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Electricity System Operator incentives 2015-17: Final Proposals

Consultation

Publication date: 19/03/2015

Response deadline: 16/04/2015

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Overview:

This document sets out final proposals for incentive arrangements placed on National Grid Electricity Transmission (NGET) as the electricity system operator. These take effect from April 2015 and will run for two years until March 2017. They are based largely on the 2013-15 incentive scheme.

Final proposals for the 2015-2017 incentives feature targeted improvements drawn from lessons learned in the 2013-2015 scheme and contain sharper incentives to reflect the future challenges of operating the system. This scheme aims to incentivise NGET to increase the efficiency of its system operation and improve the quality of the information it provides to the market.

SO incentives support the delivery of three of the consumer outcomes in our corporate strategy: **lower bills** than would otherwise have been the case; **reduced environmental damage** both now and in the future and **improved reliability and safety**.

Alongside these final proposals, we are launching a statutory consultation to implement the new incentives in NGET's licence. We are seeking stakeholder feedback on these final proposals and how accurately the draft licence conditions reflect them.

Context

National Grid Electricity Transmission plc (NGET) is the electricity system operator (SO) for Great Britain. It is responsible for balancing the electricity system by ensuring that generation on the national electricity grid matches demand on a second by second basis. To do this, the SO buys and sells energy and procures associated balancing services. It also provides valuable information to market participants, such as forecasts of wind generation.

Ofgem regulates the actions of the SO to ensure its operational costs are optimised, delivering value for money to the consumer. Building on statutory obligations which require the SO to act in an economic, efficient and co-ordinated manner, we have historically driven the performance of the SO and shaped aspects of its behaviour through incentives.

Associated documents

- Statutory consultation on NGET's licence change: https://www.ofgem.gov.uk/ofgem-publications/93986/licenceconditions-finalproposals-pdf
- Electricity System Operator Incentives 2015-17: Initial Proposals: https://www.ofgem.gov.uk/publications-and-updates/electricity-system-operator-incentives-201517-initial-proposals
- Electricity System Operator Incentives: Incentives from 2015: https://www.ofgem.gov.uk/publications-and-updates/electricity-system-operator-incentives-incentives-2015
- Approval of revision to National Grid Electricity Transmission's Black Start cost target: https://www.ofgem.gov.uk/publications-and-updates/approval-revision-national-grid-electricity-transmissions-black-start-cost-target
- Integrated Transmission Planning and Regulation (ITPR) project: draft conclusions: https://www.ofgem.gov.uk/publications-and-updates/integrated-transmission-planning-and-regulation-itpr-project-draft-conclusions
- Electricity System Operator Incentives 2013-14: System Operator Innovation Roll-Out Mechanism Determination: https://www.ofgem.gov.uk/publications-and-updates/electricity-system-operator-incentives-2013-14-system-operator-innovation-roll-out-mechanism-determination
- Funding arrangements for new balancing services: Final Proposals: https://www.ofgem.gov.uk/publications-and-updates/funding-arrangements-new-balancing-services-final-proposals
- Draft license conditions review: https://www.ofgem.gov.uk/ofgem-publications/90975/elec-amendedlicenceconditions-initialproposals.pdf

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Executive Summary

In this document, we explain our final proposals to place new incentive schemes on National Grid Electricity Transmission (NGET) as electricity system operator (SO), to apply from 1 April 2015 to 31 March 2017.

NGET is responsible for balancing the electricity system on a continuous basis. The costs that NGET incurs in carrying out this role are passed through to users of the system via balancing services use of system (BSUoS) charges. Consumers see these costs reflected in their electricity bills. In recent years, BSUoS costs has outturned at about £850 million per annum. The SO incentive schemes encourage NGET to carry out its SO role efficiently. This forms part of our work to achieve our consumer outcome to achieve lower bills than would otherwise be the case.

The current electricity SO incentive scheme will expire on 31 March 2015. We have seen incremental improvements in the effectiveness of the existing incentive framework, in particular the effectiveness of the models which are used to derive the scheme's targets. The scheme has effectively incentivised NGET to deliver efficiencies in its operation of the transmission system. We are therefore proposing to introduce a new two year incentive scheme based on the existing incentives to apply from 1 April 2015.

Going forward, the role of the electricity SO will continue to change as there is increased intermittent generation on the system. Our intention is to undertake a more fundamental review of the SO regulatory framework to ensure that it is fit for purpose in the medium to long term. We do not consider it possible to undertake this review at this time as there are a number of ongoing projects that could influence the role of the SO.

Transparency of decisions made and actions taken by NGET is vital to the efficient functioning of the wholesale electricity market. Transparent decision making provides certainty and sends clear signals to the market driving innovation, competition and efficiency. We intend to work with NGET over the next two years to ensure that appropriate transparency of its actions is provided to the market. We also expect NGET to look for ways of increasing the transparency of the models that are used to derive the incentive scheme target.

The incentive framework sets an overall cost target which is comprised of energy balancing and constraint costs (main incentive), a target for black start services and an incentive on wind generation forecasting. Also included in the framework is an obligation to introduce transparency, ensure continuous development of its models and report on the level of transmission losses on the system. The framework contains a mechanism to promote the introduction of innovative techniques to aid system balancing.

Initial Proposals

1.1. In October 2014, we consulted on our initial proposals to introduce a new incentive scheme in a similar format to the current incentive scheme, for two years

until March 2017. We proposed to make some changes to the scheme parameters, largely to take account of efficiency savings made during the duration of the current scheme.

