Assessed Outputs approach to reducing losses

1. Introduction

1.1. *Overview of the proposed approach to incentivising/measuring/encouraging the reduction of losses. Include brief rationale for why this approach is sensible/appropriate*.

1.2. The proposed approach to encouraging the reduction of losses is based on adopting existing DPCR5 mechanisms. The approach consists of two complementary incentives:

1.2.1. Part 1 – A losses data incentive, based on a lower powered version of the DPCR5 losses incentive

1.2.2. Part 2 - An assessed outputs scheme, where the costs and benefits of investment in loss reduction are shared between DNOs and customers based on similar principles to the DPCR5 DG incentive.

1.3. The intention of the Part 1 scheme is to provide DNOs with an incentive to improve the accuracy of the data relating to energy flows entering and exiting their networks. This mechanism does not require further explanation, other than description of the three suggested modifications to the DPCR5 scheme, set out in part 5, below.

1.4. The Part 2 scheme is designed to encourage investment in loss reduction in networks by sharing costs and revenues. The scheme would provide an appropriate level of incentive by operating over a longer period, and would encourage efficient investment by sharing costs on a similar basis to the existing DG incentive. The remainder of the paper relates to the Part 2 mechanism.

2. Details of proposed approach

Approach

2.1. Describe the overall objectives, functions or tasks that will be features of this approach.

2.2. The overall objective is to encourage DNOs to establish a portfolio of investments in initiatives aimed at reducing losses. The outputs of these initiatives would be assessed through load flow modelling of the relevant network, and the benefits valued using the carbon value of saved energy together with an appropriate asset life. In the simplest form of the mechanism only schemes which provide a net benefit would be allowed for funding/reward; however there are several options for basing payments, for example:

- 100% funding of projects which pass the cost/benefit test
- Pay assessed MWh savings at [£60/MWh] for [25] years
- Pay assessed MWh savings at [£77/MWh] for [16] years
- For any project, fund at 80% pass through (through a 16 year annuity) plus a calculated £/MWh, designed to provide a return of (wacc +1%) for a project that would otherwise break even against the cost/benefit test. Apply an IRR cap and collar on the overall portfolio of projects.

2.3. It is considered that an effective balance of cost/risk between DNOs and customers may be achieved by pursuing the last of these options.

2.4. *Describe how this approach will achieve the key aims of incentivising reductions in distribution losses i.e. to encourage efficient network operation, to help reduce cost for consumers and to reduce carbon emissions*.

2.5. The scheme is designed to target savings in real losses, assessed by means of engineering models. The incentive properties of the cost sharing mechanism are to drive down the costs of loss-saving investments.

2.6. By basing the IRR cap/collar assessment on the portfolio of relevant projects commissioned during the price control, there is encouragement to pursue a wide range of project types.

2.7. It is proposed that projects would need to demonstrate two elements in order to be included in the portfolio:

- Allowable costs are the incremental direct costs (ie not covered by other price control mechanisms) incurred on installation or reinforcement of assets in order to reduce or control losses. They include both project-specific costs and general costs relating to improving the measurement of losses.

- The assessed level of loss savings (which may be zero for an individual scheme) measured in annual MWh by means of an auditable engineering model.

2.8. *Outline whether this would be a stand-alone approach or would need to be aligned with any other existing or proposed measures*.

2.9. It is suggested, but not essential, that an overall losses data incentive, as described in Section 5, could run in parallel to this scheme. It is considered that the potential double counting of benefits under the two schemes could be addressed within the calculation of the incentive rates.

2.10. *Duration of any measure e.g. would it be applied for part of the price control period, the full price control period, or is it intended as an interim measure until a specific event such as full smart metering roll out*.

2.11. It is proposed that the allowed revenue should be generated on a similar basis as the DPCR5 DG incentive, slightly modified to a sixteen year annuity in order to match RIIO price control periods.

2.12. *Describe when this mechanism should be reviewed / monitored e.g. would any re-openers be necessary*?

