

DESTINATION EARTH USE CASE

CLIMATE ADAPTATION OF THE EUROPEAN ENERGY SYSTEM

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Renewables
Grid Initiative

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Analysis

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³ **Renewables Grid Initiative**

Renewables Grid Initiative – a unique cooperation between industry and civil society



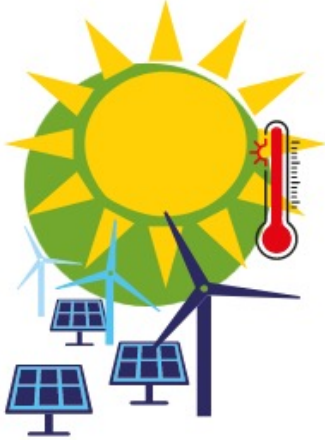


What is the Destination Earth Use Case for Energy Systems?

How can it improve climate-energy modelling?

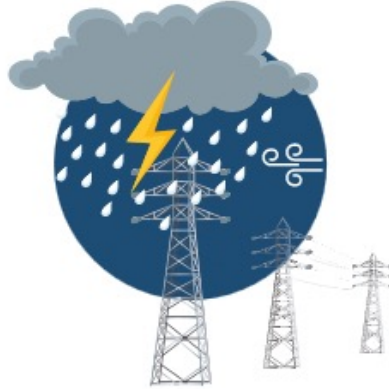
How to co-design climate-energy models?

CLIMATE IMPACTS ON THE ENERGY SYSTEM



GENERATION

Efficiency and potential of generation assets can be affected.



INFRASTRUCTURE

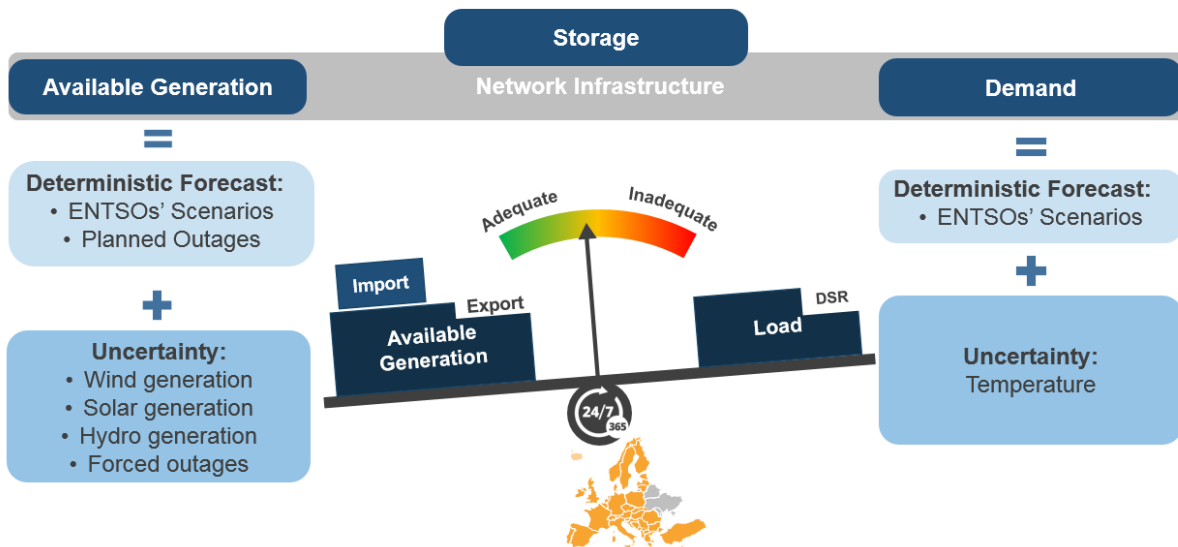
Transmission and distribution electricity grids can be disrupted.



DEMAND

Heating and cooling demands are directly affected by extreme temperatures.

PLANNING A CLIMATE-PROOF ELECTRICITY SYSTEM



ENTSO-E European Resource Adequacy Assessment (ERAA)

