



# National Grid Gas

## System Operator Incentives

2020/21 Supporting Information  
December 2021

Version 13

**nationalgrid**

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# 1

## Introduction

# Introduction to the Gas System Operator Incentives

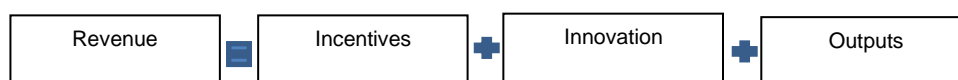
1. National Grid Gas (National Grid) operates the high-pressure Gas National Transmission System (NTS) in Great Britain. This Gas System Operator (GSO) function is subject to Licence<sup>1</sup> obligations and several financial incentive arrangements.
2. These incentive arrangements are designed to minimise the overall cost of system operation to consumers, to consider environmental impacts and to support the efficient operation of the wholesale gas market, to deliver outputs which provide benefits to the industry and consumers.
3. These benefits include direct financial benefit from reductions in the costs associated with operating the gas transmission network and ensuring that we are adjusting key outputs with customer and consumer value.
4. The various incentive schemes provide a focus on key areas where National Grid can create value for the industry and consumers, allowing National Grid to retain a share of any value created (or to be penalised should targets not be met).

## Background

5. This document was produced following feedback received through responses to consultation papers and industry events. This document summarises the GSO Incentive Schemes and details their performance to date.
6. This report will conclude the 8-year RIIO-1 period, the 2021/22 report will be the first report for the RIIO-2 period.

## Incentive Development for RIIO-T1

7. The 2020/21 incentive arrangements are part of the RIIO-T1 Framework, the first Transmission price control under Ofgem's new model of regulation that ran from April 2013 to March 2021.



8. RIIO aims to use incentives to promote the innovation needed to deliver agreed outputs, such as safety, reliability and reduced environmental impact.
9. RIIO's goal is a reliable and sustainable energy network that delivers value to our end consumers.
10. National Grid operated several incentive schemes prior to the RIIO-T1 Framework. Table 1 summarises the changes to those schemes and the schemes that commenced at the start of RIIO-T1.

<sup>1</sup> The National Grid Gas Plc Gas Transporter Licence in respect of the NTS

## Incentive Review

11. The majority of the incentive schemes agreed for the RIIO-T1 price control period have been set to run for an eight-year duration.
12. Where new incentives were introduced or where incentives had been substantially changed, the incentives (known as Shallow Incentives) were set for a shorter period to enable the effectiveness to be assessed before committing to longer timescales.
13. Incentive reviews took place in 2015 and 2018 for the Maintenance, Demand Forecasting (D-2 to D-5) and Greenhouse Gas Emissions incentives. These incentives were retained, where changes were made to scheme parameters these are reflected in the performance tables in Section 3. Table 1 summarises the incentives and changes that commenced at the start of RIIO-T1.

**Table 1: Summary of incentive development for RIIO-T1**

Incentive Scheme	Incentive	Duration
Entry Capacity and Exit Capacity Constraint Management	New financial scheme, in April 2013	Set for 8 years
Transportation Support Services	New financial scheme in April 2013	This incentive expired on 30 <sup>th</sup> September 2018
NTS Shrinkage	Incentive scheme retained in April 2013	Set for 8 years
Residual Balancing	Incentive scheme retained in April 2013	Set for 8 years
Day Ahead Demand Forecasting	Incentive scheme retained in April 2013	Set for 8 years
Demand Forecasting (D-2 to D-5)	New financial scheme, reviewed for 2016/17 reviewed for 2018/19	Set for 3 years Set for 2 years Set for 3 years
Greenhouse Gas Emissions	Incentive scheme retained April 2013. reviewed for 2016/17 reviewed for 2018/19	Set for 3 years Set for 2 years Set for 3 years
Maintenance	New financial scheme, reviewed for 2016/17 reviewed for 2018/19	Set for 3 years Set for 2 years Set for 3 years
Customer and Stakeholder Satisfaction	New financial scheme, in April 2013	Set for 8 years
Operating Margins	Financial scheme discontinued in April 2013, replaced with new licence obligation <sup>2</sup> .	
Data Publication	Financial scheme discontinued in April 2013, replaced with new licence obligation <sup>3</sup> .	
UAG (Unaccounted for Gas)	Incentive scheme discontinued in April 2013, replaced with new licence obligation.	

<sup>2</sup> Special Condition 8C: Procurement of Operating Margins

<sup>3</sup> Special Condition 8F: Provision of information

## Further Information

14. Further information on the GSO Incentives is available on our website via this link:
15. <https://www.nationalgrid.com/uk/gas-transmission/about-us/system-operator-incentives>
16. Please contact the team directly at [incentives@nationalgrid.com](mailto:incentives@nationalgrid.com) if you have any queries or would like to submit any feedback on this document.

## Version Control

Version Number	Date Publication	of	Changes Made
1.0	October 2009		First issue.
2.0	May 2010		Update for incentive schemes in place from April 2010.
2.1	August 2010		Update of 2009/10 incentive scheme performance.
3.0	June 2011		Update for incentive schemes in place from April 2011.
4.0	April 2012		Update for incentive schemes in place from April 2012.
5.0	April 2013		Update for incentive schemes in place from April 2013.
5.1	May 2013		Update to include Entry Capacity and Exit Capacity Constraint Management, Transportation Support Services and Customer and Stakeholder Satisfaction schemes in place from April 2013.
6.0	October 2014		Update to all sections to include 2013/14 data and graphs.
7.0	August 2015		Update to include scheme changes from renegotiation of Incentives from 2015/16 and with performance for 2014/15.
8.0	August 2016		Update with performance from 2015/16 and relevant updates for 2016/17 targets.
9.0	September 2017		Update with performance from 2016/17 and relevant updates for 2017/18 targets.
10.0	October 2018		Update with performance from 2017/18 and relevant updates for 2018/19 targets.
11.0	December 2019		Update with performance from 2018/19 and relevant updates for 2019/20 targets.
12.0	December 2020		Update with performance from 2019/20 and relevant updates for 2020/21 targets. Removed Transportation Support Services (TSS) as scheme ended 30 <sup>th</sup> September 2018.
13.0	December 2021		Update with performance from 2020/21 and relevant updates for 2020/21 targets.



# 2

## Financial Incentive Schemes



# Entry Capacity and Exit Capacity Constraint Management (CCM)

## Purpose

17. The Capacity Constraint Management (CCM) Incentive is designed to incentivise National Grid to maximise available capacity on the network and minimise constraint management costs through the efficient and economic planning and operation of the NTS. We therefore release as much capacity as possible, develop effective constraint management strategies and make economic and efficient NTS investment and planning decisions.
18. This benefits our customers, and ultimately end consumers, as the costs of commercial constraint management actions to the Industry are mitigated or minimised and balanced against NTS investment whilst maximising access to the NTS.
19. A robust CCM incentive drives an effective strategy which delivers value to Industry and end consumers who share in the benefit of strong performance.

