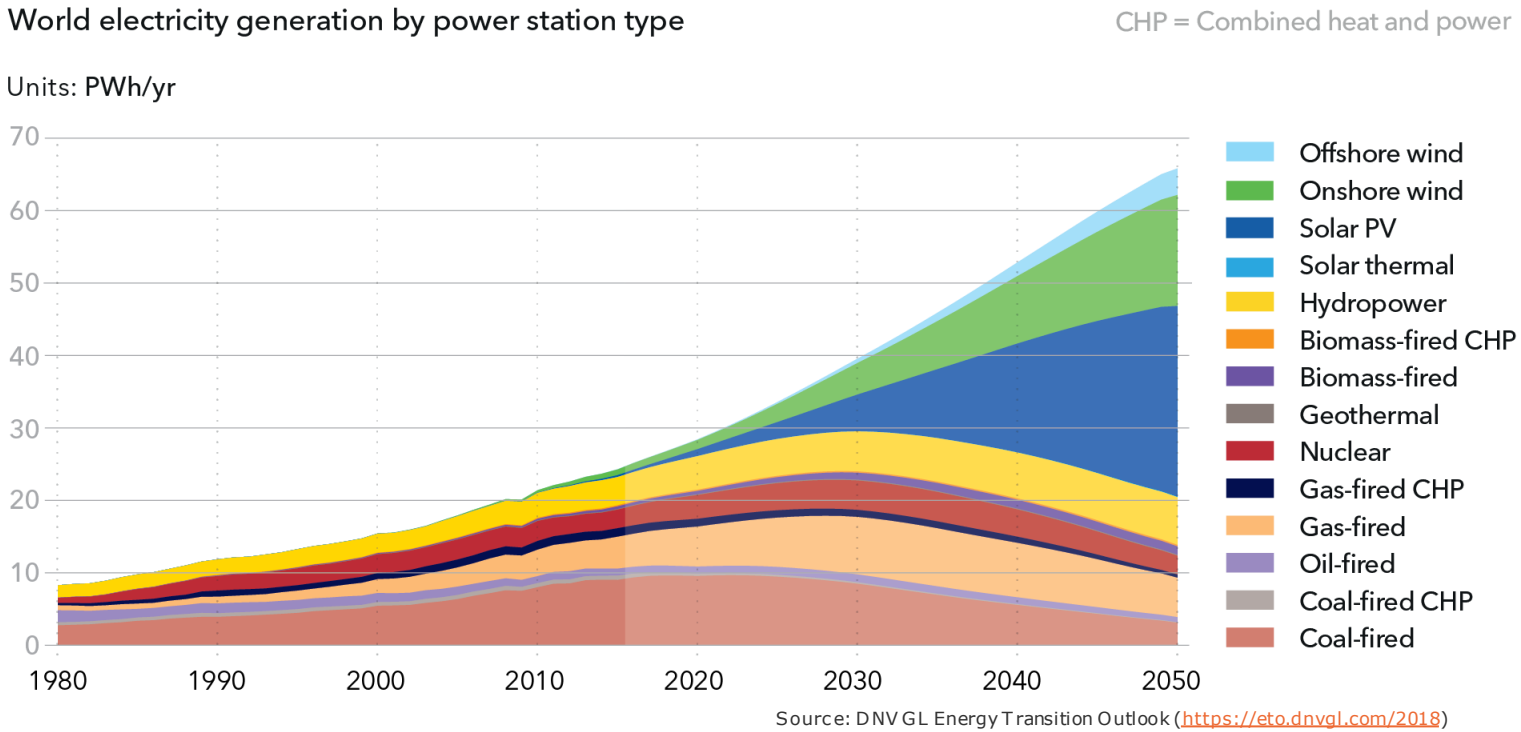
PROMOTioN
PROGRESS ON MESHED HVDC OFFSHORE TRANSMISSION NETWORKS

Progress On Meshed Offshore HVDC Transmission Networks

20th June 2019 | Arnhem | Cornelis Plet

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 691714.

