

# Alrewas and Thornton Curtis SMER Updates

**Offtake Arrangements Workgroup**

**27 July 2022**



# Alrewas Measurement Error

## Issue

- Orifice Plate being inserted in the incorrect orientation

## Timeline

- Issue found – 23rd February 2021
- Meter in Error – 23 May 2019 to 23 February 2021
- Internal Investigation completed – 7th May 2021
- Independent assessments involving Computational Fluid Dynamics (CFD) and on site testing

ITE 1 – MER completed 20th September 2021

ITE 2 – MER completed 24th May 2022



# Controls and Assurance

## Controls Now In Place

- All plates now marked to denote downstream face
- Markings on metering stream denoting direction of flow
- 2 person task; One technician undertaking the work, one technician cross checking and certifying works undertaken on site, and an approver verifying results including photographic evidence.
- Procedural documentation has been created to provide further granularity on the undertaking of Orifice Plate exchanges.
- All ME/2s to be completed under an authorised NRO (Non Routine work Order).

### Areas within the NRO include

- Defined steps regarding Orifice plate orientation checks
- Definition of roles – Competent person, Certifying operative, Approver and Authorising engineer.
- Determination of direction of gas flow
- Photographic evidence utilising clapperboards evidencing correct orientation
- On site certifying operative, verifies satisfactory completion of works prior to re-commissioning of metering stream.
- Once works completed the approver reviews all evidence and results





# Final Report

## From the 1<sup>st</sup> and 2<sup>nd</sup> Independent Technical Experts



# Thornton Curtis Measurement Error

## Timeline

**20/05/22** Xoserve issued UIG discrepancy to Cadent Energy Control Centre commercial team

**21/05/22 – 23/06/22** Desktop/data investigation

- Investigations with Xoserve and Cadent datasets to determine cause – No obvious issues found
- Assessment of control room demand data and forecasting – No obvious issues found.
- Assessment of site works undertaken which correlate with UIG discrepancy – determined Thornton Curtis ME/2 conducted in April

**24/06/22 – 03/07/22** Initial checks at Thornton Curtis

- (DP cells, instrument impulse lines and bypass) - No issues found.

**04/07/22** Invasive checks at Thornton Curtis

- Full metering system and configuration including opening meter chamber - Discovered orifice plate carrier was not correctly located.

## Initial Investigations

- Carrier had not correctly seated at bottom of chamber.
- Plate had been correctly installed within carrier and current plate installation procedures followed. - This is a different issue to Alrewas and all controls emerging from Alrewas followed and documented

## Estimate of Error Magnitude

- 790 GWh (25% error based on total throughput of 3200 GWh) - (Comparison tests undertaken with clamp-on ultrasonic meter across multiple flow ranges on site.)





# Thornton Curtis Measurement Error

## Internal Investigation

Internal investigation (independent) to be undertaken to:

- Identify the root causes for the seating issues within the orifice plate carrier.
- Identify additional controls to be in place to provide assurance of orifice plate seating.
- Produce auditable trail of actions to mitigate the likelihood of this issue ever being repeated.

## Initial Controls and Mitigation

- Review opportunities to assess broader range of datasets to aid early identification of error. (Xoserve reports, demand data, flow control valve position)
- Check for identical equipment - Daniels Dual Chamber orifice plates – 1 other identified, checked and no similar issue found.
- Site checks on all dual plate orifice carriers to ascertain correct seating undertaken.
- Procedural improvements identified (Dip stick, Gate valve, rack and pinion turns.)
- Video tutorials being recorded for each orifice carrier type - To be incorporated into training pack
- Assess the application of a Clamp on Ultrasonic Meter to support all Orifice Plate exchanges.
- Continuing programme of Ultrasonic Meter installation to replace orifice meters



# Independent Technical Expert

## Cadent ITE Nomination

### **Ben Kirkman - Kelton Engineering Ltd.**

- Expert in Orifice plate systems
- Proven track record in Meter Errors and Reconciliation
- Undertook the study for Aberdeen where similar issue was apparent
- Ability to move quickly to undertake error assessment.

### **Estimated Timeline**

- Procure ITE services – 1 week as supplier already on Cadent Framework
- Define Terms of Reference – 1 week for creation and submission/agreement with JO
- Agree Scope of Works – 2 weeks for Kelton to create and submission to JO
- ITE to undertake reconciliation assessment – 8 weeks for relevant testing and formulation of report



