Renewable Electricity in Europe

Challenges for a Regulatory Framework

Outline

- A carbon free power sector – what is the scale of the required industrial transformation?
- Challenges for a regulatory framework
- Institutional and political aspects to the ’choice’ of regulatory framework(s)
- Structure of the morning session

The scale of the required industrial transformation (1)

- Scale of the environmental problem: 80 % reduction in green house gas emissions
- The time frame: pathway stabilising green house gases at 500 ppm by 2050
  - 40 years is a short time period
    - Build up of a supply capacity and developing new technology takes decades, additional decades for replacing the incumbent technology
      - Steam ships
      - Mobile telephony

The scale of the required industrial transformation (2)

- Scale of the power sector: size of carbon neutral capacity to be added by 2050
- Assume
  - continued or half the historical growth rate
  - replacement of all current fossil based production with carbon neutral capacity
  - all added capacity is carbon neutral
- Required new carbon neutral capacity
  - EU 27: 3,600-6,300 TWh
    - Current renewable power supply 134 TWh (excluding hydro)
  - World: 29,000 TWh

The scale of the required industrial transformation (3)

- Wind and solar power (example globally)
  - Capacity increases by 46 and 430 times give
    - 7,149 and 2,835 TWh by 2050 (a bit more than one third of demand for carbon neutral power)
  - Investment levels on par with the telecommunication sector in the OECD (mobile communication, internet etc)
    - 2025: investment in solar power: 137 billion USD
    - 2030: investment in wind power: 114 billion USD
    - 2003: investment in telecommunication (OECD): 130 billion USD

- *Transforming the power system to a carbon neutral one will involve building very large industrial structures in a short time period*.

Challenges for a regulatory framework (1)

1. Costs need to be kept down, incl costs to the consumer (keep rents down)
- → *The 'Cost Challenge'*
2. A cluster of technologies need to be fostered
   - Stern (2006, p. 257): "…no single technology, or even a small subset of technologies, can shoulder the task of climate change mitigation alone…policies must encourage the development of a portfolio of options".

3 These need to be fosted in parallell, not sequentially (time constraint)
- → *The 'Innovation Challenge'*

Challenges for a regulatory framework (2)

- Strength of this challenge depends on
  - Perception of the scale of the problem
    - Growth of the power sector
    - Mix of technologies (nuclear, CCS, Renewables, etc)
  - Importance given to industrialisation opportunities – world market immense

4. Need to realise the potential of the whole of EU (and Norway)

- → *The 'Resource Challenge'*

Challenges for the *process* of selecting a regulatory framework

- Vested interests, ideology and science opens up for the ’politics of policy’ – challenge to a transparent and truly evidence based policy process

- Unravel and highlight the political/institutional aspects of the ’choice’ of regulatory framework(s)

Structure of the morning session

- 0830-0850 Introduction (Staffan)
- 0850-0900 Comments
- 0900-0920 TGC in Belgium (Aviel)
- 0920-0940 TGC in the UK (Catherine and David)
- 0940-1000 TGC in Sweden (Staffan)
- 1000-1030 Discussion of the 3 TGC cases
- 1030-1100 BREAK
- 1100-1120 The Institutional feasibility of joint development of RES-E in the EU (Dominique)
- 1120-1140 Vested interests and the policy process in the EU (Volkmar)
- 1140-1200 Discussion of Dominique's and Volkmar's presentations