

Exploring how the ESO could be funded in RII0-2

15th October 2018

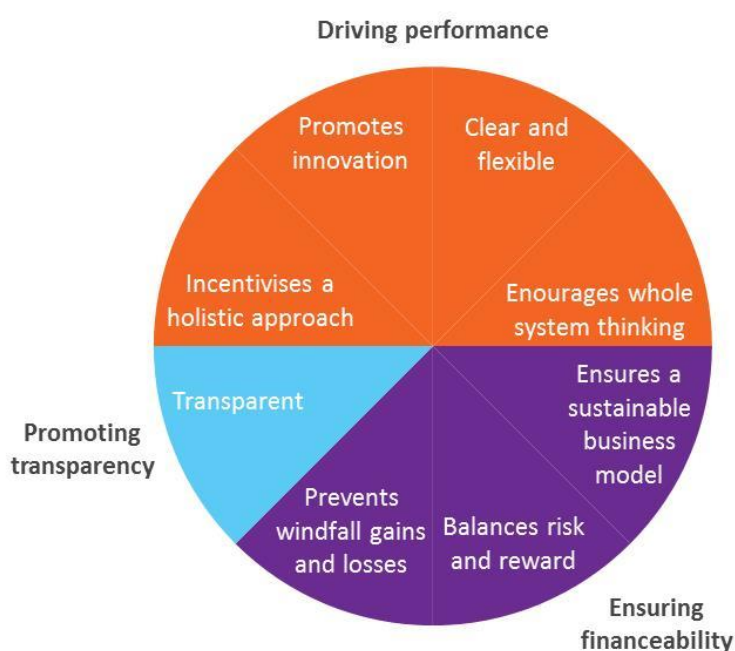


Executive Summary

From April 2019 the Electricity System Operator (ESO) will be a legally separate company within National Grid Group. The ESO will be a different type of company: a unique enabling business that provides specialist services; manages significant risk; delivers, and allows others to deliver, real value for consumers across the energy system. For an overview of who we are and what we do, see 'The Role of the Electricity System Operator', which you can find on our website.¹

Ofgem's recent RIIO-2 Framework Decision document² confirmed that the ESO will have a new, separate regulatory framework for RIIO-2 to reflect our unique nature. Ofgem is exploring different remuneration approaches for us, so this is a rare and exciting opportunity to design a tailored framework for the ESO. Ofgem will make the decision on our framework; in support of their process we have developed and tested options for our funding model and incentives with stakeholders, and have committed to providing the resulting insights to Ofgem for consideration³.

We want a framework that delivers against our characteristics of a successful regulatory framework, illustrated in the graphic below. While a number of options exist, our analysis suggests that a layered funding model most closely aligns with these, with appropriate funding approaches chosen for each layer; and combined with incentives, which continue to play an important role in encouraging behaviour to deliver additional value for customers, consumers and society as a whole.



These characteristics reflect our stakeholder priorities⁴, the ESO framework design points Ofgem presented in its workshop in August⁵, and have evolved based on feedback from stakeholders. We have grouped them into three key themes: driving performance, ensuring financeability and promoting transparency. In this thought piece, we set out our current thinking on the ESO's future framework around these themes, before outlining an example of a layered funding model as an illustration of how one could be built.

We welcome comments from stakeholders on this thought piece: details of how to respond are in the 'Have your say' section at the end. This feedback will be shared with Ofgem and published on our website, and will inform our response to Ofgem's Sector Strategy consultation, expected before the end of the year.

