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Final proposals for electricity System Operator incentives from April 2017

Final decision

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Overview:

The current electricity System Operator (SO) incentives scheme relating to National Grid Electricity Transmission plc's (NGET) external balancing costs ends on 31 March 2017.

We have recently published two consultations on the future arrangements for the SO covering both its role and structure and the regulatory and incentives framework. We expect to start introducing related changes to the regulatory framework from April 2018.

This document sets out our Final Proposals for how we incentivise NGET in the interim period, from 1 April 2017 to 31 March 2018. For this interim period, we are making changes to NGET's licence to provide greater clarity of our expectations on NGET relating to the procurement and use of balancing services. We are also setting an incentive scheme based on a similar framework to that used in 2015-17. However, we are introducing limited but important changes to the previous framework to improve model governance and to limit the penalties and rewards associated with the incentive scheme to a value of ±£10million.

In addition, we have decided to put in place bespoke arrangements relating to the recovery of Black Start costs given changes to the market for provision of these services. We are also introducing output based incentives focussing on accurate demand forecasts and on the engagement between NGET and the Transmission Owners - with a total value of ±£5million.

Alongside these Final Proposals, we are launching a statutory consultation to implement the new incentives in NGET's licence. That is, we are asking whether our proposed licence drafting accurately delivers our policy intent.

Context

National Grid Electricity Transmission plc (NGET) is the System Operator (SO) for the electricity transmission network in Great Britain. As such it is responsible for the day-to-day operation of the system. To do this, NGET buys and sells energy and procures associated balancing services. It also provides valuable information to market participants, such as forecasts of wind generation and demand.

Ofgem regulates the actions of NGET to ensure its operation of the system delivers value for money to the consumer. Building on statutory obligations which require NGET to act in an economic, efficient, and co-ordinated manner, we have historically driven the performance of NGET and shaped aspects of its behaviour through targeted financial incentives on NGET's external balancing costs.

The role of the SO has grown over the years and it now has a more active role in transmission network development and the Capacity Market. Its role is continuing to evolve. The SO is expected to take on new functions to support the introduction of competition for onshore transmission assets. Also, the changing nature of generation, particularly the increase in small generation connected at the distribution level, is highlighting the need for a more holistic and co-ordinated approach to planning and operating the transmission and distribution systems. The increase in new sources of flexibility also means there is a need for the SO to review how it procures these services.

We have initiated reviews on both the SO's future role and structure, and on the supporting regulatory and incentives framework with the aim of introducing changes to the SO regulatory framework from 1 April 2018. In the interim period, we are setting incentives and amending NGET's licence for 2017/18.

Associated documents

Future of the SO

Future arrangements for the electricity System Operator: the regulatory and incentives framework:
https://www.ofgem.gov.uk/publications-and-updates/future-arrangements-electricity-system-operator-regulatory-and-incentives-framework

Future arrangements for the electricity system operator: its role and structure:
https://www.ofgem.gov.uk/publications-and-updates/future-arrangements-electricity-system-operator-its-role-and-structure

Statement on the future of electricity system operation:
https://www.ofgem.gov.uk/system/files/docs/2017/01/statement_on_the_future_of_electricity_system_operation.pdf

Current and proposed schemes

Electricity System Operator Incentives Final Proposals 2015-17:
https://www.ofgem.gov.uk/publications-and-updates/electricity-system-operator-incentives-2015-17-final-proposals

Electricity System Operator incentives from April 2017:
https://www.ofgem.gov.uk/publications-and-updates/electricity-system-operator-incentives-april-2017

Initial Proposals for Electricity System Operator incentives from April 2017:
https://www.ofgem.gov.uk/publications-and-updates/initial-proposals-electricity-system-operator-incentives-april-2017

Statutory Consultation on Licence amendments for interim incentive scheme from April 2017:
https://www.ofgem.gov.uk/publications-and-updates/final-proposals-electricity-system-operator-incentives-april-2017

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Executive Summary

In this document, we set out our Final Proposals to place a new Balancing Services Incentive Scheme on National Grid Electricity Transmission plc (NGET) as electricity System Operator (SO), to apply from 1 April 2017 to 31 March 2018. The scheme design set out in this document is intended to cover this one-year scheme only and should not be considered to set a precedent regarding the way the SO may be regulated in future years. This recognises that we will be working closely with industry to develop a clearly articulated set of roles for the SO and an accompanying regulatory framework, aspects of which will be implemented from 1 April 2018.

NGET is responsible for balancing the electricity system on a continuous basis. The internal and external costs[1] that NGET incurs in carrying out this role are passed through to users of the system via balancing services use of system (BSUoS) charges. In recent years, external costs on BSUoS have been about £850 million per annum and add around £9 to an average consumer bill. The SO incentive scheme seeks to minimise the external costs of balancing the electricity system and to incentivise the production of outputs and information which are valuable to market players. These incentives are part of our work aimed at achieving **lower bills than would otherwise be the case**.

In December 2016, we published our Initial Proposals for a Balancing Services Incentive Scheme (BSIS) for 2017/18. In that document we set our decision to make some material changes to the scheme design whilst retaining the existing scheme structure which relies on a model based approach to determine a target for efficient balancing costs. This decision was made, in part, due to concerns that the models underpinning BSIS were performing less well than had historically been the case and that it was failing to appropriately reflect the fast changing electricity system. In response to these concerns we proposed improvements to the model; reductions in the BSIS incentive parameters (i.e. the maximum rewards and penalties faced by NGET) and changes to the governance arrangements for BSIS.

Our Initial Proposals also proposed a significantly different approach to the treatment of Black Start costs for 2017/18. We proposed to take Black Start out of the BSIS target and, instead, to introduce an efficiency check on any spending by NGET on Black Start services. Finally, we proposed to introduce a new mechanism to facilitate and encourage system outages to be co-ordinated more effectively between the SO and the Transmission Owners (TO) and forecasting incentives to encourage accurate forecasts (which will ultimately benefit the market).

Responses to our initial proposals consultation were broadly supportive of our approach with the majority of respondents seeing our proposals as a proportionate approach to setting the interim scheme for 2017/18, given the significant volume of work underway to define the roles and associated regulatory regime for a more independent system operator.

[1] Internal costs are those incurred by NGET to fund the System Operator operations itself (such as staffing, IT costs). The external costs are those incurred by NGET to balance the system (such as procuring additional energy to meet demand or to manage a constraint).

In light of the detailed comments we have received, we intend to make changes to some scheme design elements for 2017/18. These includes a change to cap the risk faced by NGET in respect of the new mechanism for assessing efficient Black Start costs on an ex post basis, to a maximum of 10% of these costs and some changes to simplify the setting of the target for the demand forecasting incentive. The main elements of the scheme for 2017/18 are captured in the table below.

