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The Implementation of the RIIO Framework

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Insight in Economics™

This presentation assesses Ofgem's implementation of RIIO framework following introduction of new controls across all sectors

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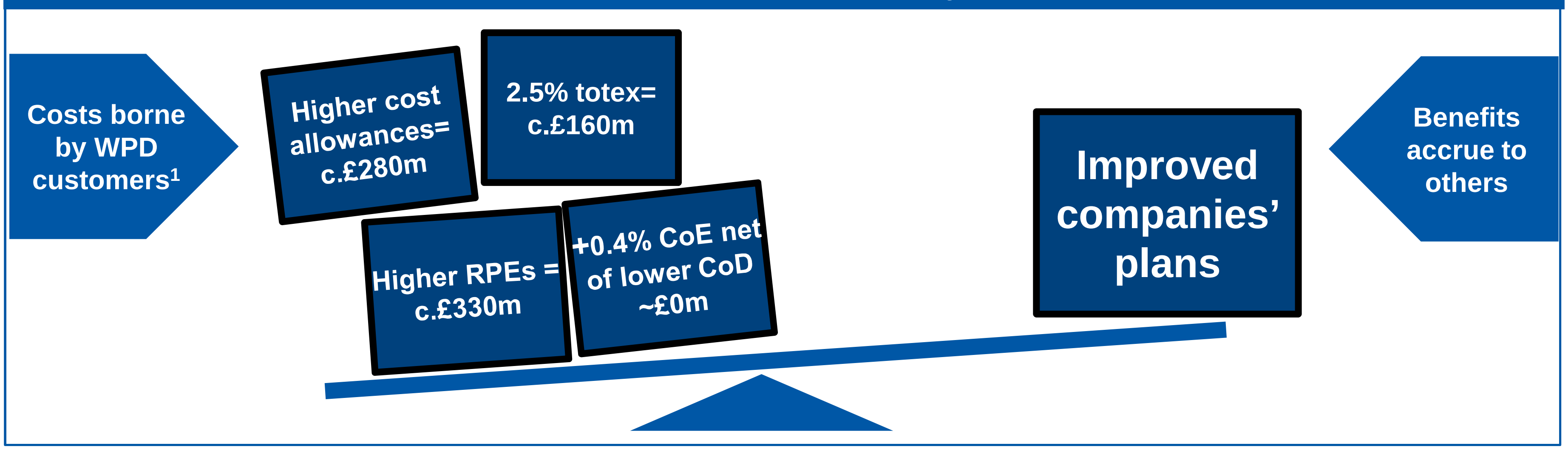
- RIIO (revenue, incentives, innovation and outputs) framework established by Ofgem as part of RPI-X@20 review
- Ofgem has recently published final determination for electricity distribution (RIIO-ED1) and now all sectors subject to RIIO price controls (RIIO-T1, which applies to transmission companies, and GD1, which applies to gas distribution, both implemented in 2013)
- Assess key elements of new framework drawing on Ofgems' own approach to assessing companies' plans

Process	•Incentivising companies plans through fast-tracking •A lighter touch
Outputs and incentives	• Defining outputs instead of inputs • Addressing capital bias through totex mechanism
Efficient expenditure	• Ofgem's approach to benchmarking
Efficient financing	• Setting allowed equity • Cost of debt index mechanism

Companies' business plans have improved under the RIIO process, a clear success of the new framework

- Companies have taken greater ownership of plans; engaged with network users; clearly defined outputs; and, developed asset management plans
- Fast-tracking – whereby Ofgem agrees to a company's plan early and in-full where plan is well-justified – has been important component of incentivising better plans:
  - Ofgem fast-tracked Scottish TOs (at RIIO-T1), and WPD (at RIIO-ED1); no GDN qualified (RIIO-GD1)
- Q: Is the cost of incentivising improved plans through fast-tracking too high and/or unfair?
  - We estimate WPD allowances ca. £770m higher (or >10% of totex), a cost borne by WPD customers, an increase of ca. £10 on average annual customer bill. (Ofgem calculates benefit at £250m.)

The costs and benefits of fast-tracking WPD



(1) *WPD's submission is £6,469.4 million in totex and £458.0 million in RPEs, totalling to £6,927.4 million. Ofgem's hypothetical slow-track view is £6,091.6 million in totex and £16.8 million in RPEs, totalling to £6,108.4 million. Source: Ofgem FD.*

An objective was to make price controls simpler, but they have become more complex (but not unnecessarily so?)

