

IEA Brazil Gas Workshop 2019

Session 3: Grid Expansion

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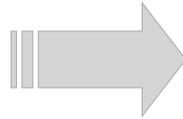
Why have Capacity?

There are 2 basic issues that lead to a capacity regime:

- Provides a mechanism for users to give TSOs a firm indication of where they wish to bring gas on to the NTS.
 - This user financial commitment helps National Grid to plan economic and efficient investment on the network.
- Gives users certainty around network access.

GB gas system operates a 'Ticket to Ride' system

Commercial right to flow



Capacity is a 'ticket to ride'

Flowing onto the network without 'a ticket' will incur a penal overrun charge.

No ticket!



What happens if a shipper flows gas at a point without buying capacity?

Shippers will be liable for punitive overrun charges

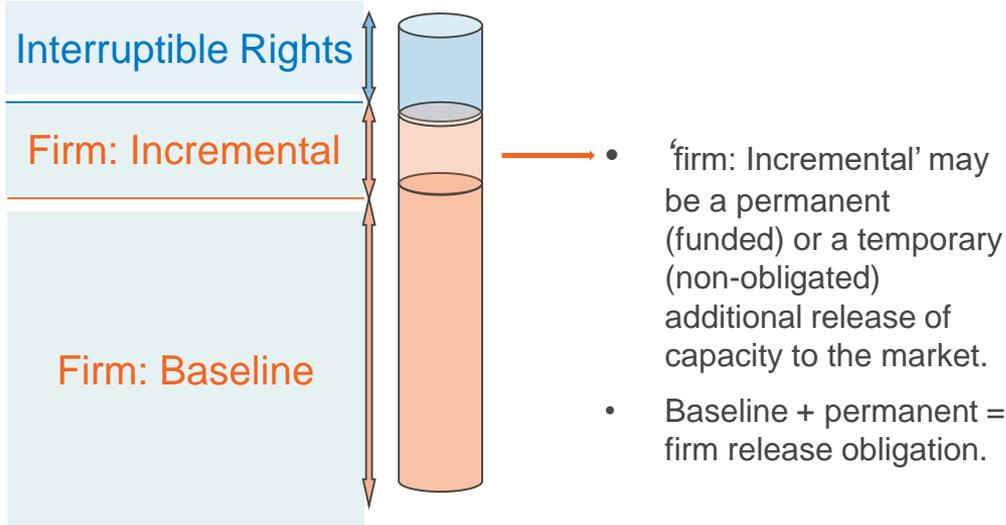
Under the daily 'overrun' regime the shippers are incentivised but not obliged to buy capacity

This means

- NG does not apply within day nomination/capacity validation i.e. shippers can start flowing gas before they buy capacity.
- After the day the shippers gas flow (allocation) is compared to their capacity entitlements.
- Any excess flow is charged a penalty (and feeds into the incentive).

Capacity Availability

What amount of capacity do we make available to Users?



