Gas System Operator

Default System Marginal Price

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Issue explored

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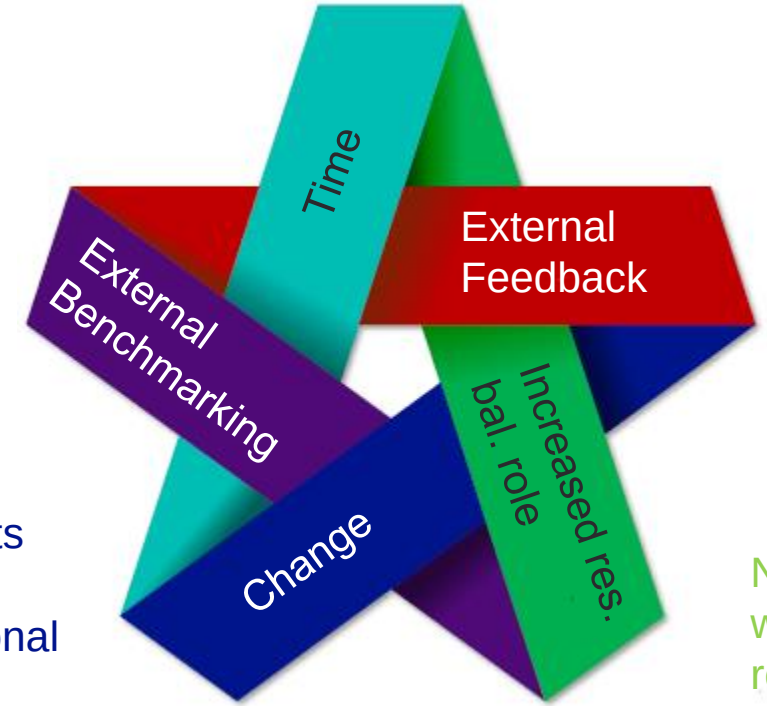
Why Review?

Arrangements implemented in 2011. Periodic review is appropriate.

Benchmarking & harmonisation with adjacent markets



Concern that current arrangements are not providing a sufficient enough incentive on shippers to balance.

Sense check arrangements against ongoing market/regulatory/operational change.

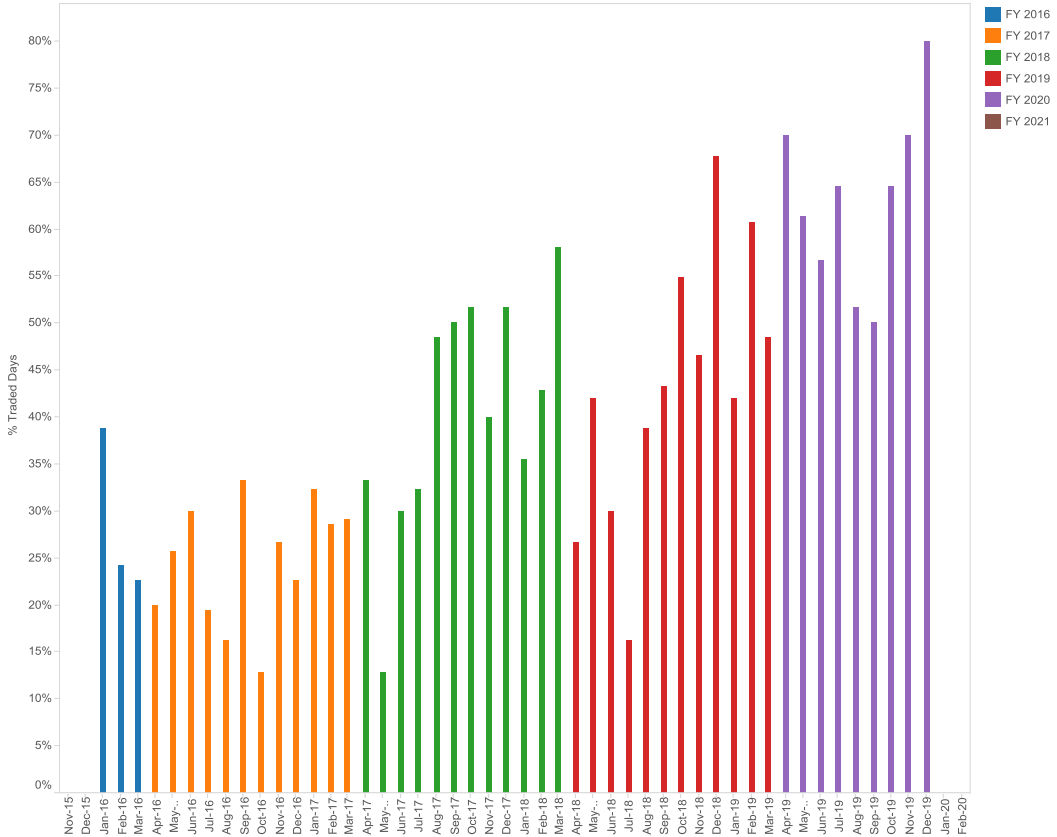
NG has entered the market with increasing frequency in recent years

