



Congestion management in the Dutch transmission grid

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Congestion in the Netherlands

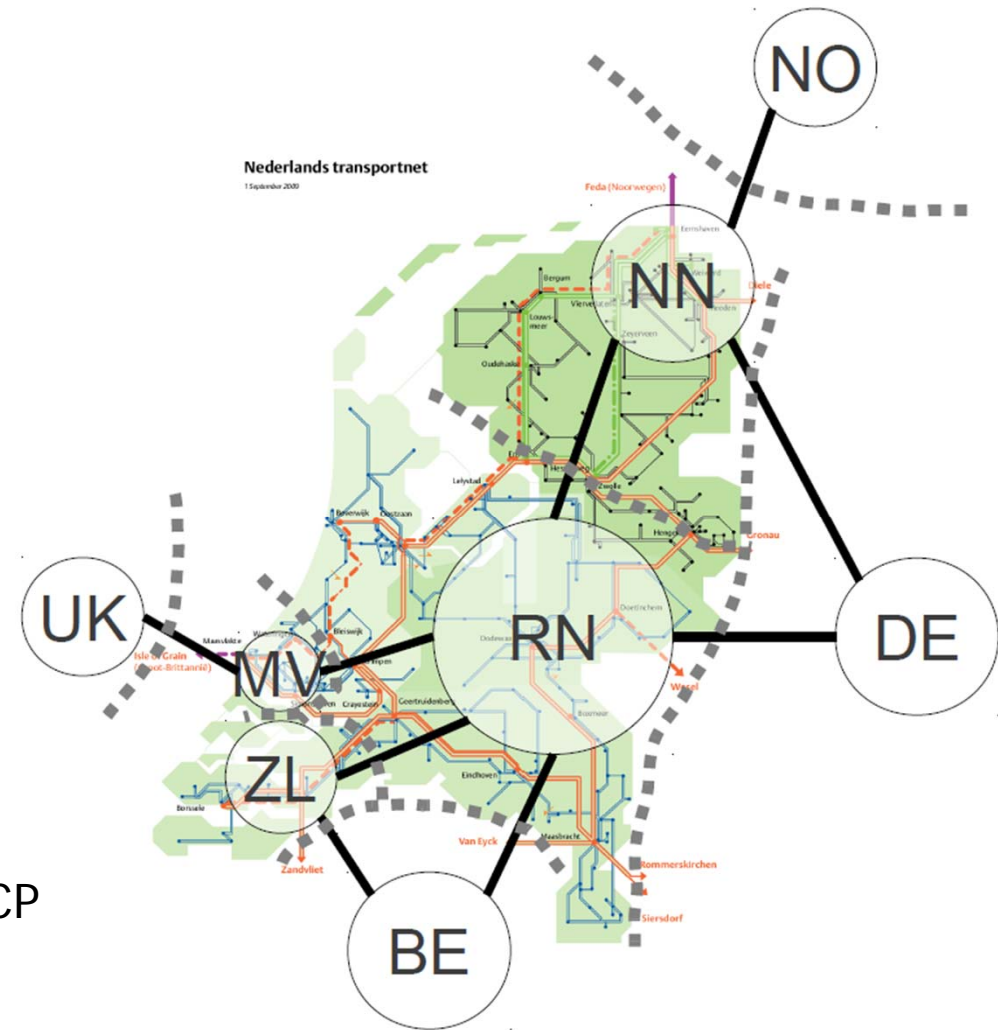
A brief history

- Generation capacity expansion
- New connection policy
- Transmission investment lag
- Congestion management
 - Review of methods
 - Decision: “basic system redispatch”
- Operational since April 2011

- Resulting congestion costs?

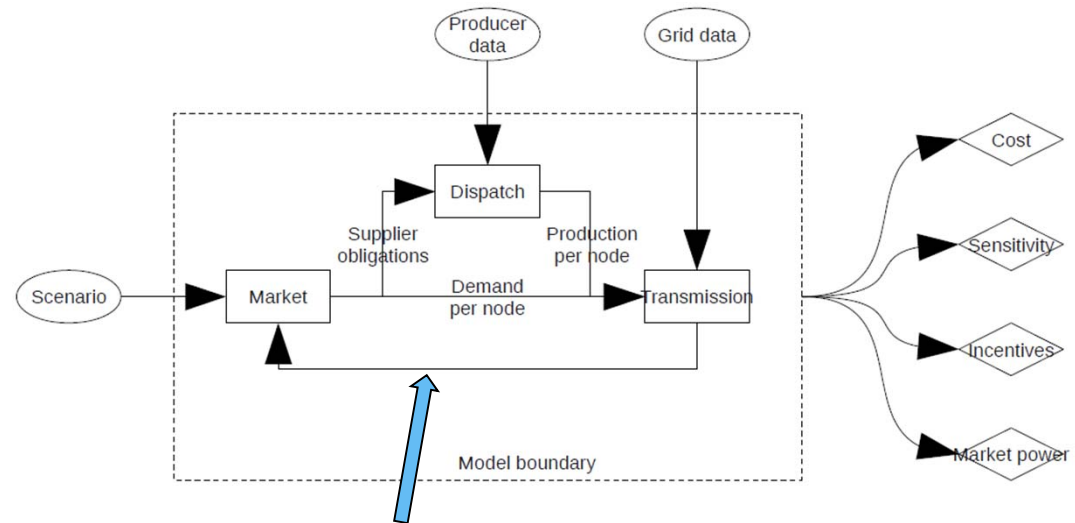
Quantitative model

- Simulation of 4 methods
 - Basic system redispatch
 - Market splitting
 - Market coupling
 - PX-based method
- Assumptions
 - 4 congestion regions
 - Mandatory pool
 - Offers reflect marginal cost
 - Fixed demand (peak load)
 - Cross-border trade: fixed MCP



Model structure

- 3 submodels:
- Static model
 - 4 scenarios



Application of congestion management: an iteration in the model

- Generators: all units in the Netherlands ($>60 \text{ MW}_e$)
 - Estimated marginal costs

Results

- Low congestion costs
 - Similar cost structures
 - 12,000 MW within narrow offer range
 - € 231/hr when 1292 MW congested
 - € 2 mln./yr when linearly extrapolated
- Differences in cost allocation
 - Incentives for generators, consumers, or TSO
 - Weak/strong incentives
- Opportunities for strategic bidding
 - “Congestion management game”

Discussion

- Incentive 'target': TSO vs market players
- Congestion pricing – two perspectives:
 - TSO: responsible for maintaining 'copper plate'
 - No incentive for market to behave efficiently
 - Market: congestion costs reflect scarcity
 - Large congestion costs/revenues, even when low cost of redispatch
- Societal interest
 - Transmission efficiency is only one aspect
 - Other siting considerations
- Congestion cost allocation
 - Part of a broader discussion
 - How to provide optimal locational incentives?



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Thanks for your attention!