



Incentive Calibration Precedent

Report for Scottish Power Transmission plc

25 August 2020

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1. Introduction and Summary

We have been commissioned by Scottish Power Transmission (“SPT”) to review Ofgem’s proposed calibration of output incentives (“incentives”) for SPT and other electricity transmission owners (“TOs”) in Ofgem’s draft determinations (“DD”) for RIIO-ET2¹ compared to other UK networks and international comparators.

In the RIIO-ET2 draft determinations, Ofgem proposes to apply an incentive package which is downward skewed, with proposed penalties more than 4 times higher than rewards for SPT and more than 4.5 times higher than rewards for RIIO-ET2 overall.

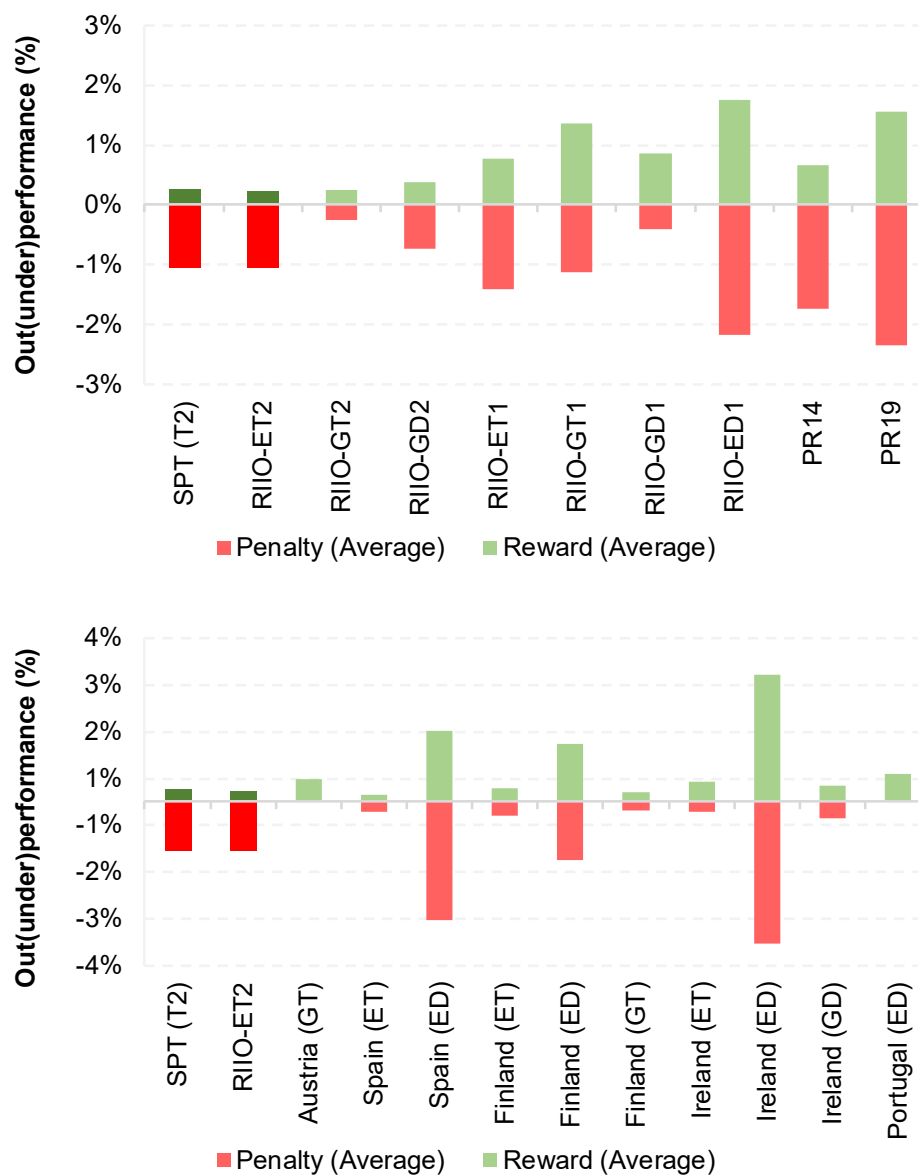
We compare Ofgem’s proposed calibration of the incentive package for SPT and RIIO-ET2 to the incentive calibration for: Ofgem’s draft determinations for GT2 and GD2, energy networks in RIIO-1, water networks in PR14 and PR19 as well as European energy networks.

