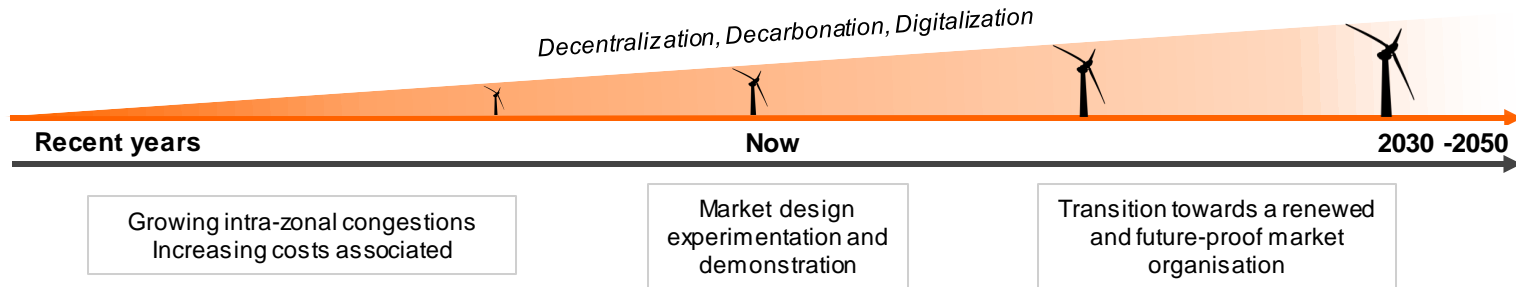


Local Flexibility markets – a market-based solution to solve local grid congestions

2nd Annual Nordic Electricity Market Forum
Oslo – 28 November 2019

The steps towards a renewed and flexibility-proof market design



New regulatory framework

« **Clean Energy Package** »

- Supported role for Demand-Response and aggregation
- New requirements for TSO-DSO coordination
- Market-based redispatch**
- Flexible assets to be owned by market participants

Research and Experimentation

Academic and empirical research on market design, integration of new flex, T&D coordination...

TSO
Mid-voltage DSO
Low-voltage DSO

Implement best market design

Use research and pilot projects to create the right regulatory framework on national levels

- Incentive system operators to procure flexibility in most efficient way
- Solutions adapted to need of market: rural/urban, load- or supply-intensive
- Interaction with existing markets & flexibility mechanisms
- Robust market rules and market monitoring

