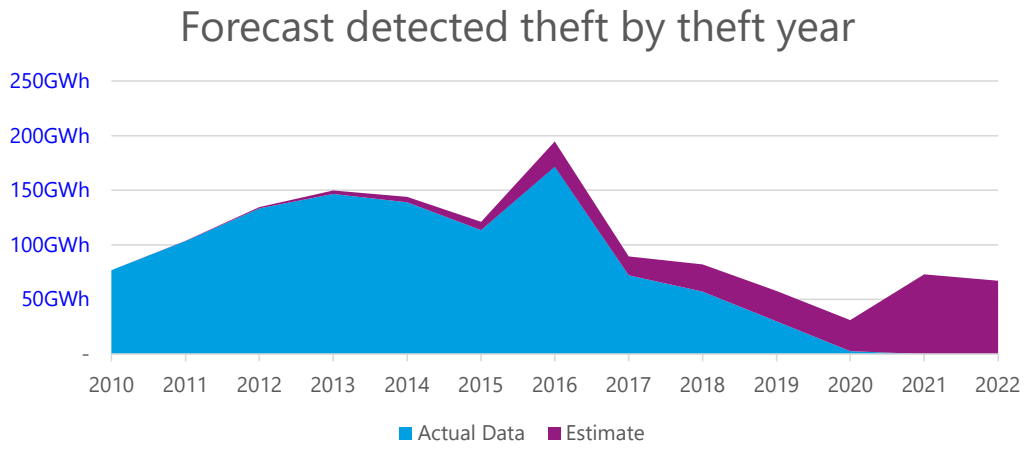
010 - Theft of Gas

Analysis - Final detected theft and total theft forecast

- **Forecast of detected total theft based on historical trends. For our target year we have estimated that identified theft will be 80 GWh**



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010 - Theft of Gas

Recap

Proportion of theft by type of theft

TYPE OF TEFT	SUB TYPE	PROPORTION
Reported Theft	Identified theft in Settlement (TOG)	2-2.5%
	Identified TOG theft and TRAS theft	
	Theft that is happening and will be reported but has not been found yet	
Unreported Theft	Identified theft in TRAS but not in Settlement	
	Identified theft by supplier but does not get into Settlement or TRAS	
	Theft that is happening and will be identified but has not been found yet	
Undetected Theft	Theft that is happening where the supplier is not identifying but other suppliers would find it	97.5-98%
	Controllable undetected theft	
	Uncontrollable undetected theft	

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010 - Theft of Gas

Analysis - splitting

- **The previous methodology used the detected TRAS thefts to split undetected theft**
- **We are investigating other potential methodologies to split the undetected theft into matrix positions for the target year**

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010 - Theft of Gas

Potential issues – Changes to theft arrangements due to Ofgem's REC v1.1 consultation

- **Potential changes to TRAS service next year**
- **New body estimating the full total of theft**
- **We have added this issue to our industry issues log and will take into consideration any changes within our methodology going forward**

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010 - Theft of Gas

Summary

- **Reduced energy volume of theft while there isn't the same reduction in number of detected thefts**
- **Some detected theft is not entering settlement and we have estimated that this will be 34 GWh for the target year**
- **Still evaluating the best method to split the UIG between matrix positions**

040 - Consumption Meter Errors

Data received

- **Data received from the Office for Product Safety and Standards**
  - **In service testing of meters**
  - **Summary of disputed meter accuracy tests for Domestic, Commercial and Industrial sites**
- **Data received from Xoserve**
  - **Capacity of meters in EUC 2 and above**
- **Data expected from Xoserve**
  - **Details of meter errors**

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040 - Consumption Meter Errors

In service testing

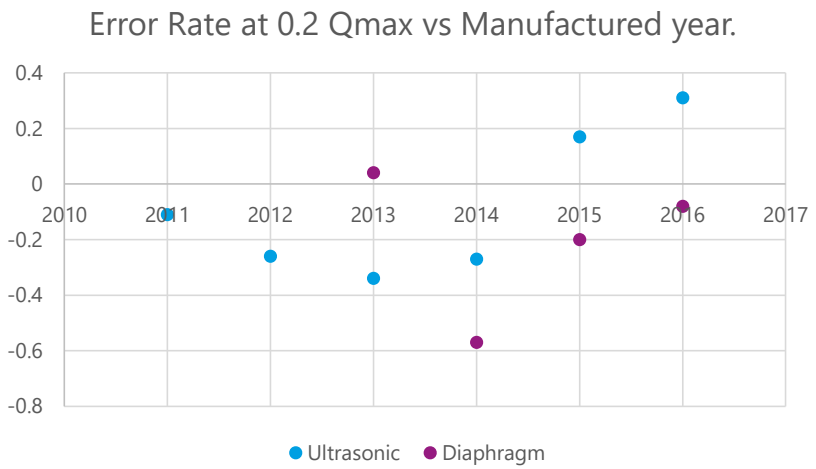
- **The annual In-Service Testing scheme (IST) assesses the conformity of MID approved "domestic type" meters (i.e. U6/G4/E6) against the legal requirements**
- **Meters are sampled at 3-year intervals although, to date, we only have data from the first (i.e. 3 year) and second (i.e. 6 year) sampling period**

					Extreme Value (%)				Mean Error (%)		Standard Deviation	
					0.2Qmax		Qmax					
Year tested	Manufacture Year	Meter Type	Sample Tested	Outliers removed	Greatest Error (+)	Greatest Error (-)	Greatest Error (+)	Greatest Error (-)	0.2Qmax	Qmax	0.2Qmax	Qmax
2017	2011	Ultrasonic	334	1	0.84	-2.16	1.64	-2.64	-0.11	0.07	0.43	0.43
	2014	Ultrasonic	219	0	1.80	-1.95	1.60	-1.77	-0.27	-0.17	0.39	0.42
	2014	Diaphragm	319	0	1.34	-2.73	1.66	-1.90	-0.57	-0.22	0.64	0.62
2018	2012	Ultrasonic	232	0	1.14	-1.79	2.48	-1.24	-0.26	0.00	0.34	0.37
	2015	Ultrasonic	209	0	1.33	-0.63	1.81	-1.08	0.17	0.07	0.31	0.39
	2015	Diaphragm	516	0	2.11	-2.50	2.08	-1.98	-0.20	-0.15	0.59	0.55
2019	2013	Ultrasonic	178	0	0.93	-1.32	1.64	-1.66	-0.34	-0.21	0.40	0.50
	2013	Diaphragm	52	0	2.05	-1.41	1.16	-1.94	0.04	-0.36	0.71	0.73
	2016	Ultrasonic	338	0	1.37	-0.65	1.70	-1.28	0.31	0.04	0.33	0.37
	2016	Diaphragm	513	1	1.64	-3.19	2.80	-3.53	-0.08	-0.18	0.62	0.66

040 - Consumption Meter Errors

Domestic sized in-service meter testing results

- **For our calculation we are using the error rate at 0.2 Qmax. On average meters are under recording by 0.17%**
- **The average error is 0.05% for “domestic type” Ultrasonic sites and 0.23% for “domestic type” Diaphragm sites**
- **No significant yearly change and no results have been provided for the same manufactured year**
- **Results for this year’s tests are delayed until December**



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040 - Consumption Meter Errors

Dispute Meter Testing

- **We received details of meter testing for 2019 for domestic and for the previous 3 years for commercial and industrial**

	No of Tests	Accurate	Below 5% Slow	Below 5% Fast	Above 5% Slow	Above 5% Fast	% Accurate
Domestic Diaphragm (U6/G4)	631	566	16	44	2	3	89.7%
Domestic Ultrasonic (E6)	230	229	0	0	1	0	99.6%

