AUG Sub-Committee

2023-2024 Introductory Meeting

1st July 2022

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Introductory meeting: Purpose

- **In this session we aim to provide**
  - **An introduction to the AUGE Team at Engage**
  - **An overview of our proposed approach and overarching methodology for the Gas Year 2023/2024**
  - **An opportunity to discuss the results of our initial analysis and the contributors we propose to investigate this year**
  - **A description of the activities ongoing under our Advisory Service**
  - **A summary of our innovation service**

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Welcome: AUGE key contacts

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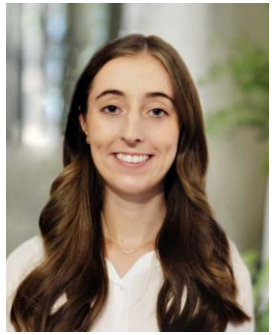

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Today’s agenda

1. Proposed approach and overarching methodology
2. Initial assessment outputs discussion
3. Advisory service recap
4. Innovation service recap

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Approach

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Proposed Approach for Gas Year 2023/2024

- Open, transparent and collaborative
- Impartial and balanced in our judgement
- Applying expert gas industry knowledge
- Dialogue with industry participants throughout the process

Methodology Principles

- **“Polluter Pays”, “Line in the Sand” and “Bottom-Up Determination” remain key principles and continue to underpin our methodology**
- **Polluter Pays – We interpret “fair and equitable” to mean that UIG should be allocated (to Matrix Positions) in the same proportions as it is created**
- **Line in the Sand – We will only consider UIG that will exist at the Line in the Sand (the final Settlement position) and not UIG that exists temporarily prior to this**
- **Bottom-Up Determination – We will quantify UIG for each identified contributor and add these together, rather than estimating overall UIG and apportioning it or using it as a means for differencing purposes**

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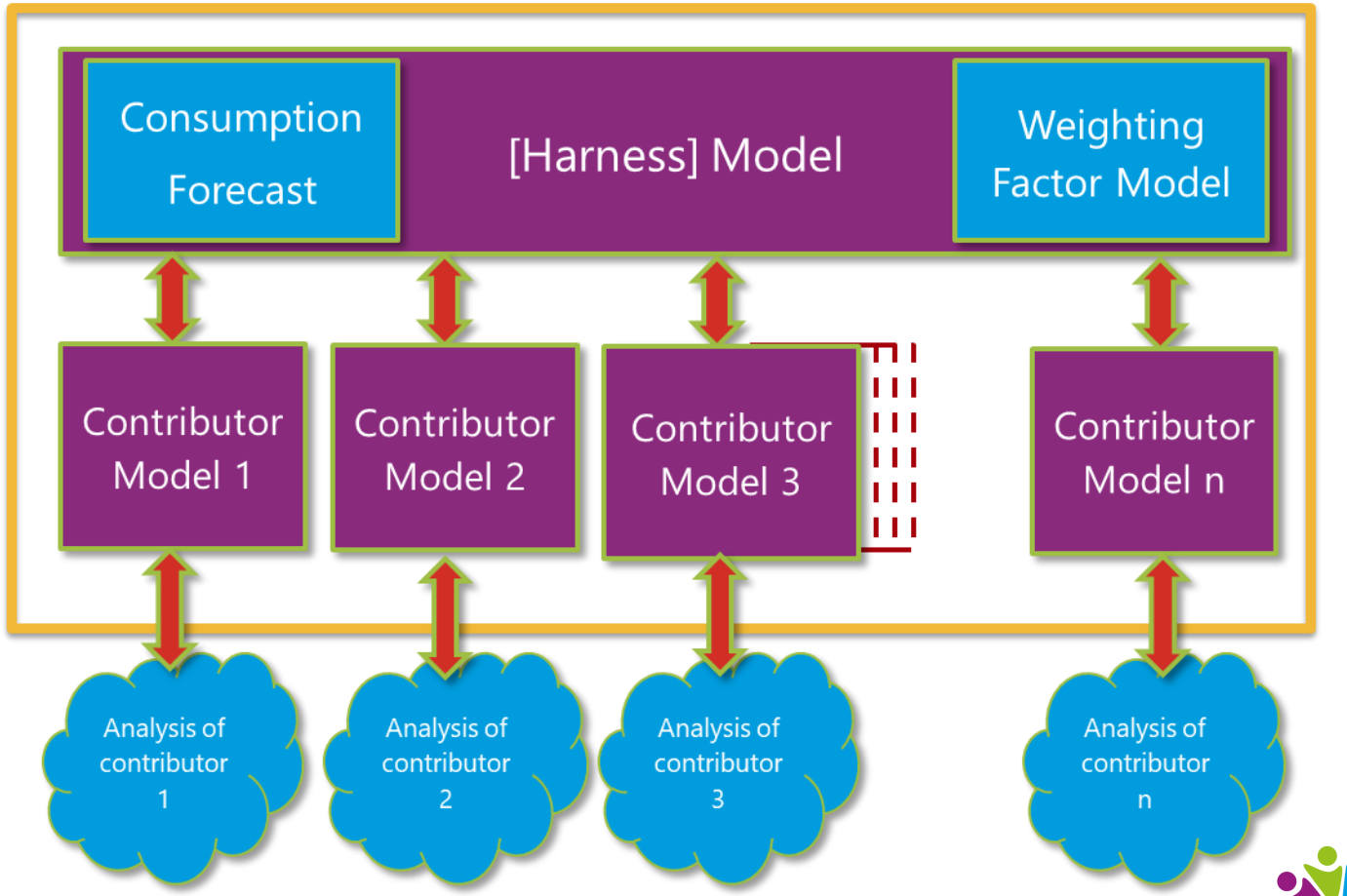
UIG Contributor Model