Stakeholder Views

Stakeholders have been broadly supportive of our initial proposals, particularly in relation to introducing new incentives that are similar in format to the current incentives (with adjustments) for a further two-year period, whilst we fully review their effectiveness.

Some stakeholders have suggested making further changes to the incentives. Where appropriate, we have reflected stakeholder feedback in final proposals.

Final Proposals

We continue to propose introducing a new incentive scheme in a similar format to the previous scheme (in keeping with initial proposals). Amendments to initial proposals include the following:

- a small increase of the sharing factor[1] and cap and floor of the incentive scheme. Under our final proposal, the sharing factor would increase to 30% and the cap/floor increase to +/-£30m for each year in the scheme. This sharpens the incentive on the SO to optimise how it balances the system at a time when constraints costs are expected to rise.

- changes to reflect challenges that the SO faces in procuring Black Start services, which enable the transmission system to be re-energised in the event of a total transmission system failure. Black start has typically been provided by thermal plant and so the provision of these services is being affected by the closure of thermal plant. In these final proposals we extend the scenarios in which NGET is able to apply for an amendment to its black start target.

- tightening the incentives on wind generation forecasting to account for improved SO performance. We are also proposing an adjustment to its structure to weight incentive payments towards greater accuracy in the winter.

Details of final proposals are outlined in Appendix 1.

Next Steps

Alongside this document, we have also launched a statutory licence consultation to reflect these changes in NGET's licence. Subject to this consultation, we expect to issue a direction to change NGET's licence to incorporate these changes.

[1] Sharing factor is the share of any under or overspend against the target borne by the SO

1. Summary of proposals

Chapter Summary

This chapter describes the framework of incentives placed on the electricity System Operator, summarises our final proposals and sets out the next steps.

Framework of electricity system operator incentives

1.1. The main incentive on the electricity SO is the Balancing Services Incentive Scheme (BSIS). We use two models to calculate a single BSIS financial target: the *constraints model* and the *energy model*. The financial target also includes a target for black start services. Both the constraints model and the energy model have increased in complexity and accuracy since 2011.

1.2. The *energy model* is an econometric-based model that uses the historic relationship between the volume and cost of balancing the system to derive a target for the SO's energy balancing actions on an unconstrained network.

1.3. The *constraints model* is a linear optimisation model that produces an optimal strategy for the SO to manage constraints in the balancing mechanism while taking account of the availability of non-BM actions.

1.4. The black start target is a target for the costs of procuring black start services, derived from the different costs which we would expect the SO to incur over the scheme period.

1.5. The combination of outputs from these models plus the black start targets set a target for balancing costs. If actual costs are below target then the SO is permitted to receive an incentive payment and if actual costs exceed the target then it faces an incentive penalty.

1.6. The size of this payment or penalty is determined by the relevant sharing factors (which govern the percentage of under or over spend against the target that the SO will retain or incur respectively) that are agreed as part of the overall incentive schemes. The sharing factors are in place to strike a fair balance between the risks and rewards faced by the SO and customers.

1.7. The maximum payment the SO can receive under the current incentive scheme framework is subject to an upper cap and the maximum penalty it can incur is bounded by a lower collar.

1.8. In addition to the BSIS elements mentioned above, the framework also contains the following additional incentives:

- Wind generation forecasting: a financial incentive on the accuracy of the SO's day ahead wind generation forecasting, based on targets for percentage errors in the SO's wind forecasts.
- System Operation Innovation Roll-out Mechanism: a funding mechanism for roll-out of innovation in system balancing tools and techniques.

- Transmission losses: a requirement on the SO to report on the level of transmission losses and measures taken to reduce losses where possible
- Model development licence condition: a requirement for the SO to develop the models which are used in BSIS

Initial proposals

1.9. The framework of the previous scheme which expired on 31 March 2015 is as described above. Our initial proposals outlined a new two year scheme based on the previous incentive scheme design. We noted that :

- The 2013-2015 BSIS has delivered real efficiency improvements for consumers and there is benefit in retaining the structure of this scheme.
- Our monitoring regime has provided evidence of where incentives are driving the SO to make economic and efficient decisions and where there is room for improvement. So, we propose adjustments to certain elements of the previous scheme structure.
- There are a number of market changes in coming years that could have an impact on the role of the SO. Therefore, we need to understand the impact of these prior to a more fundamental review of the incentive framework.

Final proposals

1.10. Having considered stakeholder responses, our final proposals contain the following adjustments:

- An increase in the sharing factor[2] as well as cap and floor from 25% and £25m per annum to 30% and £30m per annum.
- An extension to the feature which allows the SO to apply for an amendment to the target for black start to include renewal of existing contracts.
- A tightening of the incentive target on wind generation forecast from 6% to 4.75% in the winter months and from 4.5% to 3.25% in the summer months. These targets will be frozen for both years of the 2015-17 scheme. This tightening accounts for improved SO performance and a greater weighting of the incentive towards winter performance with protection against significant weather variation.

[2] Sharing factor is the share of any under or overspend against the target borne by the SO

1.11. A summary of final proposals is shown below:

Scheme	Final Proposals
BSIS	• 2 year scheme (2015-17) – with some incremental improvements • Cap/collar of £30m per annum, 30% sharing factor • Modelled targets for constraints and energy
Black Start	• Continuation of scheme in place for 2013-2015 • Ability to amend target to reflect possible capital contributions to service providers –where evidence of commitment provided
Modelling transparency and governance	• No change to the existing framework.
Wind Generation Forecasting	• 2 year financial incentive on day ahead wind forecasting error remains – tighter seasonal targets • Cap/collar of £250k per month – cap at 0% error and collar at 2 times target
Transmission Losses	• Continuation of existing reporting requirement
Innovation Roll-Out Mechanism	• Continuation of scheme to run alongside BSIS • Some minor improvements to process required • Cap of £10m across 3 projects
SO-TO financial mechanisms	• No change to the existing framework. We are not proposing to introduce a financial incentive in this area.