Overall, we find that while there is some evidence of asymmetric incentive calibration with maximum penalties being higher than maximum rewards, the *magnitude* of the asymmetry proposed by Ofgem for SPT and RIIO-ET2 is multiple times higher compared to other sectors and jurisdictions. As summarised in Figure 1.1, we find that:

- **Ofgem’s RIIO-ET2 proposals assume a greater magnitude of negative skew in incentives relative to other GB decisions (including RIIO-1):** Ofgem proposes penalties 4 and 4.5 times higher than rewards for SPT and ET2 respectively, which is considerably greater than penalties for energy networks in RIIO-1 (penalties 1.1 times higher than rewards, i.e. almost symmetrical on average) or water companies at PR14 (penalties 2.6 times higher than rewards) and PR19 (penalties 1.5 times higher than rewards). The DD proposals for SPT/ET2 are also downward biased relative to Ofgem’s DD for GT2 (symmetrical) and GD2 (penalties around 2 times higher than rewards).
- **European precedent also shows some examples of negative skew, but magnitude of asymmetry is substantially below Ofgem’s proposals for SPT/ET2:** European decisions include examples of incentives with penalties of up to 1.7 times higher than rewards, but also examples of symmetric and positively skewed (i.e. rewards greater than penalties) incentive packages.

¹ Ofgem (July 2020), RIIO-2 Draft Determinations – Core Document.

Figure 1.1: Ofgem's Proposed Asymmetry of Incentive Package for SPT/RIIO-ET2 Is Unprecedented Relative to UK and European Regulated Networks



Source: NERA analysis

Note: For comparability, we convert all incentives to a RORE basis point equivalent assuming a notional gearing of 55 per cent as per Ofgem's DD for SPT.

The rest of this report is structured as follows:

- In Section 2, we summarise Ofgem's incentive proposals for SPT and ET2 and compare them to: Ofgem's proposals for GT2 and GD2, the calibration of incentives for energy networks at RIIO-1 and the calibration of incentives water companies at PR14 and PR19; and
- In Section 3 we compare Ofgem's DD proposals for SPT/ET2 to the calibration of incentives for European energy networks.

2. Incentive Calibration for SPT/ET2 Compared to UK Networks

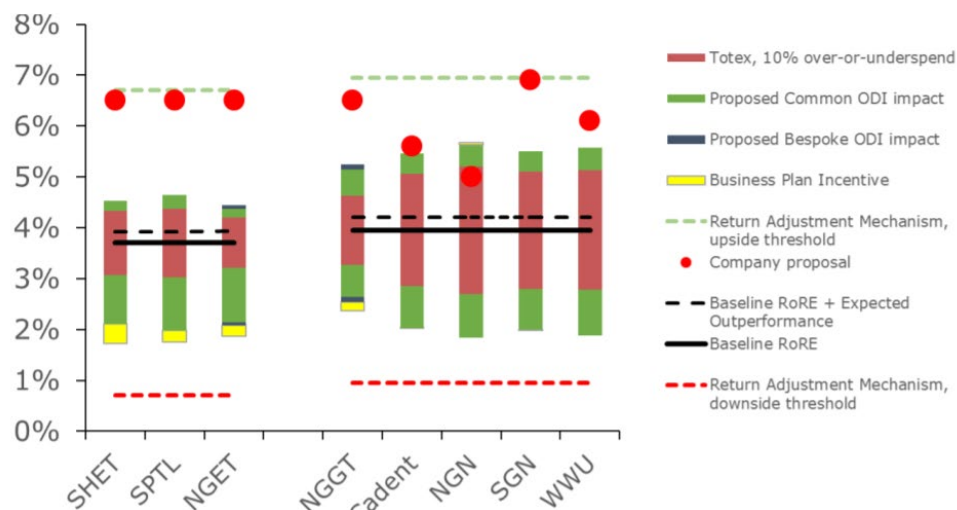
In this section we summarise Ofgem’s incentive proposals for SPT and ET included in the RIIO-2 draft determinations, and compare them to: Ofgem’s proposals for GT2 and GD2, the calibration of incentives for energy networks at RIIO-1 and calibration of incentives for water companies at PR14 and PR19.

