Impact Assessment Form

Title: Impact Assessment for the 2018/19 Regulatory Framework for the Electricity System Operator	**Impact Assessment (IA)**
Division: Energy Systems **Team:** SO Regulation	**Type of measure:** Regulatory Framework for the Electricity System Operator (specific incentive)
Associated documents: The Electricity System Operator Regulatory and Incentives Framework from April 2018 (Consultation on our minded to decision)	**Type of IA:** Qualified under Section 5A UA 2000
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Summary: Intervention and Options

Rationale for intervention, objectives and options

What is the problem under consideration? Why is Ofgem intervention necessary?

The ESO's existing ESO incentive scheme was introduced on 1 April 2017 and is intended to run until 31 March 2018. Therefore, a new incentive scheme needs to be put in place for the period from 1 April 2018 onwards. Currently the existing electricity ESO incentive scheme uses targeted, mechanistic incentives, which we no longer believe is fit for purpose.

We think that the ESO's role needs to evolve, to ensure it is well placed to both respond to and help facilitate the transformation of the electricity system over the coming decades. We think that our approach toward incentives needs to change to ensure that the regulatory framework remains consistent and commensurate with the evolving roles of the ESO. Moreover, the framework should encourages the ESO to maximise the efficiency of the whole electricity system (both now and in the future), make the ESO clearly accountable to its stakeholders and give the ESO flexibility to adapt and find the best solutions to system challenges.

Furthermore, Ofgem, BEIS and National Grid jointly agreed that a more independent ESO would be best placed to drive the transition towards a smarter, competitive, more flexible electricity system. We believe that such independence should be built on a regulatory framework that is transparent, joined-up and sets clear expectations for the ESO.

What are the policy objectives and intended effects including the effect on Ofgem's Strategic Outcomes

Objectives for the ESO regulatory framework:

- Drive ESO behaviour which maximises the efficiency of the whole electricity system both now and in the future, in particular by facilitating greater competition in markets and by supporting efficient trade-offs between operational and investment costs;
- Provide stakeholders with confidence that the ESO is acting in the best interests of consumers and the system, and gives them a platform to hold it to account;
- Create risks and rewards for the ESO which are proportionate and aligned with its performance, which support balanced decision-making, and which encourage it to innovate and seek actions which drive long-term benefits;
- Give the ESO sufficient flexibility to find the best approaches to driving positive system outcomes (including by working closely with network operators and market participants);
- Transparency, brings different aspects of the framework together, and avoids unnecessary administrative burden.

Ofgem's strategic outcomes:

Lower bills:

- We believe our policy will drive transparency, efficiency and facilitate competition, which will ultimately feed into lower bills for consumers through aligning the ESO's incentives with that of consumers and rewarding the ESO if it can demonstrate it has delivered benefits and value to consumers in line with our expectations.

Lower environmental impacts:

- An ESO that is working more closely with network operators to create a whole system view can identify and help speed up connections for low carbon generation.
- Greater emphasis on flexibility sources, new technology and a level playing field for all participants can help low carbon business models.

Improved reliability and safety:

- Facilitate the exchange of information across the Transmission and Distribution boundary and the optimal use of flexible resources for system and network operation.
- Allowing more effective preparation for future system operability challenges. Ensuring that potential future challenges to the system arising at lower voltage levels are identified and managed effectively.

Better quality of service:

- Stakeholders will have a bigger role in holding the ESO to account to ensure it delivers for them.
- There would be a limited direct impact for consumers (as there is no direct relationship between ESO and end consumers). However indirectly, we believe an increased understanding of operability challenges across T-D interface could lead to a smoother transition to a 'smart' energy system, which could provide better quality of service for all consumers.

Better social outcomes:

- Limited impact (no direct relationship between ESO and consumers)

What are the policy options that have been considered, including any alternatives to regulation? Please justify the preferred option (further details in Evidence Base)

The following options have been considered for the ESO's regulatory framework for 2018-19:

- Option 1 – Do nothing (no new regulatory or incentives framework)
- Option 2 – Rollover BSIS (continuation of current mechanistic incentives)
- Option 3 – Broader package of mechanistic incentives
- Option 4 – Evaluative scorecard *(preferred approach)*
- Option 5 – Evaluative and mechanistic incentives
- Option 6 – Whole system cost target
- Option 7 – Discretionary reward

Option 3 and 6 were ruled out as they could not be implemented by April 2018. Out of the remaining options, Option 4 best satisfied our objectives and would be most likely to deliver our desired outcome.

Preferred option - Monetised Impacts (£m)

Business Impact Target Qualifying Provision	Non-qualifying
Business Impact Target (EANDCB)	N/A
Net Benefit to Ofgem Consumer	Monetised impact not available.
Wider Benefits/Costs for Society	Monetised impact not available.
Explain how was the Net Benefit monetised, NPV or other (*eg NPV in 2015 financial year prices covering the period from 2016 to 2020*). Monetised impact not available.	

Preferred option - Hard to Monetised Impacts

Describe any hard to monetised impacts, including mid-term strategic and long-term sustainability factors following Ofgem IA guidance.

It is difficult to monetise the efficiency and dynamic benefits of moving toward a more principles-based approach to regulation and a more evaluative ex-post regulatory framework. It is also difficult to monetise the impact of incentivising certain behaviours in the ESO (such as encouraging it to be more proactive and long-term thinking) as we cannot predict ESO behaviour and the future system needs are highly uncertain.

However, we believe there are efficiencies to be made in these areas and there is some evidence that the current arrangements are less than optimal. We expect these impacts to be positive due to the key role and wide influence the ESO has on the electricity system (total wholesale costs in Great Britain are around £17 billion per year and this feeds into consumers bills). The ESO sits at the centre of this electricity system and its actions can indirectly feed into these costs. Any efficiency savings the ESO can make through incentives has the potential to drive large indirect savings to consumers.

Overall we consider the impact on security of supply, and on Great Britain's ability to meet national energy targets to be positive.

Key Assumptions/sensitivities/risks

There is a risk that our preferred approach becomes resource intensive for Ofgem and the ESO at key points throughout the regulatory year.

There is a risk that the ESO does not sufficiently understand what it must do to earn incentive rewards under a more evaluative, ex-post discretionary approach. This could dilute the power of the incentives and lead to minimal effort from the ESO to go beyond the bare minimum to meet expectations. There is also an interpretive risk when using principles. We intend to mitigate against through ongoing engagement throughout the incentive year.

Our preferred approach relies on a panel to assess performance of the ESO. Unless carefully designed, a panel risks becoming resource intensive and subjective. We have assumed that stakeholders have sufficient knowledge of the ESO's activities which could be pooled together to inform an ESO performance panel and to hold them to account.

There is also significant uncertainty with how the system will evolve and therefore the extent that we can realise benefits.

We address these risks and include how we plan to mitigate them in our Risks and uncertainties section.

Will the policy be reviewed? Yes	**If applicable, set review date:** Ongoing review (on annual basis)
Is this proposal in scope of the Public Sector Equality Duty?	**No**

Evidence Base

1. Introduction

Our Electricity System Operator (ESO) incentives schemes are designed to align wider consumer benefits with ESO shareholder value. Currently, the existing ESO incentive scheme uses targeted, mechanistic incentives[1], which we no longer believe is fit for purpose. Evidence suggests that our current approach is not driving the ESO to fully maximise consumer benefits but rather incentivising a narrow focus on the incentives only. As a consequence we see the ESO prioritising short-term solutions to manage balancing costs (eg opaque bilateral contracting) over providing transparency and longer term market or whole system development.

Furthermore in November 2015, Ofgem, BEIS and National Grid jointly agreed that a more independent ESO would be best placed to drive the transition towards a smarter, competitive, more flexible electricity system[2]. We believe that such independence should be built on a regulatory framework that is transparent, joined-up and sets clear expectations for the ESO. In particular, the framework should provide stakeholders with confidence that the ESO is acting in the best interests of the system, consumers and gives stakeholders a platform to hold the ESO to account.

Additionally, the role of the ESO has grown over the years and it now has a more active role in transmission network development and the capacity market. We set out four roles for the ESO in our January consultation: acting as a residual balancer[3]; facilitating competitive markets; facilitating whole system outcomes and supporting competition in networks.[4] We want to ensure that the incentive approach we use is consistent and commensurate with the evolving roles of the ESO. We received broad support from stakeholders that this approach would deliver benefits.

In our working paper[5], we further clarified our thinking for the future regulatory framework from 2018-2021 and defined our preferred approach for 2018-19.

Ultimately we want to achieve whole system energy cost savings for consumers in the short and long-term through incentivising the ESO to consider and deliver value to consumers across the full spectrum of ESO activities and across short and longer term horizons, transitioning towards a smarter, competitive and more flexible electricity system. In order to achieve this, we aim to create a regulatory framework that achieves the objectives set out in our initial consultation on the regulatory and incentives framework[6].

This impact assessment accompanies our consultation on the future regulatory framework and details our assessment of impacts related to our proposals.

This document provides our view of the options available to us and the likely impact these proposals will have on consumers, industry participants, wider society and the environment. The impact assessment is produced under section 5A of the Utilities Act 2000 and sets out which option best facilitates our objectives for the ESO and our statutory duties.

[1] Throughout this document, we define 'mechanistic' incentives as target-based incentives. These are set prior to the incentive year and the reward or penalty is directly determined by outturn data against the agreed target. In contrast, ex-post, discretionary incentives have a reward or penalty that is determined by an evaluation process at the end of the year.
[2] Joint Statement: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/582899/Statement_on_the_Future_of_Electricity_System_Operation1350.pdf
[3] Following consultation with industry, we are defining role 1 'Managing system balance and operability' – see appendix 1
[4] Future arrangements for the electricity System Operator: role and structure consultation
[5] Future arrangements for the electricity System Operator: Working paper on the Future Regulatory Framework
[6] Objectives for our future regulatory framework (page 9): Future arrangements for the electricity System Operator: regulatory and incentives framework consultation

Structure of this document

This document is structured as follows:

- We begin by defining the current regulatory framework and arrangements in order to set the baseline. We then define the current issue and how we propose to solve it (through outlining the outcome we are working towards and how we plan to get there).
- The methodology describes the approach we took to considering and comparing the different options.
- The options analysis section details the cost-benefit analysis for each option we considered.
- The appraisal section compares the options together and explains why we chose our preferred approach.
- The risks and uncertainties section details the unintended consequences with our preferred approach and how we intend to mitigate against these.
- The evaluation section describes how we will evaluate the success of our preferred approach.

Contents:

2. Baseline

The current ESO regulatory framework is made up of the ESO's obligations (as defined under the Electricity Act 1989[7], under NGET's licence conditions[8], the Capacity Market Regulations and other supporting industry codes, rules and methodologies) and explicit incentive schemes. Where we believe it would be in consumers' interests, we supplement the ESO's obligations with explicit incentive mechanisms. These incentives are primarily designed to encourage the ESO to innovate and continually improve its performance. We can do this for example, by exposing the ESO to the types of reputational and financial risks and rewards that a company might face in a market place. The ESO currently faces a number of incentives across the three different regulatory schemes described below:

1) RIIO-T1 price control (2013-2021)

NGET's price control covers both its ESO and TO functions. Whilst some aspects of the price control are more focussed on the TO function, there are a number of aspects which are relevant to the ESO function. The ESO is funded for carrying out its roles and requirements across the energy system through RIIO-T1 (including its role in EMR). It has an annual allowance for its total expenditure (totex) on its 'internal costs' of around £140m a year. This includes capital expenditure (capex) and operational expenditure (opex). For the ESO, capex is primarily related to investment in IT infrastructure whilst opex covers its ongoing running costs, such as staff costs.[9] NGET has a financial incentive to seek steps to minimise these internal costs. This is because through the price control, NGET faces a 50% share of any over or underspend against its totex allowance. The ESO's actual expenditure on internal costs is levied on market participants through Balancing Services Use of System (BSUoS) charges, which are ultimately passed through to consumers.

2) ESO incentive scheme (2017-18)

Another key aspect of the ESO regulatory framework are the incentives we place on the ESO's 'external costs' of system operation and other outputs that can influence electricity system costs. The main incentive on the ESO under the current electricity incentive scheme is the Balancing Services Incentive Scheme (BSIS), which sets incentives on the ESO's operation of the transmission system (encompassing costs of around £850m a year).

BSIS

To incentivise the ESO to reduce balancing costs below an efficient baseline, we set a financial target for the cost the ESO incurs in ensuring that the system is kept in balance, including both energy and constraint costs. This is based on the output of complex models, which forecast the efficient level of balancing taking into account the outturn of system conditions.

The two models used to compute the target cost are:

- *The constraints model* – this uses linear optimisation to derive the ESO'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* – this 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 the ESO's energy balancing actions.

[7] See the Section 9 of the Electricity Act 1989: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/490992/Electricity_Act_1989__Energy_Bill_2015-16_Keeling_Schedule_.pdf

[8] See particularly the Electricity Transmission Standard Licence Conditions, Part C: https://www.ofgem.gov.uk/licences-codes-and-standards/licences/licence-conditions

[9] For more information please see: https://www.ofgem.gov.uk/network-regulation-riio-model/riio-t1-price-control

The outputs from these two models are combined to form one overall scheme target designed to reflect the costs that the ESO should economically and efficiently incur.[10] If actual costs are below this target then the ESO is permitted to receive an incentive payment, and if actual costs exceed the target then it faces an incentive penalty. The size of this payment or penalty is determined by a sharing factor (which sets the percentage of over or underspend against the target that the ESO will retain). The total payment the ESO can receive is also subject to an upper bound and lower collar.[11]

The ESO owns these models and is responsible for ensuring they set a robust and appropriate target. We validate the models and their methodologies at the start of the scheme and monitor the ESO's use of them on an ongoing basis. Where we identify outputs which may not be reflective of the agreed methodologies, we challenge the ESO to justify these outputs and provide us with confidence that they are appropriate.

The amount the ESO has received from the ESO incentive scheme has varied over time (dependent on the particular design of the scheme for each incentive period and the ESO's performance). See appendix 2 for more information.

Wind and demand forecast incentives

The ESO is financially incentivised to take steps to improve its forecasts of wind generation and demand. The key objective of this is to help drive improvements in market participants' operational decisions and create more efficient wholesale market outcomes. The ESO is financially rewarded for beating a target forecast error[12] and is penalised if its forecasting error misses this target. For the current 2017-18 scheme, we set four identical incentives for wind generation at day-ahead, and demand at day-ahead, two-days ahead and week-ahead, each with a cap and floor of ±£1million per year.

