"Transmission Expansion Simulation for the European Northern Seas Offshore Grid"

João G. Dedecca, Rudi A. Hakvoort and Paulien M. Herder.

This dataset contains:

- Setup files for the case studies (OGEM_cases_setup)

- Case studies results (OGEM_dataset_case_studies)

- Extreme input verification results (OGEM_dataset_extreme_input)

- Replication verification results (OGEM_verification)

Setup files for the case studies

The setup files contain .xlsx files which can be directly read by the offshore Grid exploratory model (OGEM, https://github.com/jdedecca/OGEM)

The system description covers transmission, buses, generation, storage, renewable energy availability factors, and time series for renewable energy, inflow and demand.

Case studies results

A results file presents all (selected and not selected) expansions for all case studies. Expansions are characterized by their expansion links and capacity, and nodal prices and the welfare components for all NPV scopes are presented.

Extreme input verification results

The extreme input cases are conducted both for multiterminal and point-to-point links and are:

Free Cable - Cable cost of 0.000 M€/MW.km

High Cable - Cable cost of 0.005 M€/MW.km

Free Wind Farm Terminal - Offshore wind farm terminal cost of 0 M€/MW

High Carbon Cost - Carbon price of 200 €/t

Low Wind Farm Terminal - Offshore wind farm terminal cost 0f 0.01 M€/MW

High Wind Farm Terminal - Offshore wind farm terminal cost 0f 0.9 M€/MW

Very High Wind Farm Terminal - Offshore wind farm terminal cost 0f 5.0 M€/MW

High Discount Rate - Discount rate of 40%

Low Discount Rate - Discount rate of 0.5%

Replication verification results (OGEM_verification)

The replication files are described in the specific README file.