A New Cost-reflective Tariff Structure for Sustainable Investment in the European Power Sector

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The future of utilities: From Bankruptcy Risk to New Business Models

Agenda

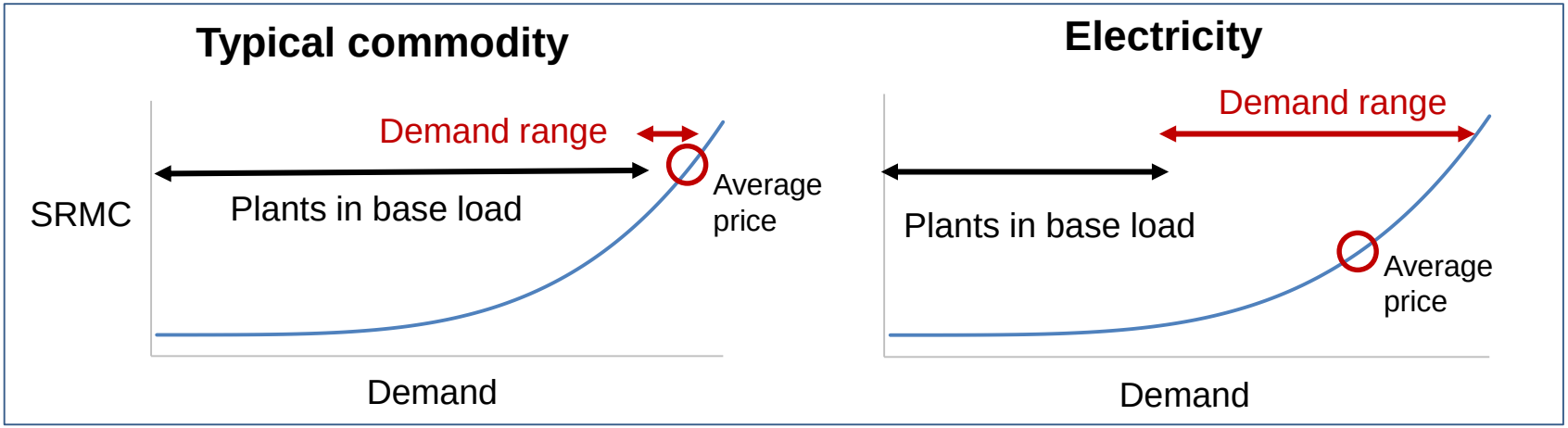
1. Analysis of the existing problems – what's special about power?

