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SUBJECT: Draft Mod 621 (alternate) insertion

Specific Capacity Discounts

Background

Article 9 of the EU TAR requires that a minimum discount of 50% must be applied to capacity-based transmission tariffs aimed at storage utilisation (for entry and exit). The minimum discount has been set to avoid double charging for transmission to and from storage facilities, recognising that gas which is cycled through a storage facility will pick up separate capacity charges as it first enters the network, and later is offtaken by customers (or connected systems).

Furthermore, the EU TAR allows for the establishment of an alternative and greater discount, which reflects the general contribution to system flexibility and security of supply of such infrastructure.

On this basis, the proposer believes that the minimum discount does not properly account for the additional contributions made by storage which ultimately benefit system Users and customers.

In addition to the minimum capacity discount, Mod 621 proposes that all flows to and from storage will be excluded from the application of commodity charges. This is consistent with Ofgem's recommendation set out in its GTCR Confirmation of Policy Letter, where it states:

“Gas storage users don't pay the commodity charge. Storage gas circles around the system. It enters the NTS and exits to reach the storage facility; and then enters and exits the system again to meet demand. This means that gas going into storage has already paid an entry commodity charge, and will pay an exit commodity charge when it ultimately exits the system to meet demand. Storage gas has therefore made its contribution to historical cost recovery.”

The Ofgem position echoes with the application of the minimum capacity discount inasmuch as it avoids double charging. On this basis, it is evident that a package comprised of a minimum capacity discount of 50% and an exemption from commodity charges is the maximum charge which could be reasonably levied on storage flows – in terms of compliance with the EU Tariff Code and Ofgem's GTCR conclusions. Although it could be argued that double charging would only be truly eradicated by the removal of all charges at storage point, certainly there is no evidence to suggest that the package in any way reflects the additional contributions made by storage, as allowed for in the EU TAR.

GSOG and Storengy position papers

GSOG and Storengy each submitted papers to the July NTS CMF setting out arguments as to why the discount afforded to storage should exceed 50%. In short, the papers examined the impacts of the minimum level of discount and identified numerous wider system and customer benefits which must be considered in the derivation of a suitable discount. The papers reinforced that storage is a “special case”, worthy of attracting a substantial discount to standard transportation charges. In particular, it was observed that storage is unlike any other system point for the following reasons:

- It is embedded in the network, close to demand offtakes;
- It is bi-directional and gas flows directly into and out of the network and remains “in store” and arguably “in the system” until such time as it is withdrawn.
- It responds to system demand (flow patterns exhibit almost perfect positive correlations with demand changes);
- It responds to price signals specific to the GB gas market; time-shifting over various time horizons. This singular dynamic is unique to storage. Other system points will react to any number of variables, most obviously being: prices of substitutes; prices in alternative non-UK gas markets; cost of complimentary fuels/outputs; ability to deliver gas to the market in short time scales; and general cost efficiencies in extraction of the commodity, operation of an asset, transportation routes (outside of the NTS), and interruption of demand etc....

Building on these unique properties, the papers constructed a number of key benefits, or contributions, which could be reasonably directed at storage. In summary, they were as follows:

- Avoided additional investment in the network infrastructure (range between £40m to £140m pa). It is worth noting that National Grid FES 2017 reinforces the importance of storage to the network, stating that in the event that storage capacity is reduced by 50%, under two of the modelled demand scenarios further development of the NTS would be required to satisfy the N-1 security of supply measure.
- Significant contribution to security of supply, both physical and price security, providing a net societal benefit (a positive externality resulting from the operation of storage) (not quantified precisely, but for each incremental 1% of societal benefit would translate to approx. £224m pa);
- Cost effective access to flexibility, cheaper than the prescribed default System Cash-Out price (not quantified)
- Reduction in price volatility (not quantified, but a 1% reduction in balancing costs would translate to approx. £122m pa)

Storengy calculated that if the tariff discount were to be increased to 100%, based on forward bookings and outputs from the CWD model, an additional £8m would need to be recovered from other charges.

