A Low Carbon Incentive in RIIO2

Discussion Paper

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Sustainability first

Contents

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Executive Summary

Ofgem's RIIO2 regulatory framework - currently out for consultation - will shape - and endorse many tens of billions[i] of new network investment in the period from 2020–28: electricity and gas; national, regional and local.

This is important for all stakeholders - current customers, future consumers and wider interests such as the environment - as: energy is an essential service; bill payers will be paying for the significant investment costs involved; energy networks frequently have long asset lives so the impact of decisions today will be felt for many decades to come; and as the energy system changes we need to ensure that the smart future works for everyone.

1. The transition to a low carbon energy system is a significant challenge and one in which the monopoly network companies have a major role to play. Networks need to adapt and evolve to keep abreast with the technological, commercial and consumer driven change that is reshaping their environment.

2. One of the key aims of the RIIO price control framework is to support that transition. However Sustainability First has found the fragmented nature of the current incentives in RIIO1 does not provide a coherent or necessarily strong signal to the networks on carbon reduction.

3. In considering the framework for network regulation in RIIO2, Sustainability First is therefore proposing that a more explicit and coherent approach be taken on low carbon delivery – potentially in the form of a new low carbon incentive, common to every network.

4. Explicit incentives are a cornerstone of the RIIO price control framework. These are designed to encourage the monopoly networks – both investors and senior management - to give priority to particular business activities, operations and outcomes and to demonstrate efficient delivery.

5. However, current environmental incentives have not had the profile – with stakeholders or within the companies - that other incentives have had. There are also some notable gaps in the current framework, for example on energy efficiency, and the potential for misalignment across sectors.

6. Introducing an over-arching low-carbon incentive would have the advantage of:

    - Ensuring a clearer and more coherent focus on an important outcome for the entire sector;
    - Simplifying and clarifying the existing RIIO1 regulatory framework;
    - Incentivising the adoption of 'low-carbon' innovation, including that which has been trialled using innovation funds (which we would see continuing), within business-as-usual;
    - Providing greater flexibility for companies to innovate and explore new opportunities (such as energy efficiency, bio-methane, low-carbon heat, low-carbon transport, new partnerships and collaboration). This is particularly important given the pace of technological change in the energy sector and more broadly (digitisation etc), including the transition of distribution networks to DSOs (distribution system operators);
    - Sending stronger signals to local and community actors (including cities) about the opportunities for low-carbon approaches in the networks and how these may be able to align with their own interests;
    - Supporting whole system thinking and a more strategic focus on outcomes with a common incentive across the networks.

7. The challenge then is how such an over-arching incentive might be structured in practice. While the idea of having an incentive that links tonnes of carbon saved to the cost of carbon might have a strong appeal it is acknowledged that this creates some practical challenges. As such we set out a range of options for how such an incentive might be designed, including a central option of a panel style assessment, as used elsewhere in the RIIO framework, but one that is strongly based on quantified metrics.

8. While the focus of this note is on RIIO2 it has highlighted that the existing environmental incentives in RIIO1 do not drive company behaviour and culture change to the same extent as some other incentives. For example, Sustainability First's Project Inspire report found that the stakeholder engagement incentives have supported a strong focus on vulnerability (which also remains critically important into RIIO2).

9. Our main recommendations are therefore that:

   - As a first step Ofgem should reflect on how it could sharpen the focus on existing environmental and low carbon incentives in RIIO1 by increasing their profile as a stepping-stone to an explicit low carbon incentive in RIIO2.

   - Serious consideration should be given by Ofgem to the merit of adopting a universal low carbon incentive in the RII02 framework – and Ofgem should set out a process and time-table for doing so, including carrying out a review of the current arrangements and formally seeking existing panel members' views.

   - In designing such an incentive, we readily acknowledge that questions of quantification, measurement and evaluation will be hard. Ofgem should therefore commission a piece of work to consider different approaches to how this might best be tackled.

10. This discussion paper begins by setting out the background for environmental and low carbon activity in RIIO. It then examines what a new low carbon incentive might mean in practice, including the scope of such an incentive. The paper goes on to explore three possible options for a low carbon incentive and highlights various issues for consideration. Our initial thinking is that in RIIO2, a qualitative assessment underpinned by metrics may be the best way forward.

11. Alongside this discussion paper, Sustainability First is also submitting a full response to the RIIO2 Framework consultation.

12. Sustainability First will arrange an informal round table / discussion session in May / June 2018 with key stakeholders to discuss our initial thinking on a low carbon incentive in RIIO2, to gauge wider interest, and to consider next steps.