The transition towards sustainable sources just started



Source: DNV GL Energy Transition Outlook (https://eto.dnvgl.com/2018)

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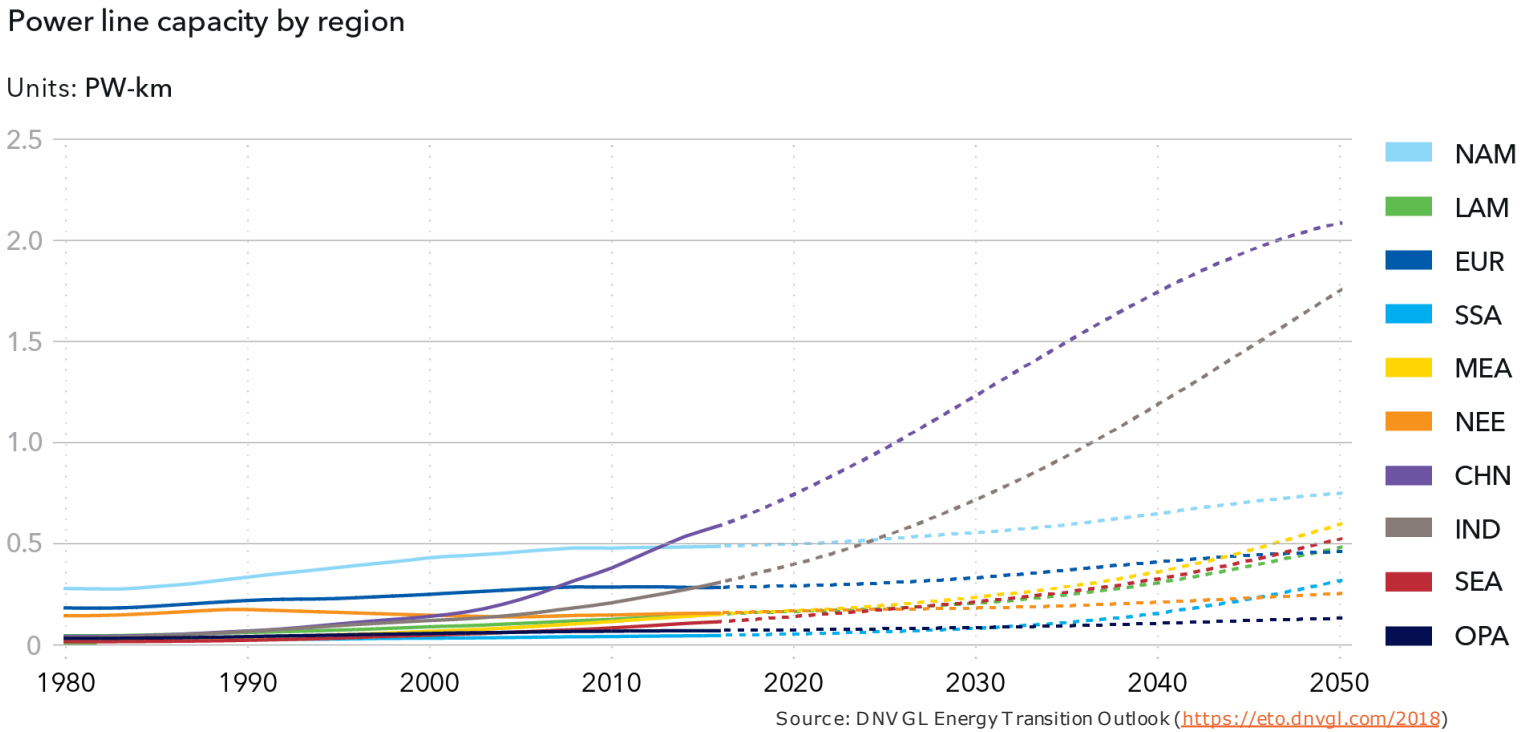
Growth of Power Lines Increases by a Factor of >3