## Description

20. The current regulatory and commercial frameworks oblige National Grid to release obligated levels of capacity, as stated in the National Grid Gas Transmission Licence. The obligated levels of capacity can be higher than the flows that the network can manage and so National Grid evaluates the most efficient solution to meet customer capacity requirements, considering the rules, tools, and asset options available.
21. In the instances where National Grid believes that customers' flow requirements cannot be accommodated; constraint management actions may be undertaken in accordance with the Uniform Network Code and System Management Principles Statement<sup>4</sup>. These actions fall into two categories:
  - Operational constraint management – actions taken by National Grid to manage day to day issues on the network. Examples of such day to day issues include supply and demand patterns, unavailability of compression or maintenance outages; and
  - Investment constraint management – actions taken by National Grid to manage longer term issues associated with provision of additional capacity on the network. Examples of such longer-term issues include where physical reinforcement is not delivered within the contracted timescale.
22. There are numerous commercial tools available to manage Operational and Investment constraints, which include but are not limited to:
  - Capacity Scaleback – scaling back in full or in part, the Interruptible Entry Capacity or Off-peak Exit Capacity allocated.
  - Capacity Buybacks – buying back sold Firm Entry or Exit Capacity.
  - Locational Energy Trades – buying or selling gas at specific locations on the NTS; and
  - Turn-Up/Turn-Down Contracts – contracts to manage longer term forecast constraint risk.
23. Incentive performance is ordinarily driven by the difference between the revenue and cost components of the incentive scheme over a financial year and is measured against the incentive target value.

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<sup>4</sup> For the System Management Principles Statement (SMPS) see: <https://www.nationalgrid.com/uk/gas-transmission/about-us/how-were-regulated/gas-industry-compliance>

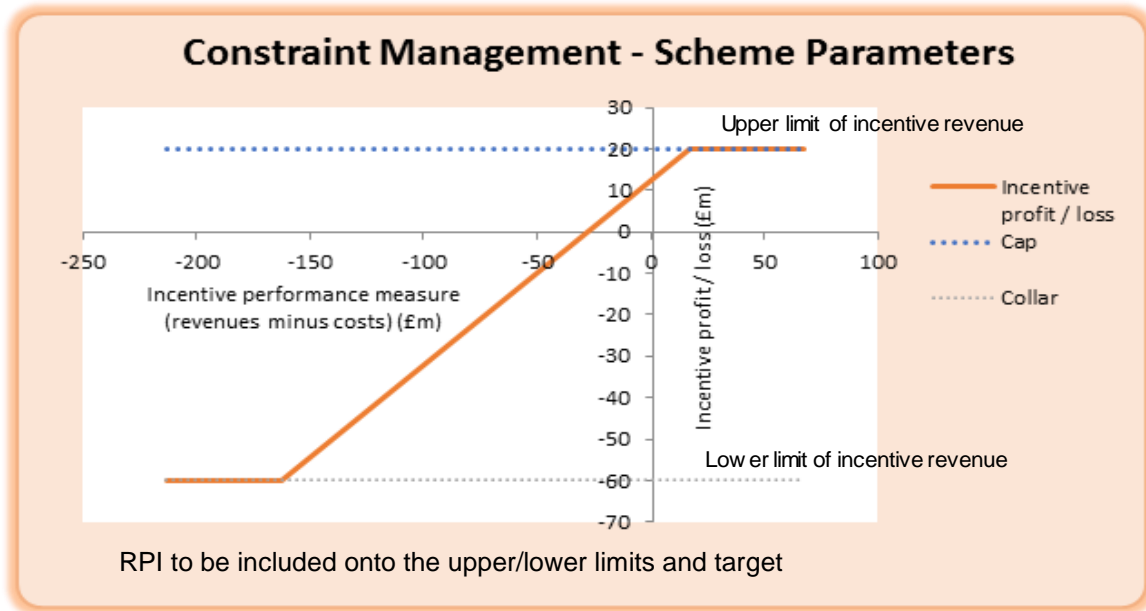


24. The revenues that ordinarily feed into this incentive are:
- Locational Energy sell actions and physical re-nomination incentive charges.
  - Short term and long term Non-Obligated Entry and Exit capacity (capacity released over and above the obligated level).
  - Interruptible Entry Capacity and Off-Peak Exit Capacity.
  - Within Day Firm Entry and Exit Capacity sales; and
  - Entry overrun charges (the charges incurred when Users' flows exceed their capacity entitlements).
25. The costs that ordinarily feed into this incentive, are those costs incurred as a result of using any of the UNC-defined constraint management tools.
26. National Grid ordinarily receives an incentive revenue or penalty depending on whether the annual actual net costs are higher or lower than the incentive target for that year and is based on a calculation that incorporates the RIIO-T1 44.36% "Sharing Factor" whereby the remaining 55.64% is passed back to Shippers. This revenue or penalty feeds through charges two years after the financial year to which the incentive performance relates.
27. In February 2021, following the implementation of UNC Modification 678A (UNC678A) "Amendments to Gas Transmission Charging Regime (Postage Stamp)", Ofgem published an open letter signalling an intent to review the CCM scheme for regulatory year 2020/21 which we welcomed and supported. UNC678A removed the zero priced reserve price for certain capacity products that feed into the CCM incentive as revenue components, meaning the CCM incentive revenue resulting from the sale of these products would potentially increase when compared to the CCM incentive revenue for those same products for the period pre-October 2020.
28. Following that review Ofgem, through a statutory consultation process, concluded that increased revenues have occurred for the last 6 months of the RIIO 1 form of control between October 2020 and March 2021 as a direct result of the implementation of UNC678A and that this impacted the CCM incentive performance for 2020/21. We agreed with this conclusion and supported that the 2020/21 CCM incentive performance should be amended to neutralise the impacts arising from the implementation of UNC678A. This has resulted in the CCM performance for 2020/21 being adjusted. The details and rationale of that adjustment and the can be found via the following links:
29. [https://www.ofgem.gov.uk/sites/default/files/2021-06/ccm\\_riio-1\\_windfall\\_adjustment\\_letter\\_3.pdf](https://www.ofgem.gov.uk/sites/default/files/2021-06/ccm_riio-1_windfall_adjustment_letter_3.pdf)
30. <https://www.ofgem.gov.uk/publications/modification-national-grid-gas-plc-ngg-gas-transporter-licence-change-part-special-condition-714>

**Scheme Parameters**

31. The incentive scheme parameters for the operational part of the scheme are summarised in Figure 1.

Figure 1: Entry Capacity and Exit Capacity Constraint Management scheme



32. For performance year 2020/21, our performance in the CCM incentive scheme was £15.67m which resulted in £19.65m being returned to Customers via the RIIO-T1 sharing factor.

# NTS Shrinkage

## Purpose

33. The aim of the NTS Shrinkage incentive scheme is to minimise the overall cost of shrinkage we incur in our role as NTS Shrinkage Provider through efficient system operation and energy procurement. These costs are recharged back to users as part of NTS commodity charges.

