E1st in Europe’s new electricity market design

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E1st ≠ energy efficiency
Demand-side resources

SOURCE: Tata Power
A commonsense approach (still theoretical)
Short term impact: network operation

- DSO → TSO
- Active system management:
  - Technical solutions using network assets
  - Market-based solutions to activate explicit flexibilities
  - Connection agreement solutions
  - Tariff solutions to trigger implicit flexibility
  - Rule-based solutions like curtailments, in last resort or emergency situations

SOURCE: Interaction Between Transmission and Distribution with DER Deployment ESIG Webinar May 22nd 2019
Empowering consumers

- Want to reduce their bills
- Provide incentive to adjust consumption to network conditions
- Fixed versus volumetric/dynamic tariffs
- Mixed message on tariffs
Empowering aggregators

- Independence of aggregators from supplier
- No automatic supplier compensation for energy not sold due to DR
When to compensate?

- Benefits
- Costs
- Supply curve
- Quantity MWh
- Price €/MWh
Long-term impact #1: network planning

↑ peak - ↑ investment - ↑ tariff

Nonwire alternatives in network plans
Targeted acquisition allows DR to avoid network upgrades

Instead of a new substation...

Peak reduction by 149 MW

Competitive bidding

EE, PV, CHP, battery storage, fuel cells

$1 bn saving at a cost of $200 m
Long-term impacts #2: capacity markets

- Dual commodity markets → energy-only market
- Market reform plan for CM phase-out
- Capacity markets (second-best solutions) need to consider demand on equal footing
- Generation adequacy → resource adequacy
- Remember TEMPUS
Equal-opportunity market design

"keeps the lights on" at lower cost

facilitates the energy transition
RAP Resources

- Demand Response as a Power System Resource
- Time-varying and dynamic rate design
- Cleaner, Smarter, Cheaper: Network tariff design for a smart future
- Unleashing Demand Response with Effective Supplier Compensation
- The Market Design Initiative: Enabling Demand-Side Markets
- Effective Mechanisms to Increase the Use of Demand-Side Resources
About RAP

The Regulatory Assistance Project (RAP)® is an independent, non-partisan, non-governmental organization dedicated to accelerating the transition to a clean, reliable, and efficient energy future.

Learn more about our work at raponline.org