Year	No of Tests	Accurate	±2-3%		±3-4%		±4-5%		Over ±5%		% Accurate
			Fast	Slow	Fast	Slow	Fast	Slow	Fast	Slow	
2017	63	51	3	5	1	0	0	0	1	2	81.0%
2018	61	51	1	4	1	0	0	0	3	1	83.6%
2019	58	43	1	5	0	2	1	1	1	4	74.1%

Year	No of Tests	Accurate	±1-2%		±2-3%		±3-4%		±4-5%		Over ±5%		% Accurate
			Fast Qmax Fail	Slow Qmax Fail	Fast	Slow	Fast	Slow	Fast	Slow	Fast	Slow	
2017	4	3	0	0	1	0	0	0	0	0	0	0	75.0%
2018	14	10	0	0	1	1	0	1	0	0	0	1	71.4%
2019	9	2	3	1	0	1	1	0	0	0	0	1	22.2%

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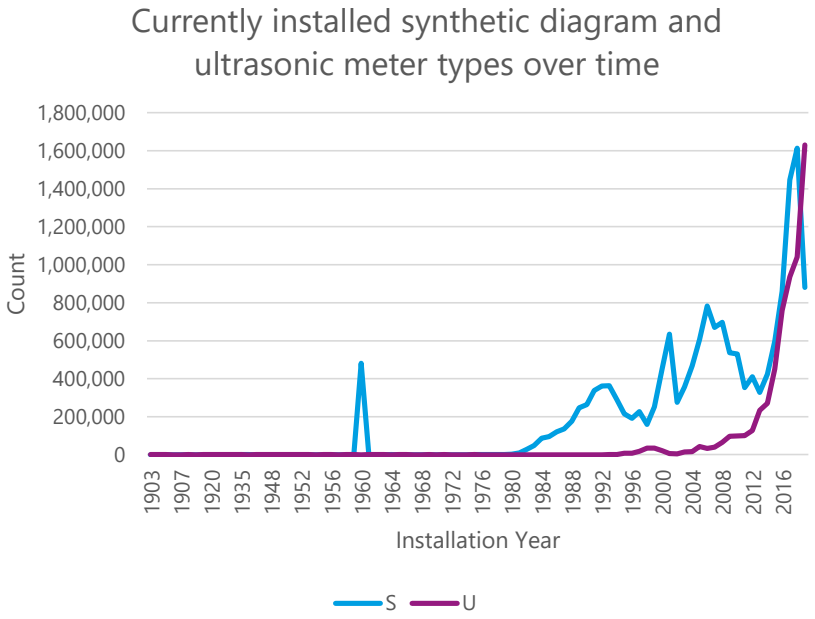
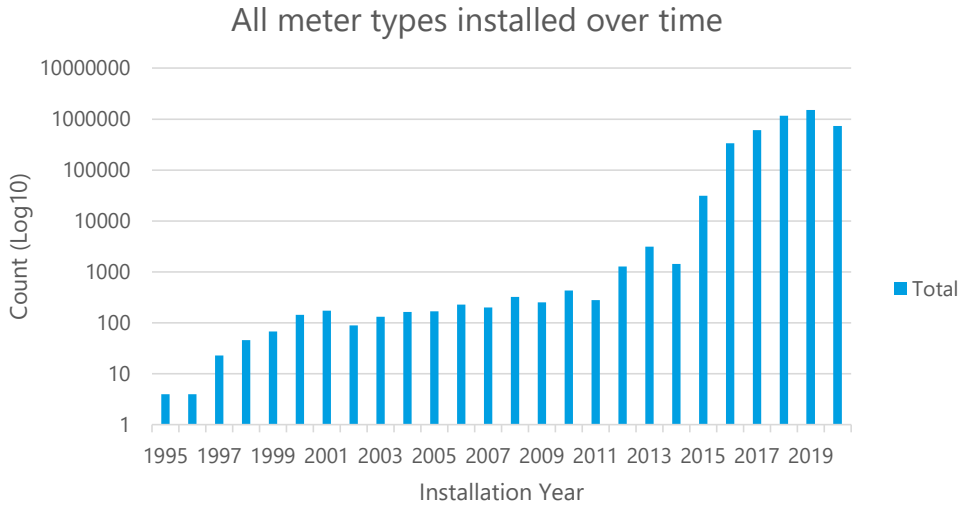
040 - Consumption Meter Errors

Types of meter analysis

- **We have investigated the type of meter installed and the number of meters installed per year and will take account of the change in proportions in our calculations**





040 - Consumption Meter Errors

Proposed Methodology - built in bias

- **To calculate the UIG associated with this contributor, we will apply the relevant meter error percentage to the forecasted consumption for each meter type for each LDZ matrix position**
- **The error rate will be applied to each meter type and is not applied differently based on age of the meter, the AQ of the site or where it was installed**
- **The meter type consumption estimation will consider an estimate of the types of meters that will be installed**
- **Initial estimates based on current meter populations by AQ is 650 GWh. This will change for the forecast year**

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040 - Consumption Meter Errors

Faulty meter error investigation next steps

- **Awaiting data to investigate if sites with meter errors have consumption adjustments to take account of the fault**
- **The meter accuracy reports from BEIS is for a limited biased population and therefore it is hard to accurately extrapolate the data to the whole population**

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040 - Consumption Meter Errors

Extremes of Use

- The previous methodology included an estimate of use for meters at the extremes of capacity
- It would calculate unidentified gas associated with LSPs when they use gas around the Qmin
- No estimate was provided for under recording around Qmax
- The unidentified gas identified was for all EUCs even through the methodology excludes SSPs
- To validate this methodology, we tried to estimate the number of hours required to run a site on each working day based on the meter capacity and running at Qmin
- The average number of hours in a day varied greatly between sites
- Our analysis highlighted that we would have to apply too many large assumptions to the methodology which would also require specific site information. Therefore we have decided not to include this calculation methodology in this year's statement
- This previous calculated UIG associated with this was 25 GWh

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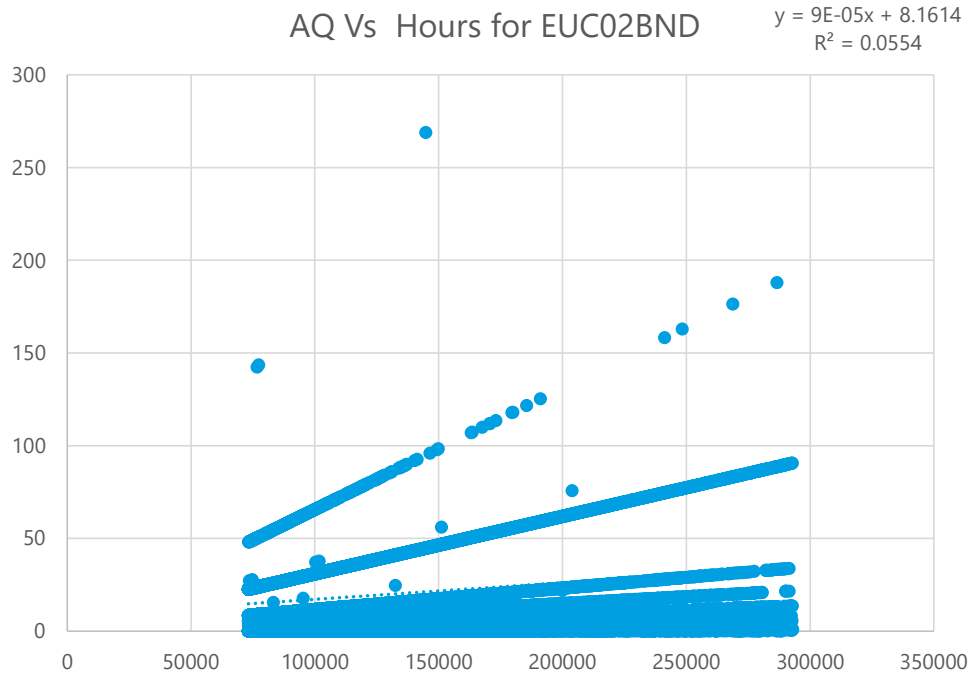
040 - Consumption Meter Errors

