UNC Distribution Work Group

Overview of Unidentified Gas Issues

22 June 2017 - Updated

Objectives

- Provide Xoserve understanding of the issue(s) relating to Unidentified Gas (UIG)

- Compare previous and new approaches to Allocation for Non-Daily Metered (NDM) sites

- Explain known influences on UIG

- Review previous analysis of likely UIG levels

- Summarise discussions at June 14th Project Nexus Incident Review Group

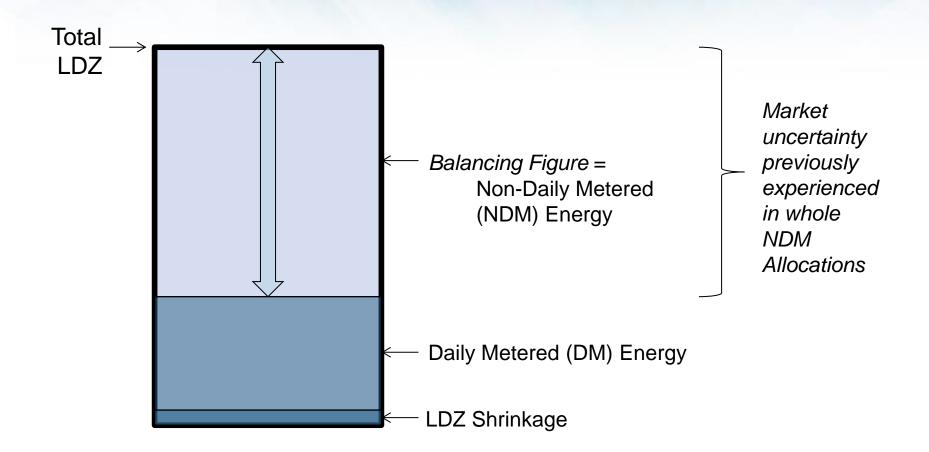- In addition – summarise post D+5 reconciliation processes

Summary of Issues Experienced

- To date (19/06) thirteen Gas Days have closed out post-Nexus

- Shippers report the following concerns:

  - UIG proportion of Nominations changing noticeably between first and last run on Nominations

  - Noticeable difference in UIG between last run on Nominations and first run of Allocations

  - UIG proportion of Allocations changing noticeably between first and last run on Allocations (D+1 to D+5)

  - UIG as an unexpectedly large positive or negative proportion of LDZ total for some days/LDZs

- Known issues include a large number of DMs being allocated on estimates – due to site set-up inaccuracies