Next steps

1.12. Alongside this document, we have also published a statutory licence consultation on changes to NGET's licence to reflect these final proposals. We seek stakeholder views on our final proposals whether our proposed licence conditions appropriately reflect them. Subject to this consultation, we intend to direct these changes to NGET's licence.

1.13. Changes to NGET's licence would take effect 56 days from publication of such a direction. Nevertheless, to ensure that NGET is incentivised through the entire incentive year, our intention is that they will apply retrospectively from 1 April 2015.

2. Final proposals

Chapter Summary

This chapter provides further details on our final proposals for the 2015-2017 electricity system operator incentive scheme.

Question box

Question 1: Do the draft licence conditions published alongside this document appropriately reflect our final proposals?

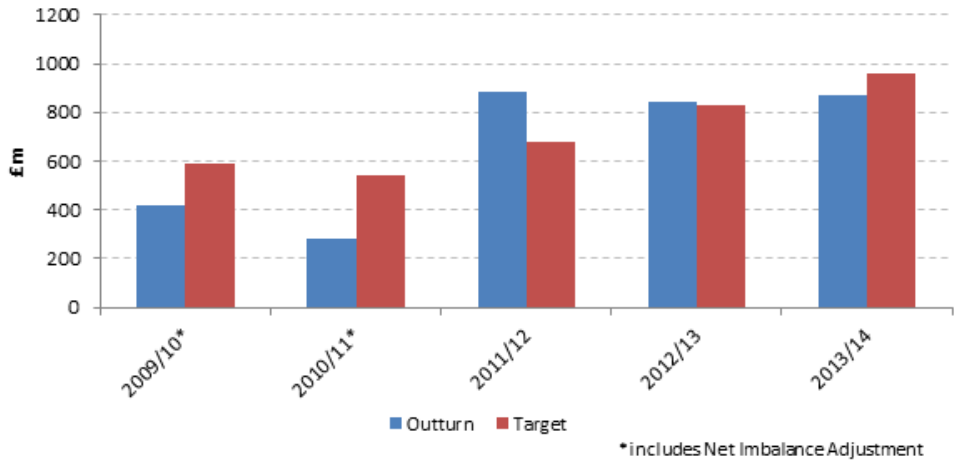
Effectiveness of model-based incentives

2.1. A five year summary of the performance of the electricity SO against its incentive scheme (BSIS) is shown in Figure 1.

2.2. The rising trend in BSIS targets recognises that the SO's role is becoming increasingly complex as the system changes to accommodate more intermittent generation, the loss of inertia from the system (making frequency control difficult), the closure of thermal plant (traditional providers of balancing services), increasing interconnection, growth in embedded generation and the connection of generation ahead of network reinforcements (Connect and Manage).

2.3. Models used in the incentive framework forecast an upward pressure on balancing costs as a result of the factors above, but we observe that the SO has reacted to incentive targets by keeping balancing costs relatively stable in the last three years, eventually outperforming model-based incentive targets for the first time last year.

Figure 1 Performance of SO under BSIS



	2009-10*	2010-11*	2011-12	2012-13	2013-14
Outturn	416.6	282.4	885.7	845.8	869.4
Target	586.1	538.6	677.7	825.5	960.0
Ratio	0.4	0.9	-0.2	0.0	0.1
Payment to/From NGET	15.0	15.0	-48.7		22.7
	Cap Hit	Cap Hit	In Range		In Range

2.4. Forecasting models were used for the first time to set incentive scheme targets in 2011. Prior to that, incentive targets were mainly underpinned by proposals set out in National Grid's business case. The models were a step-change in the sophistication of incentive schemes because they introduced predictive modelling at a time when there was considerable uncertainty in the forward outlook.

2.5. The use of forecasting models also increased transparency of the electricity SO's cost drivers and assumptions. It set the context for discussions on the challenges of balancing a changing system (2011 outturn) and led to evidence-based and quantitative processes for deriving incentive scheme targets.

2.6. We believe the introduction of models and improvements in their accuracy over time have been effective in encouraging the SO to innovate and improve its approach to system and energy balancing. To achieve this behaviour from the SO, the models have to accurately simulate the cost and volume of actions the SO will need to take. There are positive indications that the models are generating realistic targets as the SO has not hit either the cap or floor since 2011.

2.7. Overall, we are confident that the current framework of incentives for energy and system balancing has driven benefits to consumers and encouraged the electricity SO to optimise its actions. Our intention is to retain the current model based approach in final proposals.

BSIS parameters

Initial proposals

2.8. We proposed to introduce a new two year BSIS scheme for 2015-2017 based on the existing incentives structure but with some incremental improvements. We proposed to retain the existing scheme parameters (a cap/collar of £25m per annum, 25% sharing factor) and to continue to set the cost targets using the existing models for constraints and energy along with a target for procuring Black Start services. We proposed to continue to include provisions which would enable

the target to be adjusted in response to 'Income Adjusting Events' subject to strict criteria and a qualifying threshold of £10m.

2.9. We described our intention to scrutinise inputs and assumptions that underpin the energy and constraint models to ensure there is additional rigour in target setting.