ESO-TO mechanism

We introduced a ESO-TO funding mechanism in the interim 17-18 scheme (with a value of ±£1 million and a sharing factor of 10%). While there was previously nothing in licences prohibiting transfers from the ESO to the TO, this mechanism allows the ESO to pay TOs[13] for both capital and operational projects (services or network improvements that assist its operator responsibilities). This is subject to a £1 million cap for the 2017/18 trial period, to be reviewed in subsequent periods. Under Special License Condition 4J Part E, NGET are also required to submit a quarterly ESO-TO report on Commercial Operational Services and Joint Works Projects.[14]

Transmission losses

We require the ESO to report on the cost of electricity lost on the transmission system and the measures it has undertaken to reduce losses. The aim of this reputational incentive is to help inform the market of existing and future drivers of financial losses and how these losses are taken into account by the ESO when it is undertaking balancing activities. This incentive was introduced in 2013 and replaced the previous approach where transmission losses were financially incentivised as part of BSIS.

3) <u>EMR incentives (2014-2021)</u>

[10] The outputs from these two models were previously combined with a Black Start cost target to form one overall scheme target. The Black Start target was removed from the balancing cost target for the 2017-18 incentive scheme.
[11] Currently, under the 2017-18 incentive scheme, if the ESO beats this target, it gains a 10% share of any savings, and if it spends more it incurs 10% of the additional costs. The maximum incentive reward or penalty the ESO can receive each year is ±£10m.
[12] There are two targets for this scheme, one for summer (April to September) and one for winter (October to March).
[13] The incentive excludes payments to NGET itself given the current integration between the ESO and the TO in England and Wales.
[14] To date there have been no projects with TOs that have progressed further than an initial proposal and discussion stage. As such NG are not intending to publish a formal report this quarter (2017/18 Q1).

We also set incentives on the ESO in relation to its role as the EMR Delivery Body. Participants can dispute certain decisions made by the EMR Delivery Body. Where they disagree with the judgments made by NGET, they can lodge further appeals to us. We also produce an annual report showing how well NGET has performed its EMR delivery functions in relation to the Capacity Market. As part of this, we look at the deliverables NGET was required to provide over the reporting period and assess its performance against a number of key performance metrics.

For more information on the current ESO regulatory framework please see Option 2 in this impact assessment, the associated consultation on our minded to decision 'The Electricity System Operator Regulatory and Incentives Framework from April 2018' and Chapter 2 of our regulatory and incentives framework consultation.[15]

3. Definition of the issue

The current ESO incentives scheme expires on 31 March 2018. We therefore face a decision about whether to continue with these incentives or not, and if so, what form they should take. We have set financial incentives on the ESO since the beginning of privatisation. To date, these schemes have predominantly focussed on encouraging the ESO to unlock shorter-term efficiencies in balancing. As described in the previous section, we have achieved this largely by setting cost targets each year and exposing the ESO to a percentage share of any over or under performance against these targets.

However, both the system and the nature of balancing has changed significantly since we introduced BSIS (as a result of decarbonisation, decentralisation, increased competition, new technologies and more interactive consumers). Consequently, it is becoming increasingly difficult to model balancing costs effectively through BSIS. Changes to the capacity mix are having large implications for system operation. In particular, less predictable demand and supply has heightened the need for new, more flexible balancing resources and accurate forecasts to ensure the system is balanced efficiently. There is also a need to find new solutions for maintaining system inertia and local voltage levels as synchronous thermal power stations close. While the rise of embedded generation means that actions taken by the ESO can increasingly impact the operation of the distribution networks and vice versa.

These changes mean that in future, *overall* balancing efficiency will be increasingly dependent on the combination of efficient operational decisions; accurate forecasting; transparent market signals; strong coordination between network and system operators; and arrangements which enable new and existing resources across the whole system to compete on a level playing field. The ESO must undertake more activity to manage and balance the network needs than in the past and interact more closely with other network companies. We think that now is the right time to consider whether placing the main focus on short term targets for transmission system costs is likely to align with consumers' longer term interests.

Furthermore, the role of the ESO and our expectations for it have significantly increased in complexity since we introduced the current approach. For example the ESO has taken on new accountabilities in recent years. In 2014, the ESO became the delivery body for the capacity market and for contracts for difference introduced by Government as part of the Electricity Market Reform. In 2015, (as part of our ITPR project) we gave the ESO additional responsibilities to identify the need for investment in the transmission network and coordinate and develop investment options.

Our review of the current regulatory framework

In summer 2016, we launched a review of the existing incentives framework to understand if it was working effectively. We found that this mechanistic approach to incentives worked relatively

[15] Future arrangements for the SO - Regulatory and incentives framework consultation: https://www.ofgem.gov.uk/system/files/docs/2017/02/future_arrangements_for_the_so_-_the_regulatory_and_incentives_framework_0.pdf

well in a more stable environment, when we had discrete and easier to measure objectives for the ESO.[16] Moreover, the current ESO regulatory framework was designed for an integrated ESO and TO and adapted as the ESO's role evolved. With our proposed move to a legally separate ESO, we believe now is a good time to look at all aspects of the current ESO regulatory framework to consider whether they interact in a way which drives overall benefits for consumers. Our future ambition is to simplify this regulatory framework by considering how we can potentially bring all the different elements together under one consistent package.

To summarise, the lessons we can learn from our review helps us to define the issue with the current regulatory framework. Namely:

- The current framework creates a **disproportionate focus on driving short-run cost savings** to balancing costs. There is scope of more forward-looking actions and innovation. The future framework needs to strike a better balance between short run and long run outcomes.
- The current framework places a **disproportionate focus on Transmission system operation** and not enough on other important things such as network coordination and transparency. The future framework needs to be more holistic and capture a wider range of behaviours in order to incentivise the ESO across all its roles and responsibilities.
- The current target-based approach to balancing costs is becoming more difficult to model and **does not cope with system change**. We think we may need new regulatory approaches which can better cope with system change.
- Need for better governance and much greater transparency. Stakeholders have told us that a **lack of transparency** around incentives has undermined their confidence in them.

Timing of changes

As the current transmission price control and the EMR incentives do not expire until 2021, we think 2021 presents a good opportunity to consider how to regulate all the ESO's costs together under one consistent package. Before 2021, we believe making some key changes from April 2018 would be beneficial. In particular, we would like to see a shift in the way the ESO performs its roles under its existing obligations before our proposed legal separation in 2019.

This is consistent with what stakeholders told us in their response to our consultation.[17] Stakeholders encouraged Ofgem to act now and take the necessary steps through 2017 to implement reform from April 2018. Most stakeholders recognised that implementation is dependent on the RIIO price controls and arrangements need to be in place before the next price control begins. Most stakeholders were supportive of transitioning via step-changes in 2018, 2019 and 2021, as this seemed more realistic and would allow lessons to be learnt and refinements to be incorporated ahead of the 2021.

Outcome

Our policy objective is to achieve whole system energy cost savings for consumers in the short and long-term. Ultimately, we want an ESO that is considering and delivering value to consumers across the full spectrum of ESO activities and across short and longer term horizons. And is helping to deliver the transition towards a smarter, competitive and more flexible electricity system[18].

Objectives

In order to achieve this, we need a regulatory framework that delivers and incentivises this outcome, aligning wider consumer benefits with ESO shareholder value whilst also supporting the greater independence of the ESO function. We believe that the regulatory framework needs to be

[16] More details on our review of the current approach can be found in appendix 2 and in option 2.
[17] Response to consultations – see page 14 onwards:
https://www.ofgem.gov.uk/system/files/docs/2017/07/summary_of_consultation_responses.pdf
[18] Joint Statement:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/582899/Statement_on_the_Future_of_Electricity_System_Operation1350.pdf

holistic, transparent and set clear expectations for the ESO. In particular, the framework should provide stakeholders with confidence that the ESO is acting in the best interests of the system and consumers and gives stakeholders a platform to hold the ESO to account.

We believe we can achieve this through designing a regulatory framework that meets the objectives set out in our initial consultation on the regulatory and incentives framework.[19] These were:

- *Objective 1: Drive ESO behaviour which maximises the efficiency of the whole electricity system both now and in the future, in particular by facilitating greater competition in markets and by supporting efficient trade-offs between operational and investment costs;*
- *Objective 2: Provide stakeholders with confidence that the ESO is acting in the best interests of consumers and the system, and gives them a platform to hold it to account;*
- *Objective 3: Create risks and rewards for the ESO which are proportionate and aligned with its performance, which support balanced decision-making, and which encourage it to innovate and seek actions which drive long-term benefits;*
- *Objective 4: Give the ESO sufficient flexibility to find the best approaches to driving positive system outcomes (including by working closely with network operators and market participants);*
- *Objective 5: Transparency, brings different aspects of the framework together, and avoids unnecessary administrative burden.*

How objectives deliver outcome

In particular, objective 1 achieves our outcome by requiring the ESO to consider all activities in order to maximise the efficiency of the whole electricity system. Objective 2 ensures better governance of the regulatory framework which achieves our outcome by making better use of the knowledge held by industry and external parties to help bridge the inherent information asymmetry between ourselves and the ESO. We think this will act as a key reputational incentive for the ESO and subsequently drive better performance and deliver value for money for consumers. A framework that supports balanced decision making (objective 3) meets our outcome as it requires the ESO to consider the impacts its actions have over time horizons in order to find the most efficient solution and thereby deliver value to consumers. A framework that gives the ESO sufficient flexibility to find the best approaches to driving positive system outcomes (objective 4) and avoids unnecessary administrative burden (objective 5) would remove unnecessary regulatory barriers and create more opportunities for investment and innovation in order to transition toward a smarter, competitive, more flexible electricity system. A more transparent regulatory framework (objective 5) removes informational barriers and barriers to entry thereby facilitating market participants to make more informed decisions and create more competition in line with our outcome.

There was general stakeholder support for the objectives for the future ESO regulatory framework from the stakeholders that responded to our consultation. Most stakeholders agreed that the future framework design needs to reflect the balance between short-term and future benefits and include appropriate governance of the ESO.

Therefore, in this impact assessment, the options available to us have been assessed against these objectives.

[19] Objectives for our future regulatory framework (page 9): Future arrangements for the electricity System Operator: regulatory and incentives framework consultation

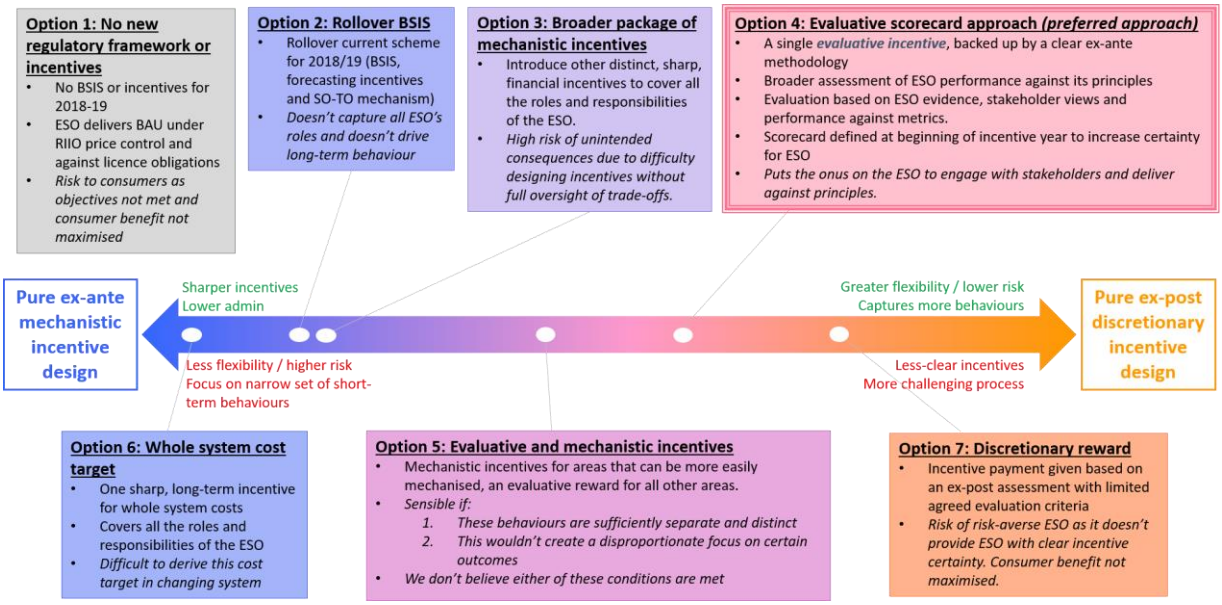
4. Methodology

In coming to our views on the regulatory framework for the ESO we have considered a variety of high-level options to regulating the electricity ESO. We started by considering first principles of better regulation and conducting literature reviews on theory from economic regulation and incentive regulation. We have also tried to learn from other areas (eg RIIO framework), other sectors and other countries. To ensure our assessment contained enough breadth to make an informed decision, we also commissioned work from the Energy Policy Research Group to see what we can learn from international Independent System Operators (ISOs) about designing a framework for the new ESO that encourages it to maximise consumer welfare.

When considering the options for the design of incentives, we envisioned an infinite number of options along a spectrum from pure, ex-ante mechanistic incentives to pure, ex-post discretionary incentives. This is shown in Figure 1 below.

Ex-ante, mechanistic incentives are defined as target-based incentives. These are set prior to the incentive year and the reward or penalty is directly determined by outturn data against the agreed target. In contrast, ex-post, discretionary incentives have a reward or penalty that is determined by an evaluation process at the end of the year.

Figure 1: ESO Incentives Framework for 2018-19 – Options Analysis



We began by choosing different points along the spectrum in order to compare a range of options for the ESO's regulatory framework for 2018-19 and conduct a fair, robust and thorough cost-benefit analysis. Options 1-7 sit along this spectrum and have been considered in this impact assessment. These are listed below:

- Option 1 – Do nothing (no new regulatory and incentives framework)
- Option 2 – Rollover BSIS (continuation of current mechanistic incentives)
- Option 3 – Broader package of mechanistic incentives
- Option 4 – Evaluative scorecard *(preferred approach)*
- Option 5 – Evaluative and mechanistic incentives
- Option 6 – Whole system cost target
- Option 7 – Discretionary reward

This impact assessment compares the high-level approaches we could take for the future regulatory framework. We are consulting on the approach we could take and will finalise some of the details and make a final decision in 2018.

All options have been assessed against a counterfactual of option 2, whereby we would renew the existing regulatory framework and rollover BSIS. We take each option in turn and explain in detail how each performs against the objectives specified above in the following section. This builds upon the reasoning included in our initial consultations and publications released to date. We have incorporated stakeholder views that we have gathered to date when assessing the different options.[20]

We also set out the effect each option has on different groups and the expected contribution to strategic and sustainable energy objectives. We have considered how these options would affect existing and future consumers and industry participants. We have also had regard to potential social and environmental impacts.

When conducting our policy analysis and comparing different options, we have not undertaken fully quantified modelling of the range of impacts (eg through a simulation-based approach) as we do not think this can be done robustly. It is particularly complex to quantify the impacts of a more principles-based approach and there are a number of new roles and objectives for the ESO whose impacts are difficult to quantify ex ante. Furthermore, there is significant uncertainty associated with predicting the future energy system. We have been proportionate in our approach for the cost benefit analysis and have been mindful of the deadline for implementing any changes in time for the 2018-19 incentive year when comparing different options. Where possible and credible to do so at this stage, we have tried to incorporate anecdotal evidence to give an indication of some of the costs and benefits in monetary / quantitative terms.