Background to RIIO

14. The underlying concept behind RIIO is that companies should be incentivised to deliver on the outcomes that are important for consumers and future consumers. Decarbonisation of the energy system is clearly such an outcome (and indeed is explicitly cited in legislation as being an element of the consumer interest). Environmental impact is one of the eight output areas identified in the original RIIO framework. This has prompted Sustainability First to raise the question of whether there should be an over-arching low-carbon incentive in RIIO2 – an idea first floated in the discussion paper for Sustainability First's New-Pin innovation workshop.[ii]

15. The current RIIO framework includes a number of different incentives aimed at tackling carbon reduction and environmental issues, as set out below. In some cases these have been effective in delivering material change but they remain fragmented and are not given the profile that the stakeholder and vulnerability work of the companies attracts, both in the companies and by stakeholders more widely.

16. In broad terms there are three distinct approaches that can be taken to incentives under RIIO:

    - Reputational: where performance is reported but there is no direct financial reward (and which is dependent on stakeholders to hold companies to account);
    - Qualitative: where performance is judged by a panel and a financial reward / penalty is given based on the scores achieved;
    - Quantitative: where performance can be objectively measured and a financial reward / penalty is given based on performance against a particular metric.

17. This paper looks at how these different forms of incentive might work in the context of low carbon.

Current incentives impacting on carbon reduction

18. The table below lists the current environmental incentives across all the network sectors.

Incentive name	Sector	Type of incentive	Comment
Environmental Discretionary Reward	ET	Qualitative (£6m pa max) Judged by a panel	Separate scores awarded for connections, innovation, network development approach, direct environmental impact, business greenhouse gases, strategic understanding and whole system planning. Only SPEN received an award last year
Gas Discretionary Reward	GD	Qualitative – every 3 years (max £12m over price control) Judged by a panel	Covers action to address social, carbon monoxide and environmental issues. Environmental initiatives can span daily operations, an innovative approach to network planning and initiatives that tackle environmental impacts such as leakage / shrinkage.
Losses discretionary Reward	ED	Qualitative (worth £32m in 3 tranches over the price control) Judged by Ofgem	Aims to encourage additional actions to understand and manage losses (which have an environmental as well as cost impact) In tranche 1 all companies rewarded but only half the maximum reward was given on average.
Business Carbon Footprint	All	Reputational	The business carbon footprint measure separately identifies: -emissions directly related to the day-to-day business activities of network business. -emissions which arise from operating the network, including the CO2 emissions from losses of electricity or shrinkage of gas that occur as a result of transporting energy on the network. -emissions due to third party contractors carrying out business activities on behalf of the network.
Provision of biomethane connections	GD	Reputational	Focus on delivery of effective process and reporting on numbers of connections
Shrinkage incentive and Environmental Emissions Incentive	GD	Quantitative (linked to price of gas – has been worth c £20m pa combined)	Encourages reduced leakage through pipes (delivering environmental as well as cost benefit)
Incentive on Connections Engagement (ICE)	ED	Qualitative (penalty only) Judged by Ofgem following consultation	Intended to capture how well DNOs are engaging with small generators (and others) looking to connect. No penalty imposed to date.

Environmental report	ED	Reputational	Sets out the range of activities the company is doing on the environmental front including on carbon reduction
SF6 Greenhouse gas emissions	ED	Reputational	SF6 is a Green-house gas
SF6 Greenhouse gas emissions	ET	Quantitative (linked to cost of carbon)	SF6 is a Green-house gas
Losses report	ET	Reputational	Aims to encourage additional actions to understand and manage losses (which have an environmental as well as cost impact)

Source: Sustainability First analysis of Ofgem documents

19. This adds up to a potential pot of £110 million spread across the different networks over the 8 years of the price control – a not inconsiderable sum (although small as a percentage of the overall company revenues).

20. In addition, there is separate and very material funding for low carbon innovation through the Network Innovation Competitions and also the totex incentive mechanism that encourages companies to look for alternatives to capital investment as part of their drive for efficiency. This is in addition to the other very substantial funding that is available from Government and other sources in this area.[iii]

21. What this analysis highlights is the fragmented nature of the current arrangements as well as differences across sectors in how different outcomes are treated. On top of this there are some known gaps in the current arrangements:

    - The incentive for connecting low carbon generation focuses purely on the stakeholder engagement angle not the level of connections delivered. This was highlighted when WPD had issues with solar in the south west a few years ago;
    - The use of flexible connections has facilitated generators getting connected but they can still be constrained off and the network has no incentive to find ways to help low carbon generation production to be maximised;
    - The networks have no incentive to explore energy efficiency where that could deliver carbon savings along with operational benefits. Similarly they have no incentive to be proactive in supporting low carbon transport or heat – although many are doing work in this space outside business-as-usual using innovation funding. According to the Committee on Climate Change, these are areas that need attention to close the remaining emissions gap to the fourth and fifth Carbon Budgets;[iv]
    - There is no scope to take a whole system view. For example, other things being equal, reducing losses is a good objective but in some circumstances the best overall solution from a low carbon perspective may involve increases in losses.