Deriving a discount to be applied at storage

Both Storengy and GSOG recommended that, in light of the significant benefits generated by storage, the Article 9 discount should be close to, or at 100%.

The derivation of a level of discount which properly reflects the benefits, or contributions made by storage is a difficult task, particularly within the confines of the transmission charging regime and the associated CWD model. Almost certainly, any estimate of the wider, aggregate contribution made by storage which can be classified as benefiting the system in terms of infrastructure, flexibility and security of supply, will, in the proposer’s opinion result in a discount which is “at least” 100%.

With this in mind, the proposed discount is based on a conservative characterisation of the benefits case, building on the widely supported belief that storage confers a benefit to the transmission system through avoided investment. The independent studies cited in the GSOG paper contain similar observations, in particular that; *“Through storage being located close to demand and through smoothing peaks in demand, storage allows more efficient levels of investment in both network capacity and import/production capacity”*

It is the fact that storage is located close to demand which the proposer believes is key to the conclusions and it is this property which is used to derive a suitable discount.

Creation of a storage shorthaul discount

As set out previously, a package which combines a 50% discount on transmission capacity charges with an exemption from commodity charges is the absolute maximum charge which should be levied on storage to ensure compliance with the EU Tariff Code and Ofgem’s GTCR conclusions.

Storage points are unable to participate in any shorthaul arrangements (currently the Optional Commodity Charge) which the proposer deems to be unjust and non-cost reflective, resulting in overcharging at storage. Certainly, based on the assertion that the location of storage provides undervalued investment savings to the network, it is proposed that the charges imposed on storage should reflect the relative location of the storage points to nearby offtakes.

Section 2,5 of the GSOG report set out a methodology for calculating the level of overcharging at storage points. In simple terms, it compared the cost of transporting a volume of gas to an exit point(s) directly from non-storage entry points with the cost of transporting the same volume of gas to the same exit point(s) via storage (with a 50% discount applied). The difference between the costs was deemed to be amount of the “overcharge”. By extension, it is proposed that the removal of the overcharge, through the application of an increased storage discount, is a proxy for a storage shorthaul charge which improves cost reflectivity while incorporating an element of efficiency in overall network investment.

The analysis carried out in the GSOG report was limited to a single storage point (Cheshire). In order to calculate a universal level of discount, the proposer carried out the same analysis at all storage points (excluding Rough). The results are shown in table 1.

Table 1

Units		km	p/kwh/d	p/kwh/d	p/kwh/d/km	p/kwh/d/km
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Storage site	Offtake point	Average increase in distance travelled	Average increase in costs	Max increase in costs	Average increase in unit cost to transport gas	Max increase in unit cost to transport gas
Barton Stacey	Braishfield A	5%	53%	61%	47%	61%
	Mappowder	11%	52%	59%	40%	58%
Cheshire	Holmes Chapel	14%	50%	58%	32%	39%
	Warburton	4%	50%	58%	44%	56%
Garton	Saltend BPHP (BP Saltend HP)	20%	49%	57%	28%	40%
	Ganstead	15%	49%	57%	31%	45%
Hatfield Moor (storage)	Blyborough	12%	47%	56%	34%	56%
	Rawcliffe	10%	47%	55%	36%	55%
Hole House Farm	Holmes Chapel	8%	50%	58%	38%	46%
	Warburton	6%	49%	57%	42%	56%
Hornsea	Pickering	19%	47%	55%	31%	49%
	Ganstead	23%	49%	57%	26%	44%
Average over storage sites		12%	49%	57%	36%	50%

Based on this analysis, it is proposed that the level of transportation capacity discount provided for at storage points is 86%. This comprises the 50% minimum discount to remove double charging of flows and the addition of 36% discount to reflect the unit charge (p/kwh/d/km) for shorthauling the gas to a nearby offtake(s).

The proposer believes that this represents a conservative assessment of the benefits of storage, but nonetheless it provides an objective method for deriving a discount based on the fact that storage is embedded in the network, close to demand, delivering an unrealised benefit to the system and its Users. Based on the analysis carried out by Storengy for a 100% discount, the impact of the proposed discount on Users of the network would be minimal – approx. £8m p.a.