

# Innovation is key for the TSO of the future

Innovation in threefold: technical - social - system

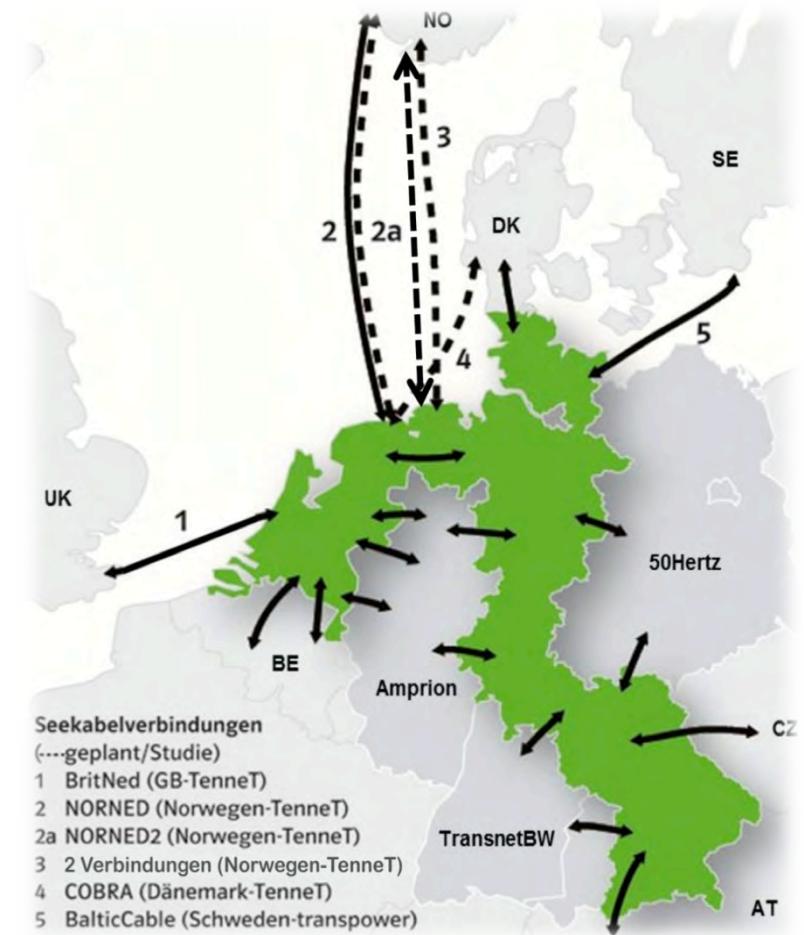
Paul-Georg Garmer Senior manager Public Affairs