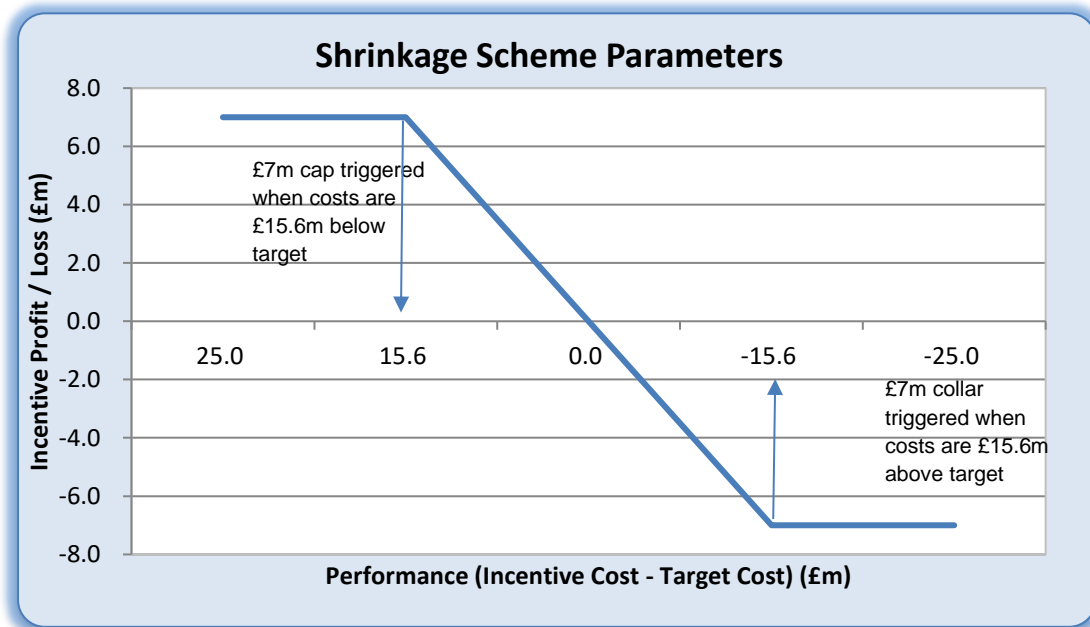
## Description

34. NTS Shrinkage covers the gas and electrical energy which is used in operating NTS compressors, and the gas that cannot be accounted for and billed in the measurement and allocation process. The components that comprise NTS Shrinkage falls into three categories:
  1. Compressor Fuel Use (CFU): The energy used to run compressors to transport gas through the NTS. For gas-driven compressors, this is Own Use Gas (OUG). For electrically driven compressors, this is Electric Compressor Energy (ECE); This is a metered known value.
  2. Calorific Value (CV) Shrinkage (CVS): The energy which cannot be billed due to the provisions of the Gas (Calculation of Thermal Energy) Regulations 1996 (amended in 1997); This is a calculated value, and,
  3. Unaccounted for Gas (UAG): The quantity of gas which remains after considering all measured inputs and outputs from the system, OUG consumption, CVS, and the daily change in NTS linepack. UAG can be both Meter error or Data error. Therefore, if you take NTS Shrinkage gas, deduct OUG & CVS, you are left with UAG
35. The form of the NTS Shrinkage incentive is a bundled cost minimisation incentive across all components of shrinkage, with a target principally derived from an energy procurement cost benchmark.
36. This 'Energy Procurement Target' is derived from a volume forecast and variance (the difference between the forecast and actual volume outturn). This is multiplied by gas and electricity reference prices for forwards procurement (of the forecast volume) and prompt procurement (of the variance volume) to derive a cost target. The volume forecast consists of CFU, CVS and UAG volumes determined in accordance with an NTS Shrinkage Methodology Statement published by National Grid.
37. The overall cost target is also subject to:
  - An adjustment for comparison of outturn CFU and CVS volumes compared to 'efficient' levels.
  - An allowance for the Transmission Network Use of System (TNUOS) charges incurred in respect of electrically driven compressors; and
  - An adjustment for other shrinkage costs, including environmental scheme compliance, electricity supply charges and other energy trading costs.
  - If total spend against the incentive is below the target, National Grid receives a payment equivalent to 45% of the under spend, subject to a limit of £7m. Conversely, if total spend against the incentive is more than the target, National Grid incurs a penalty of 45% of the overspend, subject to a limit of £7m.
  - 45% represents the percentage Sharing Factor that National Grid bears in respect of an overspend against allowances or retains in respect of an underspend against allowances. The remaining share is borne by or returned to the industry.

## Scheme Parameters

38. The incentive scheme parameters are summarised in Figure 3 below.

Figure 3: Shrinkage incentive scheme parameters



39. For the performance year 2020/21, the Shrinkage and Emissions Incentive Scheme incurred £67.7m costs, against a total incentive target of £76.4m, this represents a £8.7m outperformance. With a sharing factor of 45% National Grid retained £3.9m and returned £5.0m to our customers.

# Demand Forecasting Incentive Schemes

## Purpose

40. We are incentivised to publish national gas demand forecasts over a range of timescales to the industry. These forecasts assist the industry in making efficient physical and commercial decisions to balance supply to, and from, the NTS. Consumers benefit from cheaper gas as accurate demand forecasts mean that shippers have more time to procure the cheapest gas.

## Description

41. The national demand forecasts published by National Grid for day ahead (D-1) and for two to five days ahead (D-2 to D-5) are a key tool for the UK gas industry in ensuring the economic balancing of gas supply and demand. The provision of timely and accurate forecasts aids in ensuring efficient operation from both a physical and commercial perspective, ultimately reducing operating costs which directly impact on end consumers gas bills. National Grid strives to continually optimise its forecasting processes, to deliver greater accuracy and increased consumer benefit.