Stakeholder views

2.10. NGET and British Gas (BG) commented on BSIS parameters. NGET was in broad agreement with retaining the current framework, but suggested that the cap and floor be indexed by the Retail Price Index (RPI). BG believed that we should lower the sharing factor to 10% citing, in its view, a history of the cap and floor being reached as evidence that the current scheme does not incentivise the SO throughout the entire incentive scheme year.

Final proposals

2.11. We have reassessed whether the 25% sharing factor and £25m cap and floor proposed in our initial proposals establishes the desired balance of risk and reward to meet future system challenges, in particular the anticipated short-term peak in constraint costs arising from Connect and Manage.

2.12. In our final proposals, we are proposing to increase both the sharing factor and cap and floor to 30% and ±£30m, respectively. We believe it sharpens the incentive on the SO to be innovative and drive minimisation of the cost of operating the system at a time where system operation continues to increase in complexity. It is a step we can take given there is greater confidence in the robustness and accuracy of the target setting models.

2.13. The review of the incentives we are planning ahead of 2017 will give us an opportunity to assess the effectiveness of this change and whether it is beneficial to maintain, relax or further tighten these parameters going forward.

2.14. Our intention to scrutinise inputs and assumptions within the models to ensure that they set a robust target remains. We also propose to work with the SO to increase transparency on its actions. This should allow stakeholders to better understand the challenges the SO currently faces to operate the system.

2.15. We are proposing to extend an existing restriction on the SO's ability to contract with BSC parties if that affects the prices these parties will submit in the Balancing Mechanism. The intent of this mechanism is to prevent gaming of the incentive target by removing the potential perverse incentive for NGET to sign up to these contracts in the knowledge that they may flow through to BM prices. The ongoing need for this restriction will be assessed as part of the fuller review of incentives.

Black Start

Background

2.16. Black Start services enable the SO to utilise generators to start up and provide electricity to the transmission system in the event that it becomes totally or partially de-energised as a result of plant failure or other unexpected occurrences. The SO is incentivised to minimise costs attributed to securing Black Start services.

2.17. We identify those costs that can be forecasted at the start of the scheme year and derive a cost target which is independent of the cost targets derived from the energy and constraints models to form the BSIS cost target. NGET is incentivised to outperform this target. We also provide NGET with the opportunity to apply for a mid-scheme update on those costs which are more volatile and difficult to predict.

Initial proposals

2.18. Our initial proposal was to maintain the black start target of £22.35 million from the previous scheme in each year of the 2015-17 scheme.

2.19. We also proposed to maintain the mechanism that allows NGET to apply for a mid-scheme update to assess any new developments resulting in changing capital contributions, warming costs and/or new provider availability.

Stakeholder views

2.20. NGET indicated that factors including the Capacity Market, and the ageing of current Black Start plant, may impact on the provision of and the interest of providers to contract for, new Black Start services. It asked for greater flexibility on the types of cost covered in the mid-scheme update.

Final proposals

2.21. Our agreement to increase the target in the last mid-scheme update plus the feedback from stakeholders to the initial proposals highlight that there continues to be significant uncertainty surrounding the cost of procuring black start services. We believe there are consumer benefits from allowing greater flexibility in the types of cost covered in the mid-scheme update.

2.22. As such, we see the benefit of extending the mid-scheme update to include existing providers[3] to avoid limiting options NGET may wish to consider. Any

[3] Currently, the mid-scheme update applies only to costs associated with securing new providers.

application from NGET at the mid-scheme update will need to demonstrate how it has identified the most economic and efficient mix of service providers to contract with and the range of options it has considered in its assessment.

2.23. We would only amend the target if NGET is able to demonstrate that it has identified an efficient combination of contracts and shown appropriate judgement in its approach towards costs such as capital contributions.

2.24. We continue to believe that £22.35 million provides NGET with a challenging yet achievable annual benchmark to secure black start services.

2.25. We will continue to closely monitor the ongoing cost pressures of black start services ahead of the review of the SO incentives for implementation in 2017. We will assess whether our current incentives framework continues to deliver value-for-money procurement of black start services and whether NGET is exploring a wide enough range of options for the service.

Model transparency and governance

Background

2.26. The BSIS target is formed by two models: a constraints model and an energy model. The outputs from these two models are combined with a black start cost target to form one overall scheme target designed to reflect the SO costs.[4]

2.27. NGET has a licence condition in place requiring it to ensure the models continue to develop and improve as modelling requirements evolve. We validate the models and approve the methodologies that underpin them. We also review model performance on an ongoing basis through our monitoring work. Our expertise on the models allows us to challenge NGET where appropriate and ensure that a suitable target is set.

2.28. As part of our review of the existing incentive arrangements we tested the models to ensure they are capable of delivering robust targets for 2015-17. We also reviewed the governance arrangements for the models and have considered whether greater transparency and external input could reinforce industry confidence, scrutiny and understanding of the models.

Initial proposals

2.29. We proposed to maintain the existing framework for the validation, governance and development of target setting models. To ensure the models are

[4] For more information on these models please see our Initial Proposals document.

robust, transparent and continually improve throughout the 2015-17 scheme, we proposed:

- Focusing our attention on the validation of the inputs and assumptions that feed into the models.
- Extending the existing model development licence condition until 1 April 2017.
- To work with the SO to bring forward measures that increase the transparency of the modelling approach to stakeholders.

Stakeholder views

2.30. A couple of stakeholders stressed the importance of increasing the transparency surrounding the modelling and welcomed initiatives in this area. In particular, they called for increased transparency surrounding the modelling methodology, the models' parameters and inputs, forecast BSIS costs and NGET's performance against the BSIS targets. NGET also supported improved modelling transparency and stated its intention to work with stakeholders to understand how this can be achieved.