Incentive/Regulation area	Summary of policy
Clarification of the economic and efficient obligation in the licence	• Introduce a number of clarifications on our baseline expectation of economic, efficient, and co-ordinated to Standard Licence Condition C16; • Publish a guidance document by 1 April 2017 providing a non-exhaustive description of the behaviours we expect in accordance with the licence obligations.
BSIS	• Cap and floor of ±£10m and sharing factor of 10%; • A backstop provision where, if the target for any month is outside two standard deviations from historical costs, the incentive payment for that month is either zero or the floor of the scheme; • Third-party ex ante and ex post audit of models; • Formalisation of a 'model inaccuracies' process giving us more tools to direct NGET to review the models.
Black Start	• Removal from BSIS and introduction of an efficiency check process at year-end; • Requirement to produce a strategy and procurement methodology; • Requirement to publish a report to be published on performance by year-end; • Cap on disallowance under the scheme of 10% of total Black Start costs for the year.
Forecasting incentives	• Amendment to wind generation forecast incentive to reduce potential tendency to over forecast; • Introduce day-ahead, two-days ahead and week-ahead demand forecast incentive on national demand; • Total value of ±£4m.
SO-TO	• Introduction of SO-TO funding mechanism; • New incentive scheme on consumer savings from using mechanism effectively; • Value of ±£1m and sharing factor of 10%.
Transparency, Model Development Licence Condition, System Operation Innovation Roll-out Mechanism	• No explicit incentives related to transparency; • Maintaining Model Development Licence Condition; • Removal of SO-IRM from licence given only one year scheme.

Alongside this document we have launched two statutory consultations on the modification of NGET's licence to introduce the C16 clarifications and the incentive scheme for 2017/18. The licence conditions will be applicable from 1 April 2017.

1. Final Proposals

Chapter Summary

This chapter presents our Final Proposals for the interim scheme for 2017/18 and highlight the next steps following this consultation. It presents our decision to introduce an incentive scheme with a total value of £15million and new obligations to clarify our expectations of NGET as System Operator.

Summary of Final Proposals

Background

1.1. National Grid Electricity Transmission plc (NGET) is the System Operator (SO) for the electricity transmission network in Great Britain. We regulate the actions of NGET to ensure its operation of the system delivers value for money to the consumer. Building on statutory obligations which require NGET to act in an economic, efficient and co-ordinated manner, we have historically driven the performance of NGET and shaped aspects of its behaviour through incentives. The current incentive scheme on NGET expires on 31 March 2017.

1.2. During the summer we consulted on our intention to set an interim incentive scheme, broadly based on the existing framework for, 2017/18. We also stressed the need to focus on the long term regulatory framework for a more independent SO. The majority of respondents thought this was a sensible interim step but stressed that we needed to focus on the longer-term review.

1.3. Since that time, interim model results raised further questions about the ability of the Balancing Services Incentive Scheme (BSIS) models to generate an appropriate incentive target.[2] We have worked closely with NGET since these issues came to light and, as a result of these discussions, a number of model errors (as defined under Special Condition 4C.45; this can include assumptions or calculations preventing the models from producing accurate targets) have been uncovered. In the course of these discussions Ofgem and NGET have also identified steps which can be taken to reduce the likelihood of these errors arising again.

1.4. In our Initial Proposals, we proposed to retain the current BSIS model based incentive approach for 2017/18. NGET's identification of model errors, and their proposals to avoid these happening in future, increased our confidence that the models can provide a robust target for this year.

[2] A summary of BSIS can be found in Annex 1.

1.5. However, we proposed a number of additional measures within the scheme to recognise the potential for anomalies in the BSIS target to arise and to mitigate and limit the risks of this resulting in increased windfall gains to NGET to the detriment of consumers. These proposed measures included a reduction of the value of the BSIS incentive and sharing factor to £10m and 10% and additional governance requirements.

1.6. Given the short amount of time we have to introduce the 2017/18 scheme and our intention to conduct a more comprehensive review of the relevant regulatory arrangements from April 2018, we viewed this as a proportionate approach to setting incentives for a one-year period.

1.7. In our December consultation we also proposed to remove Black Start from BSIS and instead to introduce an ex-post efficiency check. This reflected our view that, given the high costs experienced this year and the broader risk of windfall gains and/or losses from continuing with an ex-ante target approach, it was not in consumers' interest to expose NGET to these costs. In addition, we proposed to introduce a mechanism to facilitate more efficient engagement between the SO and the Transmission Owners (TO) and forecasting incentives to encourage accurate data provision to the market.

1.8. Overall, stakeholders supported our proposals; though views differed on the extent to which our proposals addressed the concerns we had raised. The responses to our consultation are summarised in the subsections below.

Final Proposals

1.9. After considering the responses to our consultation, we have decided to maintain the majority of our Initial Proposals. We have, however, made some changes in response to stakeholder comments. The key changes are:

- To remove the requirement for an audited report on the BSIS costs after the end of the reconciliation period (given we were already requesting an audited report by year-end);

- To change some of the publication and submission dates to align with data processes within the System Operator and the market in general;

- To amend our proposals to limit the amount of disallowance that can be applied to Black Start under this mechanism to 10% of total Black Start costs for the year;[3]

[3] To note, this does not preclude in any way the use of our enforcement powers if we deem that NGET has not contracted service providers in accordance with its licence. It also does not set a precedent for future policy developments, but is in our view a pragmatic approach for an

- To amend the demand and wind forecasting incentives to set more robust targets both on the accuracy of forecast and unbiasedness elements of it.

1.10. Overall, we believe our Final Proposals provide an appropriate regulatory package for 2017/18 ahead of the introduction of updated arrangements from April 2018.

1.11. Alongside these Final Proposals, we are launching a statutory consultation to implement the new incentives in NGET's licence. A summary of our Final Proposals can be found in Table 1 below:

Table 1: Summary of Final Proposals

Incentive/Regulation area	Summary of policy
Clarification of the economic and efficient obligation	• Introduce a number of clarifications on our baseline expectation of economic, efficient and co-ordinated to Standard Licence Condition C16; • Publish a guidance document by 1 April 2017 providing a non-exhaustive description of the behaviours we expect in accordance with the licence obligations.
BSIS	• Cap and floor of ±£10m and sharing factor of 10%; • A backstop provision where, if the target for any month is outside two standard deviations from historical costs, the incentive payment for that month is either zero or the floor of the scheme; • Third-party ex ante and ex post audit of models; • Formalisation of a 'model inaccuracies' process giving us more tools to direct NGET to review the models.
Black Start	• Removal from BSIS and introduction of an efficiency check process at year-end; • Requirement to produce a strategy and procurement methodology; • Requirement to publish a report on performance by year-end; • Cap on disallowance under the scheme of 10% of total Black Start costs for the year.
Forecasting incentives	• Amendment to wind generation forecast incentive to reduce potential tendency to over forecast; • Introduce day-ahead, two-days ahead and week-ahead demand forecast incentive on national demand; • Total value of ±£4m.
SO-TO	• Introduction of SO-TO funding mechanism;

interim one-year scheme.

	• New incentive scheme on consumer savings from using mechanism effectively; • Value of ±£1m and sharing factor of 10%.
Transparency, Model Development Licence Condition, System Operation Innovation Roll-out Mechanism	• No explicit incentives related to transparency; • Maintaining Model Development Licence Condition; • Removal of SO-IRM from licence given only one year scheme.

