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

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

Matthias Reeg[1],

Erik Gawel[2], Klaas Korte[2], Paul Lehmann[2], Sebastian Strunz[2], Robert Brandt[3], Dörte Ohlhorst[3], Miranda Schreurs[3], Sibyl Steuwer[3], Kerstin Tews[3], Sven Heim[4], Philipp Massier[4], Dominik Schober[4], Sandra Wassermann[5]

[1]DLR Institut für Technische Thermodynamik - Systemanalyse & Technikbewertung

[2] Umweltforschungszentrum Leipzig (UFZ),

[3] Freie Universität Berlin, Forschungszentrum für Umweltpolitik (FFU)

[4] Zentrum für Europäische Wirtschaftsforschung (ZEW)

[5] Universität Stuttgart, Zentrum für Interdisziplinäre Innovations- und Risikoforschung

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Often confused: goals and measures

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 thread…“

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

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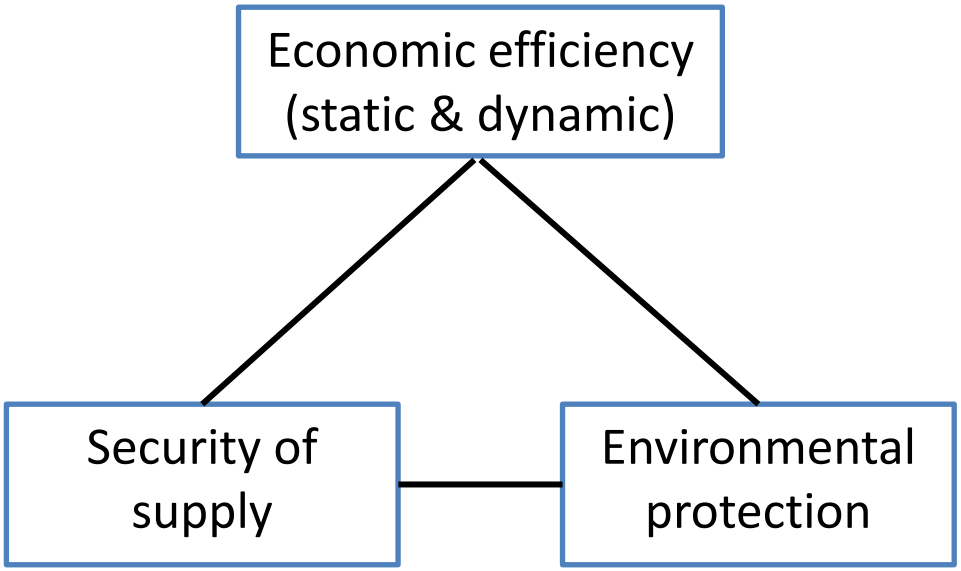
Instruments need to be evaluated under the special conditions of the socio-technical system in transition

- 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.

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

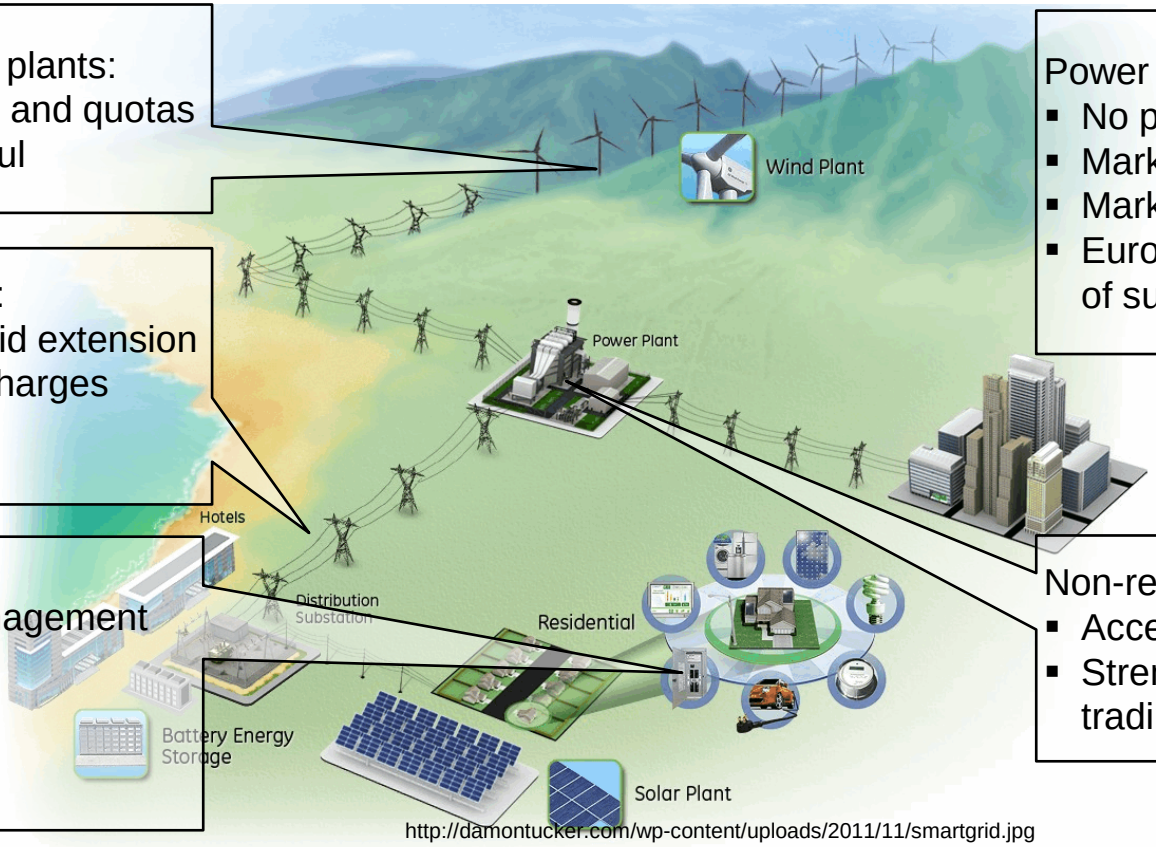
Capacity Mechanisms (CMs)	State-based elements (centrally organized)		Market-based elements (decentral organized)
• Adaption of existing markets (e.g. control/balancing)	**demand defined by TSOs**	⟺	**competitive reserve bidding**
• Introduction of new markets (e.g. capacity markets)	**central capacity markets: demand defined by regulator**	⟺	**decent. capacity markets: via market participants**
• Conditional capacity payments (selective markets)	**definition of technical requirements**	⟺	**competitive reserve bidding**
• Strategic reserve	**definition of demand and technical requirements**	⟺	-
CMs stimulate operation of (fossil) back-up power plants but ….	… 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‘		

