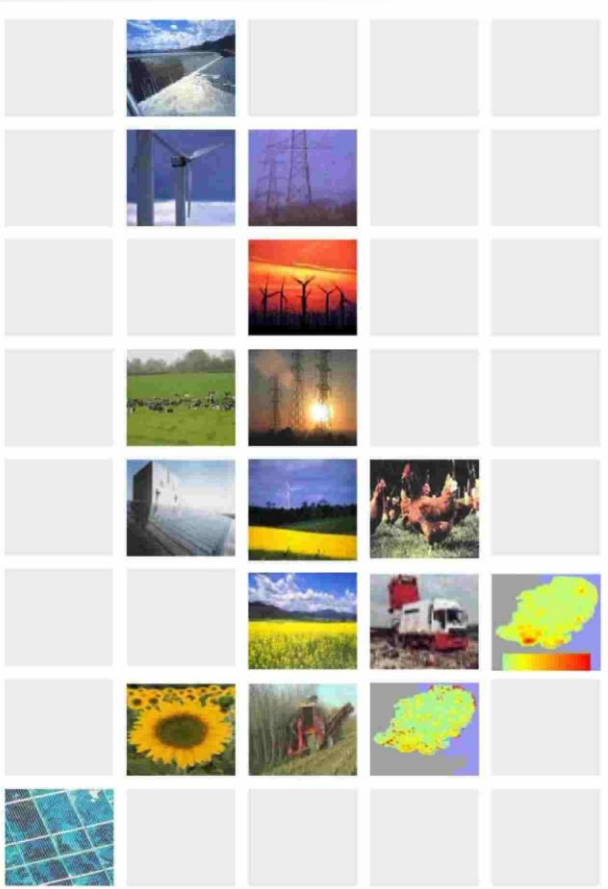
RPI-X@20 Emerging thinking on "A new regulatory framework for energy networks"



Robert Sansom
Imperial College
Academic workshop
23rd March 2010

Imperial College London

The new regulatory framework will encourage innovation on energy networks & the delivery of a sectoral solution to the delivery of a low carbon economy. Discuss.

Transformation of the UK's electricity market

- To meet the UK carbon reduction targets, the electricity market will need to be transformed.
- Fundamental economics of the system will change with integration of
  - low capacity value renewable generation and
  - new demand with disproportionally higher increases in peak over energy.
- Critical to this transformation is the UK's electricity networks.

The new regulatory framework will encourage innovation on energy networks & the delivery of a sectoral solution to the delivery of a low carbon economy. Discuss.

Transformation of the UK's electricity market (cont.)

- Under the BaU, there will be significant degradation in asset utilisation of generation, transmission and distribution network infrastructure.
- Hence networks will need to change from:
  - Meeting any reasonable expected demand with primarily passive operation.
- to:
  - Optimising network assets with the integration of demand and generation with active or real time network operation.

These changes will revolutionise both the network planning and operation and innovation is key

The new regulatory framework will encourage innovation on energy networks & the delivery of a sectoral solution to the delivery of a low carbon economy. Discuss.

Transmission example

- ENSG 2020 has identified massive investment required in transmission but this is based on the present SQSS (developed in 1948 and unchanged since).
- Present regulatory framework developed to support 20th century system.
- No regulatory incentive / pressure on transmission networks to develop efficient standards to support 21st century low carbon future.
- Radical changes in regulatory framework are needed to reflect new economics and to facilitate efficient network operation and investment.

The new regulatory framework will encourage innovation on energy networks & the delivery of a sectoral solution to the delivery of a low carbon economy. Discuss.

However, in terms of encouraging innovation…

- Today's networks owners are highly risk adverse and want stable and predictable earnings from their assets.
- They do not want innovation, particularly if it impacts their tried and tested basic business model with its focus on assets.
- This is because innovation implies risk, a very different business model and requires new capabilities.
- Networks owners will only do what they have to do and, consequently, innovation incentives will have little impact.

The new regulatory framework will encourage innovation on energy networks & the delivery of a sectoral solution for a low carbon economy. Discuss.

…and in terms of delivering a sectoral solution

- Networks are very parochial and timely progress on anything as intangible as a "sectoral solution for a low carbon economy" is unlikely.
- Proposed framework devolves considerable responsibility to individual networks which is likely to result in multiple "solutions".

The new regulatory framework will encourage innovation on energy networks & the delivery of a sectoral solution for a low carbon economy. Discuss.

We need to

- Agree a single high level ***vision*** for “tomorrow’s networks”.
- Identify ***what*** we want networks to do and by ***when.***
- Determine ***how*** through incentives and regulation.

Before

- Devolving responsibility for delivery to network owners.

The new regulatory framework will provide strong & targeted efficiency incentives on network companies for the long term. Discuss.

Efficiency incentives

- Critical to the success of the new regulatory framework is the need to change from today's asset hungry business model.
- This is required not just for efficiency but to ensure tomorrow's networks can be delivered.
- For example, if networks do not change the network reinforcement required is estimated at up to £40bn compared to £10bn (DPCR5 assumes £1.5bn).

The new regulatory framework will provide strong & targeted efficiency incentives on network companies for the long term. Discuss.

Efficiency incentives (cont.)

- Framework proposes:
  - New regulatory business plans.
  - Focus on outputs.
  - Lengthening of price control for some elements.
  - Equalising incentives for opex and capex.

- However:
  - Link between capex and profit will remain very strong.
  - Scope for opex savings is likely to be a lot less than capex and so forecasts will be important.
  - Need to understand the relationship between changes in capex and opex and whether any distortions may arise.