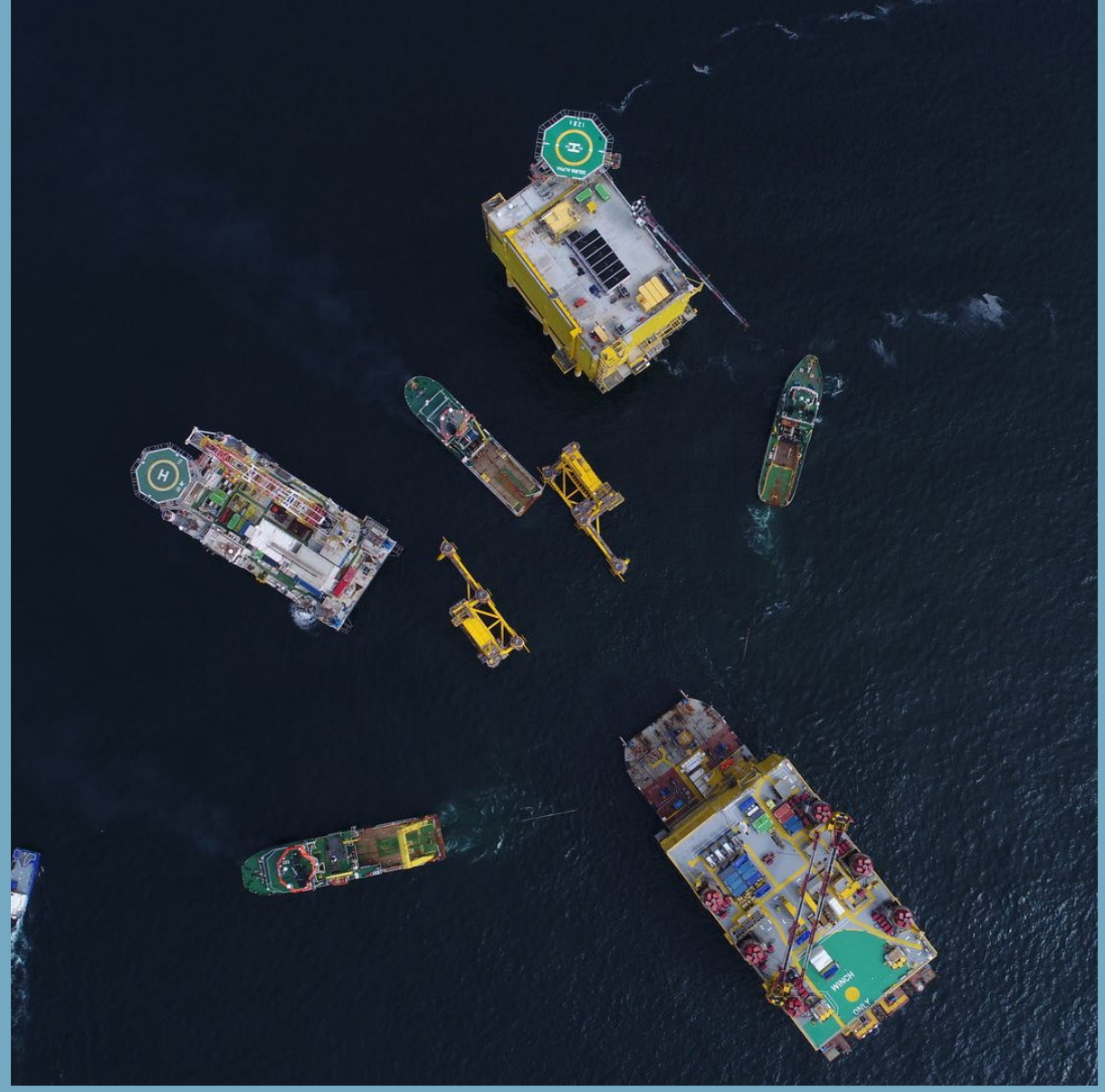


TenneTs View on **the Future of North Seas Infrastructure**

Janina Habethal
Senior Advisor

The North Sea as the key to affordable and secure energy

300 GW of sustainable offshore wind energy is the vision for **energy independence and security of supply** in Europe.

1,000 terawatt hours (TWh) per year can cover the annual electricity demand in Germany, Denmark, the Netherlands and the United Kingdom.

