

Challenges for the Market Design

A TSO's perspective

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Dr. Friedrich Kunz

Some observations



The changing energy landscape leads to ...

- ... an increase of annual average transport km/kWh
- ... an increase of number of 'highly used' transport routes
- ... a change from 'classical highly used' transport routes to a variety of different ones
- ... an increase of ramps on individual transport routes
- ... quick changes between different transport routes
- ... an increased usage of international transport routes

Why a problem?



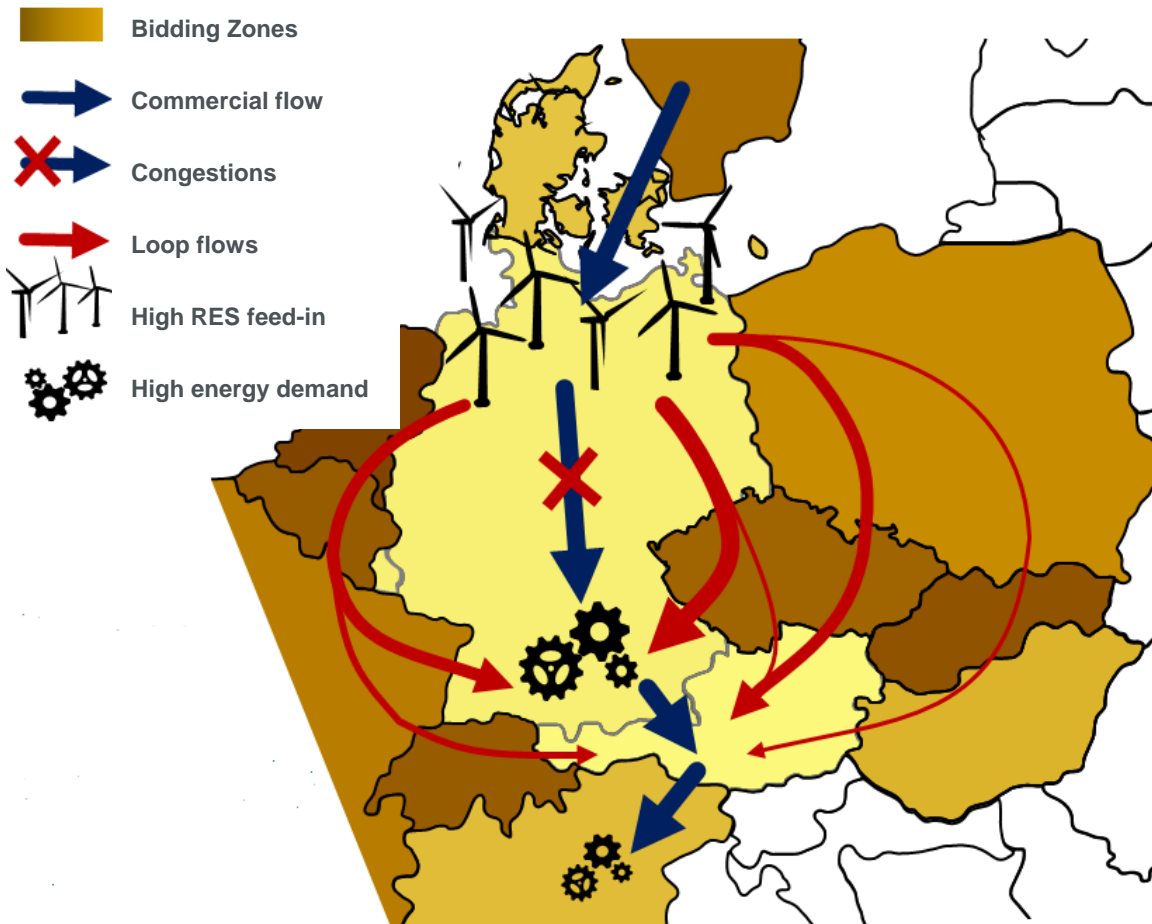
The complexity of the system ...

Why a problem?



... is not fully captured in the market.

Some effects



High North-South flows due to a diverging spatial distribution of generation and demand, and cross-border market flows.

Electricity flows seek the path of least resistance.

Large market zones lead to high internal and loop flows in neighbouring grids not reflected in market.