Each point on the network has its own firm release obligation

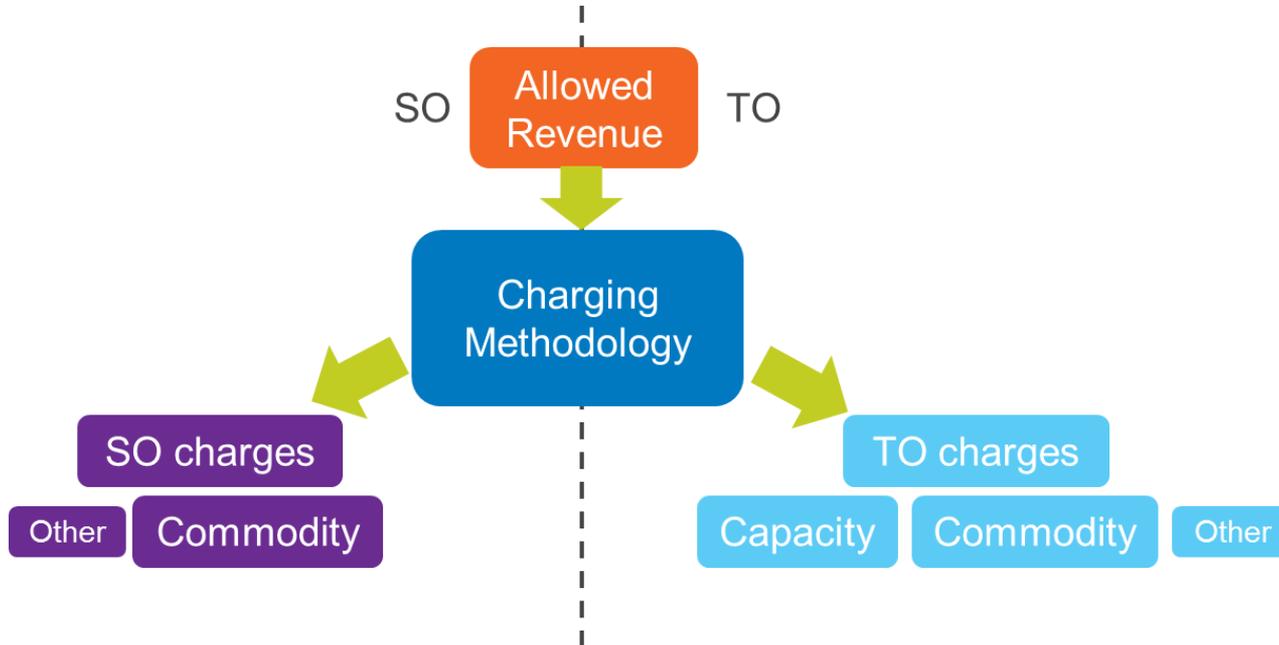
- **Baselines** are the amount of firm capacity National Grid must make available to the market at each point on the network.
- Capacity baselines are set in the Licence and are fixed.
- The baseline is approximately equal to the maximum gas flow NG can accept at the point under 1 in 20 peak demand.
- NG could not accept this gas flow under all conditions, for example:
 - lower capability over summer.
 - high concurrent flows at nearby points.

Allowed Revenue

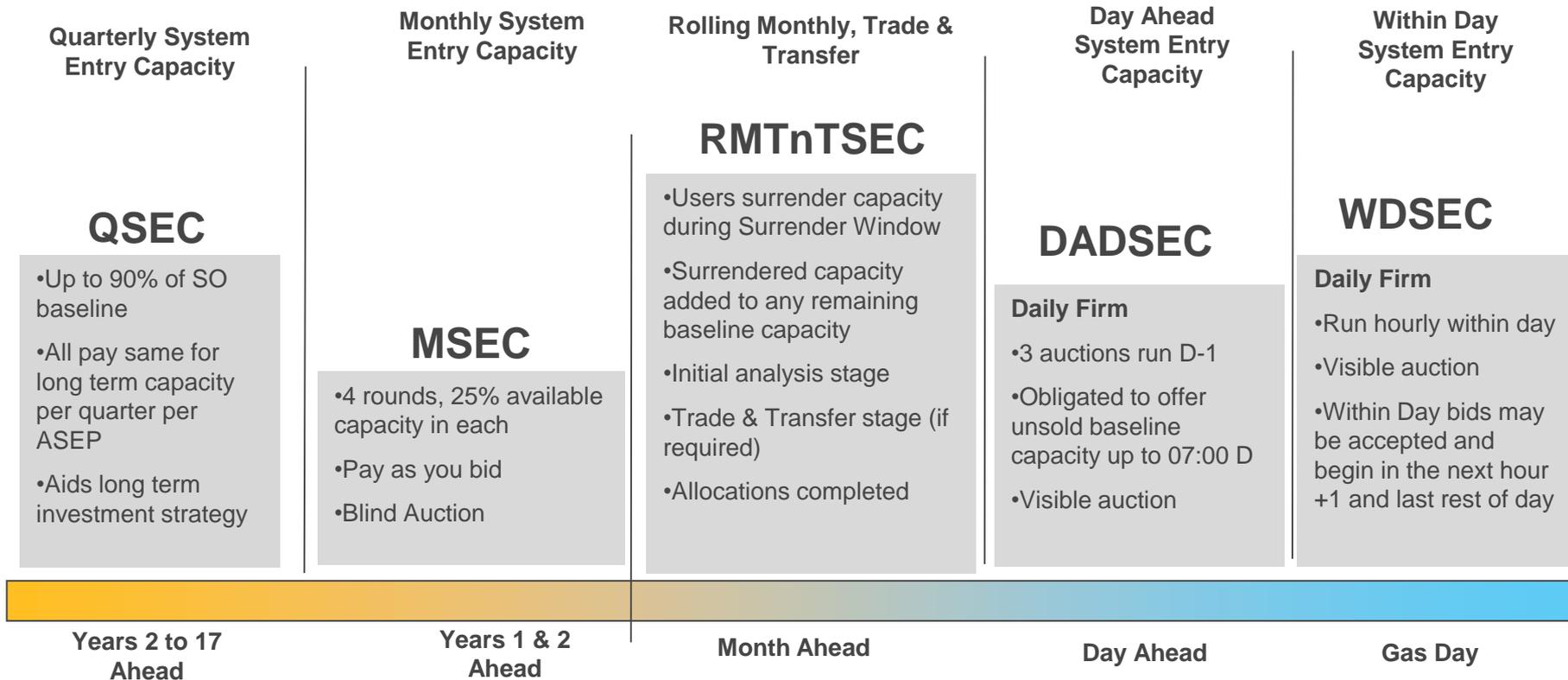
Allowed Revenue for each year is set by the Licence - in line with the price control arrangements. Current price control arrangements are referred to as RIIO T1