2.13. The IRR caps/collars could be applied at the end of each 8 year price control.

Outputs

2.14. *Set out how this achieves the RIIO principles of an outputs measure; describe the methodological approach proposed*.

2.15. Outputs (measured in MWh) are assessed within the pre-investment process by using engineering models.

2.16. *Clearly detail the expected outputs*.

2.17. Both costs and loss savings would be reported through an RRP process, against agreed definitions and standardised approaches to calculating losses. The outputs would be aggregated at the end of the price control in order to apply the IRR cap/collar in a similar manner to the DPCR5 DG incentive.

Targets

2.18. *Set out whether there will be preset targets and how these might best be determined*.

2.19. There are no preset targets.

Measurement

2.20. *Provide detail on how performance will be measured / assessed*.

2.21. Outputs (measured in MWh) are assessed within the pre-investment process by using engineering models.

2.22. As set out above, both costs and loss savings would be reported through an RRP process, against agreed definitions and standardised approaches to calculating losses. The outputs would be aggregated at the end of the price control in order to apply the IRR cap/collar in a similar manner to the DPCR5 DG incentive.

Rewards / Penalties

2.23. *Set out any proposed incentives associated with this approach. Set out when / how any proposed reward / penalty would be applied (e.g. annually / equally across the price control period / ex-post true-up)*.

2.24. Individual projects are funded at 80% pass through (through a 16 year annuity) plus a calculated £/MWh, designed to provide a return of (wacc +1%) for a project whose costs would break even (at 100% pass through) against the cost/benefit test. An IRR cap and collar is applied to the overall portfolio of projects.

2.25. *Would this approach require any uncertainty mechanism/s*?

2.26. No.

3. Risks / Benefits

3.1. *Set out the key risks and benefits of the approach. This should include any concerns / constraints which you're aware of that could affect implementation*.

3.2. The cost risk is contained by the overall IRR cap/collar. It is anticipated that Regulatory Instructions and Guidance and RRP procedures would address the process/reporting risk.

3.3. The following key benefits are identified:

- Only a portfolio of projects that has demonstrated real loss savings will be rewarded.
- The incentive properties of the 80/20 split and the IRR cap/collar will drive the portfolio towards an appropriate mix of loss saving measures.
- Benefits are assessed over a longer period, more consistent with the life of the relevant assets.
- The reward will be spread over a longer period spreading the costs more evenly between present and future customers.

3.4. *Where possible, provide an indication of any likely financial impact on key stakeholders – DNOs, suppliers and end-use customers*.

3.5. At a discount rate of 5.6%, £60/MWh for 25 years has an NPV of approximately £800/MWh, setting the breakeven cost level. Applying the "80% pass through/16 year annuity" structure suggests that a payment of approximately £20/MWh needs to be added to the annuity amount in order to generate a return of 6.6% for a project costing £800/MWh.

3.6. Applying this pricing structure, a project portfolio costing £300/MWh (which DNOs are incentivised to achieve) would generate a return of 13.2% (the proposed level of IRR cap). This cost is very similar to the cost under the DPCR5 incentive when the 5 year roller mechanism is taken into account. The difference is that only a portfolio that has demonstrated real loss savings will be rewarded, and the reward will be spread over a longer period, more consistent with the life of the relevant assets, and spreading the costs more evenly between present and future customers.

4. Some evaluation criteria

4.1. Consider how this approach might be evaluated according to each of the principles set out below.

- Proportionality
  - The incentive rate is appropriate for real loss savings
  - The sharing rate and IRR cap/collar are as applied in an existing incentive.
  - The spreading of payments is more proportional in terms of asset lives and present and future customers.
- Transparency
  - The build up of schemes will be reported annually.
  - The cap/collar will be applied at the end of each price control.
- Consistency
  - The scheme is consistent wth other elements of the price control, drawing on elements of existing incentives.
- Credibility
  - The DG incentive has a proven track record, making this a credible proposal.
- Clarity and Controllability

    - This element will be improved through the development of appropriate RIG and RRP tables.
- Adaptability and Commitment
    - The scheme can be applied to a wide range of project types, so long as they meet the basic criteria of reducing or improving the control of losses.

