UNC0621A

Storengy UK draft for the Workgroup Report

1- Context

Storengy UK has tabled modification UNC0621A as an alternative to the modification proposal UNC0621 "Amendments to Gas Transmission Charging Regime".

The package of proposals laid out in UNC0621 will result in market impacts for a number of participants, not least storage users since these assets runs on margins (or time spreads) rather than on the outright price of gas.

The objective of UNC0621A is to mitigate the negative side-effects on the market (and consumers) that will result from UNC0621 This paper explains why UNC0621A will facilitate a better market outcome, to the benefit of all consumers, when compared to UNC0621.

2- Section 6: Security of Supply (SoS) and NBP Impact

a) Impact on the SoS and on required network investment to pass N-1 test

National Grid modelled the closure of storage facilities in its 2017 edition of the Future Energy Scenarios[1]. It concluded that if daily storage supply capability were reduced by half (compared to a base case with Rough), "the margin of supply over demand declines to the point where new capacity would be needed by the early 2020s" in two of their four scenarios, "*Steady State*" and "*Slow Progression*".

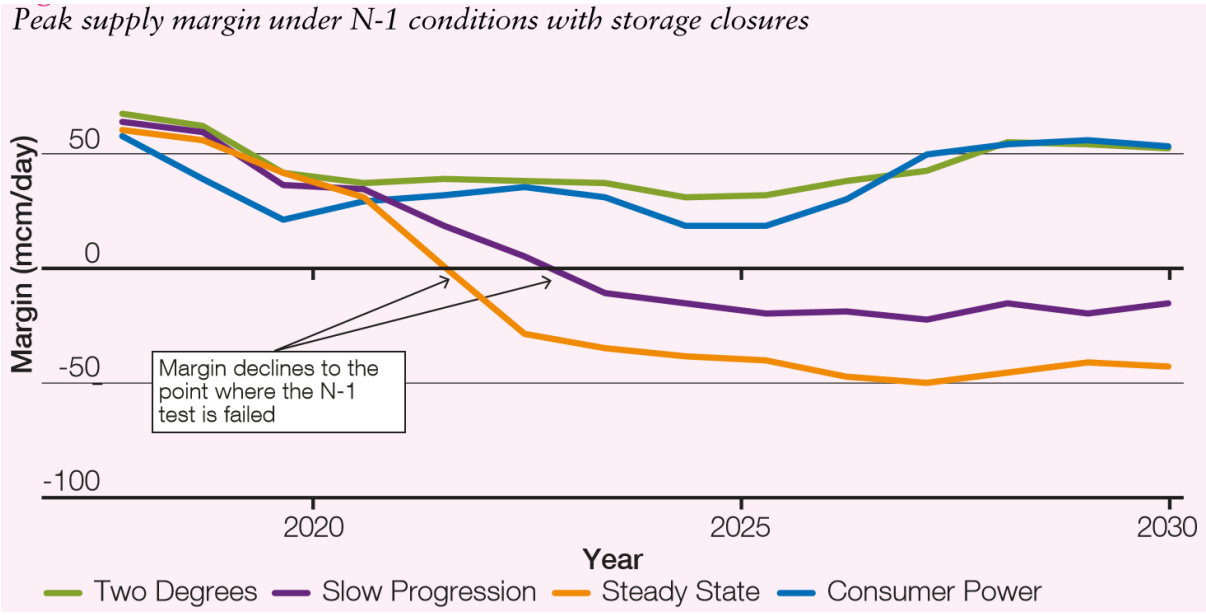

Figure 1: peak supply margin under N-1 conditions – Source National Grid

[1] Future Energy Scenarios July 2017

As the current UNC0621 proposal is set to increase annual costs for storage users by several millions pounds, the added burden will not only deter projects from moving forward, but will also put existing storage assets at risk of mothballing or closure, making failure of the N-1 test increasingly probable.

The cost of developing additional NTS Entry capacity is estimated using the Notice of Revised NTS Entry Capacity QSEC Reserve and Step Prices. The **cost of adding an incremental 200 GWh/d** (equivalent to 18 mcm/d) **of NTS Entry Capacity** to satisfy the N-1 test is in a range between £10m to £400m, with **an average at £125m**.

