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The Changing Energy Market and Its Regulation

Dr. Ilka Lewington / Dr. Konstantin Petrov,
DNV GL - Energy, Germany

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Major Trends / Overview

The development of the electricity industry in the last decade has been dominated by political, technological and economic trends.

Political

Political trends reflect the major elements of the European energy policy.

- Liberalization, Gas & Electricity Directives (and related legal and regulatory framework and arrangements)
- Regional integration and harmonization
- Climate policy (support of renewable energies, CO2 emission trading, energy efficiency)
- Security of supply

Technological

Technological trends are mainly driven by climate policy and technological progress.

- Enhancement of renewable technologies
- Increasing efficiency (conventional generation)
- End-use energy efficiency
- Network technology (DC)
- Electric vehicles
- Dispersed generation
- Smart metering / smart grids
- Energy storage

Economic

Economic trends are mainly driven by general economic development, sector specifics and energy policy.

- Ageing assets & replacement needs
- Increasing regional trade but still fragmented markets
- Regional demand growth
- Regional harmonization
- Corporate consolidation
- Convergence of gas and electricity markets

Major Trends / Example EU RES Policy

EU summit 2007 (2020 goals)

- Reduction of Greenhouse gases by 20%
- Increase of share of renewable energy in total energy use to 20%
- Increase of energy efficiency by 20%
- Increase of share of biofuels in total transport fuels to 10%

EU summit 2014 (2030 goals)

- Reduction of Greenhouse gases by 40%
- Increase of share of renewable energy in total energy use to 27%
- Increase of energy efficiency by 27%



Major Trends / Sector Impact

The changes driven by the sector trends require prompt and effective response to ensure functional markets, adequate regulation and institutional coordination.

Functional Markets

- Interconnections between countries/ regions
- Implementation of target models
- Further develop and implement market integration
- Market-based incentives for generation investments
- Applying effective market monitoring

Adequate Regulation

- Incentives to encourage investments
- Market-based integration of renewables
- Integration of demand response
- Effective unbundling in the context of new business models
- Tariff reforms
- Innovation incentives
- Cost benefit analysis

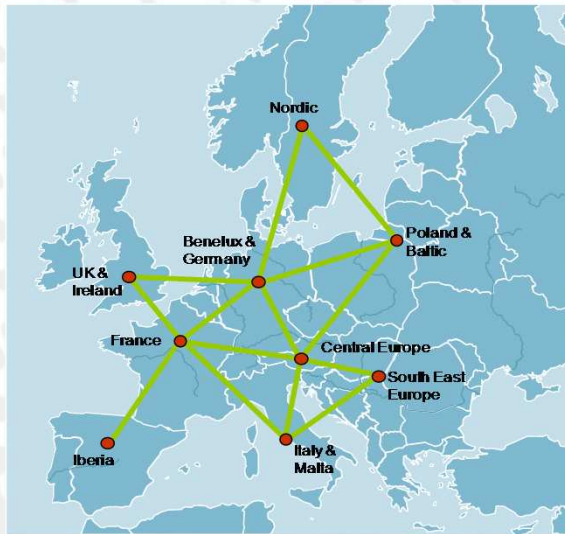
Institutional Coordination

- Strengthening regional coordination
- Supra-national institutions (for example in EU ACER, ENTSO-E)
- Institutional framework to enhance coordination
- Promote uniform regulatory framework across the countries

Challenges / Example of Decarbonisation Impact

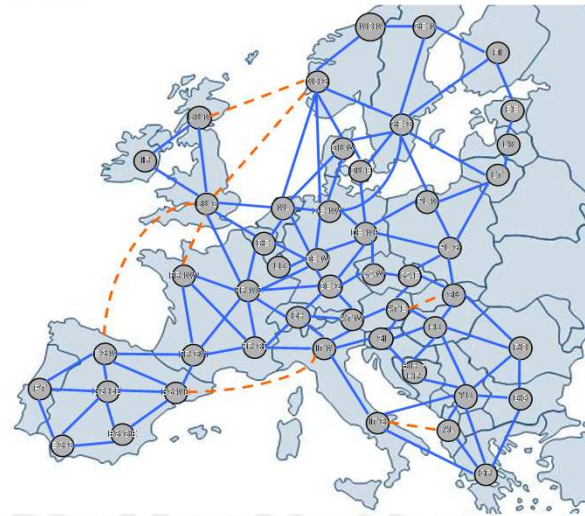
The reduction targets for green house emission set by the EU have significant impact on the transmission infrastructure in Europe. This impact was studied in the projects Roadmap 2050 and Power Perspective 2030 initiated by the European Climate Foundation.

