

# Maintaining system balance

Break-out session TenneT



May-17-2018

Martin Wevers and Saskia Thies

# Introduction



## Saskia Thies

- First assignment: project lead of FCR pilot
- Current assignment: lean HVDC platform
- Started at TenneT as Trainee in 2017
- Energy Science, University of Utrecht

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## Martin Wevers

- Probabilistic method for determining need of reserves
- Meter Data Management System
- Started at TenneT as Trainee in 2018
- Applied Mathematics, University of Twente

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# Break-out program

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- 11:00 – 11:15 Introduction TenneT & case
- 11:15 – 11:30 Individual brainstorm
- 11:30 – 12:00 Group preparation
- 12:00 – 12:15 Pitching results (2 minutes per group)
- 12:15 – 12:30 Feed-back and closure

🕒 06 maart 2018

## Netbeheerder Tennet wendt landelijk stroomtekort af

Maandagochtend dreigde een landelijk stroomtekort. Vermoedelijk had dit te maken met een gebrek aan wind en zon.

👤 Guus Ritzen 🕒 30 april 2018



# A grid operator's tasks



## Our three main tasks

1

### Transmission services

Ensuring the construction and maintenance of a robust and efficient high-voltage grid

2

### System services

Maintaining the balance between demand for and supply of electricity, 24 hours a day and 7 days a week