2. What are the motivations for and principles of the new design?

3. What are the implementation challenges for stakeholders?

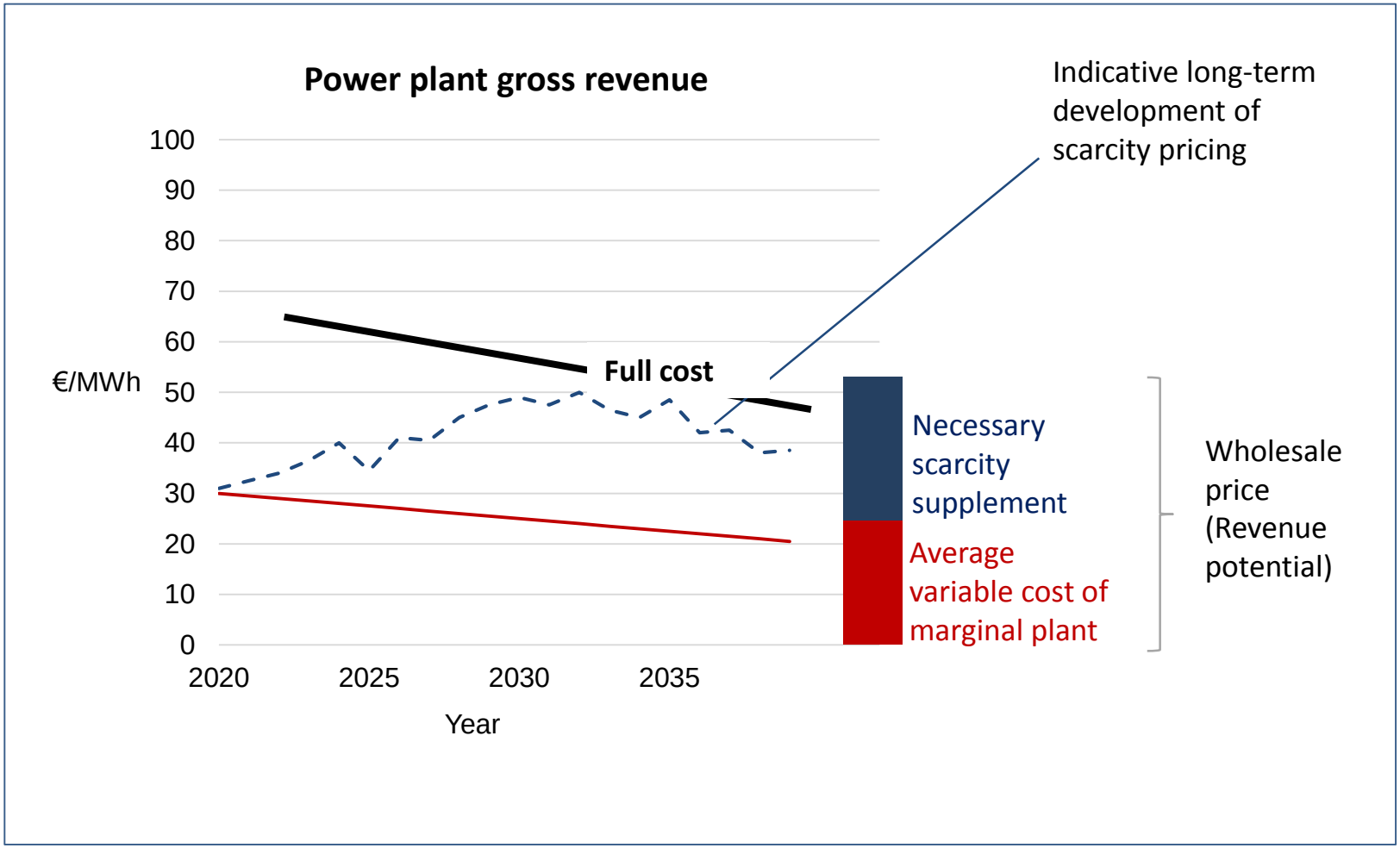
Why the electricity markets doesn't work like other commodity markets and lead to bankruptcy

- Most other commodity markets work by new plants being remunerated only from the wholesale / market price – why not electricity?
- **Non-storability and high demand range for required supply security are the keys**



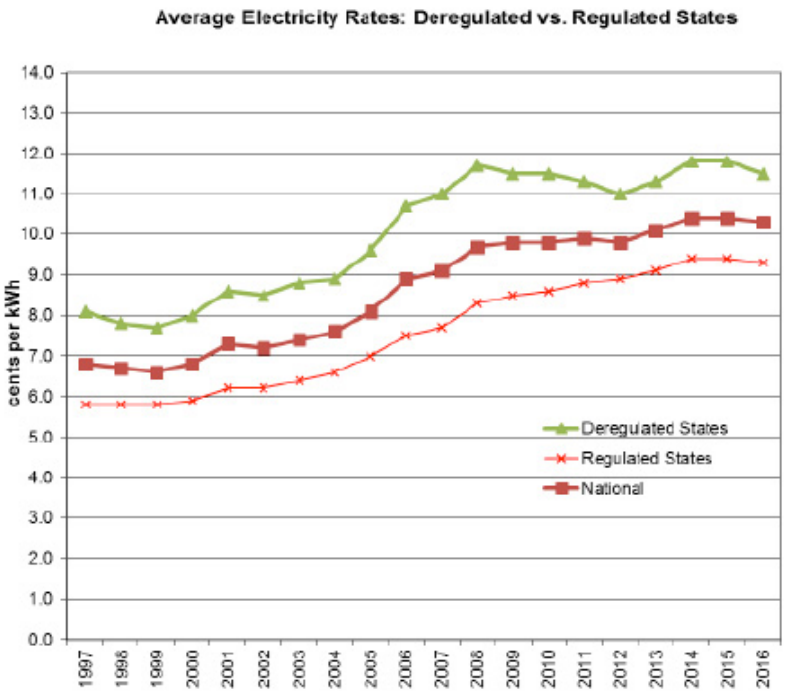
- In electricity market fewer plants are in base load and those see lower average prices than in typical commodity market
- Wholesale price covers energy costs but only part of required peak supply costs