Extremes of Use

- **The graph below shows the results of our validation of the number of hours test**



040 - Consumption Meter Errors

Summary

- **We have identified in service testing data that will be used to estimate built in bias. No drift over time has been identified based on the age of the meter**
- **We plan to use this for diaphragm meters and ultrasonic meters. Rotary and turbine meters are not being included**
- **Faulty meters are likely to generate UIG and we will investigate this further**
- **We are not planning to use the previous methodology to calculate UIG associated with extreme of use. We expect this to have a negligible affect on our UIG calculations**

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050 - Meter Errors at LDZ Input

Data and Methodology

- **Updated data set received**
  - **Historical identified meter errors**
  - **Number, location and type of LDZ input meters**

- **We have not identified any other sources of reported meter error at LDZ or any other indication that there is any bias within LDZ meters**

- **Methodology**
  - **In line with previous work carried out for the Performance Assurance Workgroup we are estimating that 10% of meter errors each year go undetected**
  - **The average of the last 5 years is a good view to use as the detected error estimate for the target year**
  - **The unidentified gas will be the detected error estimate multiplied by the error rate**

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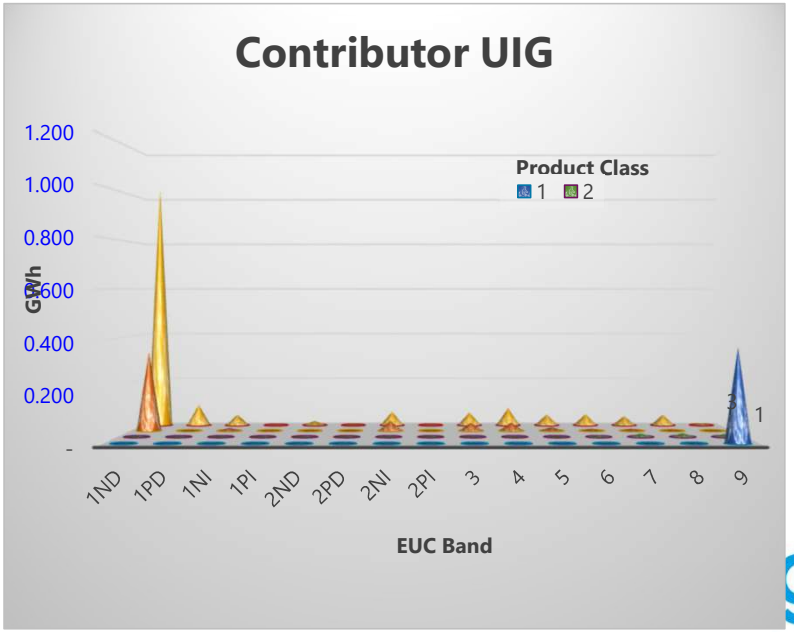
050 - Meter Errors at LDZ Input

Initial Results

- **The average yearly error associated to LDZ input meters over the last 5 years is 25 GWh**
- **The estimate of unidentified gas is 2.5 GWh**
- **We have split this equally between all sites based on the proportion of forecast energy throughput**

EUC Band	Class 1	2	3	4
1ND	0.000	0.000	0.333	1.038
1PD	-	-	0.003	0.090
1NI	0.000	0.000	0.013	0.047
1PI	-	-	0.000	0.000
2ND	-	-	0.002	0.020
2PD	-	-	0.000	0.000
2NI	0.000	0.000	0.043	0.060
2PI	-	-	0.000	0.000
3	0.000	0.000	0.035	0.057
4	0.000	0.000	0.037	0.075
5	0.000	0.001	0.017	0.048
6	0.001	0.008	0.009	0.050
7	0.002	0.015	0.010	0.040
8	0.005	0.016	0.006	0.047
9	0.375	0.013	0.002	0.009



090 - No Meter Read at Line in the Sand

Data Update

- **Updated data set received:**
  - **Refreshed report of sites that have not received a read since April 2018**
  - **Changes in AQ since Nexus**
  - **AQ correction Data**
  - **Reconciliation percentages**
  - **Must read reading for sites with no read**
  - **Rejected meter read details**

- **Further expected data**
  - **Further AQ correction Data**
  - **Reconciliation percentages for LDZ matrix positions**

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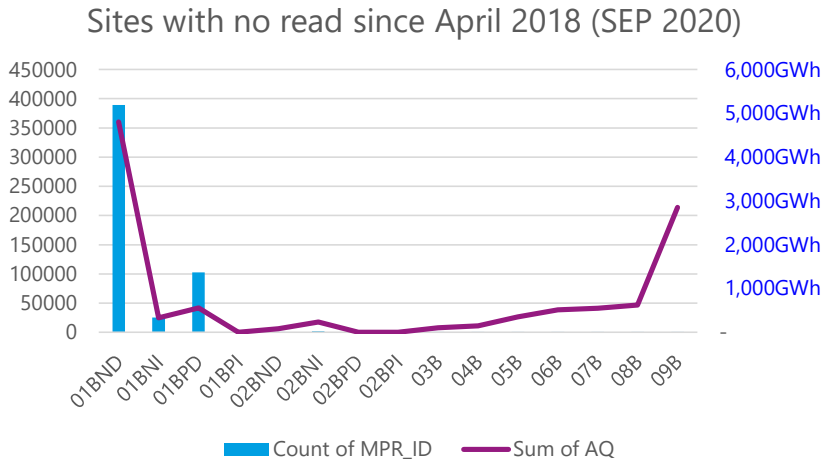
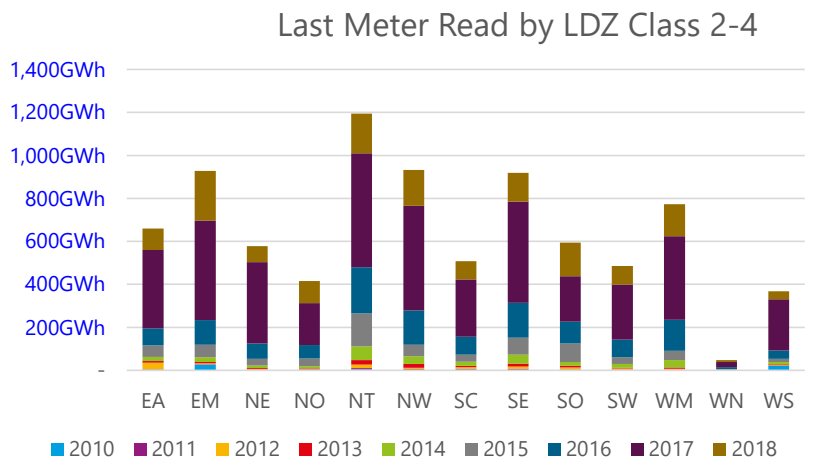
090 - No Meter Read at Line in the Sand

Initial findings – sites with no read populations

- **Average Reduction from previous report by approximately 10%**
- **Majority of sites still in 01BND and 01BPD, largest volume in 01BND and 09B**
- **No identifiable LDZ or last year date trend in the sites with no read**