¹ <http://youenergyfuture.nationalgrid.com/media/1567/the-role-of-the-electricity-system-operator.pdf>

² https://www.ofgem.gov.uk/system/files/docs/2018/07/riio-2_july_decision_document_final_300718.pdf

³ <http://youenergyfuture.nationalgrid.com/media/1518/eso-stakeholder-report-august-v1.pdf>

⁴ <http://youenergyfuture.nationalgrid.com/media/1417/eso-stakeholder-engagement-report-v4.pdf>

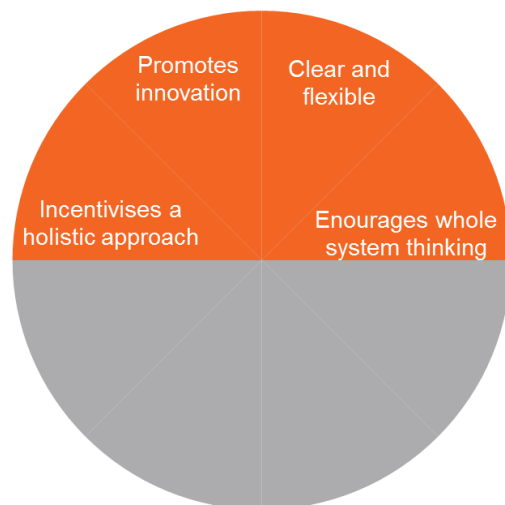
⁵ https://www.ofgem.gov.uk/system/files/docs/2018/08/eso_riio-2_price_control_stakeholder_workshop_slides.pdf

Driving ESO performance

The purpose of a regulatory framework for a monopoly is to mimic competitive forces that drive efficient, high quality performance and services for the benefit of current and future consumers. We have explored how the ESO funding model and incentives can come together under the RIIO-2 framework to holistically drive performance.

Our view is that the ESO funding model should fund us to deliver our activities at baseline performance, which would include appropriate returns based on the risks we hold in delivering those. Baseline performance should be equal to market best practice that meets consumer needs and expectations; this could be identified through benchmarking providers of equivalent services (both quality of service and stakeholder views of that service) and through understanding what stakeholders want in terms of level of service.

Incentives, overlaid with the base funding model, can encourage improved baseline performance and can drive outperformance to move market best practice forward and deliver additional value for consumers. Well-designed financial incentives have a key role to play in aligning the interests of consumers with those of a shareholder-owned ESO, and SO incentives have saved money for consumers over RIIO-T1. See our website for more information on our T1 performance⁶. Stakeholders have told us that they want strong incentives on the ESO to be ambitious, drive change and deliver exceptional performance.



£500m saved for consumers during 2013-17 under the Balancing Services Incentive Scheme.

<http://youenergyfuture.nationalgrid.com/media/1466/ng-riio-t1-brochure-new.pdf>

£20m underspend on ESO internal costs under RIIO-1 efficiency incentive from 2013-17 resulting in £10m consumer savings.

<http://youenergyfuture.nationalgrid.com/media/1466/ng-riio-t1-brochure-new.pdf>

Incentives can be targeted in different ways to drive different behaviours. As set out in the bullets below, they can be used effectively to encourage efficiency and outperformance, therefore mimicking the pressures of a competitive environment. They can also be used to encourage the ESO and others to consider whole energy and whole electricity system solutions to deliver value across the energy system.

- Efficiency incentives = encouraging the delivery of baseline outputs at lower costs;
- Performance incentives = rewarding the ESO for exceeding customer and consumer expectations in delivery of our own services and for enabling others across the system; and promoting ESO innovation to produce new products and services for social good; and
- Shared incentives across the multiple parties (for example ESO and Distribution Network Owners) = ensuring responsibility for whole system solutions is shared between network owners and the system operator.

⁶ <http://youenergyfuture.nationalgrid.com/electricity-system-operator/our-performance/>

The ESO framework should provide a clear distinction between baseline and incentive performance and there should be pre-agreed objectives for both. Clarity on decision-making and on what a good outcome looks like will increase the effectiveness of the framework and reduce the potential for perverse incentives. This clarity can come from Ofgem and from a better understanding of what our stakeholders want us to deliver, which we are developing through our stakeholder engagement activities.

The framework should also encourage and support long-term thinking and investment decisions to ensure that the ESO focuses on the delivery of value for consumers, both now and into the future. For example, the ESO provides long-term signals for market participants in the balancing services market and needs to make some multi-year investments, such as the IT systems we use to operate the electricity system in real-time. The framework should enable such activities.