The potential for European growth lies in the countries bordering the North Sea. **They are the central engine for innovation, competitiveness and prosperity in Europe**.

TenneT

Our offshore projects until 2031
Accelerated expansion

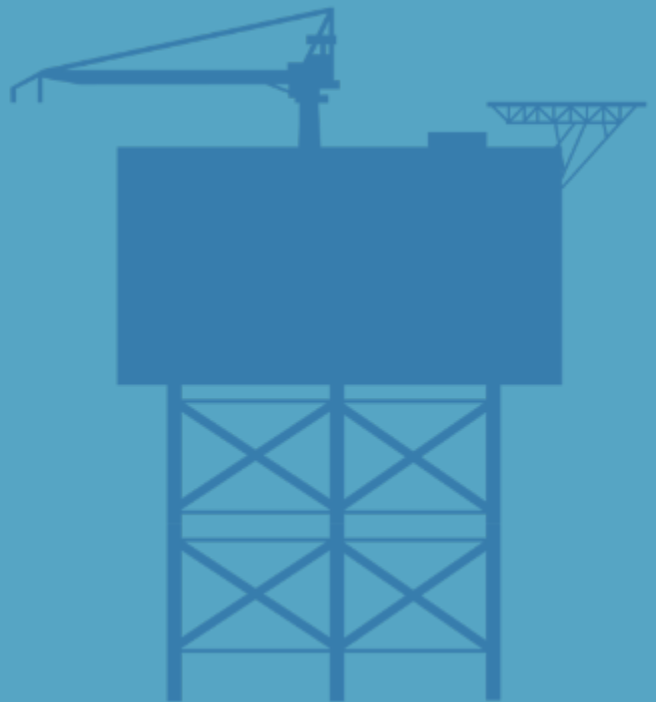
Already **19 offshore grid connection systems with 12.2 GW in operation.**