22. The attached annex sets out some of the history of how the environmental incentive structure was arrived at for RIIO1. This demonstrates that a number of the issues that we are raising in this paper were thought about at the time although ultimately the incentive was not as ambitious for RIIO T1 as originally proposed. Given the greater challenges of decarbonisation in RIIO2, including the wider role for electricity distribution companies and for decarbonisation of gas, there is a need to reinvigorate that thinking and expand it across all sectors.

23. The other issue that our analysis raises is that while reputational incentives can be effective in driving behaviour, the information needs to be well publicised and in an accessible format so that interested external stakeholders can then use it to hold companies to account. This is not happening. For example, the business carbon footprint is not covered in Ofgem's RIIO annual reports this year, and without any requirement on companies to report on it other than in the detailed regulatory reports submitted to Ofgem (known as RIGs), it is completely invisible. Even where there is a reporting requirement, as there is on DNOs to produce environmental reports, little seems to be done with them.

24. This is a missed opportunity for the industry in terms of showcasing what it is actually doing in this space and a missed opportunity for the regulator to engage a wider set of environmental stakeholders in helping them hold the companies to account. It is also a missed opportunity for government and the Committee on Climate Change who could make more of this information in evaluating delivery of the periodic CO2 budgets, for example.

25. As local, decentralised and community energy approaches become more prevalent, it will be increasingly important to share this information to build confidence in the energy system. Effective dissemination can also help reveal the potential for new partnerships and collaborative, innovative approaches to the low carbon challenge.

A Low Carbon Incentive in practice

Scope of the incentive

26. The idea behind Sustainability First's proposed low carbon incentive is that it would look across the value chain at all the different elements of the companies' impacts on carbon reduction. This can be thought of under three headings:

    - *Low carbon energy sources*: How they facilitate the connection of low carbon energy sources onto the system (whether renewable generation on the electricity distribution system or biogas, for example, on the gas networks) and how they then support increased levels of output from those sources;
    - *Low carbon network operation*: How they reduce their own carbon footprint (plus those of their contractors) and levels of losses and leakage on the system;
    - *De-carbonising demand:* How they facilitate reductions in demand for energy and also the use of lower carbon energy sources in other sectors (eg for heat and transport).

27. It is acknowledged that in many of these areas the outcomes are not directly under the companies' control – for example on the level of low carbon connections – but they do nonetheless have an important facilitating role to play and can be 'place makers' in their local communities. In the areas where they are playing a facilitative role this should generally be linked to their core role as network providers.

Structure of the incentive

28. While reputational incentives can have an impact, financial incentives are also clearly needed to incentivise the companies to make material changes by aligning company and consumer interests.

29. In general, quantitative incentives are preferred as they provide clarity to the companies over what needs to be delivered to earn a reward (provided they are set on an absolute rather than relative basis – but that is a separate debate). As such they might be expected to provide a stronger drive to action. Some of the existing qualitative incentives have been criticised for being too subjective or too process based. That said, where the outcomes sought are essentially around behaviours and culture change a qualitative approach is usually the only option and one that has been adopted with some success in a number of areas in RIIO.

30. How these different options might work in the case of a low carbon incentive is discussed below.

Option 1: A quantitative incentive

31. While perhaps initially appealing, the ideal of a low carbon incentive linked to tonnes of carbon saved and calibrated to the cost of carbon would be a challenge:

    - It would be hard to establish the counterfactual and what would have happened without the networks taking action;
    - One would be comparing very different sources of carbon saving over different time horizons;
    - And some aspects would be intrinsically hard to measure (as Ofgem found with losses in DPCR5).

32. As such, a quantitative target with significant financial incentives automatically attached may risk creating a focus by the companies on the specific metric (and, potentially on how to game it) rather than a wider and more strategic focus on the practical steps and outcomes needed to help reduce carbon across their network.

33. If wrongly designed and calibrated a wholly quantified incentive could lead to either a windfall gain for the companies (if they are rewarded for changes that would have happened anyway) or no action being taken (if the rewards are inadequate to support the necessary change).