090 - No Meter Read at Line in the Sand

Proposed Methodology

- **We are proposing to calculate the Unidentified Gas for each LDZ matrix position by multiplying the unreconciled energy by an error factor**
- **The unreconciled energy will be calculated by multiplying the forecasted unreconciled percentage by the forecast consumption for each LDZ matrix position.**
- **We will calculate an error rate based on the changes in AQ, AQ corrections and rejected read information**
- **This energy will be summed for each matrix position to calculate a total estimate of UIG associated with no read at line in the sand**

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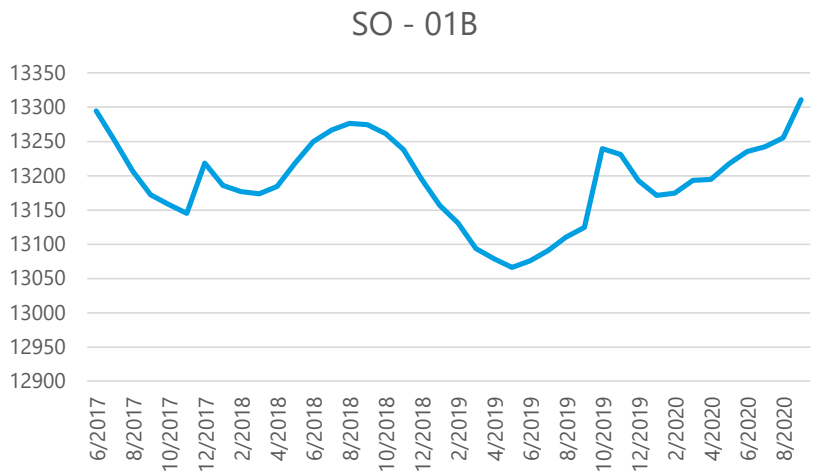
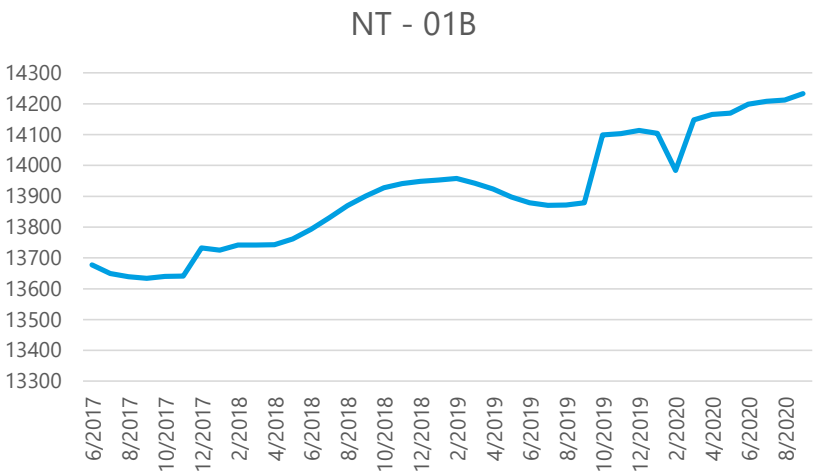
090 - No Meter Read at Line in the Sand

AQ

- **We looked at EUC trends within an LDZ as a potential source of the error rate**
- **These trends excluded the AQ of sites with no read**





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090 - No Meter Read at Line in the Sand

AQ corrections initial findings

- There have been 1,167 AQ corrections submitted for sites with no reads in 2020
- These both increase and decrease the AQ
- In total they reduce the AQ of the sites by 68 GWh
- The biggest single reduction was due to change in plant use and was for 54 GWh
- Very few AQ corrections were for read tolerance change
- Any incorrect reduction could lead to an underestimate of UIG associated with sites with no read

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090 - No Meter Read at Line in the Sand

Other investigation Areas

- **Must Reads**
- **Read Rejections**
- **Impact of COVID 19 on AQs at the start of our target year**

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090 - No Meter Read at Line in the Sand

Summary

- **We have confirmed that there will be UIG associated with this contributor**
- **An estimate of the UIG will be calculated based on forecast reconciliation percentages and an AQ error factor based on AQ changes and other factors**
- **Potential other factors being investigated are read rejections, AQ corrections and failed must reads**

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Existing Contributors

Existing Contributors

- **The existing contributors are:**
  - **Unregistered Sites**
  - **Shipperless Sites**
  - **IGT Shrinkage**
  - **Atmospheric Pressure Assumption**
  - **Average Temperature Assumption**
  - **Large Sites with Incorrect Correction Factors**

- **The following slides provide the latest update and, where possible, an update on the initial results and the reasons behind the variation from last year's results**

- **Any result with an * is under investigation**

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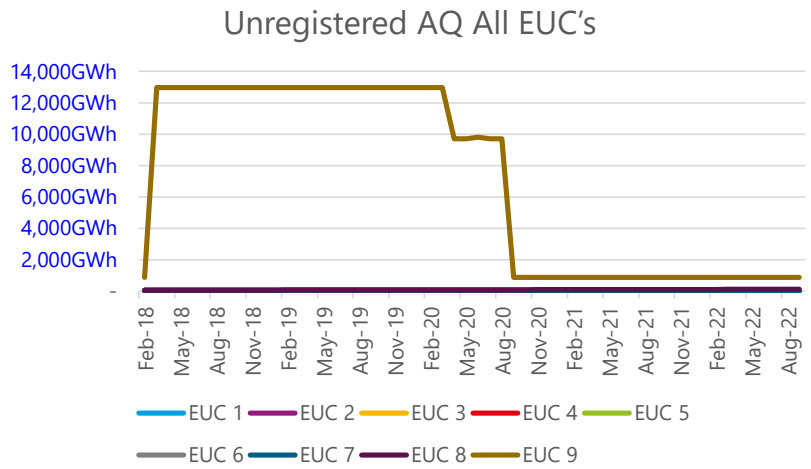
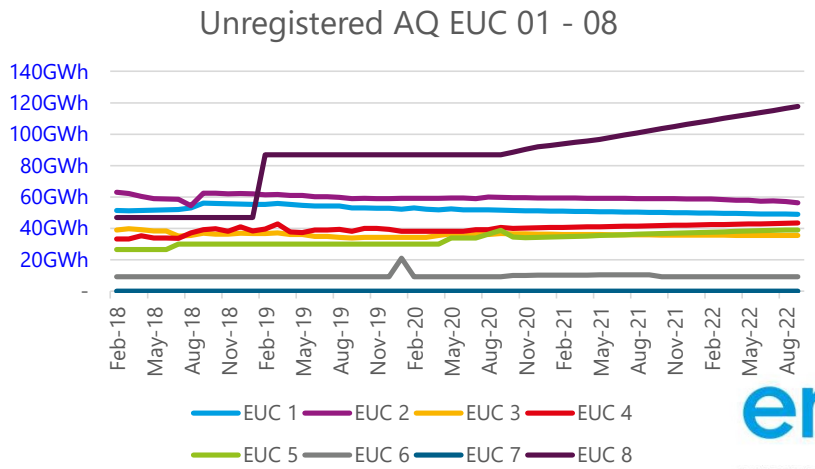
020 – Unregistered Sites

Methodology and Analysis

- **The methodology calculates an estimated offtake for unregistered sites for the forecast year based on the current trends of unregistered sites, back-billing rules and whether there is any evidence of offtake before the meter was installed**
- **The main difference between our method and the previous method is the calculation of the proportion of the sites that are back billed or use gas before they are registered, and we do not amend the AQ of any site**
- **There was one confirmed unregistered site in EUC09 this year which was previously creating UIG**