Brussel, 4 december 2013



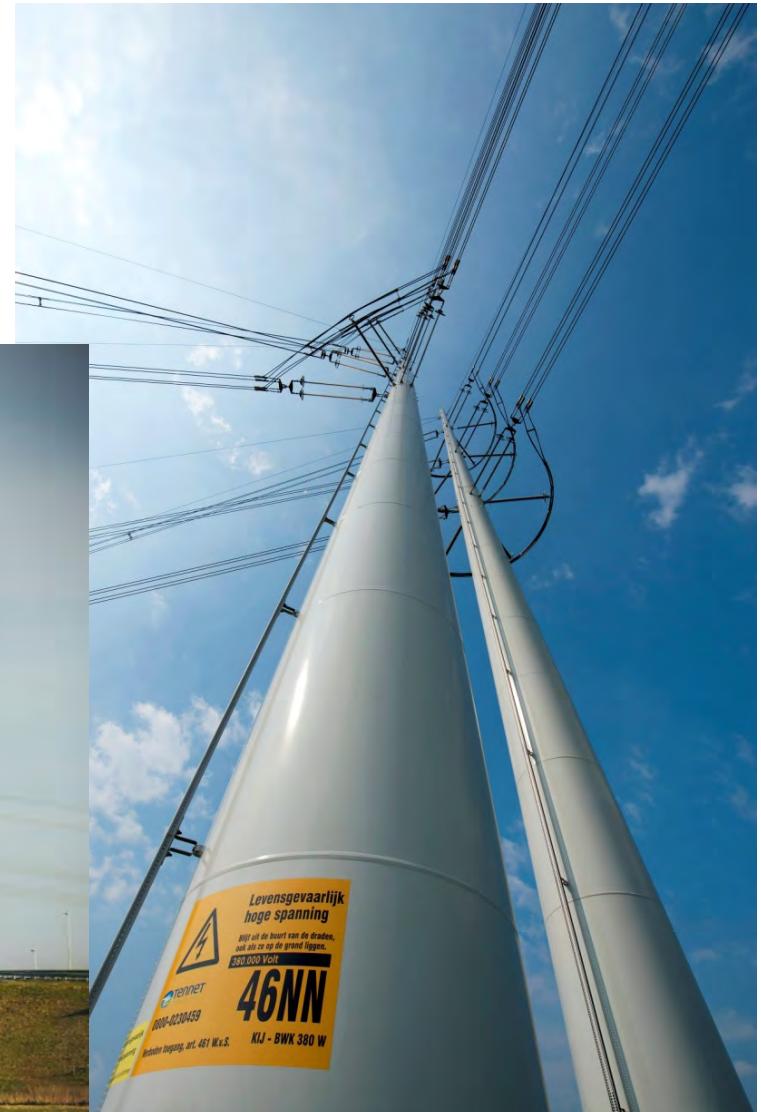
# TenneT – EU's first cross border TSO

- Grid 20.800 km (110 - 380 kV)
- Connecting 36 mln consumers
- Turnover 1.8 bn.€
- EBIT 362 mln.€
- Assets 10.3 bn €
- Staff 2.300
- Investing 13 bn  
(next 10 yrs for market integration and integration RES)



# Technical innovations: Wintrack towers

- Reduce the width of magnetic fields  
(60% less compared to conventional towers)
- Minimalistic design, less impact on landscape



# Technical innovations: cabling 380kV

- Applying 20 km of 380kV underground cable is state of the art... and the world is watching with great interest!
- Cooperation with **europacable**