34. That said, across Ofgem and government there is significant experience in considering similar quantification challenges and further work should be done on the potential for a quantified incentive before it is dismissed out of hand. Examples of policy initiatives that could provide useful insights and learning about how to quantify carbon benefits (as well as pitfalls to avoid) would include:

    - The existing carbon footprint (and losses) reports produced by the networks;
    - The permanent electricity demand reduction scheme in the capacity mechanism;
    - Previous thinking within BEIS on a possible Supplier Obligation for carbon reduction;
    - Energy savings under ECO (and other similar schemes)
    - The LCNF / NIC bids (where quantification of expected carbon savings has been difficult) and the final project reports;
    - Code modifications and licence changes where carbon savings need to be quantified as part of an impact assessment.

35. The concept of "additionality" – plus the potential for 'double-counting' if subsidy has already been used as a low-carbon stimulus - is one that has been explored in previous policy proposals and would clearly be critical in the context where the network role in carbon reduction is essentially one of facilitation.

Option 2: A qualitative assessment underpinned by metrics

36. Recognising the challenges posed by a pure quantitative incentive, one possible practical and incremental way that a low carbon incentive could be introduced would be for it to be a largely qualitative incentive in the first instance but underpinned by a range of metrics. A panel could be established that would be able to form judgments on whether the metrics were fairly representing the real contribution made by the networks – in particular where their role was facilitative. It could provide a "safety valve" if a focus on a particular metric was leading to unintended consequences and could also provide a way to deal with any areas that proved impossible to quantify.

37. Our concept is that it would be harder edged than current qualitative incentives and there are a number of ways to do this. Ofgem's latest thinking around the new SO incentive structure (while not necessarily a perfect role model) provides some useful pointers, albeit in a rather different context.

38. The essence of the SO scheme in this context is that:

    - National Grid has to develop a plan, including a set of metrics, for how its performance should be judged;
    - A standing expert panel is established to judge whether the plan is ambitious enough (with Ofgem input) and then subsequently to judge performance against that plan;
    - The panel awards marks against a number of different aspects of the SO's performance against its objectives (and taking account of its performance against the agreed metrics);

- The financial reward that the SO receives is based on its total score as awarded by the panel.

39. Building on this example and wider experience of qualitative schemes, the factors that can help create a more effective qualitative low-carbon incentive would be:

    - The composition of the panel to include senior figures covering a mix of network users, network company expertise and experts in economic and environmental regulation and financial analysis.
    - Having a standing panel that allows experience and knowledge to be built up and a consistent direction to be set. Some of the members of the panel could be replaced after ~3 years to help keep it fresh and avoid capture.
    - Placing a strong emphasis on developing and defining metrics and outcome focused measures that could be used to underpin reporting.
    - Including an element of quantitative incentive (subject to meeting qualitative minimum standards) which could be built up over time – with a view to a potential quantified low-carbon incentive in RIIO3.
    - Ensuring pro-active communication and a strong public profile for the actions and assessment in order to maximise the reputational impact of the incentive and to encourage new innovative partnerships and collaborations.

Option 3: A pure qualitative incentive

40. Alternatively, if the quantification were considered to be a distraction, the panel award could remain purely qualitative as it is for other schemes where the panel's role might be seen more as one of assurance, looking at the processes and organisational culture underpinning the performance.

Other issues

41. While we have couched this as a low carbon incentive, consideration should be given as to whether it is better positioned as an obligation with the potential for penalties as well as rewards. More generally Ofgem would need to reflect on the detail of the design and any potential for gaming or double counting, in the context of their wider thinking on ensuring fair returns.

42. Other issues that may need thinking through, including links to other Ofgem work areas, would be:

    - Where current legislation may limit what the companies can do (eg non-discrimination conditions or obligations to connect gas customers);
    - Whether a focus on low carbon would risk detracting from some of the wider environmental issues that companies currently have to consider. It may well be that the incentive should include action on wider environmental issues as well (or that a separate incentive is retained to cover this angle);
    - The interplay with current Ofgem work on access rights and network charging.

Initial Sustainability First conclusion on a new Low Carbon Incentive for RIIO2

43. Given the scale of the challenge facing us in terms of decarbonising the energy system, Sustainability First believes serious consideration should be given to the inclusion of an over-arching low carbon incentive in RIIO2.

44. Our very initial thinking points us towards our Option 2 - a qualitative assessment underpinned by metrics - as a practical start-point for a RIIO2 low-carbon incentive, with a clear eye to possible fuller quantification over time.

45. More generally we would look to any incentive to adhere to the following principles:

- Providing a strong signal – a rallying call - to the networks about the need to step-up and play an active role in the low-carbon transition;
- Establishing an appropriate balance between this incentive and the need for a continuing focus on cost efficiency and other consumer outcomes;
- Finding appropriate ways to structure the incentive to reward exceptional performance and penalise poor-performance;
- Being transparent and engaging the wider stakeholder community – including local actors - to help in holding companies to account.