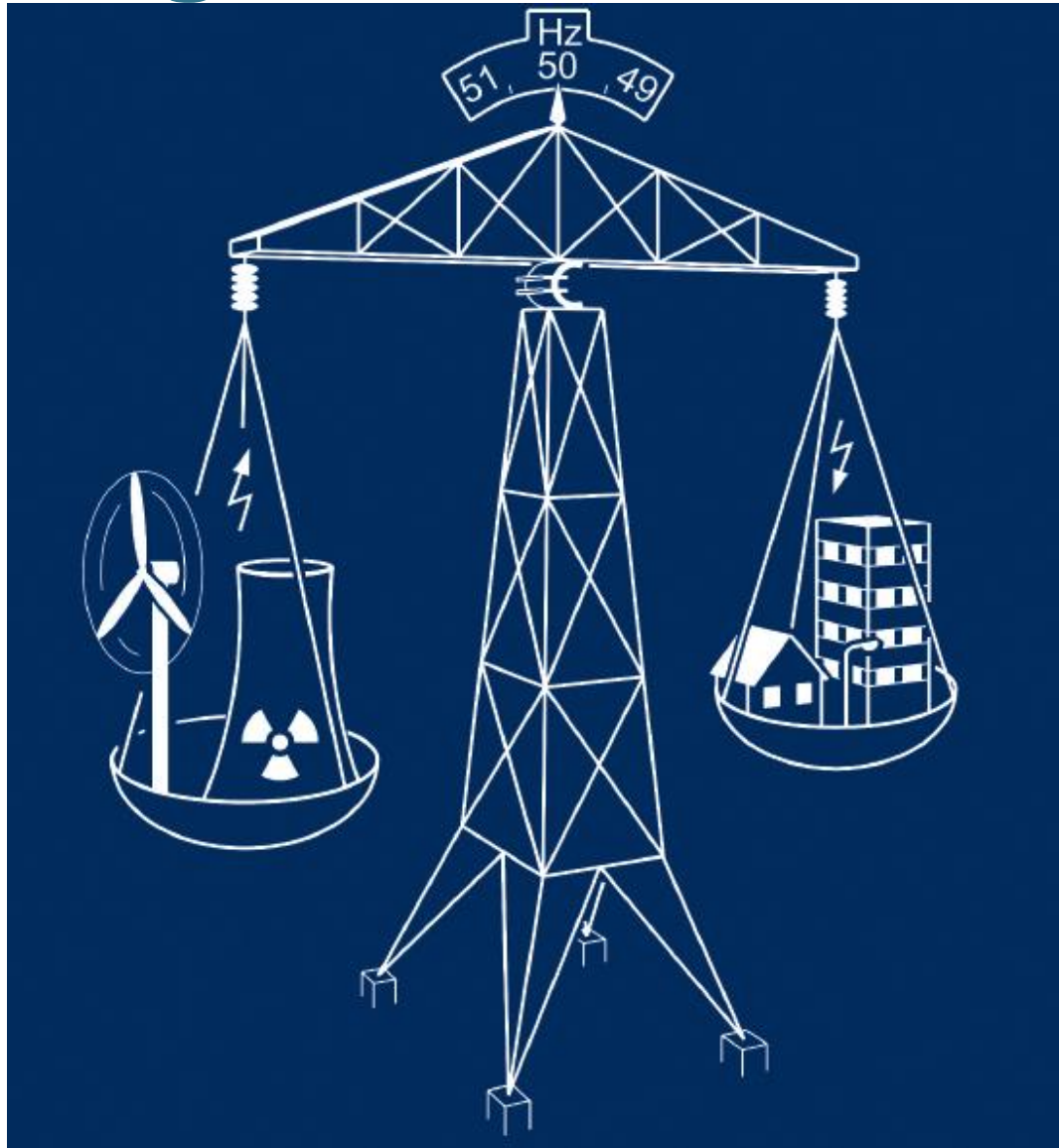
3

### Market facilitation

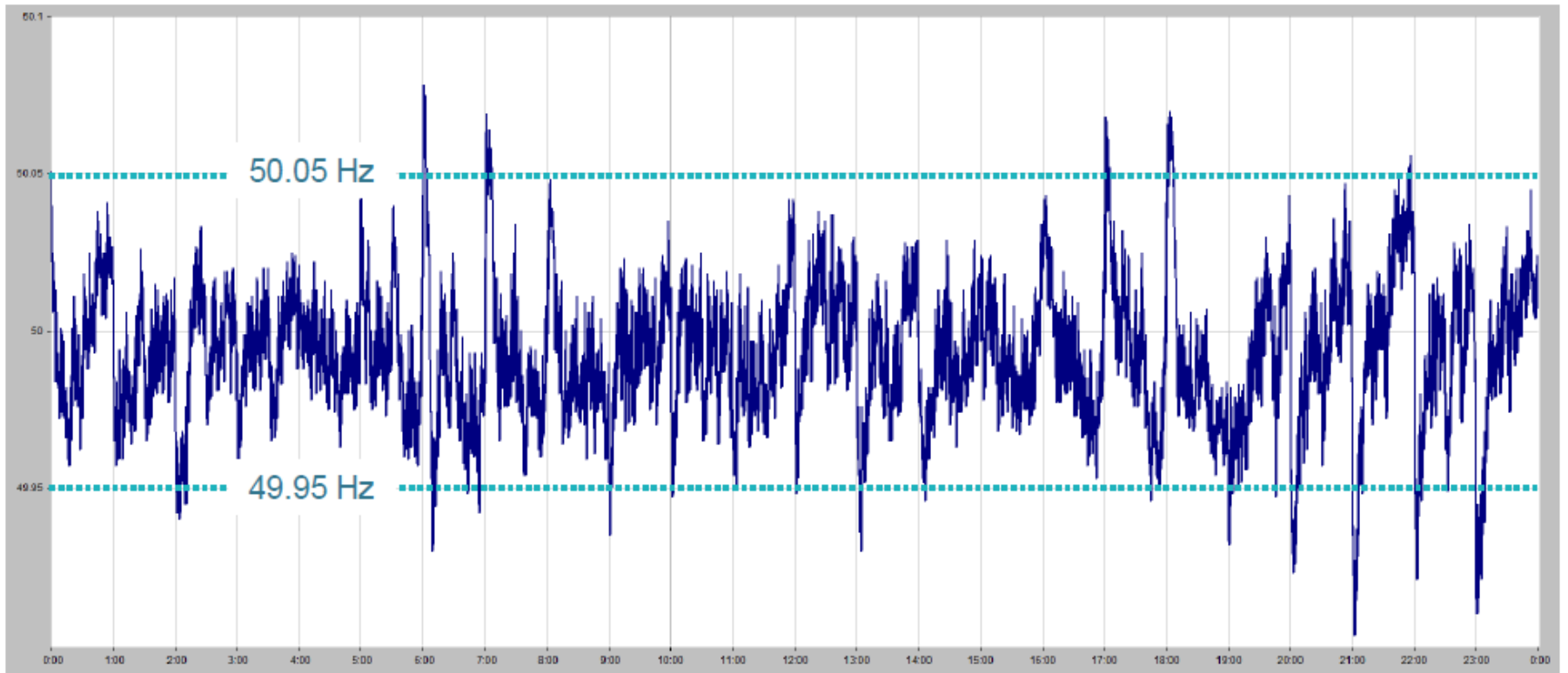
Facilitating a liquid and stable electricity market that functions efficiently