Clarification of the requirement to be economic and efficient

1.12. Standard Licence Condition C16 of NGET's licence governs the way which balancing services are procured and used. It restates NGET's obligation to act in an efficient, economic, and co-ordinated manner and sets out the requirements to submit to the Authority for approval the balancing services it may be interested in purchasing and how it will use those services.

Initial Proposals

1.13. In our Initial Proposals, we proposed to amend NGET's licence conditions and issue a guidance document to provide greater clarity on our expectations of what NGET should be undertaking to fulfil the requirements of this condition. We expressed our belief that the clarification would make it easier for NGET and stakeholders to understand what we expect of NGET as SO.

Stakeholder responses

1.14. All stakeholders supported further clarity on what efficient, economic and co-ordinated meant for NGET as SO. There was some disagreement on whether the proposed licence conditions were specific enough or excessively specific and whether they captured all the behaviours which one would expect a prudent SO to undertake. A number of stakeholders suggested additional conditions, including:

- A specific condition focused on use of balancing services from the day-ahead to within-day periods;
- An explicit requirement for the SO to have regard to the total costs of using a given service provider; and
- A specific requirement around transparency and the avoidance of market distortions.

1.15. Other stakeholders raised concerns on the subjectivity of some of the conditions and suggested that greater specificity was required in the SO's obligations. Others asked for a mechanism to be introduced to allow third parties to raise concerns regarding non-compliance with the conditions.

1.16. NGET also raised a number of concerns with regard to these conditions. It included an overall concern that they were too prescriptive and may not be adaptive to system changes. It also noted that, in its view, the definitions were expanding NGET's role and this should be reviewed as part of our work on the future SO roles. Finally, it was concerned with the burden it would need to meet to demonstrate compliance.

Final Proposals

1.17. We have considered the responses from stakeholders and do not propose to introduce any condition in addition to what we consulted in our Initial Proposals at this stage. We believe that including more detailed provisions at this stage could cause unintended consequences given the short amount of time we have to make our decision. We recognise that the future role of the SO and the related consultation on the regulatory framework will give an opportunity for greater discussion around the clarity of expectations on the SO.

1.18. We have considered NGET's concerns that the conditions will be expanding NGET's current roles. We do not agree that the clarifications we are introducing go further than the current obligation in NGET's licence to operate the system in an 'efficient, economic and co-ordinated manner'.

Balancing incentives

1.19. BSIS is the main financial incentive on NGET to manage its external balancing costs on behalf of consumers. Under this scheme we incentivise NGET to reduce balancing costs below an efficient baseline. To do this we set a target cost for electricity SO balancing actions. This is based on the output of complex models which forecast the efficient level of balancing taking into account the outturn of system conditions. Under the existing scheme, NGET is allowed to keep 30% of any savings below the target, and is penalised 30% of any costs above the target. The total amount NGET can lose or receive under BSIS in each financial year is subject to a cap and floor of ±£30m.

Initial Proposals

1.20. In our August consultation we discussed the merits of maintaining the current BSIS design from April 2017. However, we also identified a number of limitations with the current model based approach, especially with the inherent asymmetry of information between us and NGET. That said, we outlined our view that we were minded to continue with the current framework while we reviewed the overall arrangements.

1.21. However, interim model results this year raised further questions about the ability of the BSIS models to generate an appropriate incentive target.[4] As a result of our discussions with NGET on the causes of the model performance, a number of model errors (as defined under Special Condition 4C.45; this can include assumptions or calculations preventing the models from producing accurate targets) have been identified and corrected.

1.22. In our Initial Proposals, we proposed to retain the current BSIS model-based incentive approach for 2017/18. NGET's identification of model errors, and their proposals to avoid these happening in future, increased our confidence that the models can provide a robust target for this year. We proposed some model improvements; lowering the cap and floor from ±£30m to ±£10m and the sharing factor from 30% to 10%. These symmetrical changes would lead NGET to continue to be incentivised for ±£100m around the target.

1.23. In addition, we proposed a tightening of the governance framework to include a backstop provision,[5] third-party auditing of the models and more powers to allow us to notify model errors. We considered that these measures would mitigate the risks of windfall gains or losses resulting from the model creating incorrect targets.

Stakeholder responses

1.24. While there was broad support from stakeholders on our position to maintain the model based target, several respondents caveated this with calls to reduce the incentive parameters. There was, in the main, support for a reduction in the incentive parameters to avoid the risks of windfall gains or losses to NGET. Two respondents other than NGET indicated their belief that NGET should face stronger financial incentives and questioned the rationale for reducing the incentive parameters. Several respondents highlighted their concerns with the high model targets and requested that the targets for previous years be re-examined.

1.25. NGET's response suggested an increase in the overall pot size with asymmetric caps and floors and sharing factors. NGET suggested a cap of £17 million with a floor of £12 million. It also proposed that it should be allowed to keep 20% of any savings (i.e. when costs are below target) between £0-45 million, and a 20% loss for additional costs (i.e. when actual spend is greater than the target) between £0-20million. It proposed that it be allowed to keep/lose 10% of any saving/loss between £45 million and £80 million or a loss between £20 million and £80million. NGET considered that the asymmetric caps and floors were necessary to balance the overall package, as they considered that the Black Start proposals (discussed below) provided them with significant downside risk.

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[4] A summary of BSIS can be found in Annex 1.
[5] Under the backstop provision, the incentive scheme would be frozen and NGET's performance return to zero (if NGET is outperforming) or the pro-rata floor (if NGET is underperforming). The Authority would be able to reinstate the incentive mechanism if NGET could provide sufficient evidence justifying the model performance.

1.26. NGET also had some concerns with the calculation of the backstop provision. It believed we should use quantiles on the historic incentive performance (i.e. the difference between actual spend and target) as a trigger for the backstop provision rather than standard deviation on the historical costs. Finally, NGET had some concerns that using the term 'model error' was not a true reflection of the mechanism.

1.27. There was broad support for proposals on model governance improvements. There was unanimous support for third party auditing and for a mechanism to allow us to request NGET to investigate whether the models are working correctly.

Final Proposals

1.28. After considering consultation responses, we decided that our initial proposals on the BSIS incentive parameters continue to be appropriate. We agree with the majority of respondents that the use of the BSIS models to set the incentive scheme is appropriate for a one-year interim scheme. We consider that the package we have proposed contains sufficient and proportionate checks and balances to protect consumers from the risk of over payments to NGET.

1.29. We have considered NGET's concerns regarding its exposure to downside risk on Black Start as part of the Black Start proposals and do not think it is appropriate to have asymmetric caps and floors. We have also considered whether to place different sharing factors in different parts of the curve as proposed by NGET and have decided not to do this as it would imply we place a greater value on some costs savings over others (i.e. the ones closest to the target). For the avoidance of doubt, we value all savings equally.

1.30. We assessed NGET's request with regard to the name of the process we use to ensure the model is appropriate to set a target and have decided to rename it as a 'model inaccuracy.' We believe this is appropriate as the mechanism covers both actual errors (e.g. typographical errors), but also the events where the model is no longer reflecting the underlying fundamentals.