$$\text{Revenue} = \text{Incentives} + \text{Innovation} + \text{Outputs} + \text{base revenue}$$

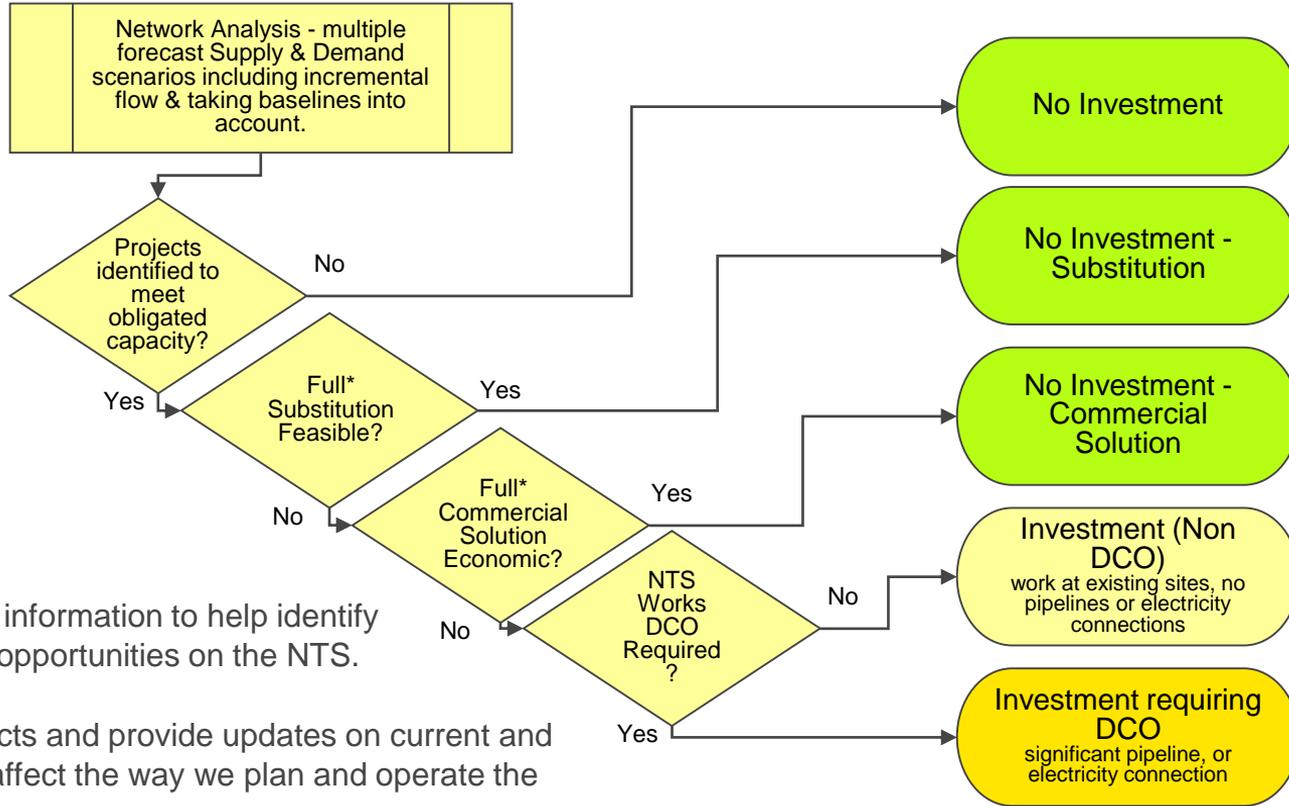
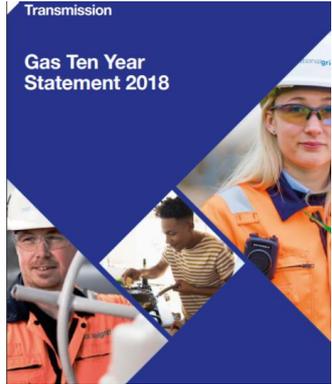
Licence has a maximum allowed revenue for Transmission Owner (TO) and System Operator (SO)