- The existing model will continue to be used this AUG Year:
  - A contributor-based model comprising of an overarching harness model, linked to the separate contributor sub-models
  - The Weighting Factors are calculated within the harness model



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Consumption Forecast

- A consumption forecast is an integral part of our model and is used in the calculation of certain contributors
- We will calculate a national forecast for the Line in the Sand based on historical AQ values for each Matrix Position
- This is then split into individual LDZ forecasts
- We will consider whether it is appropriate to take account of COVID impact
- To validate our bottom-up approach, we will continue to compare the sum of the UIG calculated for the contributors with current observed values, as per last year

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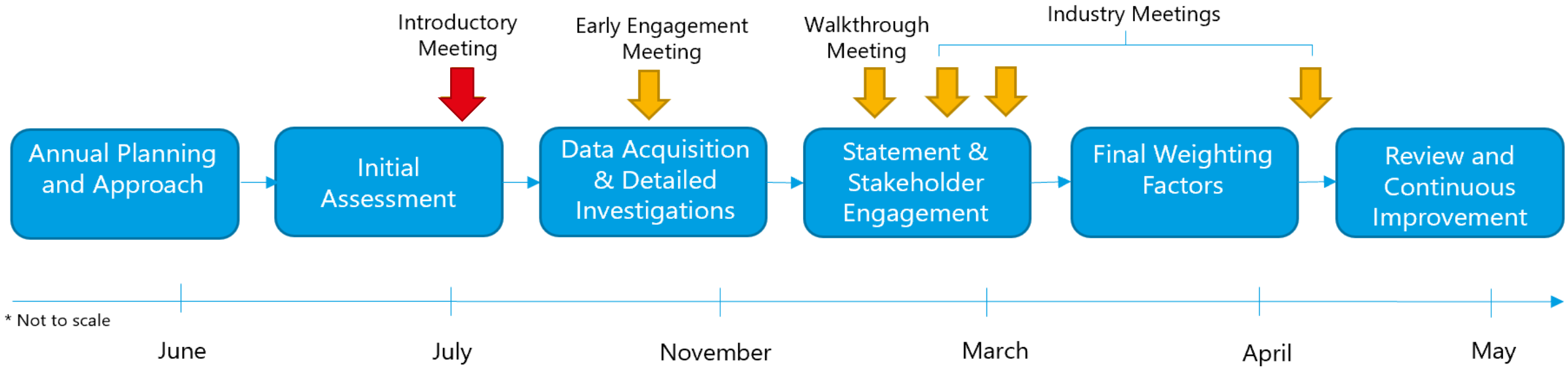
Delivery Timeline