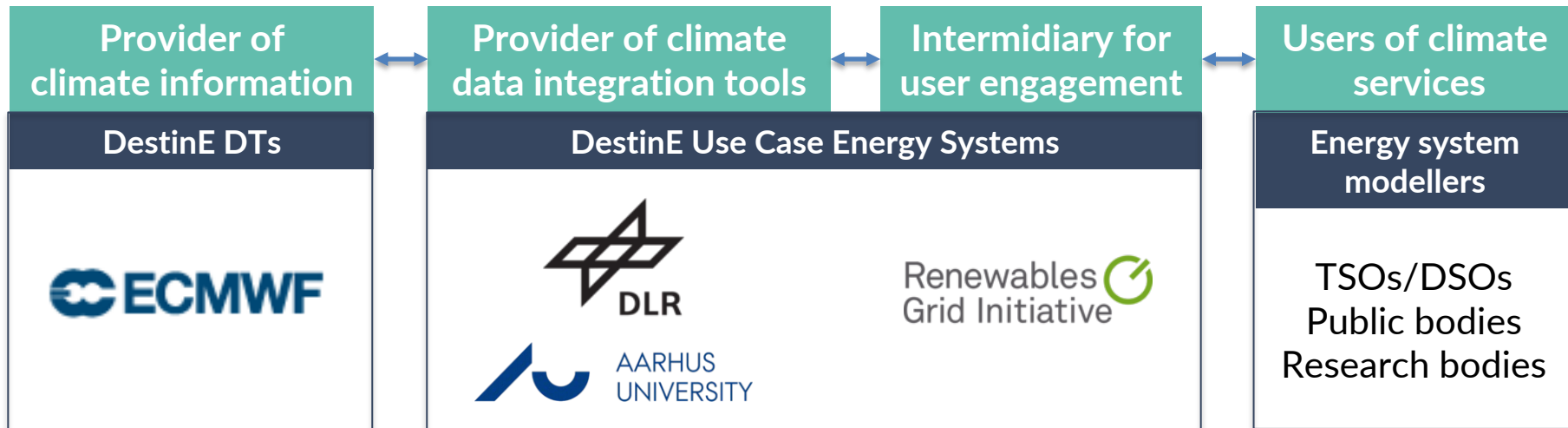


Transmission power line (ref: DLR)

- **Support the community of users**
such as **system operators for electricity** to fulfill their policy mandates
 - Tools and methods for the **integration of climate information in power/energy system models**
 - Provide **guidance**, expert knowledge

- **Contribute to the co-design of Destination Earth Climate DT**
by showcasing the use of **climate information in power/energy systems modelling**
 - Express data needs from the use case

ACTORS OF THE DESTINE USE CASE ENERGY SYSTEMS



USER NEEDS

Development stage



Use case specification



Pilot implementation



Demonstration



Performance and impact
assessment

- ✓ Identify standard workflows and datasets
- ✓ Identify user needs
 - Speeding-up power system and market simulations
 - Sensitivity and uncertainty analysis



User Needs Workshop – 02/2023

USER'S STANDARD WORKFLOW

Development stage



Use case specification



Pilot implementation

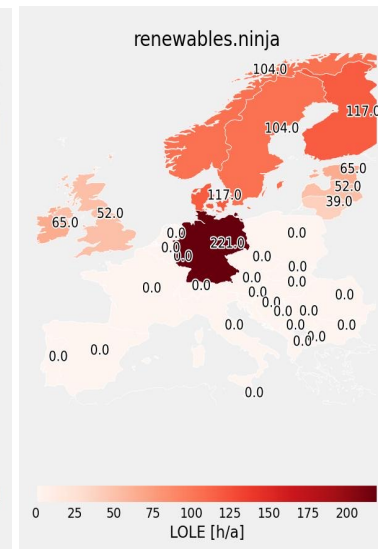
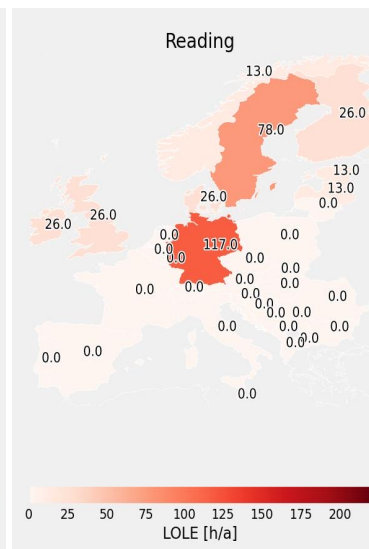
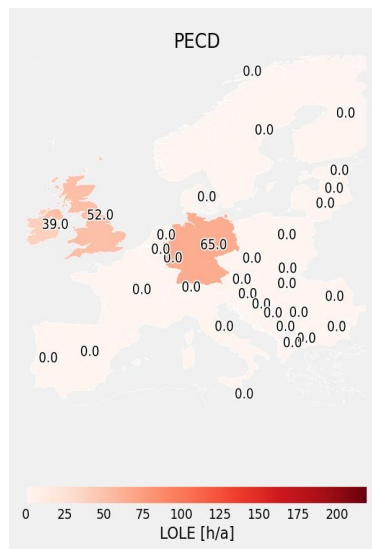