Developments on EU wholesale power markets: Overview of market-based redispatch

Main question

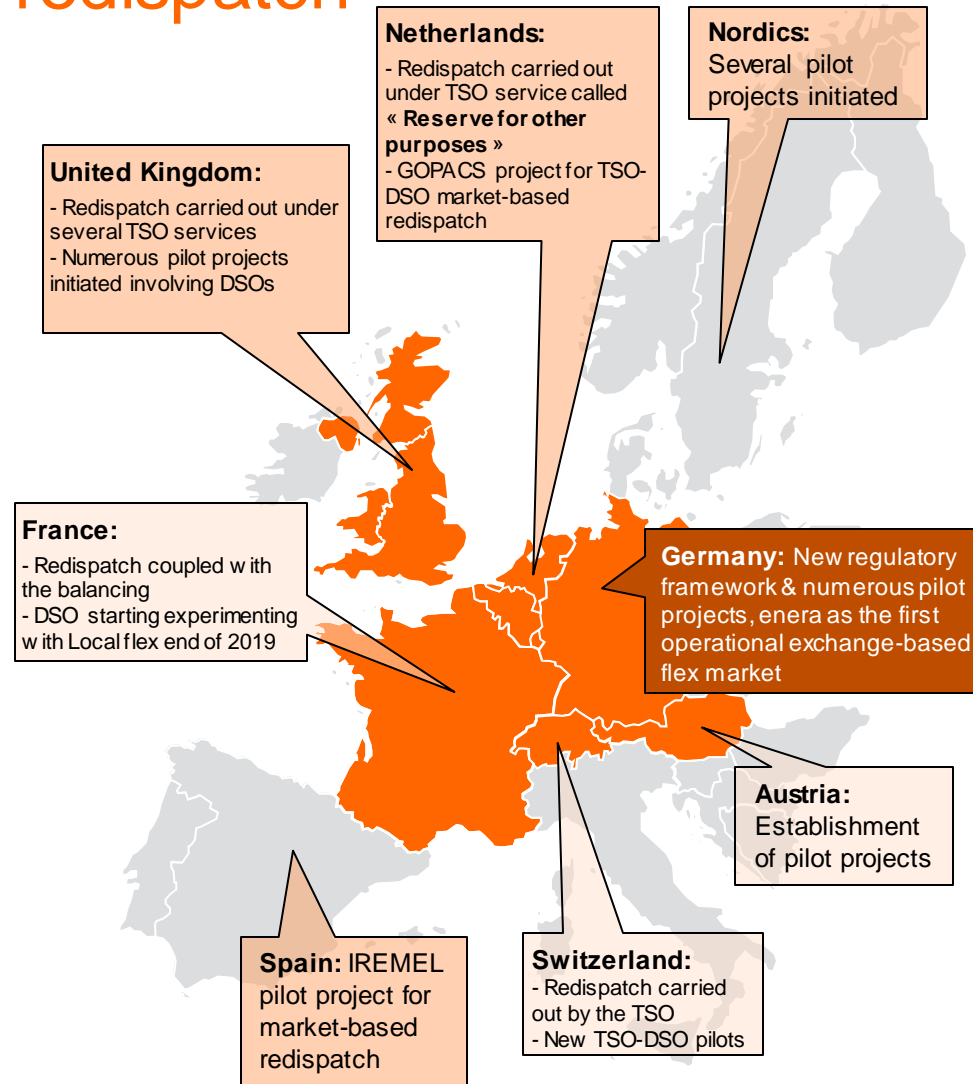
How to reflect a locational signal into a zonal market to address internal congestions and involve new decentralized flexible resources?

Emerging principles

- Enhanced TSO&DSO vertical coordination and optimization
- Interaction between congestion management and the wholesale market
- Product characteristics
- Timeline of the market

Use-case examples

- Market-based TSO & DSO-coordinated transmission redispatch
- Cost-effective replacement of administrative RES curtailment
- Load-related distribution grid reinforcement deferral
- Grid maintenance management
- Operational resilience
- Inclusion of demand-side flexibility



Local flexibility markets as transparent and market-based solution

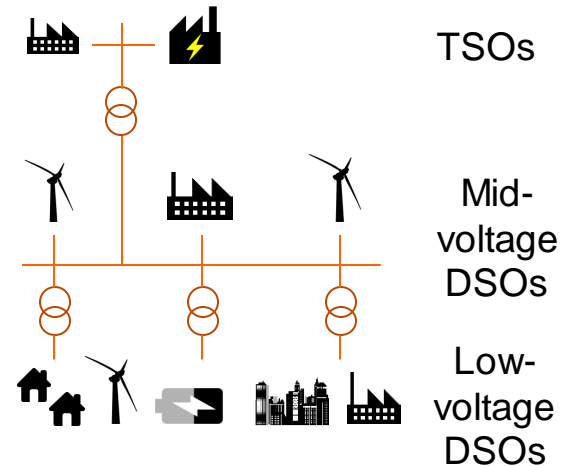


Flexibility providers:

- Power plants
- Aggregators
- VPPs
- Storage
- Renewables

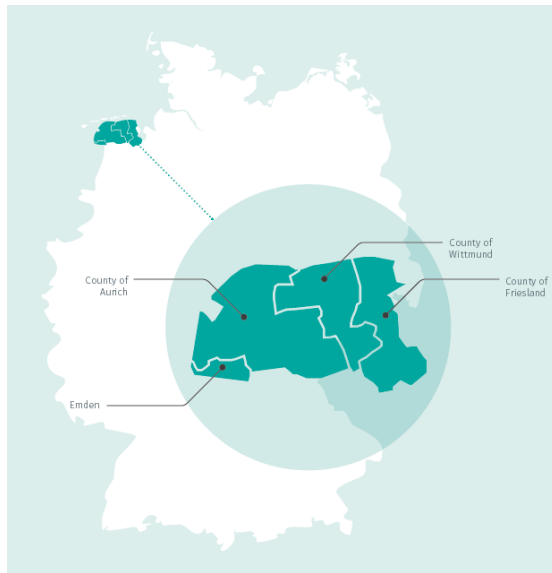


Trading systems
 Standards
 Transparency
 Coordination
 Neutrality



Focus on northern Germany: A significant wind production

Increasing share of renewables...