In order to minimise the risks and uncertainties associated with implementing a new regulatory framework based on hard to monetise impacts, we have given particular focus to how we would evaluate our preferred approach. Please refer to the Risks and uncertainties and evaluation sections for more detail.

When comparing the options, we ruled out any options that could not be implemented by April 2018 and any options that did not satisfy all of our objectives.

We explain each option in detail below and summarise how each option performed against the objectives in the options appraisal section.

[20] Response to the future arrangements for the electricity SO consultations: Summary of responses to the future arrangements for the electricity SO consultations

5. Options Analysis

Option 1 – Do nothing (no new regulatory and incentives framework)

This option involves removing the 2017-18 incentives framework. Therefore, the current scheme (including BSIS, incentives on forecasting and the ESO-TO mechanism) would expire in March 2018 and would not be renewed for the following incentive year 2018-19. The ESO would be required to operate BAU under its RIIO price control and licence requirements. Under this approach, there would be none of the framework changes as proposed under Option 4 and there would be no financial incentive at the end of the incentive year linked to performance. Therefore at the end of the incentive year, the ESO would neither get a reward nor have to pay a penalty. However, we would have clarified the ESO's expectations with the roles, seven (non-binding) principles and associated guidance.[21]

We did not fully assess the impacts of this approach because we found it did not meet any of our objectives for the future regulatory framework.

Benefits:

The main benefit of this option is that we will have more time to design a robust and holistic regulatory framework for 2019 onwards as opposed to putting our resources into designing a regulatory framework that would go live on 1 April 2018 for the incentive year 2018-19. Therefore, this option allows us to free up resources and fully assess the options for 2019 onwards to ensure we maximise consumer welfare and implement a scheme that is robust and reliable.

However, as mentioned previously, stakeholders have already told us to act now and take the necessary steps through 2017 to implement reform from April 2018. Furthermore, transitioning via step-changes in 2018, 2019 and 2021 is more realistic and would allow lessons to be learnt and refinements to be incorporated ahead of the 2021.

Costs:

This option involves removing the current incentive scheme and not implementing anything in its place (this option does not feature any of the elements proposed under option 4 such as the forward plan and ESO Performance Panel). We have already clarified the ESO's expectations with the roles, seven principles and associated guidance (which includes principle 6 which requires the ESO to 'coordinate effectively to ensure efficient whole system operation and optimal use of resources'). However, these would not be embedded into the regulatory framework. The principles themselves are non-binding and we do not think we would maximise the full benefit from them unless they are embedded into the regulatory framework.

Having no incentive scheme will not drive any ESO behaviour that goes above and beyond what is covered under the RIIO price control and in licence obligations. We cannot expect the ESO to maximise the efficiency of the whole electricity system (objective 1) as there would be nothing in place incentivising them to do so aside from their current licence obligations and their overarching requirement under Section 9 of the Electricity Act 1989 to "develop and maintain an efficient, co-ordinated and economical system of electricity transmission". This option would not give stakeholders confidence that the ESO is acting in its best interests and would not give them a platform to hold the ESO to account (objective 2). Neither would it create risks and rewards for the ESO which are proportionate (objective 3) as there would be no reward or penalty for that year. It would not incentivise the ESO to find the best approaches to driving positive system outcomes (objective 4) as there would be no incentive incorporated into the regulatory framework and lastly it would not bring different aspects of the framework together (objective 5).

[21] Future arrangements for the electricity System Operator: Working paper on the Future Regulatory Framework

We think the costs of this option would significantly outweigh the benefit of implementing this option. Overall we think the main cost of this option is that there is significant risks to consumers of having no incentives framework. The ESO may not have any impetus to innovate and seek improvements in its performance in order to drive consumer savings. It will not achieve our outcome of an ESO delivering additional value to consumers across the full spectrum of ESO activities and across short and longer term horizons. This subsequently risks undermining the transition towards a smarter, competitive and more flexible electricity system.

Our commissioned work from the Energy Policy Research Group highlighted that in 2016/17, around 4.4% of the total domestic electricity bill (or 20% of the network costs) was attributed to the NGET costs (TO and ESO). From this percentage, only 0.173% of the total electricity bill corresponds to ESO and the rest (4.1%) to TO.[22] However, this focusses on the internal costs of the ESO. External costs are almost an order of magnitude more significant and total system costs are more than an order of magnitude greater again. Internal ESO operational and capital expenditure costs are of the order of £140 million per year. The external costs of balancing, induced by the ESO's actions are £850 million per year. However, the total wholesale costs in Great Britain are around £17 billion per year. This all feeds into consumer bills. The ESO sits at the centre of this electricity system and it can have a significant impact on the way the system operates and evolves over time and subsequently its actions can indirectly feed into these costs. For instance, over 65% of a consumer's annual electricity bill is made up of the costs associated with producing electricity, trading it in our wholesale market and transporting it over our electricity networks, which is indirectly influenced by the ESO.[23]

Therefore we think it is important that the ESO faces incentives that drive it to deliver savings to consumers. Any efficiency savings the ESO can make through incentives has the potential to drive large indirect savings to consumers.

It is for the reasoning stated above that we ruled out this option at an earlier stage and did not consider it any further.

Option 2 – Rollover BSIS (continuation of current mechanistic incentives)

This option involves rolling over the current incentives we use for the ESO (which include BSIS, wind and demand forecasting incentives, the ESO-TO mechanism and a reporting requirement for transmission losses). We have described these in detail in the previous baseline section.

As mentioned previously, we have carried out a review of our current approach to help stakeholders assess how it might need to evolve. Overall, our review suggested moving away from discrete mechanistic incentives and to move towards a more holistic, evaluative approach. For the purpose of this impact assessment we highlight our findings below in relation to the ESO incentive scheme.[24]

Costs:

The main cost of this option is that it does not meet all of our objectives for the future regulatory framework for the electricity ESO.

Whilst we recognise that mechanistic incentives in the areas of balancing costs, forecasting and transmission losses have driven improvements in these areas, they do not capture all the roles

[23] See page 7: https://www.ofgem.gov.uk/system/files/docs/2017/02/future_arrangements_for_the_so_-_the_regulatory_and_incentives_framework_0.pdf
[24] For more information on our review of the current framework, please see Chapter 3: https://www.ofgem.gov.uk/system/files/docs/2017/02/future_arrangements_for_the_so_-_the_regulatory_and_incentives_framework_0.pdf

and responsibilities of the ESO. Therefore they do not incentivise the ESO across the full range of actions it could take but instead they cause the ESO to focus on a narrow set of behaviours. We think that mechanistic incentives should be used when the behaviours they're trying to incentivise are sufficiently separate and distinct and using mechanistic incentives would not create a disproportionate focus on certain outcomes. Firstly, we've already engaged with industry on the four roles for the ESO which cover their responsibilities and behaviours (managing system balance and operability, facilitating competitive markets, facilitating whole system outcomes and supporting competition in networks). We recognise that these are all interdependent and subsequently the seven principles that we've produced that sit under these four roles are also interlinked as depicted in Appendix 1. Therefore we do not believe the first condition of separate and distinct behaviours is satisfied. Secondly, we believe mechanistic financial incentives (by their very nature) will be unable to capture the full spectrum of behaviours we want from the ESO and therefore will create a disproportionate focus on certain outcomes as we have experienced to date with the current incentive scheme.

In terms of monetary cost, on average the financial reward the ESO has received over the past 6 years (from BSIS since it was introduced in 2011 to 2017) has averaged at £5.57 million (see Figure A3 in Appendix 2). These costs are recovered through Balancing Services Use of System (BSUoS) charges and ultimately are paid for by the consumer. Therefore, this provides an indicative look at what the consumer could expect to pay under this option, based on a historical average. Under a well-designed regulatory framework, the benefits of the scheme should outweigh any incentive payment. But concerns over recent years mean we are now less confident that these BSIS payments align with overall benefit for consumers. The balancing actions the ESO takes cost approximately £850m a year, adding around £9 to annual consumer bills. However the current scheme disproportionately focusses the ESO's attention on reducing this in the short-term, at the opportunity cost of more long-term solutions. However, the wider cost is much greater as the ESO's actions have a significant impact on the operation and evolution of our system. Therefore it is important that the regulatory framework incentivises the ESO to behave in an economic and efficient manner and take the optimal actions to reduce this cost over time horizons, in order to minimise these pass-through costs to consumers.

Ultimately, we do not believe this option maximises consumer benefits in line with our objectives for the incentive year 2018-19. Therefore we expect the opportunity cost of this option to be higher compared to the other options under consideration.

We set out our reasoning in more detail below in respect to our objectives.

Objective 1: Drive ESO behaviour which maximises the efficiency of the whole electricity system both now and in the future, in particular by facilitating greater competition in markets and by supporting efficient trade-offs between operational and investment costs;

We do not think this option meets this objective. Namely it does not incentivise whole system efficiency and measures to promote competition especially over a longer time frame.

Firstly, we believe that the current BSIS and other incentives do not sufficiently expose the ESO to the full costs and benefits its balancing actions have for consumers. Specifically, it focusses the ESO's attention on transmission system management and taking actions to drive down balancing costs in line with their BSIS targets (eg by negotiating bilateral contracts outside of the BM). There is currently less incentive on the ESO to factor in the implications these actions have on *overall* system efficiency; including how its actions could affect competition or wider network costs. Therefore it is less likely that the ESO will be taking actions to maximise efficiency of the whole electricity system. Part of the issue is that many of these costs may not be currently visible to the ESO under the current approach and there is no incentive for the ESO to consider them. For example, actions that are taken on the distribution network could reduce balancing costs for the SO but could also create costs for DNOs or distributed energy resources, or have hidden costs for consumers because of the impact they have on imbalance revenues. Another example to support this is where the ESO has developed new services and contracts to reduce costs, but has

compromised on the transparency of system operation. This risks dampening market signals and undermining long run electricity system efficiency. This is supported by stakeholder feedback where stakeholders feel more consideration needs to be given to the design of balancing services to ensure they promote competition.

Stakeholder feedback also supports the view that the ESO incentive scheme fared well at minimising short terms costs for industry but less well at investment to reduce medium and long-term costs (as there is less of an incentive on the ESO to factor in the implications these actions have on overall system efficiency, or wider network costs).

Evidence also further supports this and suggests the total wholesale costs in Great Britain are around £17 billion per year.[25] The decisions the ESO makes significantly and increasingly influences these transmission and wider wholesale and total system costs. The ESO must undertake more activity to manage and balance the network needs than in the past and interact more closely with other network companies. Hence ESO regulation needs to focus substantially on these external and whole system costs.

Objective 2: Provide stakeholders with confidence that the ESO is acting in the best interests of consumers and the system, and gives them a platform to hold it to account

We do not think this option meets this objective as it does not involve stakeholder input and does not provide them with a platform to hold the ESO to account.

The governance of the BSIS models have been put under question by stakeholders in recent years. Currently, the ESO develops the models and methodologies required for BSIS, reports any model inaccuracies to Ofgem, and provides solutions to the problems in the models. Ofgem has the ability to ask for further information and then accept or reject the corrections proposed by the ESO. Ofgem does not have the ability, with the current governance structure, to amend the models directly or direct investigations. It has therefore become apparent that the current framework gives Ofgem too few levers to direct changes or investigations into the models and places too much emphasis on the ESO to identify errors. Furthermore, by having an incentive scheme focused solely on financial costs, there is a risk that the ESO will only bring model errors forward when they are likely to gain from doing so.

Furthermore, stakeholder feedback[26] on the current approach suggests that it does not give them the confidence that the ESO is acting in the best interests of consumers. In particular, stakeholders felt that forecasted targets for incentivised balancing costs had been relied upon too much in the past whilst their credibility hadn't been subjected to external review. A few stakeholders also questioned why the ESO's own models are used to set the target. They commented that there is too much emphasis on the ESO to identify errors without a strong incentive for them to do so.

Objective 3: Create risks and rewards for the ESO which are proportionate and aligned with its performance, which support balanced decision-making, and which encourage it to innovate and seek actions which drive long-term benefits;

The strength and stability of the current BSIS is very dependent on the ability of models to produce a robust baseline for efficient behaviour. We believe that the shortfalls of a modelled cost approach based on historic data or network modelling are likely to worsen as the system develops and becomes increasingly complex. This has led to an increasing risk that the current incentive overly rewards or penalises the ESO for outcomes outside of its control. We see potential evidence

[25] For 2016, see DUKES (2017, p.33).
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/643414/DUKES_2017.pdf
[26] Summary of consultation responses – page 15:
https://www.ofgem.gov.uk/system/files/docs/2017/07/summary_of_consultation_responses.pdf

of this looking at previous scheme data. For example, as shown in Appendix 2, over the last few incentive years, payments/penalties have frequently hit or come very close to BSIS cap and floors. And often cap breaches have appeared likely early in the scheme. This is not only indicative of potential volatility but problematic because it could dampen the strength of the incentive if it is not driving and rewarding genuine ESO innovation.

Furthermore, the BSIS models are owned and maintained by the ESO and validated by us at the beginning of the scheme. When issues with targets materialise, the onus is on the ESO to identify errors and correct them. A key concern is that when issues occur with the models, the ESO may face perverse incentives to address them as this directly impacts their incentive revenue. Our experiences recently, particularly during the 2015/17 scheme, is that targets have on occasion become unrealistically high. We feel the ESO could have addressed errors with the models more quickly, and on a more incremental basis, rather than making more significant changes in one go. Over the next few years, there are likely to be further changes which will impact on system operation and create additional complexity and uncertainty in modelling an efficient cost baseline. We think that in the future models will still be important for informing our assessment of the ESO's performance however they should not be solely relied upon to directly determine ESO incentive revenue in the future given system uncertainty. In particular, if there is a lack of longer term credibility around the models, this could undermine incentives on the ESO to make longer term cost trade-offs.

Furthermore the ESO has agreed that modelling future outcomes and setting targets has become increasingly complex as the future becomes increasingly uncertain. The ESO argued that the use of short-term incentives, where the results must be realised within-year, mean that it focuses on efficiencies that will reap benefits in this timescale (it argues this makes longer-term investment more difficult to justify and shows how shareholder and consumer benefits can become misaligned).

Objective 4: Give the ESO sufficient flexibility to find the best approaches to driving positive system outcomes (including by working closely with network operators and market participants);

The BSIS only incentivises the ESO based on balancing costs but doesn't incentivise them across everything the ESO does. The narrow focus of the regulatory framework cannot drive the ESO to find the best overall solution. For instance, this option does not incentivise the ESO to engage with other network operators and market participants to find the best approaches and drive positive system outcomes. We think that there may be lost benefits to consumers in this area. There is a lack of data to produce a quantified estimate as to the extent of this, however anecdotal evidence suggests that some ESO and DNO actions are currently non-optimal and increased coordination could lead to potentially large efficiency savings. Imperial College's report to the Committee on Climate Change (Roadmap for Flexibility Services to 2030) estimated that coordination can reduce whole system costs (investment and operation) by £1.1-£2.3 billion per year. The annual cost of balancing the transmission system is around £850million and has grown by 25% over the last 5 years. As this approach does not specifically meet this objective, it does not help to mitigate against further cost rises.