GB gas market investment signals (auctions)



The Capacity Planning Process



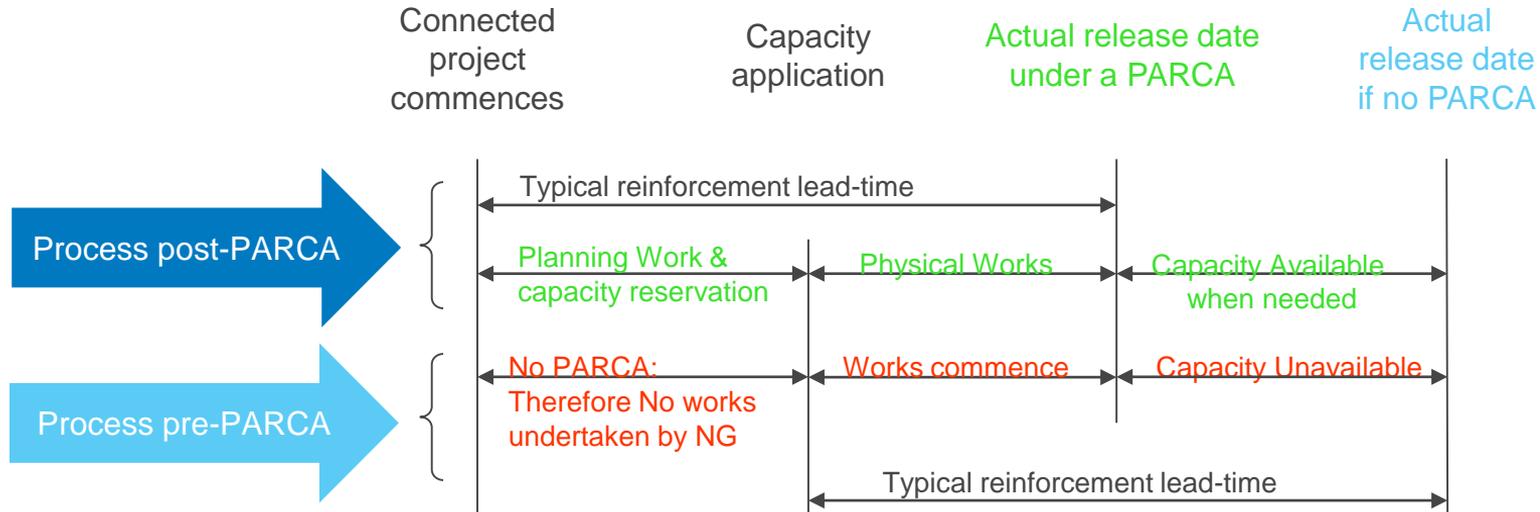
*PARCA – Planning & Advanced Reservation of Capacity Application

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PARCA * Essential

Publish GTYS to provide information to help identify connection and capacity opportunities on the NTS.