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Gas Allocation Pre-Nexus

Total LDZ →

Balancing Figure =
Non-Daily Metered
(NDM) Energy

Market uncertainty previously experienced in whole NDM Allocations

Daily Metered (DM) Energy

LDZ Shrinkage
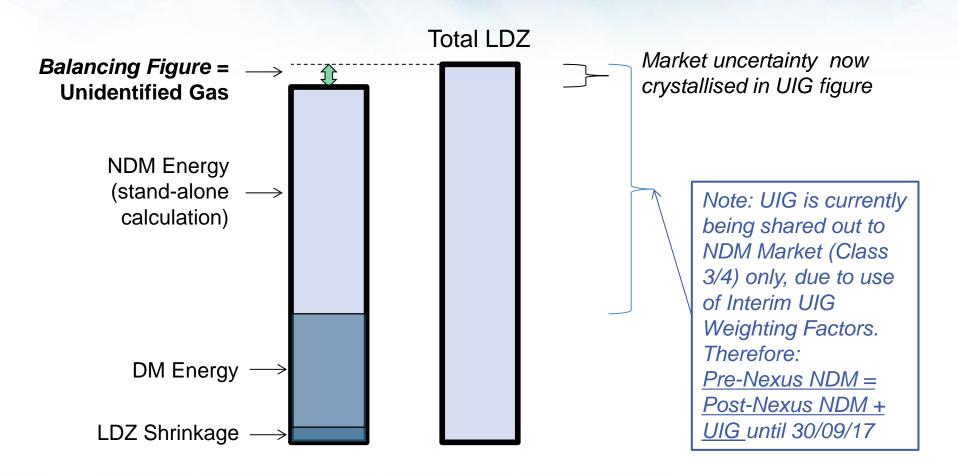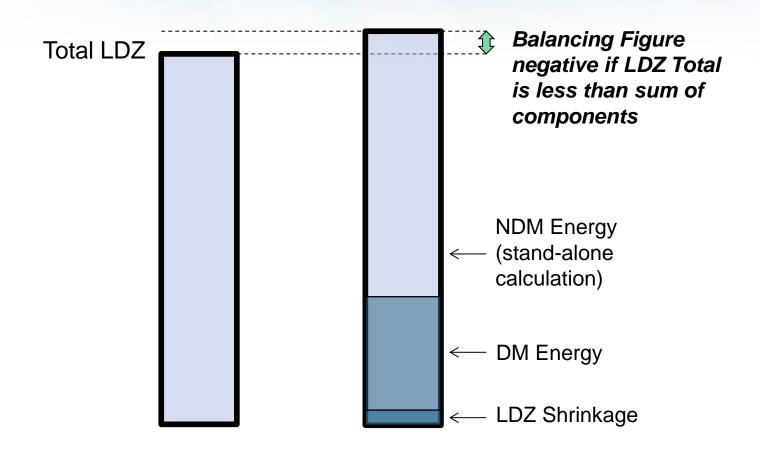
Notes
- Caution: not to scale
- Same formula used for Nominations and Allocations (with different data sources*)*

Gas Allocation Post-Nexus

Total LDZ

Balancing Figure = →
Unidentified Gas

NDM Energy
(stand-alone →
calculation)

DM Energy →

LDZ Shrinkage →

*Market uncertainty now
crystallised in UIG figure*

*Note: UIG is currently
being shared out to
NDM Market (Class
3/4) only, due to use
of Interim UIG
Weighting Factors.
Therefore:*
*Pre-Nexus NDM =
Post-Nexus NDM +
UIG until 30/09/17*

Notes
- Caution: not to scale
- Same formula used for Nominations and Allocations (with different
  data sources*)*

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Gas Allocation Post-Nexus – Negative UIG

Total LDZ

Balancing Figure negative if LDZ Total is less than sum of components

← NDM Energy (stand-alone calculation)

← DM Energy

← LDZ Shrinkage

Notes
- Caution: not to scale
- Negative UIG is an interim accounting position until reconciled

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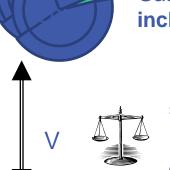
How the Gas is paid for – post-Nexus

New

All LDZs

Shipper's Total Allocation on GB Gas System, **including UG**

V
Scheduling charges on the difference between DM Nominations and Allocations **only**
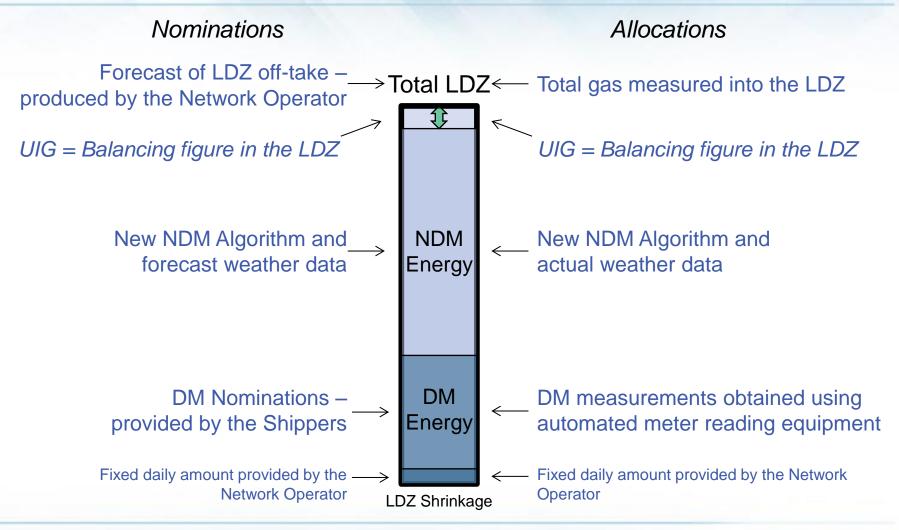
Shipper's Total Day Ahead Nominations on GB Gas System, **including UG**