Objective 5: Transparency, brings different aspects of the framework together, and avoids unnecessary administrative burden.

We do not think this option satisfactorily meets this objective.

As mentioned previously, stakeholders have expressed that there is a general lack of transparency around the current approach.[27] Some stakeholders have told us that they do not believe the industry has much understanding of the current BSIS models, and that this makes it hard to provide meaningful comments about the ESO's performance. There is also little opportunity for stakeholders to hold the ESO to account in the current regulatory framework.

[27] Summary of consultation responses: https://www.ofgem.gov.uk/system/files/docs/2017/07/summary_of_consultation_responses.pdf

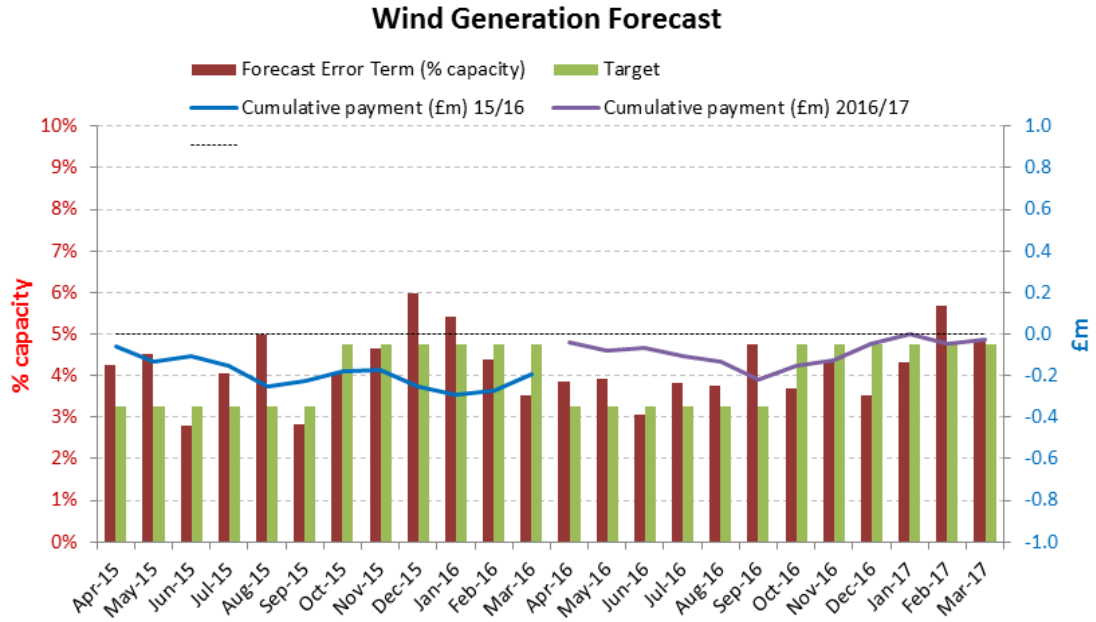
Furthermore, the BSIS incentive scheme requires a large amount of resources across Ofgem and the ESO. We initially believed that relying on target-based incentives would require minimal resource but our experience to date has shown that in practise mechanistic incentives require a significant amount of resource to monitor (especially when agreeing on model errors and methodologies). The model errors put forward by the ESO for the 2015-17 scheme have required extensive analysis before approval and the process of communicating positions by both sides has taken considerable time & resources. Ultimately, target-based incentives can unintentionally drive perverse behaviour. Overall we think the time spent focussing on models and ensuring mechanistic incentives work and correcting errors in the models could be better spent delivering consumer benefits.

Benefits:

We recognise that this option involves mechanistic incentives which send the ESO clear, sharp signals and have driven some improvements in these areas. Our review of the current framework (summarised in Appendix 2) provides an overview of BSIS targets and outturn incentivised balancing costs since 2001. As can be seen, the ESO has typically incurred less costs than its targets, which suggests that BSIS has been successful in influencing ESO behaviour and encouraging it to take actions to reduce within-year balancing costs below targets. Assuming that the BSIS target is a good reflection of the costs an efficient ESO would incur, then this approach to incentives may have driven a reduction in balancing costs of around £200m from 2013-15, which translates to around £150m worth of benefits for consumers when accounting for payments to NGET.[28] However, as highlighted above, we have increasing concerns about the extent to which these targets represent good baseline for business as usual. In addition, we believe there could have been greater benefits for consumers if the focus wasn't on driving short-term savings.

Analysis shown below in Figure 2 also suggests that the wind generation forecast incentive has generally decreased the ESO's margin of error since its inception in 2013 demonstrating mechanistic incentives can deliver value for money in specific areas.

Figure 2 – Wind Generation Forecasting Incentive Performance to Date



[28] Electricity System Operator incentives from April 2017 – page 13: https://www.ofgem.gov.uk/system/files/docs/2016/08/electricity_system_operator_incentives_from_2017.pdf

On the other hand, in recent years, BSIS targets have had an upward trajectory whilst incentivised costs have kept relatively stable. Our review also observed that the ESO has quite frequently breached or come close to breaching the BSIS cap/floor and the magnitude of the impact of model errors on BSIS targets can be very large. We found that this mechanistic approach to incentives worked relatively well in a more stable environment, when we had discrete and easier to measure objectives for the ESO. It is now becoming increasingly difficult to model balancing costs effectively through BSIS.

On the whole, we do not think these benefits of continuing with the BSIS approach are greater than the costs described above, especially as none of our policy objectives are wholly satisfied with this approach.

Distributional impacts

The design of the current balancing incentive may encourage the ESO to overly prioritise shorter term steps to reduce costs ahead of more innovative, longer term solutions. This may partly be because the current incentive length is too short or there is some uncertainty associated with future incentive scheme parameters which could mean that the ESO has more to gain financially from focusing on actions which lead to more immediate cost reductions. The ESO could perceive it to be risky to incur upfront costs or an incentive penalty without the guarantee of being rewarded in the future. For example, whilst contracting strategies can help reduce costs in the short term, earlier initiatives to facilitate more competition between balancing providers could drive even lower costs. Therefore we think this option may disadvantage future consumers as it does not incentivise long run outcomes for consumers.

As mentioned previously, the current approach focusses too much on transmission system management therefore there is a risk that other parties (particularly newer/more innovative industry players) may lose out if the ESO isn't incentivised to identify and develop solutions that maximise efficiency of the whole electricity system.

As the ESO already has a role to play across GB we do not expect there to be any significant different impacts in different geographical parts of GB.

Impacts on competition

Driving competition and efficiency across all aspects of the system is one of the key objectives of our proposals, as covered under the section above. Overall we think that this option places a disproportionate focus on short-term cost reduction and not enough emphasis on promoting transparency or driving competition. This results in more opaque bilateral contracts to drive down short-term costs which have a negative impact on competition.

Strategic and sustainability considerations

As mentioned previously, we do not think this option sufficiently incentivises longer-term thinking, therefore it is less likely to deliver long-term technology development in line with longer-term sustainability considerations.

We do not think there will be any negative impact with this option on security of supply.

Unintended consequences

We have covered most of the risks and uncertainties and unintended consequences in the costs section above.

A further possible unintended consequence of this option is that it will not support and help to fully realise the benefits from increased ESO separation. We have said previously that the future regulatory framework should drive the outcomes that we expect to see from more independent ESO in order to realise the benefits from increased separation. For instance, with greater independence, the ESO is better able to play a more active role in working with industry to move

to a new operating model, taking account of the greater interactivity between demand and supply entities. This will ensure that the most efficient solutions to system needs can be identified, regardless of whether they involve investment on the Transmission network or Distribution network, or would involve a non-build solution (such as the use of a flexibility resource). In order to do this we need a regulatory framework that is transparent, joined-up and sets clear expectations for the ESO which isn't sufficiently delivered through the current approach. Therefore we risk not realising some of the benefits from separation if we continue with the current approach. [29]

As mentioned previously, we think there is a risk of relying on a target based approach to directly determine incentives, especially when the ESO owns the models and has a conflict of interest when proposing and suggesting improvements to the models. Going forward, we expect it will become even more difficult to robustly model balancing costs in a more complex and changing future. Relying on a target based approach for balancing cost and incentives could create significant uncertainties and windfall gains/losses for the ESO.

Furthermore, balancing cost is one part of the ESO's role and relying on an incentive in this area ignores the ESO's performance across other areas where its role needs to evolve. Therefore mechanistic incentives in these areas do not incentivise the ESO to deliver consumer benefits across all its roles. Should we continue with a mechanistic incentives approach we risk creating perverse incentives that encourage the ESO to prioritise activities which do not drive the most consumer value.

We could also further disincentivise industry participation in the ESO regulatory framework as this option would not demonstrate a credible commitment from the regulator for reform despite engaging with industry on moving away from the current approach to a more holistic approach.

Option 3 – Broader package of mechanistic incentives

This option goes a step further than option 2 and involves designing mechanistic incentives to cover all the roles and responsibilities the ESO has. This would mean, wherever possible, designing a target-based, ex-ante incentive on every area where we expect the ESO to deliver consumer benefits (for example, for each of the four roles alongside all the current incentives on BSIS and forecasting).

We did not fully assess the benefits and costs of this option as we did not think it would be possible to design new incentives covering all the roles and responsibilities (especially in time for the 2018-19 incentive year). We also did not consider this option to be in line with our objectives. We set out our reasoning in more detail below.

Benefits:

Mechanistic incentives (where a reward or penalty is directly determined by outturn data against a target) can create more certainty for the ESO, and therefore arguably can have a stronger incentive effect. However there is also a greater chance of unintended consequences – particularly when trying to set these target-based incentives for longer periods when there is significant uncertainty in predicting how the system will evolve in the next few years.

Costs:

As mentioned previously, our experience with incentives is that they should be used when the behaviours they are trying to incentivise are sufficiently separate and distinct and using mechanistic incentives would not create a disproportionate focus on certain outcomes. However,

[29] Impact Assessment on increased separation of the electricity system operator: https://www.ofgem.gov.uk/system/files/docs/2017/08/future_arrangements_for_the_electricity_system_operator_-_response_to_consultation_on_so_separation.pdf

the electricity system itself is interdependent and our seven principles for the ESO are also interdependent and interlinked. Secondly, we believe mechanistic financial incentives (by their very nature) will be unable to capture the full spectrum of behaviours we want from the ESO and therefore they will create a disproportionate focus on certain outcomes. Even with perfect foresight and understanding of how the electricity will evolve in the future, we still think it would be difficult to assign monetary values and set mechanistic incentives across all the ESO's different roles and responsibilities.

This option would not support efficient trade-offs across time horizons (objective 1). We would be designing target-based incentives by making trade-offs with imperfect oversight of how everything interacts. This would most likely lead to adverse behaviour as the ESO is better placed to make these decisions. We do not think this option will create risks and rewards for the ESO which are proportionate and aligned with its performance, which support balanced decision-making (objective 3). We believe there is an increased risk that we inefficiently divert the ESO's attention and resources towards certain outcomes at the expense of others. Additionally, designing more mechanistic incentives would not achieve the culture change that we want to see with the ESO and drive the proactive, longer-term innovative behaviour we want to see. Instead we would be effectively micromanaging the ESO and signalling where to place resources. Through developing more mechanistic incentives, there is also a risk that we introduce too much prescription about the actions the ESO should take. This could go against our ambition for an ESO that takes ownership of system outcomes and proactively considers the best overall solutions for consumers. Therefore this option would not give the ESO sufficient flexibility to find the best approaches to driving positive system outcomes (objective 4). We think that having numerous mechanistic incentives interacting with each other would more likely create perverse incentives instead of incentivising the ESO to take the best overall approach to deliver benefits to consumers. Numerous mechanistic incentives would also increase the level of complexity already associated with the incentive scheme and would not improve transparency with industry (objective 5) or make it easier to industry to hold the ESO to account (objective 2). The recent Dieter Helm Review cites multiple interventions and complexity as a major cause of rising costs in the electricity market[30]. Mechanistic incentives would also not be future proof and be able to cope with system change going forward.

For the reasoning stated above, we ruled out this option and did not consider it any further.

Option 4 – evaluative scorecard approach *(preferred)*

This option is a new approach to incentive regulation and involves a single evaluative reward or penalty, which will be determined from a holistic evaluation of ESO performance. It is built on Ofgem being clear about our expectations for the roles the ESO should fulfil through principles and guidance (see appendix 2 for the roles and principles) which will be used to assess the ESO's performance. The onus is then on the ESO to use its expertise to organise its resources to best meet these expectations. Each year the ESO will set out a plan, validated by stakeholders and Ofgem, for meeting these expectations and we will agree performance metrics and benchmarks to hold the ESO to account. Throughout the year the ESO's performance will be closely monitored and at the end of the regulatory year the ESO's performance will be evaluated using a number of inputs. This includes delivery against its plan (and performance metrics), industry views, ESO justification and explanation of its performance, consideration of wider contextual/market influences (eg weather), and evidence of delivered or future consumer value. A score will be given for each principle which would then translate to a penalty/reward.

Under this approach, we are proposing to establish an ESO Performance Panel (made up of independent experts, academics and/or stakeholders[31]) to support this evaluative process and to even the information asymmetry between the ESO and Ofgem. The Panel would evaluate the ESO's performance and make a recommendation to Ofgem regarding the ESO's level of financial penalty or reward. The final decision on the incentive payment/reward would remain with the

[30] Dieter Helm Review: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/654902/Cost_of_Energy_Review.pdf
[31] We are currently consulting on the Panel members.

Authority. This process will also be backed up by clear ex-ante components to give the ESO more certainty. More details on this approach and how it would work in practise can be found in the main consultation document and associated appendices.

We set out the costs and benefits of this option in more detail below.

Costs:

Under this option, we are proposing that there should be a maximum incentive cap and floor of ±£30m for 2018/19. This will be recovered through BSUoS charges (more details on this can be found in the associated consultation document). Stakeholders agreed that financial incentives drive behaviour and should continue to play a key role in regulating the ESO going forward. However, we also recognise that this is a new scheme and so we intend to keep this incentive value under review for the following years. In the event of a payment/reward for the ESO, we believe this is outweighed by the wider benefits which are deemed to be a magnitude higher than the ±£30m cap and floor for 2018/19 (total wholesale costs in GB are around £17billion per year).

This option involves assessing and monitoring the performance of the ESO against seven principles using a mixture of qualitative and quantitative evidence (eg performance metrics, stakeholder views and the wider context). A key part of the design of this option is stakeholder input through an ESO Performance Panel, which would require a certain amount of preparation and resource commitments for Ofgem to set up and run. It would also require resource commitments for panel members, the ESO as well as stakeholders. We expect that this ongoing monitoring and assessment will be more resource intensive and expensive when compared to the counterfactual (option 2). If panel meetings occur three times during the incentive year as is currently proposed (once at the beginning, once during the year and a final performance evaluation at the end), then we would need to manage this resource constraint. We think the resource used on this option will utilise greater consumer benefits in comparison to the counterfactual (option 2).