Annex: Environmental Impacts - Considerations in RIIO1

In establishing the RIIO Framework and setting the RIIO 1 price controls Ofgem clearly considered how best to deal with environmental impacts. This annex summarises some of the key considerations that may be relevant in developing a low carbon reduction incentive for RIIO 2.

In the early thinking under RPI-X@20 the report produced by Frontier Economics for Ofgem on Output Measures in the Future Regulatory Framework (2010) considered the issues around environmental incentives in some depth. It looked at them under three headings analogous to those we are proposing:

- Minimising the narrow environmental impact of operations
- Facilitating improved energy efficiency
- Maximising the volume of low carbon flows on the networks.

On the narrow business impacts it notes that these are material and controllable but that measurability problems limit the extent to which high-powered incentives can be applied at present. It proposes the use of annual league tables as already used for electricity distribution. It also notes the overlap with the Carbon Reduction Commitment that requires reporting by companies. However because some companies fell below the threshold while others reported at parent level it considered that separate reporting under RIIO was needed.

On losses it recommends these should be targeted but notes measurability issues and also conflicting pressures (where connecting more remote low carbon generation could increase losses) and as such argues against high-powered incentives in this area. It also notes that as electricity is decarbonised the value of reducing losses from a carbon reduction perspective falls.

On energy efficiency it sees the companies role as one of facilitation and hence suggests a focus around engagement but subject to a policy view on the role that government wants the networks to play in this space.

On low carbon energy flows it proposes an output based on MWh of low carbon energy that would pick up on both connection and output of low carbon energy (ie dealing with generation being constrained off) and provide an additional revenue stream to support the networks in delivering this output. However it flags a concern around the existing non-discrimination obligations on networks that could limit what they could do in this space. As such it recommends a focus on generic reliability and connections outputs to cover this area.

These basic ideas are reflected in the final RIIO Handbook (6.19-6.21) which talks about the potential for both narrow and wider environmental outputs and placing a stronger emphasis on environmental impacts than in the past. However it notes that developing a wider incentive would be subject to prevailing legal provisions.

The issues were then considered again within each of the individual price controls. In particular in RIIO T1 RenewableUK put forward a proposal for a broad incentive linked to the percentage of renewable or low carbon electricity on the system. Ofgem consulted on this idea as part of its strategy consultation on RIIO T1 and in its strategy decision in

the Outputs and Incentives annex confirmed that it would consult on a specific incentive.

"*Reflecting their significantly greater scope to contribute to the UK's renewable energy targets, we will consult on the potential to introduce a financial reward for the electricity transmission companies on the following basis:*

- *an automatic incentive potentially linked to a measure of the carbon intensity of energy flows as well as the annual increase in low carbon energy flows*
- *a discretionary reward if companies can demonstrate they have made a contribution that is in addition to those already rewarded under either the automatic incentive or the wider outputs framework.*"

However Ofgem then appeared to have second thoughts on this issue and in its consultation on the Environmental Discretionary Reward (Feb 2012) it explored the idea of an automatic incentive again and concluded that it would not be in consumers interests. In particular it highlighted concerns voiced by stakeholders around double rewards (ie cross over with incentives for connections for example) and the lack of controllability by the networks which could lead to windfall gains. They therefore decided to proceed instead with the current purely discretionary scheme.

The Ofgem website describes the purpose of the scheme as being to sharpen the companies' focus on strategic environmental considerations and organisational and cultural changes to facilitate growth in low carbon energy. Under the current scheme the panel awards scores for connections, innovation, network development approach, direct environmental impact, business greenhouse gases, strategic understanding and whole system planning. Companies are then rated as engaged, proactive or leadership based on their total score. Only companies with a leadership rating get a reward.

In the first year no companies secured a reward and in each of the last 3 years one company has secured a reward with part of the reward pot being rolled over each year.

We have not had time in preparing this paper to review the company submissions or to talk to panel members. We recommend that a formal review is carried out of this scheme and all the other incentives and arrangements in order to inform thinking on how best to incentivise the low carbon transition going forwards.

[i] RIIO1 allowable revenues of £96bn

[ii] http://www.sustainabilityfirst.org.uk/images/publications/new-pin/New-Pin_Innovation_in_Energy__Water_and_Regulation_and_Government_Interventions_FINAL_Discussion_Paper_-min.pdf

[iii] See page 53 of ibid

[iv] https://www.theccc.org.uk/publication/independent-assessment-uks-clean-growth-strategy-ambition-action/