Scarcity pricing will not fill the gap – at least not as reliable basis for investment

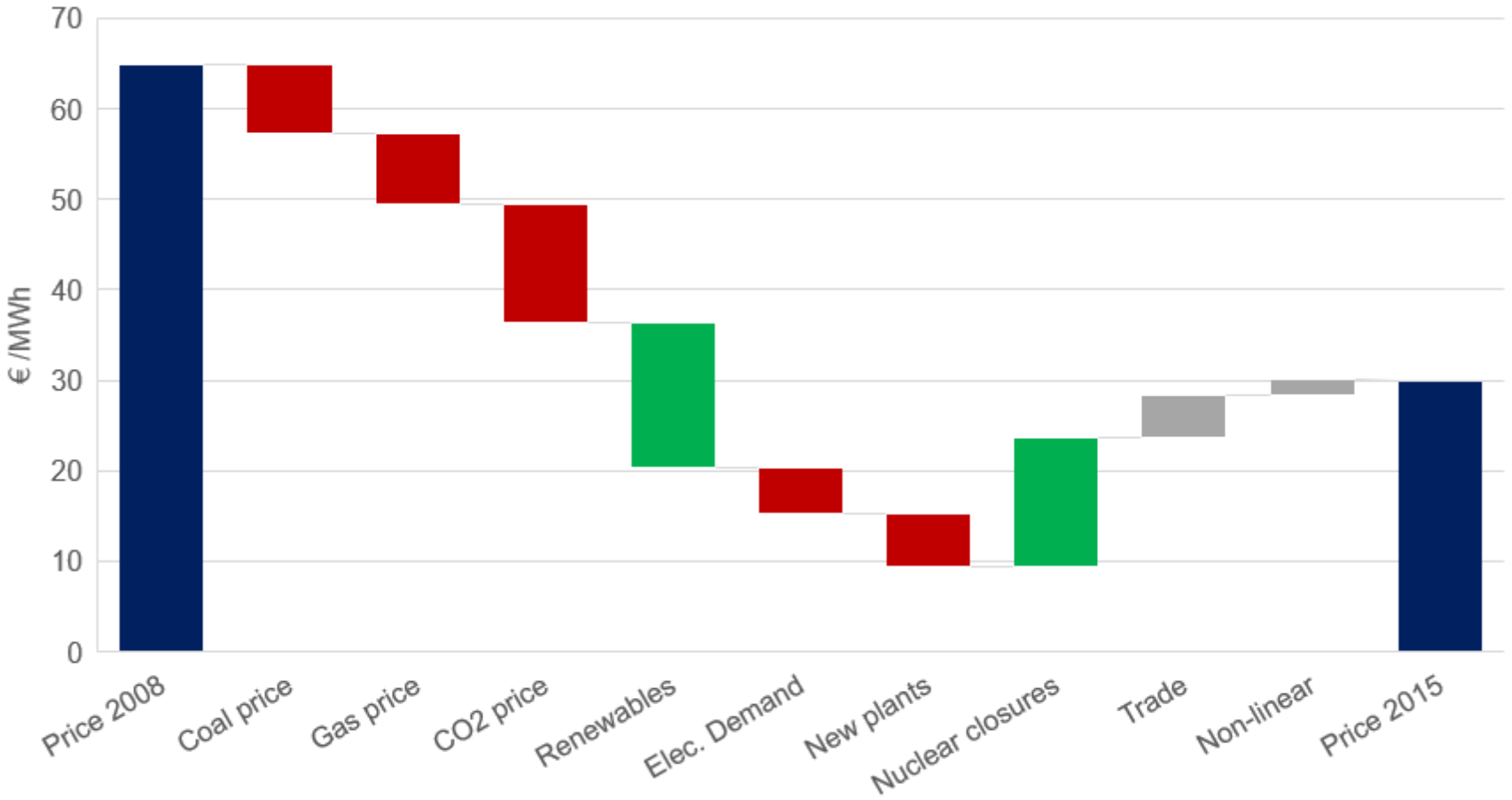


The consequences for the utilities since liberalisation

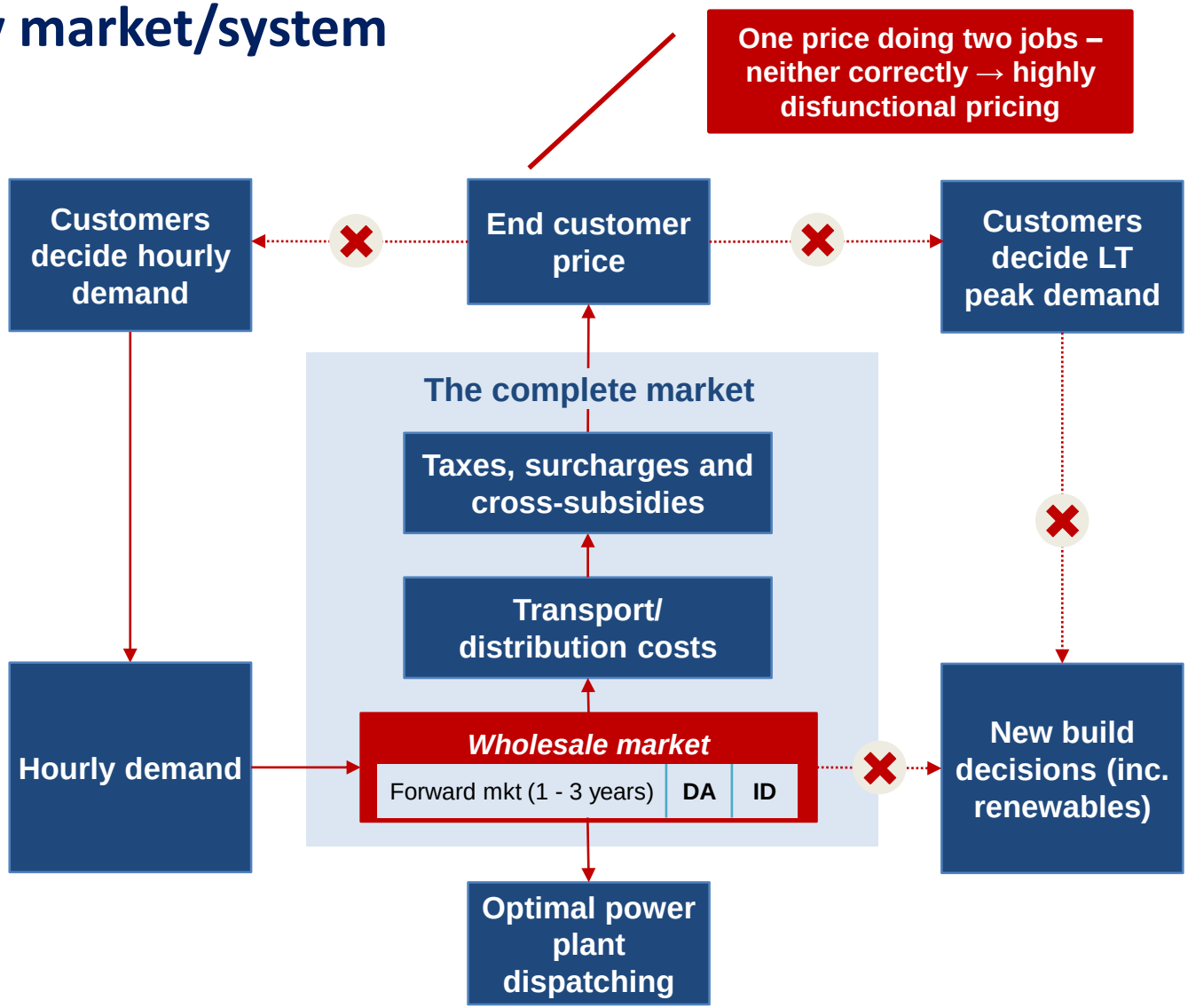
- Massive capital destruction in Europe and bankruptcy in the USA
- Even in Texas with growing market investors have sold out at < 50% original costs
- Renewables has compounded situation but been held too responsible for the problem
- Comparison of US price developments since 2000 between regulated and unregulated markets does not speak well for liberalisation!



Factors explaining collapse of German wholesale price since 2008



The wholesale market is only a part of the entire electricity supply market/system



What about other non-storable, low SRMC services?