The quantity and complexity of information that is inherent in appropriately monitoring the ESO's performance currently requires 2.5 FTE. We expect that this figure would remain the same with our proposed new framework. However, we expect to require 1 additional FTE to temporarily support the first 12 months of implementation and ensure the more detailed implementation questions are sufficiently dealt with. Similarly, we also expect this option to require some additional resource for the ESO during the implementation phase.

We believe that the independent members of the panel will be paid, however we would expect that those representing industry will be volunteered through their relevant trade bodies (for example, Energy UK). We expect no more than ten panel members, with approximately five of these being paid. Based on the experience of the NIC panel, we can assume to pay panel members around £1500 per day and require around 10 days work per year. Therefore, we anticipate a total cost of running the panel to be around £75-100k per year.

Another unintended consequence of this approach is related to the interpretive risk associated with using principles. Julia Black points out the distinction between certainty (a shared understanding between those applying the rule as to its meaning and application in particular instances) and predictability (otherwise known as the regulatory response - regulators will always respond to similar situations in similar ways, and so the regulated firms know what the supervisory and enforcement response will be). A degree of uncertainty can be accepted if firms know that the regulator will allow them a certain "margin of appreciation" in their interpretations, and will respect due efforts to construct a reasonable interpretation and act accordingly. Moreover, uncertainty will increase if the regulator has developed internal understandings on the application of rules that are not reflected in its published statements.[32] If there is uncertainty from the ESO on how to interpret the principles, we risk undermining the framework. This may foster risk-averse behaviour from the ESO, prompting them to be more conservative in their

[32] Making a success of Principles-based regulation, Julia Black (2007): http://www.lse.ac.uk/law/people/academic-staff/julia-black/Documents/black5.pdf

interpretation as to what conduct is allowed. A consequence of this would that this would undermine our progress towards achieving our outcome of more proactive ESO that innovates and is more future looking.

We cover this in more depth under the Risks and uncertainties section.

Benefits

We believe the next three years provide a good opportunity to try new, innovative regulatory and incentives approaches that could help drive improved behaviours from the ESO and inform our approach from 2021 onwards (in line with RIIO2). Stakeholders have also encouraged us to act now and take the necessary steps through 2017 to implement reform from April 2018. The ESO also believes any changes in 2018 will need to be consistent with the longer-term direction of travel and sufficiently flexible to make the most of the opportunities presented by legal separation of the ESO. We have tested our thinking with stakeholders at two workshops in October 2017. Generally, stakeholders were supportive of moving toward a more discretionary based approach. Some stakeholders said it better lends itself to a holistic, long-term approach (coupled with clear up-front criteria and a transparent decision-making process). Stakeholders also agreed that both non-financial and financial incentives should be used together.

We have assessed the benefits of this approach in more detail against our objectives below.

Objective 1: Drive ESO behaviour which maximises the efficiency of the whole electricity system both now and in the future, in particular by facilitating greater competition in markets and by supporting efficient trade-offs between operational and investment costs;

We think this option can deliver benefits in line with this objective.

We have embedded the roles and principles throughout this framework therefore we believe this option will incentivise the ESO to maximise efficiency of the whole electricity system in line with the guidance we have published on our expectations for the whole system outcomes role. 'Principle 5: Coordinate across system boundaries to deliver efficient network planning and development' and 'Principle 6: Coordinate effectively to ensure efficient whole system operation and optimal use of resources' aims at ensuring the ESO coordinates effectively with other parties to deliver the most efficient and economic outcomes for the whole system. This includes coordinating with others across network boundaries when undertaking network planning and development (principle 5) and coordinating with others in ensuring efficient whole system operation and optimal use of resources (principle 6). We also clarified our expectations for the ESO to be encouraging and facilitating competition in all markets that it can affect with 'Principle 3: Ensure the rules and processes for procuring balancing services maximise competition where possible and are simple, fair and transparent' and 'Principle 4: Promote competition in wholesale and capacity markets'. Principle 3 covers the balancing and ancillary services markets where the ESO is the lead and principal buyer and principle 4 covers the remaining markets that the ESO can affect (eg wholesale and capacity markets).

We think embedding these principles throughout the framework and assessing the ESO's performance against them achieves this objective. Instead of specifying the outputs we expect to see, we specify the behaviours we think the ESO should demonstrate and then assess how well the ESO meets these principles at the end of the incentive year. This is in line with what stakeholders told us – that incentive measures should be based on outcomes for customers rather than inputs delivered.

The principles cover all the ESO's roles and tools it can use to deliver consumer benefits. By embedding them into the framework and assessing them against these principles, we believe this sets a strong incentive to look across all its possible choices and make efficient trade-offs to find the optimal solution. It is also a more holistic assessment of ESO performance compared to the counterfactual.

Ideally, moving to a principles-based regulatory framework would move the regulator-regulatee relationship from a directing relationship of telling and doing, to a relationship in which regulators communicate their goals and expectations clearly in principles and apply those principles predictably. Regulatees would adopt a self-reflective approach to the development of processes and practices to ensure that these goals are substantively met, and, critically, both trust each other to fulfil their side of this new regulatory bargain.[33] While there is limited literature on the performance and monetary benefits of PBR or outcomes based regulation, it is worth noting experience from other countries as highlighted in our consultancy report. In the USA, the ISOs/RTOs are required to operate the wholesale market and grid based on 11 specific principles to drive positive behaviour[34]. The ISOs/RTOs are required explicitly to operate the system efficiently too. Moreover, COES (the Peruvian system operator) has confirmed that this happens in Peru as well.

Furthermore, stakeholders responded positively to our initial thinking on the future ESO regulatory framework. There was broad support for introducing a new approach that encourages the ESO to place more emphasis on whole system outcomes and to drive longer-term improvements to market arrangements.

Objective 2: Provide stakeholders with confidence that the ESO is acting in the best interests of consumers and the system, and gives them a platform to hold it to account;

We think this option can deliver benefits in line with this objective.

Firstly, we strongly believe that the customers of regulated monopolies and their wider stakeholders should play a key part in holding the ESO to account. We think this will help us to make better use of the knowledge held by industry and external parties to help bridge the inherent information asymmetry between ourselves and the ESO. We also think this will act as a key reputational incentive for the ESO and subsequently drive better performance and deliver value for money for consumers.

We want to place an onus on the ESO to engage with its stakeholders on the main steps that it will take to meet its principles, both in the short term and over the longer term. It is vital that through this process the ESO engages effectively with a wide array of stakeholders, including smaller and potential new industry parties. In particular, it is important that the ESO's plans promote a level playing field, and ultimately align with consumers' interests. Stakeholders have so far supported our proposals[35] for a more transparent, joined-up framework that sets clearer expectations for the ESO, as well as changes to give industry a greater role and a better platform to hold the ESO to account.[36] Greater transparency and external involvement should also help build more trust in the regulatory framework, helping to make it more sustainable.

Our consultancy report highlights that in the USA, stakeholders play a key role in the planning, operation and the proposal of new initiatives that allow a more efficient operation of the system. At the same time, depending on the type of ISO/RTO, they can be part of specific committees that, along with the ISO/RTO Board of Directors, constitute the base for stakeholder governance. The current stakeholder governance in the USA allows stakeholders to have a voice in different processes which determine tariffs, the ISO/RTO's annual budget, market design etc.
This option involves a Performance Panel which would assess the evidence for the ESO's performance against its principles and give them a score for each principle. We think this Panel would be made up of independent experts and/or relevant stakeholders and therefore would provide industry with a platform to challenge the ESO and hold it to account. We expect there to be regular Panel meetings throughout the annual cycle (one Panel meeting at the start of the year to finalise the Annual Plan and validate performance metrics, one Panel meeting mid-year to assess performance and one final performance evaluation at the end of the year). This gives

[33] Forms and Paradoxes of Principles Based Regulation, Julia Black (2008): http://eprints.lse.ac.uk/23103/1/WPS2008-13.pdf
[34] https://www.ferc.gov/legal/maj-ord-reg/land-docs/order888.asp
[35] https://www.ofgem.gov.uk/publications-and-updates/future-arrangements-electricity-system-operator-regulatory-and-incentives-framework
[36] Summary of consultation responses:
https://www.ofgem.gov.uk/system/files/docs/2017/07/summary_of_consultation_responses.pdf

stakeholders the opportunity to feed into the process on an ongoing basis. Learnings from panels suggest they can act as a strong reputational incentive if the ESO is required to explain and justify its performance. However we recognise that this benefit will only be realised through setting up a Panel effectively. We are aware of the resource involved in this and hope to fully realise the benefits of a Panel from 2019 onwards. For 2018-19, we expect to finalise the arrangements for the Panel (including the Terms of Reference, panel members, panel design etc) to ensure it will be as effective as possible in practise.
This option also involves the use of a Forward Plan and incorporated in this will be performance metrics. Stakeholders supported the introduction of both of these, as long as they were developed with industry. They should allow industry to understand what the ESO is working towards over a longer time frame and how it expects to deliver this over the short-term. The performance metrics will help industry understand what minimum, good and exceptional performance looks like so parties can objectively assess how well the ESO is delivering against its Forward Plan. Altogether we hope that this will promote transparency and act as a tool for stakeholders to hold the ESO to account thereby improving value for money.

We also expect more transparency and trust in the sector will lead to better information provision which will help market participants make informed investment decisions.

Secondly, compared to prescriptive rules, principles are harder to manipulate, making creative compliance difficult. Therefore, principles can lead to a greater degree of substantive compliance with the purpose of the rule, rather than a "box-ticking" approach, as they require firms to think through how to comply.[37] We also recognise that research suggests that whether or not principles enhance compliance depends on the broader context, in particular the incentive structures the firm has for compliance or non-compliance, and its attitude towards the regulatory regime.[38] We think our regulatory framework with incentives based on compliance with principles (as clarified in our Panel evaluation criteria) coupled with the reputational incentive of the Performance Panel will have the desired effect on the ESO. Consequently this should give stakeholders confidence that the ESO is acting in the best interests of consumers and the system.

Objective 3: Create risks and rewards for the ESO which are proportionate and aligned with its performance, which support balanced decision-making, and which encourage it to innovate and seek actions which drive long-term benefits;

We think this option delivers against this objective.

Compared the counterfactual, this option has a more holistic incentive design which provides a reward to the ESO based on a fuller assessment of its performance against all of its principles. This is important because, as the ESO's role evolves, it becomes increasingly challenging to design an incentives package that successfully captures the complex trade-offs between different actions and aligns with consumers' overall interests. It is our belief that the ESO is best placed to understand how to manage these complex trade-offs. Therefore we think a more holistic assessment of performance will support balanced decision-making and avoid a situation where a mix of distinct incentives unintentionally distorts the trade-offs the ESO could take.

A recent paper considers PBR as one tool in a broader toolbox in the transition toward flexible regulatory and market structures that rewards utilities that adapt or evolve in reaction to market and technology change. This is because PBR specifies expectations of utility performance and outcomes for consumers, while staying agnostic to the exact means of delivery and thus harnesses disruption.[39]

An overly prescriptive framework may also encourage the ESO to focus on a set of outcomes that is too narrow or inadvertently constrain its ability to innovate. We have therefore aimed to ensure our principles strike a balance between setting clear expectations without being prescriptive. This

[37] Making a success of principles-based regulation, Julia Black (2007): http://www.lse.ac.uk/law/people/academic-staff/julia-black/Documents/black5.pdf
[38] V Braithwaite, K Murphy and M Reinhart, "Taxation Threat, Motivational Postures and Responsive Regulation" (2007) 29(1) *Law and Policy* 137.
[39] Next-Generation Performance-Based Regulation (2007): https://www.nrel.gov/docs/fy17osti/68512.pdf

means the ESO placing less emphasis on managing the regulatory framework and the mechanics of incentives, and taking greater ownership of its objectives and system outcomes. This approach encourages innovation because the onus is on the ESO to think about how it could go above and beyond to drive consumer benefits in line with our principles. Furthermore, in our RPI-X@20 review which led to the new RIIO price controls, we commissioned LECG to review international examples of ex-ante and ex-post regulatory approaches[40]. LECG identified that one benefit of carefully designed ex-post approaches is that they may be able to incentivise broader innovation beyond that directly incentivised through ex-ante regulation. It is difficult to monetise the benefit this will have. However, the ESO undertakes actions that cost approximately £850m a year. Any efficiency savings that can be made will ultimately be passed through to consumers through Balancing Services Use of System (BSUoS) charges and lead to lower bills.

One of the factors that the Panel will take into consideration when determining their scores for each principle is whether they can demonstrate how they have tried to deliver longer-term consumer benefits. Stakeholders were supportive of a greater focus on long run outcomes (and the ESO having a broader assessment of wider costs in making decisions on balancing services) in order to strike the appropriate balance between efficient short term operational activities and facilitating longer term developments. As their performance scores will subsequently determine their incentive (reward/penalty), we think this sufficiently aligns their interests with consumers and incentivises them to also think more long-term. The benefit of this is that they will consider costs across time horizons when choosing the optimal solution, thereby acting more efficiently and maximises overall consumer welfare.

Objective 4: Give the ESO sufficient flexibility to find the best approaches to driving positive system outcomes (including by working closely with network operators and market participants);

We recognise that the ESO is best placed to decide how to operate the system and how balancing services should be designed. And we consider the ESO's knowledge means that it is well placed to understand the interactions between the different market arrangements and rules, and how they need to improve to support effective competition and innovation. It is therefore vital that the new framework avoids being overly prescriptive and crowding-out ESO innovation and the ability for the ESO to adapt to respond to change. This option encourages the ESO to be proactive and seek the best overall actions for consumers, taking into account its customers' views and the wider system's needs. Furthermore we think this option gives the ESO the necessary flexibility to make these trade-offs and decide on the best option to take forward.

As mentioned previously, 'Principle 5: Coordinate across system boundaries to deliver efficient network planning and development' and 'Principle 6: Coordinate effectively to ensure efficient whole system operation and optimal use of resources' encourages the ESO to work closely with network operators and market participants. While there is anecdotal evidence that some ESO and DNO actions are currently non-optimal, there is a lack of data to produce a quantified estimate as to the extent of this. Imperial College's report to the Committee on Climate Change (Roadmap for Flexibility Services to 2030) estimated that coordination can reduce whole system costs (investment and operation) by £1.1-£2.3 billion per year. These savings are through optimising Distributed Energy Resources (DER) and flexible resources in a coordinated way. And through better use of network assets. If these changes can help mitigate these cost rises by only a small amount then this would still be a meaningful benefit to consumers.