Initial Assessment

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Initial Assessment process

- The Initial Assessment is a process for considering which contributors to UIG may warrant:
  - investigation for inclusion in our calculations
  - improvements in existing calculation or allocation methodology
- Potential contributors are identified by the AUGE, by the industry or by any other third party
- We assess ALL existing and potential contributors on the basis that refinements to existing contributors may give more 'bang for buck' than new investigations
- The top scoring contributors are taken forward to investigation stage. If no methodology exists, a full investigation will take place. If a methodology already exists, we investigate ways to refine all or part of the existing methodology
- For existing contributors not subject to investigation, methodologies will be carried over from last year to estimate the UIG using up to date datasets
- Any potential contributor that is not selected for investigation will remain on the list to be re-evaluated in subsequent years

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Assessment process: scoring

There is value in identifying more UIG	**1. Potential scale of the contributor** Higher potential UIG level gives rise to a higher ranking in our assessment.
There is value in investigating the unknown	**2. Level of our prior knowledge** The scoring mechanism prioritises issues where we have more limited prior knowledge (and so greater potential to improve outcomes by investigating) **3. Quality of data previously available** Combined with scope to improve, this prioritises areas where data was previously poor but now may be better.
There is value in improving less robust methodologies	**4. Strength of existing methodology** High confidence in our current methodology suggest our time might be better used elsewhere, ranking the topic down. Areas with low confidence in the methodology, or where no methodology exists will achieve a higher ranking.
There is value in focussing on areas with new insight and data	**5. Scope to improve** To what extent can we envisage a credible way to improve the methodology from its current state? Could it be done in a timely, cost-effective manner with the resources and expertise that we have? The greater the scope to improve our approach, the higher the scoring.

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Contributors Assessed

Contributor ID	Contributor
010	**Theft of Gas (Total Theft)**
011	Theft of Gas (Allocation - Smart Rollout)
012	Theft of Gas (Allocation - Quality of Read History)
020	**Unregistered Sites**
025	**Shipperless Sites**
040	**Consumption Meter Errors (Inherent Bias)**
041	Consumption Meter Errors (Faulty Meter)
042	Consumption Meter Errors (Extremes of Use)
050	**LDZ Meter Errors**
060	**IGT Shrinkage**
070	**Average Pressure Assumption**
080	**Average Temperature Assumption**
090	**No Read at the Line in the Sand**
100	**Incorrect Correction Factors**
110	CV Shrinkage
120	Meter Exchanges
130	Consumption Adjustments
140	Meters with By-Pass Fitted
150	Meterless Sites
160	**Isolated Sites**
170	Incorrect Meter Technical details on UK Link
180	Unfound Unidentified Gas Contributors
200	Dead Sites

- 23 contributors were identified for Initial Assessment this year
- There is one new potential contributor (Dead Sites)
- Refinement investigations were proposed for allocating theft (x2); and for accounting for the operation of meter with a by-passes
- Contributors in bold have existing methodologies that impacted last year's output

