

Between planned and market economy: How much government intervention does the “Energiewende” need?

Session 1 „Coordinating the Energiewende: Regulatory challenges, trade-offs and responses“

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1) Setting GOALS

Fictional extreme Position No. 1:

„100 % RES until 2020: No matter what, because macro-economic costs will otherwise increase even further...“



Fictional extreme Position No. 2:

„Renewables? 100%? Never! It's technically and economically irrational....and the German industry will be under threat...“

2) Reaching Goals: INSTRUMENTS (system coordination/incentive mechanisms)

1. Market forces (via competition)
2. Hierarchies (via command & control)
3. Networks (via cooperation)

remaining questions :

How much,...
of which,...
and (until) when...

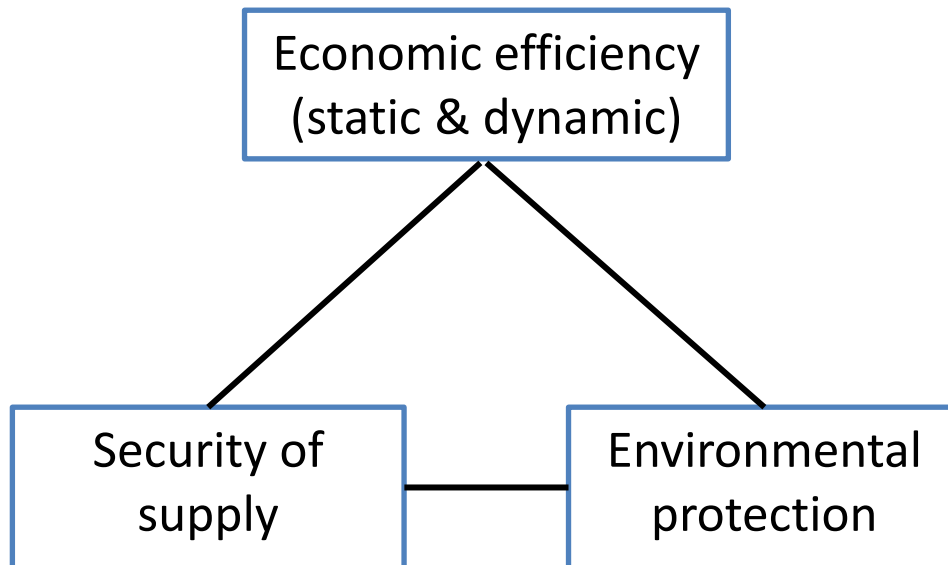


→ **Governance-Continuum**

Instruments need to be evaluated under the special conditions of the socio-technical system in transition

- Sustainable evaluation: For efficient and effective achievements of goals the following criteria need to be addressed simultaneously:

Classical criteria:



Additional criteria:

- Transaction cost efficiency
- Adaptive efficiency
- Distributional impacts
- Social acceptability
- Political feasibility
- System Complexity (reduction?)
- ...

- Research Goals and Approach:

1. Interdisciplinary (economic, sociologic, engineering, policy perspectives...)
2. No prioritization of sub-goals: equality of economic, ecologic and social aspects.

More market or more state? The case of ensuring security of supply (SoS) in Germany

Capacity Mechanisms (CMs)	State-based elements (centrally organized)	Market-based elements (decentral organized)
<ul style="list-style-type: none"> Adaption of existing markets (e.g. control/balancing) Introduction of new markets (e.g. capacity markets) Conditional capacity payments (selective markets) Strategic reserve 	<p>demand defined by TSOs</p> <p>central capacity markets: demand defined by regulator</p> <p>definition of technical requirements</p> <p>definition of demand and technical requirements</p>	<p>competitive reserve bidding</p> <p>decent. capacity markets: via market participants</p> <p>competitive reserve bidding</p> <p>-</p>
<p>CMs stimulate operation of (fossil) back-up power plants but</p>	<p>... are hard to design, revise or abolish, ... fail to address the diverse other options for SoS, ... are unlikely to be cost-effective in context of the ‚Energiewende‘</p>	

Better: a policy mix to provide the security of supply

Renewable power plants:

- Fixed premiums and quotas only partly helpful

Grids and storage:

- Regulation of grid extension
- Design of grid charges
- R&D support

Demand-side management

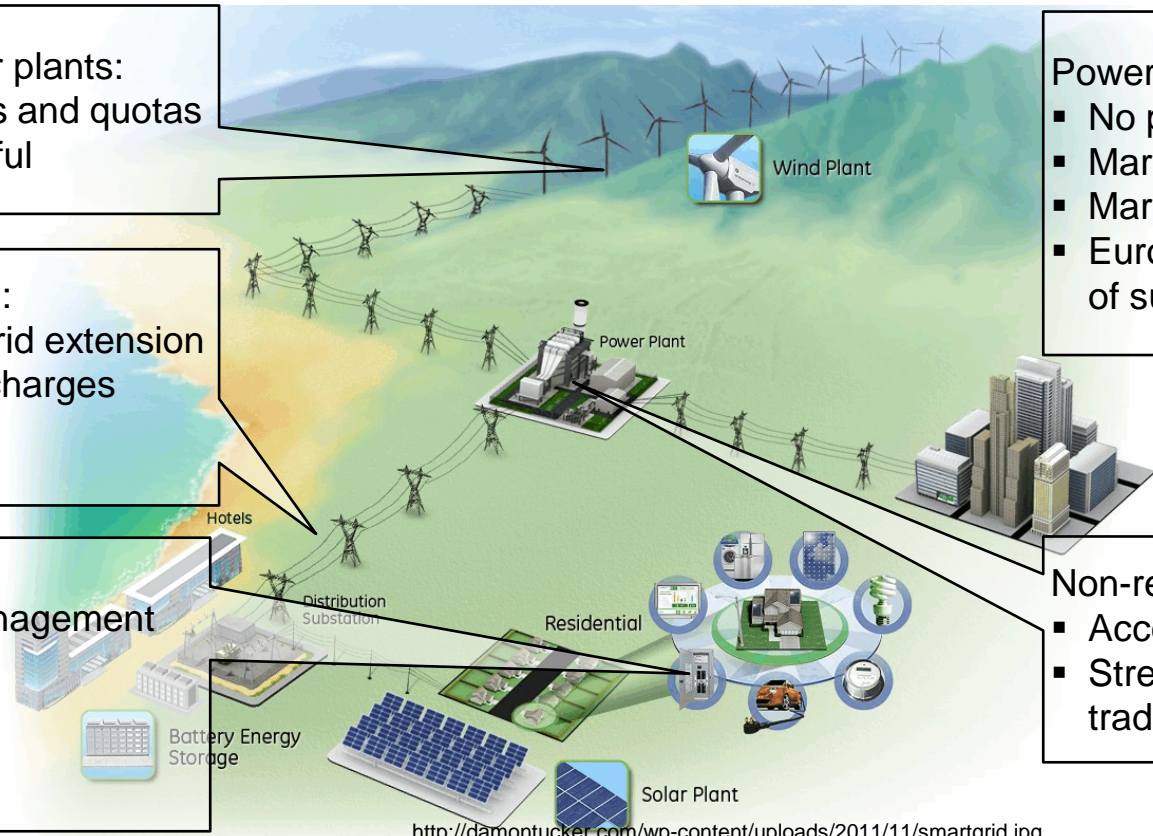
- Load reduction
- Load shedding
- Load transfer

Power market:

- No power price caps
- Market liberalization
- Market splitting
- Europeanization of security of supply

Non-renewable power plants:

- Acceleration of permitting
- Strengthening of emissions trading



<http://damontucker.com/wp-content/uploads/2011/11/smartgrid.jpg>

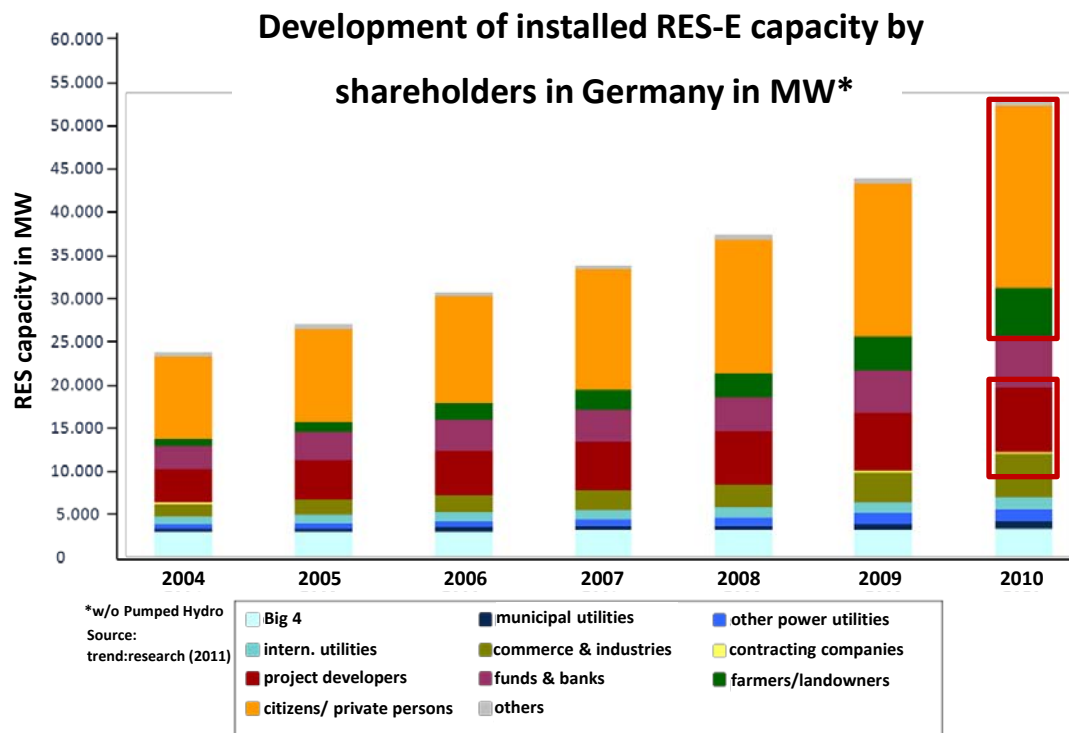
Promising avenues for further research:

- ➔ Designing a sustainable policy mix to secure the supply
- ➔ Designing deliberative policy processes to cope with uncertainties

More market or more state? The case of direct-marketing (DM) of RES-E in Germany

Market Integration Regime	State-based elements (centrally organized)	Market-based elements (decentral organized)
<ul style="list-style-type: none"> • Integration via Power Exchange • Integration via load serving entities (LSE) • Support via floating premiums • Support via fixed premiums • Pricing mechanism for monopsons 	<p>definition of pricing mechanisms/premiums</p> <p>definition of min. VRE-share in portfolio</p> <p>definition of premium parameters</p> <p>definition of premium parameters</p> <p>state sets central demand for RES-E & price</p>	<p>competitive bidding</p> <p>tradable RECS</p> <p>market-driven curtailment via (weak) price signals</p> <p>market-driven curtailment via (strong) price signals</p> <p>auctions for collection of decent. knowledge/information</p>
<p>Decentral DM makes sense for dispatchable technologies, but...</p>	<p>... not for variable renewable energies (VRE), ... not via the central power exchange, ... b/c VRE threatened by high risk premium for cost of capital</p>	

Better: RES & DM-support policy mix fitting the socio-technological requirements



Approx. 80 % of RES-capacity is owned by pps., farmers, pds. & SME

These actor-types ARE USUALLY NOT ABLE to apply adequate risk diversification measures for DM:

- No power market background/experience
 - Single technology investments
 - no portfolio of mixed technologies
- leads to high risk premiums for costs of capital for VRE
- will increase support costs
- although RoE expectations are relatively low for these actor-types

Promising avenues for further research:

- ➔ Which market risks (price & volume) should (really) be transferred to actors
- ➔ Designing adequate policy instruments to cope with high uncertainties

How much government intervention does the “Energiewende” need? – Some conclusions

- Governance system should be designed with respect to the socio-technical system and actors characteristics
- Markets are instruments to organize systems, but no goal itself
- Power „markets“ have always been subject to strong government intervention (and probably always will be)
- In the context of the “Energiewende” neither markets nor government regulation are the most efficient governance approach per se, i.e. no simple solutions à la market-only vs. state-only
- Policy mix needed to address diverse sources of market and policy failure
- Incentive schemes should dynamically adopt to changing framework conditions

**Thank you very much in the name of the whole team
for your attention...**

...Questions?

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