Furthermore, stakeholders accepted that principles-based regulation provides greater flexibility for the ESO to innovate and places greater responsibility on the ESO to ensure the appropriate consumer outcomes are delivered. It also aligns with Ofgem's wider approach to regulation. To summarise, most stakeholders agreed that a hybrid approach comprising of principles-based rules and prescriptive obligations should be considered. Similar to stakeholders, the ESO supports a balance between principles and prescription – it argues too much prescription won't move with the fast changing energy system and too many high level principles can be stifling if oversight leads to penalising mistakes. We think this option achieves this balance by using a mixture of

[40] See here: https://www.ofgem.gov.uk/ofgem-publications/51950/et-alternativespdf and for the associated LECG consultancy report here: https://www.ofgem.gov.uk/ofgem-publications/52031/final-report-ex-post-regulationpdf

principles and guidance (backed up by licence requirements) as well as clear evaluation criteria to provide more certainty on our expectations. This balance between incentives and obligations is important to ensure flexibility for the different approaches and opportunities to innovate.

By incentivising the ESO to find the best approach to drive positive system outcomes, we could see the ESO taking more actions to facilitate flexible solutions. We do not believe it is possible to robustly quantify what savings our proposals in terms of this as these proposals would be acting as part of a wider suite of measures aiming to address barriers to the efficient development of new flexibility resources.[41] However, the potential benefits of flexibility are substantial. As an example, modelling undertaken for the National Infrastructure Commission suggested that a more flexible system could provide gross benefits to consumers ranging between £2.9bn and £8bn a year in 2030.[42] We consider these proposals will play an important part in unlocking the full extent of these benefits.

Objective 5: Transparency, brings different aspects of the framework together, and avoids unnecessary administrative burden.

A key purpose of introducing principles and embedding them throughout our framework is to create a more transparent regulatory framework and help ensure that all parties have aligned expectations. Our intention is that any future assessments of the ESO's performance and incentives would have clear links back to these overarching principles, thereby creating a more holistic framework.

A few stakeholders recognised the trade-off of introducing a variety of separate, meaningful and measurable incentives and trying to reduce complexity by reducing the number of incentive arrangements. A number of separate frameworks for the ESO is complex and makes it difficult to assess the ESO's performance in the round. Complexity is itself a major cause of rising costs, and tinkering with policies and regulations is unlikely to reduce costs[43]. Therefore we think this option with incentive payments based on a holistic evaluation of performance against principles will simplify our approach, reduce complexity and reduce the chances of unintended consequences.

We expect this option to require more resource for 2018-19 when compared to the counterfactual. However we believe the benefits of doing so, in terms of an ESO that is delivering across all of its roles, considering long-term and short-term solutions and coordinating and optimising resources across networks, will outweigh the costs.

Distributional impacts

We consider that future consumers may stand to gain somewhat more than present consumers as the full benefits of these changes may take time to come through. Future consumers will also gain as the ESO will be incentivised to weigh up options across the short-term and long-term to find the optimal one. Otherwise, we do not foresee any particular distributional impacts among consumers, including no additional impacts from our proposals on vulnerable customers as a subset of GB customers.

Our proposals will affect industry participants differently.

The biggest impact on an individual market participant would be on the ESO, who will have adjust their internal processes in line with the annual review cycle proposed in this option. For instance we are proposing that they consult with industry and produce a Forward Plan, submit reports on their performance metrics throughout the year and submit a final performance report. We are trying to minimise the resource burden as much as possible through incorporating existing processes (for example existing utilising and streamlining existing reporting requirements).

[41] https://www.ofgem.gov.uk/publications-and-updates/smart-flexible-energy-system-call-evidence
[42] National Infrastructure Commission: Smart Power
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/505218/IC_Energy_Report_web.pdf
[43] Dieter Helm Review:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/654902/Cost_of_Energy_Review.pdf

Nonetheless we do not expect this option to require a significant amount of additional resource compared to the counterfactual.

Market participants are expected to see the benefit of the ESO playing a more active role in the promotion of innovation, flexibility and demand side solutions. This should lead to removing barriers for newer, innovative players to allow them to compete on a level playing field with existing players.

Our desire to see the most efficient whole system outcome could involve some distributional impacts between network companies. For example, the increased coordination we envisage could identify whole system solutions to issues involving multiple parties. We envisage there could be a need for transfers between the companies to reflect this and we will consider whether there are any regulatory barriers preventing this.

As the ESO already has a role to play across GB we do not expect there to be any significant different impacts in different geographical parts of GB.

Impacts on competition

Driving competition and efficiency across all aspects of the system is one of the key objectives of our proposals, as covered under the benefits section above.

Strategic and sustainability considerations

We have considered how our proposals would contribute to a sustainable and secure energy supply for GB consumers. Please note that some of these benefits have been identified in the previous sections.

We believe that our proposals will help support the transition to a low carbon system through a number of ways:

- Helping manage the challenges created by the uncertainty around how the system will evolve. For example, by ensuring that the ESO (working with others) is monitoring and anticipating future challenges to system operation so that it is well prepared to deal with a range of plausible outcomes.

- Helping ensure that market and industry frameworks are adapted to allow new technologies and business models to compete on a level playing field with existing providers.

- Helping ensure that there is a holistic view of how the electricity system as a whole is being planned and operated, which is likely to become even more important as the distinction between transmission and distribution systems becomes more blurred due to the growth of distributed generation and active management of local networks.

Unintended consequences

While difficult to quantify, we consider that, taken together, the likely benefits of Option 4 will significantly outweigh the costs. We recognise there are uncertainties that may limit the beneficial impact of our proposals. We cover these in more depth in the following section titled 'Risks and uncertainties'.

Option 5 – Mechanistic and evaluative incentives

This option incorporates ex-ante and ex-post incentives with the aim of providing a balance between flexibility for Ofgem and certainty for the ESO. There would be mechanistic, ex-ante financial incentives for areas that deliver consumer benefits and can be easily measured (for example, a financial incentive on balancing costs, similar to current BSIS and a financial incentive

of forecasting). There would be an evaluative, ex-post incentive for the remaining areas that are thought to deliver benefits to consumers but are harder to measure (for example an incentive on whole system outcomes). The mechanistic incentives allow sharp incentives to be applied and are supported by additional evaluative incentives which (in theory) maximise the theoretical 'coverage' of the incentive package to ensure that the full range of activities are captured. Where mechanistic incentives are included, the evaluative element of the framework would be accordingly adjusted so as not to 'double count' performance against the relative activity.

This option is preferred by the ESO.

We viewed this option as a mixture of Option 2 and Option 4. Given timing, any hybrid package would probably involve retaining significant parts of the existing mechanistic package (Option 2). Therefore this option is essentially a preservation of the status quo with an extra evaluative element added to the framework. Therefore we did not consider this option in full as a lot of the issues with Option 2 would apply here and it would not fully satisfy our objectives. The addition of any mechanistic incentives fundamentally undermines our objectives through directing ESO resources to those mechanistic incentives and their associated specific activities rather than considering options across the full spectrum. It does not drive a more proactive ESO mind-set and maintains the risk of unintended consequences from incentives driving adverse behaviour.

We have listed some of the benefits and costs below for completeness.

Benefits:

This approach uses both mechanistic and evaluative elements. Regulators generally recognise that ex-ante mechanistic incentives are sharper than ex-post evaluative ones, thus providing for a stronger incentive in those areas that are identified. However, as stated under Option 2, regulator experience also recognises that mechanistic incentives should only be used when the behaviours they're trying to incentivise are sufficiently separate and distinct and when using mechanistic incentives would not create a disproportionate focus on certain outcomes.

If this framework could be designed with perfect foresight and understanding of the trade-offs involved, and if it were possible to set mechanistic incentives on areas based on the true value to consumers (in order to maximise net consumer welfare) then this option would satisfy objective 4 as it would give the ESO the flexibility to look across all possible solutions and choose the optimal one without sending a perverse signal.

Costs:

We recognise that this approach involving a mixture of mechanistic and evaluative incentives is more likely to capture the activities the ESO performs compared to a purely ex-ante mechanistic approach. However, this framework design will inevitably still lead to a focus on those areas which are incentivised mechanistically, at the expense of activities which are important to consumers but are evaluated ex-post. This is because a profit-maximising ESO will rationally be expected to focus on areas that provide more revenue certainty. As a result, unless carefully designed and even with perfect foresight, we expect there to be a greater risk of unintended consequences and adverse behaviour due to the complex nature of this option. Hence we do not think this option drives efficiency of the whole electricity system both now and in the future as the longer-term elements are likely to be incentivised under an evaluative incentive and is consequently less likely to get as much focus as the mechanistic incentives (objective 1). We also do not think this option supports balanced decision-making as we would inadvertently tell the ESO where to focus its resources through setting mechanistic incentives, thereby adding distortion to any trade-off the ESO would have efficiently made (objective 3 and objective 1). Whilst this option might give the ESO the flexibility to find the best approach to drive positive system outcomes (objective 4), the ESO will inevitably choose the solution that maximises its mechanistic incentive which may not necessarily be the optimal one.

Furthermore, our aim was to embed the principles into the framework. It is unclear how this option would aim to align incentives with the principles and as a result, this option may lead to the ESO focussing on the incentives instead of delivering against the principles.

It is difficult to see how the ex-ante and ex-post elements would work together as part of a holistic framework. In particular, it is difficult to see how the mechanistic and evaluative elements would interact with each other to ensure the ESO doesn't receive double rewards in areas that are covered by both a mechanistic and evaluative incentive.

We do not think we would be able to design mechanistic and evaluative incentives and operationalise them as part of a clear, coherent framework, minimising any distortions in time for the 2018-19 regulatory year.

It does not create the level of transparency and simplicity we would hope to achieve with the framework in 2018-19 (objective 5). Having mechanistic incentives and evaluative incentives working alongside each other could create complexity. And therefore it is less likely to provide stakeholders with confidence that the ESO is acting in the interests of consumers and the system (objective 2). It is also unclear how much of a role stakeholders would have holding the ESO to account for both mechanistic and evaluative incentives.

Option 6 – Whole system cost target

This option involves creating one clear, ex-ante target for the operation of the whole electricity system. This would be set over a longer time period to encourage longer-term thinking from the ESO. It would provide the ESO with a very clear objective of driving down this costs and the onus would be on the ESO to consider the different trade-offs it could make to do this. We think this is the first-best solution as it directly links the ESO's incentives to that of consumers, covering all the roles and responsibilities for the ESO and is the incentive that would lead to the least adverse behaviour.

We did not fully assess the impacts of this approach because we did not think a whole system cost target could be designed and implemented for 2018-19, especially as the system is undergoing transformative change and we are unlikely to know what the efficient cost of the electricity system should be for the future. Technical change is so fast that predicting costs eight–ten years hence is impractical.[44] It is difficult, if not impossible to robustly estimate and/or model this. Therefore it was ruled out at earlier stage and was not considered any further.

Option 7 – Discretionary reward

We included this option for completeness in order to ensure we considered all options along the spectrum in figure 1. It is similar to option 4 but is based on a more discretionary ex-post assessment of the ESO with limited guidance or evaluation criteria shared at the beginning of the year to provide certainty to the ESO. Evaluation of the ESO's performance would be done using our discretion. We did not consider this any further as it would involve a high level of uncertainty for the ESO and we believe it would subsequently foster risk-averse behaviour. We also realised in order for a discretionary reward to be operationalised, it would involve some mechanistic elements that would inevitably bring it along the spectrum toward the mechanistic ex-ante side. So in the end we would end up with an option near the middle of the spectrum.

[44] Dieter Helm Review: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/654902/Cost_of_Energy_Review.pdf

6. Appraisal of options

As described in the baseline section above, the current transmission price control and the EMR incentives do not expire until 2021. We believe the period from April 2018 to March 2021 provides a window to try new approaches to regulating and incentivising the ESO which are more aligned with our future aims. This will then inform the development of a single, consolidated regulatory scheme for the ESO under the RIIO-2 framework. This approach has support from stakeholders as it would allow lessons to be learnt and refinements to be incorporated ahead of the 2021. Stakeholders also specifically told us in consultation responses and later in the year at our workshops that we should make changes ahead of ESO separation for a scheme to be in place by 2018.

When comparing the options, we ruled out any options that could not be implemented by April 2018. Therefore we ruled out Option 3 (broader mechanistic incentives) and Option 6 (whole system cost). We then ruled out Option 7 (discretionary reward) as it did not partially satisfy at least one of our objectives. We ruled out Option 1 (no incentive) as it failed to satisfy most of our objectives.

We then compared Option 2 (rollover current approach), Option 4 (evaluative scorecard approach) and Option 5 (evaluative and mechanistic incentives). We ruled out Option 2 as evidence (from our review and from stakeholders) strongly suggests that the current approach will not maximise consumer welfare due to system change and the evolving roles of the ESO. Out of the remaining two options - option 4 (evaluative scorecard approach) and option 5 (evaluative and mechanistic incentives) - we considered that the former better satisfied our objectives and would better facilitate our outcome. We have considered the impacts of both options in full under the options analysis section above.

Overall we recognise that mechanistic incentives are sharper than ex-post evaluative ones, however they should only be used if they would not create a disproportionate focus on certain outcomes and when the behaviours they're trying to incentivise are sufficiently separate and distinct. As a result, we think option 5 will inevitably still lead the ESO to focus on those areas which are incentivised mechanistically, at the expense of activities which are important to consumers but are evaluated ex-post, leading to a greater risk of unintended consequences and adverse behaviour.

Whereas this risk is considerably less with option 4 as it moves away from discrete mechanistic financial incentives towards a broader, more evaluative financial incentives approach where the ESO has to consider all possible solutions across all its roles and principles. Therefore we are more likely to get to the optimal solution under option 4.

Furthermore a clearer set of roles and principles for the ESO, a requirement to develop forward-looking plans with industry as well as transparent performance metrics; the introduction of a new ESO Performance Panel (which would act as an advisory body to Ofgem) would help to incentivise an ESO to consider and deliver value to consumers across the full spectrum of ESO activities and across short and longer term horizons. Subsequently this would deliver whole system energy cost savings for consumers in the short and long-term, reduced overall balancing cost and lower consumer bills.

We have summarised this further below in the Figure 3. We have also summarised our evaluation and appraisal of all the options in Table 1.