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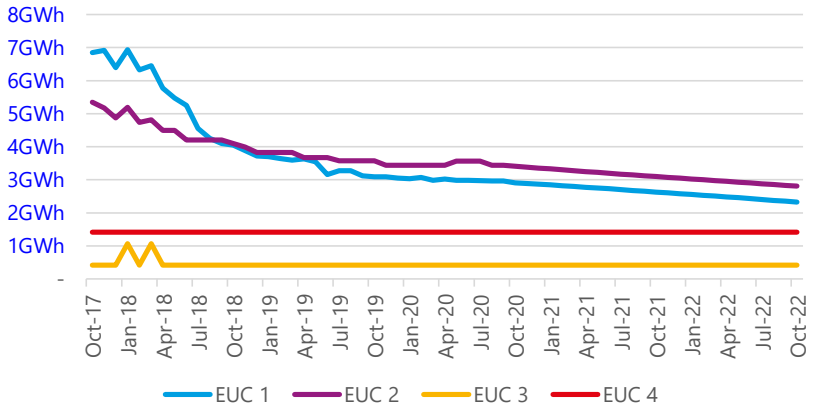
025 – Shipperless Sites

Methodology and Analysis

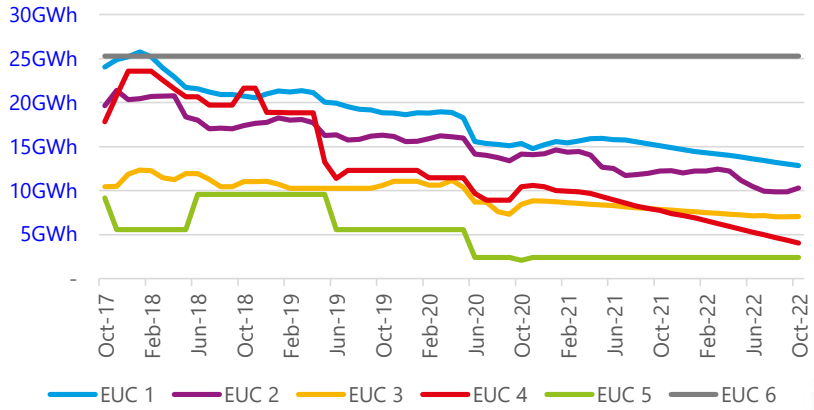
- **The methodology calculates the estimated consumption of SSrP (Shipper Specific rePort) and Passed To Shipper (PTS) Shipperless sites that are not back-billed and likely to be consuming gas but not registered in the forecast year. This is calculated based on historical trends by EUC band**

- **The proportion of Shipperless sites that are likely to be connected is calculated for each EUC based on the connection details from the last 3 years. The PTS proportion is 41% where the population is greater than 1 and the SSRP proportion is 48% for EUC band 1 and 41% for EUC bands 2-6**

Forecast Shipperless PTS over time



Forecast of Shipperless SSrP sites over time



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020 and 025 – Unregistered and Shipperless Sites

Initial Results

- The calculated UIG for Unregistered and Shipperless sites has currently been estimated to be 134 GWh. This is to then be split between the bands that created them
- Differences from previous estimates are due to the proportion that have been calculated to be back billed and the unregistered site in EUC 09. These results will be investigated to ensure there has been no back billing

EUC	PTS	SSrP	Unregistered	Total
1	1	7	5	13
2	1	5	5	11
3	0	3	3	6
4	1	3	4	8
5		1	3	4
6		10	1	11
7		-	-	
8			9	9
9			72	72
Total	4	28	102	134

EUC Band	Class 1	2	3	4
1ND	0	0	3	8
1PD	-	-	0	1
1NI	0	0	0	0
1PI	-	-	0	0
2ND	-	-	0	2
2PD	-	-	0	0
2NI	0	0	4	5
2PI	-	-	0	0
3	0	0	2	4
4	0	0	2	5
5	0	0	1	3
6	0	1	2	8
7	-	-	-	-
8	1	2	1	6
9	68	2	0	2

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060 – IGT Shrinkage

Methodology

- 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 currently waiting for the length of main data from the IGTs which was expected in the last week of October and is due to be sent once they have received payment for collating the data

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070 - Atmospheric Pressure Assumption

Methodology

- The methodology uses the weather station and altitude data to determine two pressure variances, one based on altitude and the other on weather station data
- These pressure variances are then used to calculate energy error factors, which is applied to two subsets of forecast LDZ throughput to determine LDZ UIG. One set is the sites that have the standard correction factor and the other for all sites that do not have equipment that considers pressure changes
- LDZ UIG is then aggregated to derive contributor UIG
- Any site with equipment that corrects for changes in pressure installed does not generate UIG in relation to this contributor
- Sites with site specific correction factors only receive the weather station pressure adjustment

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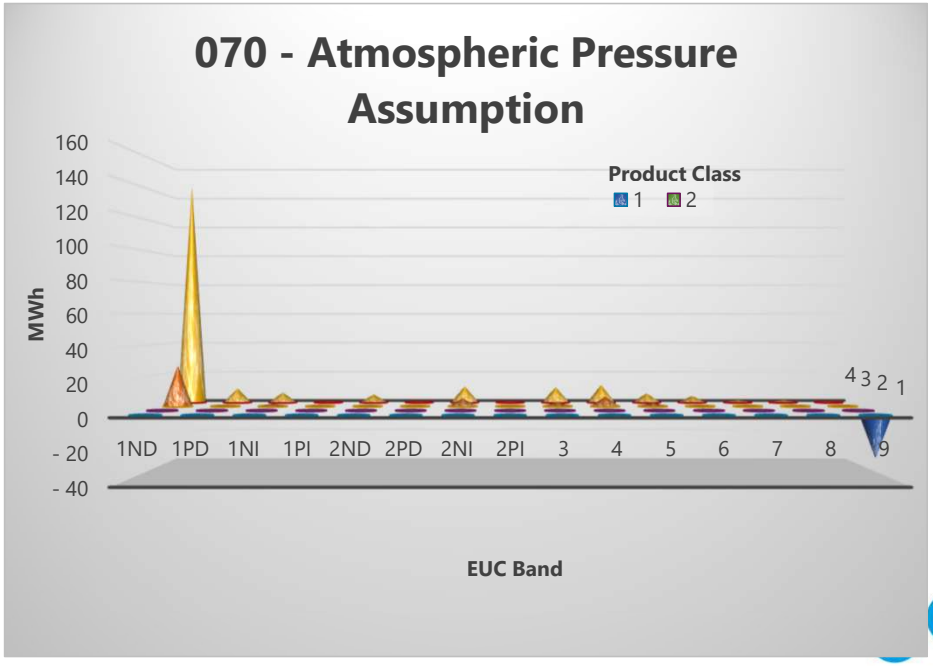
070 - Atmospheric Pressure Assumption

Results

- **The UIG associated with this contributor is 203 GWh**
- **The negative volume for EUC band 9 is down to the one large site in 09B with a standard correction factor and no corrector fitted**

EUC Band	Class 1	2	3	4
1ND	0	0	26	146
1PD	0	0	0	9
1NI	0	0	2	7
1PI	0	0	0	0
2ND	0	0	0	5
2PD	0	0	0	0
2NI	0	0	5	11
2PI	0	0	0	0
3	0	0	3	10
4	0	0	6	12
5	0	0	3	6
6	0	0	0	4
7	0	0	0	2
8	0	0	0	2
9	- 26*	0	0	0



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080 – Average Temperature Assumption