We summarise key projects and provide updates on current and future challenges which affect the way we plan and operate the NTS

A new method to request investment - Purpose & Benefit of PARCA



If NG needs to invest to release new incremental capacity in the network then it is done through a bilateral PARCA contract rather than through an auction.

PARCA Phases & Economic test



- An economic test is applied to market signals to determine if they justify investment to meet incremental demand for capacity.
- The principle is that the incremental revenue should cover at least 50% of the project cost associated with delivering the incremental capacity.

$$\frac{\text{Incremental Revenue}}{\text{Project Cost}} \geq 0.5$$

- This ensures that the party asking for the investment pays a reasonable and fair share of the network investment cost, and risk is not unduly socialised.

Regulatory Incentive – constraint management key outputs

Efficient investment and timely delivery

- Provides a cost allowance for constraint risk to balance against potential investment spend

Manage Constraints economically and efficiently

- Encourages NG to develop commercial strategies that deliver value to the end consumer

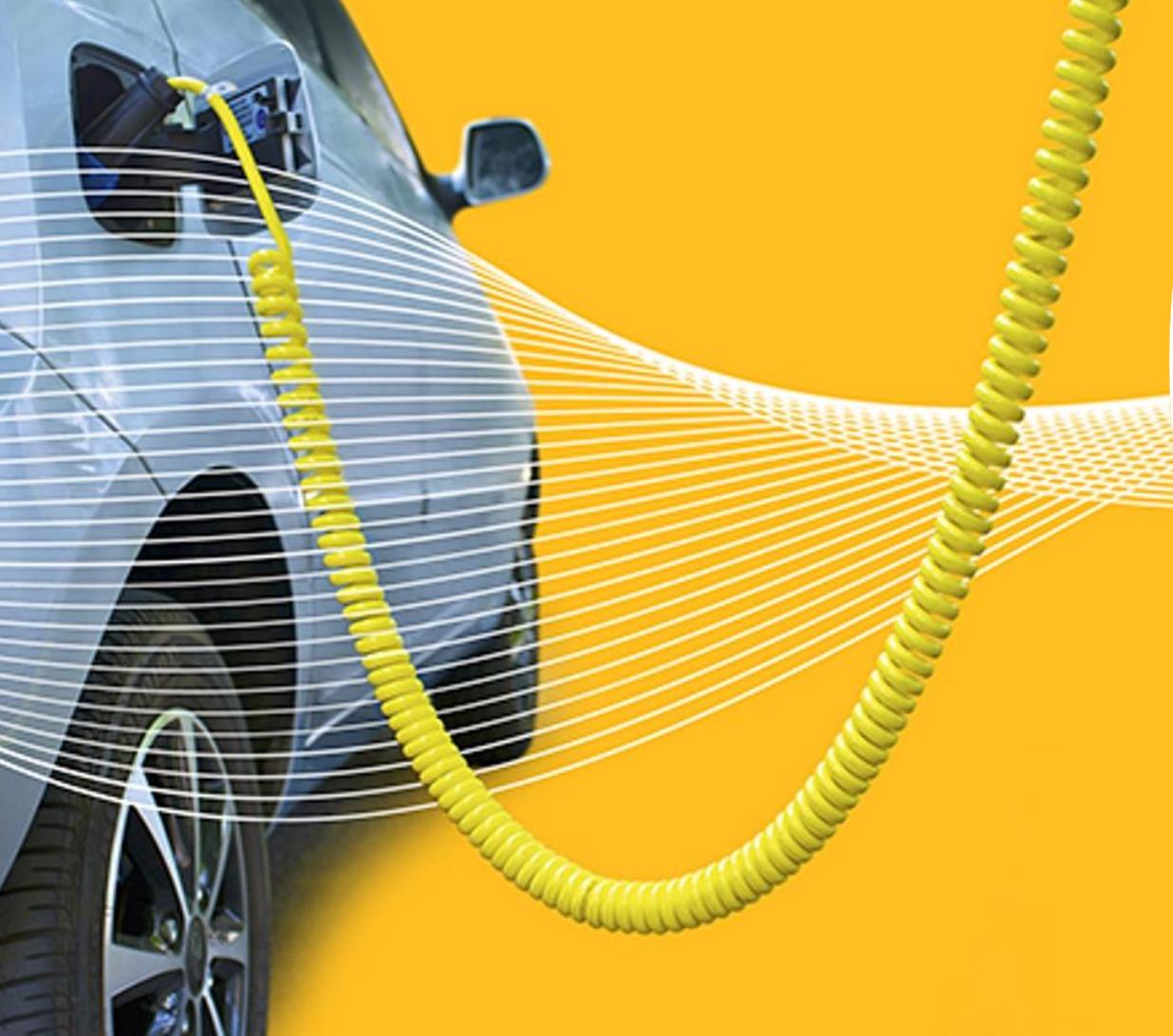
Maximise capacity availability and customer optionality

