national gas transmission

UAGCVS Report

May 2025

Executive Summary

This report provides a review of National Gas Transmission's (NGT) Unaccounted for Gas (UAG) management since April 2013, the start of the RIIO-T1 price control. The report places particular emphasis on the period between 1st October 2024 to 31st March 2025 inclusive, the period since the publication of the November 2024 UAGCVS report and is also the first opportunity for NGT to provide commentary on the full formula year.

This report also contains our Calorific Value Shrinkage (CVS) statement with an overview of its possible causes.

The publication of this report discharges NGT obligations under the Gas Transporter Licence Part J of Special Condition 5.6 (System operator external incentives, revenues and costs) – requirement to undertake work to investigate the causes of UAG and CVS.

Total assessed pre-reconciled UAG quantities for the 1st October 2024 to 31st March 2025 is lower than the previous six months (1st April to 30th September 2025), which does not align to historical seasonal trends. During the most recent winter period, UAG values reached their lowest levels in five years, primarily due to a higher occurrence of negative UAG days, resulting in a netting off effect.

Total Shrinkage for the whole formula year 2024/25 is also the lowest observed in 5 years, with UAG at similar levels to the previous formula year.

Using data analysis, data visualisation tools, and investigative projects, NGT is continually developing it's understanding of the causes of UAG.

CV Shrinkage has trended lower in 2024/25 than the previous year. CV Capping has also occurred less frequently during this winter period, when compared to the same months in the last formula year.

Continued support from meter owners has enabled NGT to obtain and review meter validation reports for NTS entry and exit facilities. This data is used to support the identification of UAG causes, enhance NGT's ability to detect meter error, and inform the preparation of future meter witnessing programmes.

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Unaccounted for Gas and Calorific Value Shrinkage Report – May 2025

Introduction

This report provides a review of National Gas Transmission's (NGT) UAG and CVS management.

The report provides information on assessed UAG quantities since April 2013, the start of the RIIO-T1 price control, with particular emphasis on 1st October 2024 to 31st March 2025 inclusive - the period since the publication of the November 2024 UAG report.

Throughout the report, projects undertaken by NGT are outlined, describing the investigations carried out into the causation of UAG and CVS.

UAG, CVS and OUG (Own Use Gas) are the three components of NTS Shrinkage. Further information on the components of NTS Shrinkage can be found via the following link:

NGT - Shrinkage

NGT also provide a range of UAG related data to accompany this report including:

- previous UAG reports and UAGCVS reports
- daily data on the components of NTS Shrinkage

This information is available on the NGT website via the following link:

NGT - UAG Management

The publication of this report and associated backing data discharging NGT's obligations under the Gas Transporter Licence Part J of Special Condition 5.6, is detailed in Appendix I of the report.

If you have any feedback or questions on this document, please contact NGT's Meter Assurance team via the following email address: meterassurance@nationalgas.com.

The Meter Assurance Team is part of the Energy Balancing team within NGT, responsible for investigating the causes of and reporting upon UAG and CVS.

National Transmission System Unaccounted for Gas Trends

This section of the report provides information on assessed UAG quantities since April 2013, with particular emphasis on the period between 1st October 2024 and 31st March 2025.

Unless stated otherwise, all UAG values used in this report are pre-reconciliation. Pre-reconciled UAG is the value which is recorded after entry and exit closeout. This data shows the position prior to any reconciliations taking place.

Formula Years 2013/14 to 2024/25

Figure 1 provides the annual assessed UAG, OUG and CVS quantities for formula years 2013/14 to 2024/25. A formula year refers to the period from 1st April to 31st March the following year.

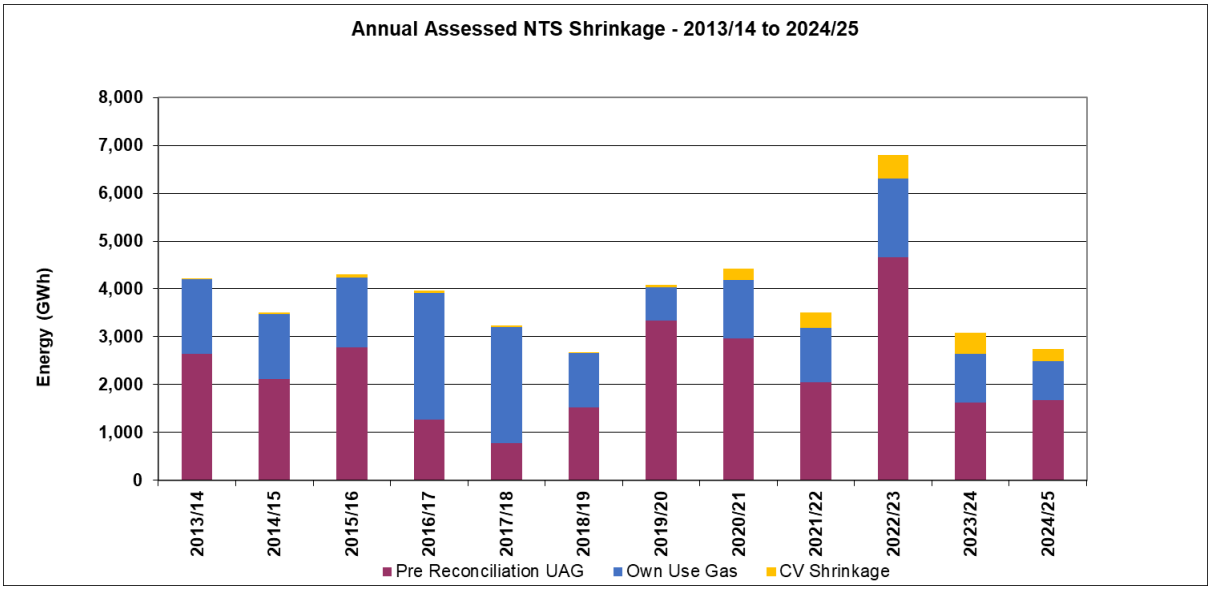

Figure 1: Annual Assessed NTS Shrinkage – 2013/14 to 2024/25

Figure 1 shows that in the formula year 2024/25, NTS Shrinkage is the lowest observed since 2018/19. Meanwhile, UAG has slightly increased compared to 2023/24 but remains below the levels recorded in the preceding five years.

UAG remains the dominant component of NTS Shrinkage, accounting for around 61%, whilst OUG makes up 30% and CVS 9%. Whilst CVS has become more prominent over the last four years, formula year 2024/25 is lower than the previous 3 years. Potential causes of CVS are detailed later in the report.

Figure 2 provides assessed UAG, OUG, and CVS for the winter periods (October to March) for each formula year.

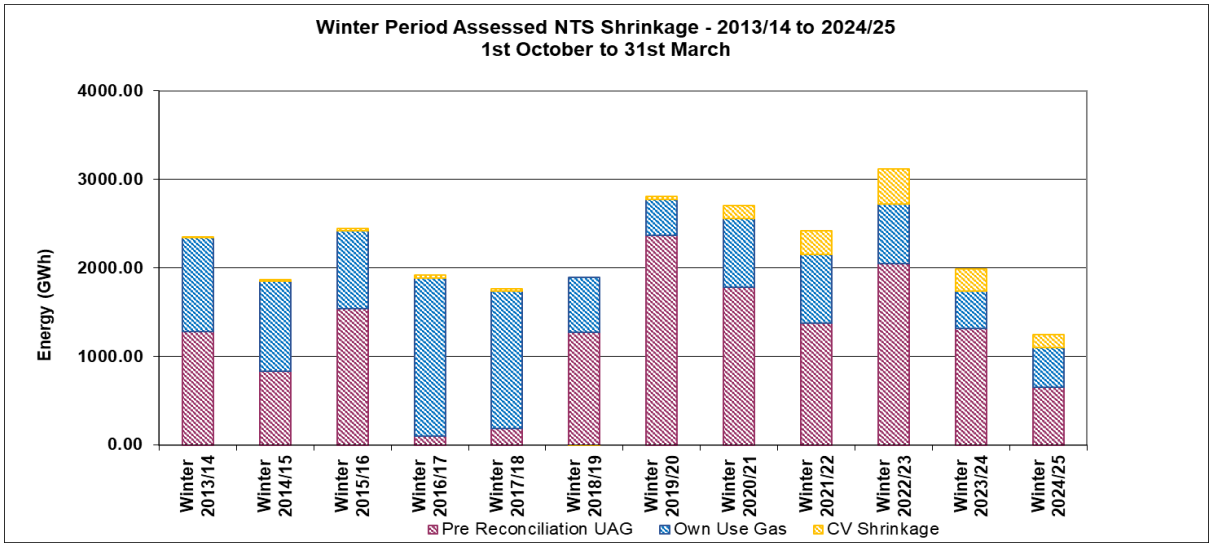

Figure 2: Winter Period Assessed NTS Shrinkage – 2013/14 to 2024/25

Figure 2 demonstrates that NTS Shrinkage throughout this period (October 2024 to March 2025) is lower than all other winter periods observed in this graph.

During this winter period, there have been 41 instances of high UAG days where the ± 20 GWh tolerance has been exceeded, which is an increase compared to the 37 high UAG days observed in the 2023/24 winter period. However, 75 days of the 2024/25 winter period were negative UAG values, whereas the previous winter period witnessed 46 negative UAG days. This increase in negative UAG has produced a netting off effect, thus reducing monthly UAG values since December 2024.

UAG accounted for 52% of NTS Shrinkage over this winter period, decreasing from the previous winter period where UAG was 66% of Shrinkage. CVS has also decreased from 13% to 12% whereas OUG increased from 21% to 36% of NTS Shrinkage.

In aggregate, CVS, OUG, and UAG have decreased by 37% when compared to the last winter period.

Figure 3 below illustrates pre- and post-reconciliation annual assessed UAG quantities, for formula years 2013/14 to 2024/25. Pre-reconciliation UAG is calculated using energy measurements for NTS entry and exit points reported in the Gemini commercial system at closeout. If a meter or data error is then identified outside of closeout, the correct values are calculated post-reconciliation.