Relevance of loop flows and internal congestions increased.

Some future trends



Trend 1: Renewables

How to ensure an efficient integration of increasing renewables?

Trend 2: Europeanization

How to ensure an efficient EU integration while accounting for national specifics?

Trend 3: Market vs. physics

How long will the detachment of markets and physics be acceptable?
When is the tipping point reached?

Trend 4: Flexibility

How to provide consistent incentives for flexibilities across markets/services?

Trend 5: Sector coupling

How to ensure consistent incentives across sectors?

Trend 6: Trading closer to real-time

How to ensure efficient redispatch while market positions change on short-notice?



Nodal pricing?!

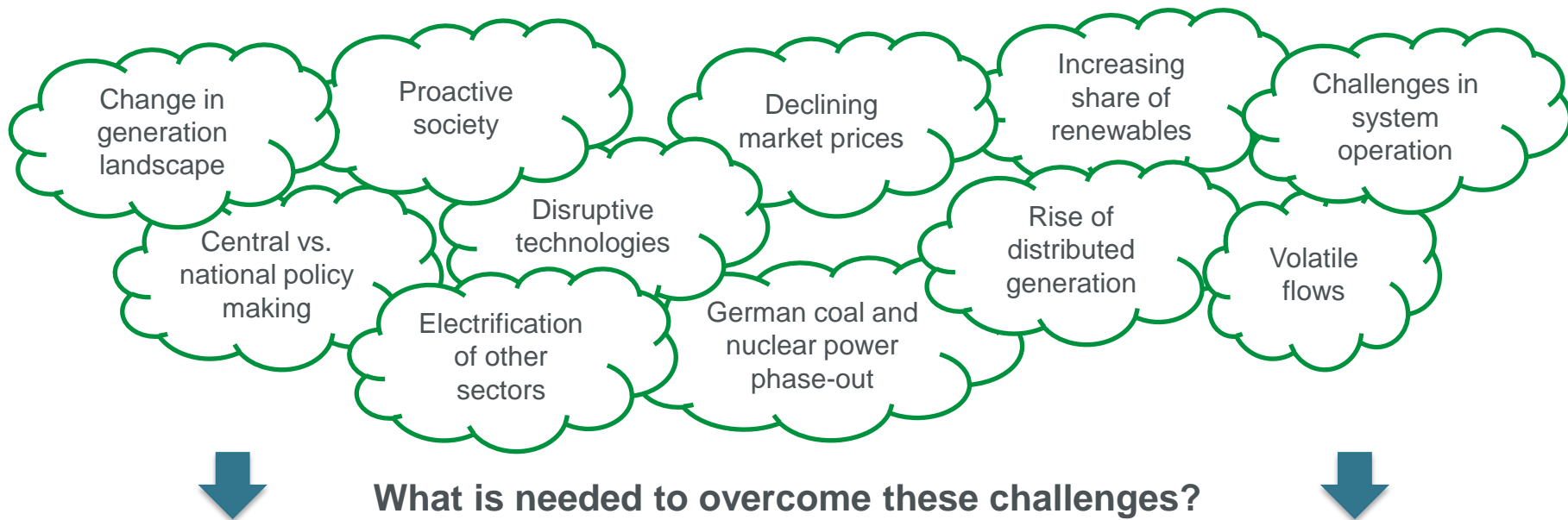
Nodal pricing is surely an option, but further research is necessary

- No „template“ nodal pricing design and different specifications / options exist or are thinkable, e.g.
 - Locational marginal prices even for end consumers? Yes, No (average price)!
 - ...
- Identification of critical issues and solution options, e.g.
 - How to account for transitional changes? Initial free FTR allocation to compensate for profits & losses (cf. Kunz et al. 2017)!
 - „Seams-issues“ to other regional markets?
 - ...
- Broad view on market design, e.g. sector coupling, network tariffs
- Comprehensive and objective evaluation of design options

We need to seriously discuss possible market design options!



The only constant is change!



Drive European market integration ...

- ... to secure efficiency gains and realize stable prices
- ... to improve overall security of supply, better balance the grid and
- ... to integrate renewables

Develop a sustainable market design ...

- ... to facilitate economic efficiency and incentivize innovation
- ... to provide consistent incentives
- ... to ensure system security
- ... to provide transparency

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