V

= Shipper's Energy Balancing position: debit or credit charges

Shipper's Total Gas deliveries to GB Gas System

Energy Balancing Invoice issued at M+25

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Sources of Data

Forecast of LDZ off-take – produced by the Network Operator → Total LDZ ← Total gas measured into the LDZ

UIG = Balancing figure in the LDZ   *UIG = Balancing figure in the LDZ*

New NDM Algorithm and forecast weather data → **NDM Energy** ← New NDM Algorithm and actual weather data

DM Nominations – provided by the Shippers → **DM Energy** ← DM measurements obtained using automated meter reading equipment

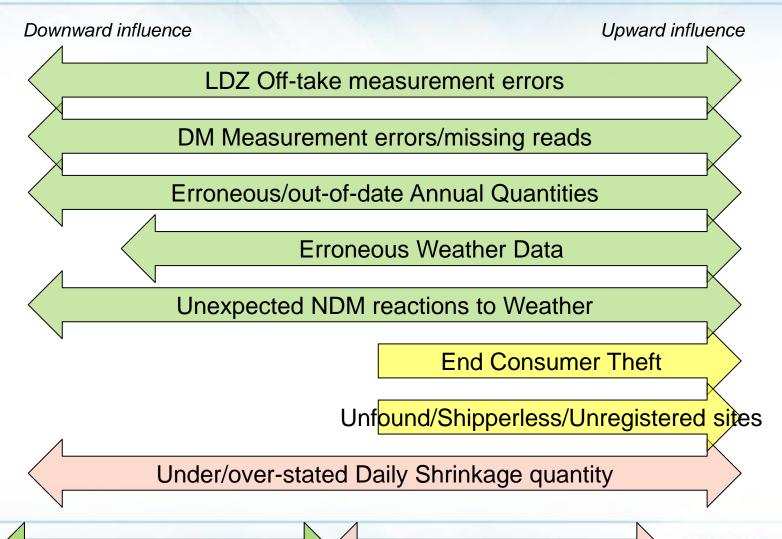Fixed daily amount provided by the Network Operator → ← Fixed daily amount provided by the Network Operator

LDZ Shrinkage

NDM Algorithm uses AQ (Annual Quantity) plus NDM Parameters (ALPs and DAFs) and Actual and Seasonal Normal Weather data

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Known Causes of UIG in Allocations

Downward influence   *Upward influence*

LDZ Off-take measurement errors

DM Measurement errors/missing reads

Erroneous/out-of-date Annual Quantities

Erroneous Weather Data

Unexpected NDM reactions to Weather

End Consumer Theft

Unfound/Shipperless/Unregistered sites

Under/over-stated Daily Shrinkage quantity

Green – temporary until reconciliation   *Pink – not normally corrected by Rec*

Yellow – temporary if identified pre Line in the Sand

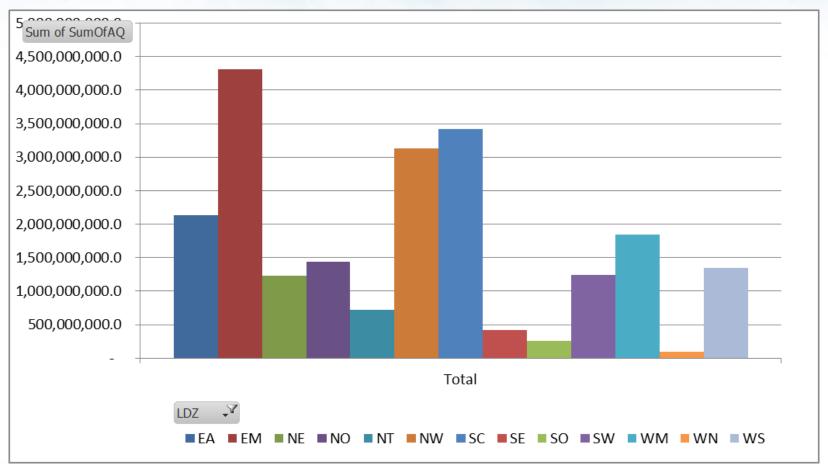# Known issue with missing DM reads

New

- DM meter reads are currently rejecting for c.20% of DM sites (by AQ)