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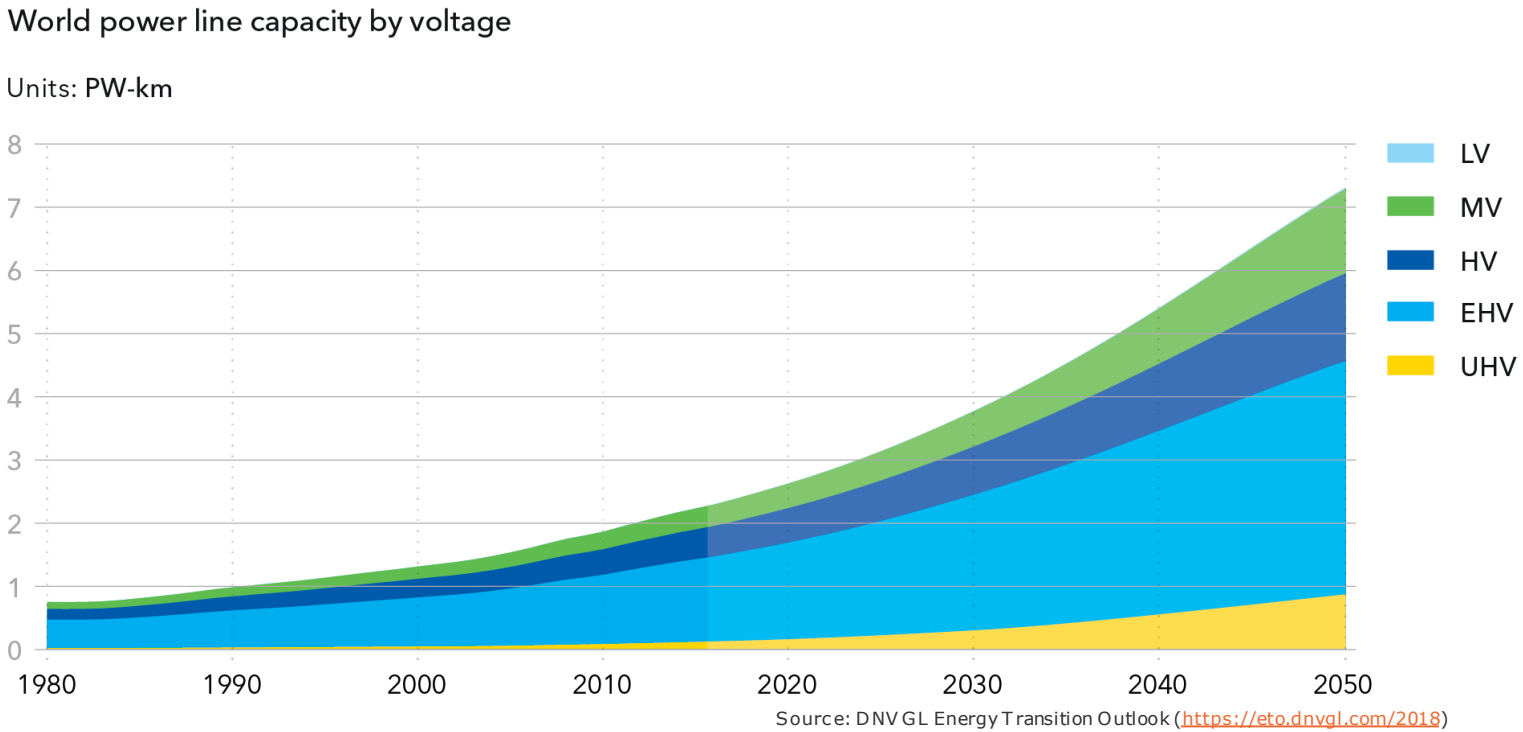
Most Growth Occurs at EHV Level