Initial Assessment Results

Contributor ID	Contributor	Score
012	Theft of Gas (Allocation - Quality of Read History)	59
011	Theft of Gas (Allocation - Smart Rollout)	50
140	Meters with By-Pass Fitted	38
200	Dead Sites	32
130	Consumption Adjustments	22
160	Isolated Sites	19
170	Incorrect Meter Technical details on UK Link	18
041	Consumption Meter Errors (Faulty Meter)	18
010	Theft of Gas (Total Theft)	17
042	Consumption Meter Errors (Extremes of Use)	14
070	Average Pressure Assumption	13
180	Unfound Unidentified Gas Contributors	13
120	Meter Exchanges	12
080	Average Temperature Assumption	11
040	Consumption Meter Errors (Inherent Bias)	11
090	No Read at the Line in the Sand	10
150	Meterless Sites	9
100	Incorrect Correction Factors	9
110	CV Shrinkage	5
050	LDZ Meter Errors	4
060	IGT Shrinkage	3
020	Unregistered Sites	2
025	Shipperless Sites	2

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Recommended investigations

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2023-2024 recommended investigations

New investigation

Identification of new UIG	**200 - Dead Sites**

Refinement investigations

Potential reallocation of UIG	**011 - Theft of Gas (Quality of Read History)**
Potential reallocation of UIG	**012 - Theft of Gas (Smart Rollout)**
Identification of new UIG	**140 - Meters with By-Pass Fitted**

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200 – Dead Sites (NEW)

- **Hypothesis: Some sites which are recorded as Dead are in fact consuming gas. Any such consumption will potentially create UIG, because allocation does not take place for these sites.**
- **Sites are set to 'Dead' on CDSP system where there is no live service at the site.**
- **Initial analysis suggests ~25% of Dead Sites show evidence of consumption; 10-100 GWh potential UIG estimate**
- **Different to Isolated Sites (where there is a meter which has been deliberately physically impaired), however UIG calculation methodology will be broadly similar**

012 Theft of Gas (Quality of Read History)

- **Hypothesis**: Sites for which there is a good/full read history recorded on CDSP systems are less likely to have been subject to theft than sites for which there is patchy or no read history
- If this is true, then the AUGE could use the completeness of read history as a proxy for likelihood for theft to have taken place
- Initial analysis of limited dataset shows accepted reads at many sites where theft is detected, but some correlation between more limited read history and incidence of theft
- APPROACH:
  - Analyse complete read history for detected theft sites
  - Determine best proxy for read history quality
  - If robust correlation identified, determine how to reflect this in existing allocation methodology
  - NOTE Potential overlap with 011 Theft of Gas (Smart Rollout)

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011- Theft of Gas (Smart Rollout)

- **Hypothesis**: The continued rollout of smart meters should already be having a material impact on theft at smart-enable Supply Meter Points, but the lagging indicators provided by available detected theft data mask this expected impact.
- Proposed on the back of last year's impactful refinement for AMR meter populations
- The data-led assumptions used in the AUGE's theft allocation methodology are not yet reflecting the expected impact of smart rollout. We will investigate whether alternative assumptions other than those based on detected theft data can be justified for application to smart meter portfolios for the Gas Year 2023-2024
- RECCo theft estimation methodology expected H2 2022
- APPROACH:
  - Desk-based review of allocation methodology, alternative assumptions and data sources (including the RECCo output expected in the summer)
  - Impact assessment of alternative approaches (if identified)
  - Assumed no change to the methodology to calculate total theft level

140 - Meters with a By-pass Fitted

- **Hypothesis**: Meter by-passes are operated periodically and the gas consumed during such operations is not recorded and accounted for in settlement. This creates UIG
- Proposed as a follow-up to the inconclusive investigation for Gas Year 2022-2023
- APPROACH:
  - Investigate alternative methodologies – initial dataset (April 2022) indicates no material improvement since last year and so repeating the previous methodology will not yield meaningful results
  - Identify and pursue data required to support alternative methodology(ies)
  - Run methodology(ies) if robust data is available in reasonable time
  - May require collaboration with shippers and their agents