Uncertainty mechanisms may also be needed to build in flexibility in areas that are uncertain at the outset of RIIO-2 or where variability is outside of the ESO's control. Examples of potential areas that may require an uncertainty mechanism include:

- Emerging governance and integration models, such as between the SO and potential Distribution System Operators ;
- Disruptive technologies, such as electric vehicles and blockchain; and
- Regulatory changes, such as EU, GB and industry code and regulation modifications.

Uncertainty mechanisms have the potential to drive consumer value through reducing the ESO's cost of capital and ultimately reducing consumer costs. They can also be used to help protect consumers from the risks of forecasting uncertainty at the start of a price control.

It is important that the regulatory framework considers the base funding model, incentives and uncertainty mechanisms as a holistic package, and that the duration of the price control for the ESO is set to enable the right balance of flexibility and certainty. In doing so, it will drive effective short- and long-term decision making.

Ensuring ESO financeability



The framework as a whole should deliver the support and tools to ensure the ESO is financeable, can deliver the levels of service expected by stakeholders and can go beyond that to deliver additional benefits across the energy system. The challenge is to design a funding model that recognises our roles and business features.

Following legal separation, the ESO will no longer be able to use the relatively large balance sheet of National Grid Electricity Transmission to help manage and bear cashflow risks. The ESO has a small Regulatory Asset Value (RAV) and manages risks that traditional network companies are not exposed to. Lending rates and terms for a legally

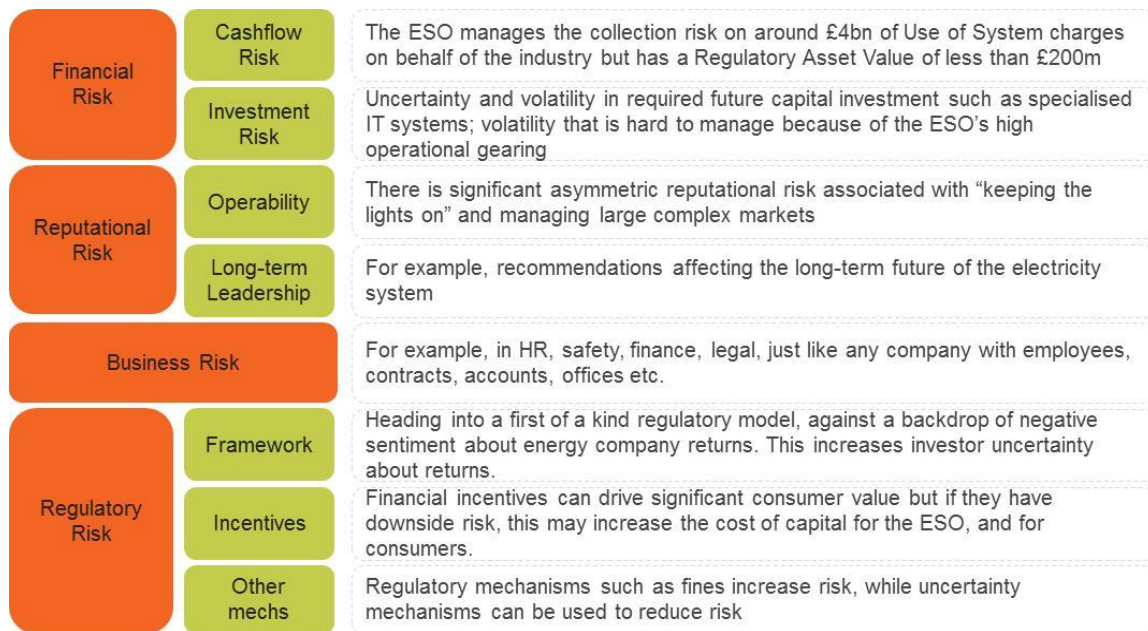
separate ESO are likely to be less favourable and, in some instances, may not be available. Our licence will require us to interact with other National Grid companies on an arms-length basis, so we will have to secure financing at market rates.