To analyse the incentive package for SPT compared to other sectors, we use the ratio of Incentives as a proportion of Return on Regulatory Equity (RoRE). For comparability across different sectors, we calculate incentive ratios using a common notional gearing of 55 per cent in line with Ofgem’s draft determinations for SPT.²

2.1. Ofgem RIIO-T2 and RIIO-GD2 Incentive Proposals

Figure 2.1 shows the RoRE ranges implied by Ofgem’s RIIO-2 draft determinations for electricity and gas transmission (ET and GT) as well as gas distribution networks (GDNs).

Figure 2.1: Ofgem’s RIIO-2 Proposed RoRE Ranges



Source: Ofgem (July 2020), RIIO-2 Draft Determinations – Core Document, p.54, Figure 5.

For SPT, Ofgem’s proposes an incentive package which includes penalties of up to 1.1 per cent of RoRE compared to rewards of up to 0.3 per cent of RoRE. This is similar to incentives for electricity transmission networks overall, with penalties of up to around 1 per cent of RoRE and rewards up to around 0.25 per cent of RoRE. Ofgem’s proposals are downward skewed, with penalties 4 and 4.5 times greater than rewards for SPT and ET2 respectively.

For GD2, Ofgem’s DD also proposes an incentive package which is downward skewed, but the magnitude of the skew is less than half compared to Ofgem’s proposals for SPT/ET (GD2 includes penalties of up to 0.7, compared to rewards up to 0.4 per cent of RoRE on a common

² The incentive ratio can be written as Incentive Payment (£) / Notional Equity (£), where notional equity = RAV * (1 – notional gearing). In order to compare the metric across companies, we multiply the incentives ratio expressed in RoRE terms by (1 – notional gearing) / (1 – common gearing), which results in an incentive ratio of: Incentive Payment (£) / (RAV * (1 – common gearing)).

55 per cent gearing basis, i.e. penalties around two times higher than rewards compared to around 4 times for SPT/ET2).

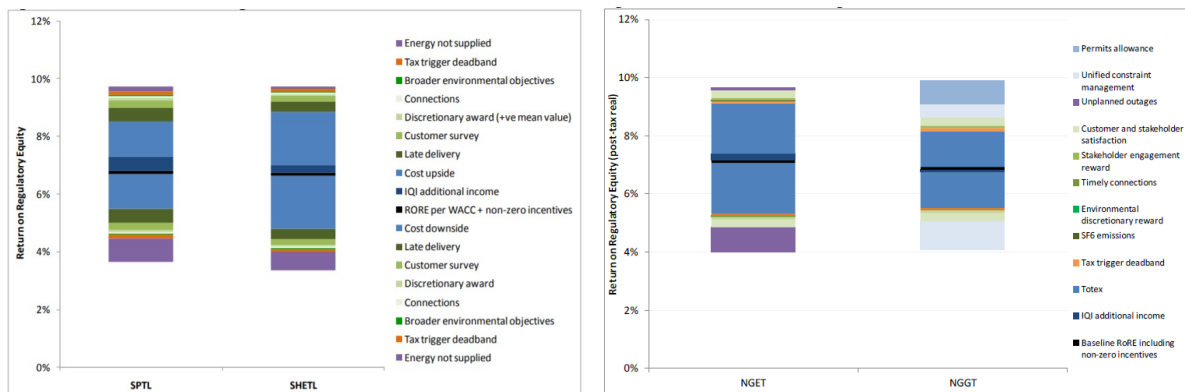
In contrast, Ofgem proposes a symmetrical calibration of incentives for RIIO-GT2, with rewards and penalties up to 0.25 per cent of RoRE (on a common 55 per cent gearing basis).

Ofgem's proposals for SPT/ET2 are therefore downward biased both compared to GD2 (negative skew more than 2 times greater for SPT/ET2) and GT (symmetrical package).

2.2. RIIO-T1 Incentives

For RIIO-T1, Ofgem calibrated the incentive package for SPT, SHETL, NGGT and NGET as summarised in Figure 2.2.