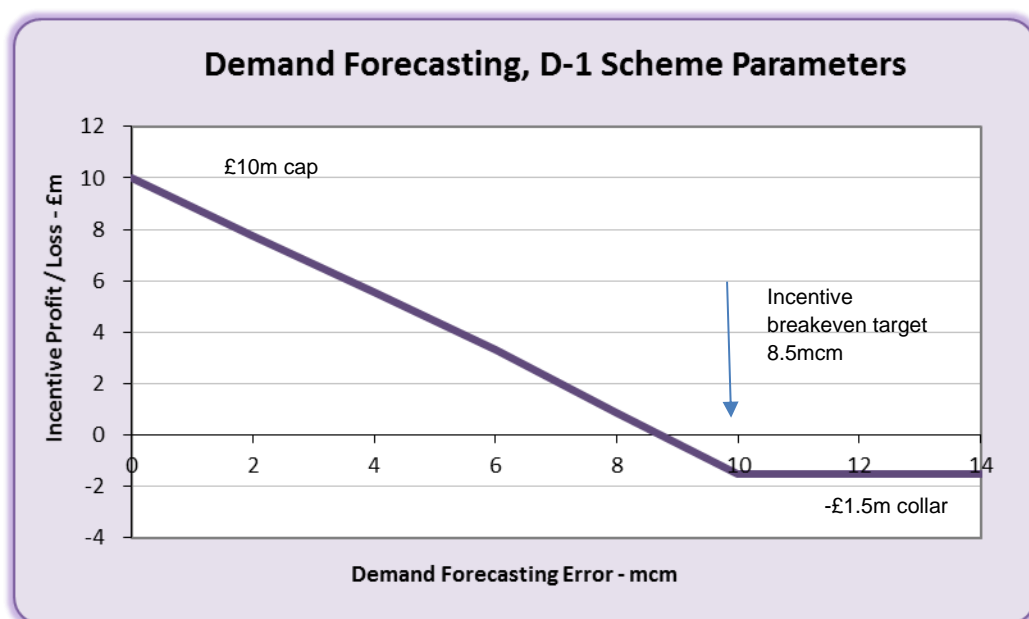
## The Demand Forecasting D-1 Scheme

42. National Grid has an incentive breakeven target of 8.5mcm. However, there is an adjustment for the level of short-cycle storage injection capability that is designed to consider the unpredictability of demand from short-cycle<sup>5</sup> storage sites. The storage adjustment is capped at an additional 1mcm and therefore has the potential to revise the D-1 demand forecasting target to 9.5mcm.
43. The daily forecast error is calculated as the difference (in mcm) between the D-1 forecast NTS throughput value and the actual throughput value on the appropriate day of the year. The annual average absolute forecast error is the sum of the daily forecast errors, which themselves are weighted per the relevant day's demand as a proportion of annual demand in the relevant incentive year. This means that forecasting accurately on high demand days has a greater impact on performance than on lower demand days.
44. If National Grid has a demand forecast error below the breakeven target, an incentive payment will be received. However, if the forecast error is greater than the target, an incentive penalty will be applied.

### Scheme Parameters

45. The D-1 incentive scheme parameters are summarised in Figure 4 below.

Figure 4: Demand Forecasting D-1 scheme parameters



46. An average annual forecast error of 0.85mcm below the base target (7.65mcm) would result in National Grid earning £1.5m, and an error of 0.85mcm above the base target (9.35mcm) would result in National Grid being penalised by the same amount. The latter represents the highest loss that National Grid is exposed to under this incentive. The maximum payment that National Grid can receive is £10m<sup>6</sup>.

<sup>5</sup> Details of the storage sites that are utilised in the calculation are published on National Grid's website at: <https://www.nationalgridgas.com/about-us/system-operator-incentives>. The document is located under "Data and documents", click "Demand Forecasting" section and select the latest "Quality of Day Ahead Demand Forecasting Short Cycle Storage Sites" file

<sup>6</sup> A payment of this scale would require forecast error to be between zero and 1mcm (dependant on the target adjustment). A zero-forecast error would mean a zero error on every daily forecast in the year.

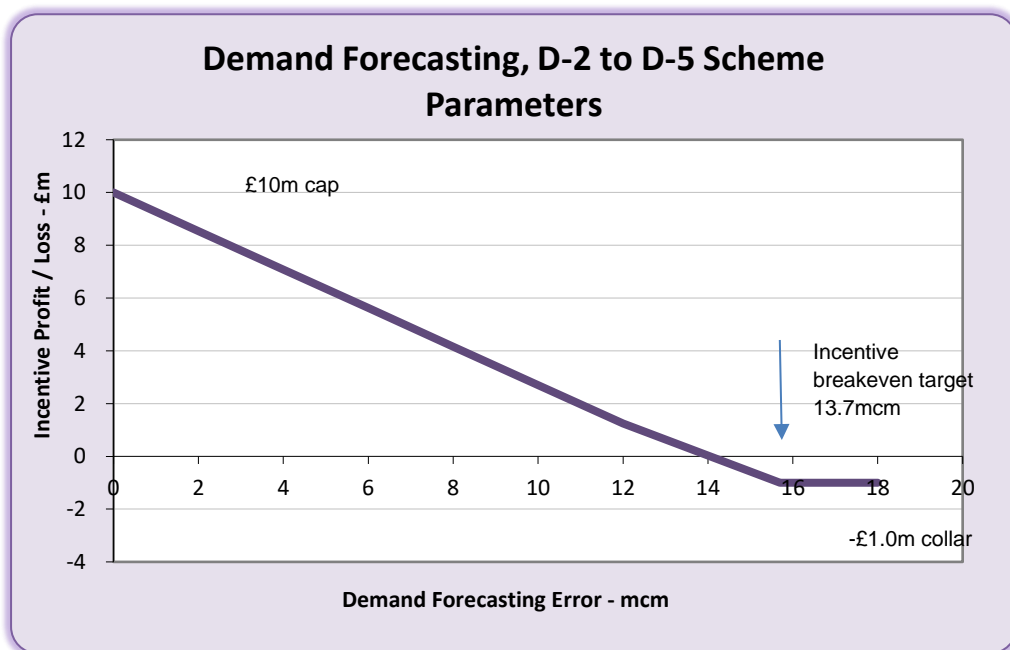
## The Demand Forecasting D-2 to D-5 Scheme

47. National Grid has an incentive target of an annual average absolute forecast error of 13.7mcm. Unlike the D-1 scheme, there is no adjustment for the level of short-cycle storage injection capability.
48. The overall forecast error is equal to the average annual forecast error of the four timed forecasts for the incentive year. The annual error for each timed forecast is derived as the sum of daily forecast errors weighted per the relevant day's demand as a proportion of annual demand in the relevant incentive year. This means that accuracy on high demand days has a greater impact on performance than accuracy on lower demand days.
49. Like the Day Ahead incentive scheme, if National Grid's forecast error is below the target, an incentive payment will be received. However, if the forecast error is greater than the target then an incentive penalty will be applied.

### Scheme Parameters

50. The scheme parameters are summarised in Figure 5 below.

Figure 5: Demand Forecasting D-2 to D-5 scheme parameters



51. An average annual forecast error of 1.37mcm below the target (12.33mcm) would result in National Grid earning £1m, and an error of 1.37mcm more than the target (15.07mcm) would result in National Grid being penalised by the same amount. The latter represents the highest loss that National Grid is exposed to under this incentive. The maximum payment that National Grid can receive is £10m at zero forecast error.
52. For performance year 2020/21, our performance in the Demand Forecasting incentive schemes, was an absolute forecasting average error of 8.20mcm (D-1) and 13.5mcm (D-2 to D-5) incurring revenue of £1.1m and £0.13m respectively, with an overall performance of £1.23m.



# Residual Balancing

## Purpose

53. In our role as the residual balancer, we are required to balance supply and demand on the gas day to help ensure the NTS remains within safe operating limits. The residual balancing incentive benefits the end consumer by ensuring we fulfil this obligation by minimising both our activity in the market and the impact it has on the market prices when it is deemed necessary to trade gas to balance the network.