A new funding model should ensure that the ESO can manage and bear the risks we hold in delivering our activities and services. These risks may change in RIIO-2 as our roles evolve based on stakeholder needs and the rapidly changing energy environment, but there are general categories of risk that the ESO will continue to hold across our activities, as shown in Figure 1.

As described above, incentives also provide an effective way of aligning ESO and consumer interests, and can drive the ESO to deliver additional benefits to consumers above and beyond the baseline. Nevertheless, the downside impact of incentives needs to consider the overall financeability of the ESO and our ability to bear this additional risk; as well as the behaviours the incentives are intended to encourage. For example, our current incentive scheme gives a range of plus / minus £30m a year, compared to a base return from the RAV of around £5m. A substantial

incentive downside risk would be taken into consideration by the investors and lenders that fund the business, which could add to the costs of the ESO and therefore increase costs for consumers. It could also lead to risk-averse behaviour in order to avoid failure. This potential to increase the cost of the ESO for consumers was recognised in the recent report Ofgem commissioned by economics consultancy Reckon looking into future regulation and remuneration of the ESO.⁷

Figure 1: A high level view of the ESO's current risks



The potential impact of incentive downside on ESO costs raises a question of how incentive design can be useful in shaping the ESO's behaviour. Upside incentives can be effective in motivating the ESO to be ambitious and take risks to drive transformation. We recognise that downside incentives are useful in exposing monopolies to the forces they would experience in a competitive environment, but considering a smaller or zero downside in some incentive areas may provide benefits for consumers that outweigh the potential costs of having a larger downside. For example, asymmetrical incentives are used in the Gas SO to reflect the different behaviours the incentives are seeking to encourage. Here are some examples of incentive design that could be explored for the ESO:

- **Upside-only incentives** – for areas where a downside would cause risk aversion limiting the ability to be ambitious; for transformative changes requiring significant investment, so the cost of trying to achieve them and failing would be enough downside in itself; and where a downside would make calibration much harder, such as for incentives shared between organisations. This would enable the ESO to go after the greatest gains for consumers over and above baseline expectations, without limiting delivery of full value because of the risk of failure. There are examples of upside-only incentives in use already, such as the Environmental Discretionary Reward (EDR), which is designed to encourage and recognise good environmental performance from the three companies who own the electricity transmission networks (which currently includes the ESO).
- **Symmetrical incentives** – for volumetric performance, where an expected level of output can be defined, or in order to encourage efficiency. It is right that the ESO should be penalised if unable to deliver our activities efficiently, and also rewarded with a share of the benefit if we find efficiencies for consumers.
- **Downside-only incentives** – to penalise the ESO if it does not meet baseline performance or to encourage behaviour to minimise a specific metric. For example, the Gas SO has a downside-only incentive on greenhouse gas emissions to minimise the amount of methane that needs to be released from compressors.

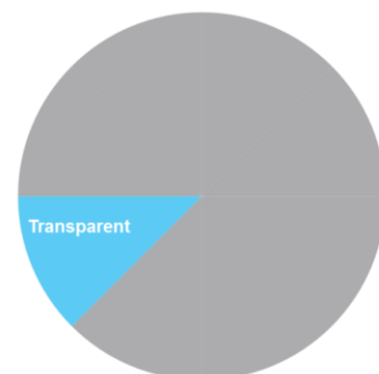
⁷ <https://www.ofgem.gov.uk/publications-and-updates/consultancy-report-future-regulation-and-remuneration-electricity-system-operator>

This could result in a package of incentives that is not symmetrical overall, with the overarching aim to ensure that our incentives reward or penalise the ESO in a way that will drive the right behaviours across a wide range of activities. We have heard a strong message from stakeholders in our recent engagement activities that they want an ESO that is driven to deliver exceptional performance; incentives should be designed to drive that.

Delivering transparency in the ESO framework

Stakeholders have made it clear that they want our funding model to be transparent enough for them to engage with and to understand how we are being paid for the activities and services we deliver.