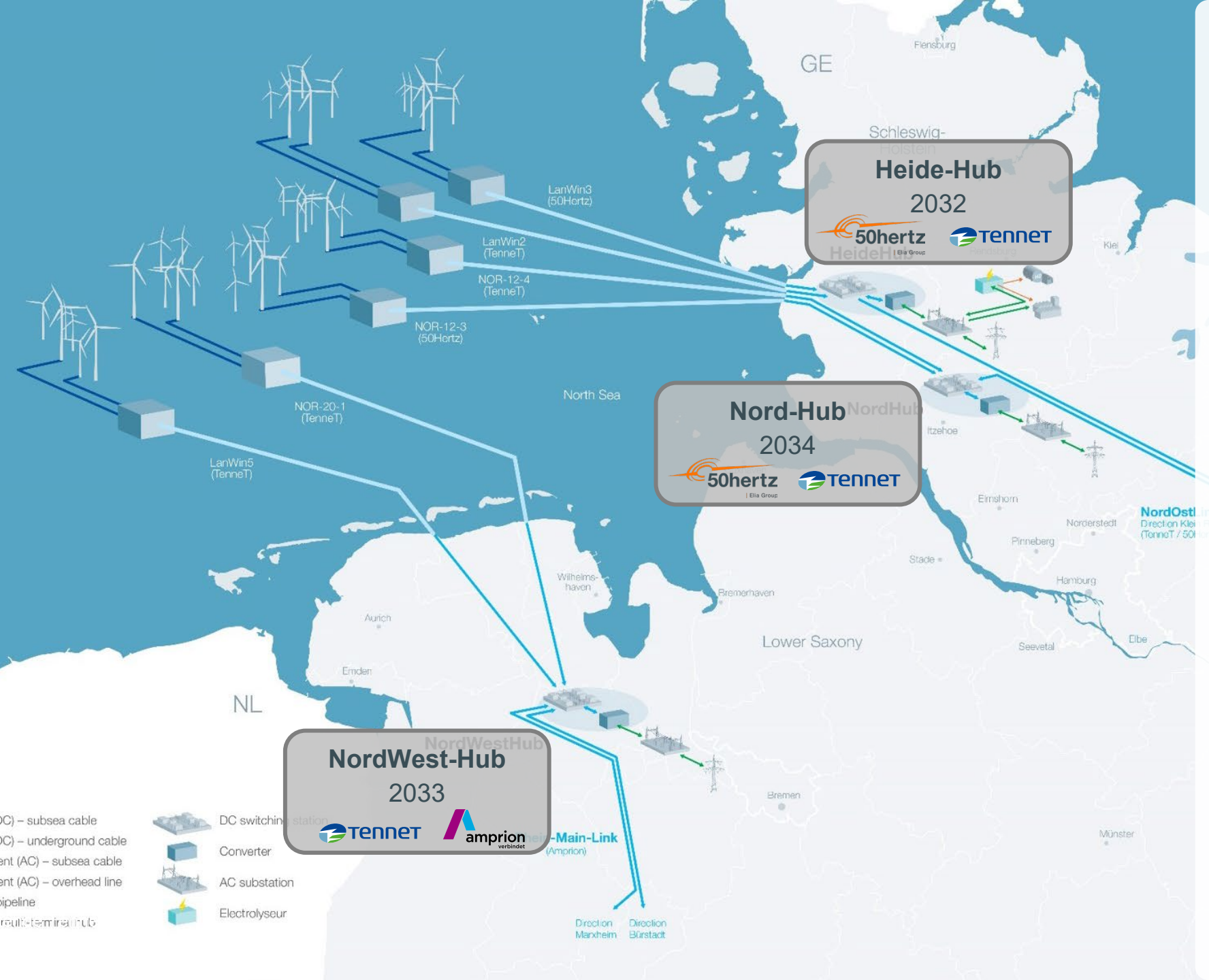
By 2031, 20 new connections will be added.

In total, we will achieve an output of around **45 GW.**

On course towards an offshore grid
The 2GW Program

With a high degree of harmonization, our **new 2GW standard lays the foundation** for an even stronger integration of energy systems in Europe: **a cross-border offshore grid.**





Planned DC-Hubs

Standardisation

- 2GW Program

System integration

- Renewable energies generated offshore and/or near-shore electrolysis
- Powerful grid connection points close to the coast

Technical innovation

- DC hubs and AC integration
- Multi-purpose use (e.g. H2)
- DC onshore interconnection
- Transfer of multivendor DC multiterminal system to Offshore