Methodology

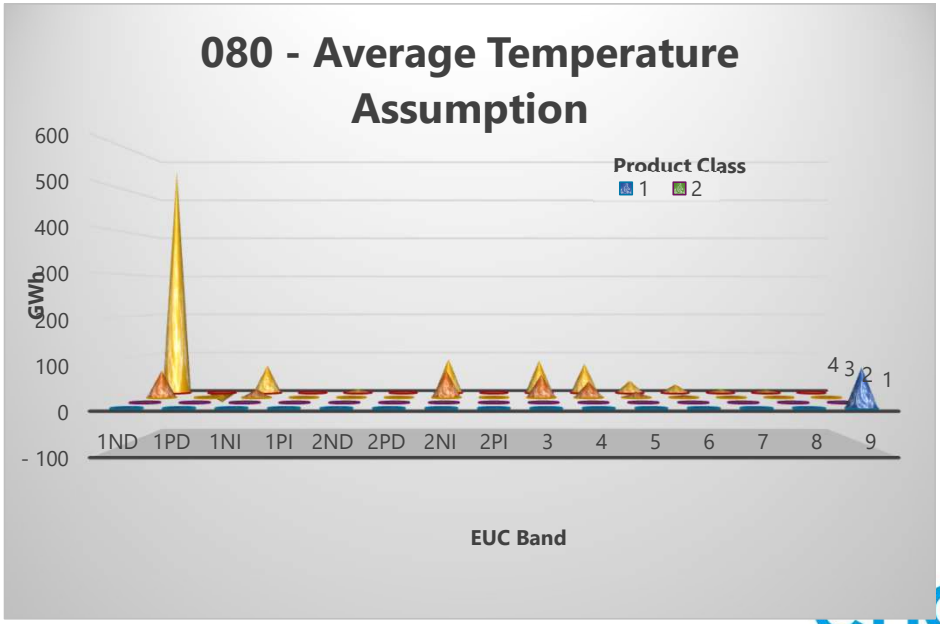
- For each matrix position, the appropriate temperature study is identified
- Domestic temperatures are taken from the Domestic Meter Temperature Survey and non-domestic temperatures from the I&C Temperature Study. The internal or external meter location is required for domestic sites, due to the effect this has on temperature
- The "temperature error" is the difference between the applicable study temperature and the assumed temperature
- To calculate the UIG, the "temperature error" is multiplied by the estimated offtake by sites with no temperature correction equipment installed for the forecast year
- Any site that has equipment that corrects for changes in temperature installed does not generate UIG in relation to this contributor

080 – Average Temperature Assumption

Initial results

- **Our initial results have calculated the total estimated UIG associated with the temperature assumption to be 1,302 GWh**
- **There are some matrix positions that create negative UIG as the meters are inside and therefore the temperature has been identified to be higher than the static factor provided in the thermal regulations**
- **The majority of the EUC band 9 UIG is down to one site with a standard correction factor and no corrective equipment fitted**

EUC Band	Class 1	2	3	4
1ND	0	0	65	568
1PD	0	0	0	-24
1NI	0	0	20	70
1PI	0	0	0	0
2ND	0	0	0	9
2PD	0	0	0	0
2NI	0	0	67	86
2PI	0	0	0	0
3	0	0	56	82
4	0	0	39	74
5	0	0	14	31
6	0	0	6	21
7	0	1	4	10
8	0	0	3	8
9	90*	0	0	0



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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
- The average pressure impact and temperature impact of the incorrect correction factor are dealt with in those contributors. This methodology deals with the input pressure being greater than 21mbar
- For each matrix position, the average valid correction factor is calculated and the "correction factor error" is the difference between this and the altitude default adjusted correction factor for each LDZ
- The UIG for this contributor is calculated by multiplying the difference between the correction factor error for the relevant matrix position by the forecast consumption for the target year
- There is also a minimum correction factor value based on the formulas contained within The Gas (Calculation of Thermal Energy) Regulations 1996. The methodology includes a calculation of the error by calculating the difference between the lowest possible correction factor and the correction factor and multiplying it by the AQ
- The data set used was post modification 0681S implementation

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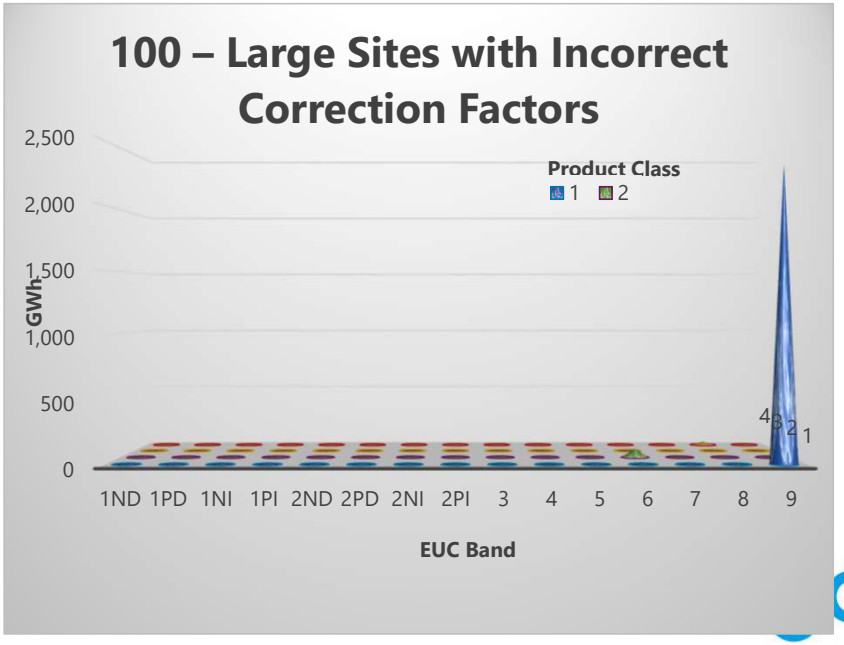
100 – Large Sites with Incorrect Correction Factors

Results

- The estimated UIG energy associated with the 30 sites with too low correction factors is 413 MWh
- There are still approximately 1,500 sites with a standard correction factor. The estimate of UIG is 2,416 GWh
- These results are skewed by one site in NO EUC09 which does not have a corrector and site-specific correction factor and one site in WS EUC06 where the LDZ has a very large average correction factor

EUC Band	Class 1	2	3	4
1ND	0	0	0	0
1PD	0	0	0	0
1NI	0	0	0	0
1PI	0	0	0	0
2ND	0	0	0	0
2PD	0	0	0	0
2NI	0	0	0	0
2PI	0	0	0	0
3	0	0	0	0
4	1	1	0	2
5	0	0	0	4
6	0	72*	2	10
7	0	0	0	4
8	0	0	0	30
9	2,316*	5	5	7



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Existing Contributors Summary

- We have calculated initial results for five of the six contributors
- Some validation of results is outstanding
- Once the IGT mains length is received from the IGTs this contributor will be calculated and shared within the November monthly report