# Balancing



# Normal Frequency

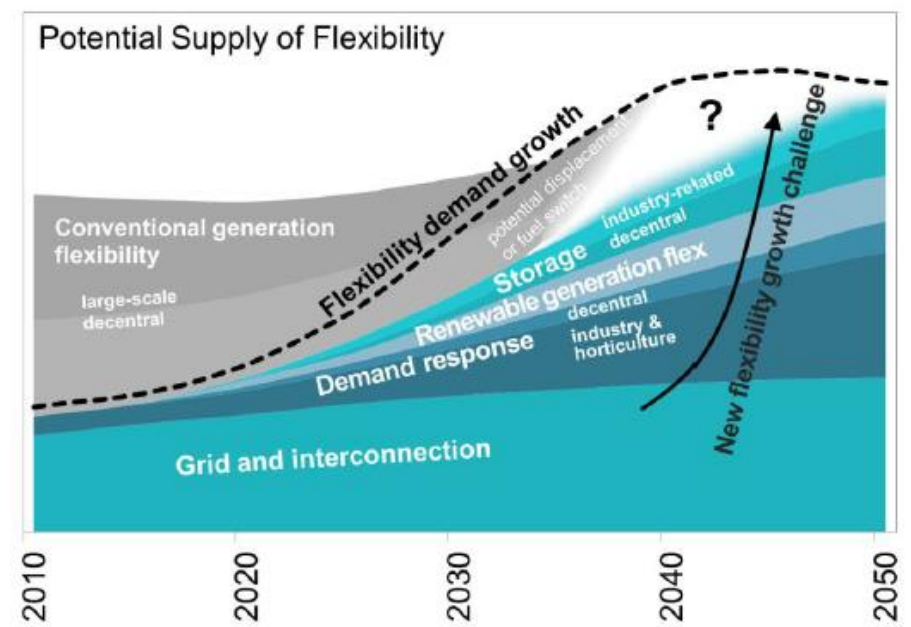
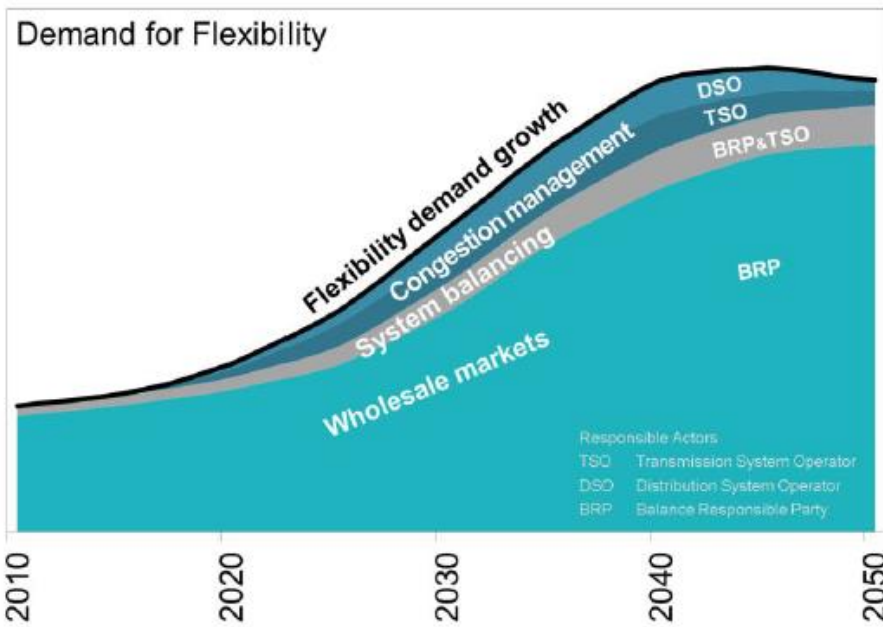


Source: TenneT

# Balance responsibility and flexibility



- All parties have the responsibility to be in balance
- Parties pay imbalance price if not in balance
- TenneT is responsible to maintain stable frequency
- Reserves are contracted in order to comply with this responsibility
- These reserves contribute to an increasing amount of flexibility needed



Source: Flexibility Roadmap NL, TenneT





## Goal

What is your vision on the future flexibility market?  
What is necessary to guarantee sufficient reserve capacity?

### Consider, in the current market:

1. Reserves must be available 100% of the time
2. Reserves must have a minimum size of 1 MW
3. TenneT is not allowed to generate or trade electricity itself



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# Thank you for your attention



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TenneT is a leading European electricity transmission system operator (TSO) with its main activities in the Netherlands and Germany. With approximately 22,000 kilometres of high-voltage connections we ensure a secure supply of electricity to 41 million end-users.

**Taking power further**