External Feedback (recap)

The Industry view is mixed, however concerns raised via Ops Forum and bilaterals include:

- Increased frequency of National Grid trading as residual balancer;
- Shippers whose inputs and outputs are out of balance are not being held accountable;
- Default cash-out price isn't sufficient enough to drive commercial decisions;
- Small cash out prices are giving the perception that imbalances do not cause issues on the NTS.

Increased Residual Balancer Role (update + Dec)



Graph shows no. of days NG has entered the market over time.

Frequency has increased from ~ 1 in 3 days 4 years ago to ~ 2 in 3 days now.

Increased Residual Balancer Role – Possible Reasons

Possible drivers for change in frequency of NG balancing actions.

- **Aggregate shipper EoD projected imbalance.**
- **large within day system imbalance, action required even though EOD projection is acceptable.** This is a very rare occurrence.
- **Information being used for projected EoD balance.** Has always been a possible issue - no reason to conclude this is getting worse. We are looking at opportunities to improve this area, but are always reliant upon information industry gives us.
- **Operational requirement to increase/ decrease linepack stock.** NG may wish to move linepack in shoulder months, but this requirement has not changed over the years.
- **Change in balancing action triggers e.g. threshold to enter market.** We have always tried to minimise our impact upon the market in line with our balancing incentives.

Increased Residual Balancer Role - consequences

What are the impacts of increased system daily imbalances?

- Balancing principles being compromised - market should be balancing itself.

- If NG deals with the imbalance then there:
  - is effort/cost associated with that.
  - an impact upon the SMP default price.

- If the imbalance is not dealt with then there may be:
  - knock on operational impacts upon other gas days.
  - knock on financial impacts upon other gas days.

- Impact upon shipper neutrality flows (proportional to a shipper's throughput)
  - increase in size/frequency of cash flow associated with imbalance charges
  - increase in size/frequency of cash flow associated with NG balancing actions

Time & Change - history

- **The last review was in 2011. The intent of the revised methodology (following review group 0291) was '***Updating the default SMPs with a number based on the operational costs incurred by National Grid NTS when managing a system imbalance***'.**
- **The final proposal was a mixture of National Grid general 'operational' costs (compressor cost element) ~10-20% and National Grid 'infrastructure' costs (capacity element) ~80-90%.**

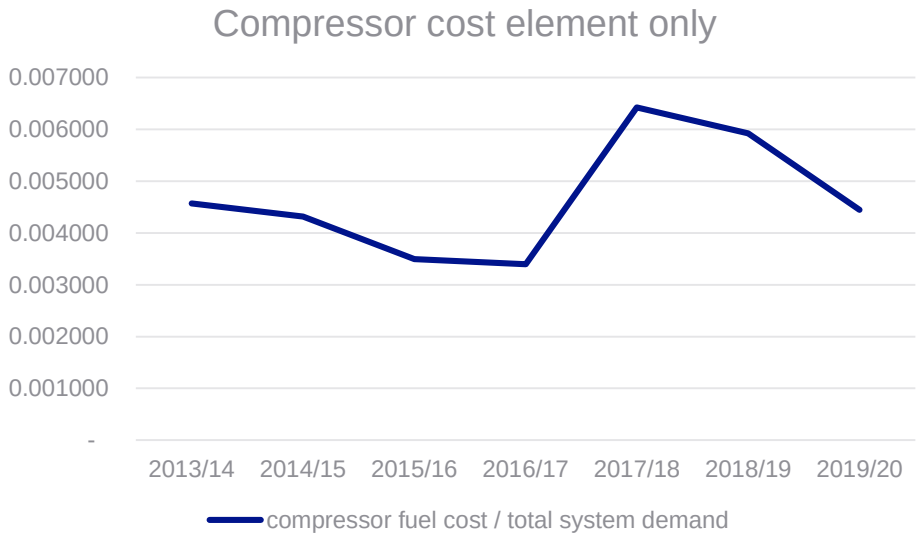
$$\text{Default System Marginal Price (pence/kWh)} = \left[\frac{\text{Annual Compressor Fuel Cost (£)} \times 100}{\text{Total System Demand (TWh)} \times 10^9} \right] + \text{Average Forecast NTS Capacity Charges (pence/kWh)}$$

compressor cost element

capacity cost element

Time & Change - operational

- **Annual compressor usage is determined by various factors, notably supply/demand patterns and within day flexibility.**
- **there is limited correlation between compressor usage and dealing with end of day imbalances.**



Time & Change - regulatory

- **Charging: capacity element of imbalance charge could be reviewed in light of Ofgem's 'minded to' decision regarding Postage Stamp.**
- **RIIO 2: no change to principles of linepack and price incentives.**
- **BAL: requirement for all EU countries to implement balancing regime, including default cash out price (aka Small Adjustment Price).**

External Benchmarking

It is worth considering other regimes, particularly those of neighbouring markets.