Simplifying framework was an initial objective

"*… the current approach to price controls struggles to meet the call for simplicity from the Better Regulation Commission.. While undoubtedly very clever, some schemes in our price controls, such as the IQI .. are virtually unfathomable to those outside the cognoscenti.*"

Alistair Buchanan, "Ofgem's RPI-X@20" project, 2010

- Ofgem points to "targeted", "proportionate", "risk-based" approach

.. but in practice new framework is more complex

- But in practice price control has become more complex, eg:
  - Price control reviews now run to almost three years (before less than two) to allow for process changes, namely fast-tracking
  - Annual adjustments and regulatory mechanisms more complex, eg. cost-of-debt, indicated by more than doubling of price control licence conditions
  - Reporting requirements more extensive (notably around outputs monitoring)
- Conclusion: More complex but not unnecessarily so?

Defining outputs instead of inputs should promote least cost solutions to delivering safe and reliable networks

- Key part of new framework is to set contract in terms of outputs (eg reduction in risk) as opposed to inputs (eg, length of mains replaced) which provides incentives to realise outputs (eg, safety, reliability, customer service etc.) at least cost
- Some success at defining outputs, and associated incentive mechanisms, eg. in relation to iron mains replacement where "*reduction in mains risk*" has replaced "*mains length decommissioned*" in regulatory contract
- But in general, difficult to define outputs for key expenditure areas which are measurable/controllable/auditable, e.g. asset risk metrics (which combine risk of asset failure based on condition, with consequence of failure)
  - Risk that companies default to inputs based approach to ensure that they can demonstrate compliance at ex post review
- But problems with outputs based approach reflect inherent difficulties rather than Ofgem's approach per se

The totex approach should address capex bias, by equalising incentives and promoting whole-life cost approach

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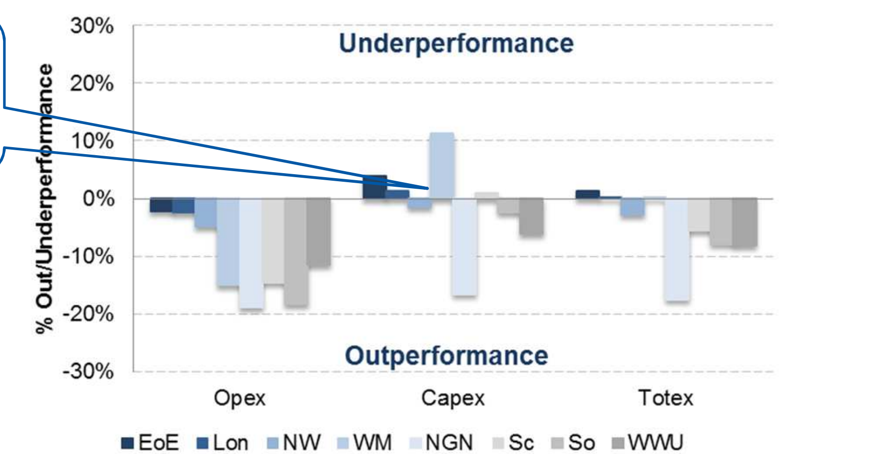
Process | **Outputs** | Expenditure | Finance

Many GDNS underspent on capex pre RIIO

The GDNs spent less than capex allowances at GDPCR1



Nearly all DNOs underspent on capex pre RIIO

The DNOs spent less than capex allowances at DPCR4

- Pre-RIIO, apparent incentives to seek capex solutions as companies retained greater share of opex outperformance (resulted in “capex bias” or “RCV growth strategy”)
- Totex approach based on unified incentive rate which makes companies indifferent to opex-capex solutions, and should promote whole-life cost approach
- Q1: Is capex bias more perceived than real?
  - Evidence from energy distribution companies shows that networks outperformed on capex historically, and thus no clear capex bias
- Q2: Is capex bias in part consequence of setting allowed return > financing cost (which has now been addressed)?