Roadmap 2050
9 regions for the EU-27 (+ NO, CH)



● Centre of gravity

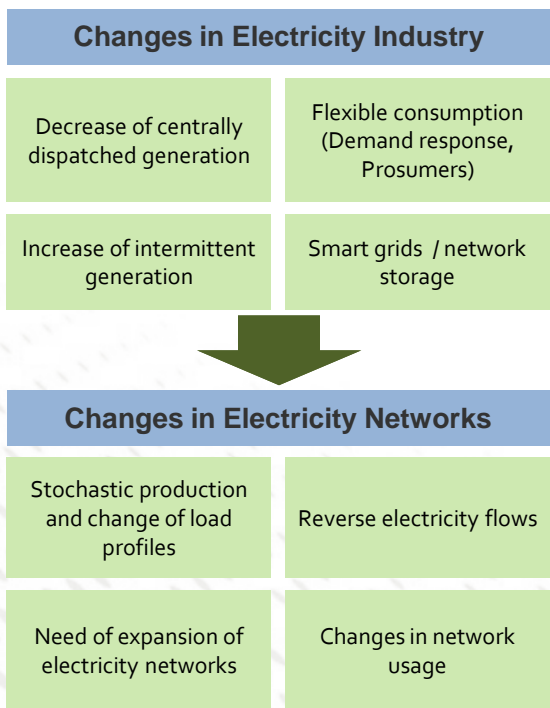
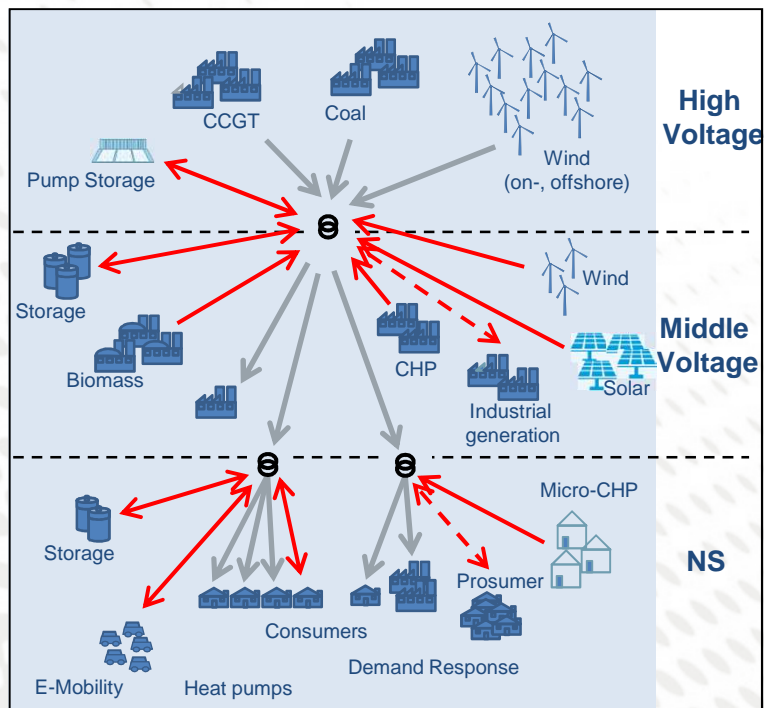
Power Perspectives 2030
48 nodes (EU-27 + NO, CH, Western Balkans)



Source: KEMA / ICL: Road Map 2050 and Power Perspective 2030

Challenges / Network Operators

The integration of renewable energy presents a challenge for the network operators.



Challenges / Innovation

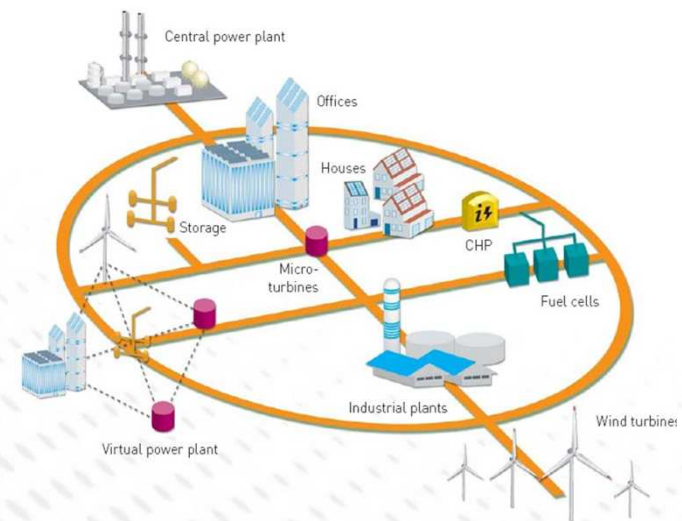
Apart from significant investments into 'traditional' generation and grids, substantial innovations are required to achieve the desired outcomes

