Implications of political and policy decisions to energy security

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# TABLE OF CONTENT

WEC Issue Monitor – trends that shape energy transition

Implications of the European Union energy policy challenges
World Energy Issues Monitor

Critical Uncertainties:
What keeps Energy Leaders awake at night

Action Priorities:
What keeps Energy Leaders busy at work

World Energy Issues Monitor 2018 - Global Map - Understanding the Map
Developments in Europe
World Energy Issues Monitor – Critical Uncertainties

World Energy Issues Monitor 2018 - Europe - Critical Uncertainties

- Critical uncertainties: what keeps energy leaders awake at night
- Action priorities: what keeps energy leaders busy at work

Digitalisation: Time tracking from 2010 to 2018

- Hydrogen Economy
- Terrorism
- CCS
- Large-scale accidents
- India Growth
- Exchange Rates
- Unconventionals
- Energy-water nexus
- Land Use
- Coal
- Energy Access
- Energy Affordability
- Hydro
- Decommissioning
- LNG
- Nuclear
- Biofuels
- China growth
- Sustainable Cities
- Decentralised Systems
- Russia
- Middle-East dynamics
- Trade Barriers
- US Policy
- Innovative transport
- Electric Storage
- Data AI
- IOT Blockchain
- Commodity Prices
- Climate Framework
- EU Cohesion
- Electricity Prices
- Renewable Energies
- Energy Efficiency
- Economic Growth
- Regional Integration
- Talent
- Energy Subsidies
- Market Design
- Mobile
- Cloud
- 2010

World Energy Issues Monitor 2018 - Europe

- Digitalisation: Time tracking from 2010 to 2018
- Associated Digitalisation Issues

Impact

Less urgent
More urgent
World Energy Issues Monitor – Cyber Threats

World Energy Issues Monitor 2018 - Europe

Cyber Threats: Timetracking from 2016 to 2018

Uncertainty

Impact
Challenges of the Energy Transition

Decarbonisation requires even better technologies to enter to the scene to reach targets of the Paris Agreement.

Decentralisation introduces new paradigm around energy security, where governments role is not so relevant anymore.

Digitalisation offers new possibilities, but is largely hindered for customers today – their involvement will change demand profiles.

Market design should address all those challenges in adequate manner – but does it?
Implications of the EU Energy policy challenges
Energy Dependence of the EU countries in 2016

Source of Data: Eurostat
Loss of Load Expectation (in hours/year) in 2025 forecasted by ENTSO-E

Estonia is forecasted to be in average for 8 hours/year without adequate power supply.

Finland is forecasted to be in average for 24 hours/year without adequate power supply.

Poland is forecasted to be in average for 21 hours/year without adequate power supply.

Source: ENTSO-E
Observations

- Extremely high prices (up to 3000 EUR/MWh) are expected after 3 years during cold winter days.
- Situation will be even more difficult after desynchronisation from Russian power grid.
- Without any action will Baltic States after 2030 struggle to cover even its average consumption.

Investments are needed into new peak power capacities, but current market incentives and market design do not encourage such investments.
Developments in the EU legislation are not supportive to investments either

Number of different approaches to market design (to capacity markets) are allowed by upcoming EU Power Market Design legislation, that makes peak power investments in the energy-only market even more difficult.

The Baltic region is also influenced by the capacity and energy markets of Russia (incl. Kaliningrad region).

Capacity markets are intended to cover capital costs of power plants. Unfortunately this distorts the competition in international power markets.
Financing Schemes for Energy Security investments are developed via Power Market Design

- Energy-only market with emergency reserve capacities (Germany, Estonia)
- Energy-only market with emergency and peaking capacities (Belgium, Finland, Sweden)
- Capacity markets (France, Italy, Great Britain)
- Capacity payments (Spain, Poland, Portugal, Lithuania, Russia)
Reality of internal EU power market designs
New, potentially decentralised and off-grid technologies can help to solve some issue

New technologies can play a decisive role in tackling market transition:
- Cost of solar PV and wind are getting cheaper
- Digitalisation brings also Demand Side Response to market
- Storage technologies can provide part of the response (pumped storage, batteries – both large and small scale)
- Hydrogen technologies can provide solutions by 2030 in transport

New Energy Market designs (legislation) should not hinder those opportunities
To conclude

New technologies are leading the energy sector towards an Energy Transition, that changes also perceptions towards energy security.

Market Design is the key to allow or hinder the introduction of new solutions to enter the national energy market.

Current developments in the EU legislation allow a large variety of solutions on market design, but may create even more distortions to power markets and to increase prices.
Thank you

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