- No headline price of equivalent importance to electricity wholesale price
- Telecoms – the flatrate world to which electricity is likely to move
  - Guarantee of calling virtually anyone at any time
  - Customers pay for this through fixed price
- Hotels and airlines
  - Not of the same societal importance as electricity
  - No guarantee of availability at any particular time
  - Not a homogenous product: hotels have range of comfort and locations
  - Operators have complete freedom in setting prices – can be highly discriminatory and need not be transparent
  - Availability not generally driven by random weather variations

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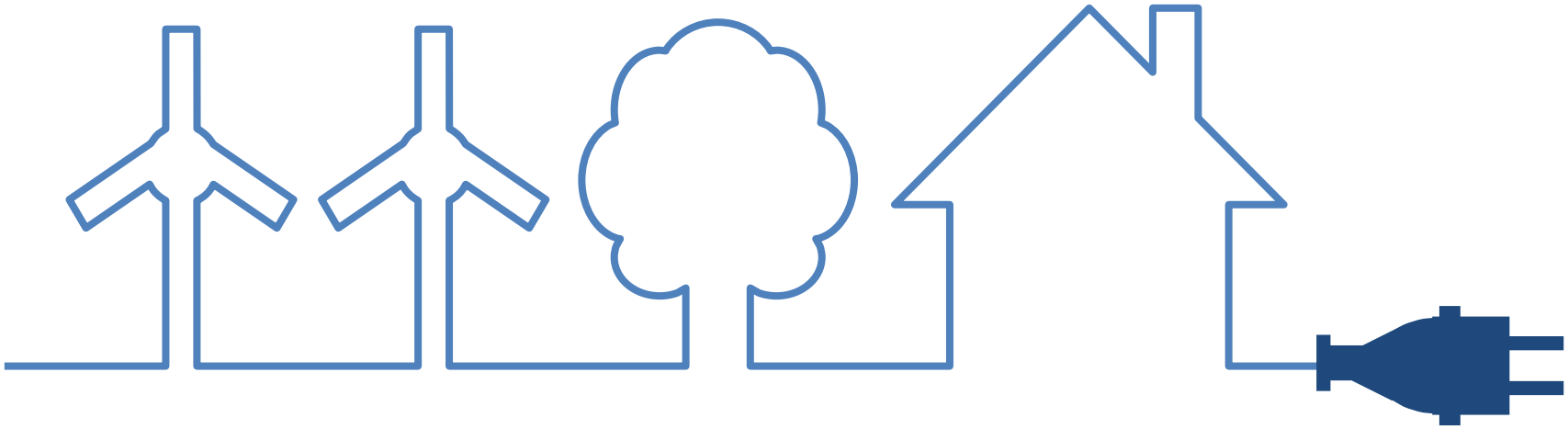
Motivation and objectives for a new market design

- Development of system at lowest costs in relation to capabilities
- To strengthen the "user pays principle" separately for capacity and energy
- To increase the competition and incentives for innovation
- To improve the integration of renewables
- To ensure neutrality between decentralised and centralised investments
- To prepare the way for system-coupling – E-cars and heat-pumps