RIIO framework has not addressed underlying concerns with interpretation of benchmarking results

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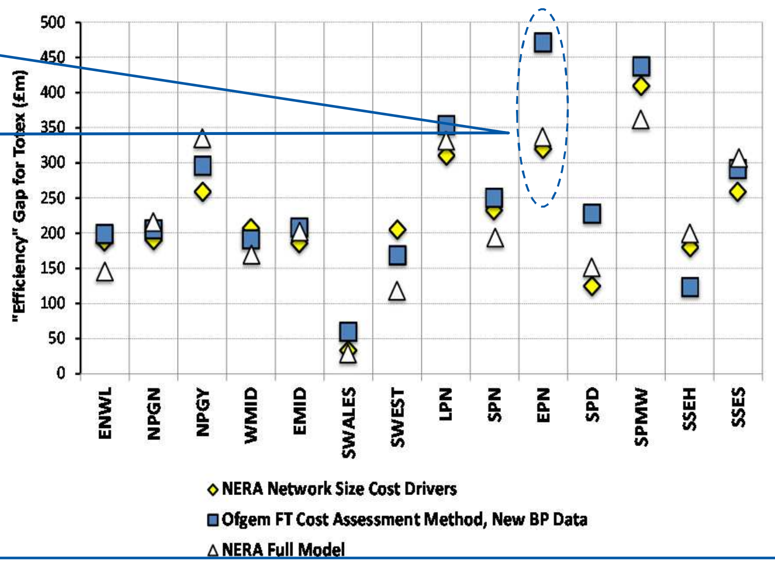
Process | Outputs | **Expenditure** | Finance

Plausible alternative model forms produce different efficiency scores

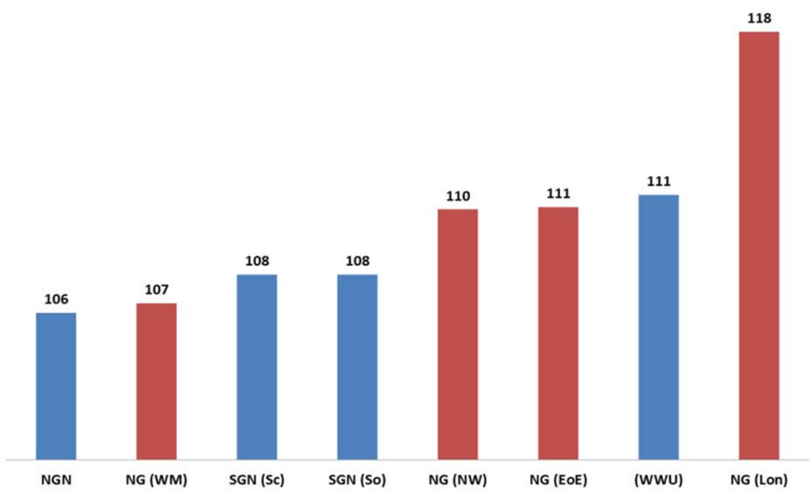
- Ofgem recognises that there is no single correct model: it develops three; identifies benchmark as UQ
- Even so, plausible alternative model specifications produce very different efficiency scores, eg.
  - NERA models based on alternative cost drivers produce very different results to Ofgem although both equally statistically valid (or invalid)

EPN "efficiency gap" declines from £450m to £300m under alternative model



RIIO-GD1 IQI Efficiency Score:
NG (in red) is Ranked 2, 5,6 and last despite common management

- High-level observations from RIIO raise questions about validity of use of benchmarking:
  - Networks within same group have very different efficiency scores despite common management, e.g. NG, SP, WPD
  - London networks tend to perform poorly (last at GD1, 11/14 at ED1; 7/14 at DPCR5)
  - Efficiency rankings demonstrate persistency over time. Explained by persistent good management or persistent omitted variables that favour one set of companies over another?