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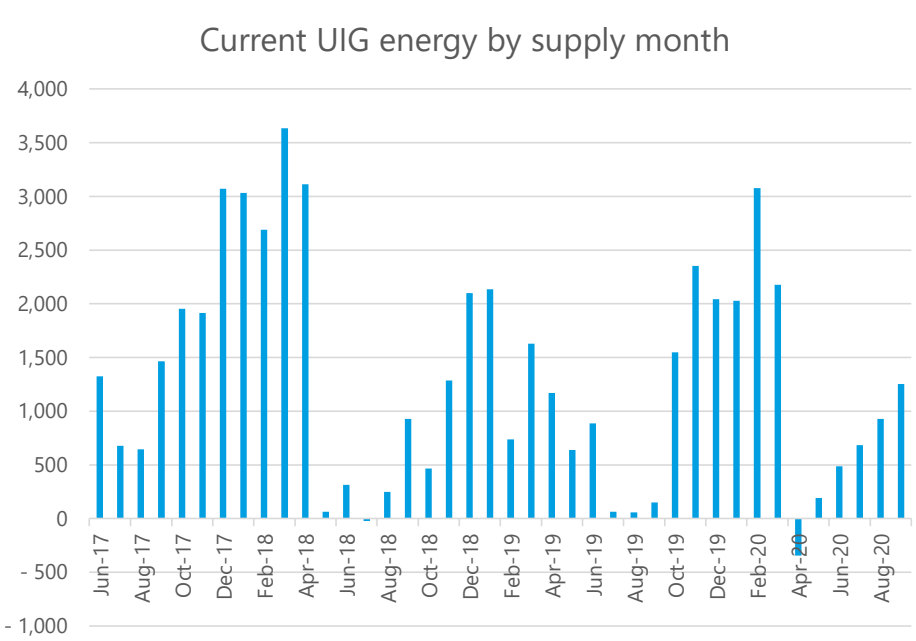
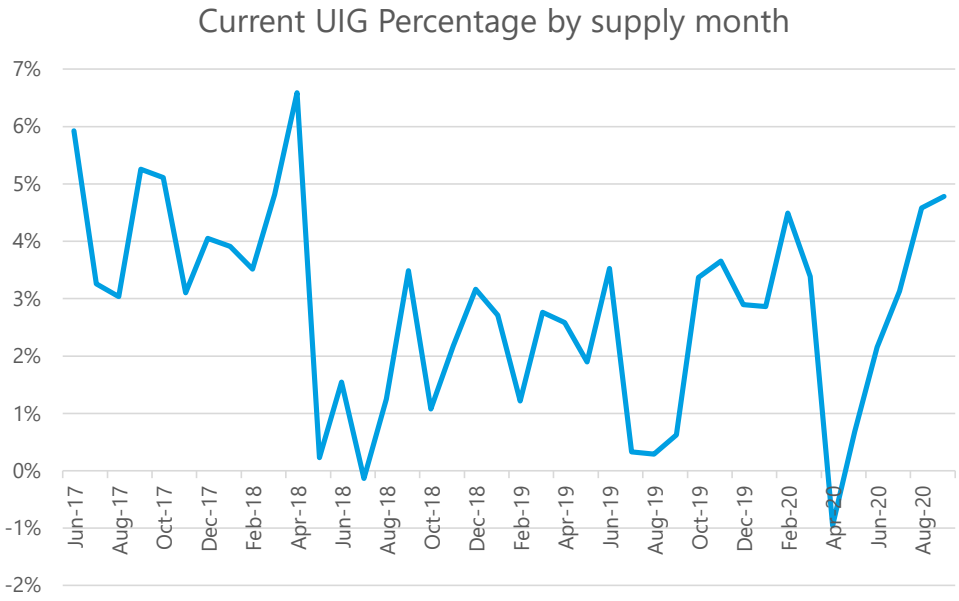
Total UIG estimate

Methodology

- **We combine UIG, UGR and offline adjustments split to the supply month.**
- **We will use this information to sense check the bottom-up methodology of calculation of unidentified gas**





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Consumption forecast process

Methodology

- Use historical trends to consider the future. We have added in the seasonal normal review
- An adjustment for COVID will be used to adjust the forecast consumption for the target year

Oct-19	Class			
	1	2	3	4
1BND	0	0	21,505	268,956
1BPD	0	0	368	21,185
1BNI	0	0	1,720	10,688
1BPI	0	0	0	43
2BND	0	0	404	4,872
2BPD	0	0	1	178
2BNI	0	2	6,281	16,711
2BPI	0	0	2	6
3B	0	9	6,292	14,494
4B	3	32	5,066	17,844
5B	7	225	2,855	13,455
6B	181	1,526	1,294	12,355
7B	477	2,839	1,266	9,761
8B	1,909	6,093	884	9,054
9B	96,976	1,979	238	439
			Total	560,965

Sep-20	Class			
	1	2	3	4
1BND	0	0	47,389	248,388
1BPD	0	0	424	20,211
1BNI	0	0	1,808	10,438
1BPI	0	0	1	42
2BND	0	0	249	4,626
2BPD	0	0	3	171
2BNI	0	3	6,316	15,510
2BPI	0	0	2	6
3B	1	8	5,348	14,434
4B	4	57	4,557	17,439
5B	30	245	2,289	12,580
6B	313	1,322	1,552	11,529
7B	657	2,553	1,447	9,611
8B	3,511	5,194	973	9,390
9B	91,109	880	263	1,725
			Total	554,607

Target	Class			
	1	2	3	4
1BND	0	0	72,388	225,665
1BPD	0	0	735	19,613
1BNI	0	0	2,905	10,174
1BPI	0	0	1	42
2BND	0	0	404	4,275
2BPD	0	0	3	98
2BNI	0	3	9,437	13,027
2BPI	0	0	2	5
3B	0	12	7,691	12,384
4B	2	89	7,948	16,412
5B	14	312	3,671	10,465
6B	132	1,796	2,056	10,776
7B	470	3,192	2,088	8,762
8B	1,124	3,489	1,203	1,0165
9B	81,506	2,767	399	1,896
			Total	549,603

