How FLEX should the Dutch energy system be?

*Five challenges for the grid operator*

Marjolein Hulsebosch | Strategy & Innovation
Why flex?

What

How

Why flex?
2030: 25% from decentral generation
Rising costs
Changing system dynamics

Generation: centralized, predictable

Demand: inelastic
Changing system dynamics

Generation: decentral, less predictable

Demand: elastic, (electrification)
Facilitate energy transition

- Reliable
- Affordable
- Sustainable

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Why
Flexibility: Balancing supply and demand in terms of capacity and volume, across time and location; flex is managed interference with volumes and loads to address volatility and congestion.
3 drivers in the flexibility market:
1. Balancing the system; the need to balance supply and demand
2. Portfolio optimization; the need to manage price risks due to price volatility
3. Congestion management; manage load within grid capacity
Important control mechanisms

1. Ensure supply equals demand
   Balancing & portfolio optimization

2. Ensuring load is within grid capacity
   Congestion management

3rd of August: solar power largely exceeds local consumption. Potential local congestion

Balancing is managed on system level on a different local level than congestion problem.
Flexibility Sources

- Demand response
- Energy storage
- Flexible (decentral) power generation
- Or.....a more robust grid

Important: social assessment between buying flexibility services versus costs for grid extension
Why

What

How

Why
5 key challenges
When and where will congestion occur?

• Infrastructural Footprint; scenario analysis
• Sustainable scenario; congestion on all voltage levels
• Integral perspective needed; energy landscape planning
Regulation - Lobby

Case study – Grower

Current tariff system: grower is paying for peak
Potential future system: grower earns money by offering its flexibility.
Changing market model

Aggregator new role to develop

- New role: Aggregator
- Change in merit order?
- Who is in charge?
- What is the role of the DSO?
- Which market will start first?
Types of flex sources

Pilot Couperus
Types of flex sources

Pilot Hoog Dalem

https://www.youtube.com/watch?v=ZiosvcJ8BjY
Types of flex sources

Pilot Lomboxnet
Value Flex

Volatility

Congestion
Thanks for your attention!

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