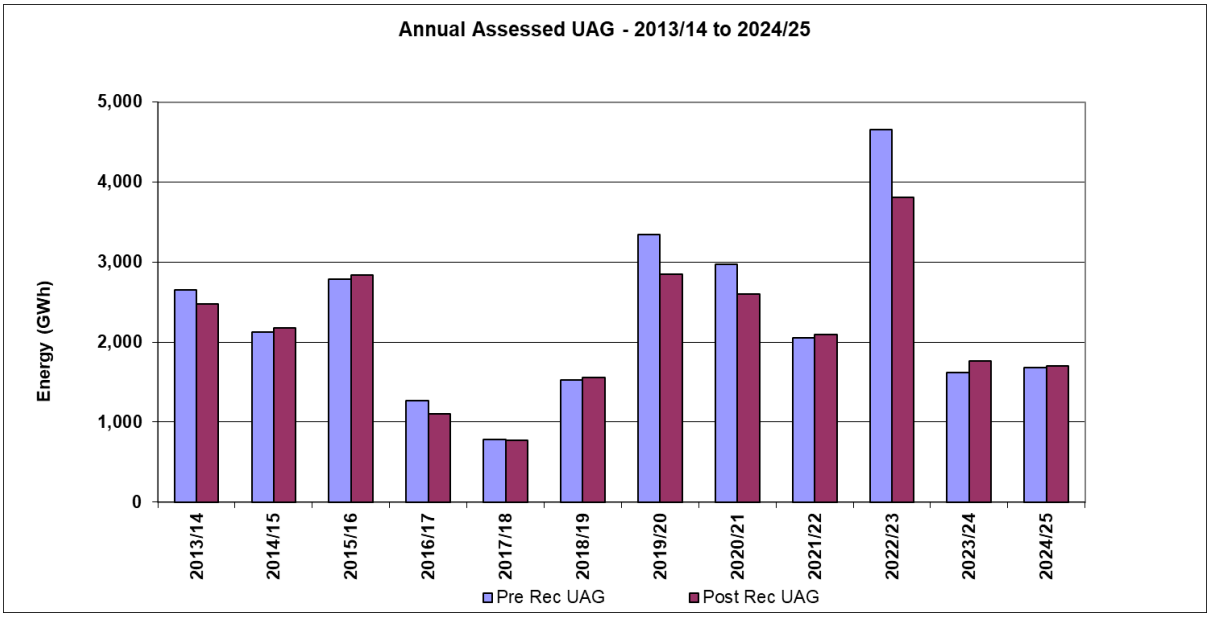

Figure 3: Annual Assessed UAG – 2013/14 to 2024/25

Reconciliations impacting this formula year have marginally increased UAG when compared to pre-reconciled UAG, with values increasing from 1,676 GWh to 1,702 GWh. Further information on reconciliations is provided under section 'UAG Management Activities' of this report.

Table 1 provides the annual and daily average assessed UAG quantities for formula years 2013/14 to 2024/25. The table also provides the annual assessed UAG quantities as a percentage of annual NTS throughput.

UAG	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25
Assessed Level (GWh)	2,648	2,121	2,782	1,272	783	1,528	3,342	2,972	2,051	4,659	1,607	1,676
Assessed Daily Average (GWh/d)	7.25	5.81	7.6	3.48	2.14	4.19	9.13	8.14	5.62	12.76	4.39	4.59
Percentage of NTS Throughput	0.3	0.24	0.3	0.13	0.08	0.17	0.36	0.32	0.23	0.45	0.19	0.2

Table 1: Annual Statistical performance of UAG - 2013/14 to 2024/25

The values provided in Table 1 indicate that annual assessed UAG, assessed daily average UAG, and UAG as a percentage of throughput in formula year 2024/25 are similar to formula year 2023/24 and lower than the 4 years prior to 2023/24.

Figure 4 below shows the total monthly assessed UAG from April 2013 to March 2025. It also provides the average monthly assessed UAG for this formula year (139.66 GWh) represented as the horizonal black line, together with the long-term average assessed UAG for the entire period (190.56 GWh) depicted by a horizontal dashed red line.

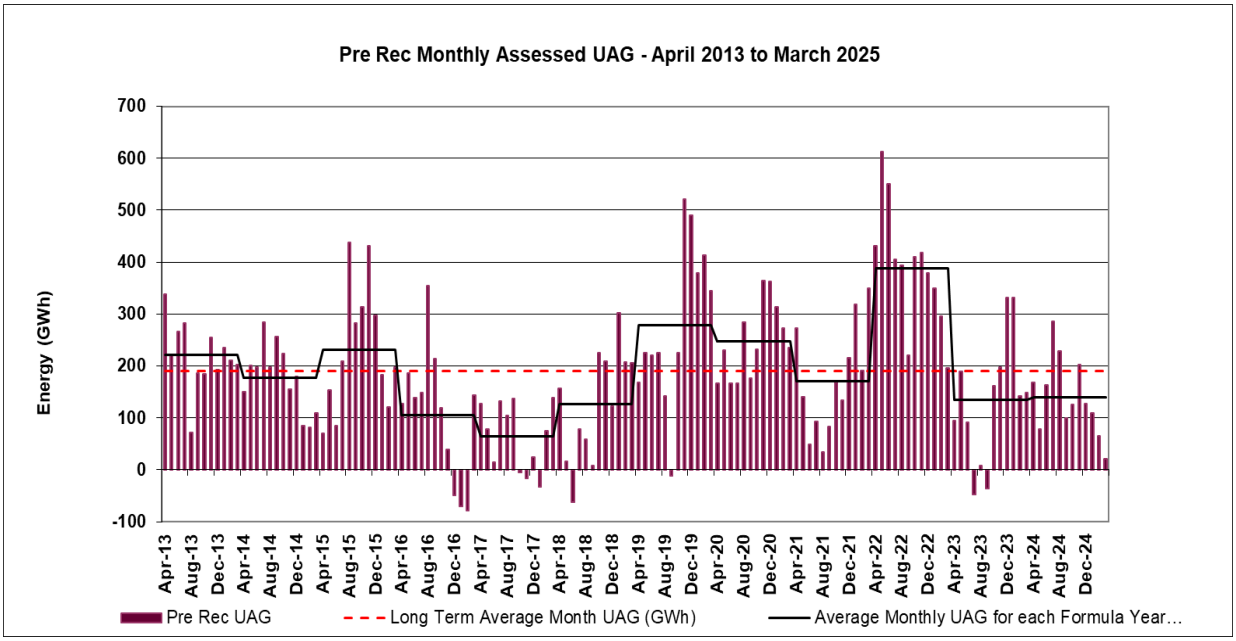

Figure 4: Monthly Assessed UAG - April 2013 to March 2025

Historically, UAG has followed patterns of lower UAG during summer months and higher UAG in winter months. In this formula year however, summer has experienced higher UAG than the winter period. Investigations into the recent changes in seasonal pattern have been undertaken and so far, the cause has not yet been determined.

November 2024 was the only month over the last winter period that witnessed UAG exceeding both the assessed monthly average UAG and the long-term average UAG.

Figure 5, provides the total monthly assessed UAG between October 2024 and March 2025, compared with the equivalent months in 2023/24.

UAG over the 2024/25 winter period amounts to 653.22 GWh, which is 659.92 GWh (50%) lower than the 2023/24 winter period.

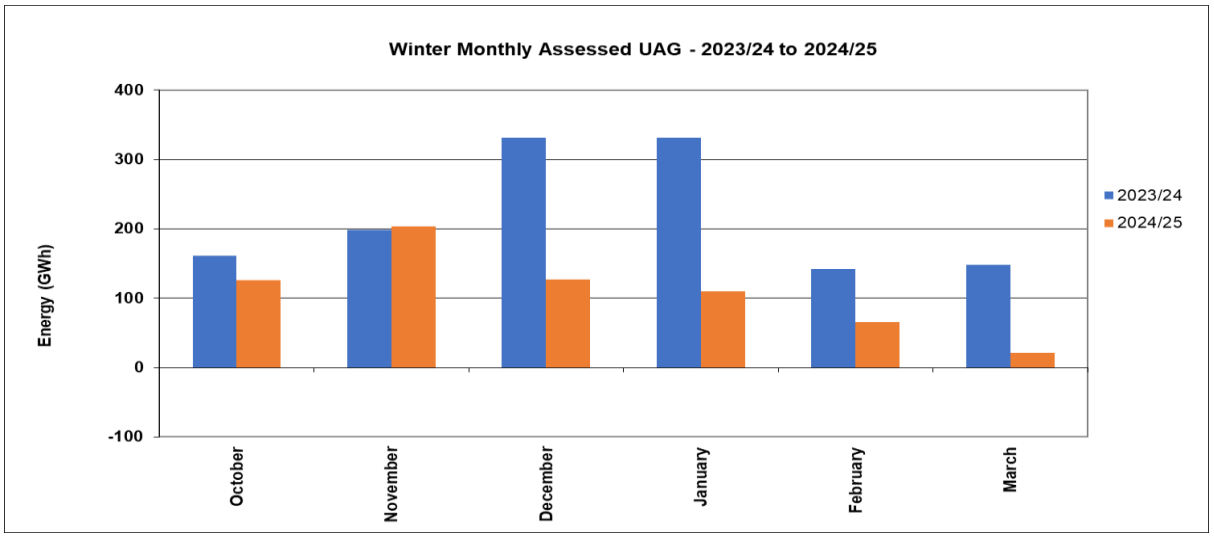

Figure 5: Winter Monthly Assessed UAG – October to March 2023/24 and October to March 2024/25

As evidenced in Figure 5 above, the total monthly assessed UAG in winter 2024/25 varied from 21.07 GWh to 203.20 GWh, with a monthly average of 108.87 GWh. Besides November, these values are lower when compared to the same months in the previous year. During the same winter period in 2023/24, total month assessed UAG varied from 142.32 GWh to 331.64 GWh, with a monthly average of 218.86 GWh.

Figure 6 shows the daily assessed UAG values for the period between October 2024 and March 2025 and indicates that UAG has been outside ± 20 GWh for 23% of that time.
Volatility between days has been observed and is depicted by a fluctuation of positive and negative UAG. The central part of this winter period sees the rolling 30-day average increase slightly with higher positive UAG between the months of November to February.

Throughout March 2025, negative UAG was as prevalent as positive UAG, creating a netting off effect and reducing the rolling 30 day average close to zero.