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What Next

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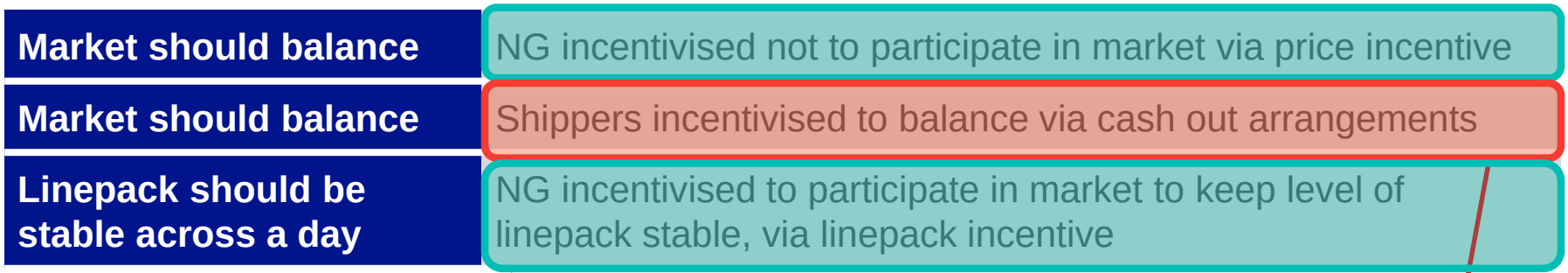
Scope of modification proposal



Near term improvements to information provision to/from National Grid

Medium term wider review of balancing arrangements as part of GMAP

Considerations for any default price methodology

- **Compliance with BAL code.**
- **The imbalance charge shall remain cost reflective.**
- **The imbalance charge shall incentivise network users to balance their inputs and outputs. Without being unduly excessive.**
- **Works with existing systems capability (cost avoidance).**
- **Reg 715: ...** transmission system operators endeavour to harmonise balancing regimes and streamline structures and levels of balancing charges in order to facilitate gas trade.

Solution options

1. **no change**
2. **SMP default based on the commercial cost of providing a flexibility service.**
3. **SMP default based on a revised estimate of NG operational cost of providing a flexibility service.**
4. **SMP default based on harmonisation with neighbouring TSOs.**
5. **Revise ‘capacity element’ of default SMP methodology, in line with Postage Stamp methodology.**

Elements of the above may be combined together.

6. **Note: some other options such as different SMP default prices rising in line with the size of the imbalance would required system change.**