2.31. One respondent did not consider that a particular focus on the verification of inputs and assumptions would produce robust and credible scheme targets for 2015-17. They believed the volatility of year-on-year performance by NGET had shown verifying the models had failed to produce robust targets in previous schemes.

2.32. NGET believed that the existing validation, governance and model correction frameworks have worked effectively under the current scheme. It noted that both NGET and Ofgem have raised issues that have subsequently been corrected under the modelling governance procedures which, in its view, have helped to ensure the model outputs remain robust in an increasingly complex operational environment.

2.33. NGET agreed with our focus on the model's inputs and assumptions and noted that any validation process should be consistent across all of the input variables. NGET also recommended that an additional process is introduced to formally close-out the scheme at the end of each incentive or financial year, as this would provide certainty to stakeholders around final BSUoS charges.

Final proposals

2.34. We are not proposing to change our proposals in this area. We consider that the existing framework provides us with appropriate mechanisms to ensure that NGET's modelling will produce robust and credible cost targets for 2015-17. At the same time, we believe that extending the model development licence condition provides a good platform for NGET to enhance these models and engage with stakeholders to increase modelling transparency.

2.35. Whilst some stakeholders raised concerns regarding the volatility of performance against targets, we are confident that the models have improved in tracking actual outturn costs incurred by the SO. Since 2011 NGET has not reached the cap or floor for the incentive scheme. We are cautiously optimistic that targets are realistic and capable of ensuring that incentives apply throughout the entire scheme period.

2.36. We note NGET's suggestion for a more formal, annual close-out process. We do not intend to include a formalised process at this stage. We will consider the need for more fundamental changes to the modelling framework as part of our review of incentives arrangements beyond 2017. This will include consideration of a formal close-out process.

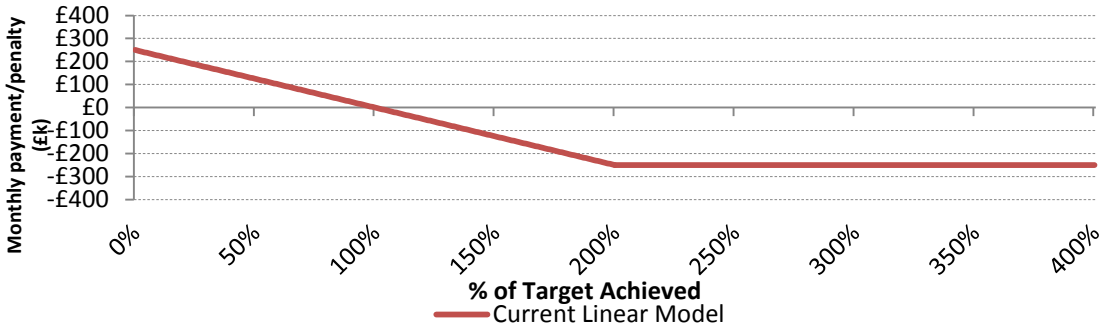
Wind Generation Forecast

Background

2.37. NGET is incentivised to produce accurate day-ahead forecasts of wind generation with the aim of improving the accuracy of these forecasts. This incentive was developed in response to stakeholder requests. It aims to encourage NGET to provide more accurate information to the market to allow market participants to make better informed decisions.

2.38. NGET is financially rewarded for beating a target forecast error[5] and is penalised if its forecasting error misses this target. The maximum potential profit or loss is theoretically ±£250,000 in each calendar month, or ±£3 million per year. Hence, the incentive is represented by a linear model, where an incremental increase or decrease in performance relative to the target always receives the same reward/penalty. The linear model reaches the monthly floor of -£250,000 at a forecast error double the value of the target, and reaches a cap of £250,000 with a forecast error of 0%. Figure 2 below depicts the current linear model.

Figure 2: Current linear model



[5] There are two targets for this scheme, one for summer (April to September) and one for winter (October to March).

2.39. NGET has outperformed the incentive over the course of the 2013-15 scheme, earning over £1m for both years. NGET received £401,111 for the first year of the scheme and has earned £661,412 in the second year of the scheme (subject to final reconciliations), reflecting secured improvements made over the duration of the scheme.

Initial proposals

2.40. In our initial proposals we proposed to retain the incentive in its current format but we outlined the case for tightening the incentive targets given the strong performance in 2013-15, particularly the performance shown in the first six months of the 2014-15 scheme year, when NGET had an average forecast error of 3.09% against a target of 4.5%. We proposed a reduction of both summer and winter incentive targets by 1.25% in 2015-16 and a further reduction of 0.25% in 2016-17.

2.41. We also proposed a reallocation of the incentive pot for 2015-17, with a greater emphasis on winter forecasting over summer forecasting, due to the greater demand on energy services during winter. Under these proposals, NGET can earn (and potentially lose) £200,000 per month between April and September and £300,000 per month between October and March.