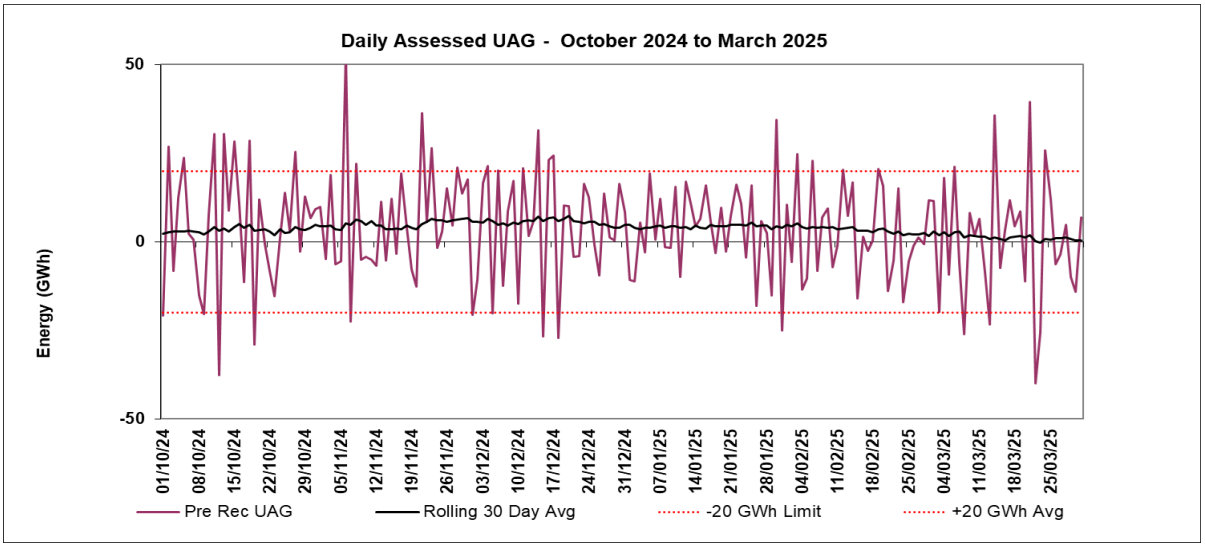

Figure 6: Winter Daily Assessed UAG – October 2024 to March 2025

NGT reviews and investigates the assessed UAG values daily, paying particular attention to high UAG days. A high UAG day is determined by the assessed UAG value for a given day exceeding ± 20 GWh. Between 1st October 2024 to 31st March 2025, there were 41 days when daily assessed UAG exceeded ± 20 GWh, 4 days more than the last winter period.

All high UAG days for 2024/25 have been examined, although the causes of high UAG on these days has not been identified.

Figure 7 below outlines demand breakdown, accompanied by monthly UAG values for the period between April 2020 to March 2025. Interconnector export volumes have decreased by 55% when compared to the last 6 months (April 2024 to September 2024) and have also decreased by 20% when compared to last winter (October 2024 to March 2025). LDZ offtakes continue to display a seasonal pattern throughout, whereas power station demand demonstrates a more consistent annual offtake.

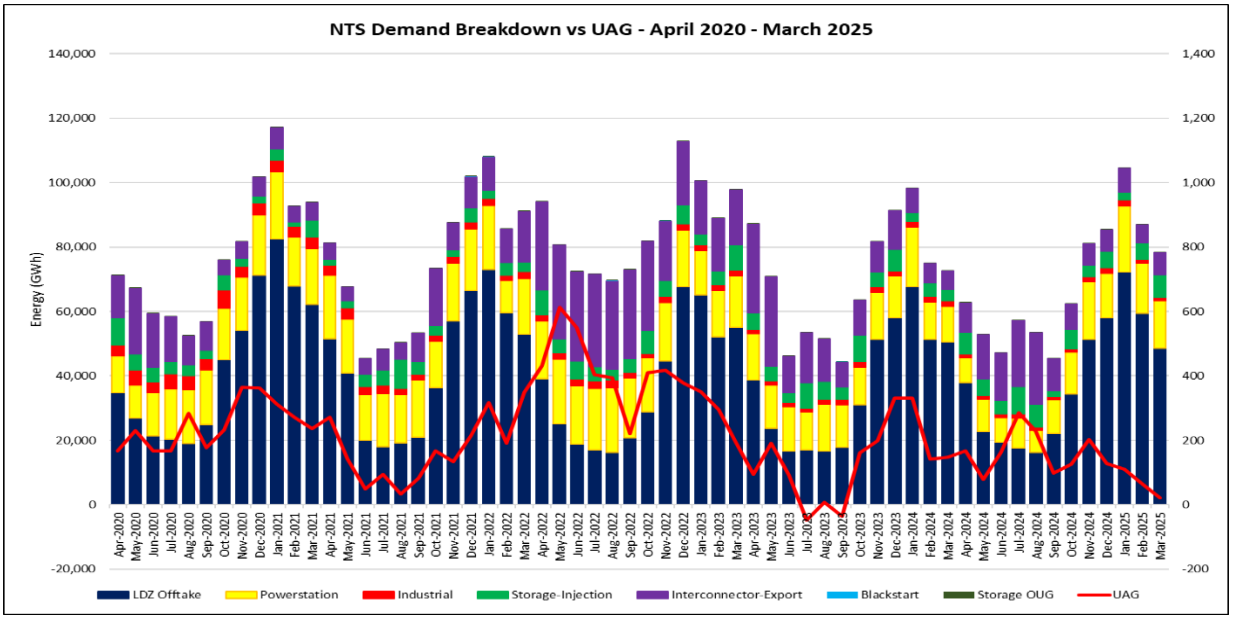

Figure 7: NTS Demand Breakdown – April 2020 to March 2025

LDZ offtakes continue to display a seasonal pattern throughout, whereas power station demand demonstrates a more consistent annual offtake.

Figure 8 shows that interconnector exports in 2024/25 have increased from April to August, with the second highest exports in July 2024 to September 2024 compared to the previous 4 years.

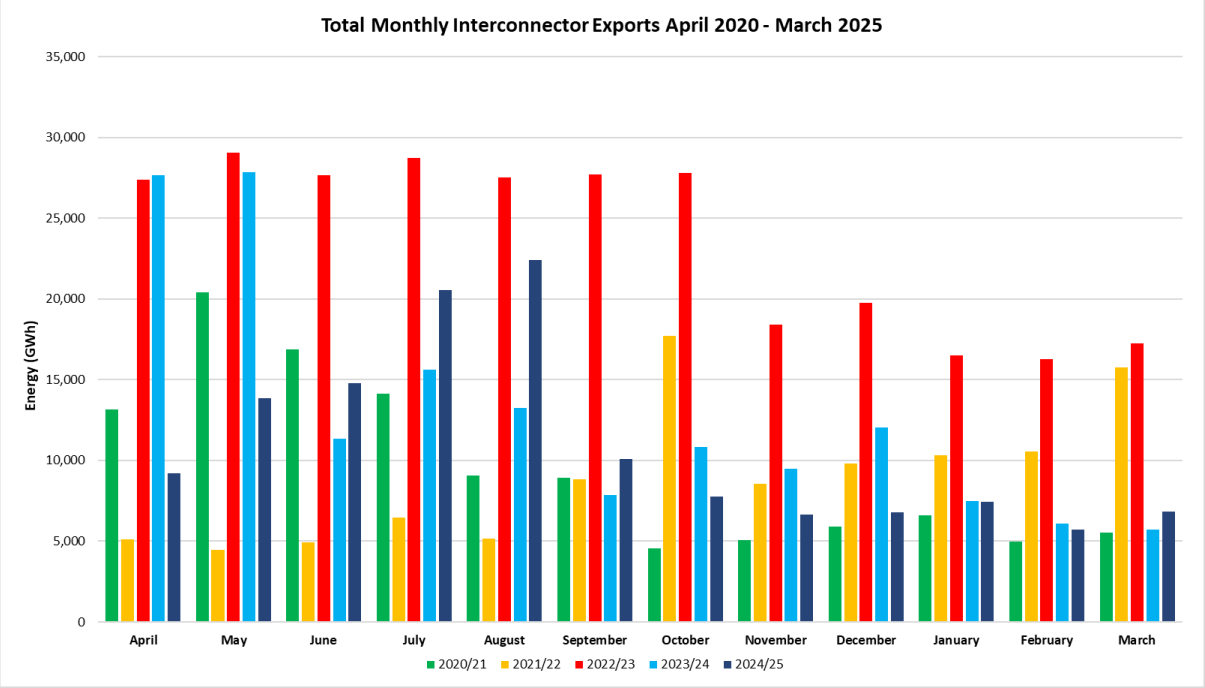

Figure 8: Interconnector Export - April 2020 to March 2025

Generally, the winter months in 2024/25 have closely followed the export values of the previous year. There is no substantial correlation to historic UAG trends.

Figure 9 illustrates that supply has continued to follow previous seasonal patterns, with January 2025 seeing the largest amounts of gas supplied into the UK this formula year.

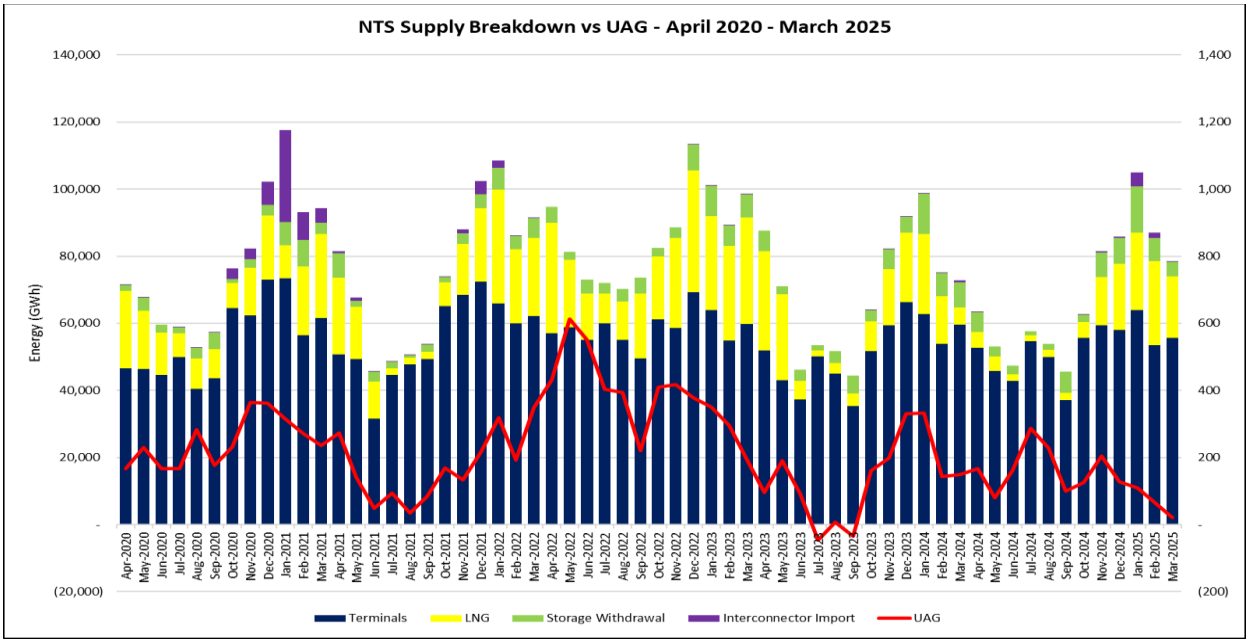

Figure 9: NTS Supply Breakdown – April 2020 to March 2025

Figure 10 displays the total LNG breakdown from South Hook and Dragon sub-terminals (South Wales) and both Isle of Grain terminals (South-East England).