## Description

54. The incentive contains two elements: The Price Performance Measure (PPM) and the Linepack Performance Measure (LPM).

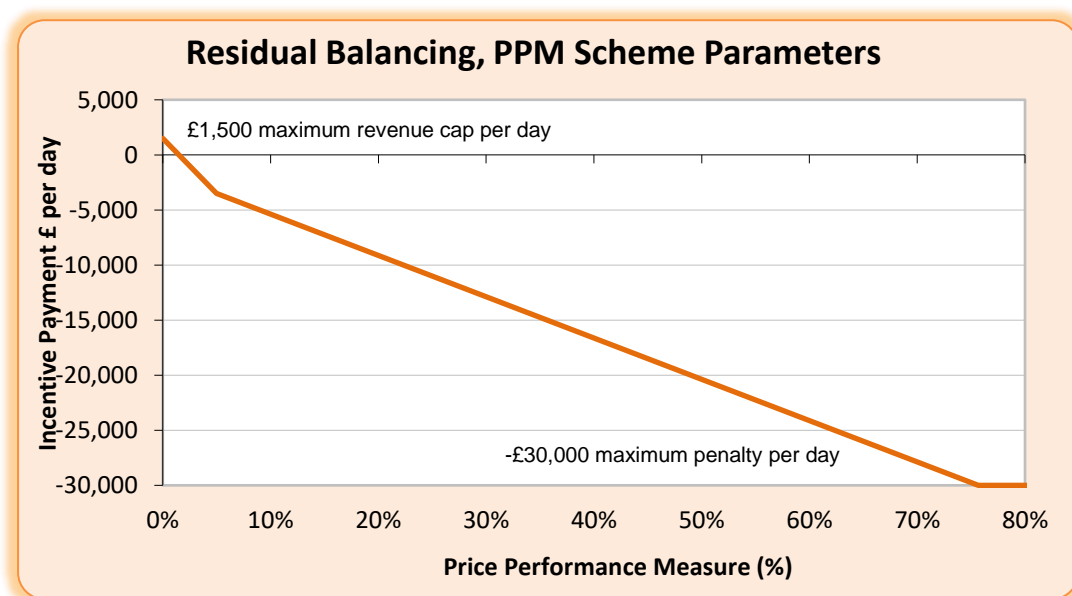
1. The price performance measure (PPM) evaluates the impact National Grid has on the market in its Residual Balancing role by measuring the price range of its trading actions compared to the System Average Price (SAP). This incentivises the System Operator to minimise the impact it has on market prices. The target is a price spread of 1.5% of SAP.
2. The linepack performance measure (LPM) incentivises National Grid to minimise differences in linepack volumes between the start and end of each gas day. This is to ensure that any system imbalances are resolved, and that any associated costs are levied across those system users responsible for that day's imbalance. The target is a linepack change of 2.8mcm.

55. The sum of all the daily payments for the PPM and LPM under the Residual Balancing incentive are annually capped at £2m and collared at £3.5m.

## Scheme Parameters

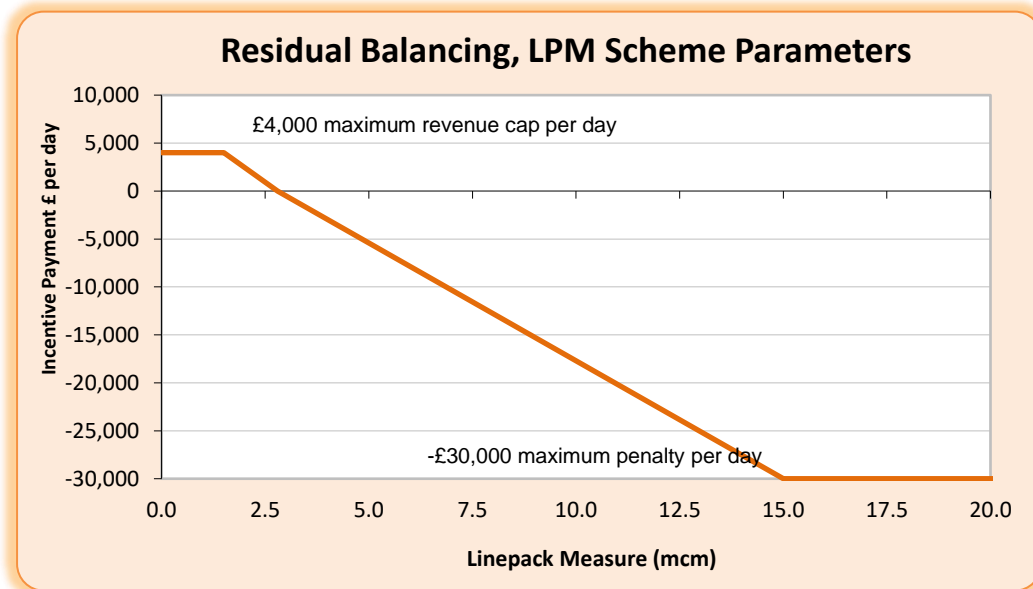
56. The PPM and LPM each have their own incentive structures, which apply to each Gas Day in the incentive year. The scheme parameters are summarised in Figure 6 and Figure 7 below.

Figure 6: Residual Balancing PPM scheme parameters



57. If the PPM is below 1.5% on a given Gas Day, then National Grid receives an incentive payment up to a maximum of £1,500. Conversely if the PPM is above 1.5%, then National Grid incurs a penalty up to a maximum of £30,000.

Figure 7: Residual Balancing LPM scheme parameters



58. If the LPM is below 2.8mcm on a given Gas Day, then National Grid receives an incentive payment up to a maximum of £4,000. This maximum applies at 1.5mcm, so there is no incentive for National Grid to balance the system beyond this point. Conversely if the LPM is above 2.8mcm, then National Grid incurs a penalty up to a maximum of £30,000.

59. For performance year 2020/21, our performance in the Residual Balancing incentive scheme was: LPM achieved a daily average linepack performance of 1.51mcm whilst in the PPM achieved an average price spread of 0.77% of SAP, overall, this represents a £1.2m outperformance.

# Maintenance

## Purpose

60. To incentivise the efficient planning and execution of network maintenance impacting customers at direct exit connections<sup>7</sup> from the NTS. The maintenance incentive is therefore split into two scheme components:

**1. Maintenance Day Changes Incentive Scheme - minimisation of changes initiated by National Grid to the agreed maintenance plan**

The aim of the Maintenance Day Changes incentive is to reduce the impact our maintenance activities have on customers should we make changes to our planned maintenance after 1 April for the forthcoming summer maintenance period. The incentive scope does not include changes which were initiated by customers, only those initiated by us.

**2. Maintenance Days Used Incentive Scheme - minimisation of the use of Maintenance Days to perform Remote Valve Operations maintenance**

The Maintenance Days Used incentive is designed to reduce the impact we have on our customers when we undertake our routine maintenance activities. For 2020/21 the incentive only included maintenance days for Remote Valve Operations (RVO); the In-Line Inspections (ILIs) element of the scheme ceased in 2015/16.