1.31. Despite NGET's concerns we intend to continue to use two standard deviations from the historic targets as the trigger for considering whether the target should fall to zero for that month or to the floor. First, we consider that the target, rather than performance, is the key measure. Moreover, using performance as the trigger could result in a perverse incentive to increase the costs incurred in a month to reduce the incentive performance and avoid the backstop mechanism being triggered. Secondly, we believe the two standard deviation measure will create an appropriate range to cover potential poor performance in the models, although not necessarily a statistical 95% confidence interval. In addition, quantiles of the observed factors may not be an appropriate representation of the population of costs possible, in particular given the mild winters in the past few years. As indicated, the trigger is not automatic and there is scope for the Authority to reinstate the target if NGET provides evidence justifying the appropriateness of the target as a reflection of the expected economic and efficient costs a reasonable System Operator would incur.

1.32. We believe our proposals on changes to BSIS incentive parameters and model governance provide the appropriate safeguards for consumers in the interim BSIS scheme for 2017/18.

Treatment of Black Start costs

1.33. Black Start costs have, until now, been incentivised as part of BSIS. An ex-ante cost target has been agreed for each two-year period on the basis of our scrutiny of NGET's best estimates before the beginning of the scheme. As a consequence, NGET has had the opportunity to beat the target through efficient contracting.

1.34. Black Start costs were relatively predictable for a number of years, but have now increased from £19.2million for 2015/16 to up to £147million for 2016/17.[6] This sudden and significant deviation from trend raises question on the validity of using a historical time series as a good predictor of future costs.

Initial Proposals

1.35. In our initial consultation we asked stakeholders for views on the best way to incentivise NGET to incur efficient costs when procuring Black Start from April 2017.

1.36. In our Initial Proposals,[7] we noted that we saw benefit in continuing to explore the best regulatory approach for Black Start in the future. However, for the interim period, we proposed to apply an efficiency check approach where NGET recovers costs incurred in line with methodologies which are reviewed by the Authority.

1.37. Table 2 summarises the key aspects of our proposed Black Start regulation for 2017/18:

Table 2: Summary of our Black Start Initial Proposals

SO requirement	***Description***
Black Start strategy	Requirement for NGET to develop and publish a Black Start strategy approved by the Authority to be reinstated at the beginning of the incentive year. The strategy should explain how NGET is meeting the principles set out in this chapter in

[6] Costs are not certain until the end of the year given that warming patterns or claw-backs in some contracts might lower costs.
[7] Chapter 3 of our Initial Proposals Consultation

	the short, medium and long-term. The strategy should be reviewed annually to reflect a changing system.
Black Start Procurement methodology	Requirement for NGET to set out how it will select and contract with Black Start service providers and foster a market that minimises the cost to consumers. This methodology should be submitted to the Authority for approval.
Annual audited report	Requirement to submit to the Authority (and to publish) an annual report on how NGET has complied with its strategy and procurement methodologies and the costs incurred in doing so. This report should be supported by an independent auditor's report.
Efficiency check	Process by which the Authority will assess the annual report submitted by NGET with the ability for the Authority to seek further information and disallow any non-compliant costs up to 3 months after the submission of the report.
Licence obligations/incentives	Further work with industry ahead of 2018 with the possibility of introducing new obligations or incentives on desirable SO behaviours.

1.38. The policy was based on a set of principles which we presented in our Initial Proposals document and which we believe will help make Black Start regulation fit for purpose for the years to come.

Stakeholder responses

1.39. Stakeholders saw our proposal to remove Black Start regulation from BSIS and the introduction of an efficiency check mechanism as appropriate given the Black Start related income adjusting event process in summer 2016. [8]

1.40. Four respondents, including NGET, voiced a preference for retaining Black Start in BSIS. NGET stated that setting a target for Black Start warming costs is

[8] In May 2016, NGET applied to the Authority to adjust its income in BSIS to exclude two Black Start contracts signed for 2016/17 from its incentive performance. The Authority determined a £54 million adjustment to NGET's income.

”relatively straightforward” but did not elaborate on how to do so. One stakeholder supported the removal of costs from BSIS in principle, but thought it would not be possible to realise any benefits of this in time for 2017/18. Other stakeholders raised concerns that an *ex post* assessment could allow rationalisation of poor planning and that we should not introduce changes until 2018.

1.41. Whilst respondents acknowledged that an alternative regulatory mechanism for Black Start costs cannot be implemented in time for 2017-18, they recognised that the significant rise in costs must be curtailed in some way. Alternatives proposed by respondents included a cap and floor on the overall Black Start costs to maintain sufficient financial incentives for NGET to procure services efficiently.

1.42. All but one respondent were supportive of the principles we proposed for Black Start regulation. Respondents particularly supported a greater focus on transparency and suggested that the current proposals could go further in addressing the need for transparency in procurement and market liquidity, including through industry involvement in agreeing the appropriate level of resilience and technical standards.

1.43. NGET expressed the view that the proposals were not appropriate for 2017/18. It stated that the proposed approach exposes it to uncapped risk on Black Start contracts that it will have already concluded for next year, which could incentivise risk-averse behaviour when significant new investment is needed. Instead, NGET recommended implementing a cap and collar on availability and capital costs, while keeping the costs of warming Black Start providers in BSIS. Two other respondents agreed that there is some merit to including warming costs in the general BSIS target.

1.44. NGET stated that it will not be able to develop a strategy and methodology in time for it to be effective for the costs incurred for the scheme year 2017/18. This is because all contracts are agreed well in advance of the delivery year. As a result, NGET proposed that costs for 2017/18 should be assessed against condition C16 of its Electricity Transmission Licence, which requires economic and efficient behaviour by NGET.

1.45. NGET also requested a reliability standard setting out the required level of resilience. We can see the value of the introduction of such a standard because it would provide more transparency regarding NGET’s procurement decisions.

Final Proposals

1.46. We have carefully considered the views of stakeholders, including the arguments put forward by NGET. Although some stakeholders supported keeping black start costs within BSIS, they did not provide views on how to set a robust target for these costs. We therefore do not consider this to be a credible option for this year given the uncertainty regarding the cost outturn. So, on balance, we have decided to maintain our Initial Proposals and make one change in regards to the maximum exposure of NGET under this mechanism.

1.47. We have decided to cap the maximum losses of NGET under this mechanism to 10% of the total Black Start costs incurred for that year. We have considered this a proportionate step because of the particular circumstances surround these costs. However, it should not be implied that capping the maximum losses under an efficiency check mechanism will be a routine feature of this type of mechanism.

1.48. However, this would not preclude the Authority from, or fetter the Authority's power to take, enforcement action against NGET in the event that there were to be a breach of Licence Condition C16 of its Electricity Transmission Licence. We expect that this should adequately allocate risk in procuring Black Start in difficult market conditions, and provide an incentive for NGET to reduce costs as the maximum disallowance will decrease in line with total costs

1.49. For costs incurred before the methodology and strategy is approved, we will assess them against NGET's obligations to be efficient, economic and co-ordinated under Standard Condition C16.