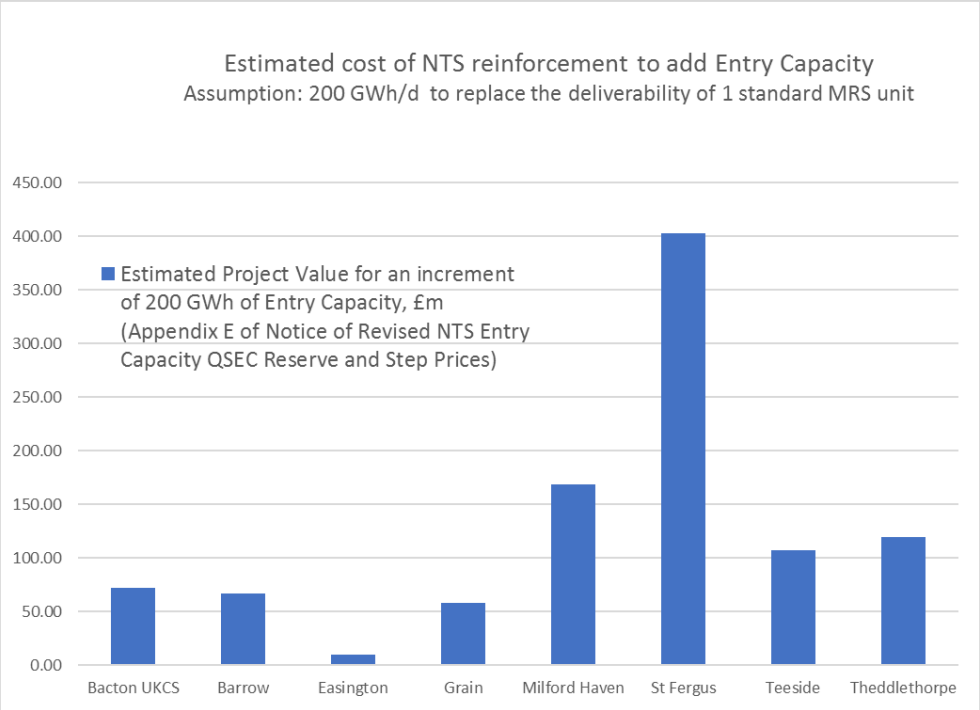

Figure 2: Estimated Project Value for 200 GWh of incremental Entry Capacity – Source Storengy UK based on National Grid figures

The cost of replacing MRS storage with new import capacity would far exceed the value of the 86% discount proposed for storage in UNC0621A. Based on simulations run using Transmission Services Model (v2.2), in the interim period the "Revenue from anticipated Capacity Booked" at storage points would only reduce by £1.6m on the exit side compared to the 50% discount proposed in UNC0621. On the entry side, no loss of revenue would occur because of the long term bookings already in place at storage points.

By reducing the cost burden added to gas storage compared to the UNC0621 proposal, UNC0621A reduces the probability of requiring NTS investment to replace storage deliverability with new entry capacity that would cost several tens of millions of pounds.

b) Impact on SoS caused by the MRS lower ability to refill

The higher variable fees (NTS costs for injection and withdrawal of gas) incurred by storage users proposed in UNC0621 will limit their ability to capture short-term volatility in prices, which importantly

are highly correlated with demand variations. Based on the model simulations provided by the Proposer of UNC0621, NTS entry costs for storage with a 50% discount would be around 0.15 p/th in the interim period, rising to around 0.50p/th from GY21/22. Additionally, the costs of Exit Capacity would jump from virtually zero, as storage users typically rely on off-peak capacity, to 0.20 – 0.35 p/th (assuming booking of interruptible capacity depending on site), which would **bring the cost of cycling** (injecting and withdrawing) gas **on the NTS to 0.80 p/th**, on top of the operators' own variable costs.

MRS re-injection during the winter is triggered by very small spreads across varying time periods. If storage variable costs for cycling the gas were to include NTS fees at this level, the refilling of storage space over the periods of lower demand during the winter will become uneconomic. The fast-cycle storage assets may still be physically present, but their stock will have been used only once in the winter, prevented by punitive charging from re-stocking and thus unable to contribute as expected to late winter cold snaps.

On figure 3, we can observe the multiple refills of the Stublach storage, which allowed the stock position to be re-built by more than 60 mcm (orange arrow) before each cold spell.