Figure 2.2: Ofgem's RIIO-T1 RoRE Ranges



Source: Ofgem (February 2012), RIIO-T1: Initial Proposals for SP Transmission Ltd and Scottish Hydro Electric Transmission Ltd, p.46, Figure 5.3; Ofgem (December 2012), RIIO-T1: Final Proposals for National Grid Electricity Transmission and National Grid Gas, p.37, Figure 4.1.

in Table 2.1, we show the incentive calibration in RoRE terms calculated on a common gearing basis of 55 per cent.

Table 2.1: RIIO-T1 Incentive Ranges

	Penalty	Reward	Penalty / Reward
SPT	-1.7%	1.1%	1.6x
SHETL	-1.4%	0.8%	1.7x
NGET	-1.1%	0.4%	2.7x
NGGT	-1.1%	1.4%	0.8x

Source: Nera analysis.

For ET-1, the incentive package was negatively skewed, with penalties around 2 times higher than rewards. In contrast, for GT-1 the incentive package was positively skewed with potential rewards greater than penalties.

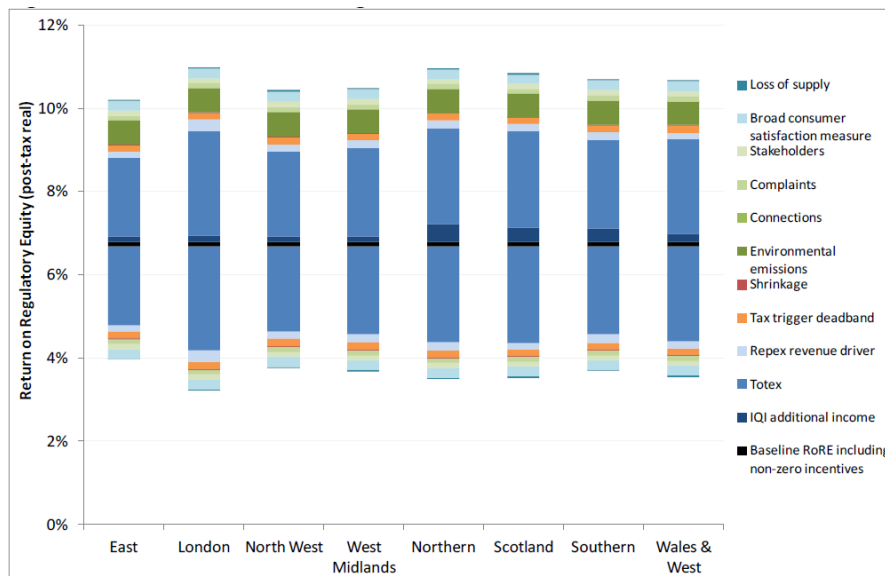
Ofgem's proposals for RIIO-ET2 are downward biased both compared to ET1 (negative skew more than 2 times greater for ET2 compared to ET1) and GT1 (positive skew towards rewards). The skew relative to RIIO-1 is particularly true for SPT, where penalties increased

from being 1.6 times higher than rewards in ET1 to being 4 times higher than rewards in ET2.

2.3. RIIO-GD1

For the GDNs, Ofgem calibrated the incentive package at RIIO-1 as summarised in Figure 2.3.