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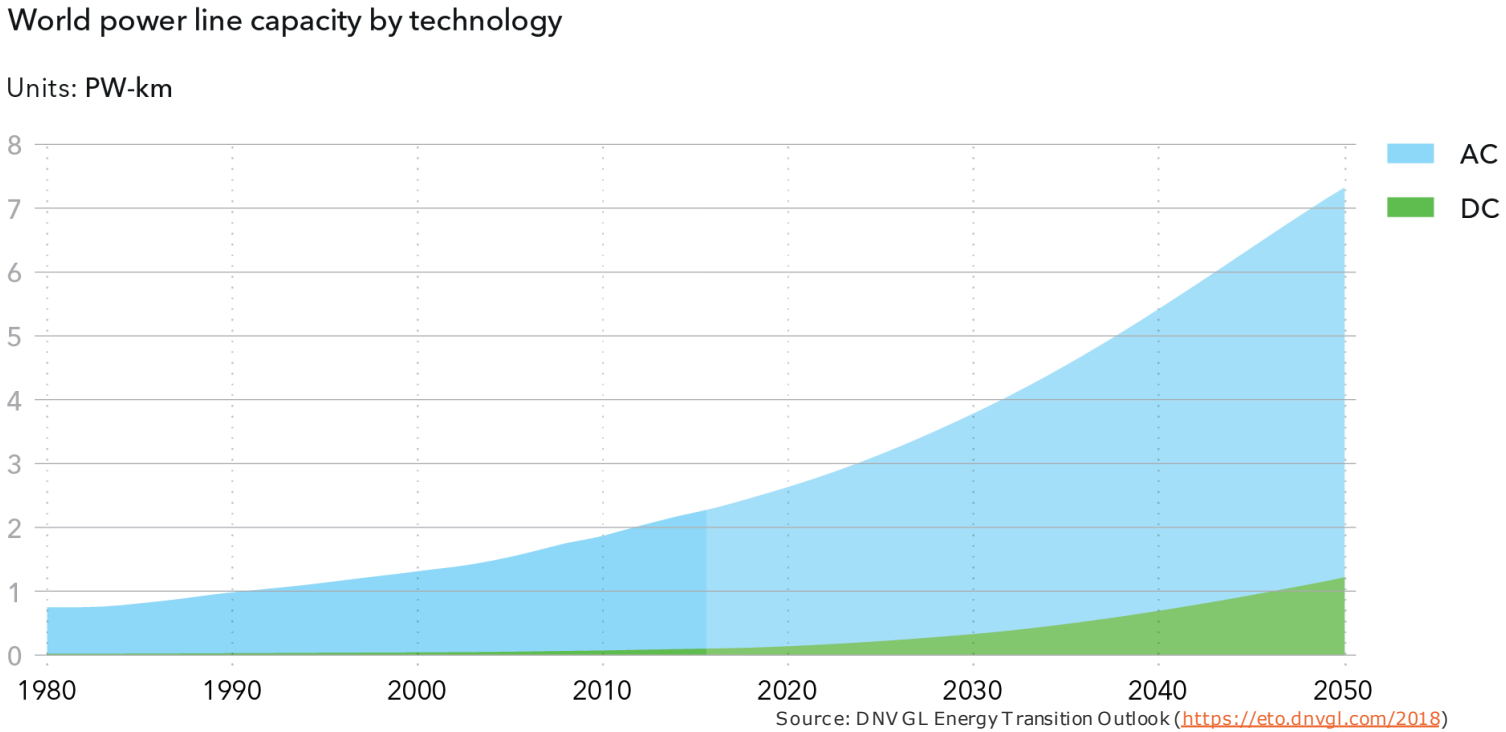
Significant Role for DC Transmission



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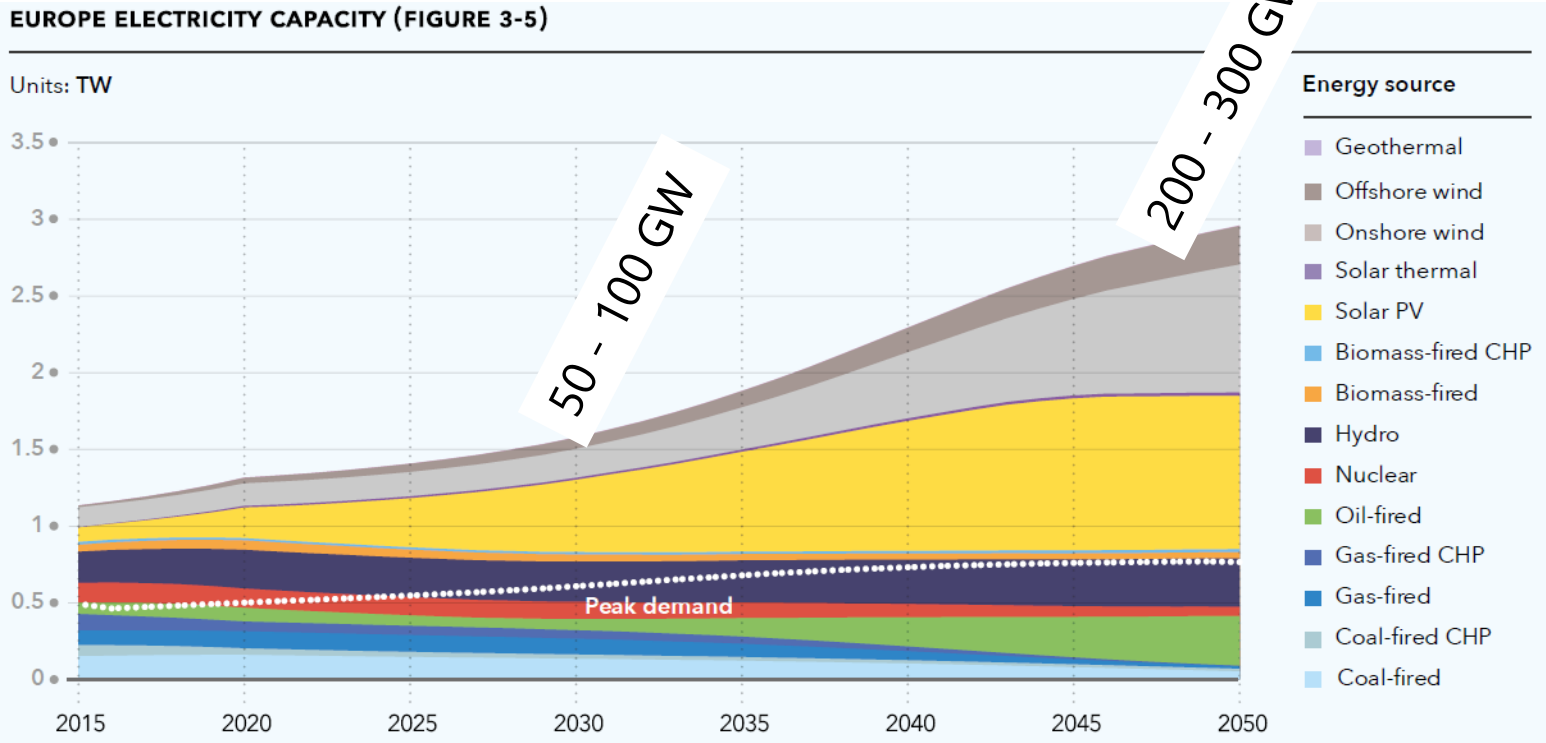
Go like the wind…