The future of offshore
International energy network

The innovation

Flexible international offshore network

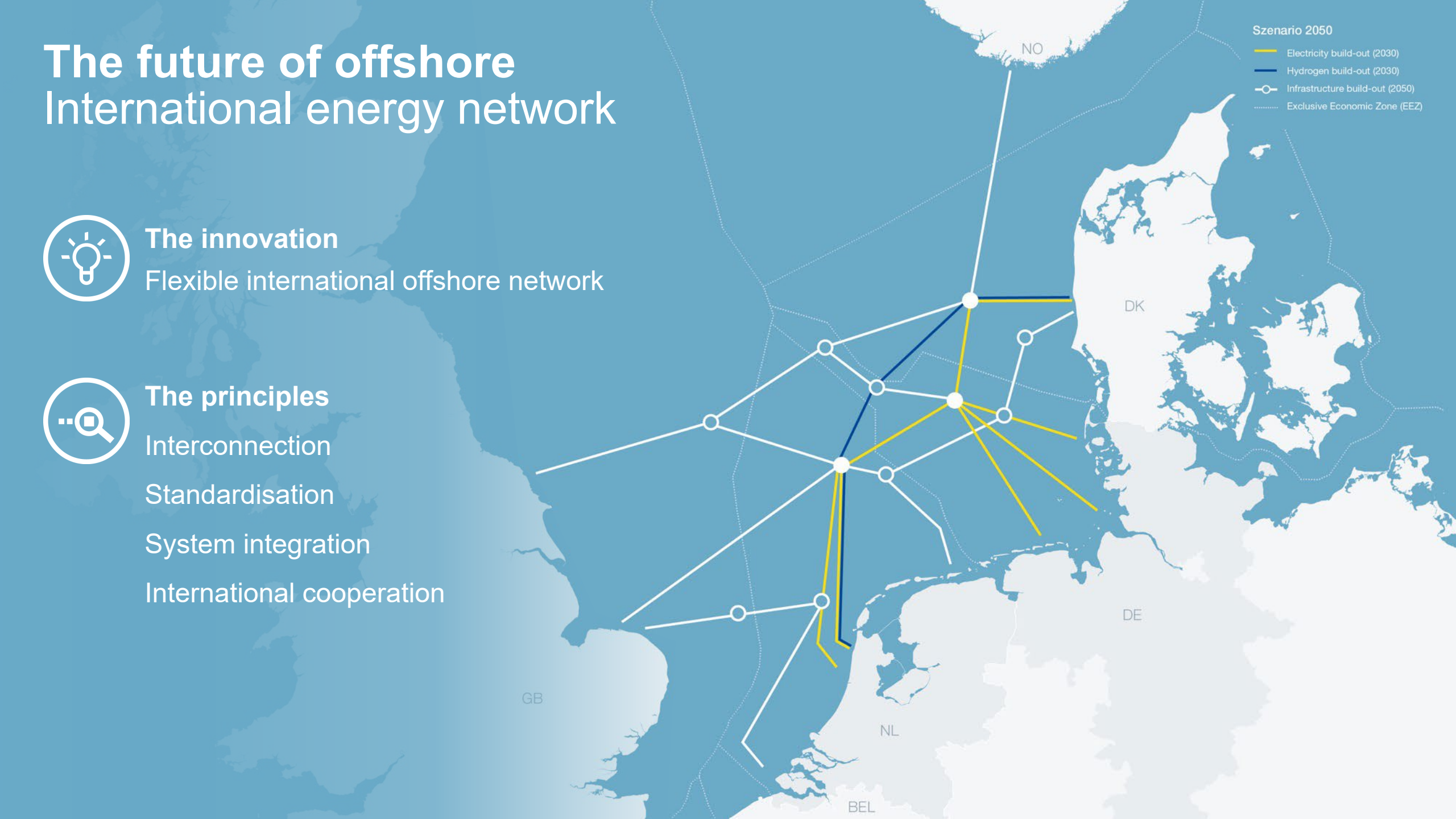
The principles

Interconnection

Standardisation

System integration

International cooperation



Europe must act now
Efficient offshore build out

Intelligent use of space: Energy output instead of installed capacity must be the goal

Maximum grid utilisation: Increasing the utilisation of the grid connection systems

To pave the way for the offshore grid of the future, the following is needed first:

- First pilot projects
- TSO-led regional planning on sea basin level
- Appropriate offshore market design
- Cost-sharing and financing solutions
- Political will and support

TenneT Germany is the largest transmission grid operator in Germany (based on grid length, investments, assets as of 31 December 2023). The company operates critical infrastructure that secures access to a reliable, sustainable and affordable electricity supply. TenneT Germany has over 4,000 employees (internal and external) and is one of the largest investors in electricity grids on land and at sea in Germany. Located at the Northwest European energy crossroads, TenneT Germany connects: North and South. Offshore and Onshore. Germany and Europe. Its growth is driven by a rapidly evolving electricity demand that requires a flexible and growing grid architecture. TenneT Germany is part of TenneT, the European leader in cross-border grid development and pioneer in linking mainland Europe to one of the world's largest renewable energy sources, the North Sea.

Lighting the way ahead together