Is output-oriented regulation an adequate solution to reach a reliable and efficient network?

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IEA/CEER workshop on Network Investment and Regulation

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“To date, increasingly effective regulatory arrangements have allowed for more efficient use of network capacity.”

1. GB experience with national transmission regulation

2. Extension offshore and interconnection
GB experience

• 1990s
  – Basic RPI-X framework
  – Main incentive: cost efficiency – reveals cost information over time

• 2000s
  – Improve monitoring/regulator’s understanding, more benchmarking
  – Add output incentives and add-ons for new investments
  – Start to encourage innovation and social and environmental responsibility

• 2010-
  – RIIO framework onshore
  – Competitive tendering for new separable assets (offshore wind links so far)
  – Value based regulation for interconnectors
Significant benefits from ‘RPI-X’

We used RPI-X as a basis for regulating energy networks for about 20 years

<table>
<thead>
<tr>
<th>Reductions in network charges</th>
<th>Improvements in operating efficiency</th>
<th>More efficient financing</th>
<th>Improved quality of service</th>
<th>Increased Investment</th>
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But some challenges with the initial formulation...

- 4-5 year control – reset weakens incentives, especially for innovation
- No flexibility mechanisms, everything agreed upfront – risk of overpaying for things not needed or non-delivery of needed investment that was not foreseen
- No outputs – companies able to outperform settlement by not delivering capex as per plans => customers not getting what they had paid for
- Strong incentives to reduce costs, but consumers’ interests are wider than this – quality of service etc
- Unequal efficiency incentives on opex and capex (not constant for capex) leading to capex bias
- Network companies increasing focus on managing the regulator
RIIO framework

**Constraint set up front to ensure:**
- Network companies are financeable
- Transparency and predictability
- Balance between costs faced by current and future consumers
- Flexible for new outputs

**Deliver outputs efficiently over time with:**
- 8 yr control
- Upfront efficiency rate
- Rewards/penalties

**Technical and commercial innovation**
- Core price control incentives
- Exploring competitive tendering
- Innovation stimulus package

**Outputs set out in clear contract**

Fast-track process harnesses competitive rivalry between network company management
Outputs and incentives

- Safe and reliable networks
- Connections
- Reducing harmful environmental impacts
- Customer satisfaction
- Network availability and wider works
### Some examples

<table>
<thead>
<tr>
<th>Safety</th>
<th>Reliability: Electricity</th>
<th>Reliability: Gas</th>
<th>Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance with legal health &amp; safety requirements</td>
<td>Energy not supplied/SAIDI/SAIFI</td>
<td>Compliance with obligations to transport volumes of gas at system entry and exit</td>
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<tr>
<td>No financial incentive</td>
<td>Suite of asset health secondary deliverables</td>
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<td>Secondary deliverables on asset risk</td>
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<td>Secondary deliverable on indicators to identify future network development needs</td>
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<th>Customer satisfaction</th>
<th>Environment</th>
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<td>Broad measure of customer satisfaction (survey evidence, stakeholder engagement and complaints handling)</td>
<td>Direct emissions - targets</td>
</tr>
<tr>
<td></td>
<td>Visual Amenity – funding for undergrounding</td>
</tr>
<tr>
<td></td>
<td>Environmental Discretionary Reward – to driver wider culture change</td>
</tr>
</tbody>
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1. GB experience with national transmission regulation

2. Extension offshore and interconnection
GB model: offshore transmission

- Offshore Transmission Owner (OFTO)
- Generator

Connection to onshore network

Onshore Substation

132 kV Cable

Offshore Platform

33 kV Inter Array Cables
Key benefits of OFTO regime

- **For Generators**
  - Delivers cheaper and more timely offshore grid connections
  - Focused on generator’s requirements; fit for purpose assets
  - Flexibility for future offshore generation needs
  - Reduces generators’ overall capital need per MW

- **For OFTOs**
  - Enable new entrants to compete in this market and bring innovation
  - Long term regulatory certainty and light-handed regulation
  - Low risk – OFTO protected against generator failure and credit risk (and construction for transitional projects)

- **For Consumers**
  - Value for money in electricity bills - £200m+ savings on Tender Round 1
Vision for interconnection

Develop efficient levels of interconnection to maximise social welfare, integrate renewables and contribute to security of supply.

Developed “cap and floor” framework so business case driven by use of interconnector:
- Regime is contestable to non-TSOs
- Commercially viable projects
- Risk is shared between consumers and developers
- Strong incentives for efficiency
- Facilitates regulatory cooperation

Currently working on 7 live interconnector projects: from 4GW towards 12GW
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