Basic principles

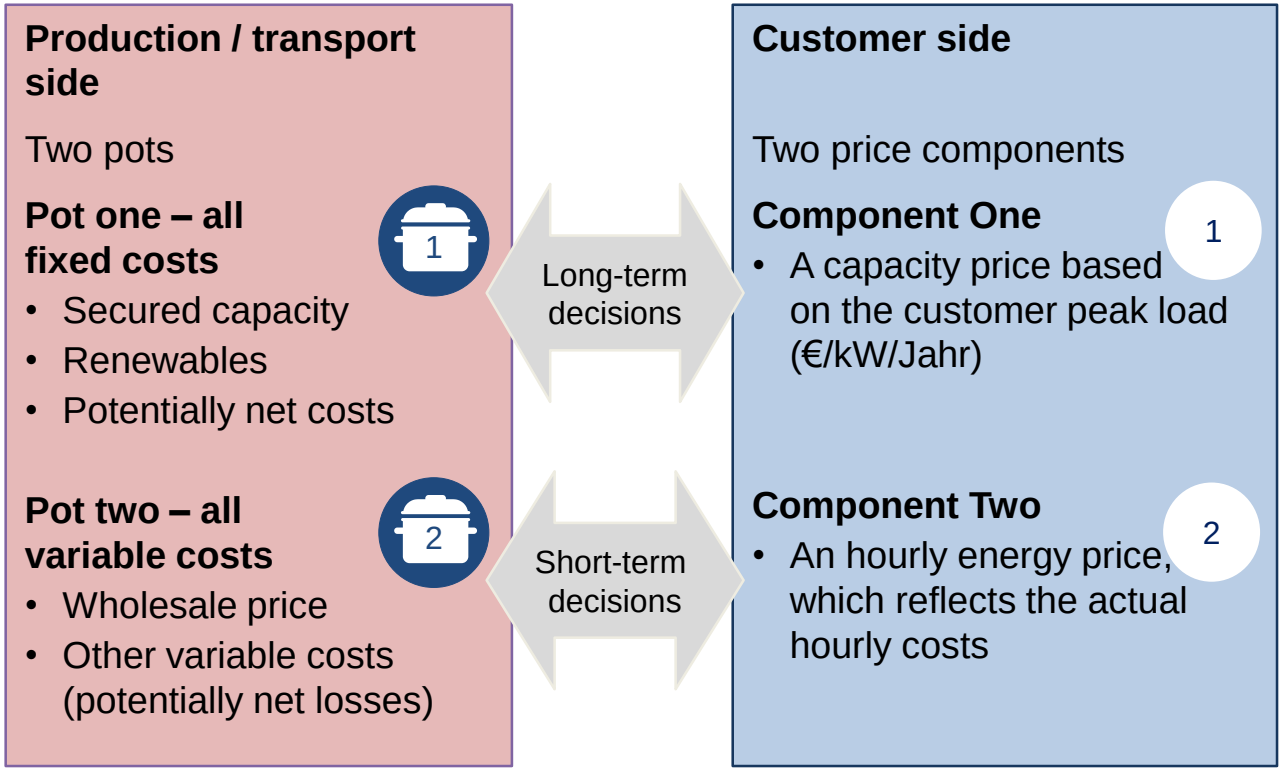
- Customer price structure reflects the cost structure – producers and customers have the same incentives for investment
- Correct price signals set along full supply chain
- Set incentives from a system perspective for the best technologies and locations – whether central or decentral
- Fair sharing of risks between plant operators (all types) and customers
- Both should be equally exposed to the wholesale market and to fixed costs