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



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

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

Promising avenues for further research:

➔ Designing a sustainable policy mix to secure the supply

➔ Designing deliberative policy processes to cope with uncertainties

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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)
• Integration via Power Exchange	**definition of pricing mechanisms/premiums**	⟺	**competitive bidding**
• Integration via load serving entities (LSE)	**definition of min. VRE-share in portfolio**	⟺	**tradable RECS**
• Support via floating premiums	**definition of premium parameters**	⟺	**market-driven curtailment via (weak) price signals**
• Support via fixed premiums	**definition of premium parameters**	⟺	**market-driven curtailment via (strong) price signals**
• Pricing mechanism for monopsons	**state sets central demand for RES-E & price**	⟺	**auctions for collection of decent. knowledge/information**
Decentral DM makes sense for dispatchable technologies, but…	… not for variable renewable energies (VRE), … not via the central power exchange, … b/c VRE threatened by high risk premium for cost of capital		

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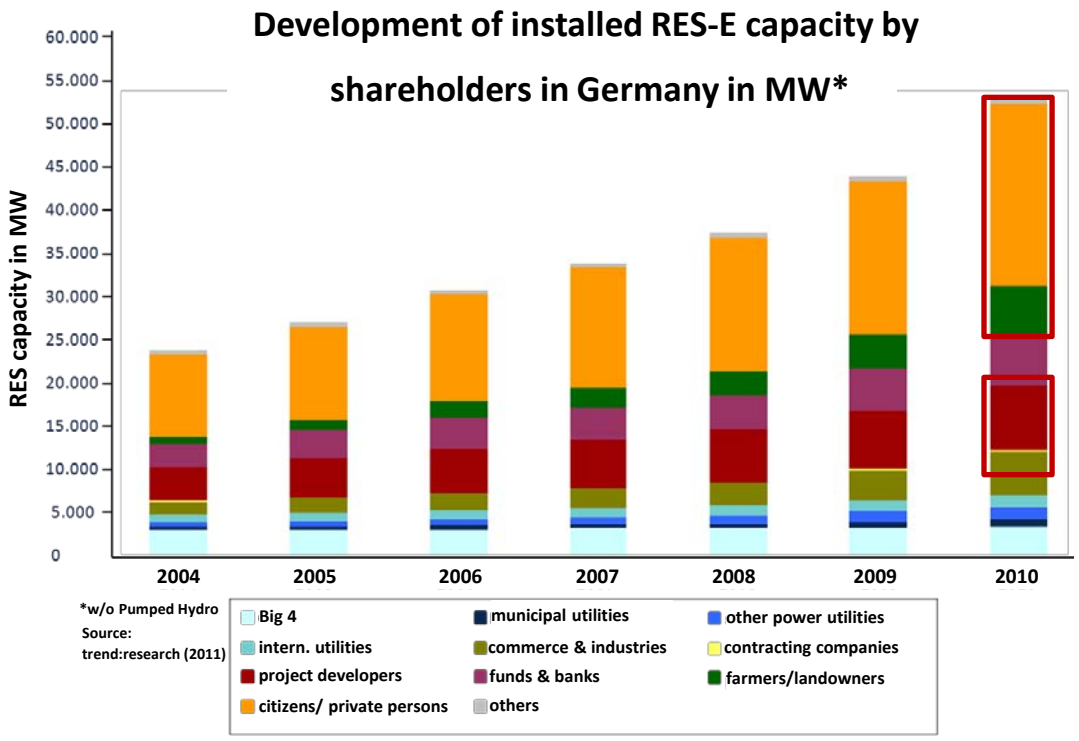
Better: RES & DM-support policy mix fitting the socio-technological requirements



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

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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

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

…Questions?

Dipl. Ing. **Matthias Reeg**

Telefon 0711/6862-282 | Telefax 0711/6862-8100 | matthias.reeg@dlr.de

www.DLR.de