- Root cause is mismatch of data between DMSP files and meter asset data on new UKLink

- D-7 estimates used where no actual read loads

- Adds a significant risk of uncertainty to UIG

- Daily lists of affected MPRs being issued to Shippers

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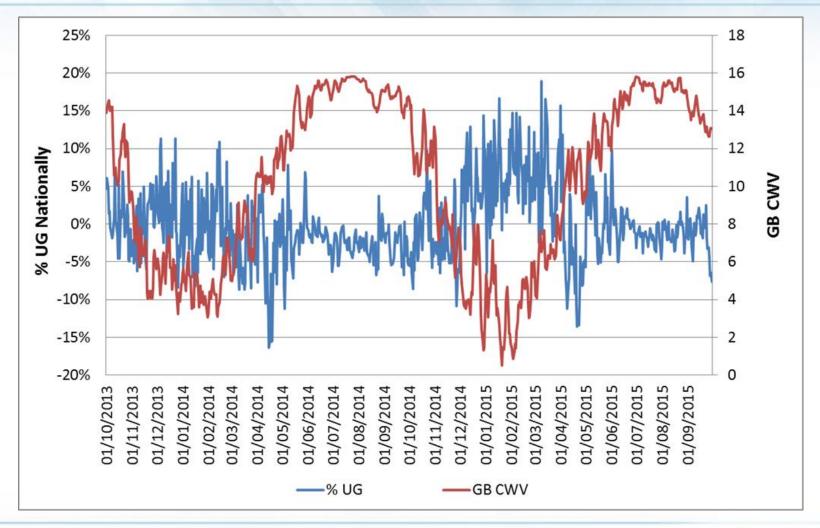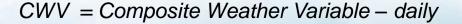# Missing DM reads by LDZ by site AQ

New

Summary of simulations of UIG – *estimates only*

- Xoserve simulation: likely position at D+5
    - Used 4 years of historic actual data
    - Used prevailing AQ – no assessment of rolling AQ impacts
    - Suggested some LDZs had negative UIG overall
    - Updated 95% confidence interval:-12.35 to 11.77
    - Summary on Feb '17 DESC page
    - Daily simulated values on Xoserve secure sharepoint (Folder 18; subfolder "Demand Estimation Project Nexus")
- Allocation of Unidentified Gas Expert has estimated permanent UIG at Line-in-the-Sand
    - Based on historic meter reads from Sites & Meters and known contributing issues
    - Analysis **suggests** permanent UIG of 1.3% of throughput – at Line in the Sand after all reconciliation has taken place – **also based on simulation**
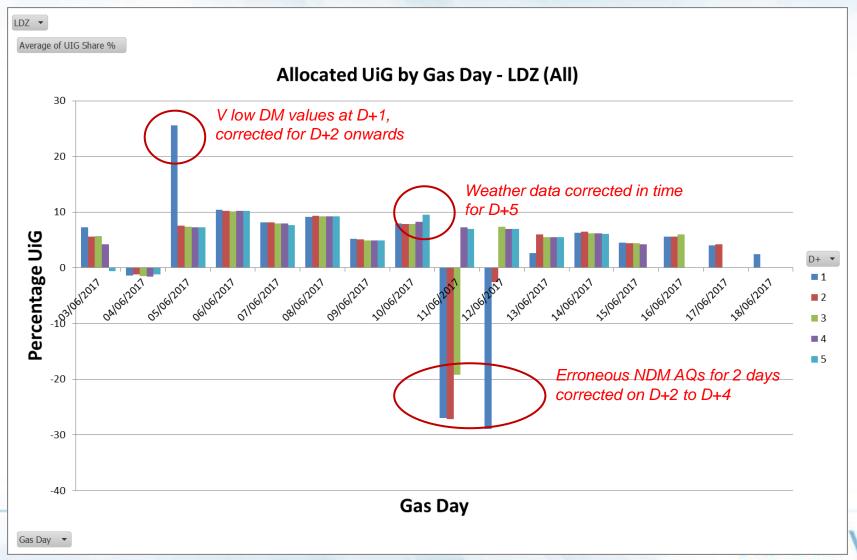
Graph of 3 years simulated D+5 UIG v Weather