Figure 2.3: Ofgem's RIIO-GD1 RoRE Ranges



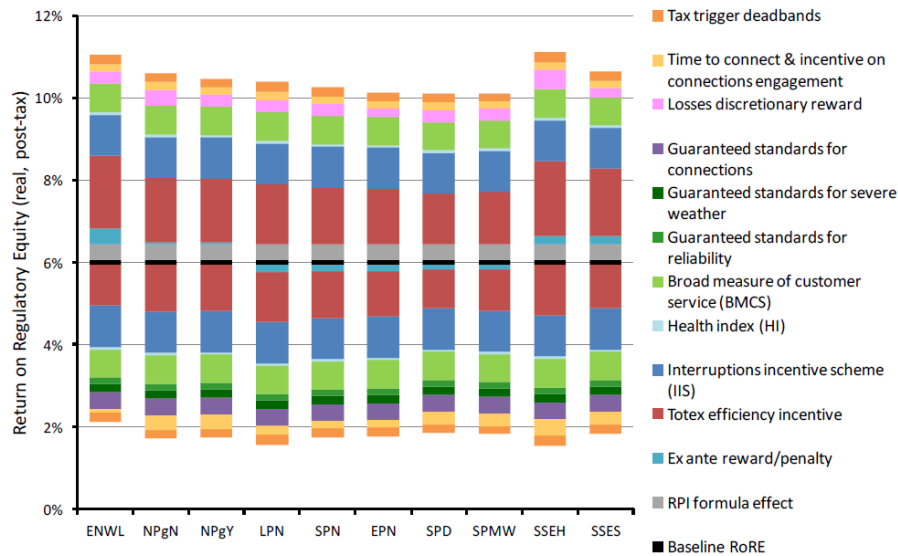
Source: Ofgem (December 2012), *RIIO-GD1: Final Proposals – Finance and uncertainty supporting document*, p.33, Figure 4.1.

On a common gearing basis of 55 per cent, the RIIO-GD1 incentive package for an average GDN included penalties of up to 0.4 per cent of RoRE and rewards of up to 0.9 per cent of RoRE. The incentive package for RIIO-GD1 was therefore positively skewed, with rewards around 2 times higher than penalties. This is in stark contrast to Ofgem's proposals of a negatively skewed incentive package for SPT/ET2 with a penalties around 4 times higher than rewards.

2.4. RIIO-ED1

For the electricity distribution networks (DNOs), Ofgem calibrated the incentive package at RIIO-1 as summarised Figure 2.4.

Figure 2.4: Ofgem's RIIO-ED1 RoRE Ranges



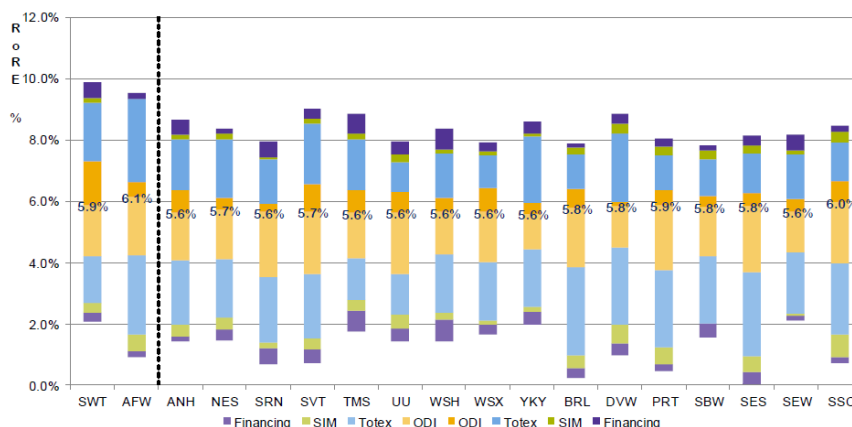
Source: Ofgem (November 2014), *RIIO-ED1: Final determination for the slow-track electricity distribution companies*, p.46, Figure 5.1.

On a common gearing basis of 55 per cent, the RIIO-ED1 incentive package for an average DNO included penalties of up to 2.2 per cent of RoRE and rewards of up to 1.8 per cent of RoRE. The incentive package for RIIO-ED1 was therefore negatively skewed towards penalties, but the magnitude of the skew (penalties around 1.2 times higher than rewards) is substantially more modest than Ofgem's proposals for SPT/ET2 with a penalties around 4 times higher than rewards.

2.5. Water Companies at PR14 and PR19

Figure 2.5 shows the calibration of the incentive package for water companies at PR14 by Ofwat (the relevant incentives are ODIs and SIM).