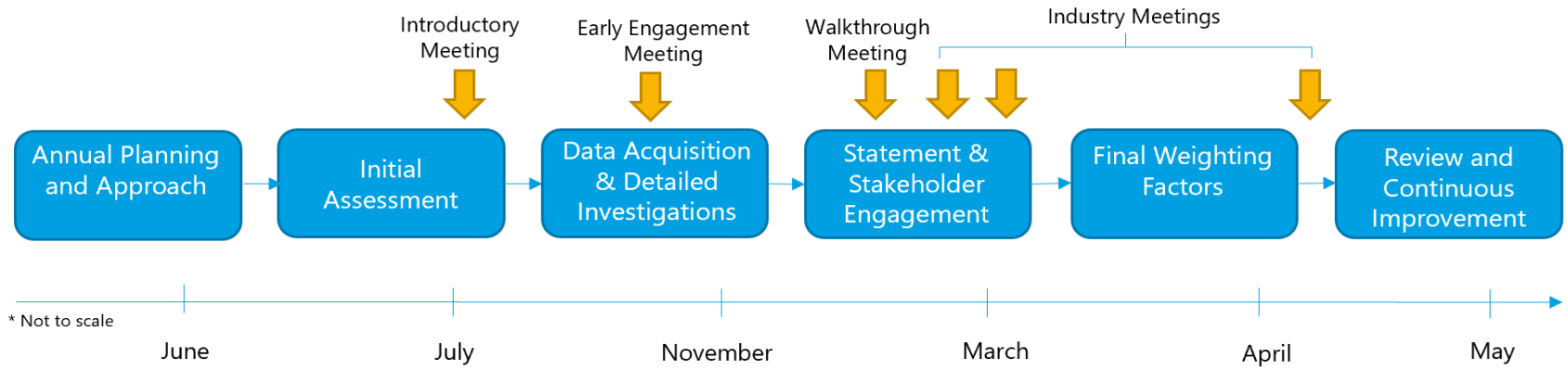
Prioritised Data Request

Contributor	Dataset
Theft	Shipper Theft Data
Theft	TRAS Outcome File Data
Theft	Current AMR Snapshot
Theft	Historical AMR Report
Theft	Telemetered Sites Report
Theft	Smart Meter Data
Theft	Retail Theft Data
Theft	Embedded AMR
Theft	Accepted Reads
Theft	Rejected Reads
Theft	Read Frequency
Unregistered and Shipperless	Snapshot Files (including MPR details)
Shipperless	Gas Safety Regulations visit data
Shipperless	Connection Details for Shipperless Sites
Shipperless	Shipperless AQ report
Unregistered	Connection Details for Orphaned Sites
Unregistered	Unregistered AQ report
Consumption Meter Errors - Inherent Bias	Meter Type and Age report
Consumption Meter Errors - Inherent Bias	Annual in-service Testing
Consumption Meter Errors - Faulty Meter	Faulty Meter Portfolio
Meter Errors at LDZ input	Measurement Error Register
IGT Shrinkage	Main Length
IGT Shrinkage	Leakage Rates
IGT Shrinkage	IGT Sites
Average Pressure Assumption	Sites with Volume Conversion Equipment Fitted
Average Temperature Assumption	Meter Location
No read at the line in the sand	Sites with No Reads after April 2020
No read at the line in the sand	AQ Corrections
No read at the line in the sand	Read Rejections
No read at the line in the sand	Reconciliation
No read at the line in the sand	Additional Reconciliation Information
Incorrect Correction Factors	Site Details
General Industry Information	AQ Change Report
General Industry Information	Throughput
General Industry Information	Daily Allocation Factor
General Industry Information	Offline Adjustments
Meters with a By-Pass Fitted	Meter By-Pass Portfolio
Isolated Sites	Isolated Sites Portfolio
Isolated Sites	Accepted Reads
Isolated Sites	Rejected Reads
Isolated Sites	Connection Details for Isolated Sites
Dead Sites	Dead Sites Portfolio
Dead Sites	Rejected Reads