## Description

61. To ensure the ongoing reliability and integrity of the NTS in line with regulatory and safety requirements, National Grid is required to periodically undertake maintenance of the pipeline system. Where this work requires an outage, or to reduce the flexibility available (e.g. where steady gas flows may be required) at one or more direct exit connections, National Grid may 'call' one or more 'Maintenance Days' in accordance with the Uniform Network Code (subject to any site-specific limitations).

62. To minimise the impact of maintenance work on customers, National Grid plan maintenance activities to align with periods which minimise disruption to customer operations. Where National Grid can align maintenance to periods which have no impact on customer contractual rights, National Grid will communicate the maintenance period as "Advice Notice Days"<sup>8</sup>. Where this is not possible and an outage or restriction on customer operations is required, a "Maintenance Day" will be called.

63. Every day we align maintenance with a customer it conservatively saves between £100k and £300k of plant downtime compared to if we had to turn a customer off, leading to reduced costs passed through to end consumers. This incentive generates circa £15m p.a. of consumer value.

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<sup>7</sup> Direct exit connections to the NTS include individual NTS Supply Points and NTS Connected System Exit Points but exclude offtakes to Distribution Networks.

<sup>8</sup> Where a single maintenance activity affects multiple NTS Exit Points on a day, this is construed as a single day for the purposes of the Maintenance Incentives

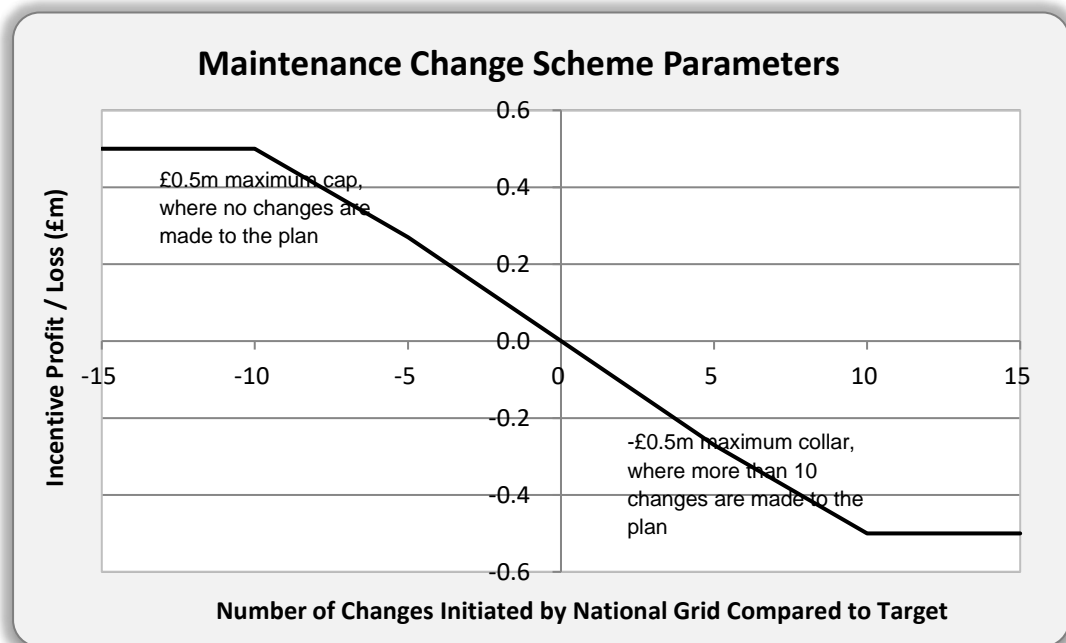
## The Maintenance Day Changes Scheme

64. The target number of Maintenance Days or Advice Notice Days, subject to change initiated by National Grid (excluding changes made by National Grid pursuant to customer's request), is equal to 7.25% of the total number of maintenance plan days within the year. Changes within scope include changes to dates (including reduction or increases to the number of days for a specific job) or cancellation of days.
65. If the actual number of days changed is equal to target, the incentive revenue is zero. If the actual number of days changed is less than the target, then a payment per change below target is accrued up to a scheme cap of £0.5m. If the actual number of days changed exceeds the target, then a penalty per change more than the target is accrued to a scheme collar of -£0.5m.

### Scheme Parameters

66. The incentive scheme parameters are summarised in Figure 8 below.

Figure 8: Maintenance Change scheme parameters



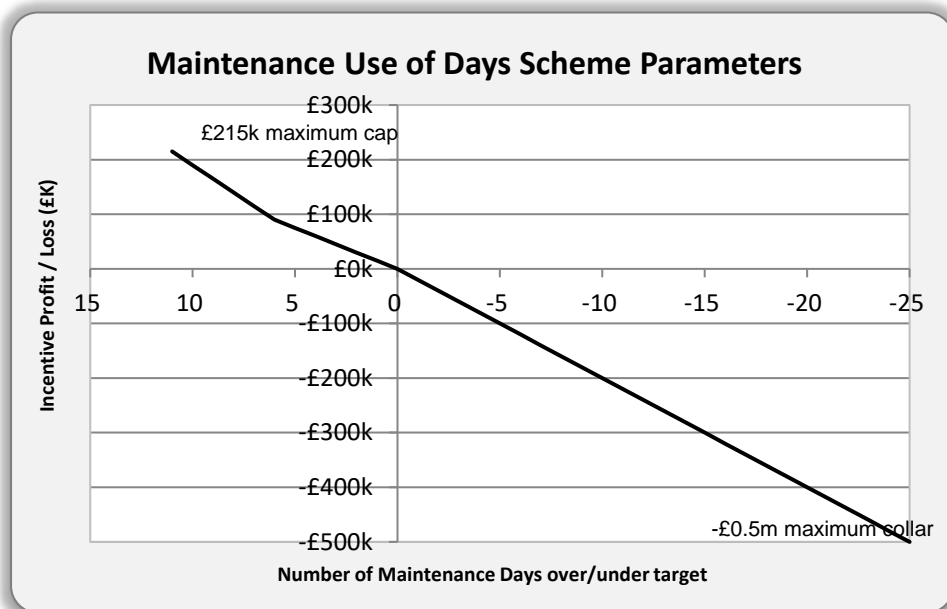
## The Maintenance Days Used Scheme

67. The Use of Days scheme incentivises National Grid to minimise the number of Maintenance Days used to undertake Remote Valve Operations<sup>9</sup>. National Grid has an annual incentive target (in days) of 11.
68. If the actual number of Maintenance Days used for these activities is equal to the target, the incentive revenue is zero. If the actual number of Maintenance Days used is less than target, National Grid receives a tiered payment between £15,000 and £25,000 each day below the target, up to a natural scheme cap of £0.215m. The first 5 days used at £25,000, followed by £15,000. If the actual number of Maintenance Days used exceeds the target, National Grid receives a penalty of £20,000 per day up to £0.5m (for 25 days or more above target).