1.50. We will use the 2017/18 scheme as an opportunity to conduct a thorough review of the Black Start regulatory framework and of how NGET fulfils its function. We will also monitor the effectiveness of this framework and its impact on competition.

Forecasting incentives

1.51. As part of its role as SO, NGET forecasts and publishes short-term demand and wind generation forecasts. Accurate forecasts allow better SO planning of balancing actions (a core SO function). They also (if published) help market participants self-balance and respond effectively to price signals. As such they have an important role in facilitating competition.

1.52. Inaccurate forecasts, on the other hand, can send misleading signals which can lead to inefficient trading and dispatch, creating unnecessary costs to market participants, and ultimately to consumers.

Initial Proposals

1.53. In our initial proposals, we consulted on maintaining the day-ahead wind generation forecast incentive and introducing three new incentives on demand forecasting at the day-ahead, two-days ahead and week-ahead stages.

1.54. We proposed a similar structure for the four incentives. The structure is summarised in Table 3 below:

Table 3: Summary of structure of forecasting incentives

Parameters	Description
Targets	• Target on the accuracy of the forecast

	• Target on the unbiasedness of the forecast
Incentive value	• ±£1m per incentive • ½ of incentive value on accurate forecasts in winter[9] • ¼ of incentive value on accurate forecasts in summer[10] • ¼ of incentive value on unbiased forecasts

1.55. We proposed to leave the wind generation forecasting targets unchanged but to incentivise the half-hourly rather than the hourly forecast. On the demand forecast, we proposed to incentivise national demand measured using settlement data.

1.56. We also proposed to introduce a requirement to produce a quarterly report, which would help market participants to understand the forecasts NGET is producing, the source of forecast errors, and what it is doing to improve the quality of forecasts.

Stakeholder responses

1.57. Stakeholders were broadly supportive of maintaining the wind generation forecasting incentive as well as introducing new demand forecast incentives and a quarterly report.

Wind generation forecast incentive

1.58. There was support for our Initial Proposal to incentivise the half-hour wind generation forecasts rather than the current hourly incentive. One non-NGET stakeholder, however, believed that we should not make any change to the interim scheme. There was also, in general, support for maintaining the monthly incentive cap to ensure the incentive was spread out across the year.

1.59. Two stakeholders raised the question of whether accurate wind generation forecast should form part of the SO baseline behaviour (i.e. whether this is something which should be expected of a prudent SO) either at present or after the interim scheme.

1.60. NGET believed the targets should be increased by 0.5% to account for greater forecasting difficulty and that the incentive scheme should be expanded to included embedded wind generation.

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[9] Winter is defined as the period October to March.
[10] Summer is defined as the period April to September

1.61. A number of stakeholders raised a concern regarding the exclusion of BM actions on wind from the incentive mechanism. One stakeholder noted that greater transparency on the balancing actions taken on wind was important to the market, however noted this information was needed closer to real time rather than in a quarterly report.

Demand forecast incentives

1.62. A number of stakeholders saw the incentive on demand forecasting as a sensible tool to drive improved performance. However, similarly to the wind generation forecast, there were some questions on whether this is not part of NGET's baseline obligation.

1.63. There were some differences of opinion regarding which forecast should be incentivised and whether we should move to a half-hour incentive. Other respondents raised questions about how we should address solar and embedded generation. One stakeholder noted that we should not underplay the impact that forecast errors can have in summer despite wholesale market prices being lower.

1.64. NGET supported having demand incentives but had a number of concerns on the design of the incentive scheme. In particular, it raised concerns regarding the risk of poor performance on the unbiasedness element of the incentive regardless of model quality. It also raised questions on whether to use percentage or absolute targets and how to account for input errors from weather data providers.

Quarterly report

1.65. There was broad support for the quarterly report. Some stakeholders noted that it would be preferable to have the report on a monthly basis and in a spreadsheet format. It was also noted that the report needed to not only be informative but also explain the reasons for the variations to forecasts.

1.66. NGET was keen that the report did not become over burdensome to produce and read and proposed a number of clarifications on the scope.

Final Proposals

1.67. We continue to believe that it is in the interest of consumers to maintain the **wind generation** forecast incentive for 2017/18. We have also decided to introduce the three new incentives for 2017/18 on the day-ahead, two-day ahead and week ahead **demand forecasts** as well as the requirement for a **quarterly report**.

Incentive structure

1.68. We have decided to remove the differences in seasonal value between summer and winter for all of the forecasting incentives. This recognises stakeholder feedback that while winter sees higher electricity prices, we should not understate the impact changes in demand and wind output can have on market participants balancing their positions. The rebalancing of the incentive value across seasons resulted in a monthly incentive cap of £62,500. We accordingly also revised the daily forecast cap and floor to ±£3,000.

1.69. To simplify the scheme but still take into account that all else held constant there is a lower likelihood that NGET forecast errors will be close to 0%, we have decided to increase the monthly scheme floor to -£31,250 and remove the logarithmic function we suggested as part of our Initial Proposals document.

1.70. In response to NGET concerns that the proposed unbiased element of the incentive would lead to a high probability of underperformance regardless of the quality of the forecasts, we have decided to alter the mechanism. We have increased, from one to two, the number of individual forecasts (e.g. morning peak and darkness peak forecasts) across a month that if consistently over or under-forecasted would lead to NGET hitting the floor under the mechanism. This change means that there is a very low probability that NGET would underperform if its forecasting models are accurate. We have made no further amends to the general structure of the incentives.

Wind generation forecast

1.71. We have decided not to fundamentally alter our Initial Proposals on the wind generation forecast incentive. We have decided to introduce a half-hour granularity and will continue to measure NGET's performance as its average performance for the day.

1.72. We are also maintaining the targets at 3% during the summer (April to September) and 4.75% in winter (October to March). This is because NGET is yet to reach this level of performance and the targets were set using the pre-2015 forecast error. Given NGET was rewarded for that performance, we continue to believe it would not be appropriate to reset the target now.

Demand forecasting incentives

1.73. Following responses, we have made a number of changes for the three new demand incentives for 2017/18. First, we have decided to apply quarterly rather than seasonal targets so as to better capture variations in performance.

1.74. We have also decided not to base performance on the average forecast accuracy for the day, but rather on the individual performance of each forecast within a day. To achieve this, we are introducing a mechanism that divides the daily ±£3,000 cap and floor by the number of forecasts in the day and rewards performance for each of the forecasts.

1.75. After further engagement with NGET, we have decided to set these incentive against the definition of National Demand in the Grid Code that is equivalent to operational demand. This is because NGET is already required to produce these forecasts and given this is an interim scheme, there is less benefit to require NGET to produce a whole new set of forecasts to the market.

1.76. On the target levels, following receipt of the correct data from NGET, we have decided to set the target using the average performance for the past three years. We have also decided to set the target for each cardinal point forecasted in each target as a MW forecast error.

1.77. However, given a number of very high forecast errors in the past three years, we have decided to exclude all forecasts with a forecast error greater than 5GW from the calculation of the incentive target. This allows us to measure NGET's performance against a credible range of forecast errors.[11] Moreover, we have excluded from the incentive, cardinal points that are only rarely forecasted by NGET or periods where a cardinal point is not forecasted.