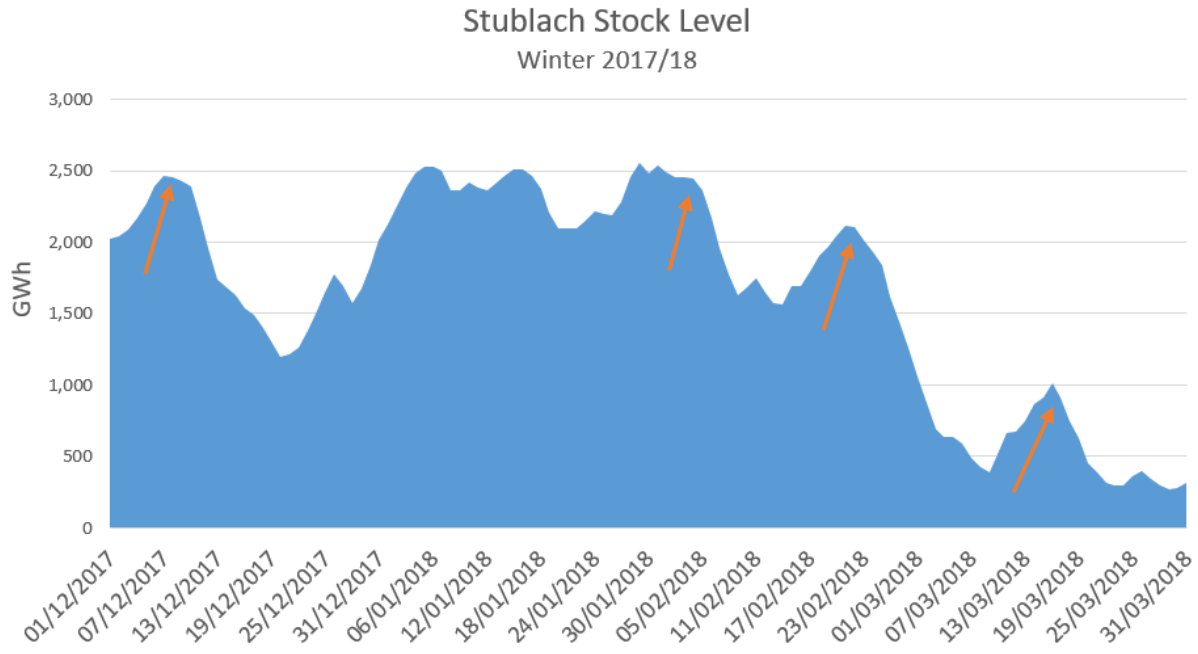

Figure 3: Stock of Stublach Gas Storage between 1st December 2017 and 31st March 2018 – Source Storengy UK

In addition to Entry capacity required to compensate for the possible loss of storage capacity (as seen above), it can be expected that new Entry Capacity would be required to make up for the reduced ability of MRS to refill in winter – and thus to deliver gas during the later cold spells of the winter flow gas in the event that UNC0621 was implemented. The alternative UNC0621A aims to preserve the ability of storage to perform its grid balancing function.

c) Impact on the volatility and price level at the NBP

The UNC0621 will change the dynamics of access to the NBP for flexibility. The NBP is in competition with other European markets for LNG imports. Over the summer when LNG is relatively more abundant, the LNG market seeks the cost effective access to storage capacity. GB must ensure that the charging regime does not favour continental storage over local flexibility from UK assets. NBP liquidity and access to local storage flexibility is essential for security of supply, both in terms of physical resilience and price volatility.

There must be a level playing field in the flexibility market, especially with countries competing with GB for LNG in summer: according to ENTSOG[2] current storage discounts applied in Spain are 100% and in France 85%, on average.

If GB charging results in storage being uncompetitive compared to storage on the continent, there is a risk that the LNG imports into Europe at times of lower demand (e.g. in Summer) bypass GB to head directly to continental hubs with better storage conditions. The NTS would become more dependent on just-in-time deliveries of gas and expose it to the vagaries of continental gas pricing; gas security protectionist measures; and the physical reliability of connecting infrastructure.. UNC0621A is more consistent with the level of storage discount offered on other LNG importing hubs.

In order to meet the higher capacity charges introduced by UNC0621, market prices will have to increase to higher extremes to allow the use of UK storage, this is likely to cause higher volatility and higher price time-spreads, and potentially higher costs to GB consumers as energy companies seek to compensate for the uncertainty. UNC0621A addresses that issue by reducing the cost of accessing the flexibility required to dampen price volatility.