### Scheme Parameters

69. The incentive scheme parameters are summarised in Figure 9 below.

Figure 9: Maintenance Use of Days scheme parameters



70. Unfortunately, the Covid-19 pandemic affected the aligned maintenance opportunities during 2020/21 incentive year, working to government advise of remote working and self-distancing to keep the customer and workforce safe, projects were undertaken to identify what is safe to delay and defer, based on risk of no maintenance on assets to see use through 2021 winter into the next maintenance period.
71. All Remote Valve Operations work was deemed non-essential, therefore removed from revenue and performance.
72. For performance year 2020/21, our performance in the Maintenance incentive scheme was, zero changes to the Days Changed scheme representing an incentive performance of £0.47m.

<sup>9</sup> Valves are used to control the flow of gas and isolate pipelines in an emergency. To ensure the safe operation of the system, National Grid maintain key valves on an annual basis where they will need to be opened and closed to ensure operation, requiring a system bypass to maintain supply.

# Greenhouse Gas Emissions

## Purpose

73. The aim of the Greenhouse Gas Emissions (GHG) incentive scheme is to incentivise National Grid to reduce the amount of natural gas vented from our compressors (primarily methane), and to reduce the effect of our operational activities on the environment. This is important both to us, our customers and stakeholders and society.
74. The scheme incentivises National Grid to make the trade-off between choosing to depressurise compressor units (venting the gas within them) or to keep units on standby, which incurs costs associated with ancillary electrical equipment (vent fans, oil pumps etc.) and a level of emissions through the shaft seal. The incentive applies to both gas and electrically driven compressors.
75. The emissions allowance is set each year by Ofgem, (in tonnes), for each tonne of natural gas vented over the allowance we are subject to a price and cost payment, which is based on our NTS GT Licence formula using the latest non-traded carbon reference venting price published by The Department for Business, Energy and Industrial Strategy. For 2020/21 this price was £1,496<sup>10</sup> per tonne of natural gas vented.

## Description

76. Compressors are used to increase pressure in parts of the NTS and to move gas from the sources of supply to areas of demand. To undertake this activity to deliver customer requirements, we will select the Best Available Technology (BAT) in accordance with the Industrial Emissions Directive (IED).
77. The need to operate an individual compressor on any given day depends on several factors, including the sources of supply and demand, the prevailing network conditions, and the need to accommodate essential maintenance, emissions testing and construction plans.
78. The incentive compares actual venting quantities against a target level. For every tonne vented above this target, National Grid is subject to a penalty. As a 'downside only' unlimited scheme, National Grid does not receive any payment for target outperformance.
79. The GHG calculation methodology is externally audited on an annual basis.

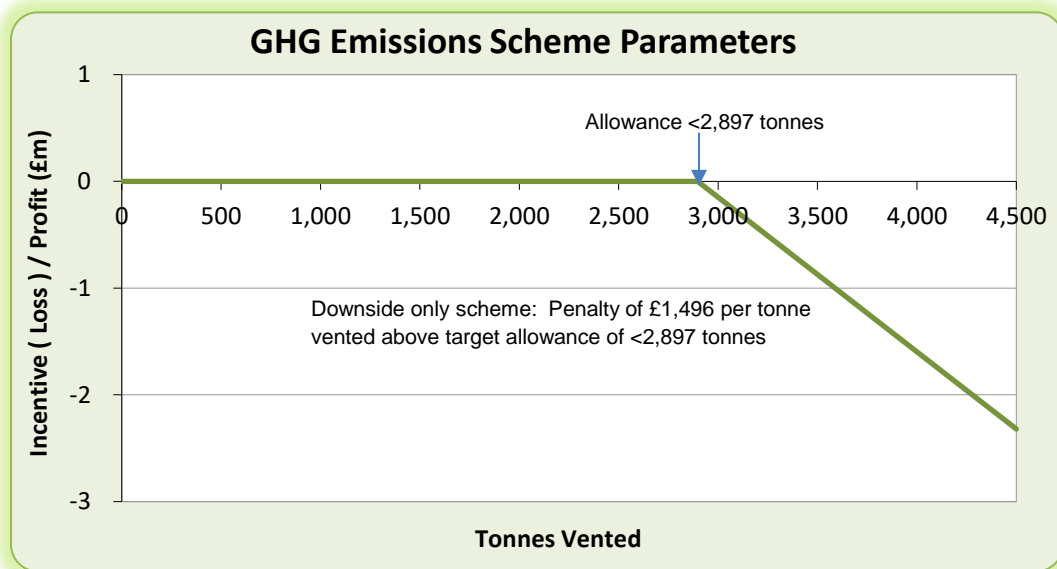
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<sup>10</sup> Based upon the Non-Traded Central Carbon Price as published by The Department for Business, Energy and Industrial Strategy and the venting equivalent factor that represents the number of tonnes of CO2 equivalent.

## Scheme Parameters

80. The scheme parameters are summarised in Figure 10 below.

Figure 10: Greenhouse Gas Emissions scheme parameters



81. For 2020/21, the target level is <2,897 tonnes, with a penalty of £1,496 per tonne vented above the target. This is equivalent to £100,000 for approximately every 67 tonnes vented above the target.
82. For performance year 2020/21, our performance in the GHG incentive scheme was 2,371 tonnes of emissions through compressors which is less than our allowance, this represents a maximum incentive performance of £0.00m. (no penalty, downside only).



# Customer and Stakeholder Satisfaction

## Purpose

83. We are incentivised to improve the service we provide to our customers and stakeholders through a reward/penalty based on levels of customer and stakeholder satisfaction.
84. The aim is to encourage National Grid to be more outwardly focused and responsive to changing stakeholder needs. The arrangements include an incentive for customer and stakeholder engagement.

## Description

85. Customer and Stakeholder Satisfaction is an indicator of how satisfied customers and stakeholders are with National Grid's service. To reflect the importance of customer and stakeholder satisfaction, National Grid is incentivised to survey its customers and stakeholders to measure their overall satisfaction.
86. To measure satisfaction National Grid carries out surveys on a trigger-based process to capture customer and stakeholder feedback in a timely and relevant manner. The survey asks customers to rate their overall satisfaction with National Grid Transmission on a scale of 1 to 10, where 1 is very dissatisfied and 10 is very satisfied for a range of services and engagement.
87. Our surveys cover both the 'System Operator' and 'Transmission Owner' aspects of our role to align with customers' and stakeholders' experience of how we operate as an integrated provider of transmission services.
88. The overall satisfaction score we receive from our customers and stakeholders translates to either a financial reward or a penalty equating to +/- 1% of our allowed annual revenue.