# Joint paper on underground cabling



## Partial undergrounding complementing EHV overhead lines to accelerate grid extensions: the EnLAG opportunity!

Joint position paper of TenneT and Europacable

### Introduction

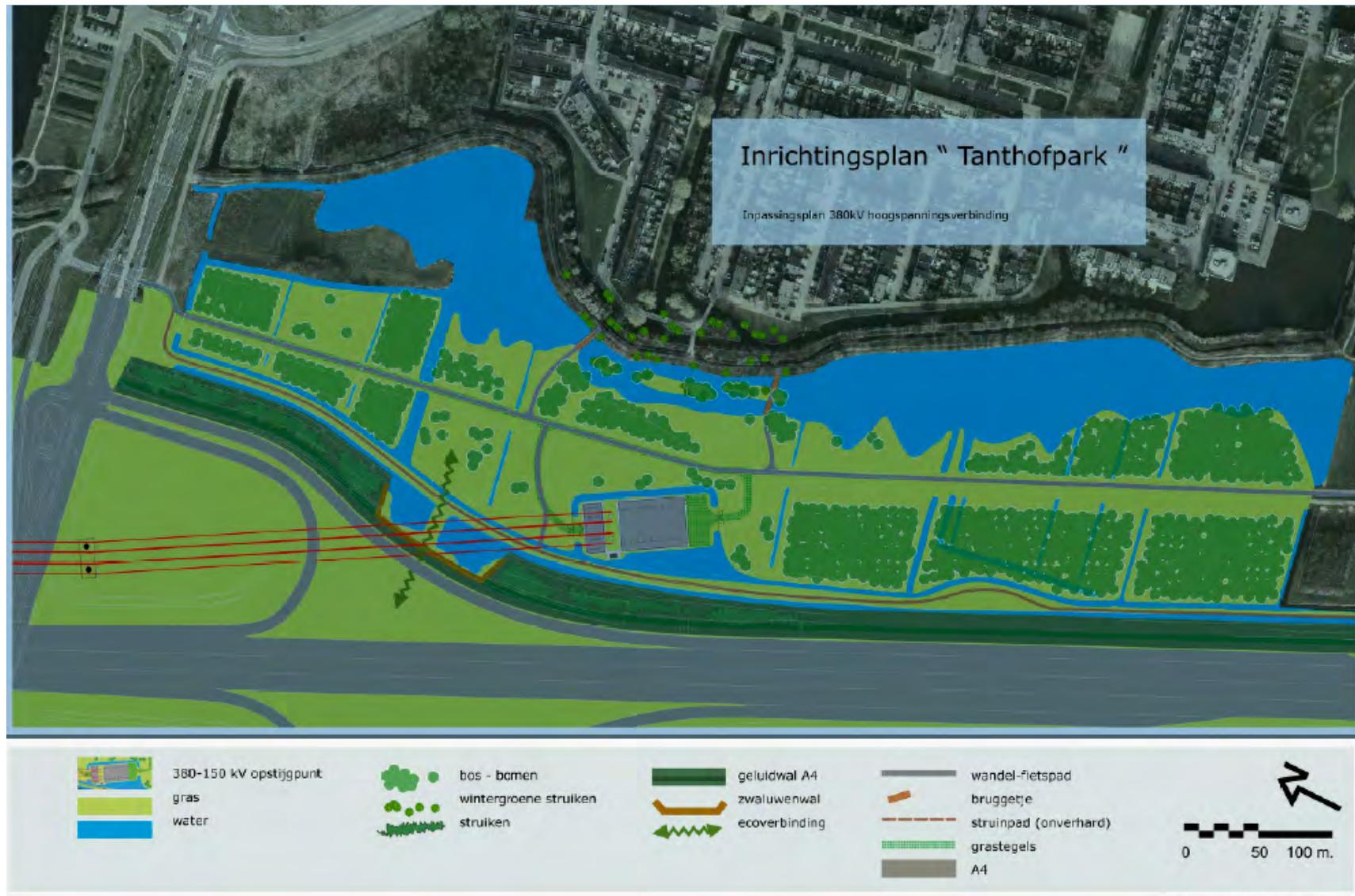
Grid extensions define the success of Germany's "Energiewende". According to the German "Netzentwicklungsplan", more than 4.000 km of new Extra High Voltage (EHV) power transmission lines will have to be built and more than 4.000 km will have to be refurbished by 2022 – a distance from Berlin to Tokyo. So far, we haven't even reached Warsaw.

Quicker permitting procedures, thorough planning and higher acceptance by residents are the most important cornerstones for acceleration of grid extensions. Widening the range of technical possibilities for power transmission lines – including different tower designs and partial undergrounding – can offer an important contribution. It is for this reason that TenneT and Europacable jointly strive to enable partial undergrounding as a technical standard option.

#### Specifically, we endorse:

- The appropriate deployment of partial undergrounding in sensitive areas in the context of an accelerated realization of EnLAG pilot projects;
- The creation of an evaluation programme for partial undergrounding accompanied by independent scientific experts;
- The creation of framework requirements for partial undergrounding for future projects of the German transmission grid following the completion of the evaluation programme.

# Example of Landscape integration plan



# Five guidelines for a sustainable market design

1

## Strengthening of the „Energy-Only-Market”

Simulate market parties to fulfill their balancing obligations

Full integration of renewables into the energy market

2

## Enhancement of the support mechanism for renewable energies

Creation of a social consensus on penetration targets and a desirable speed of renewables

Revise support mechanism in order to facilitate the attainability of the penetration targets and to introduce increased competition among the RES

3

## European coordination of security of supply

Ensuring the feasibility and consistency of the national energy policy targets within the European internal energy market

Ensuring national supply security interests are met

4

## Monitoring of the functioning of the electricity market

Monitoring of the effectiveness of the network expansion

Monitoring of the requirements for the long-term security of supply

5

## Creating a possibly temporary safety net as a safeguard against a potential market failure

● See some extra slides



# Dialogue process Wahle-Mecklar

- Involving people early into planning process
- TenneT checks 450 km alternative corridors for a 230km line – example:



# How did/do we tackle NIMBY in the NL

- A. specific (Dutch) procedures for spatial planning and decision making
- B. applying technical innovation and spatial optimization
- C. extensive research on all local Facts & Figures (with EIA)
- D. intensive and proactive information & communication