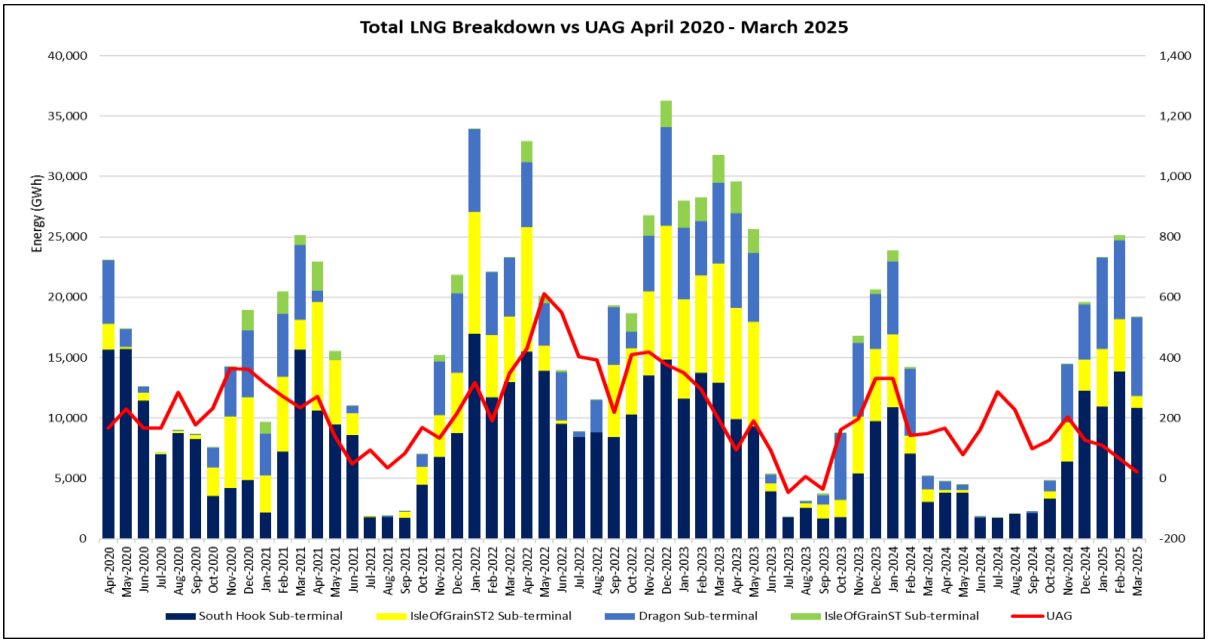

Figure 10: Total LNG Breakdown – April 2020 to March 2025

It has been reported previously that UAG increased and decreased in line with LNG flows, however throughout 2024/25, UAG and LNG no longer appear to correlate.

Figure 11 exhibits the total monthly LNG imports since April 2020. Compared to the previous years, the summer months in 2024 witnessed some of the lowest LNG supplies, with April to July 2024 seeing the lowest levels in 4 years.

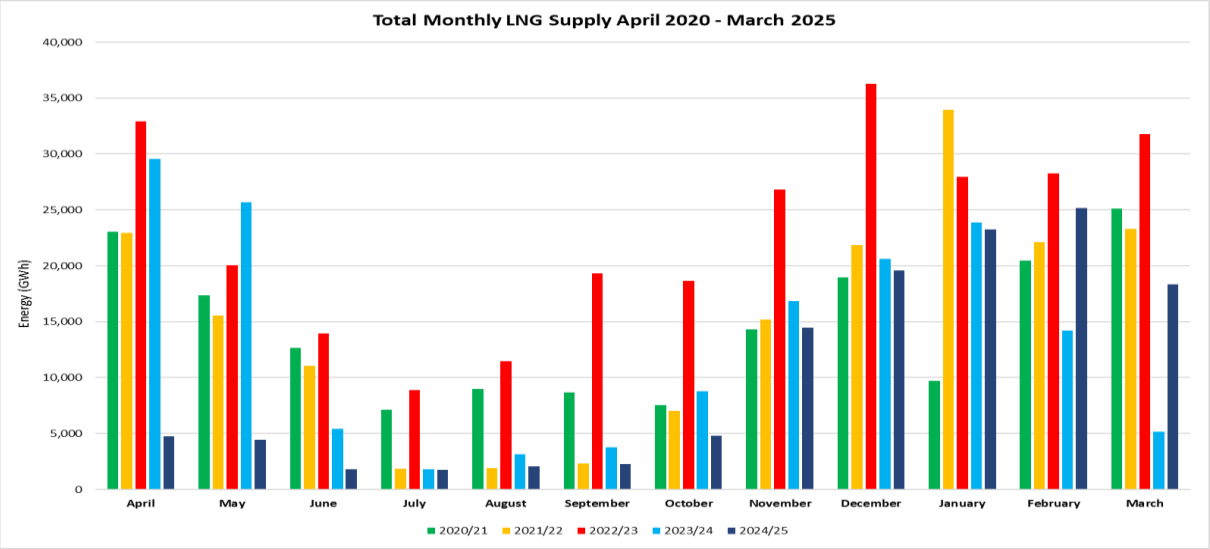

Figure 11: LNG Supply – April 2020 to March 2025

Flows increased in November 2024 through to March 2025, which were more akin to previous winter months.

Figure 12 below displays the monthly net interconnector positions for BBL, Interconnector (UK), and Moffat from April 2020 to March 2025. The positive bars on the graph illustrate the monthly net position as interconnector imports onto the NTS and the negative values show the monthly net position value as interconnector exports from the NTS.

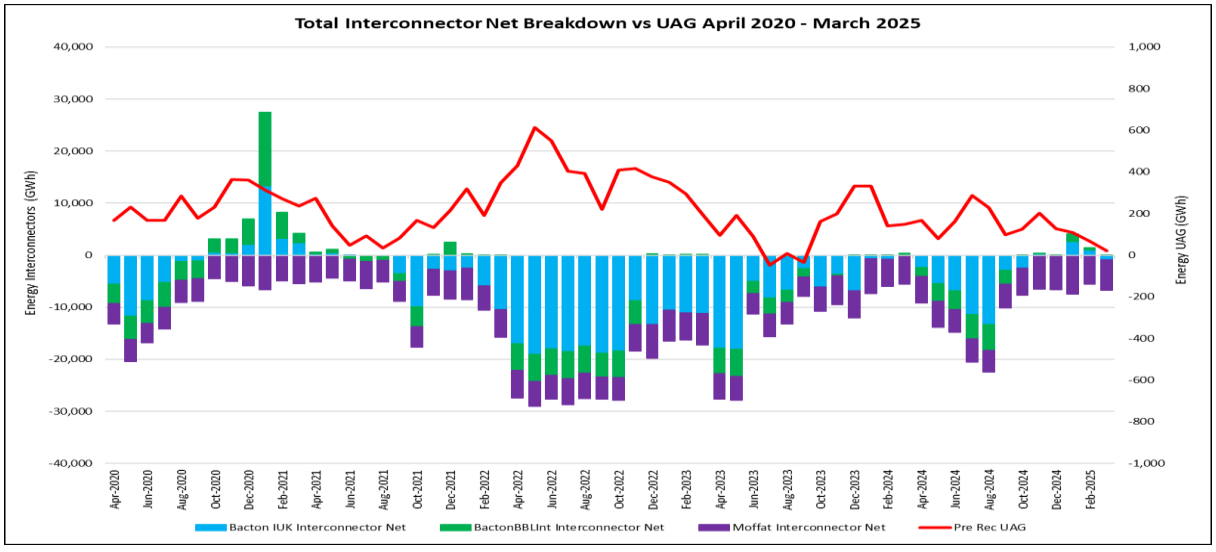

Figure 12: Net Interconnector – April 2020 to March 2025

This graph demonstrates that since formula year 2022/23, reverse correlation between UAG and net interconnector throughput has been witnessed. However, investigations so far have been inconclusive.

Formula Year 2024/25

This section of the report provides data on assessed UAG levels for the April 2024 to March 2025 period. This is the first opportunity for NGT to provide commentary on the full formula year.

2024/25	UAG	OUG	CVS	Total
Annual Assessed Levels (GWh)	1,676	809	257	2,742
Percentage of NTS Shrinkage	61	30	9	100

Table 2: Actual Assessed Levels for UAG, OUG and CVS – 2024/25

Table 2 provides the annual assessed levels of UAG, OUG, and CVS for formula year 2024/25. The table confirms that UAG was the largest component of NTS Shrinkage; a continuation of the trends seen in recent years.

Although annual assessed UAG has marginally increased from the previous year, UAG has continued to remain low. Investigations are ongoing to determine a link between the current trends and low UAG.

NGT have observed a 42% decrease in CVS this formula year when compared to 2023/24 and a decrease of 22% in annual assessed OUG.

Throughout 2024/25, UAG exceeded ±20 GWh on 69 days whereas in 2023/24, 58 days exceeded this ±20 GWh tolerance. The number of negative UAG days were the same in formula years 2023/24 and 2024/25, each with 132 instances.

Figure 13 (extended version of figure 5) below provides the total monthly assessed UAG for April 2024 to March 2025 compared to the equivalent months in 2023/24. During 2024/25, the total monthly assessed UAG varied from +21.07 GWh to +286.49 GWh with a monthly average of 139.66 GWh.