Quarterly report

1.78. We have decided to introduce the requirement for the quarterly report without making any further changes to it. While our conditions provide an appropriate starting point for the information provided, we expect NGET to continue engaging with stakeholders to ensure it is fulfilling our clarified C16 licence obligation to provide the information stakeholders need to enable them to make efficient operational and investment decisions.

SO-TO mechanism

1.79. The relationship between NGET and the TOs is becoming increasingly important with strong interdependencies between the two. However, there is a gap in the current arrangements where the TO could incur increased expenditure to reduce overall system costs.

1.80. At present, there is no mechanism through which NGET can fund the TO for carrying out works which lead to overall system cost savings. For example, the TO could build a temporary tower so as to maintain a circuit operational when upgrading a section of the network, or add an additional shift of work to minimise the outage period.

[11] The final forecast errors can be found in Appendix 2 – Demand forecasting targets

Initial Proposals

1.81. In our Initial Proposals,[12] we consulted on amending NGET's licence to introduce a pilot mechanism to allow NGET to exchange funds with the TO when doing so would reduce overall system costs and the work performed was above any obligation from the TOs under other price control or incentive mechanisms. Table 4 below summarises the key facts and figures in our proposed policy.

Table 4: Summary of SO-TO mechanism

SO-TO Mechanism: Key facts and figures	
Size of fund pot for pilot scheme	£1.4million
Length of mechanism	one year pilot
Cap and floor	±£1m
Sharing factor	10%
Anticipated size of projects under mechanism	£10k - £100k

1.82. We also proposed to introduce a mechanism for projects that exceed the proposed budget, where NGET would be able to apply for funding if it met certain criteria.

1.83. To enhance transparency on the mechanism, we proposed that a quarterly report should be published setting out the projects considered and undertaken as part of this mechanism. The final annual report would then be used to set out any incentive payment/penalty following consultation with stakeholders.[13]

Stakeholder responses

1.84. Stakeholders broadly supported the introduction of a mechanism that allowed transfers between the SO and the TO that minimise total cost to consumers.

1.85. There was some disagreement on whether the incentive should include the England and Wales TO or whether it should be broadened to include distribution network operator. Another stakeholder raised the question on whether the scope should be expanded to allow developers to pay the TO for services that would expedite outages in the network.

1.86. NGET had some concern that the pilot nature of the scheme meant that longer-term trade-offs could not be made this year. There was some disagreement on whether the pot size was sufficient to allow for all the opportunities under the pilot to be explored, while some stakeholders saw the incentive as too large given

[12] Chapter 5 of our Initial Proposals Consultation.
[13] Further information on our Initial Proposals can be found in that consultation.

the pot size. However, NGET and other stakeholders agreed that it was beneficial to introduce a pilot for 2017/18.

1.87. Most stakeholders were supportive of having a quarterly report. It was noted that the report should have enough evidence so as to allow the industry to understand the benefits of the pilot scheme. NGET asked for some clarification on the scope of the report, but stressed that it saw the quarterly frequency as too onerous and instead preferred a six-month report. NGET added that some of the information may be commercially confidential in nature and that some of its stakeholders may request that the information may not be published.

Final Proposals

1.88. We continue to believe that a pilot of the SO-TO mechanism would be useful to understand the effectiveness of the mechanism before making a decision on whether to expand, modify or remove it. We also believe it is appropriate for the pilot to exclude payments to NGET itself given the current integration between the SO and the TO in England and Wales. However, we recognise that different schemes and mechanisms may dampen somewhat the drive to optimise between SO and TO revenue within NGET.

Transparency, Model Development and Innovation

Transparency

Background

1.89. NGET sits at the centre of the electricity wholesale market. It regularly engages with most market participants and has access to large amounts of centrally collated information. It takes real-time and forward-looking decisions based on this information.

1.90. It is important that stakeholders understand the decisions made by NGET on contracting and using services, as this informs their own investment and operation strategies. Transparent decision-making can in turn reduce system operation costs as clear signals are provided to the market, driving innovation, competition, and efficiency. Greater transparency should also allow market participants to hold NGET accountable for its actions.

Initial Proposals

1.91. Our Initial Proposals consultation outlined our intention to clarify what our expectation of NGET behaviour is in its licence to improve on transparency and openness of procurement from April 2017. We believe it is important to start in 2017/18 so that the SO incentive scheme from 2018 can build on the baseline set this year.

1.92. A number of these clarification points were designed to address these issues, in particular clarifying that NGET must be economic and efficient by:

- publishing the system operation information electricity market participants need in order to make efficient operational and investment decisions;
- producing and publishing reliable and unbiased forecasts of future margins, demand, wind generation and balancing costs;
- ensuring the procurement of balancing and ancillary services is as transparent as possible;
- ensuring that balancing and ancillary service product requirements do not inefficiently restrict new and existing providers from competing;
- anticipating future system requirements and using and developing competitive approaches to procuring balancing services wherever this is in consumers' best interests.

1.93. We did not propose to set a financial incentive in this area. Primarily, we believe that being transparent and having an efficient procurement process are behaviours and actions that NGET should do as part of its baseline behaviour and are funded via its internal SO cost price control under RIIO-T1.

Stakeholder Responses

1.94. Respondents to our Initial Proposals consultation broadly agreed that our proposals will enhance transparency and reiterated the importance of improvements in this area.

1.95. The majority of respondents also agreed that a financial incentive on transparency was not needed. Respondents largely held the view that transparency should be part of baseline SO behaviour and that the licence conditions provide sufficient incentive for the SO to behave in a manner that maximises transparency in procurement activities.

1.96. However, a few respondents suggested that the proposals did not go far enough to develop transparency in the SO balancing actions and how NGET procures balancing services. These respondents suggested a new formal incentive was needed to address transparency and market distortions.

1.97. NGET agreed that the proposals would increase transparency. NGET noted however that the proposals would include significant changes to the role of the SO which would place an undue burden on it. NGET noted that the role of the SO will become significantly more complex in the future and that changes to the SO role required to meet this challenge should be considered in the round as part of the review of the SO Regulatory Framework.

1.98. NGET did not agree with our proposal to not introduce a financial incentive on transparency. NGET noted that a financial incentive on transparency during this interim period would provide a means of measuring the effectiveness of the SO in transforming their processes and provide an incentive on the level of effectiveness achieved.

Final Proposals

1.99. We have decided to not make any change from our initial proposals. We continue to believe that transparency as noted by our clarifications to licence condition C16 form part of the baselined behaviour expected from NGET. We consider that NGET can deliver significant improvements in this area without the need for a new financial incentive.

Model Development Licence Condition

Background

1.100. The current BSIS regulatory framework is centred around two models: a constraints model and an energy model. The outputs from these two models are currently combined with a Black Start cost target to form one overall scheme target designed to reflect the costs NGET should economically and efficiently incur.