...comes with new challenges



High cost for grid management, paid by end-consumers



High share of renewable curtailment



High coordination need between system operators

32 %
renewables

Germany 2016

80 %
renewables

Germany 2050

235 %
renewables

enera 2016



The solution: the enera project

The enera Project

The German ministry of Economic Affairs and Energy is funding the enera project to explore new smart market mechanism to allow for more renewable energies in the future

The 3 pillars of the project are: Network, Market and Data

The flexibility market was launched in February 2019

The Region

Counties of Aurich, Friesland & Wittmund

390.000 inhabitants

200.000 households

235% share of renewables

The participants



The role of EPEX

1st

operator of a European market-based **local flexibility** demonstrator in 2019

The enera local flexibility market is a success

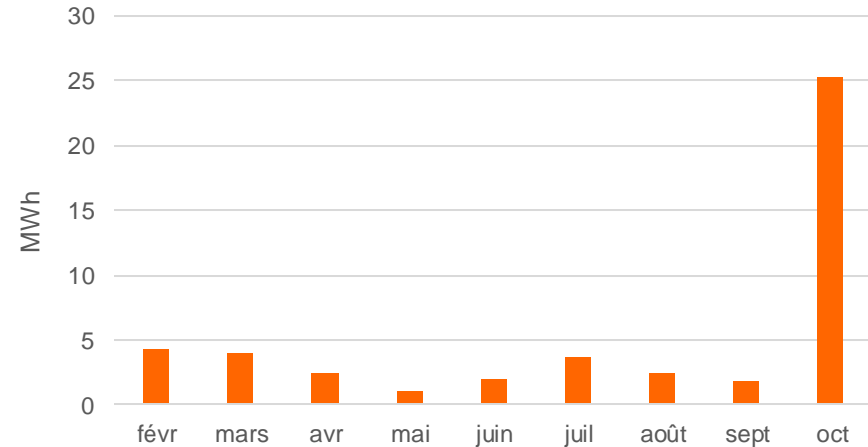
Since Go-Live

- 23 Local market areas
- 9 market participants
 - 6 Flexibility Providers
 - 3 System Operators
- 3000 orders
- 70 transactions

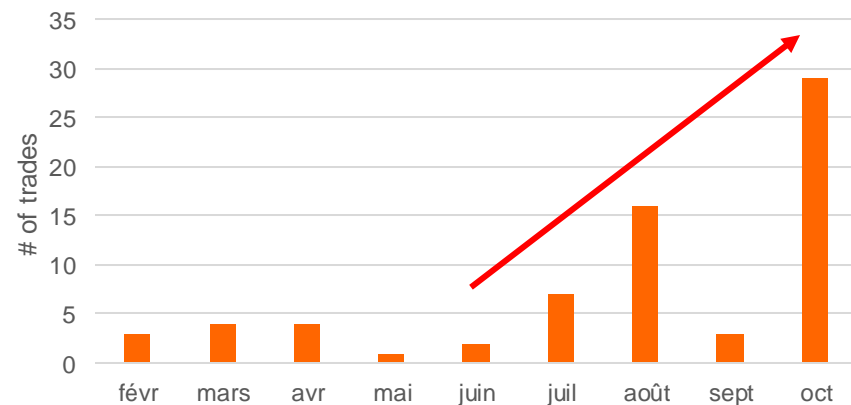
Recent developments

- Update of the trading system
- Increase to 23 market areas
- Activity from the 3 system operators:
 - TenneT: testing
 - Avacon: testing → real congestions
 - EWE Netz: real congestions
- Increase in # of transaction and volumes

Total activated volume in the enera market



Number of transactions in the enera market



Thank you for your attention!

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