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Appendix

Balancing Arrangements

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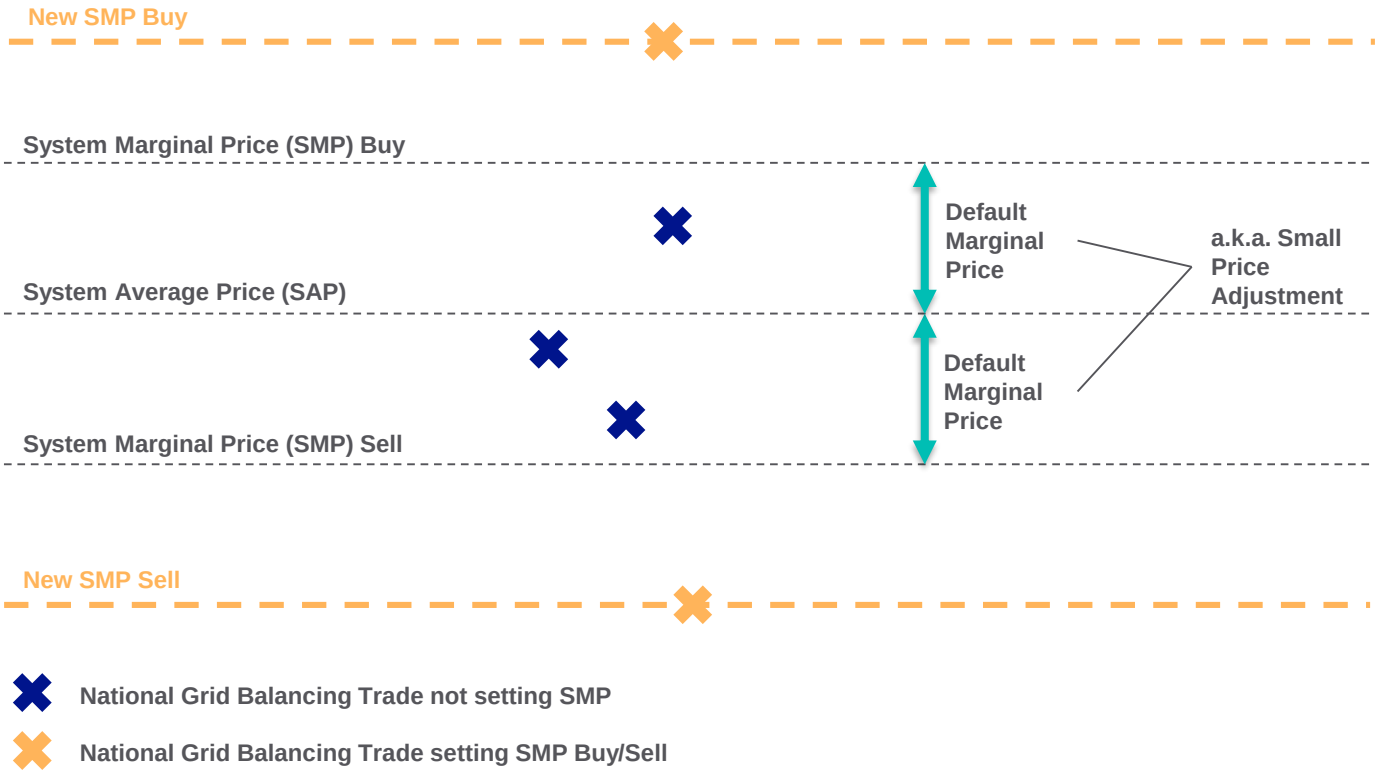
Default Marginal Price



Default Marginal Price Methodology

The methodology is defined in UNC Section F Paragraph 1.1.2 (g)

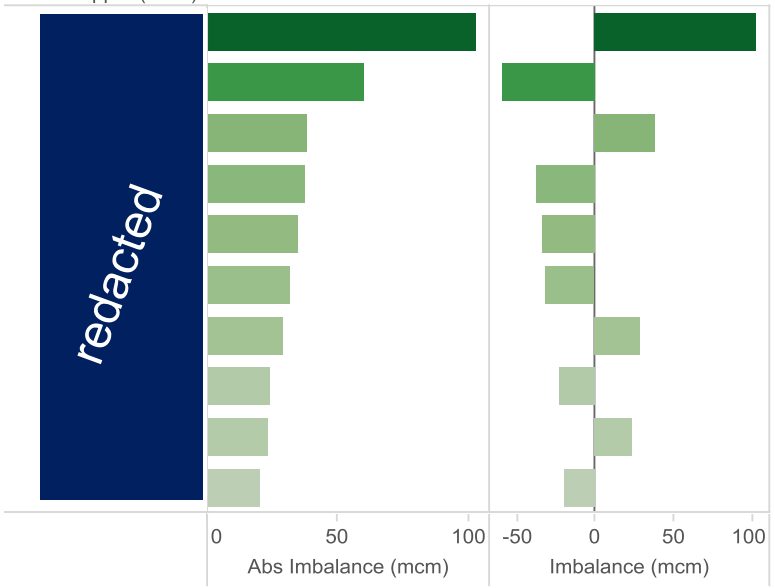
- Annual Compressor Fuel Cost is the total cost of all gas and power used to fuel NTS compressors during the previous formal year
- Total system demand is the total quantity of gas delivered by the NTS in the previous gas year as published in the Ten Year Statement
- Average Forecast NTS Capacity Charge equals the Transportation Owner Revenue* divide by the 1 in 20 peak day demand for the applicable gas year.

$$\text{Default System Marginal Price (pence/kWh)} = \left[\frac{\text{Annual Compressor Fuel Cost (£)} \times 100}{\text{Total System Demand (TWh)} \times 10^9} \right] + \text{Average Forecast NTS Capacity Charges (pence/kWh)}$$

* As defined in special condition 2A of the NTS licence

Increased Residual Balancer Role – Shipper EoD imbalance

The table below give a sense of the scale of the current shipper imbalance. These are EoD figures so are mitigated by the fact that NG takes balancing actions.



Shipper (IQ05)	Abs Imbalance (mcm)	Heavy Days	Light Days	Balance Days
redacted	103.1	270	36	121
	59.6	55	241	131
	38.3	191	54	182
	37.2	43	58	326
	34.7	141	173	113
	31.6	7	103	317
	28.8	35	0	392
	23.6	0	39	388
	23.3	137	58	201
	19.9	113	176	138

Date
01/04/2018 to 31/10/2019

Imbalance Threshold
1,000,000

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