Stakeholder views

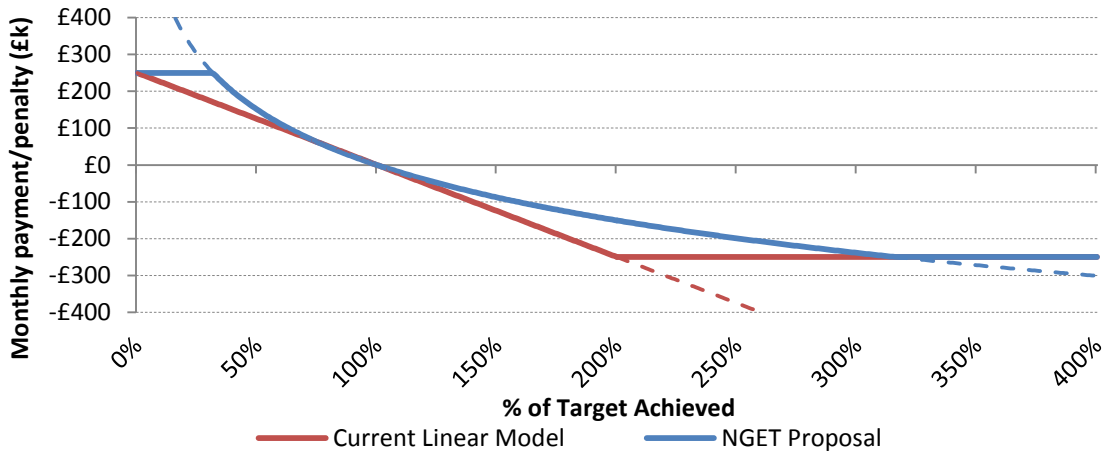
2.42. NGET was the only respondent to comment on this incentive in its response. It opposed the proposal to maintain a linear format to the incentive. Their rationale was that a 0% forecast error is unachievable and a linear incentive therefore introduces a degree of asymmetry into the model. They assert that this asymmetry will always disproportionately penalise a deterioration in performance in comparison to the reward for an equivalent improvement.

2.43. NGET proposed a logarithmic format for the incentive model. This model would still be capped at ±£250,000 but would be designed such that the model curves at the extreme ends of the model. NGET considered that this would penalise underperformance more proportionately. The aim is to ensure that in months of particularly high wind output, where forecast error tends to deteriorate, the penalty does not cancel out continuous improvements in forecasting made in previous months. The model aims to also provide a cap that is more achievable, in NGET's view.

2.44. NGET's proposed model is outlined in Figure 3.

Payment = - slope x Log10(% of Target Achieved)
where slope = 500,000

Figure 3: NGET's proposed logarithmic model



2.45. NGET also opposed the reduction in the incentive targets proposed, instead suggesting a 0.25% reduction in the target error year-on-year, across all months. This, it said, represents a more proportionate level of tightening, taking account of performance improvements that have been achieved but recognising that future improvements will be more incremental.

2.46. Whilst recognising the aim behind reallocating the incentive revenue more towards the winter, NGET opposed the proposal on the grounds that it introduces more risk and increases the likelihood of loss during those months.

2.47. NGET proposed a change to the calculation of the forecast error, where generators that have had their output reduced due to a control room action are removed from the error calculation.

Final Proposals

2.48. We continue to propose to tighten the forecasting error targets as outlined in our initial proposals.[6] We are also maintaining our proposal to weight incentive revenues towards winter months.[7] This reallocation of the incentive revenue will reward any improvement in the winter months relative to summer months, given the importance of accurate forecasting when the system is tighter.

2.49. However, we are proposing a few adjustments on the targets for the second incentive scheme year, the structure of the scheme and the treatment of wind farms that have been bid off by NGET.

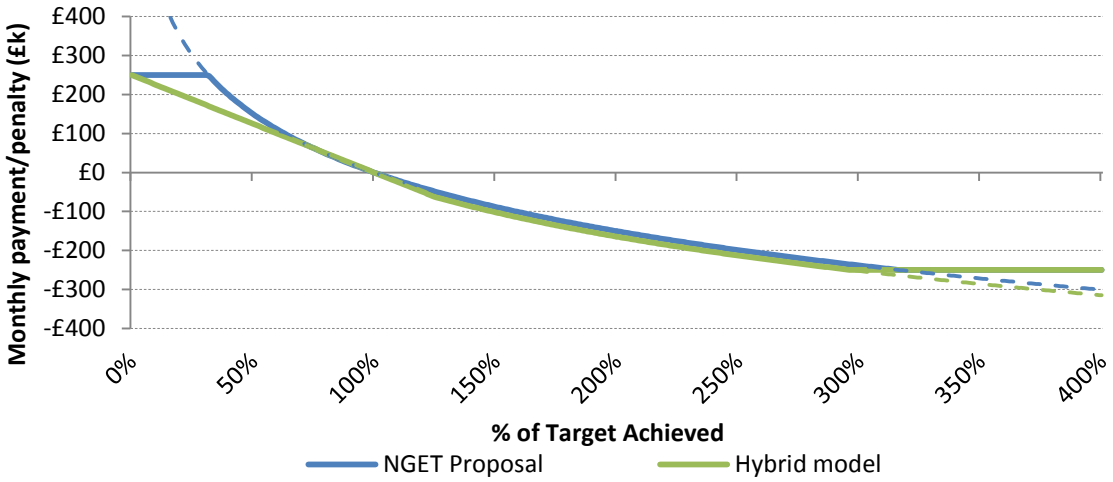
[6] We are proposing a target of 3.25% during summer and 4.75% for winter.
[7] Under our proposals, NGET could have a possible revenue/loss of £200,000/month between April and September, and £300,000/month between October and March.

2.50. We now propose to freeze both the winter and summer forecast error for both years of the 2015-17 scheme at 4.75% and 3.25% respectively, recognising that the current target should provide a challenging benchmark to which to assess NGET's performance and the fact that improvements are expected to be of a smaller magnitude than historically.