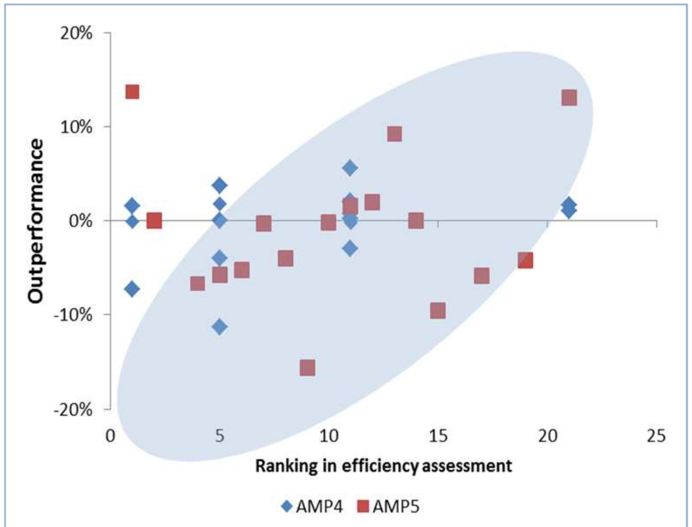
Imperfect models favour one set of companies over another set, and create winners and losers

Process | Outputs | **Expendidture** | Finance

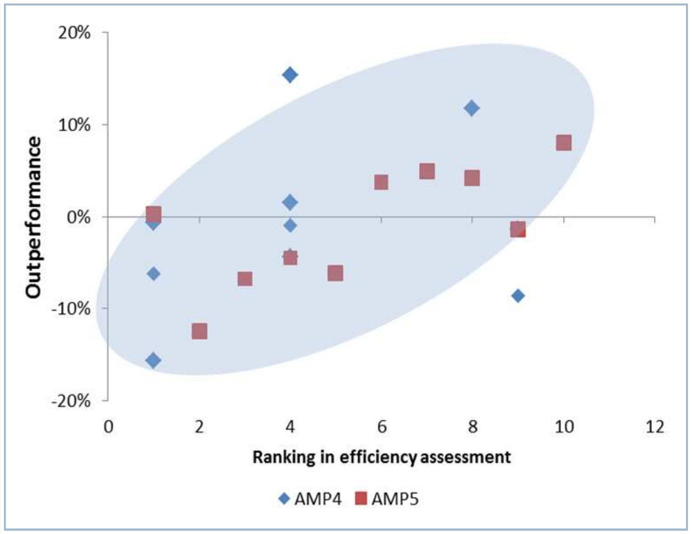
- Evidence from gas distribution (and other sectors with comparative regime, notably water) shows that companies that are well-ranked by models at price review subsequently outperform price controls the most (and those ranked poorly underperform).
- Comparative efficiency analysis creates arbitrary winners and losers according to chosen model

Well-ranked companies tend to show greatest outperform at subsequent review

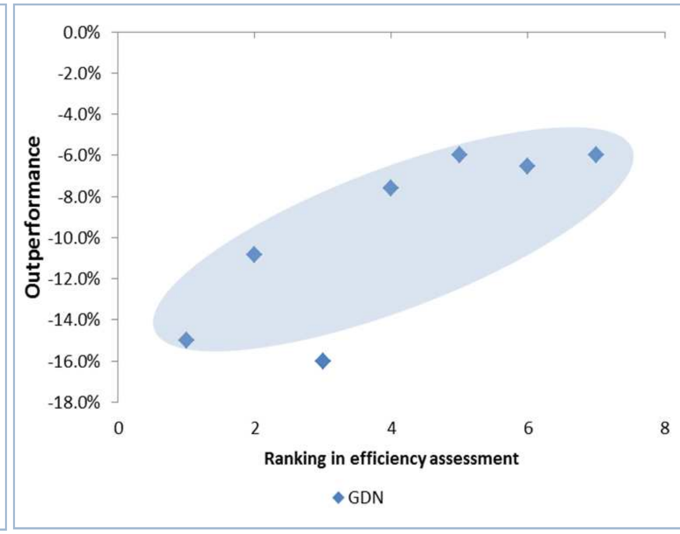
Water service: 2010-2015



Wastewater: 2005-2015



Gas Distribution: Forecast Performance Over RIIO-GD1



RIIO marked by lower allowed returns to equity*; cost of debt mechanism does not allow cost recovery (*with the exception of fast-tracked TOs)