3- Section 6: Unintended Consequences

a) Impact on gas balancing costs

As National Grid state in their 2018 Summer Outlook[3], medium range storage "*provides a valuable balancing option to the market close to real time*".

In practice, this option is valuable if price signals correctly incentivise market participants to balance the network efficiently.

Since 2011, the Default System Marginal Price (SMP) reflects the cost of linepack flexibility, considered to be a function of NTS compressors and pipeline space. The Default SMP for the gas year 2017/18 was set at 0.0452 p/kWh (1.32 p/th), which provides an incentive for network users to balance the grid without intervention of the TSO. This cost is regularly updated and has been higher than the short-term marginal cost of balancing using gas storages.

[2] TAR NC Implementation Document – Second Edition September 2017
[3] National Grid 2018 Summer Outlook

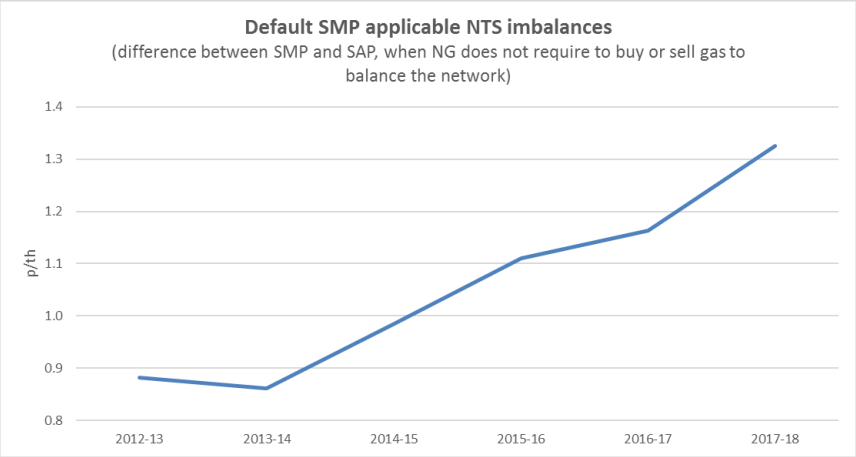

Figure 1: Default SMP the since GY2012 – Source National Grid MIPI Data

In a market based balancing regime, shippers balance their position to avoid exposure to the System Marginal Price. To achieve a balanced system, they rely on short-term flexible gas:

- using gas storage assets, and/or
- anticipating or deferring some imports or local production, and/or
- by adjusting demand.

Total marginal costs for these operations must be lower than SMP if the marginal price is to give any incentive to balance. As argued by National Grid in the final Modification Proposal[4] for the UNC0333A back in 2011, "*Reducing this incentive (to balance) will lead to greater industry costs through imbalance charges and residual balancing actions*". To ensure this incentive remains, **the market must be given the means to provide flexibility to the grid at a lower cost than the linepack flexibility of the network**.

We also note that linepack flexibility does not attract capacity charging. **As UNC0621 would make flexible gas less competitive compared to linepack**, new arrangements could result in increased linepack requirements. This would mean more compressors and pipeline space must be added to the NTS in order to compensate for the reduction in the flexibility of flexible assets that have been pushed out of the competitive flexibility market.

If the short-term marginal cost of storage flows is significantly increased, because of UNC0621, the incentive for the competitive market to balance the grid will reduce. This will have negative consequences on the balancing costs, which are charged to gas shippers and passed on to consumers. UNC0621A mitigates the impact of UNC0621 as short-term marginal costs to balance the network would be lower for storage, closer to the existing level.

b) Impact on the availability of flexible gas and on the operation of the NTS

4 https://www.gasgovernance.co.uk/sites/default/files/ggf/Final%20Modification%20Report%200333%200333A%20including%20formal%20text%20v3.0.pdf

The National Grid Future Energy Scenarios[5] 2017 suggest, "*the reduction in the availability of flexible supply would also increase the complexity of operating the NTS*".

The re-shuffle of short-term marginal costs will affect the availability of flexible gas. This is particularly true of changes resulting from UNC0621: lower discounts for short-term capacity combined with a larger share of the revenue eventually recovered through capacity rather than commodity charges. Any short-term decision not to flow after having bought the capacity will need to account for the relatively higher sunk cost of stranded capacity. This is in contrast with the current regime where the main cost driver (commodity) must be paid only after an actual flow. In turn, **greater inflexibility of gas flows linked to short-term capacity bookings** could make flexible gas **much less reactive to price movements (see above)**.