- Encourages release of capacity in response to customer demand for that capacity

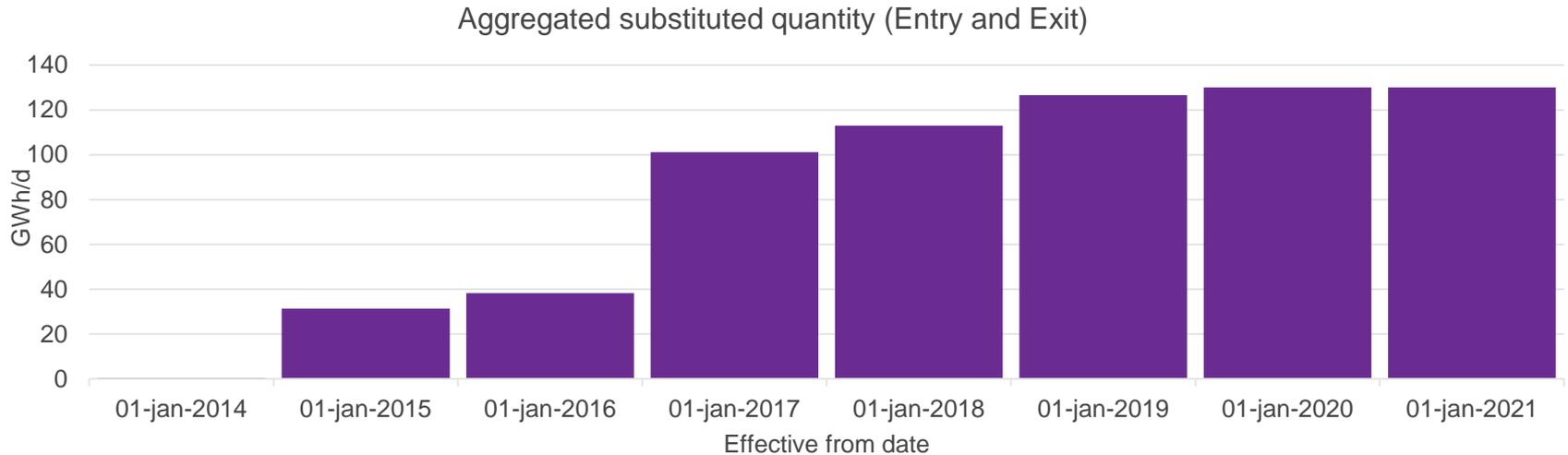
Minimise disruption

- Encourages innovative and dynamic planning of the network to maximise capability when and where it is needed by our customers.

Appendix



Levels of Capacity Substitution



- Within the RIIO T1 period we have received many requests and expressions of interest for incremental capacity.
- To date, within the RIIO T1 period, incremental capacity demand has been satisfied via substitution of capacity from other locations with zero spend on incremental triggered NTS investment to maximise use of existing assets.
- That position is changing. We are currently progressing PARCA applications for both Entry and Exit Capacity that can't be met through substitution.