Review on Long-Term Trends of North-West European Power Market

- Quick update

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Introduction

• To summarize the trends and differences of assumptions among various power market studies and identify uncertainties in market drivers.

• 25 Studies
  – World Energy Outlook
  – EU Reference Scenario, TYNDP
  – Nordic Energy Technology Perspectives
  – Kraftmarkedsanalyse (NVE), Langsiktig markedsanalyse (Statnett), Elpris outlook (Dansk Energi), Scenarier över Sveriges energisystem
  … and more

  – 62 Scenarios
Scenario Topology

- **Predictive**
  - “What will happen?”
  - Baseline, current, or reference

- **Explorative**
  - “What can happen?”
  - Price or policy variation

- **Normative**
  - “How can a certain target be reached?”
  - Emission or climate target
Summary
Power prices

EUR-2018/
MWh

EUR-2018/
MWh

Norway
Sweden
Denmark
Finland
Norway
Sweden
Denmark
Finland
Norway
Sweden
Denmark
Finland
Norway
Sweden
Denmark
Finland

UK
Germany
France
UK
Germany
France
UK
Germany
France
UK
Germany
France

2020
2030
2040
2050
2020
2030
2040
2050
Coal prices

USD-2018/ton coal

2020 (n=37)
2030 (n=37)
2040 (n=29)
2050 (n=13)
Carbon prices

2020 (n=41)

2030 (n=40)

2040 (n=34)

2050 (n=18)
Conclusions

• Agree on increased power, fuel and carbon prices
  – but opinions on the range vary
• Normative scenarios show a distinct cluster of high carbon prices
  – but no clear pattern observed in terms of fuel prices

Recommendations for future outlooks

✓ Increase transparency
  – for example: justify assumptions, indicate input references
✓ Stay critical towards in applied input source
  – WEO and EU Reference Scenario are the main reference
  – Re-examine the linkage between demand, supply and costs
✓ Broaden the scenario focus
  – for example: changing of climate and weather data
✓ Display power price volatility, in addition to annual average
  – valuable information for investments
✓ Distinguish between short- and long term impacts
  – exogenous vs endogenous investment modelling
Takk!