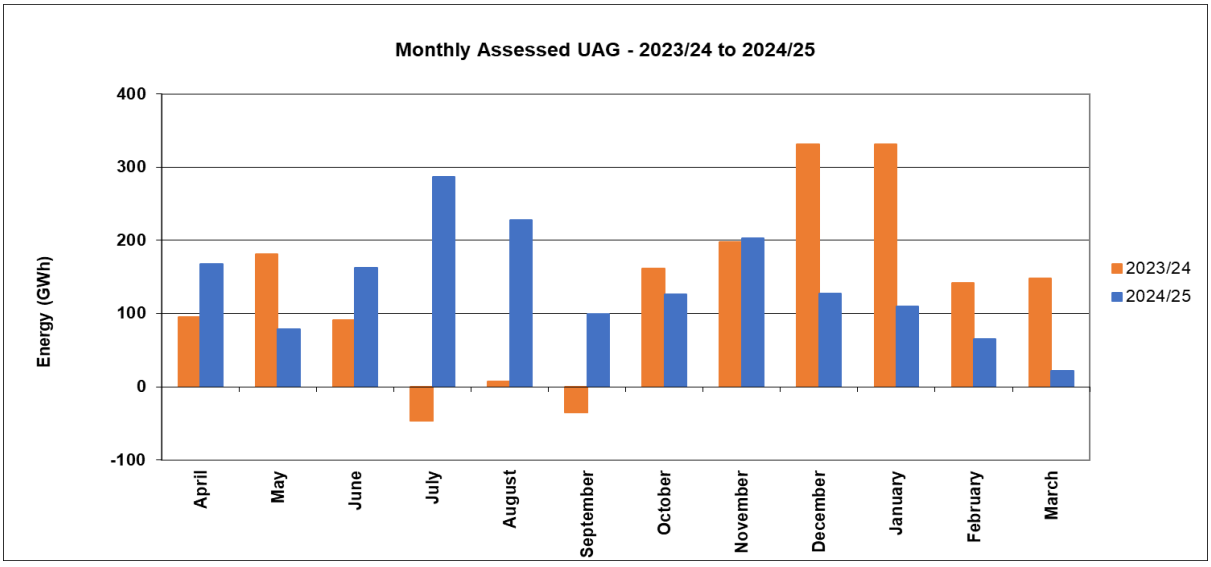

Figure 13: Monthly Assessed UAG 2023/24 to 2024/25

Figure 14 below provides the daily assessed UAG values between April 2024 and March 2025. Daily variability has continued to be observed with UAG varying from -47.30 GWh to +53.19 GWh and a daily average of 4.59 GWh, which is 0.2 GWh more than last year's daily average.

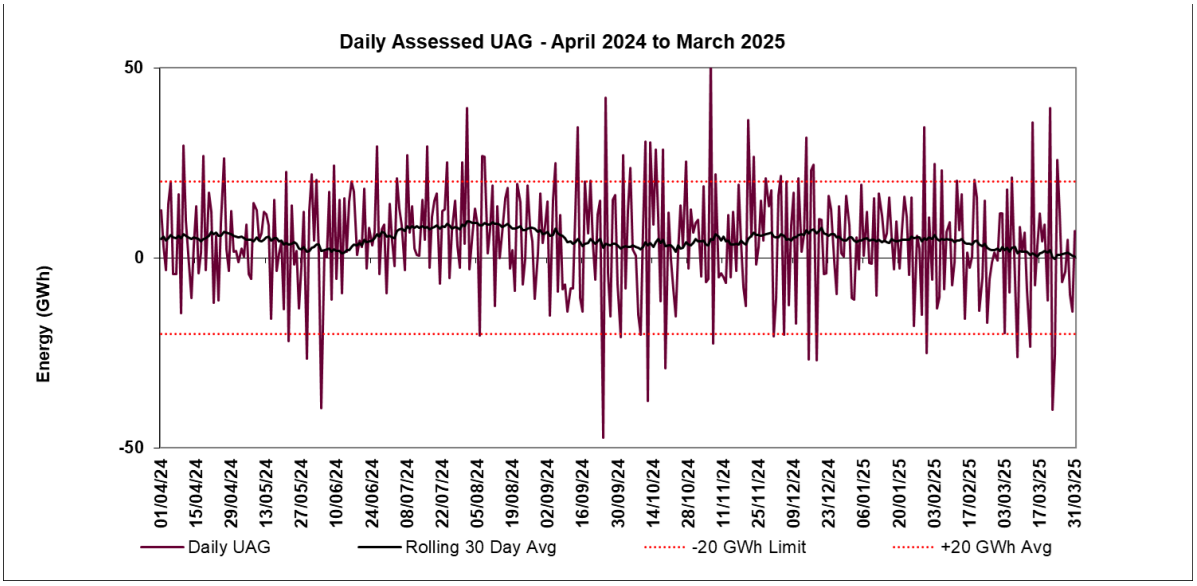

Figure 14: Daily UAG April 2024 to March 2025

The blue line represents the rolling 30-day average, and the ± 20 GWh quantities are shown as red dashed lines. An increase in daily UAG and variability during the summer months can be observed with the rolling 30-day average increasing throughout June to December. The period between 7th June to 22nd September displays the highest points in the rolling 30-day average, this increase is due to fewer instances of negative UAG over that period, and more consistent occurrences of positive UAG over 20 GWh. Trend analysis that has been carried out over this formula year and is detailed in the UAG Projects section of this report.

During 2024/25, 19% of the days exceeded ± 20 GWh (11 occurrences greater than the previous year). 36% of days within the period were negative, which is the same as last year.

As described previously in this report, NGT reviews and investigates the assessed UAG daily, paying particular attention to any values that exceed ± 20 GWh. The Energy Balancing Team collaborate with stakeholders across NGT to investigate UAG trends, developing analytics and improving understanding of UAG. For context, UAG trends are a series of consistent patterns of UAG and investigated through projects summarised within this report.

UAG Management Activities

This section of the UAG report describes the various activities and initiatives that NGT has been undertaking or is planning to undertake to investigate the causes of UAG.

Reviewal of Meter Validation Reports

Meter owners are obligated to perform meter validations on each of their metering installations on a minimum annual basis, to provide assurance that their metering equipment is measuring correctly. The test results are documented within a meter validation report and provided to NGT following the completion of validation tests.

The validation reports provide essential information that allows NGT to determine the asset health and accuracy of the metering connected to its network, enabling a better understanding of the impacts that meter errors have on assessed UAG.

For formula year 2024/25, NGT has received meter validation reports for 209 NTS entry and exit facilities, these reports relate to meter validations that have taken place between April 2024 and March 2025. All validation reports received have been reviewed by NGT.

The reviewal of meter validation reports allows NGT to raise queries where necessary with the relevant meter owners, to confirm if any instruments that tested outside of tolerance could have introduced measurement error, thus impacting assessed UAG levels.

NGT's Meter Assurance team will continue to work with NTS asset owners to review the meter validation reports and follow up on any actions that arise from our detailed reviews. The data provided by asset owners and the results recorded are also used to develop the meter witnessing programme.

During meter validation tests, each measurement system is subjected to simulated pressures, temperature, and gas composition to carry out the required tests, which entails disconnecting or overwriting physical instruments, wires, and software. From doing so, there is a risk that meter error could be introduced through these activities. NGT continues to investigate any potential of identifying assessed UAG when meter validations are known to be taking place.

Meter Witnessing

The purpose of witnessing meter validations is for NGT to gain assurance that the measurement equipment within the 229 metering installations connected to the NTS continue to accurately measure gas without bias and within the agreed measurement uncertainties. It also provides an opportunity to build stronger relationships with our customers, allowing transparency and best practice between our companies.

Witnessing involves NGT personnel attending metering installations throughout the UK during meter validations to observe and document the testing taking place. This formula year, the Meter Assurance team have witnessed two validations, Interconnector UK (IUK) and Brigg Power Station.

NGT continues to engage with NTS connected asset owners to arrange future visits.

Reconciliation

NGT has an obligation to reconcile NTS related meter and data errors on behalf of the shipping community.

Over the last six months, since the publication of the November 2024 UAGCVS Report, NGT has adjusted 91.66 GWh, in absolute energy terms, via the reconciliation process. This comprises of 22 instances of reconciliation at individual NTS entry and exit facilities, with each instance comprising of one or more days of reconciliation - a total of 167 gas days have been reconciled. All reconciled days have been in the formula year 2024/25.

Figure 15 provides the annual reconciliation quantities, in absolute energy terms, from 2013/14 to 2024/25. The orange portion of the bars indicate the reconciliation quantities processed since the publication of the November 2024 UAGCVS report.

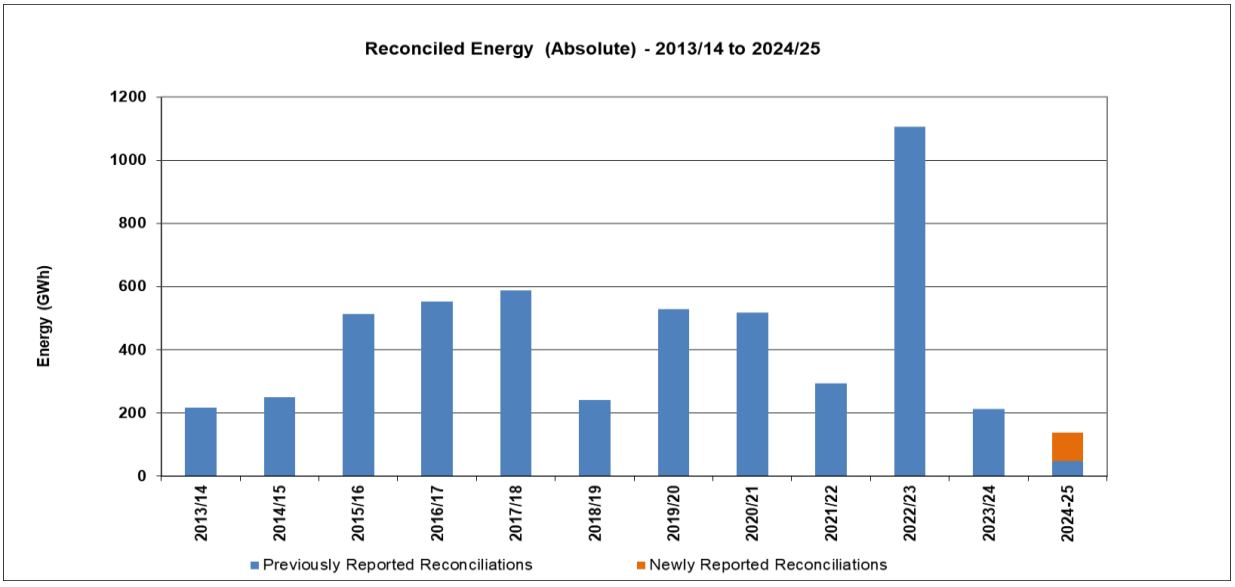

Figure 15: Reconciled Energy (absolute) – 2013/14 to 2024/25

Of the 22 instances of reconciliation processed since the November 2024 UAGCVS report, 6 related to meter error and 16 related to data error.