Demonstration



Performance and impact
assessment

- ✓ Implementation of European Resource Adequacy Assessment
- ✓ Assessment of sensitivity to different climatic years, capacity scenarios & meteo datasets



Development stage



Use case specification



Pilot implementation

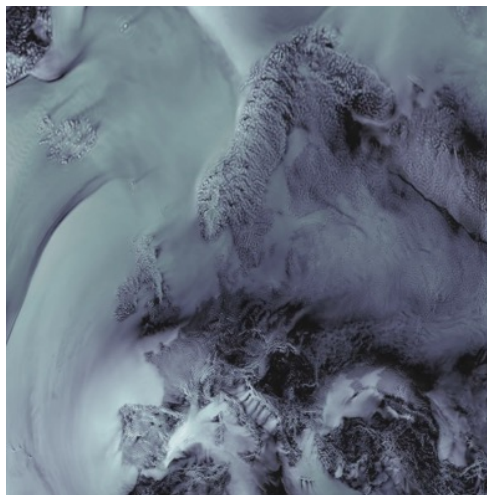


Demonstration

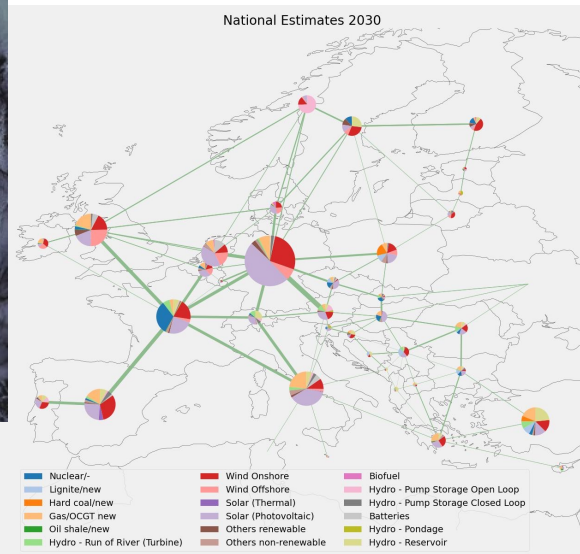


Performance and impact
assessment

- ✓ New tools and methods addressing user needs
- Use of ClimateDT data



N. Koldunov (AWI, Visualization), T. Rackow (ECMWF, Simulation), NextGEMS project



USER PERSPECTIVES

Development stage



Use case specification



Pilot implementation



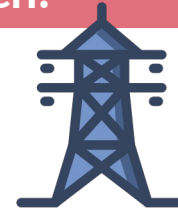
Demonstration



Performance and impact
assessment

- User survey in 12/2023
- User Perspective workshop in 02/2024

Get in touch!



Bridging climate and energy modelling

Challenges and needs are (increasingly) real

Different levels of awareness among actors

Users interest to explore the use of ExtremeDT data

Get in touch!



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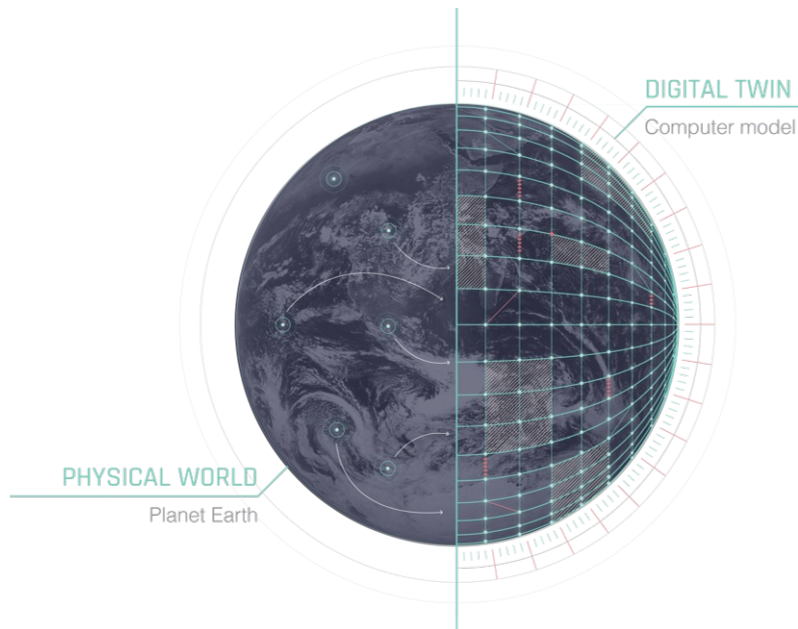
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Destination Earth implemented by