Figure 2.5: Ofwat's PR14 RoRE Ranges

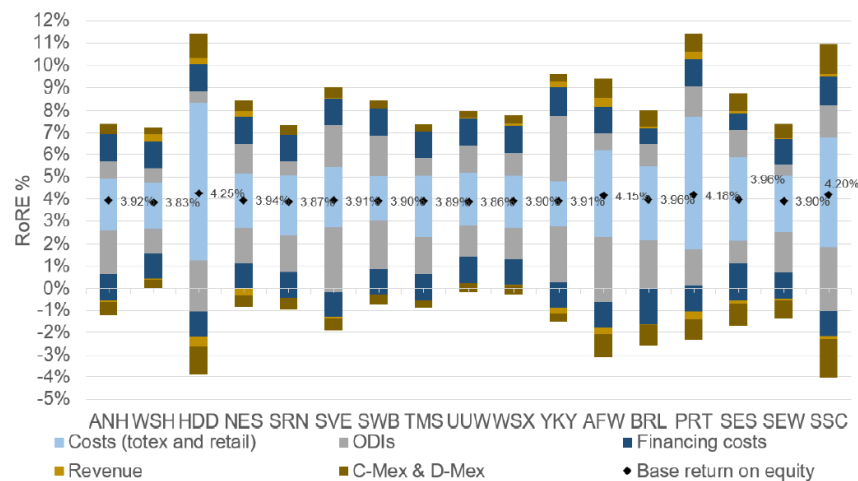


Source: Ofwat (December 2014), *Setting price controls for 2015-2020: Final price control determination notice: policy chapter A7 – risk and reward*, p.13, Figure A7.1.

On a common gearing basis of 55 per cent, the PR14 incentive package for an average water company included penalties up to 1.7 per cent of RoRE and rewards of up to 0.7 per cent of RoRE. Incentives at PR14 were therefore negatively skewed, with penalties around 2.6 times higher than rewards.

Figure 2.6 shows the most recent determination by Ofwat from December 2019, setting the incentive package for the PR19 period (the relevant incentives are ODIs and C-Mex & D-Mex).

Figure 2.6: Ofwat's PR19 RoRE Ranges



Source: Ofwat (December 2019), PR19 final determinations – Aligning risk and return technical appendix, p.35, Figure 3.11.

On a common gearing basis of 55 per cent, the PR19 incentive package for an average water company included penalties up to 2.3 per cent of RoRE and rewards of up to 1.6 per cent of RoRE. Incentives at PR19 therefore remained negatively skewed as in PR14, but the skew was reduced with penalties around 1.5 times higher than rewards in PR19 (compared to 2.6 times higher in PR14).

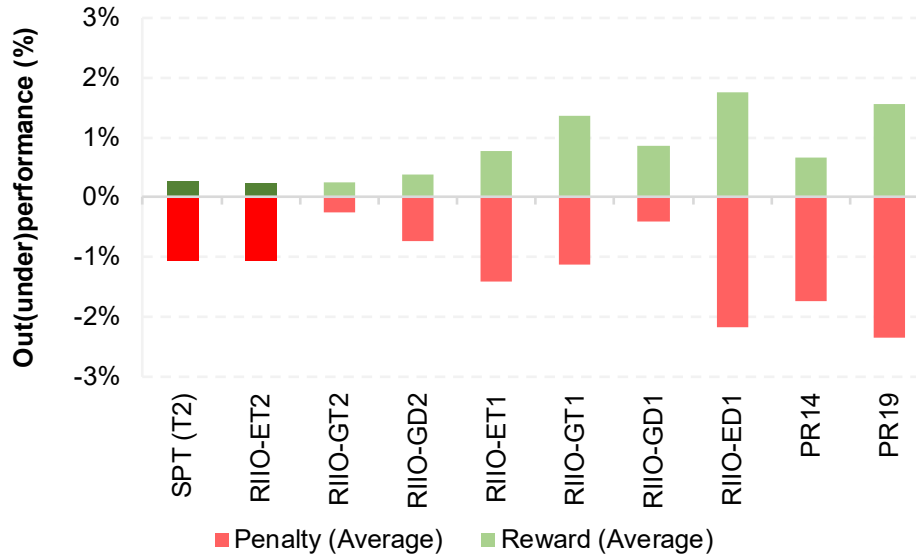
While the two recent Ofwat decisions include negatively skewed incentive packages, the magnitude of the negative skew proposed by Ofgem for SPT/ED2 (penalties around 4 times greater than rewards) is around twice as high compared to water (penalties 2.6 and 1.5 times higher than rewards in PR14 and PR19 respectively).