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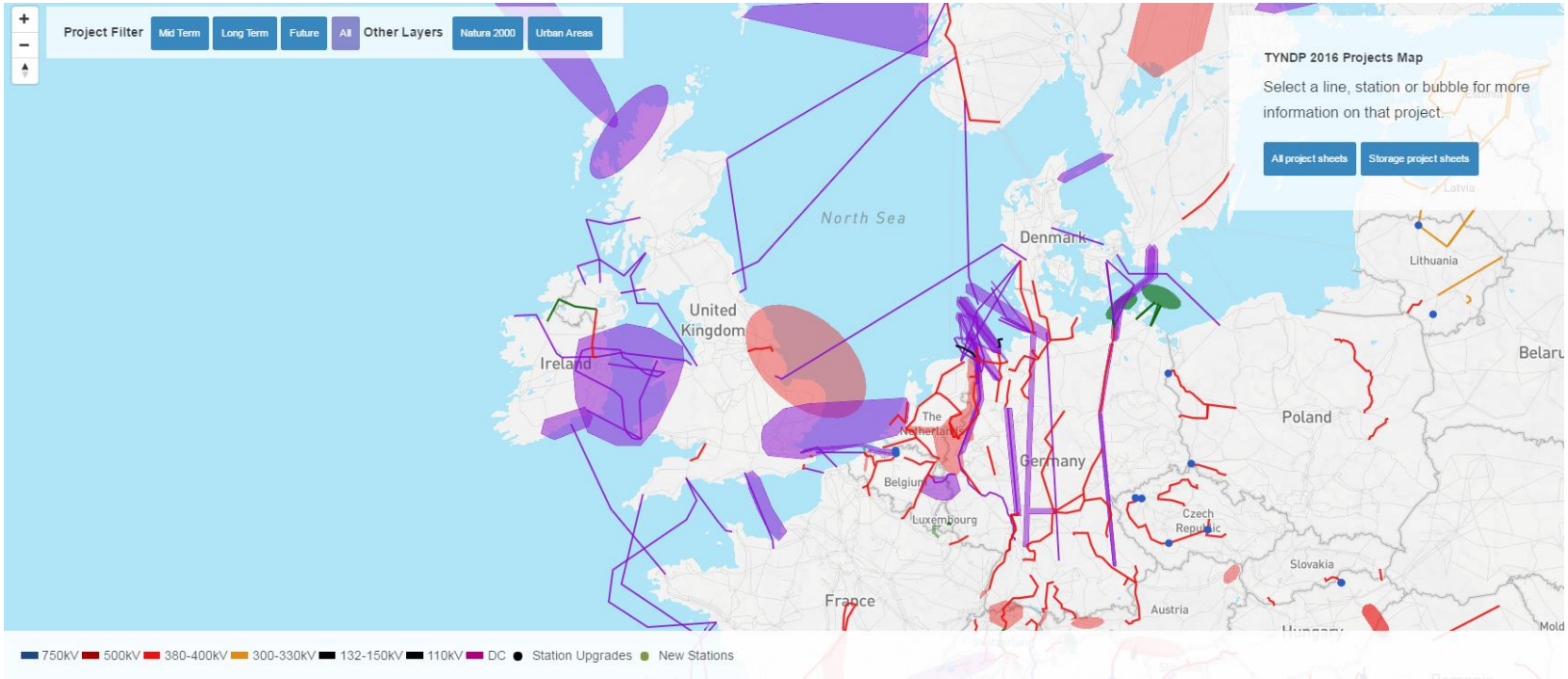
New Transmission Infrastructure