2.51. We are proposing to alter the linearity of the model, recognising NGET's concerns over the potentially asymmetric risk/reward framework. While our previous model in itself has been an effective way of incentivising forecast improvements, we recognise that the tightening of the error targets may particularly highlight the concerns raised by NGET regarding the effect of the linear nature of the model on their risk/reward.

2.52. In order to mitigate this risk, our new model will retain a linear upside but introduce a logarithmic downside to the model for particularly high forecast errors, akin to the model that NGET have proposed. This 'hybrid' model is shown in Figure 4.

Figure 4: 'Hybrid' model, compared with NGET proposed model



2.53. We are also proposing a change to the calculation of the forecast error to discount those providers who were bid off in the Balancing Mechanism. Where an action is taken by the control room to reduce the output of the wind farm, the wind farm will be removed from the error calculations for the duration of the instruction.

2.54. By making this change, we are removing an ambiguity in the incentive where control room actions taken as a result of system constraints distort the forecast error. This change will make the forecast error more reflective of the accuracy of NGET's wind forecasting.

SO Transparency

Background

2.55. Transparency of decisions made and actions taken by NGET are vital to the efficient functioning of the wholesale electricity market. Transparent decision making provides certainty and sends clear signals to the market driving innovation, competition and efficiency.

2.56. Greater external visibility of the SO's actions can also serve as a mechanism for stakeholders to hold NGET accountable for its actions and to drive improvements to its service procurement and balancing actions.

2.57. The industry values the clarity and information that a more transparent SO provides. Whilst recognising the initiatives undertaken to date to improve this, stakeholders have previously suggested that they would benefit from greater transparency and understanding surrounding NGET's actions. We have therefore considered what steps could be taken to improve SO transparency and whether we should introduce licence conditions or incentives to support this for 2015-17.

Initial proposals

2.58. Our initial proposals consultation outlined our intention to work with NGET to encourage continued improvements in SO transparency for 2015-17. While we made clear our intention not to propose a new formal incentive in this area, we set out our expectations for NGET to:

- Further engage with stakeholders to understand their needs (including the organisation of stakeholder events).
- Publish any information that would ultimately help drive innovation, competition and efficiency in the market.
- Ensure clear and accessible narratives are provided alongside published information.

2.59. We considered that NGET should be proactive in engaging with stakeholders, with the onus on NGET to publish any non-commercially sensitive modelling information. This action could be valuable to the market and make it simpler for stakeholders to provide NGET with the services it needs.

Stakeholder views

2.60. Respondents to our initial proposals consultation broadly welcomed our proposals to work with NGET to increase transparency and reiterated the importance of improvements in this area. No respondent suggested that a new formal incentive was needed to achieve this.

2.61. NGET noted that it saw transparency as a key area of focus and that it was keen to listen to stakeholders to understand the type of information they would find useful. NGET agreed that additional narrative around its actions would be useful to stakeholders, but noted that the detail, frequency and platform of the expanded narrative would have to be considered in context of the SO's available resources.

Final Proposals

2.62. We are not proposing to make any change from our initial proposals. We consider that NGET can deliver significant improvements in this area without the need for a new formal incentive. We encourage NGET to continue engaging with stakeholders and take account of the suggestions put forward in responses to our consultation.

2.63. We note that stakeholders also continue to see improved SO transparency as a priority area for the next scheme. We intend to monitor NGET's performance in this area and for this to inform our review of arrangements beyond 2017.

Transmission Losses

Background

2.64. NGET is required to report on the amount and cost of electricity lost on the transmission system.[8] It is also required to publish information about how they take transmission losses into account when undertaking balancing services and on the expected impacts of market developments on transmission losses going forward.

Initial proposals

2.65. We set out our proposals to retain the reporting obligation covering the level and cost of transmission losses on the system. We also proposed to consider what additional actions NGET could take for the benefit of stakeholders and consumers.

Stakeholder views

2.66. Stakeholders did not respond specifically on this issue. However, NGET agreed that this incentive should remain as a non-financial incentive (ie a reporting obligation) and felt it was important to inform the market of existing and future drivers of transmission losses.

[8] During the transmission of electricity, some energy is 'lost' from the transmission system, usually in the form of heat. This lost energy is known as transmission losses.

Final Proposals

2.67. We intend to retain the reporting requirement for transmission losses. However, we have expressed to NGET that we expect it to consider what other information it might publish that would be beneficial to stakeholders and consumers. We will continue to review the information that is published over the course of the 2015-17 scheme.

System Operator Innovation Roll-Out Mechanism

Background

2.68. The SO Innovation Roll-out Mechanism (SO-IRM) was introduced as part of the 2013–15 Electricity SO incentive scheme. The SO-IRM allows NGET to apply to Ofgem for up to £10m funding to implement up to three innovative techniques which would provide benefits to consumers beyond the two-year incentive scheme. Ofgem then considers whether the application meets certain requirement set out in NGET's licence.[9]

Initial proposals

2.69. In our initial proposals we proposed to retain the SO-IRM as it provides a good platform for NGET to implement proven technology which in turn provides the opportunity to enhance the benefits to consumers. At the same time, we expect that the learning from the first SO-IRM project allows both NGET and its partners to build on their engagement and submit applications that will meet our approval test for funding.

2.70. We proposed to extend the timeframe for funding the SO-IRM from one year, as in the previous scheme, to two years, meaning NGET could apply on or after 1st April 2015.

2.71. To improve clarity on the terms of the scheme and the judgement criteria we proposed making improvements to the guidance document. These improvements will help ensure that a more robust case is presented by providing greater clarity on the application requirements.