- The Prioritised Data Request was submitted to Xoserve on 17th June
- 47 datasets in total including a handful for parties other than CDSP
- Xoserve will deliver in priority order over the coming weeks
- Requests to other industry parties (e.g. IGTs) will be sent during July

Next Steps

- Initial analysis from our investigations will be shared with the industry at the Early Engagement meeting on 23 September
- Monthly updates on progress will be provided to the industry via the Joint Office
- Engagement with stakeholders will continue throughout. We can be contacted at auge@engage-consulting.co.uk



Advisory Service

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Advisory Service - Remit

- **Our Advisory Service is designed to provide stakeholders, including relevant industry groups, with expert advice from the AUGE**
- **We can use this service to provide additional analysis of other areas which do not fall under the Core Service or the Innovation Service**
- **Maximum 18 days per year June to May**

Ongoing and Proposed Advisory Services

Implemented

- Last AUGE year, we established a regular formal insights exchange to the Performance Assurance Committee. This was well received at our initial session in May, and will be repeated roughly each October and April.
- Estimate 5 days' effort per year

Proposed

- We have proposed the provision of a view of UIG at allocation
- The output would be a monthly percentage forecast of UIG at national and LDZ level, delivered for the start of the Gas Year
- The percentage, example for display purposes below, will be the percentage of total LDZ UIG that will be allocated on a seasonal normal year

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
% annual UIG	13%	13%	15%	10%	[illegible]	2%	2%	2%	3%	10%	11%	14%	100%

Example only

- Estimate 13 days' effort Year 1; 10 days' effort subsequent years

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Innovation Service

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Innovation Service - Remit

- Our Innovation Service is designed to allow for the development of better methods of UIG allocation which fall outside our existing Terms of Reference
- Maximum 35 days per year June to May
- Thinking on Innovations has been on hold pending outputs from Review Group 0781R
- Next steps: for discussion

Identified Innovations – Recap

Innovation ID	Innovation Name
AI1	LDZ Specific Factors
AI2	Different Factors for the EUC WAR bands
AI3	Different Factors for Allocation and Reconciliation (transient UIG)
AI4	Seasonal Factors
AI5	Fixed and Floating Weighting Factors
AI6	Dynamic Weighting Factors linked to the throughput
AI7	Temperature and pressure actuals feeding into the Weighting Factors
AI8	Recalculate the UIG and Weighting Factors at the Line in the Sand
AI9	Changing the residual reconciliation redistribution process (UGR)
AI10	Re-reconciling the whole month
AI11	Factors linked to performance assurance measures
AI12	Factors specific to Shippers
AI13	Investigation into the temperature of gas in the meter
AI14	Investigation into the accuracy (bias) of all types of meter

Innovation ID	Innovation Name
AI13	Investigation into the temperature of gas in the meter
AI14	Investigation into the accuracy (bias) of all types of meter
AI15	Leakage investigation of IGT sites
AI16	Audit of the Correction Factors
AI17	Weighting Factors used to Incentivise
AI18	All meters must have volume conversion equipment fitted
AI19	Optimum meter capacity
AI21	Direct reporting ability
AI22	Split EUC bands 1 and 9
AI23	Portfolio Optimisation effects
AI24	Additional central reporting
AI25	In service testing for LDZ offtake meters
AI27	Dimension relating to the last accepted read

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Identified Innovations Top 5

ID	Innovation Name	Innovation Description
AI10	**LDZ Specific Factors**	LDZs have varying levels of UIG, they also have different proportions of domestic and commercial properties. The current method of having national Factors could lead to UIG being allocated to the incorrect party. The investigation would determine whether LDZ specific Weighting Factors would apportion UIG more equitably.
AI90	**Changing the residual reconciliation redistribution process (UGR)**	Currently, the market rules split the residual reconciliation energy pot for each reconciliation run equally between the previous 12 months. These volumes are then allocated to Shippers based on their energy position following direct reconciliations. An investigation would be carried out to see if this is the most equitable mechanism to distribute residual UIG or whether there is a more appropriate mechanism.

