Future Challenges for the electricity supply by municipal utilities

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Content.

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Power market and market power in Germany

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Margin development in the classical energy value chain.

Especially municipal utilities are affected by decreasing margins.

	Until today		Future expectations		
	1998-2010	Comments	Outlook	Market share	Comments
Generation	↗	• Short price war (liberalization) • Quick consolidation • Generation oligopoly (80%)	↗	Big 4 / Municipal utilities	• Especially municipal utilities are affected by decreasing margins • Additional margins might come from the generation sector and from additional products beyond the classical energy value chain
Transmission	→	• Regulated segment • Safe and easy to plan margin • Policy aim: constant decrease of system usage fees	↘		
Distribution					
Sales	↘	• Increasing competition • High number of products • Decreasing margin	→		

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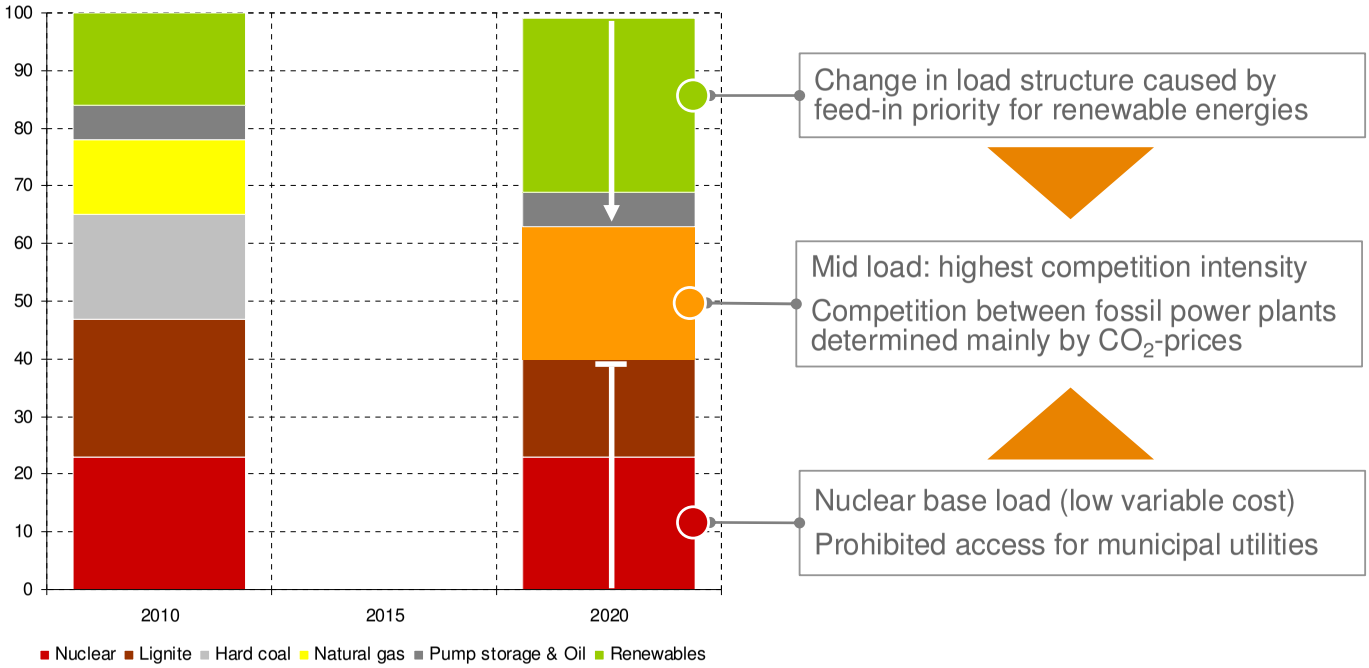
The classical target market for investments by municipal utilities comes under pressure.