[9] Set out in Special Condition 4J of NGET's licence. The SO Roll-out by the licensee of a Proven SO Innovation will allow the licensee to receive additional funding in respect of the Relevant Year but only where the Authority is satisfied that the SO Roll-out: 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; will not be used to fund innovation that NGET would have ordinarily implemented.

Stakeholder views

2.72. NGET thought making changes to the guidance document would be beneficial in terms of clarity on the nature of projects that could be considered and how the value of the innovation to the consumer should be considered.

2.73. NGET had no objection to extending the time period for implementing the innovation mechanism to two years and being able to submit applications as of 1 April 2015. They did however feel that having to fully implement the innovation by 31 March 2017 could limit the scope of the innovations submitted. However, this issue could be negated if the guidance document clearly sets out proposed intent and outcomes for the mechanism.

Final Proposals

2.74. Our final proposal remains unchanged. The scheme will maintain the existing funding of £10m for up to three projects but with an extended timeframe of up to two years. This extended timeframe means that NGET could apply for funding on or after 1 April 2015 to cover the period up to 30 March 2017. We will make improvements to the guidance documentation to provide a better explanation of what is required in applications.

SO-TO financial mechanisms

Background

2.75. The SO-TO code (System Operator – Transmission Owner code) sets out the relationship between the GB System Operator and the Transmission Owner. The code outlines the processes that both the SO and TOs are required to follow in order to coordinate outages of the GB transmission system. Under the code NGET is able to make modifications to ensure that it remains applicable and fit for purpose. Under the code the TOs inform the SO of any proposed outages and the SO then develops a year-ahead outage plan. Where required, the TO must request changes to the code to accommodate infrastructure projects or in response to unexpected events that would require a planned outage programme.

Initial proposals

2.76. In our initial proposals we explained that we did not intend to introduce a financial incentive on SO-TO interaction, as we agreed with stakeholders that the benefits of this were not clear. It was also felt that a financial incentive could have implications on other projects and incentives.

2.77. Consideration was also given to the Integrated Transmission Planning Regulation (ITPR) project which had set out draft conclusions on proposed changes to the way transmission infrastructure is planned and delivered.

Stakeholder views

2.78. In the initial consultation several respondents supported the idea of starting discussions on designing a SO–TO incentive. The initial proposals then asked whether the discussions on the benefit of introducing a SO-TO incentive should be de-linked from this scheme. NGET responded, agreeing discussions should be de-linked from the 2015-17 SO incentive scheme and instead be considered in the context of the ITPR or future incentives beyond 2017.

2.79. Scottish Power felt that a suitable SO-TO financial mechanism should be identified and developed to provide a link between constraint cost reduction and medium to long term TO activities.

Final Proposals

2.80. Whilst we recognise that there is a potential requirement for a SO–TO incentive to include system-wide considerations of outage planning we believe that this should be considered for future schemes. As such, we are not proposing to introduce a financial incentive and instead suggest continuing discussions between the SO and TOs in industry meetings such as the Network Access Policy (NAP) Forum.

Appendices

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Appendix 1 – Overview of Incentives

Final proposals for the electricity system operator incentives for the period 2015 to 2017 are outlined in the table below:

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[10]) 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

[10] 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 - Consultation Response and Questions

1.1. Ofgem would like to hear the views of interested parties in relation to any of the issues set out in this document. We would especially welcome responses to the specific question which we have set out at the beginning chapter 1 of this document:

Question box

Question 1: Do the draft licence conditions published alongside this document appropriately reflect our final proposals?

1.2. Responses should be received by 16/04/2015 and should be sent to:

Leonardo Costa
System Operations
Wholesale Markets Performance, Ofgem, 9 Millbank, SW1P 3GE
020 3263 2764
soincentive@ofgem.gov.uk

1.3. Unless marked confidential, all responses will be published by placing them in Ofgem's library and on its website www.ofgem.gov.uk. Respondents may request that their response is kept confidential. Ofgem shall respect this request, subject to any obligations to disclose information, for example, under the Freedom of Information Act 2000 or the Environmental Information Regulations 2004.

1.4. Respondents who wish to have their responses remain confidential should clearly mark the document/s to that effect and include the reasons for confidentiality. It would be helpful if responses could be submitted both electronically and in writing. Respondents are asked to put any confidential material in the appendices to their responses.

1.5. Next steps: Having considered the responses to this consultation, Ofgem intends to direct the modification to NGET's electricity transmission license to be implemented retrospectively from 1 April 2015. Any questions on this document should, in the first instance, be directed to:

Leonardo Costa
System Operations
Wholesale Markets Performance, Ofgem, 9 Millbank, SW1P 3GE
0203 263 2764
soincentive@ofgem.gov.uk

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 the SO 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.

Black Start

If the electricity system experiences a full or partial shut down, 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 the SO 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.

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 the SO 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 the SO 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 the SO 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 the SO'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 the SO of the high voltage electricity transmission system for 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.

Appendix 4 - Feedback Questionnaire

1.1. Ofgem considers that consultation is at the heart of good policy development. We are keen to consider any comments or complaints about the manner in which this consultation has been conducted. In any case we would be keen to get your answers to the following questions:

1. Do you have any comments about the overall process, which was adopted for this consultation?
2. Do you have any comments about the overall tone and content of the report?
3. Was the report easy to read and understand, could it have been better written?
4. To what extent did the report's conclusions provide a balanced view?
5. To what extent did the report make reasoned recommendations for improvement?
6. Please add any further comments?

1.2. Please send your comments to:

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Consultation Co-ordinator
Ofgem
9 Millbank
London
SW1P 3GE
andrew.macfaul@ofgem.gov.uk