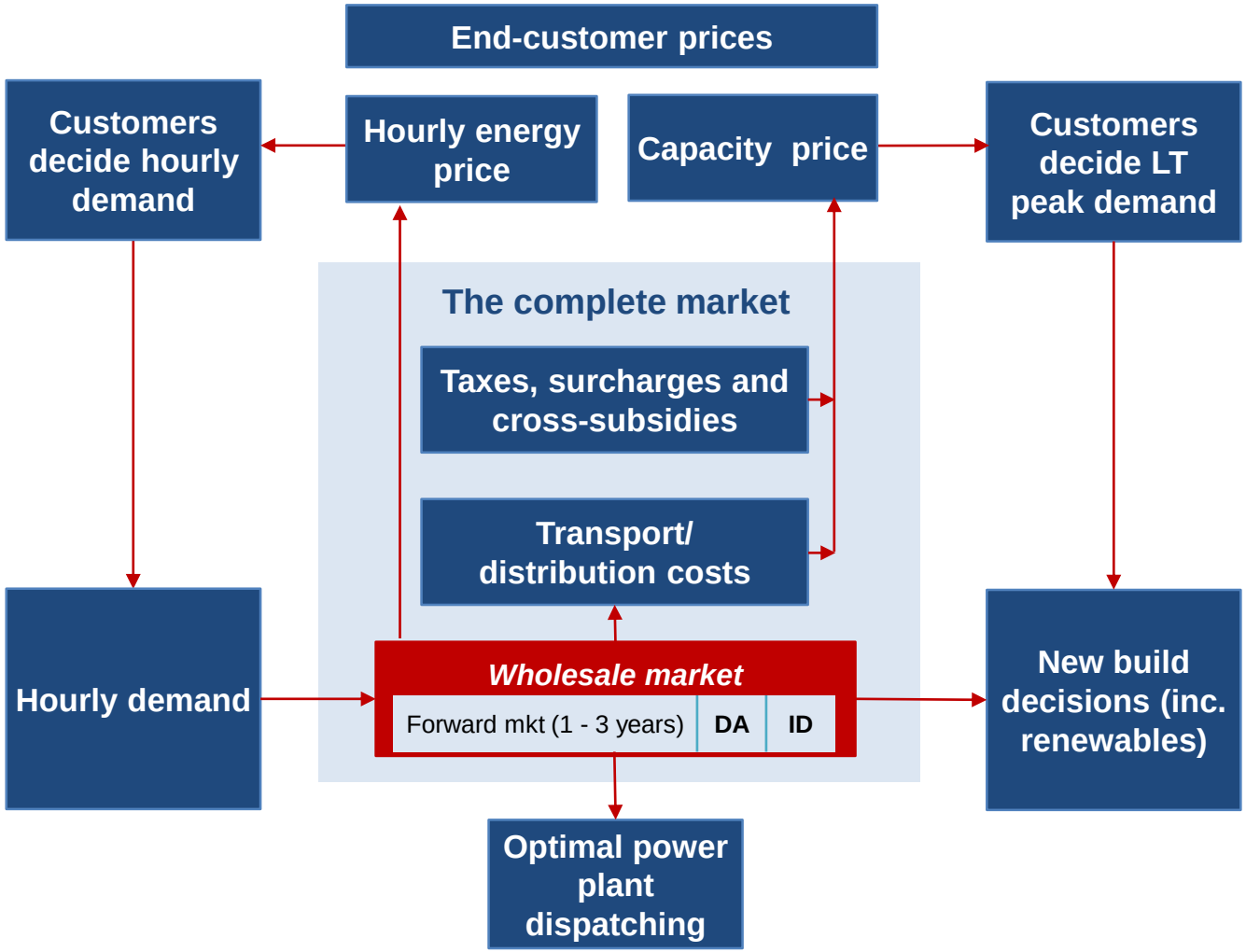
The approach and the results

Peak capacity and flexibility (€/MW/J)	+	**Wholesale market based payments (€/MWh)**
• Determine the required secure capacity by customer on a **decentral** basis • Government determines the build-up of renewables to meet targets • Bidding process for plant capacity (eventually technologically neutral) • Network investment also included in process		• Investors – Fixed payment for capacity(€/MW/J) + additional revenue from wholesale & ancillary services market (€/MWh) • Expected income from these markets reduce the need for annual capacity payments • Incentive for the best location and technology • An „investment“ market for (technology-neutral) producers will develop

Connecting with the customer - short- and long-term decision horizons of both customer and plant operator



With the proposed design the correct price signals for dispatching and are investment are set



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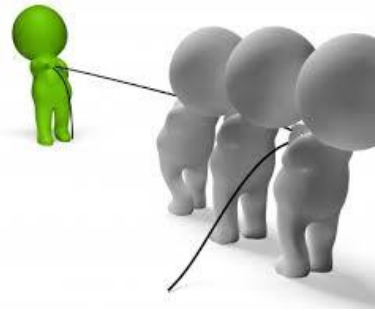
Process and challenges for implementation

- Varies by country regarding transport network and renewables surcharges
- Transport and distribution – tariff needs to become full cost-structure reflective = emphasis on peak capacity booked
  - Discussions in various countries moving in this direction
- Renewables surcharge to be progressively billed as a capacity charge
  - Symmetry cost/price structure between investors and consumers
- Retailers potentially can offer any price structure, independently of the cost structure they are facing
  - **To gain acceptance for the new tariff they need to demonstrate how it will lead to reduced costs for consumers**
  - Work with customers to reduce peak load – digitalisation is the key!

Process and challenges for implementation (ct)



- Change to the new structure progressively between 2020 and 2030
  - Will avoid sudden system shocks and enable progressive adaptation
- A critical issue is to determine how the booked peak capacity is measured and what happens if it is exceeded
  - Alternative methods– technical / system-coincident-peak etc.
  - Penalties for exceeding mainly when system is constrained; must not discourage use of zero/negative-priced power units
- Resistance will arise for two reasons
  - New system will (initially) be more complicated
  - May disadvantage low-income and very large energy consumers
- **But unless the resistance is overcome, Europe will be paying too much for its power system and will lose further international competitiveness**

THANK YOU FOR YOUR ATTENTION

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