2.6. Conclusion: SPT/ET Incentives for RIIO-2 Are Downward Biased Compared to All Other Recent Decisions for Energy and Water Networks

In the previous sections, we compared Ofgem's incentive proposal for SPT/ET included in RIIO-2 Draft Determinations to evidence from other UK networks. In all cases, we find that SPT (and RIIO-ET2) incentives are downwardly biased, due to a negative skew towards penalties and a greater magnitude of the negative skew relative to other decisions.

Figure 2.7 and Table 2.2 summarise the evidence on incentive ranges calculated on a common gearing of 55 per cent, exposing the downward bias in Ofgem’s RIIO-ET2 proposals relative to other UK network evidence.

Figure 2.7: SPT and RIIO-ET2 Incentives Are Disproportionately Downward Biased



Source: NERA analysis.

Table 2.2: Ofgem’s SPT and ET2 DD Proposals Are Disproportionally Biased Towards Penalties

	Penalty (Average)	Reward (Average)	Penalty-to-Reward
SPT	-1.1%	0.3%	4x
RIIO-ET2	-1.1%	0.2%	4.5x
RIIO-GD2	-0.7%	0.4%	2x
RIIO-GT2	-0.2%	0.2%	1x
RIIO-ET1	-1.4%	0.8%	1.8x
RIIO-GT1	-1.1%	1.4%	0.8x
RIIO-GD1	-0.4%	0.9%	0.5x
RIIO-ED1	-2.2%	1.8%	1.2x
PR14	-1.7%	0.7%	2.6x
PR19	-2.3%	1.6%	1.5x

Source: NERA analysis

3. Incentive Calibration for SPT/ET2 Compared To European Energy Networks

In addition to reviewing precedent on incentive calibration from the UK, we have also considered evidence on the calibration of incentives for energy networks in other European countries. Specifically, we draw on the information on incentives included in the 2020 report from the Council of European Energy Regulators (CEER).³ The 2020 CEER report includes an appendix where regulators provide, among others, details on the incentives available to energy networks in their jurisdictions.⁴ We note that not all regulators have provided information on incentives for the 2020 CEER report and our review is therefore limited to those jurisdictions where regulators have provided the relevant information.

Table 3.1 shows the incentives across 10 jurisdiction/sector combinations included in the CEER 2020 report.

³ CEER (January 2020), Report on Regulatory Frameworks for European Energy Networks 2019 – Incentive regulation and benchmarking workstream.

⁴ CEER (January 2020), Report on Regulatory Frameworks for European Energy Networks 2019 – Incentive regulation and benchmarking workstream, Annex 3 – Chapter 7.

Table 3.1: European Incentives For Energy Networks

Country (Sector)	Incentive Type	Penalty / Reward	Penalty-to-reward
Austria (GT)	Customer satisfaction	+5% of opex	Reward only
Spain (ET)	Availability	-3.5/+2.5% of opex	1.4x
Spain (ED)	Grid losses	-2/+1% of revenue	
	Supply quality	-3/+2% of revenue	
	Total	-5/+3% of revenue	1.7x
Finland (ET)	Quality	-3/+3% of return	1x
Finland (ED)	Quality	-15/+15% of return	1x
Finland (GT)	Quality	-2/+2% of return	1x
Ireland (ET)	System performance	-1/+0.5% of opex	
	Investment planning and delivery	-2/+2% of opex	
	Stakeholder	+1% of opex	
	Connection (ECP-1)	-0.5/+0.5% of opex	
	Strategic	Max EUR 2.5M, or +2.7% of opex*	
	Total	-3.5/+6.6% of opex	0.5x
Ireland (ED)	Worst-served customer	-0.3/+0.3% of revenue	
	Customer satisfaction	-1.6/+0.3% of revenue	
	Customer satisfaction survey	-0.3/+0.3% of revenue	
	Stakeholder	+0.1% of revenue	
	Connection (ECP-1)	-0.1/+0.1% of revenue	
	Interruption duration	-1.9/+2.1% of revenue	
	Interruption frequency	-1.9/+2.1% of revenue	
	Total	-6/+5.4% of revenue	1.1x
Ireland (GD)	Customer	-0.3/+0.3% of revenue	
	Growth (connection)	-0.5/+0.5% of revenue	
	Total	-0.8/+0.8% of revenue	1x
Portugal (ED)	Quality of service**	Max EUR 5M, or +0.6% of RoRE (common gearing)***	reward only

Notes: *EirGrid's (Ireland (ET)) forecasted internal opex for 2018 is EUR 47.2 million; **Portugal's ED sector has an incentive for energy losses, but the incentive exposure is defined relative to outturn electricity prices and therefore not ex-ante available; ***Given there is one ED operator in Portugal (EDP), we calculate its RoRE as the outturn RAB for 2018 (year of the determination), which is EUR 1,831 million, times our common gearing of 55 per cent.