As seen in the above, the Default SMP is at risk of becoming the next most competitive source of balancing for participants, when short-term import flexibility (imported gas from UKCS, NCS, LNG…) is exhausted or does not respond, particularly in winter. Market participants may adopt a wait-and-see approach to balancing during the day, adjusting their position through storage (including booking the daily NTS capacity) late in the day only if and when it becomes clear (through observed linepack depletion, price spikes on the OCM), that the cost of cash-out may be higher than the Default SMP.

UNC0621A corrects some of the negative impact introduced by UNC0621 caused by the change from a pay-as-flowed to a pay-as-booked-in-advance. Gas Storage users re-nominate multiple times within-day to balance the network. Lower costs applied to storage compared to UNC0621 will allow a better response of flexible gas to short-term market signals.

c) Impact on the volatility and price level of the electricity market

Given the very large share of gas in the electricity mix, the impact on the volatility and price level of gas will feed into the power prices. Furthermore, as coal is being phased out and renewable production grows, gas is expected to provide increased flexibility to the electricity market.

[5] Future Energy Scenarios July 2017

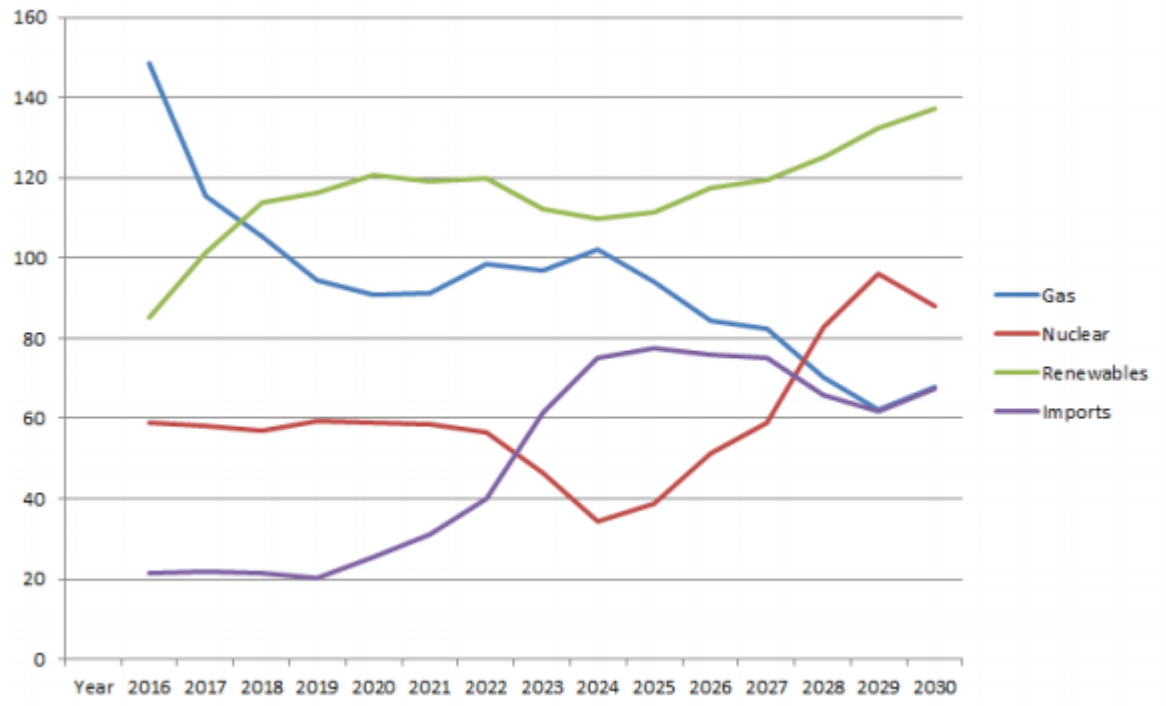

Figure 5: Projection of electricity generation by source (2016 estimates) – Source BEIS

The increase in volatility and reduced liquidity which would be caused byUNC0621, may in turn affect electricity price volatility and price level. The impact would be lower with UNC0621A, which helps mitigate the impact of the new charging regime on gas balancing.