Transparency does not necessarily equal simplicity. Given the wide range and varied nature of activities the ESO undertakes, a simple funding model may not provide sufficient support or encouragement to enable the ESO to deliver the highest value. There is a need to balance simplicity with agreeing the right model: it is worth allowing more complexity in the funding model if it provides better value for consumers. We must simply ensure that it is transparent enough for stakeholders to understand.



Options for a new ESO funding model

In considering the appropriate funding model for a legally separate ESO, it is worth beginning by thinking about some general features of the business:

- We are an asset light business with high operational flows and a significant reliance on intangible capital in the form of engineering and market expertise;
- We do not predominantly create value through investment in physical assets and exhibit more characteristics of a service provider than an infrastructure provider;
- We manage annual cashflows on behalf of the industry that are more than 20 times our RAV;
- We are a relatively small business in terms of our own cost base⁸ but have material influence on the costs of the wider energy supply chain, for example, balancing costs and market evolution.

Figure 2: The main activities and services currently delivered by the ESO⁹

Operate the system in real-time	Administer industry codes and facilitate market change to regulatory frameworks
Facilitate and run markets to balance the system	Delivery body for EMR
Manage costs of transmission network and optimise network planning and security	Develop strategy and innovation
Administer and design charging and access arrangements	Produce future scenarios & outlooks

⁸ The ESO costs £1 of the average annual electricity bill of £554 (numbers applicable to 2016/17)

⁹ For more detail on who we are and what we do, see 'The Role of the Electricity System Operator' at <http://yourenergyfuture.nationalgrid.com/media/1567/the-role-of-the-electricity-system-operator.pdf>

We have heard from stakeholders that driving savings across the wider energy supply chain should be prioritised over driving internal savings; albeit while still being efficient. There are likely benefits for consumers in paying for an ambitious ESO that drives positive transformation across the system, with increases in internal costs more than offset by savings in external costs.

Earlier this year, we explored the features of five recognised funding models and assessed their suitability for the ESO¹⁰. These were:

RAV	Margin	Layered	Commitments	Performance
Links value of the business to the RAV and provides a return on capital	Looks to provide a return for the risk investors take in the short and long term, in the form of a fixed percentage e.g. on revenues or costs	Defines different layers of capital, business activities and risks and funds each of them separately, with the potential to select different approaches	A contract between the ESO and customers, with commitments and prices agreed through constructive engagement	Returns purely linked to performance (100% incentives)

We have discussed and received feedback from stakeholders on strawmen of these funding models through multiple bilateral meetings, two webinars, a stakeholder workshop¹¹ and with our Stakeholder Group. This feedback, the consideration of our framework characteristics and the general features of the ESO business leads to consideration of a layered model as the most appropriate funding model, as it allows the positive elements of other models to be incorporated and tailored to the ESO. This is in line with an approach being explored by Ofgem to break the ESO down into categories of activity and remunerate each of these separately, as favoured in Reckon’s consultancy report.¹²