CWV = Composite Weather Variable – daily

National LDZ UIG – 3rd to 18th June – updated

Allocated UiG by Gas Day - LDZ (All)

Stacks represent National UIG from D+1 to D+5 for each Gas Day

Summary of discussions at IRG

- Project Nexus Incident Review Group met 14 June

- Preceding slides were main focus of discussion

- Some Shippers experiencing very large volatility day on day and between different runs for same gas day

- Other Shippers felt that it was still very early and that UIG was not running at unexpected levels based on analysis presented at DESC

- Xoserve highlighted specific issues for Gas Day 11th and 12th, under investigation

  - Post-meeting note – AQ issues were corrected June 14th, NDM Allocation and UIG re-run June 15th

- Shippers reported seeing D-7 DM estimates returning zeros

Agreed next steps from IRG

- Update at Distribution Workgroup, as per agenda item
- Xoserve actions:
  - Xoserve investigating Shipper reports of DM D-7 estimates returning zeros
  - Xoserve reviewing list of DM sites not able to load actuals to identify patterns/Shipper-specific hotspots
  - Xoserve to continue to monitor daily UIG figures pre-close-out and investigate/resolve anomalies
  - Xoserve to review level of UIG within Nominations process and track trends if possible
- Shippers to raise tickets where they believe that D-7 estimation is not working as intended
  - If last actual read gave zero consumption this would roll forward as D-7 until next actual loads – not an error
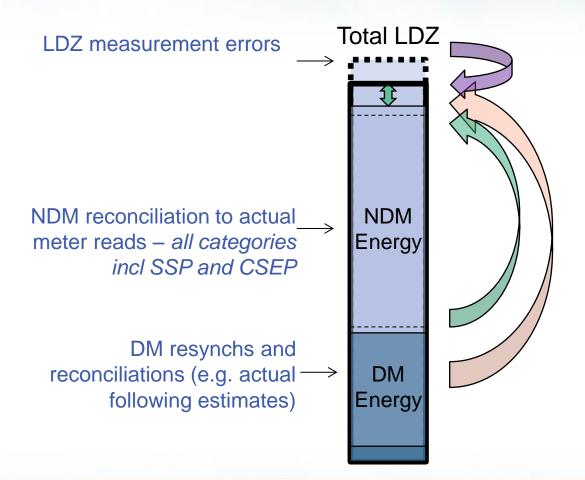
Post D+5 Reconciliation

New

Source of reconciliation

Treatment

LDZ measurement errors →

Total LDZ

NDM reconciliation to actual meter reads – *all categories incl SSP and CSEP*

NDM Energy

DM resynchs and reconciliations (e.g. actual following estimates) →

DM Energy

- Opposite entry of all primary DM and NDM recs is an adjustment to UIG in the LDZ

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Treatment of UIG Reconciliation

New

- Opposite entry of all primary DM and NDM recs is an adjustment to UIG in the LDZ

- Change in UIG shared out in proportion to latest measurements/ estimates (i.e. post-rec)

- Same UIG weighting factors as at D+5

- Shared out over last 12 months of updated allocations

- Share of UIG rec appears on Amendment invoice – energy charge only – issued at M+18

Summary of observations

- Key objective of Nexus regime was to make UIG more visible and raise the priority

- Nexus regime went live in early summer – simulation suggested UIG more likely to be negative

- <u>Pre-Nexus NDM = Post-Nexus NDM + UIG</u> *until 30/09/17*

- Most UIG components are resolved by meter point reconciliation and other BAU processes

- Still a very limited track record of UIG

- Xoserve monitoring UIG levels daily, resolving input data issues within D+5

- Ongoing use of estimates for many DM sites is a major cause of uncertainty – affects c 20% of the market in AQ terms