4.2. *Where possible identify any additional evaluation criteria which could be applied to this approach*.

5. Any additional information

5.1. *Include any additional pertinent information which is not already covered*.

Details of the losses data incentive

5.2. The intention of the Part 1 scheme is to provide DNOs with an incentive to improve the accuracy of the data relating to energy flows entering and exiting their networks. It is considered that the DPCR5 incentive, with the following modifications, would achieve this objective:

- Incentive rate reduced to [6%] of £60/MWh to [£3.6/MWh]
- Cap/collar reduced to [24%] of current £m value. Typical effective annual GWh cap/collar increased from 75GWh to 300GWh.
- Annual incentive only - no closeout mechanism.

5.3. The full carbon value of losses is not appropriate for this incentive. The incentive is focused on the improved accuracy of measurement of units entering or exiting the network, and historically such data issues have been an order of magnitude greater than movements in losses that can be explained by technical reasons. It is proposed that a factor of 6% (equivalent to the approximate all-DNO average loss %) is applied to the existing incentive rate.

5.4. The effective annual GWh cap/collar is increased to a level reflective of the historic data issues witnessed in 2009/10.

5.5. The potential volatility of data as it is corrected make a closeout mechanism based on the final year performance inappropriate.

Appendix

Example Cashflows

Showing the construction of a portfolio of projects over an eight year period.

ED1 Year	1	2	3	4	5	6	7	8	TOTAL
CAPEX £k	800	4,000	5,000	1,800	250	800	800	1,800	15,250
Saving GWh	1	5	5	4	1	-	-	4	20
Annuity £pa	61.6	308.0	385.0	138.6	19.3	61.6	61.6	138.6	
Add £pa	20.8	103.9	103.9	83.1	20.8	0.0	0.0	83.1	
Total £pa	82.4	411.9	488.9	221.7	40.0	61.6	61.6	221.7	
IRR	6.6%	6.6%	5.8%	9.4%	14.1%	2.6%	2.6%	9.4%	**6.7%**
YEAR									
1	- 800.0								- 800.0
2	82.4	- 4,000.0							- 3,917.6
3	82.4	411.9	- 5,000.0						- 4,505.7
4	82.4	411.9	488.9	- 1,800.0					- 816.8
5	82.4	411.9	488.9	221.7	- 250.0				954.9
6	82.4	411.9	488.9	221.7	40.0	- 800.0			444.9
7	82.4	411.9	488.9	221.7	40.0	61.6	- 800.0		506.5
8	82.4	411.9	488.9	221.7	40.0	61.6	61.6	- 1,800.0	- 431.8
9	82.4	411.9	488.9	221.7	40.0	61.6	61.6	221.7	1,589.9
10	82.4	411.9	488.9	221.7	40.0	61.6	61.6	221.7	1,589.9
11	82.4	411.9	488.9	221.7	40.0	61.6	61.6	221.7	1,589.9
12	82.4	411.9	488.9	221.7	40.0	61.6	61.6	221.7	1,589.9
13	82.4	411.9	488.9	221.7	40.0	61.6	61.6	221.7	1,589.9
14	82.4	411.9	488.9	221.7	40.0	61.6	61.6	221.7	1,589.9
15	82.4	411.9	488.9	221.7	40.0	61.6	61.6	221.7	1,589.9
16	82.4	411.9	488.9	221.7	40.0	61.6	61.6	221.7	1,589.9
17	82.4	411.9	488.9	221.7	40.0	61.6	61.6	221.7	1,589.9
18		411.9	488.9	221.7	40.0	61.6	61.6	221.7	1,507.5
19			488.9	221.7	40.0	61.6	61.6	221.7	1,095.6
20				221.7	40.0	61.6	61.6	221.7	606.7
21					40.0	61.6	61.6	221.7	385.0
22						61.6	61.6	221.7	344.9
23							61.6	221.7	283.3
24								221.7	221.7