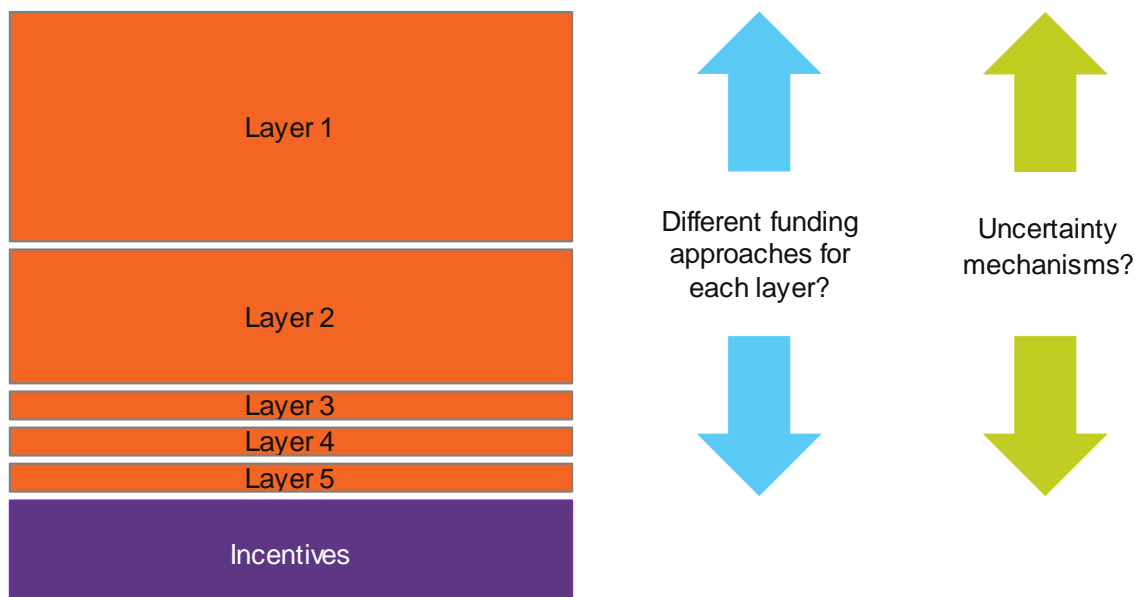
¹⁰ <http://youenergyfuture.nationalgrid.com/electricity-system-operator/get-involved/>

¹¹ <http://youenergyfuture.nationalgrid.com/media/1518/eso-stakeholder-report-august-v1.pdf>

¹² <https://www.ofgem.gov.uk/publications-and-updates/consultancy-report-future-regulation-and-remuneration-electricity-system-operator>

Layered Model Example

We have developed an illustrative example of how a layered model could be built for the ESO, and how other elements of the ESO framework could fit together with it. In order to bring it to life and provide a sense of magnitude, over the first five years of RIIO-T1 our annual operational expenditure has ranged from £93-115m, and our capital expenditure has ranged from £36-60m.¹³ Our current incentive scheme gives a range of plus / minus £30m a year.



In this example, Layers 1-5 would provide the base funding and fair return for delivering all of the ESO's activities. Uncertainty mechanisms would account for the unknown or highly variable activities, and incentives would be overlaid to drive performance and outcomes that customers, stakeholders and consumers value.

In defining the layers, activities could be grouped together in various ways: such as by whether their costs are primarily capital expenditure or operational expenditure, by the risks associated with delivering them, or by the service they provide. For example:

- **Layer 1** could be made up of our primarily capex-related activities, which are those associated with operating the system in real time (making up around 50% of overall opex and capex costs);
- **Layer 2** could combine our primarily opex-related activities, which are those associated with delivering longer-term balancing and operability of the system (making up around 30% of overall opex and capex costs);
- **Layers 3-5** could target discrete activities to reflect their different nature and the potential for a different funding approach, such as our roles as code administrator, EMR delivery body or in collecting revenues on behalf of the industry.

How the layers are defined will have an impact or depend on consideration of the appropriate funding approach for each layer. The benefit of a layered model is that it allows the use of different funding approaches that are tailored to the characteristics and risks of each layer.

Some of the approaches that could be explored for each layer are set out in the table below, along with some considerations of the implications of applying them.

¹³ These have been rounded to the nearest £5m. Note that these figures do not include general financing costs, tax, business rates or third party costs of balancing, or costs that pass through the ESO in relation to others (e.g. Ofgem Licence fees, ITC fees, TO revenues).