Figure 3: Logic Map for Option 4 (Evaluative Scorecard approach)

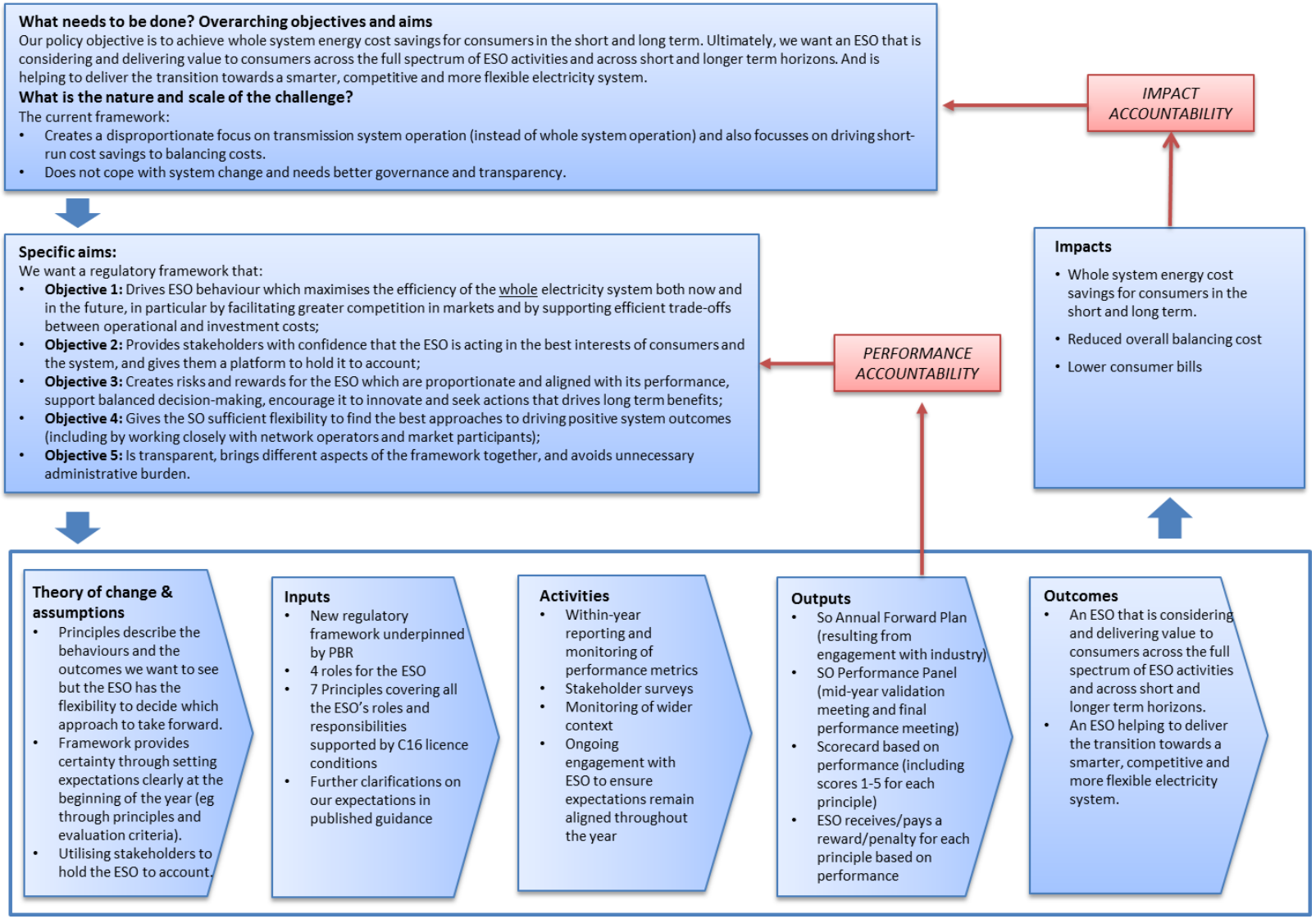


Table 1: Comparison of all options against objectives

We have summarised in the table below how each option performed against our objectives and which ones are thought to deliver the most benefits in line with our objectives.

Key:

	Does not meet objective
	Partially satisfies objective / meets objective but might cause unintended consequences or will need mitigations in place to fully satisfy objective
	Meets objective

Option	**Performance against objectives**						
	1	2	3	4	5	Implementation by 2018-19	Resource
Option 1 (no incentive)							Low
Option 2 (rollover current approach)							Medium
Option 3 (broader mechanistic incentives)							High
Option 4 (evaluative scorecard approach) – ***preferred approach***							Medium
Option 5 (evaluative and mechanistic incentives)							High
Option 6 (whole system cost)							High
Option 7 (discretionary reward)							Medium

7. Risks and uncertainties

We are aware that our cost-benefit analysis is primarily based on quantitative analysis. Therefore we explain in detail the main risks and uncertainties associated with Option 4 and how we can mitigate against some of these. Our evaluation plan is covered in the following section.

There is a risk that Option 4 may require more resource from Ofgem and the ESO. For Ofgem, the quantity and complexity of information that is inherent in appropriately monitoring the ESO's performance currently under the current approach (counterfactual) requires 2.5 FTE. We expect that this figure would remain the same with our proposed new framework. However, we expect to require 1 additional FTE to temporarily support the first 12 months of implementation and ensure the more detailed implementation questions are sufficiently dealt with. To mitigate against a resource burden under the Option 4, we are trying to streamline any reporting and engagement requirements wherever possible. We will look at how much resource is being used to implement and carry out this approach (from our side and ESO) as part of our evaluation of this policy – recognising that there will be an initial increase in resource and engagement whilst the arrangements "bed in".

There is a risk that the ESO does not sufficiently understand what it must do to earn incentive rewards under a more evaluative, ex-post discretionary approach. This could dilute the power of the incentives and lead to minimal effort from the ESO to go beyond the bare minimum to meet expectations. Furthermore, the ESO has stated that if the decision criteria for achieving a discretionary reward is less than certain, this can lead to excessive focus on regulatory reporting and justification of activities to the regulator, rather than delivering outcomes for the benefit of consumers. We think this can be mitigated by developing a clear 'decision criteria' and payment methodology at the beginning so the ESO is assured of how it's performance will be judged and how this equates to financial payment/penalty. Stakeholders have also voiced that it is important that the right balance between principles and prescription is struck to avoid unnecessary ambiguity and provide market with confidence.

Stakeholders have also highlighted the interpretive risk with using principles and stressed that need for open dialogue (with the ESO but a few stakeholders called for an open dialogue with other market participants as well). This is in line with academic literature on principles-based regulation which states that there is a tendency for rules to become formalized in practise, to the extent that a significant gap can grow between the written word and the bureaucratic interpretation it receives[45]. We intend to engage with the ESO over the course of the annual review cycle under this evaluative scorecard approach to build trust and ensure our expectations remain aligned. We also intend to ensure we communicate our expectations on the framework to industry so stakeholders are able to have a greater role in holding the ESO to account.

Another unintended consequence of this option is that it relies on a panel to assess performance for the ESO. We have looked at a number of Ofgem panels[46], in particular how well they have performed and what lessons could be learned from them. Overall we found that panels can be resource intensive, can become subjective and the recommendations from the panel are only as good as its expertise. We would mitigate against these risks by creating and agreeing clear terms of reference from the outset. This would help to keep the ESO Performance Panel focussed on assessing the ESO's performance. We would also ensure that panel members have the capability to assess the ESO's performance by trying to get independent experts with relevant experience. In addition, we would set clear decision criteria for the ESO Performance Panel to follow when assessing the ESO's performance and we would provide supporting guidance to ensure that there is a degree of objectivity to ensure any recommendation the Panel makes is robust and consistent.

We also recognise that panels involve a lot of resource in order to be set up effectively. Following consultation, we aim to develop the detailed arrangements for the panel. Our intention is then to

[45] Forms and Paradoxes of Principles Based Regulation, Julia Black (2008): http://eprints.lse.ac.uk/23103/1/WPS2008-13.pdf
[46] For example, the RIIO Stakeholder Engagement Incentive Panel, Panel of Technical Experts, Network Innovation Competition Panel, the Environmental Discretionary Reward Panel and the Supplier Challenge Panel.

put Panel in place by mid-2018, prior to the first mid-year review process. This would help to ensure that we secure the necessary resource in order to set up and run a Panel effectively and that it has all the relevant expertise in order to assess the ESO's performance robustly and subsequently deliver the benefits we hope to realise.

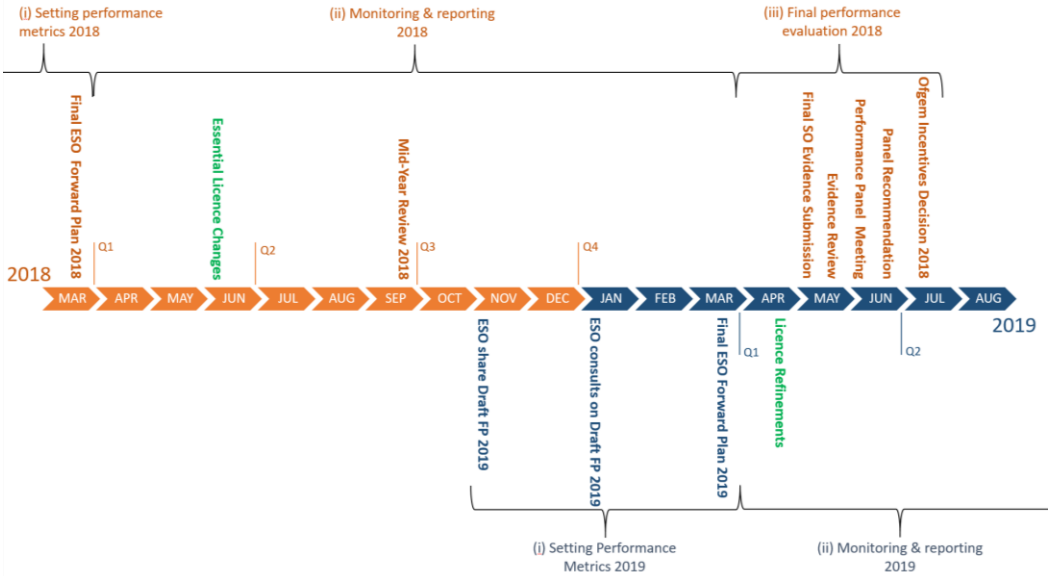
Furthermore we also recognise that the Panel's membership is a key aspect of its design. Ultimately, we think the panel should contain members with a diversity of knowledge and expertise to ensure that it can comprehensively challenge and evaluate the ESO across its full spectrum of activities. However there is a risk that having stakeholders on the Panel leads to distortion in the performance assessment as recommendations might be made based on particular company interests. It is important we get the membership of the Panel right in order to realise and deliver consumer benefits and we are consulting with industry on the different options for membership of the Panel.

We understand that there is significant uncertainty with how the system will evolve and therefore the extent that we can realise benefits. For instance, our proposals put a greater incentive on the ESO to take a whole system view when overseeing the safety and resilience of the transmission system. This would involve working more closely with TOs, DNOs, and other parties to ensure that the approach across both transmission and distribution networks is optimised to deliver the best overall outcome for consumers. The magnitude of savings for the consumer from greater transmission and distribution interactions is dependent on the levels of embedded generation that will come on the system. Whilst there can be no way to know for certain what that level may be, National Grid's Future Energy Scenarios provides a good indication. According to its latest analysis, under the Consumer Power scenario almost 89GW will be connected at the local level by 2040, making up 49% of total generation capacity (compared to the current level of 23%). Therefore, we consider that whilst there is an element of uncertainty, there is likely to be a net consumer benefit in this area.

8. Evaluation

To help mitigate against some of the risks and uncertainties mentioned above with our preferred approach, we intend to review this policy on an ongoing basis. Our preferred approach works on an annual cycle (see figure 4 below) and incorporates an end of year performance evaluation of the SO. We therefore intend to review the effectiveness of this new framework over the course of 2018/19. Whilst our intention is that this overarching framework would remain broadly the same for the three-year period between 2018 and 2021, we will consider the need to make further refinements from 1 April 2019, alongside the legal separation of the ESO. We will then incorporate the lessons we learnt over 2018-2021 from the evaluative scorecard approach into designing a more holistic and consolidated framework for 2021 onwards.

Figure 4 – ESO Regulatory Framework Timeline



As this is a new approach, we intend to review the performance of this new framework over the course of the next year and we are prepared to make further refinements from April 2019, if necessary (alongside the start date for legal separation of the ESO). This is in line with most experience implementing a more principles-based regime. Regulators learn that sometimes rewards or penalties are set too high or too low to reach the desired outcomes. Experience allows for modifications and adjustments to refine PBR programs.[47]

We have clearly defined the outcome we are trying to achieve and have set clear objectives for the ESO's regulatory framework in order to achieve this. Our evaluative scorecard approach involves monitoring and assessing the ESO's performance throughout the year – we will use this to evaluate our policy and determine the success of it. In particular, we will be collecting data throughout the year in order to measure and track the ESO's delivery of its Forward Plan against its performance metrics. This will also help us to measure performance of the ESO and subsequently our regulatory framework – if we see improvements in the ESO's behaviour, this will act as evidence that the new framework is better incentivising the ESO. Another aspect of our preferred approach involves us getting evidence from stakeholders which would also help us to evaluate our policy.

If we do not believe we are achieving the outcomes we envisioned, we will make the necessary adjustments to the principles, the evaluation criteria and/or the process of the evaluative scorecard approach. And we will communicate this accordingly with the ESO and stakeholders.

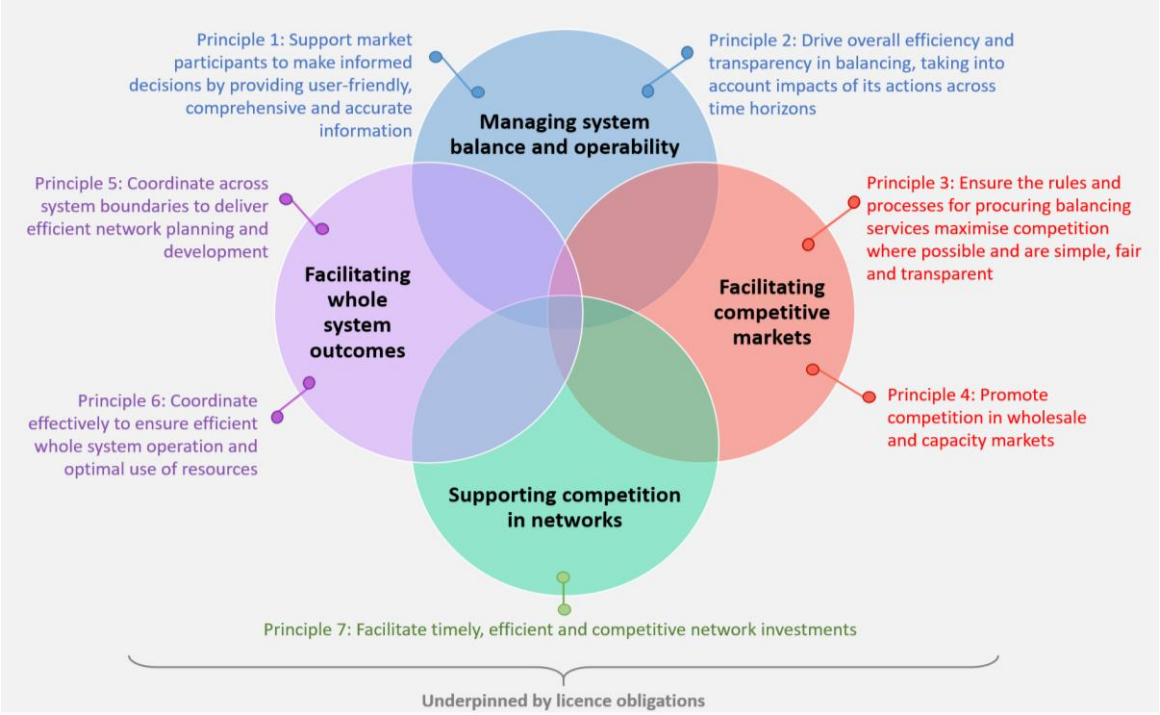
[47] Next-Generation Performance-Based Regulation (2007): https://www.nrel.gov/docs/fy17osti/68512.pdf

9. Conclusion

This impact assessment has considered the benefits and costs across the different options for the future regulatory framework for 2018/19 against the counterfactual of continuing with the status quo. We have considered the stakeholder responses we received to our initial consultations and the feedback we received from stakeholders at our industry workshops. We have also engaged external consultancy support in the areas where we do not have expertise. Due to the nature of the benefits we are describing, we were unable to robustly quantify these, but have described them qualitatively. Despite the risks and uncertainties, we consider that the evaluative scorecard approach (option 4) is likely to achieve our policy objectives and deliver the benefits in line with them when compared to the counterfactual. We recognise that we have based our decision on a qualitative cost benefit analysis therefore we intend to monitor this policy throughout the 2018-19 and evaluate how effective it has been in order to make the necessary adjustments for 2019 onwards.