- The **constraints model** uses linear optimisation to derive NGET's optimal strategy to manage constraints in the balancing mechanism and then applies a discount to account for actions taken outside that mechanism

- The **energy model** is an econometric-based model that uses the historic relationship between the volume of services and costs of balancing the system to derive a target for NGET's energy balancing actions.

1.101. The Model Development Licence Condition (MDLC) sets a requirement on NGET to continue to develop these models.

Initial Proposals

1.102. We proposed to retain the MDLC obligation on NGET. We proposed to amend the licence condition to include a requirement for NGET to get third party scrutiny on areas where the model can be improved.

Stakeholder Responses

1.103. Stakeholders agreed with our proposal to retain MDLC and on the whole believe model improvements should be pursued as a result of maintaining MDLC. Stakeholders shared the view that the continuous development of the model will enable a better basis for how the models could be improved in the future.

1.104. NGET also agreed with our proposal to retain MDLC and noted that the MDLC supports the operation of the models used for BSIS and the incentive scheme.

1.105. In addition, stakeholders were in agreement that we need to require NGET to get third party scrutiny on areas of the model that could be improved. Stakeholders expressed that third-party scrutiny would further reinforce governance around BSIS model and models fit for purpose. One stakeholder noted that we must ensure that there are no conflicts of interest with the limited number of parties in the position to undertake such scrutiny.

1.106. NGET did not agree with the proposed amendment to the MDLC. NGET stated the new governance measures, including a pre-scheme independent audit of the models and enhanced scheme performance monitoring, should inform where attention is required to improve the model.

Final Proposals

1.107. We have decided to remove the requirement for an independent audit of the model under this condition as we agree that the independent review already conducted as part of the approval of the BSIS models should be sufficient to understand the models strengths and weaknesses for 2017/18. We have made no further amends from our Initial Proposals.

System Operator Innovation Roll-Out Mechanism

Background

1.108. The SO Innovation Roll-out Mechanism (SO-IRM) was introduced as part of the Electricity SO incentive scheme (2013-15) and was continued, with some improvement, in the following two-year scheme (2015-17).

1.109. The SO-IRM allows NGET to apply for up to £10m in funding to implement up to three innovative techniques which provide benefits to consumers beyond the two-year incentive scheme. We then considered whether the application meets certain requirements as set out in NGET's licence.[14]

Initial Proposals

1.110. We proposed to remove the SO-IRM provision from NGET's licence for the interim scheme.

Stakeholder Responses

[14] Set out in Special Condition 4J of NGET's licence. The criteria for a project is that it: will deliver low carbon or environmental benefits; will provide long term value for money for the consumer; will not result in the licensee receiving commercial benefits; and will not be used to fund innovation that NGET would have ordinarily implemented

1.111. Stakeholders were supportive of our proposal to discontinue the System Operator Innovation Roll-Out Mechanism. Stakeholders believed that the mechanism was redundant given that NGET had not applied for any funding in 2015-17.

1.112. In addition, stakeholders were in agreement that in light of the limited duration of the interim scheme, more focus should be given to the preparation of the 2018 scheme.

1.113. National Grid also supported the discontinuance of the SO-IRM provision; holding the view that the most efficient use of both the SO and our resources would be the delivering the current interim scheme and the future scheme to a high standard.

Final Proposals

1.114. We have decided to discontinue the System Operator Innovation Roll-Out Mechanism for the reasons outlined in our Initial Proposals and summarised above.

Next steps

1.115. We have today also launched our statutory consultation on the modification of NGET's licence to introduce the C16 clarifications and the incentive scheme for 2017/18. Subject to respondents' views, we will publish a modification direction introducing this framework for 2017/18.

1.116. The licence condition will take 56 days to come into force, however, it will be applicable from 1 April 2017. We believe this is a proportionate approach for NGET and stakeholders given that these proposals and our policy development so far have clearly indicated that our proposals will take effect from that date. In addition, this will ensure that NGET is incentivised for the entirety of the incentive scheme period.

Appendices

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Appendix 1 – Current SO incentives

1.1. The table below summarises the current incentive scheme in place until 31 March 2017:

Characteristic	Description	BSIS scheme
Key parameters		
Scheme length	Amount of time that the scheme is in place	Two-year scheme with one-year update of target, cap and floor and some inputs
Target setting approach	Methodology used to define the target against which the SO's costs are compared	Use of energy and constraints models to identify a target for energy balancing and system balancing costs. These are combined with the Black Start target to form one overall scheme target
Cap and floor	Maximum return/loss that the SO can make from the scheme	±£30m in **each year** of scheme
Income adjusting events (IAEs)	Provisions to apply for changes to the target in light of unforeseen events	Materiality threshold for opening an application to £10m. Tight definition to provide greater certainty
Sharing factor	Percentage of under/overspend that the SO retains	30%
Black start target	How the cost incurred by the SO in order to procure sufficient Black Start capability is treated	Target set up front built up from the different costs which we would expect the SO to incur over the scheme period. We will provide the SO with the ability to apply for changes to the cost target for the second year of the scheme in certain areas. For example, where the SO identifies opportunities for enduring cost savings or if it identifies market developments outside of its control that will significantly impact against the target.
Additional Incentives		

System Operation-Innovation Roll-out Mechanism	Funding for roll-out of innovation (Technology Readiness Level 9[15]) that moves towards enduring approach objectives	Up to £10m available to roll-out innovation, funded through charges on system users
Wind generation forecasting incentive	Incentive on the accuracy of the SO's day ahead wind generation forecasting	A maximum of ±£300k (for winter, £200k for summer) each month based on the SO's day ahead forecast accuracy measured against a defined target
Transmission losses incentive	Incentives for the SO to reduce transmission losses where possible and report on transmission losses	An incentive requiring the SO to report on actions it takes which contribute to transmission losses
Model development licence condition	Requirement for the SO to develop the models which are used to set a target under a scheme	Requirement to continue developing models. Focus on working with stakeholders to ensure models remain fit for purpose and are able to make robust forecasts of future balancing costs

[15] Technology Readiness Level (TRL) refers to the stage of innovation of a technology. A TRL of 9 indicates the roll out stage of development

Appendix 2 – Demand forecasting targets

1.1. The three tables below display the final targets for the demand incentive scheme for 2017/18:

Table 5: Day-ahead demand forecasting targets

Cardinal Point	April – June 2017	July – September 2017	October – December 2017	January – March 2018
L03	No incentive	No incentive	551	473
1A	416	358	484	421
1B	415	349	430	437
1F	335	338	489	420
1S	355	324	362	No incentive
2A	518	528	584	606
2B	630	615	634	728
2F	497	539	549	680
3B	742	661	692	759
3C	682	608	690	No incentive
4A	640	606	No incentive	No incentive
4B	457	516	462	402

4C	344	351	402	396
DP	No incentive	No incentive	603	519
L04	No incentive	No incentive	No incentive	No incentive

Table 6: Two-day ahead demand forecasting targets

Cardinal Point	April – June 2017	July – September 2017	October – December 2017	January – March 2018
L03	No incentive	No incentive	550	475
1A	453	363	532	455
1B	464	391	487	484
1F	342	350	523	463
1S	405	342	379	484
2A	634	606	653	732
2B	764	726	777	926
2F	558	613	582	756
3B	939	748	853	1000
3C	927	688	849	898