Identified Innovations Top 5

ID	Innovation Name	Innovation Description
AI16	Audit of the Correction Factors	Site specific Correction Factors are used to take account of the altitude of a site, the average temperature assumption of the gas and inlet pressure of the gas. We have identified a small number of Correction Factors which are lower than the regulations allow and a larger number that have been set to the standard Correction Factor. However, there is currently no mechanism to identify any other erroneous Correction Factors. The investigation would assess the value of carrying out a one off audit of all Correction Factors.
AI13	Investigation into the temperature of gas in the meter	The temperature studies that are used for the temperature contributor are almost 20 years old and the details of the conditions of the study are limited. The investigation would determine the benefits of organising a study into the temperature of gas under different conditions including, air temperature, meter location and service material type.
AI14	Investigation into the accuracy (bias) of all types of meter	We have been provided with in service testing of domestic sized meters. This has identified that there is an inherent bias with them. The investigation would determine if there is any inherent bias for other types of meters and if there are any impacts caused by the meter manufacturer, the year of manufacture and how long the meter has been in service.

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1. Future Considerations (latest)

The following items reproduced from April 2022 AUG Sub-Committee, with updates

21/2f	We will consider the potential impact of flow rates on Consumption Meter errors for subsequent years.	Open
21/3f	We will consider the potential inclusion of Shipperless sites awaiting their GSR visit in our data and analysis for subsequent years.	Open
22/1b	We will consider the practicalities of a further level of top-down validation of our outputs.	Open
22/2a	We will include Meter Bypass in our list of topics for annual assessment for the Gas Year 2023-2024.	Closed
22/2b	As part of our annual assessment for the Gas Year 2023-2024, we will investigate additional ways to validate the Isolated Sites data for inclusion in future AUG Statements.	Open

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1. Future Considerations (latest) [2]

The following items reproduced from April 2022 AUG Sub-Committee, with updates

22/2c	We will assess whether additional data is available to improve the accuracy of AQ assumptions for Isolated Sites.	Open
22/2d	We will continue to monitor closely any output from other research and analysis being undertaken in the area of energy theft, and specifically the outcome of the current RECCo review.	Open
22/2e	We will acquire the relevant data to investigate the impacts of Mod 0664 and whether there is a relationship between read frequency and theft. We will include this in our assessment of potential refinements for Gas Year 2023-2024.	Closed
22/3a	We will update the iGT Shrinkage calculation and output to reflect CSEP rather than LDZ mapping and reflect this in the proposed final Statement for Gas Year 2022-2023.	Closed
22/4a	We will assess the scaling up of our UIG estimate under contributor '180 – Unfound UIG Contributors', after discussion with interested Shippers.	Open

2. 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 AUGS and Table is ongoing	Closed	01/06/2020	30/12/2020
2	COVID	Potential impacts assessed and included in the 2022/2023 Statement where appropriate. We will continue to consider the impact of COVID-19 in the 2023/2024 Statement	Live	01/06/2020	
3	Changes to theft arrangements due to REC v1.1	Beyond a minor impact of TRAS data not being available for 6 months of this year there is no immediate impact on our existing methodology. However, we will await further information as to RECCo's progress in the development of a Theft Reduction Strategy and theft methodology	Live	22/10/2020	
4	Faulty Meters	Potential issue around energy associated with faulty meters not entering Settlement. Identified as part of the 2021/2022 Gas Year Investigation	Live	01/03/2021	
5	Must Reads	Our investigation into must reads provided very limited results. Therefore, we would suggest a more detailed review into why must reads for monthly read sites were not being completed before the Line in the Sand. Recent outcome of must reads could also be used as a feed into the error percentage	Live	01/03/2021	
6	AQ corrections on Supply Meter Points with no read	Supply Meter Points with no read for a substantial amount of time are allowed to submit AQ corrections for change of use with no validation	Live	01/03/2021	

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