# 3

## Financial Performance

## Financial Performance

89. The following tables summarise National Grid's incentive performance.

*Please note: that incentive schemes often change from year to year so consideration should be given to this when comparing performance figures across years.*

**Table 2: Entry and Exit Capacity Constraint Management**

Incentive Year	Incentive Target	Performance	Incentive performance
2013/14	£22m*RPI	£2.80m	£12.63m
2014/15	£22m*RPI	£2.27m	£12.62m
2015/16	£22m*RPI	£1.95m	£12.60m
2016/17	£22m*RPI	£2.96m	£13.28m
2017/18	£22m*RPI	£4.04m	£14.23m
2018/19	£22m*RPI	£2.11m	£13.75m
2019/20	£22m*RPI	£3.61m	£14.75m
2020/21	£22m*RPI	£2.63m	£15.67m

**Table 3: Transportation Support Services – scheme ended 30<sup>th</sup> September 2018**

Incentive Year	Incentive Target	Performance	Incentive performance
2013/14	£8.41m	£0.03m	£3.70m
2014/15	£8.71m	£0.00m	£3.90m
2015/16	£8.87m	£0.00m	£3.93m
2016/17	£8.84m	£0.00m	£3.94m
2017/18	£9.21m	£0.00m	£4.09m
2018/19	£4.76m	£0.00m	£2.11m
2019/20	£0.00m	£0.00m	£0.00m
2020/21	£0.00m	£0.00m	£0.00m

**Table 4: NTS Shrinkage**

Incentive Year	Incentive Target	Performance	Out-performance	Incentive Performance
2011/12	£124.6m	£94.7m	£29.9m	£5.0m
2012/13	£114.9m	£101.6m	£13.3m	£3.3m
2013/14	£112.6m	£101.2m	£11.4m	£5.1m
2014/15	£87.95m	£77.17m	£10.78m	£4.8m
2015/16	£87.22m	£73.24m	£13.98m	£6.3m
2016/17	£76.12m	£70.49m	£5.62m	£2.53m
2017/18	£83.21m	£71.16m	£12.05m	£5.42m
2018/19	£94.76m	£77.16m	£17.60m	£7.0m
2019/20	£97.34m	£80.09m	£17.25m	£7.0m
2020/21	£76.4m	£67.7m	£8.7m	£3.9m

**Table 5: Demand Forecasting, D-1**

Incentive Year	Incentive Target	Performance	Incentive Performance
2011/12	2.75%	3.37%	-£1.60m
2012/13	2.75%	3.82%	-£1.60m
2013/14	9.40 mcm	8.69 mcm	£0.88m
2014/15	8.95 mcm	8.07 mcm	£1.54m
2015/16	9.00 mcm	7.75 mcm	£1.96m
2016/17	9.39 mcm	8.53 mcm	£1.51m
2017/18	9.03 mcm	8.24 mcm	£1.39m
2018/19	8.41 mcm	8.90 mcm	-£0.86m
2019/20	9.12 mcm	8.55 mcm	£1.01m
2020/21	8.83 mcm	8.20 mcm	£1.10m

**Table 6: Demand Forecasting Incentive, D-2 to D-5**

Incentive Year	Incentive Target	Performance	Incentive Performance
2013/14	16.00 mcm	13.10 mcm	£1.60m
2014/15	16.00 mcm	12.55 mcm	£2.15m
2015/16	13.70 mcm	12.09 mcm	£1.17m
2016/17	13.70 mcm	12.39 mcm	£0.95m
2017/18	13.70 mcm	12.06 mcm	£1.19m
2018/19	13.70 mcm	13.45 mcm	£0.19m
2019/20	13.70 mcm	12.90 mcm	£0.58m
2020/21	13.70 mcm	13.50 mcm	£0.13m

**Table 7: Residual Balancing**

Incentive Year	Incentive Target (daily)		Performance (average, all days in year)		Incentive Performance
	Price	Linepack	Price	Linepack	
2011/12	1.5%	2.8 mcm	1.57%	2.46 mcm	£0.252m
2012/13	1.5%	2.8 mcm	1.69%	1.96 mcm	£0.647m
2013/14	1.5%	2.8 mcm	0.70%	1.90 mcm	£0.952m
2014/15	1.5%	2.8 mcm	0.96%	1.61 mcm	£1.088m
2015/16	1.5%	2.8 mcm	0.64%	1.62 mcm	£1.195m
2016/17	1.5%	2.8 mcm	0.95%	1.74 mcm	£1.060m
2017/18	1.5%	2.8 mcm	1.77%	1.99 mcm	£0.649m
2018/19	1.5%	2.8 mcm	0.73%	1.90 mcm	£0.997m
2019/20	1.5%	2.8mcm	1.12%	1.73mcm	£0.932m
2020/21	1.5%	2.8mcm	0.77%	1.51mcm	£1.214m

**Table 8: Maintenance**

Incentive Year	Incentive Target (days)		Performance (days)		Incentive performance
	Change To MD	Use of MD	Change To MD	Use of MD	
2013/14	6.24	72.30	0.00	31.00	£1.138m
2014/15	1.02	44.65	0.00	4.00	£0.864m
2015/16	3.99	11.00	0.00	2.00	£0.364m
2016/17	16.82	11.00	0.00	1.00	£0.690m
2017/18	20.37	11.00	0.00	1.00	£0.690m
2018/19	13.34	11.00	0.00	0.00	£0.715m
2019/20	11.02	11.00	6.00	0.00	£0.466m
2020/21	9.498	11.00	0.00	0.00	£0.475m

**Table 9: Greenhouse Gas Emissions**

Incentive Year	Incentive Target	Performance	Incentive Performance
2011/12	3,007 tonnes <sup>11</sup>	3,000 tonnes	£0.000m
2012/13	3,007 tonnes	3,443 tonnes	-£0.353m
2013/14	2,917 tonnes	3,332 tonnes	-£0.541m
2014/15	2,829 tonnes	2,857 tonnes	-£0.039m
2015/16	2,744 tonnes	2,882 tonnes	-£0.195m
2016/17	2,897 tonnes	3,590 tonnes	-£1.008m
2017/18	2,897 tonnes	3,893 tonnes	-£1.363m
2018/19	2,897 tonnes	2,871 tonnes	£0.000m
2019/20	2,897 tonnes	2,500 tonnes	£0.000m
2020/21	2,897 tonnes	2,371 tonnes	£0.000m

<sup>11</sup> Target quoted is mid-point between upper and lower limit (dead band)



# 4

## Incentive Payment Charges

## Impact of Incentive Payments on Charges

*This section shows the link between incentive revenues and charges faced by Users.*

90. National Grid's incentive payments are recovered from Shippers through the SO Commodity Charge, which National Grid has a reasonable endeavours obligation to only set twice a year on the 01 April and the 01 October.
91. National Grid publishes a quarterly update on the charges report, which contains either the actual SO Commodity Charge, or the latest forecast of the charge. This report also includes supporting data on how these charges have been calculated and can be found (with previous versions) on the National Grid website.
92. As a rule of thumb, an increase of £2m in the costs recovered through the SO commodity charge would correspond with an increase in the SO Commodity Charge of approximately 0.0001p/kWh applied to both entry and exit flows.
93. From 2013/14, revenues and costs in respect of the Entry Capacity and Exit Capacity Constraint Management and Transportation Support Services incentive schemes were reflected in the SO Commodity Charge within the second Formula Year following the Formula Year in which those revenues and costs were accrued.
94. Accordingly, incentive revenues and costs for 2020/21 (in respect of Entry Capacity and Exit Capacity Constraint Management) will be reflected in SO Commodity Charges in 2022/23.

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