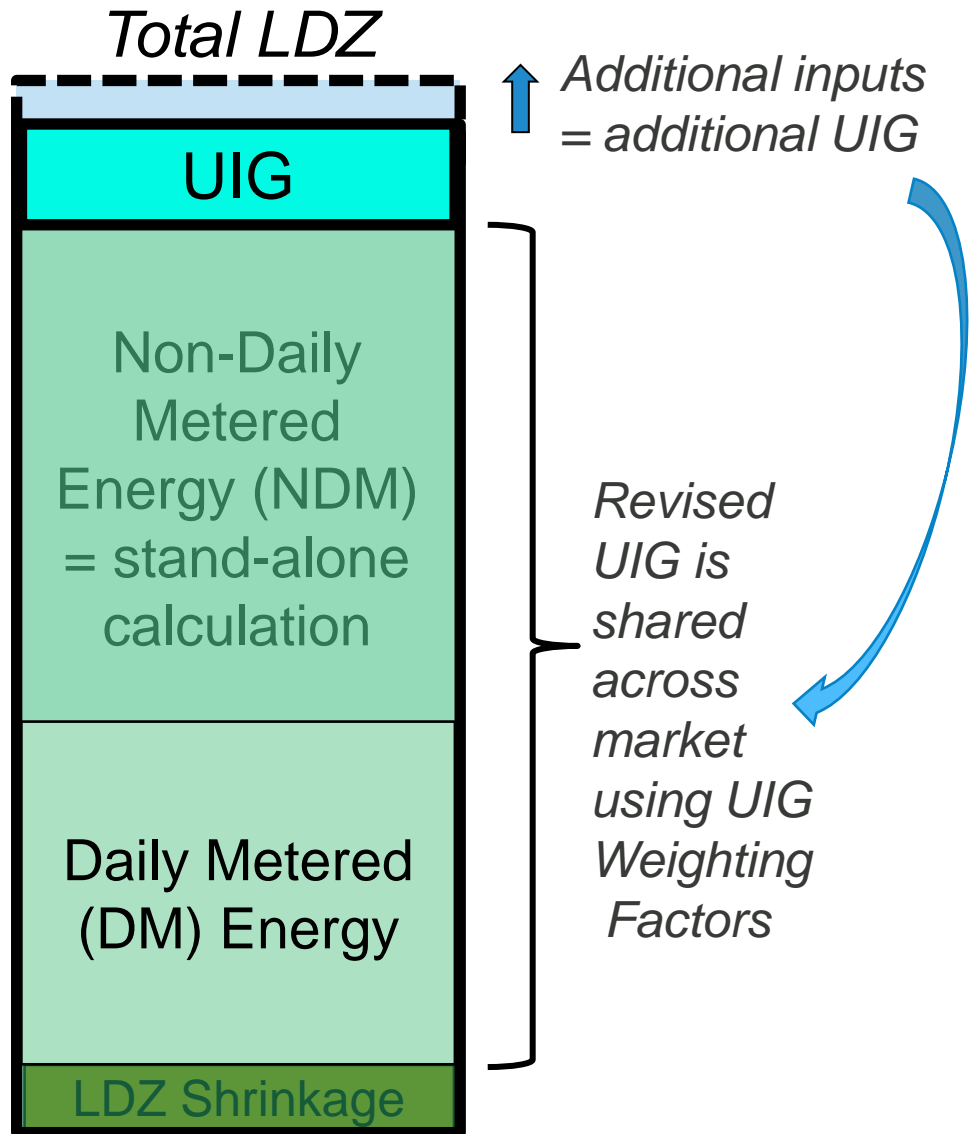


# Impacts of Thornton Curtis LDZ Meter Error on Settlement and Corrections





# Impact of an LDZ Measurement Error



- Identifying extra input energy means extra UIG for the LDZ for those gas days
- DM and NDM usage are not affected – they are not dependent on the total LDZ energy
- AQs are not affected as they are derived from individual site meter readings
- There is no Commodity charge on UIG so DN Commodity revenue does not change

Next: UIG Impacts and Correction

# Correction of the Error

- Correction is applied to the LDZ of the error only (EM in this case)
- The original daily SAP (System Average Price) for each error day is applied to the error quantity for each day
- Due to its size the error will be shared over the latest (i.e. Post-Reconciliation) monthly Shipper shares of throughput for the effective months of the error (i.e. does not use the standard 12-month UIG pot)
- The UIG Weighting Factors for the period of the error will be applied to weight the latest throughput
- This matches the UIG correction to the parties who were active in the LDZ at the time of the error



Next: Invoicing



# Invoicing of Large LDZ Measurement Errors

LDZ measurement error corrections appear on the “next available” Amendment Invoice (AMS) as UIG Reconciliation (after completion of the Meter Error Report and sign-off from National Grid)

Energy and financial values appear in the K91 record, separate lines for each original billing period and End User Category combination

Xoserve is unable to provide indicative Shipper values until we have received monthly financial breakdown from National Grid

Counter-party is NTS Shrinkage – National Grid NTS have bought the “missing gas” each day – unless corrected these extra costs would have to be collected from all Shippers via future NTS Commodity pricing

Shippers who foresee difficulties paying these charges can contact the Energy Balancing Credit Committee via Joint Office

( <https://www.gasgovernance.co.uk/ebcc> )

For more information on Settlement impacts please see Xoserve material on July 2022 OA Workgroup page: <https://www.gasgovernance.co.uk/OA/270722>

# Thank you

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