Table 3 displays instances of measurement error that have been reconciled and the total absolute energy (GWh) that has been adjusted in each formula year since the UAGCVS report issued in May 2024. This includes all reconciliations that have been carried out between April 2024 and March 2025.

Formula Year	2020/21	2021/22	2022/23	2023/24	2024/25
No. Instances	0	0	0	5	33
Total Absolute GWh Reconciled	0	0	0	12.33	138.46

Table 3: Reconciliations since May 2024 report

Figure 16 shows absolute reconciled energy against assessed UAG and reconciled energy as a percentage of UAG. Excluding formula years 2016/17 and 2017/18, where low UAG and high volumes of reconciled energy were witnessed, reconciliations have historically averaged around 15%.

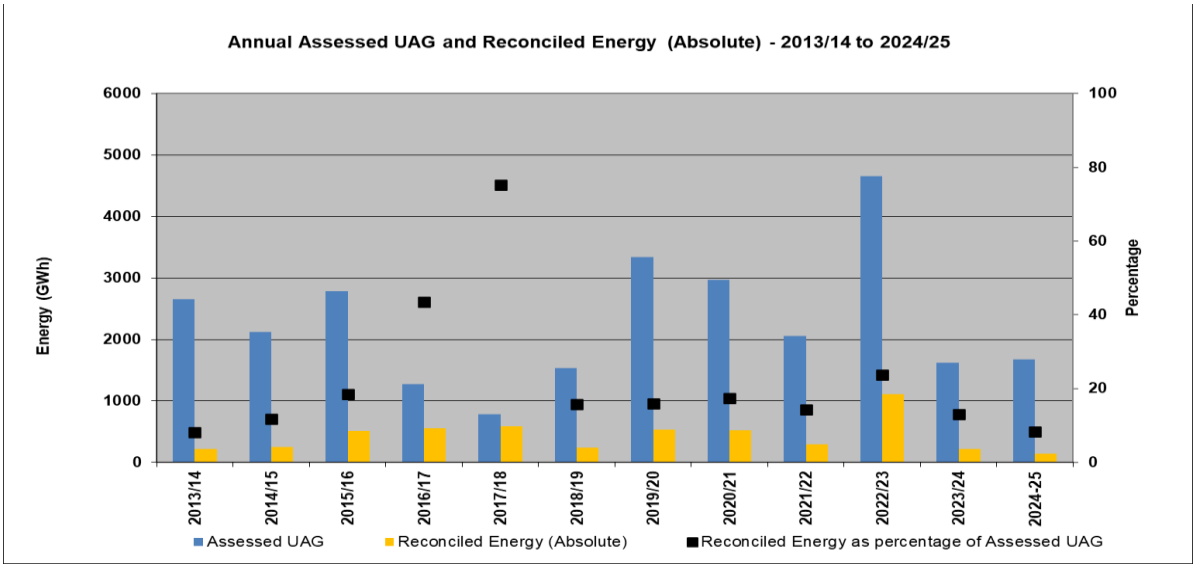

Figure 16: Annual Assessed UAG & Reconciled Energy (Absolute) – 2013/14 to 2024/25

Reconciliation as a percentage of UAG is lower in 2024/25 than previous years, this is due to smaller energy value reconciliations carried out this year. On average, reconciled values from 2013 to date equate to 430.19 GWh per year, whereas 2024/25 amounted to 138.46 GWh.

Figure 17 details Shrinkage components with UAG post-reconciliation, which is UAG that includes reconciled energy.

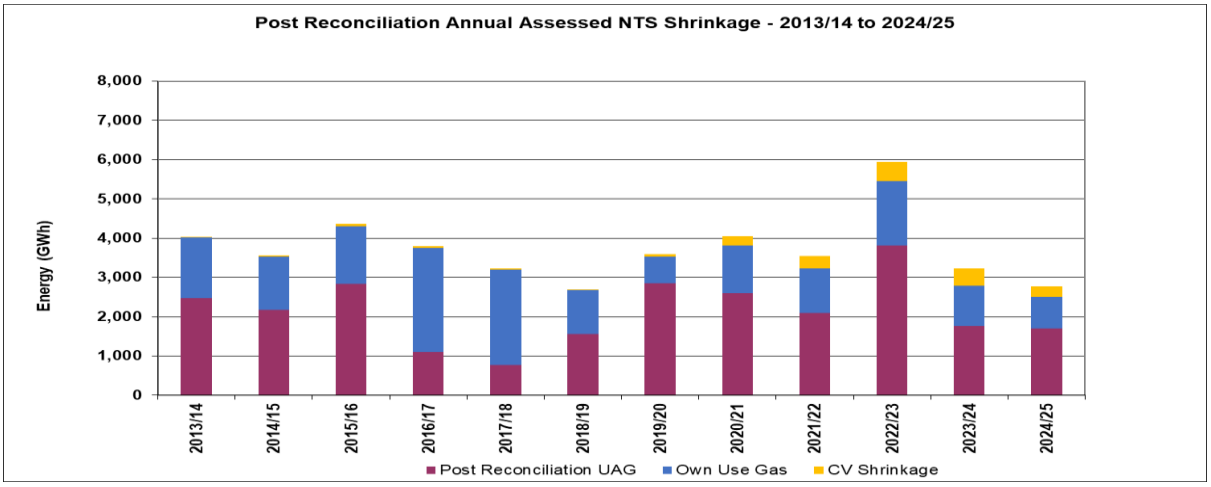

Figure 17: Post Reconciliation Annual Assessed NTS Shrinkage – 2013/14 to 2024/25

Reconciliation can cause UAG to increase, decrease, or remain unchanged depending on the netting effect. Due to 33 reconciliation events affecting gas days during the 2024/25 period, annual assessed UAG has increased slightly from 1,676 GWh to 1,702 GWh, which is comparable to the previous year's increase from 1,616 GWh to 1,765 GWh.

NGT progresses its validation of end of day measurements to help address data quality challenges experienced during the pre-closeout period. An initiative that NGT is progressing is one that automates the handling of sub-terminal and storage data into our systems, which reduces the opportunity for manual input errors to occur. Further sub-terminals and storage sites are being onboarded to this system. So far, 19 sites are automated, with the expectation that this could be rolled out to all NTS entry sites in the future.

NGT continues to process meter and data error reconciliations, which will be included in future reports.

UAG Investigation

NGT manage projects to investigate the causes of UAG. These current and future projects are to help identify causes of UAG patterns or trends where possible. NGT's continued ambition is to better understand end to end data flows to identify and mitigate systematic data error. To achieve this, we are automating data flows, validating all data points, and building the tools necessary to identify the sources of UAG.

Since the publication of the November 2024 UAGCVS Report, various projects have been undertaken to investigate current high and low UAG trends. These investigations have helped to mitigate any outliers and assure our data.

As seen in Figure 18, UAG levels have remained relatively low since November 2024.

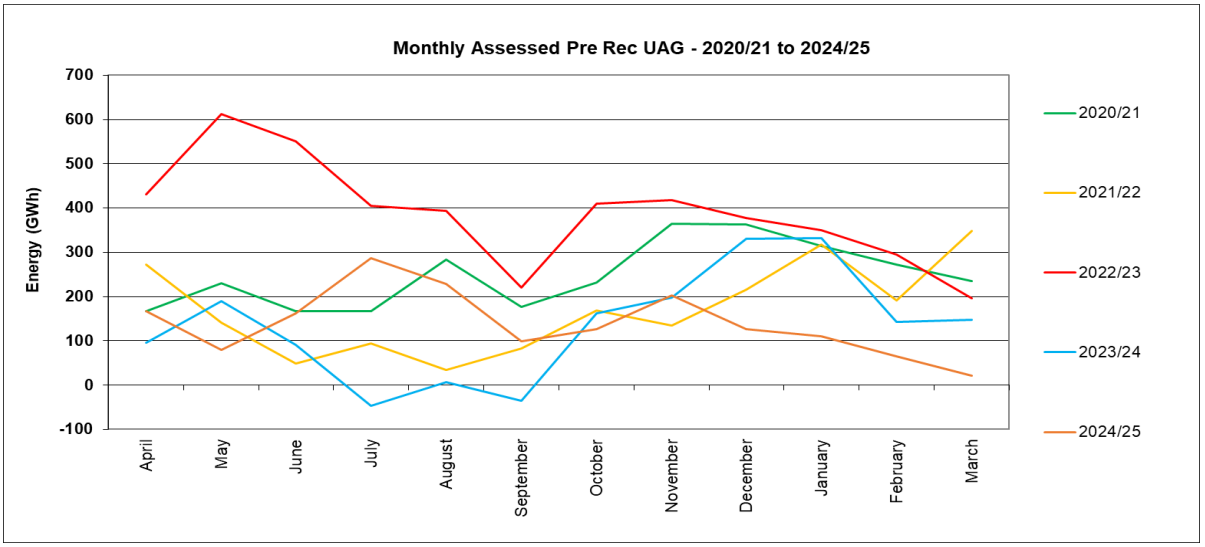

Figure 18: Monthly UAG from April 2020 to March 2025

During the latest winter period, four months have recorded the lowest values compared to the same months over the past five years. Additionally, a significant upward trend was observed in July, which was subsequently investigated and documented in the November report. This graph illustrates that UAG in the 2024/25 period has deviated from previous trends, demonstrating an unpredictable pattern.

The analysis into recent UAG trends, since the publication of the November 24 report, is detailed below:

Linepack
Correlation analysis has been carried out against linepack drift (which is the difference between actual linepack vs where linepack should be, based on supply and demand notifications) and delta linepack (which is the difference between the opening and closing linepack per gas day).
Both exhibited indications of a relationship, though the nature of this connection encompassed both direct association and inverse correlation. Overall, the analysis produced inconclusive results, as significant discrepancies between opening and closing linepack can influence UAG. Additionally, measurement errors may contribute to these linepack variations.