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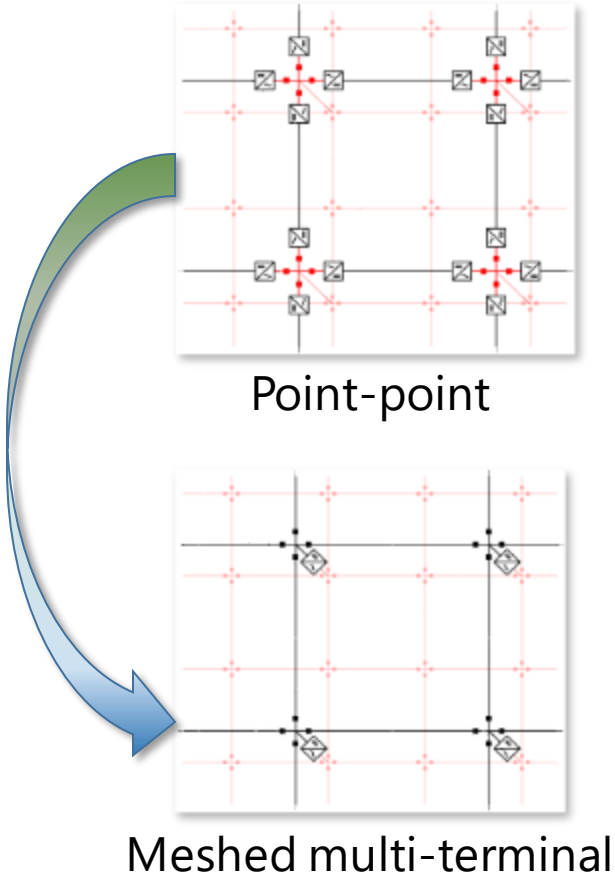
Benefits of multi-terminal HVDC networks

- **Better utilization**
  - Offshore wind power export
  - Interconnection of countries
  - Grid reinforcement
- **Higher availability**
  - Redundancy
  - Fewer converters
- **Lower losses**
  - Fewer converters
- **Lower investment**
  - Fewer converters



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Objectives

1. Establish conditions for interoperability
2. Develop protection for meshed HVDC offshore grids
3. Demonstrate key technologies
4. Develop a new EU regulatory framework and a suitable financial framework
5. Liaise with working groups and standardization bodies
6. Provide short & long term deployment plan

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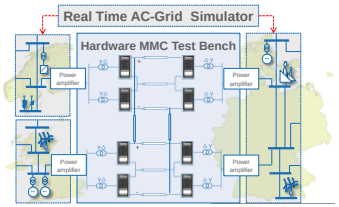
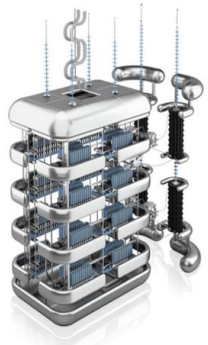
Demonstrators



HVDC network control

MMC test bench
RWTH Aachen
Aachen, Germany



HVDC circuit breakers

KEMA High Power Lab
DNV GL
Arnhem, Netherlands

HVDC network protection

Multi-Terminal Test Centre
SHE Transmission
Glasgow, UK

HVDC gas insulated systems

KEMA High Voltage Lab
DNV GL
Arnhem, Netherlands

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Statistics

33 partners

11 countries

4 years

42 million EUR

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Partners

6
TSOs

7
Manufacturers

10
Universities

5
Research Institutes / Associations

3
Consultancies

2
Developers

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APPENDIX

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