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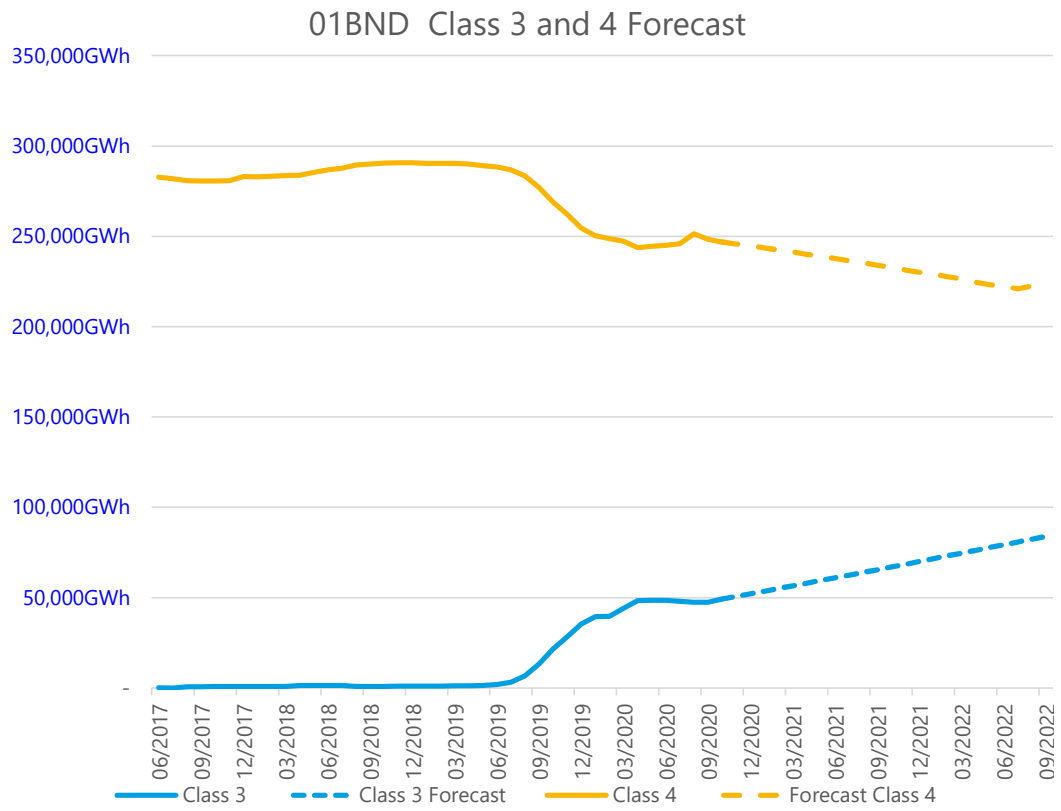
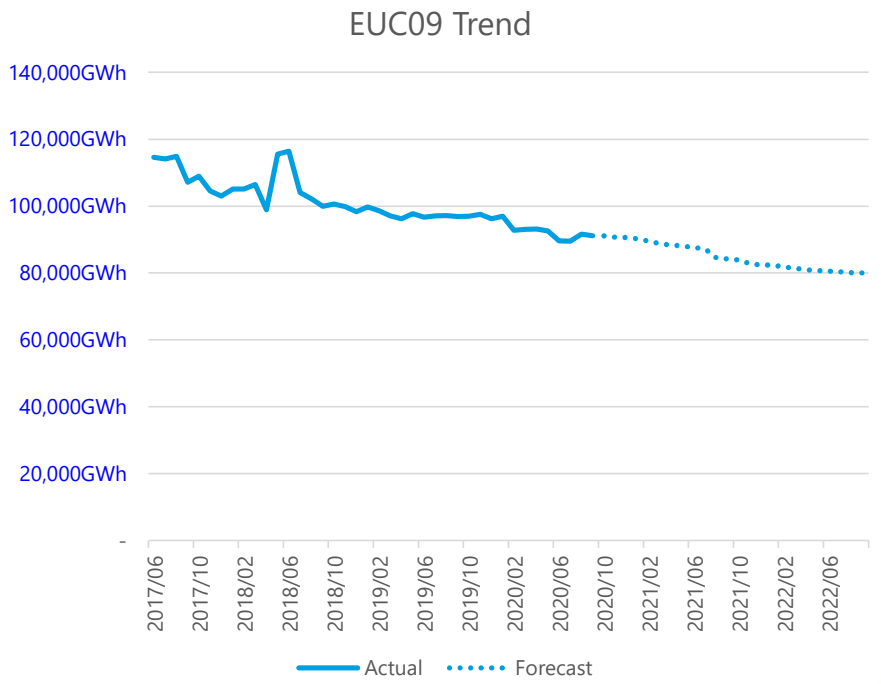
Consumption forecast process

Trends

- **Some identified trends**





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Weighting Factor calculation process

Methodology

- **We are planning on calculating the factors by dividing the UIG forecast for each matrix position by the forecast consumption for the matrix position**
- **We will then assess the factors and apply appropriate smoothing to the factors**
- **We are not planning on changing any inputs based on the Weighting Factor output from the model**

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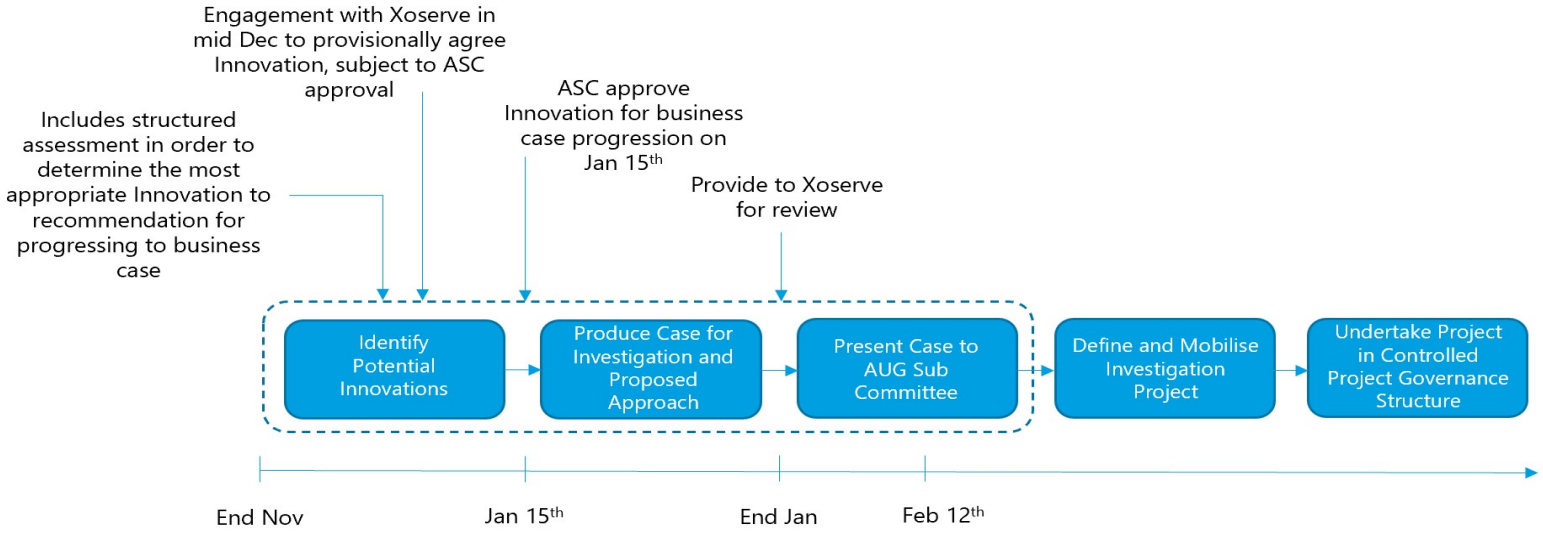
Innovation and Advisory Service

Proposed timeline for our innovation service is provided below



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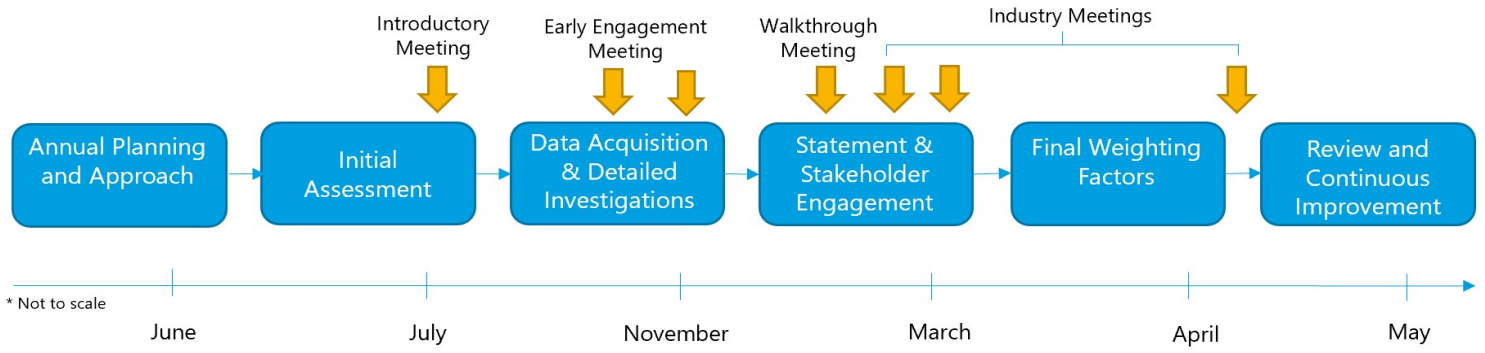
Next Steps

- 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



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