Example: Smart Grids

Integration of renewable sources and flexible demand response requires new technologies (smart grids)

A smart grid is a combination of modern information and communication technologies with state-of-the-art grid assets

Smart grids allow transport of energy and information in a bidirectional way, facilitating consumer energy savings, demand response and high shares of DG/RES and electric mobility



New Business Models

- Network operators have started to re-shape their business models
- Diversification towards contestable activities (storage, P2G, transportation, E-mobility, CNG/LNG)
 - Complementary to the traditional transmission / distribution (diversification and scope effects)
 - Contribute to the commodity demand which in turn may encourage network demand (scale effects)
- Such involvement can provide various benefits in terms of infrastructure development, network security and increase competition
- Potential conflict with the unbundling requirements

Regulatory Impact (1)

Regulation	Key Features	Key Issues
New technologies / New business models	With the development of new technologies, regulated companies are interested to extend their business towards contestable activities and provide a mixture of services, i.e. regulated and contestable services.	The regulatory framework should not create a barrier and should ensure that customers and market participants benefit to the largest extent possible from the range of services. However the fundamental principles of unbundling will remain valid, potential adaptation of the unbundling rules?
Investments	The growth of RES requires expansion of the networks and new investments.	Regulatory approval of large capex volumes may cause price increases. Sometimes discretionary capex cuts in the process of regulatory reviews. The decisions may lack sufficient argumentation and background analysis.
RES Incentives	Regulators are committed to encourage RES production, usually by using feed-in tariffs. The above-market cost needs to be incorporated into the end-user prices.	The above-market costs usually charged via the distribution companies. Often the debates on their inclusion in the end-user prices driven by consideration of social affordability and political acceptance of end-user prices.
Network charges	Network tariffs typically differentiated by voltage levels, largely based on energy charges, payment liability mainly with load network users.	Increase of embedded generation, reverse flows, prosumers, storage require tariff reforms. Redistribution effects and different, often conflicting views of stakeholders.

Regulatory Impact (2)

Regulation	Key Features	Key Issues
End-user prices control	In several countries end-user prices subject to regulatory control. Where retail markets have been deregulated usually subject to continuous monitoring. They are an area of high political and social sensitivity.	Often conflicting views between companies, regulators and general public. Regulators often criticized that (1) end-user prices are high, by government and general public; and (2) end-user prices cannot recover the necessary costs, by companies.
Quality of Supply / RES impact	Regulators apply quality standards and incentive schemes to encourage quality of supply.	The key issues relate to the quality of data, level of quality improvement targets and expected speed of improvement, interaction with the capex plans, RES impact.
Cost of network losses / RES impact	The cost of losses is determined by the allowed physical (and eventually commercial) losses and the price to procure each kWh of losses. The efficient cost of losses are included in the allowed revenue.	Often emotional debates between regulators and companies. The major conflicting views refer to the level of losses, reset schemes, RES impact.

Other Issues

Public discontent

- Affordability of energy prices
- Mistrust to new technologies and environmental policy
- Due to the complexity of the industry and market structure often misinterpretation of causalities / reasoning
- Emotional reactions

Political interventions

- Populism via promises to limit price increases
- Pressure on regulatory commissions
- Ad-hoc reactions / unbalanced statements in the media
- Missing continuity

Insufficient regulatory capacity

- Knowledge gaps
- Missing motivation
- Fluctuation
- Low institutional budgets

Unconstructive policy of companies' management

- Out-of-context insistence
- Strategic gaming
- Ignorance
- Cultural clashes

THANK YOU FOR YOUR ATTENTION!



- Dr. Konstantin Petrov, Dr. Ilka Lewington



E-mail: konstantin.petrov@dnvgl.com; ilka.lewington@dnvgl.com



Web: www.dnvgl.com