Electricity Network Tariffs and Benchmarking
John Swinscoe, Electricity Markets Expert
Astana, 19 June 2014
BUILDING PARTNERSHIPS FOR ENERGY SECURITY
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Agenda

• Regional Tariff Study
• Electricity Network Tariffs
Tariff Review

Regional Review of Tariffs
- Focus on methodologies for Electricity and gas
- Comment on alignment with EU practices

Tariff Seminar
- Tariff methodologies
- Tariff Design
Tariff Review

- All respondents said that their tariffs are cost based
- Most use historical costs for valuing assets and use straight line depreciation
- All say that tariffs are fully cost reflective
- Most say that there are no subsidies in the tariffs
- Some (Georgia, Kazakhstan, Moldova) are contemplating incentive regulation for transmission/distribution
Commercial & Residential Electricity Tariffs in PCs
Tariffs in EU15 and PCs

EU 15 and Partner Countries (Excl. Tax)
Tariff Seminar

- Held in Budapest 29 - 31 October
- Representatives from 7 of PCs
- Covered all aspects of tariff setting:
  - OPEX, CAPX and RoA
  - Tariff design
  - Investments
  - Public Service Obligations
  - Network Access
Tariff Seminar

Positive feedback on

- Relevance
- Quality
- Organisation
EU Tariffs

• In most EU countries production and supply are established through markets
• Network tariffs remain under regulation
• Most EU countries use or plan to use incentive regulation for tariffs
Costs plus regulation

- Depreciation
- Return on Assets (RAB X WACC)
- OPEX
- Inflation

Year 1 Year 2 Year 3 Year 4 Year 5
Incentive Regulation

- Depreciation
- Return on Assets: RAB X WACC
- OPEX
- CPI
- CPI - X
- Efficient OPEX

Year 1 Year 2 Year 3 Year 4 Year 5

Regulatory Period
Incentive Regulation

€

CPI

Efficiency Target:
CPI - X

Year 2
Year 3
Year 4
Year 5

Base Year
Incentive Regulation

€

Base Year

Year 2  Year 3  Year 4  Year 5

Target

Profit

Actual
Incentive Regulation

€

Base Year

Year 2  Year 3  Year 4  Year 5

Target  Actual  Loss
A benchmark is:

‘A standard or point of reference against which things may be compared’

*Oxford English Dictionary*

However:

- *There is no standard electricity network*
- *Therefore, network companies are compared against each other and the most efficient in the selected group becomes the benchmark*
International Benchmarking

Advantages:
• *Much larger sample to improve accuracy of results*
• *Similar standards applied to interconnected systems*

Disadvantages:
• *Differences in underlying costs (Labour, Finance etc)*
• *Differences in reporting regulation, tax etc. creates difficulties in comparing accounts*
• *Physical differences (terrain, climate etc) make direct comparisons difficult*
• *Differences in historical investment in maintenance and repair may distort costs.*
International Benchmarking

Cost drivers:
• Maximum Demand
• Length of overhead wires
• Length of underground cables
• Number of transformers
• Number of customers
• Connection density
• Reliability
## International Benchmarking

Comparison of results of different benchmark models:

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Source: International Utility Benchmarking & Regulation: An Application to European Electricity Distribution Companies

Department of Applied Economics, University of Cambridge
Cost elements of the electricity transmission tariffs in Central and Eastern European EU countries (in €/MWh)

Source: ENTSO-E 2012
Conclusions

• No longer widely used in transmission
  – Sample too small
  – Cost distortions caused by support for RES

• Used in distribution networks
  – Large sample size
  – Choice of the most relevant cost drivers not always obvious
  – Choice of model is important (DEA most common)
  – Used as a confidence test on tariffs rather than as a tariff setting methodology
Demand can be difficult to predict...

England Vs Germany 1990, World Cup Semi-Final, Kick Off 19:00

- 1600 MW Half time
- 1600 MW Full time
- 300 MW End of Extra time
- 2800 MW Following penalty shoot-out and end of TV transmission