Large alternating positive and negative UAG
During the 2024/25 period, there have been instances where significant positive spikes in UAG were either preceded or followed by substantial negative fluctuations. Trend analysis was conducted in relation to supply and demand patterns to identify any anomalies at the site type level. While storage exhibited the strongest correlation with UAG, further investigations into individual storage sites did not establish a direct causal link to this observed behaviour.

Low UAG since December 2025
As seen in Figure 18, since December 2025, UAG levels have been lower compared to previous years of the same period. An analysis was conducted to examine changes in flow behaviour during these months, including significant increases or reductions in flow rates. While some correlation was observed between overall flows at NTS to LDZ offtakes, storage, and interconnectors, a more granular site-level assessment revealed minimal correlation with UAG.

LDZ offtake vs Total NTS demand
LDZ offtake flows have been analysed in relation to total NTS demand to assess whether any LDZs deviate from expected demand trends, given that LDZ offtakes are generally anticipated to align with demand fluctuations. For instance, if demand rises by 10%, the offtakes would be expected to follow a similar pattern. The analysis revealed that instances of outliers were sporadic and showed no alignment with UAG spikes or broader trends. However, NGT intends to investigate the data at a more granular level for further insights.

As previously reported, resource allocation within our data science domain has been constrained due to ongoing commitments to other projects. However, new initiatives aimed at enhancing meter validation and UAG processes have now been outlined in collaboration with our IT system architects.

An innovation project to create a tool that can help detect the causation of UAG is currently planned for delivery within the T3 period, which will utilise raw data items to aid in depth analytical modelling.

A new data platform is also currently planned to be delivered within the T3 period, providing access to raw data that was previously unavailable. This enhanced data accessibility will contribute to the success of our future projects.

Table 4 below provides an overview of the UAG projects and initiatives NGT planned over this formula year (2024/25). Other 'mini projects' focussing on UAG trends that have been carried out are listed above.

Project / Initiative	Target Completion Date	UAG / CVS	OUTCOME
Enhancements to UAG causality detection models	T3 Period	UAG	**On Hold**: NGT have scope for innovation project to create a tool to detect causes of UAG
Review of ± 20 GWh baseline tolerances	2024/25 Project	UAG	**Completed**: A previous PhD study investigated the relevance of our current UAG baselines has been re-analysed. Historical - present UAG data analysed and compared to 1 & 2 standard deviations, mean and normal distribution. Upper limits compared to current 20 GWh limit. Outcome is for +/-20GWh is to remain in place due to the confidence levels.
LNG Gas Temperature – impact of temperature cooling as it leaves the terminal. Scope would also include NTS compressors	Potential future project	UAG	**Ongoing**: This requires network modelling and expert determination to determine if there are impacts on volume within the network.
Duplicate LDZ offtake data	2024/25 Project	UAG	**Completed:** The duplicate LDZ offtake volume occurs when the files from the distribution network have failed for an LDZ, and a new file hasn't been received into Correla. Correla to speak to the DNs regarding timing of the files as Gemini will apply the last good day as a default. The duplicated days do not impact UAG.
Improvement of data visualisation tools to assess site profiles against UAG behaviour	Extended to T3 Period	UAG	**On Hold:** Incorporate new data sets from the new data platform into our current data visualisation tools.
Linepack Drift vs UAG	2024/25 Project	UAG	**Completed:** Analysed linepack drift data against UAG. Some data points had reverse correlation, but this was inconsistent and inconclusive.
UAG Tracker to further investigations using UAG as % of throughput	2024/25 Project	UAG	**Completed:** Allows investigation into more gas days where UAG anomalies may lie under the 20GWh threshold. This is now incorporated into BAU activities.
UAG reporting and data automation	2024/25 Project	UAG	**On Hold:** This is scoped and logged on NGT IT project system, to be picked up by data architects.
Correlation analysis	2024/25 Project	UAG	**Complete:** Reviewing UAG using correlation analysis to determine trends with certain sites is now part of BAU activities.

Table 4: Project initiatives

All closed out projects can be viewed in previous UAGCVS reports.

CVS Statement & Investigation

Calorific Value Shrinkage (CVS) is gas which cannot be billed due to the application of Gas (Calculation of Thermal Energy) Regulations 1996 (amended 1997) and is the Local Distribution Zone (LDZ) energy difference between measured and billed calorific value (CV).

The regulations outline that the daily CV average for a given charging area is calculated by summing the product of the CV and volume for all supply inputs and dividing by the total volume of gas entering the charging area.

The maximum daily CV average for a charging area permitted by the regulations is equal to 1.0 MJ/m³ above the lowest measured daily CV of the supply inputs into that charging area. This means if for any given day an input into a charging area has a CV outside of this range, a capped CV (lowest CV + 1MJ/m³) will be applied to the whole region for billing purposes. This is to protect customers who may live near this supply of lower quality of gas and prevent overpayment for the gas they are receiving. Correla manages the billing CV process on behalf of the distribution networks.

To calculate CVS, NGT deduct the value that is used to bill downstream shippers based on the principles detailed above, from what was measured leaving the NTS by Ofgem approved equipment. Corella releases these values daily, following the closure of the gas day at D+5.
CVS occurs every day for all charging areas with more than one supply input into the region- this usually equates to small quantities if capping hasn't occurred and is a result of the charging area CV being rounded to one decimal place following its calculation. With CV capping being the major contributing factor to CVS, UNC Offtake Arrangement Document Section F 2.2 details that all parties cooperate with the view to avoid or minimise the amount of CVS each day.

With that in mind, if capping results from an NTS to LDZ offtake, NGT will investigate and where possible, work to minimise or prevent capping. This may involve providing guidance to the Distribution Network Operator (DNO) on adjusting flow patterns through the offtakes or exploring alternative solutions within the NTS to enhance gas blending. If CV capping is caused by a non-NTS connected asset, such as a biomethane site injecting gas into the LDZ, the DNOs may investigate the source.

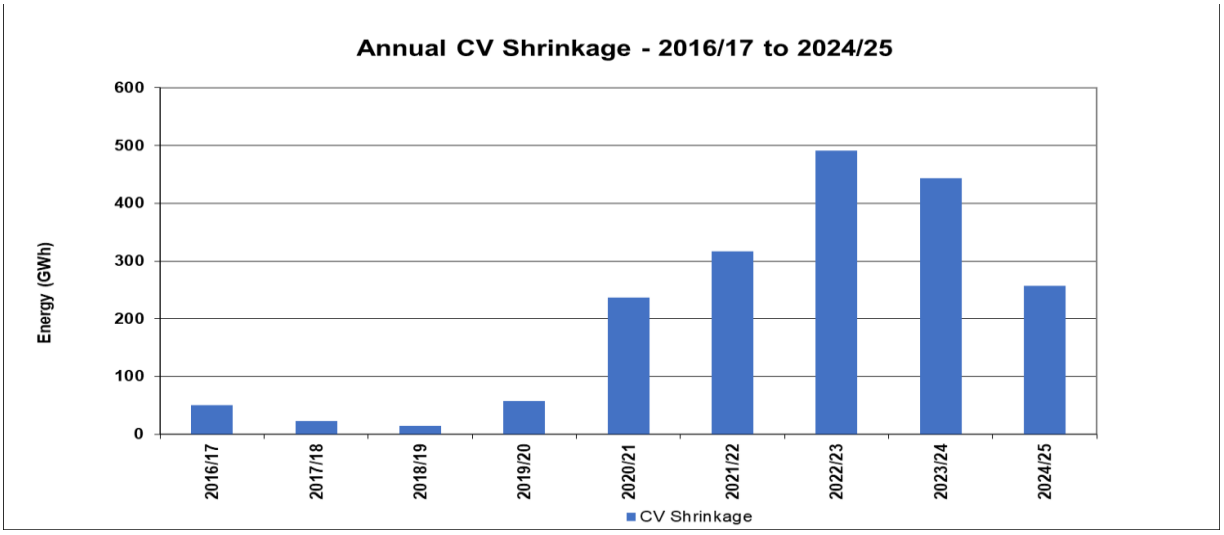

Figure 19 - Annual CV Shrinkage 2016/17 to 2024/25

Figure 19 above provides a view of CVS between 2016/17 and 2024/25. CVS in 2024/25 is 42% lower when compared to the previous year.

Figure 20 provides a monthly breakdown of CVS for 2024/25. This shows the proportion of CVS due to CV capping (detailed in blue) and the remainder of other CVS (in orange), which can be either positive or negative when not caused by CV capping. This is due to the rounding of the LDZ CVS to 1 decimal place, as previously mentioned.

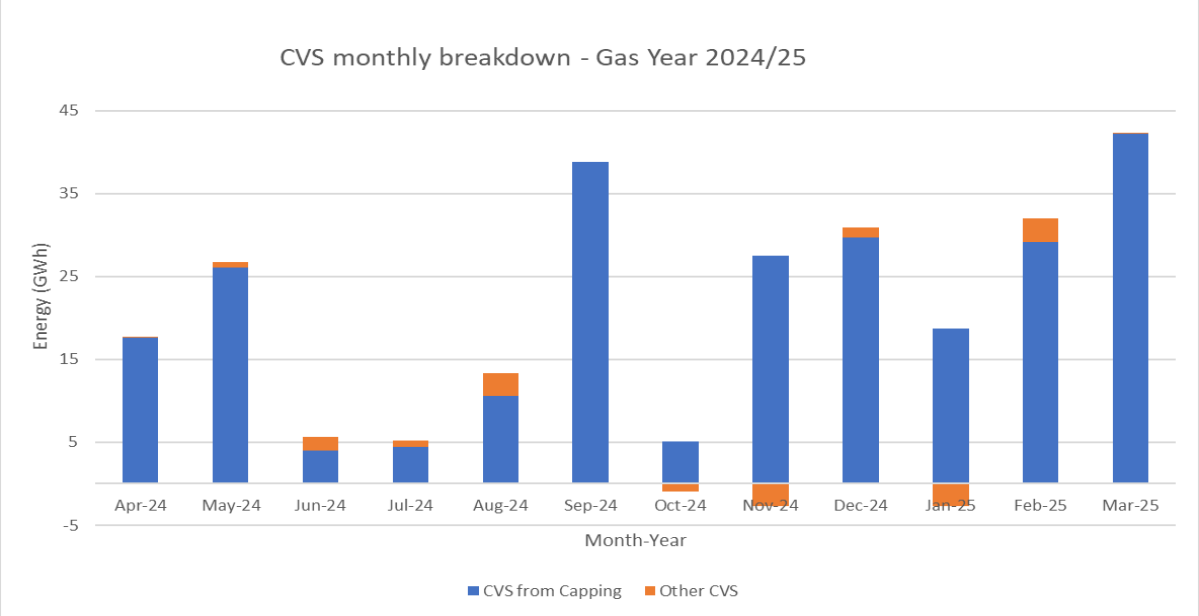

Figure 20 - CVS Monthly Breakdown 2024/25

Throughout the last twelve months, CV capping has equated to 253.92 GWh with capping occurring in 10 of the 13 LDZs (EA, EM, NE, NO, NT, NW, SC, SE, SW and WM). Higher volumes of capping have been witnessed throughout September and March, which occurred mainly in NO and NE LDZ due to multiple offtake site CVs being low for several days. The impact of this can be seen in Table 5 below.