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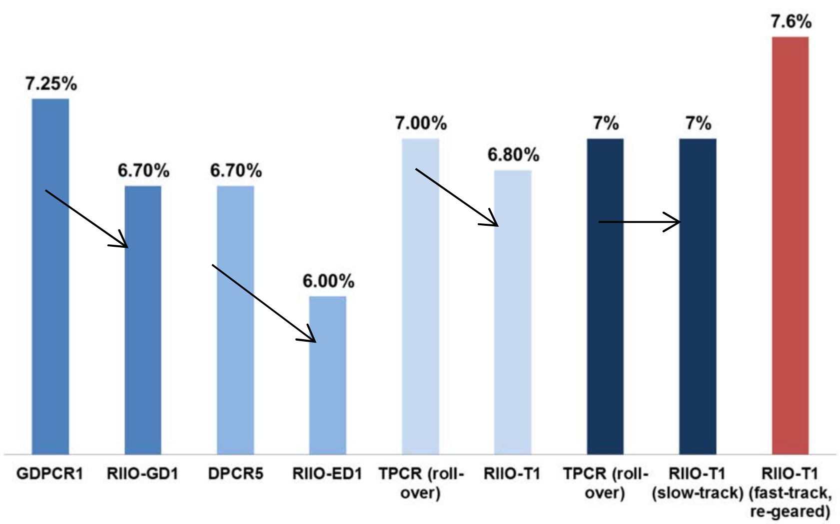
Process | Outputs | Expenditure | **Finance**

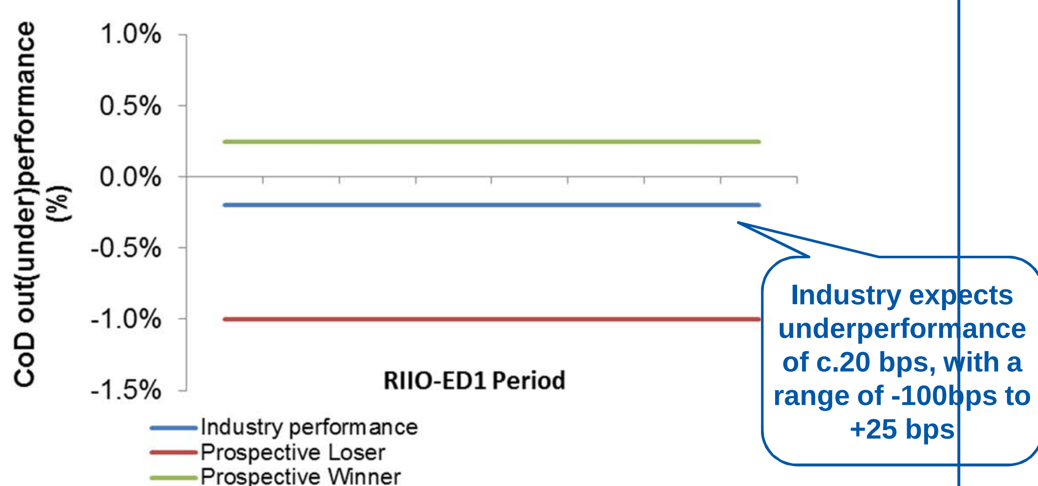
Diminishing (allowed) returns to equity under RIIO price controls

- Diminishing (allowed) returns to equity holders under RIIO, in common with other UK and European regulators
  - Lower allowed return for RIIO-ED1 in response to NIE CC decision
  - High return to equity for Scottish TOs runs against trend
- But higher realised returns? GDNs expect outperformance of around 10% on average over RIIO-GD1 (compared to 5% pre-RIIIO)



Simplified approach to CoD mechanism creates winners and losers

- In theory, well-designed cost of debt indexation should ensure that debt allowances track costs
  - No allowance for debt issuance costs (in absence of supposed "halo effect"), and on average industry will under-recover by ca. 20bps
  - Ofgem's simplified approach to weighting index has created winners and losers depending on companies' historical issuance profile



Using Ofgem's traffic light scorecard used at fast-tracking, it scores well on process and outputs, but less well on expenditure and financing

Ofgem's assessment of companies mirrors our assessment of Ofgem: good on process, but poorer on cost efficiency and financing

Process	• Demonstrable improvement in plans • More complex (but necessarily so?)
Outputs and incentives	• Outputs framework should promote cost efficiency • Unified incentive rate addresses capital bias (although more perceived than real?)
Efficient expenditure	• Ofgem assesses efficiency based on three different model forms • Even so, alternative model specifications produce very different results
Efficient financing	• Diminishing (allowed) returns but higher realised • Concerns over design of CoD mechanism, creating winners and losers

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