10. Appendix

Appendix 1: ESO Roles and Principles



Appendix 2: BSIS performance to date

In summer 2016 we launched a review of the existing incentives framework. This annex summarises the key findings from our review.

Figure A1 provides an overview of BSIS targets and outturn incentivised balancing costs since 2001. As can be seen, the ESO has typically incurred less costs than its targets, although on two occasions it incurred significantly more. During this period, the ESO has hit its BSIS cap on five occasions and its BSIS floor on one occasion.

Historical performance of ESO incentive schemes

The main incentive that we have placed on the ESO in the past is the Balancing Services Incentive Scheme (BSIS). The figures below show the ESO's performance against its BSIS from 2001/2 to 2016/17. Figure A1 shows previous BSIS cost targets and the ESO's outturn balancing costs spend against these targets, whilst Figure A2 shows the ESO's resultant incentive payments and penalties since 2001.

Figure A1 – ESO's outturn performance against BSIS targets since 2001

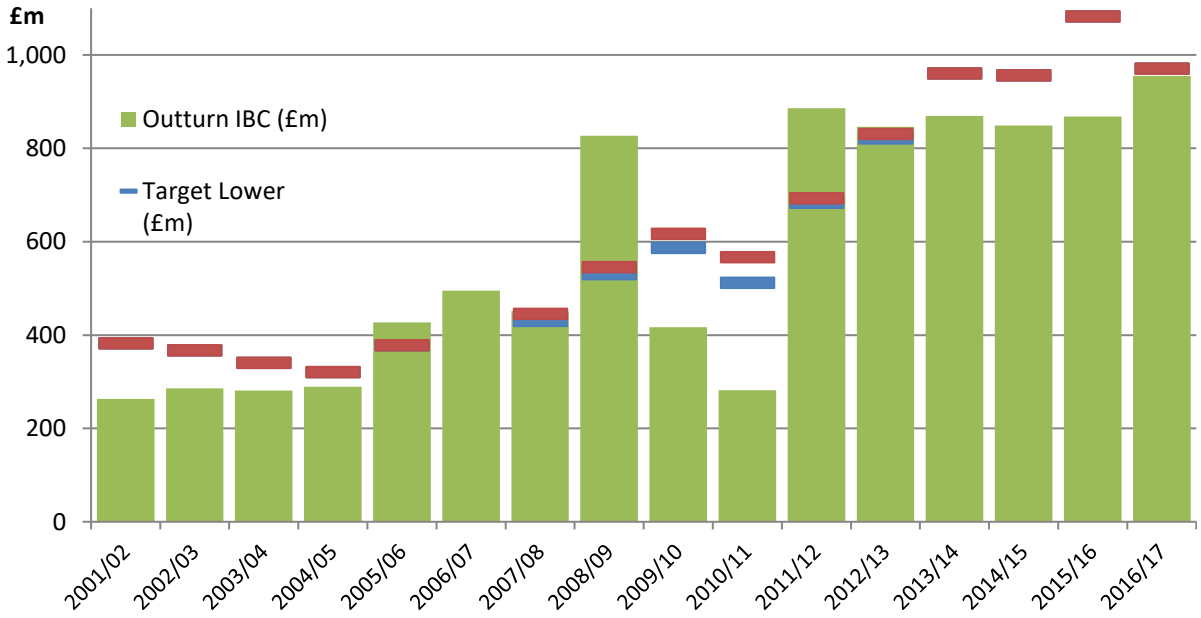
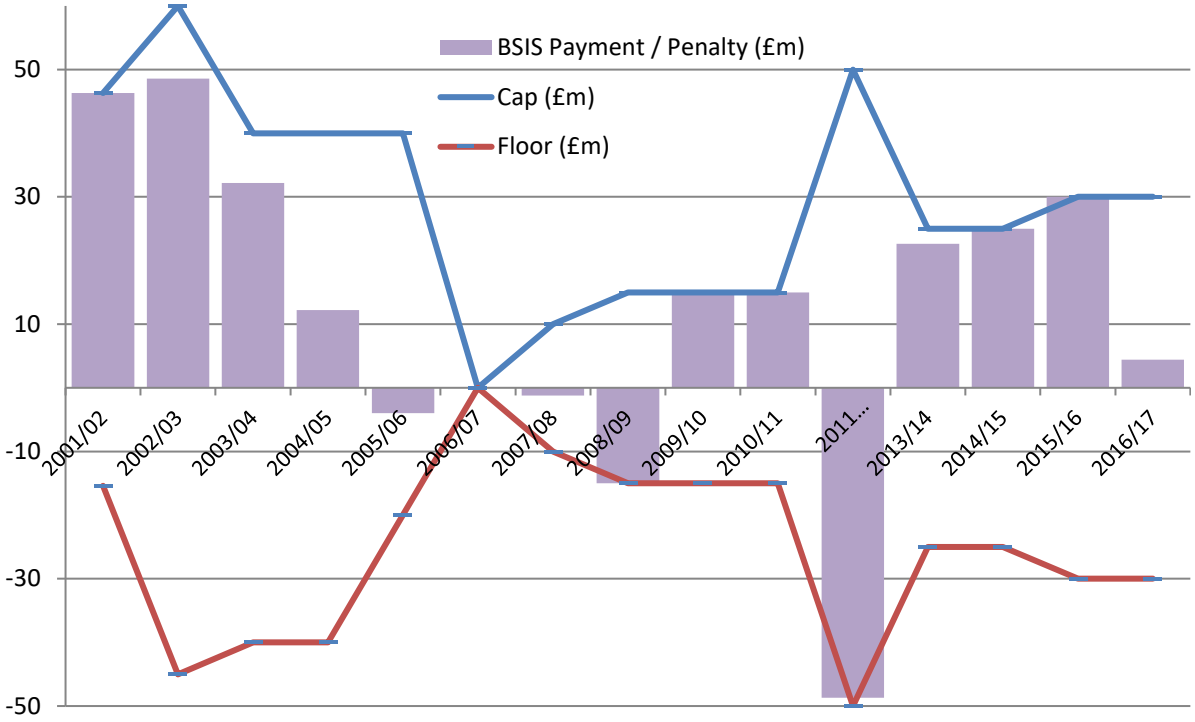


Figure A2 – Payments/penalties to ESO from 2009/10 to 2016/17



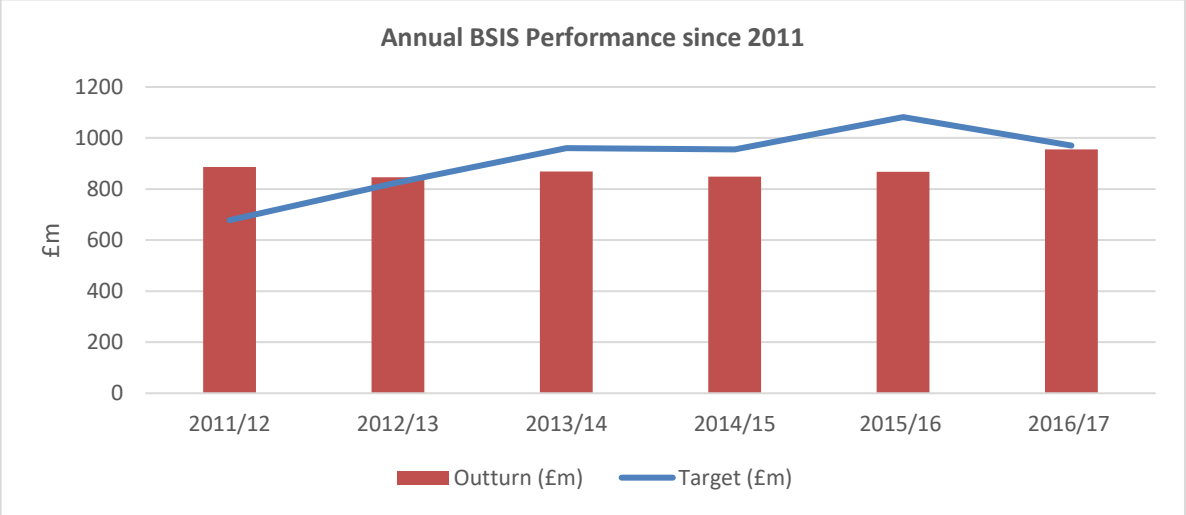
*2011-2013 was a two-year scheme with maximum cap floor of £50m.

As can be seen, the ESO's BSIS performance against its targets has varied over the years. In the last few schemes, the ESO has frequently come close to breaching its scheme cap and floors. This would have also been the case in 2016/17 if not for the pressure we placed on the ESO to improve the BSIS target setting models. This is indicative of the increased challenge of identifying robust balancing cost targets, as well as issues governing these incentives.

Nevertheless, despite these problems, we have seen the ESO responding to BSIS by looking for ways to reduce costs through new contracting practices. The key issue is whether the behaviours driven by BSIS continue to be the right ones in future.

The current format of the BSIS scheme was introduced in 2011. Both the constraints model and the energy model have increased in sophistication since 2011. Figure A3 provides looks at BSIS performance over this period. It is important to note that the graph and table in Figure A3 show that outturn costs have been fairly consistent for the ESO from the introduction of the BSIS scheme format, except for in 2016/17 with outturn rising to around £950m. The ESO has also hit the cap/ceiling in each of scheme's iterations, or come very close to it, except for in the last year 2016/17.

Figure A3 – Annual BSIS Performance since 2011



	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Outturn (£m)	886	846	869	849	**868**	**955**
Target (£m)	678	826	960	956	**1,082**	**970**
Payment to/from ESO (£m)	-48.7		22.7	25.0	**30.0**	**4.4**
Cap & Floor	±£50m (In Range)		±£25m (In Range)	±£25m (Cap Hit)	**±£30m (Cap Hit)**	**±£30m (In Range)**

2011-2013 scheme

The current modelled-based BSIS approach was first introduced in April 2011. During this scheme, BSIS performance was settled on over a two-year period with a maximum cap & floor of ±£50m. During 2011/12, the ESO incurred costs which were significantly greater than its annual target (over £200m). The ESO performed better against its BSIS target 2012/13 but still incurred greater costs than its target, resulting in an overall incentive penalty of £48.7m over the two years.

2013-2015 scheme

For the April 2013 scheme, we moved back to BSIS performance being determined on an annual basis, with a maximum cap & floor of ±£25m in each year. In 2013/15, following a number of corrections to models, the ESO's performance resulted in an incentive payment of £22.7m. For 2014/15, the ESO spent over £100m less than its BSIS target, resulting in it receiving the maximum incentive payment of £25m.

2015-2017 scheme

For 2015-2017 we increased the BSIS cap and floor to ±£30m. In September 2016, the projection of BSIS target versus outturn costs for 2016/17 was £1,515million. As a result, we became concerned that the model's performance was not fit for purpose and liaised with NGET to try to resolve this. NGET identified a number of model errors which resulted in the target being substantially reduced to £1082m. For 2015/16, the ESO's outturn came in over £200m under its target and as a result it received the maximum incentive payment of £30m. Following a number of corrections made to the model, the ESO's target for 2016/17 was £970m. In 2016/17, the ESO beat its target by £15m, resulting in a payment of £4.4m to the ESO.

Observations

From these results we observe that:

- Whilst outturn costs remained relatively stable since 2011, targets have been on an upward trajectory;
- The ESO has quite frequently breached or come close to breaching BSIS cap/floor;
- The magnitude of the impact of model errors on BSIS targets can be very large.

For more information on our review of the current regulatory framework including data on historical BSIS performance, please refer to appendix 2: https://www.ofgem.gov.uk/system/files/docs/2017/02/future_arrangements_for_the_so_-_the_regulatory_and_incentives_framework_0.pdf

Key findings from our ESO incentives review

In February, we published our key findings from our review. This highlighted the need for new incentives approaches which:

1) Strike a better balance between short and long-term outcomes

Whilst the ESO has put effort into developing new contracting practices in order to reduce costs in the short term, it has had limited incentive to develop efficient longer term solutions to electricity system challenges. This has led to concerns that the ESO is prioritising short-term cost reductions over more fundamental changes to arrangements that could deliver greater overall consumers savings. The rapid system transformation means that it is now more important that the ESO places a stronger emphasis on improving and changing current arrangements, rather than driving efficiencies within them.

2) Encourage a broader focus on overall efficiency

The current framework has encouraged the ESO to focus on a narrow set of activities within its more traditional transmission system management role. The ESO's strong focus on beating these incentives has meant it has not always considered the wider impact these actions have (for example, how the development of new contracts to reduce costs could affect competition). It has also not always considered whether its resources could be better deployed to drive efficiencies elsewhere. The ESO has the potential to deliver significant value for consumers in a large range of different areas across markets and networks. We believe future incentives need to account for these different activities and create a broader ESO focus on overall system efficiency.

3) Are more flexible and able to cope with system change

As illustrated above, the previous mechanistic incentives have struggled to cope with the rapid change in the electricity system. This challenge is only likely to increase in future. We believe that future approaches will need to be more flexible in order to mitigate the increased risk of unintended consequences. Overly rigid approaches could undermine the ESO's response to new challenges and restrict development of the best overall solutions.

4) Are well governed and facilitate industry involvement

Previous schemes have suffered from a lack of transparency and clear governance. Stakeholders have told us that they find it hard to meaningfully comment on ESO performance and there is a perception that incentive discussions have been something between the ESO and Ofgem. We think that it is vital that the customers of the ESO have a strong platform to hold it account. This is particularly important in future as the asymmetry of information between Ofgem and the ESO is only likely to grow.

These findings have informed the development of our new proposed regulatory and incentives framework for the ESO, which we have outlined in Option 2. A key part of this new framework design is a move to a more evaluative financial incentive.