Market share of power generation [%] and reduction of fossil fuel production

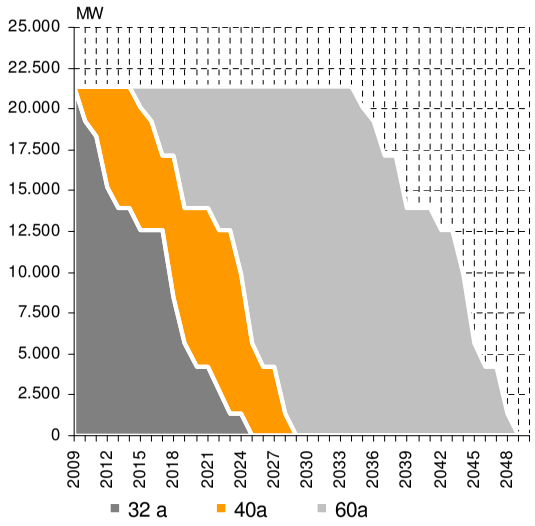


Extended life times for nuclear power plants

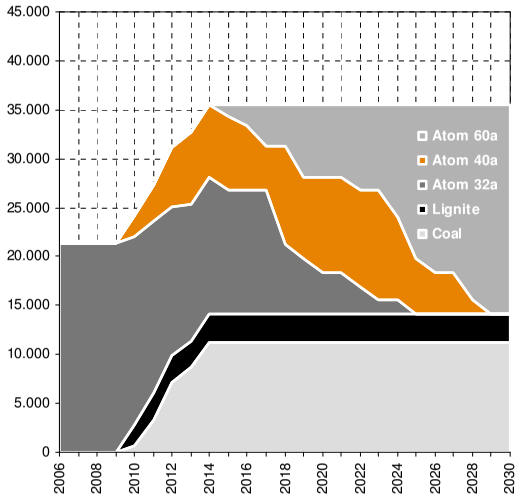
Effect of extended nuclear operation time.

Considerable base load capacity surplus until 2025.

Different nuclear phase-out pathways



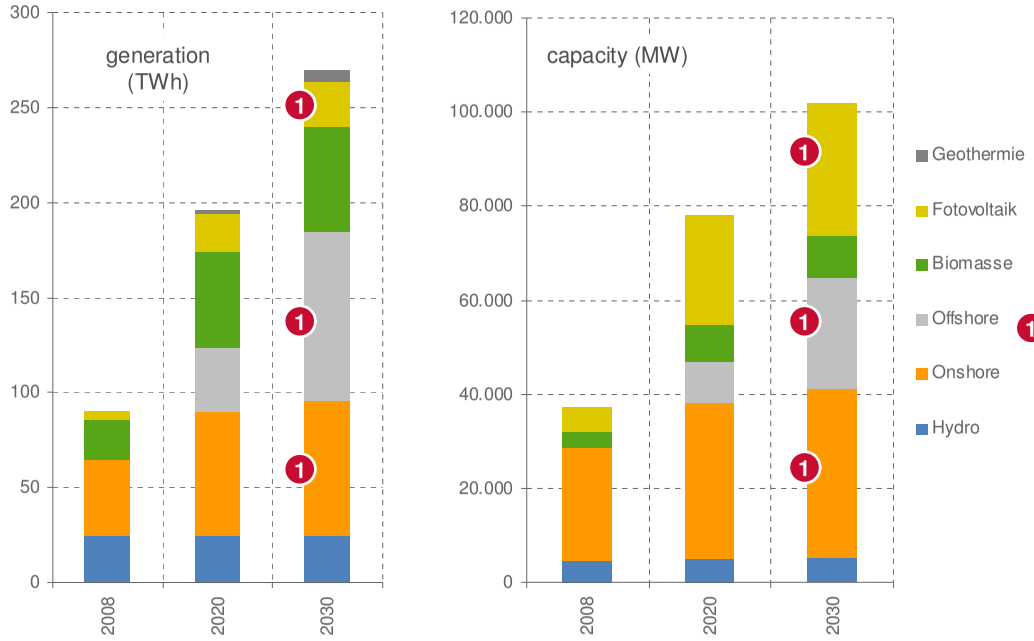
Substantial base load socket [MW]



Expansion of renewable generation

Scenarios for the Development of Renewable Energies.

BMU pilot study 2009.

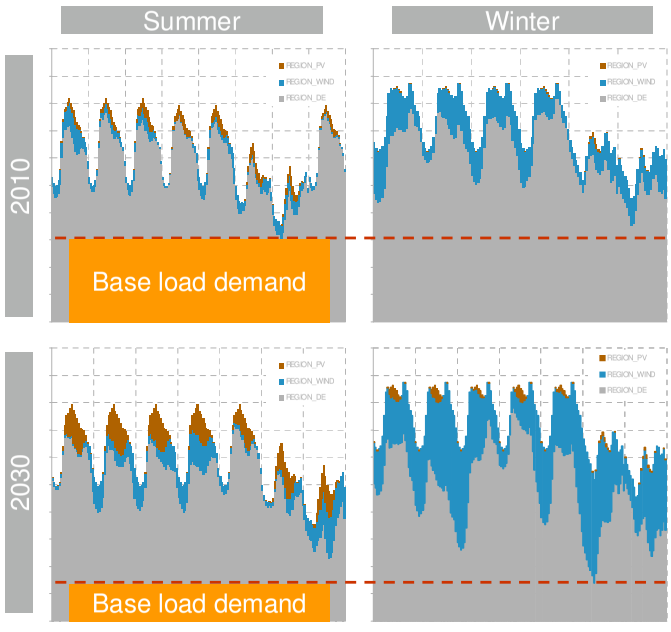


The challenge:

- 30% - 40% of generation will come from renewable energy
- The RES-capacity equals 70% - 90% of today's capacity
- About 80% of that capacity will be fluctuating (2030)

Effects of renewable energies on future load structure .