Funding approach	Typical characteristics	Pros	Cons
RAV*WACC	<p>Provides a return on capital employed</p> <p>Ex-ante multi-year approach with fixed totex allowances</p> <p>Return allows for funding of debt and return to the equity holder</p>	<p>Familiar regulatory mechanism that aligns with current methodology and framework</p> <p>Allows remuneration for the capital employed by the business and capital put at risk by investors</p> <p>Provides longer term certainty against investments</p>	<p>The ESO is highly operationally geared¹⁴ and this is seen even in our most capital-intensive activities. The WACC should appropriately consider operational gearing levels of the layer.</p> <p>Volatility of return due to investment profiles and relatively short asset lives.¹⁵ In asset-light organisations there is a risk of misalignment between the funding model and the underlying business characteristics.</p> <p>Levels of return may not be sufficient to support financeability of the layer or organisation</p> <p>May not efficiently deal with impact of future change without uncertainty mechanism/other</p>
Margin	<p>Provides a fixed percentage return on operational costs or on revenues</p> <p>Ex-ante multi-year approach with fixed totex allowances</p>	<p>Recognises the services nature of many of the ESO's activities</p> <p>Recognises that much of the risk/value of the ESO is managed by intellectual capacity and expertise of individuals employed, and is therefore less likely to encourage risk averse behaviour</p>	<p>Less directly linked to capital employed</p> <p>Does not fully compensate for tangible asset investment other than to return the capital over time through depreciation. This could incentivise under-investment in capital assets.</p> <p>May not efficiently deal with impact of future change without uncertainty mechanism/other</p>
Annual budget	<p>Ex ante annual allowances provided on a forward view of expected costs</p> <p>Can be set with Ofgem or industry</p>	<p>Direct link to what customers want</p> <p>Reactive to changes in requirements</p> <p>Flexible and transparent</p>	<p>Lack of certainty over the longer term</p> <p>Does not recognise longer term investments</p> <p>Larger administrative burden</p>
Pass-through	<p>Costs incurred are recovered</p> <p>Ex-post allowances with efficiency test</p> <p>Limited risk beyond efficiency test</p> <p>No opportunity for return</p>	<p>Limits risk to ESO if spend is efficient</p> <p>Flexible to manage changes in service requirements and outcomes</p>	<p>Limited incentive to manage own costs</p> <p>On its own does not provide a return for risks held by the ESO</p>

¹⁴ Which makes it more difficult for us to manage year-to-year volatility in the scale of our operations

¹⁵ The ESO's primary capital assets are IT systems, with a typical lifespan of circa 7 years

This overview of different funding approaches is not exhaustive. There are multiple variations of these approaches that could be appropriate for a particular layer; for example, pass through plus margin, or amending a margin approach to be ex-post if it is appropriate for consumers to bear more of the risk. Additional approaches not reflected in the table could also be explored; for example, if there was a layer for code administration, the nature of the activities involved might lead to a volume-based approach, or the development of a bespoke approach that combines different features of the models already used in the market for the different code administrators.

Before Ofgem comes to a final view on the best funding approach, it is important to understand the activities and services the ESO will deliver in RIIO-2. We are continuing to engage with stakeholders to understand what they want these to be and will further discuss evolution of our roles with Ofgem. This example of a layered model is intended to illustrate how one could work for the ESO, and to provide Ofgem with options to consider; it does not indicate a preferred design. Whichever model is finally applied to the ESO, it should ensure that the framework as a whole provides the ESO with the ability to earn a fair return and be financeable as a separate transmission licence holder; and that it incentivises the ESO to drive the best value and outcomes for customers, consumers and society as a whole.

Have your say

We would like your views on any of the material set out in this thought piece, and in particular would be interested in your responses to the following questions:

- **Can a layered model meet the characteristics of a successful regulatory framework?**
- **What are the pros and cons of the different funding approaches? Do you have additional funding approach suggestions?**
- **How can incentives be used to drive performance and deliver outcomes that customers, stakeholders and consumers value?**
- **Could asymmetric incentives be appropriate for the ESO?**
- **How can the funding model and incentives work together?**

All feedback we receive will be used to help us develop our thinking further on how the ESO could be funded in RIIO-2. If you would like to share your views please respond with your comments for this thought piece by 26 October 2018. We have created an online form via [this link](#) for easier submission.

To ensure we are transparent we will be sharing your response with Ofgem and will publish all the responses on our website. If you would prefer to remain anonymous please ensure you notify us at the time of your response.

We will be holding a webinar on 17 October to provide an overview of the thinking set out here and to get initial feedback from stakeholders, so please [join us](#) for that if you are interested.

If you have any further questions or comments, please contact us at:

Box.ESO.RIIO2@nationalgrid.com