Source: CEER (January 2020), Report on Regulatory Frameworks for European Energy Networks 2019 – Incentive regulation and benchmarking workstream, Annex 3 – Chapter 7; NERA analysis of regulatory decisions

We find examples of different incentive calibrations, including:

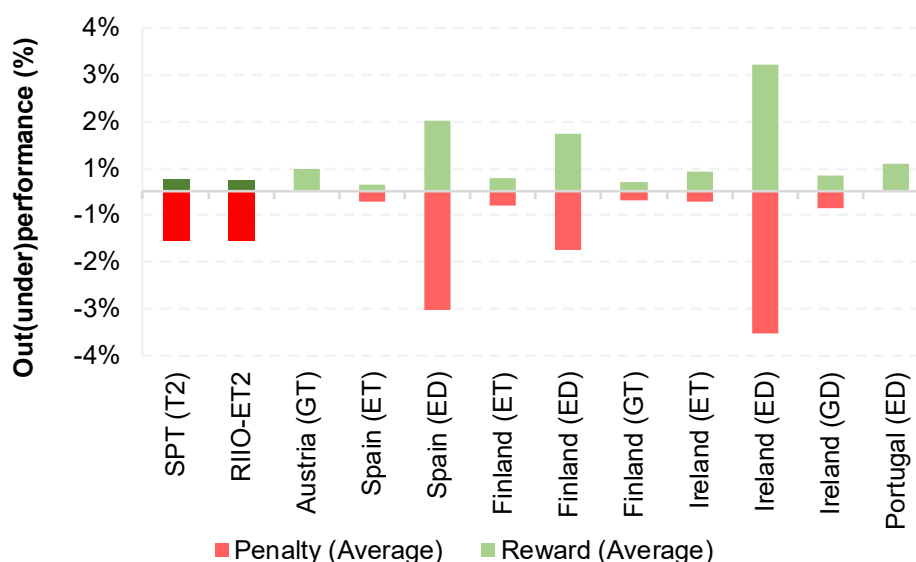
- Positively skewed incentive towards rewards including reward-only regimes (Ireland ET, Austria GT and Portugal ED);

- Symmetric incentives (Finland ET, ED and GT and Ireland GD); and
- Negatively skewed incentives towards penalties (Spain ET and ED and Ireland ED)

Similarly to the UK evidence, we find that Ofgem's incentive proposals for SPT (and RIIO-ET2) are downwardly biased, due to a general negative skew towards penalties (compared to positively skewed and symmetrical incentive packages for some European jurisdictions) and a greater magnitude of the negative skew (Ofgem's proposals include penalties around 4 times higher than rewards, while European networks with asymmetric incentive packages face penalties of at most 1.7 times higher than rewards).

For comparability with the incentive ranges presented for UK networks in the previous section, in Figure 3.1 we also convert the European incentive ranges from Table 3.1 to a common RoRE basis using 55 per cent common gearing. To do this, we use ratios for opex to RAV, revenue to RAV and allowed return to RAV from GB data from RIIO-1 for each of the ET, GT, ED and GD sectors.⁵

Figure 3.1: European Ex-Ante RoRE Ranges



Source: NERA analysis.

Figure 3.1 reveals the downward bias in Ofgem's proposed incentive packages for SPT/ET in RIIO-2 compared to other European jurisdictions.

⁵ For example, in the case of Spain ED where the incentives are given as a proportion of allowed revenues, we multiply this ratio by the UK's RIIO-ED1 average allowed revenues-to-RAV, in order to get an incentive-to-RAV ratio. We then convert this ratio into an incentive-to-RoRE ratio by dividing it by (1 – common gearing), where common gearing is 55 per cent.

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