Sample weeks for year 2010 and 2030.



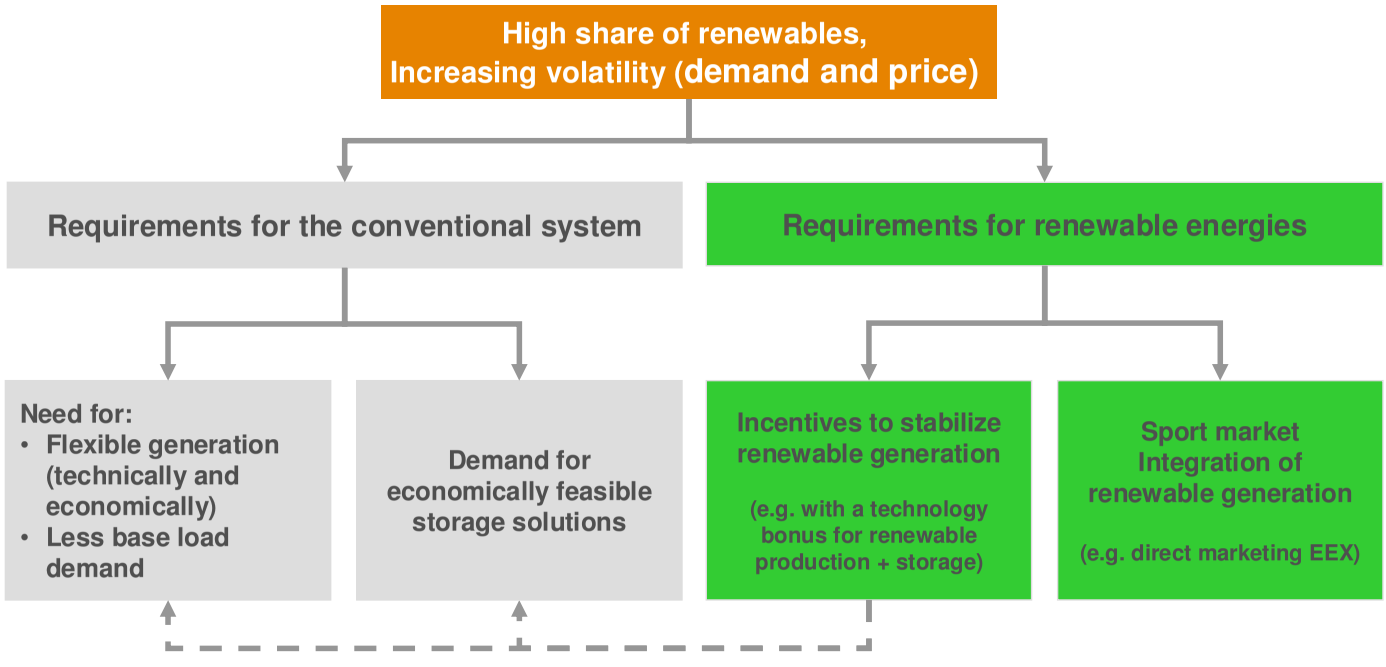
Expected developments

- Fluctuating renewable energy will continuously alter the structure of the residual load (seasonal patterns).
- The fluctuating feed-in of renewable energy will increasingly affect the dispatch of all conventional generation, especially demand for base load is expected to decrease.
- The increasing volatility of the residual load will negatively affect the financial performance of lignite and hard coal power plants - despite their technical ability to ramp generation.
- The demand for technically and financially flexible power plants will increase.
- Storage technologies become relevant to level out fluctuations and secure system stability.

Strategic options for municipal utilities

Requirements in a future generation market.

Climate change mitigation as key driver for a massive expansion of renewable generation.



Conclusions.

There is no ‘one-size fits-all’ strategy for municipal utilities.

Conventional generation	Base load	Threat of ruinous competition with lignite and nuclear (extended nuclear life times) → Invest only in case of a strong USP (e.g. CHP, co-firing option)
	Other (CCGT/GT)	Conventional generation might become displaced by fluctuating renewable generation → Invest in flexible generation with possible revenues beyond classical power sales
Renewable generation	Large-scale	Offshore wind holds major opportunities but also risks → Invest deliberately in offshore wind (e.g. cooperation with planners/other utilities)
	Decentralized	Municipal utilities are predestined to profit from a more decentralized power system → Develop/optimize multi-utility structures & novel concepts (e.g. decentralized CHP)
Other options (examples)	Energy storage	Storage will benefit from increasingly volatile load structures → Look into storage options and combinations with renewable/conventional generation
	Smart grids	‘Last mile’ (distribution grid) could become the backbone of a future smart grid solution → Develop options in metering, billing, energy management and energy services

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