4A	747	711	318	839
4B	493	534	524	453
4C	342	359	437	413
DP	No incentive	No incentive	762	723
L04	No incentive	No incentive	No incentive	No incentive

Table 7: Week ahead demand forecasting targets

Cardinal Point	April – June 2017	July – September 2017	October – December 2017	January – March 2018
L03	No incentive	No incentive	622	566
1A	589	496	848	783
1B	555	498	862	822
1F	485	486	823	795
1S	465	379	375	354
2A	1154	1030	983	1099
2B	1269	1139	1171	1286
2F	969	1088	979	1140

3B	1307	1108	1229	1394
3C	1163	881	1009	1485
4A	833	767	133	1124
4B	713	644	962	911
4C	566	516	770	764
DP	No incentive	No incentive	1262	1073
L04	No incentive	No incentive	No incentive	No incentive

Appendix 3 - Glossary

A

Ancillary Services

Mandatory, necessary or commercial services used by the electricity System Operator to manage the system and to meet their licence obligations.

The Authority/Ofgem/GEMA

Ofgem is the Office of Gas and Electricity Markets, which supports the Gas and Electricity Markets Authority (GEMA), the body established by Section 1 of the Utilities Act 2000 to regulate the gas and electricity markets in Great Britain.

B

Balancing Mechanism (BM)

The mechanism by which the electricity System Operator procures commercial services (Balancing Services) from generators and suppliers post gate closure, in accordance with the relevant provisions of the Balancing and Settlement Code (BSC) and the Grid Code.

Balancing Services

The services that the electricity System Operator needs to procure in order to balance the transmission system. Balancing services include ancillary services.

Balancing Services Incentive Scheme (BSIS)

A scheme that has been applied to NGET to incentivise efficient balancing of the transmission network.

Balancing Services Use of System charges (BSUoS)

The half-hourly charge levied by the electricity System Operator on users of the transmission system in order to recover the costs of operating the transmission system and procuring and utilising Balancing Services.

Bid-Offer Acceptance (BOA)

A BOA is an instruction issued by NGET to a Balancing Mechanism power station to change its generation profile through the acceptance of a bid or offer.

Black Start

If the electricity system experiences a full or partial shutdown, isolated power stations that have Black Start capability (an auxiliary generating plant located on-site) are started individually and gradually connected to each other to form an interconnected system again.

C

Cap

The maximum incentive payment NGET is permitted to receive as part of an incentive scheme (this may also be subject to a 'sharing factor').

Consumer

In considering consumers in the regulatory framework we consider users of network services (for example, generators, shippers) as well as domestic and business end consumers, and their representatives.

Constraints (also known as congestion)

A constraint occurs when the capacity of transmission assets is exceeded so that not all of the required generation can be transmitted to other parts of the network, or an area of demand cannot be supplied with all of the required generation.

E

Ex-ante / Ex-post Inputs

Ex-ante inputs to National Grid's models are those whose values are set prior to the start of the scheme and are not updated as the scheme progresses (except under specific agreed circumstances). Ex-post inputs are collected on a monthly basis using outturn data. Ex-ante and ex-post data are combined with the agreed models to determine the level of costs against which National Grid should be incentivised.

Electricity Margin Notice

Formal Grid code communication that informs the market that NGET's reserve is not as big as it would like it to be at a particular time of that day. It was previously known as a NISM (Notice of Inadequate System Margins.

Energy Imbalance

Energy imbalance costs are those incurred by National Grid to correct for differences between the generation supplied by the market and the demand on the system (see also Market Length).

F

Floor

The maximum loss NGET can make as part of an incentive scheme (this may also be subject to a 'sharing factor').

Frequency Response

The electricity SO has a statutory obligation to maintain system frequency between +/− 1% of 50 hertz. The immediate second-by-second balancing to meet this requirement is provided by continuously modulating output through the procurement and utilization of mandatory and commercial frequency response.

I

Income adjusting event (IAE)

An unforeseen event has resulted in unexpected costs or savings of greater than a set limit, known as the materiality threshold.

Interconnector

Equipment used to link electricity or gas systems, in particular between two Member States.

L

Licence conditions (obligations)

Obligations placed on the network companies to meet certain standards of performance. The Authority (GEMA) has the power to take appropriate enforcement action in the case of a failure to meet these obligations.

N

National Grid Electricity Transmission (NGET)

NGET is the Transmission System Operator for Great Britain. As part of this role it is responsible for procuring balancing services to balance demand and supply and to ensure the security and quality of electricity supply across the Great Britain Transmission System.

O

Outputs

What the SO is expected to deliver.

P

Plexos

A modelling tool for power market analysis.

Price control

The control developed by the regulator to set targets and allowed revenues for network companies. The characteristics and mechanisms of this price control are developed by the regulator in the price control review period depending on network company performance over the last control period and predicted expenditure in the next.

R

RIIO–T1

RIIO–T1 is the first transmission price control review under the new regulatory framework known as RIIO (Revenue = Incentives + Innovation + Outputs). The RIIO model builds on the previous RPI-X regime, but is designed to better meet the investment and innovation challenge by placing much more emphasis on incentives to drive the innovation needed to deliver a sustainable energy network at value for money to existing and future consumers.

S

Sharing factors

For cost incentives, these describe the percentage of profit or loss which NGET will have to bear if the relevant incentive performance measure falls below or exceeds the relevant incentive target. For output incentives, these describe the percentage of profit or loss which NGET will have to bear if the relevant incentive performance measure exceeds or falls below the relevant incentive target.

Short Term Operating Reserve (STOR)

A service that provides additional active power from generation and/or demand reduction.

SO External costs

The costs National Grid incurs in relation to the operation of the gas and electricity system. These costs include contracts for balancing activities in electricity, purchasing energy to transport gas and entering into trades on the commodity market (gas) and the Balancing Mechanism (electricity).

SO Internal costs

Internal costs relate to NGET's own costs associated with its SO activities, such as building, staff and IT costs.

Stakeholder

Stakeholders are those parties that are affected by, or represent those affected by, decisions made by network companies and Ofgem. As well as consumers and companies involved in the energy sector, this would for example include Government and environmental groups.

System Operator (SO)

The entity charged with operating either the GB electricity or gas transmission system. NGET is NGET of the high voltage electricity transmission system for GB.

SO:TO code

The SO:TO code defines the relationship between the SO and the TOs in GB.

T

Transmission Losses

Electricity lost on the GB transmission system through the physical process of transporting electricity across the network. The treatment of transmission losses is set out in the BSC.

Transmission Owner (TO)

There are three separate high voltage electricity Transmission Owners in GB. National Grid Electricity Transmission (NGET) owns and maintains the high voltage electricity transmission system in England and Wales. Scottish Hydro–Electric Transmission Limited (SHETL) is the electricity transmission licensee in Northern Scotland and Scottish Power Transmission Limited (SPT) is the electricity transmission licensee in Southern Scotland.