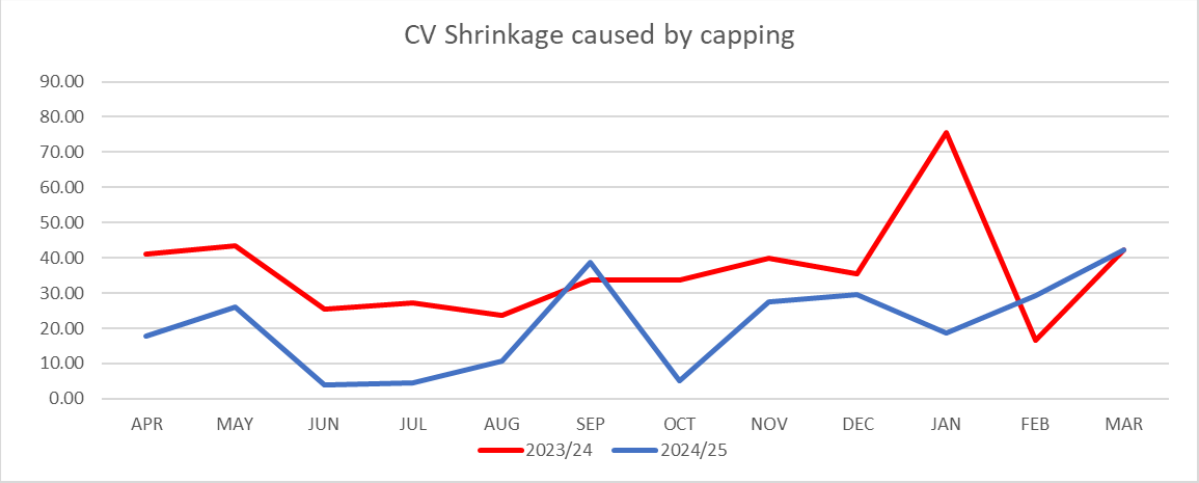

Figure 21 - CV Shrinkage caused by capping 2023/24 v 2024/25

Figure 21 illustrates that CVS due to capping in 2024/25 has generally remained lower than the previous year, except in September 2024 and February 2025.

CV capping from April to September 2024 had 182 instances of CV capping, whereas October 2024 to March 2025 witnessed 165 instances. Of those 165 instances throughout this winter period, 49% of total capped energy was identified in NE LDZ.

Month	CVS caused by Capping (GWh)													Total
	EA	EM	NE	NO	NT	NW	SC	SE	SO	SW	WM	WN	WS	
Apr-24	0.00	0.00	5.37	0.71	2.67	6.08	0.00	0.00	0.00	0.35	2.47	0.00	0.00	17.65
May-24	0.22	0.54	10.53	11.23	0.19	0.00	2.47	0.00	0.00	0.11	0.76	0.00	0.00	26.06
Jun-24	0.00	0.00	2.64	0.27	0.00	0.00	0.31	0.00	0.00	0.45	0.36	0.00	0.00	4.04
Jul-24	0.00	0.00	0.62	2.65	0.00	0.00	0.45	0.00	0.00	0.00	0.68	0.00	0.00	4.40
Aug-24	0.00	0.00	0.63	7.62	0.00	1.15	0.00	0.00	0.00	1.21	0.00	0.00	0.00	10.61
Sep-24	0.00	0.00	3.75	29.03	0.00	6.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.85
Oct-24	0.00	0.00	3.41	1.26	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	5.07
Nov-24	0.00	0.00	6.45	14.56	0.00	0.00	2.64	2.42	0.00	0.00	1.39	0.00	0.00	27.46
Dec-24	0.00	0.00	11.55	17.02	0.00	0.00	0.44	0.00	0.00	0.00	0.71	0.00	0.00	29.72
Jan-25	0.00	0.00	13.27	1.66	0.00	0.00	3.76	0.00	0.00	0.00	0.00	0.00	0.00	18.68
Feb-25	0.58	0.42	20.85	0.00	0.00	0.00	7.35	0.00	0.00	0.00	0.00	0.00	0.00	29.20
Mar-25	0.00	11.65	19.40	0.25	0.00	8.00	0.00	0.00	0.00	2.89	0.00	0.00	0.00	42.18
Summer 23/24	5.56	17.99	111.09	19.83	2.93	2.58	4.35	0.20	0.46	13.57	14.32	0.00	1.49	194.38
Winter 23/24	16.33	1.26	112.22	29.15	0.45	55.33	5.52	0.00	0.00	2.34	20.99	0.00	0.00	243.60
Summer 24/25	0.22	0.54	23.54	51.50	2.86	13.30	3.24	0.00	0.00	2.12	4.27	0.00	0.00	101.60
Winter 24/25	0.58	12.07	74.93	34.75	0.00	8.00	14.59	2.42	0.00	2.89	2.10	0.00	0.00	152.32

Table 5: CVS caused by capping (GWh)

Table 5 indicates that CVS due to capping over the past 12 months has predominantly occurred in the NE and NO LDZs, amounting to 185 GWh.

When comparing CVS caused by capping to the same months in the previous year, CVS in the NE has decreased by 56%, while in NO, it has increased by 76%, accounting for 73% of the total CVS attributed to capping.

Capping in NO and NE LDZ is mainly due to greater supplies of gas entering the region from the Teesside (NE and NO), Easington (NE) and St Fergus (NO) terminals. The gas entering the network at Teesside is typically a higher CV, whereas Easington typically has a lower CV. Due to the location of Paull offtake, which supplies gas directly from Easington into the NE LDZ, blending with lower CV gas is not feasible due to network configuration. Consequently, other offtakes delivering into the NE LDZ (receiving gas from Teesside and St Fergus terminals with typically higher CVs) create a disparity in CV levels, leading to CV capping.

Of the 119 days between April 24 and March 25 when capping occurred in the NO LDZ, 17 days were due to bio-methane sites using an attributed CV, which received a lower CV compared to the other NO offtakes. Of the 165 days between April 24 and March 25 in the NE LDZ, 160 were due to Paull offtake receiving a lower CV than the other NE offtakes.

Capping has also been attributed to biomethane site CVs within the LDZs. Additionally, CV capping was observed in the NW, WM, SC and EM LDZ's, driven by a combination of biomethane sites and NTS to LDZ offtakes in those regions, including Forty Foot, Bransands and Fernbrook biomethane facilities and Lupton and Ross WM offtakes.

Conclusion

In conclusion, the total assessed pre-reconciled UAG quantities for the 1st October 2024 to 31st March 2025 is lower than the previous six months (1st April to 30th September 2025), which does not align to historical seasonal trends. During the most recent winter period, UAG values reached their lowest levels in five years, primarily due to a higher occurrence of negative days, resulting in a netting off effect.

Using data visualisation tools and analytical, investigative projects, NGT continues to improve it's understanding into the causes of UAG.

CV Shrinkage trended lower in 2024/25 than the previous year. CV Capping has also occurred less frequently during this winter period, when compared to the same months in the last formula year.

Continuing support from meter owners has enable NGT to obtain and review meter validation reports for NTS entry and exit facilities. This data is used to support the identification of UAG causes, enhance NGT's ability to detect meter errors, and inform the preparation of future meter witnessing programmes.

Appendix I
National Gas Plc (NTS) Gas Transporter Licence Special Condition Part J 5.6

Part J: Requirement to undertake work to investigate the causes of UAG and CVS

5.6.53 The licensee must use reasonable endeavours to undertake UAG Projects and compile a CVS Statement for the purposes of investigating the causes of UAG and CVS for each Regulatory Year.

5.6.54 The licensee must, unless the Authority otherwise directs, publish the UAGCVS Reports and provide a copy to the Authority by 1 May and 1 November in each Regulatory Year for the preceding six-month period ending on 31 March and 30 September respectively.

5.6.55 The licensee must outline in the UAGCVS Report:
(a) the UAG Projects the licensee has undertaken in the previous period
(b) the UAG Projects the licensee proposes to undertake in the next period and its views on whether, and if so how, the findings of the UAG Projects may be taken forward in order to reduce the volume of UAG
(c) the reasons why any UAG Projects that the licensee proposed to undertake have not been undertaken during the Regulatory Year
(d) a CVS Statement outlining the work conducted during the previous period to investigate CVS, and explaining the licensee's understanding of the causes of CVS; (e) any additional activities and inspections undertaken by the licensee to improve metering calibration and accuracy
(f) a summary of any relevant discussions concerning UAG or CVS at industry fora and with interested parties on a one-to-one basis; and
(g) any data or information related to UAG or CVS that the Authority may reasonably request.

5.6.56 During the period of 28 days beginning with the date of publication of a UAGCVS Report the licensee must, unless the Authority otherwise consents, publish on its website all the relevant data referred to in the UAGCVS Report.

Interpretation and definitions UAG
is unaccounted for gas and means the amount of gas (GWh) that remains unaccounted for after the Entry Close-out Date following the assessment of NTS Shrinkage performed in accordance with the Uniform Network Code. **UAG Projects** means the projects currently undertaken by the licensee including:

(a) the witnessing by the licensee of the validation of Measurement Equipment at NTS System Entry Points or Supply Meter Installations at NTS Exit Points; and

(b) investigation and analysis of data in order to seek to identify causes of UAG.

UAGCVS Report
means a report required under Part J of Special Condition 5.6 (System operator external incentives, revenues and costs).

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