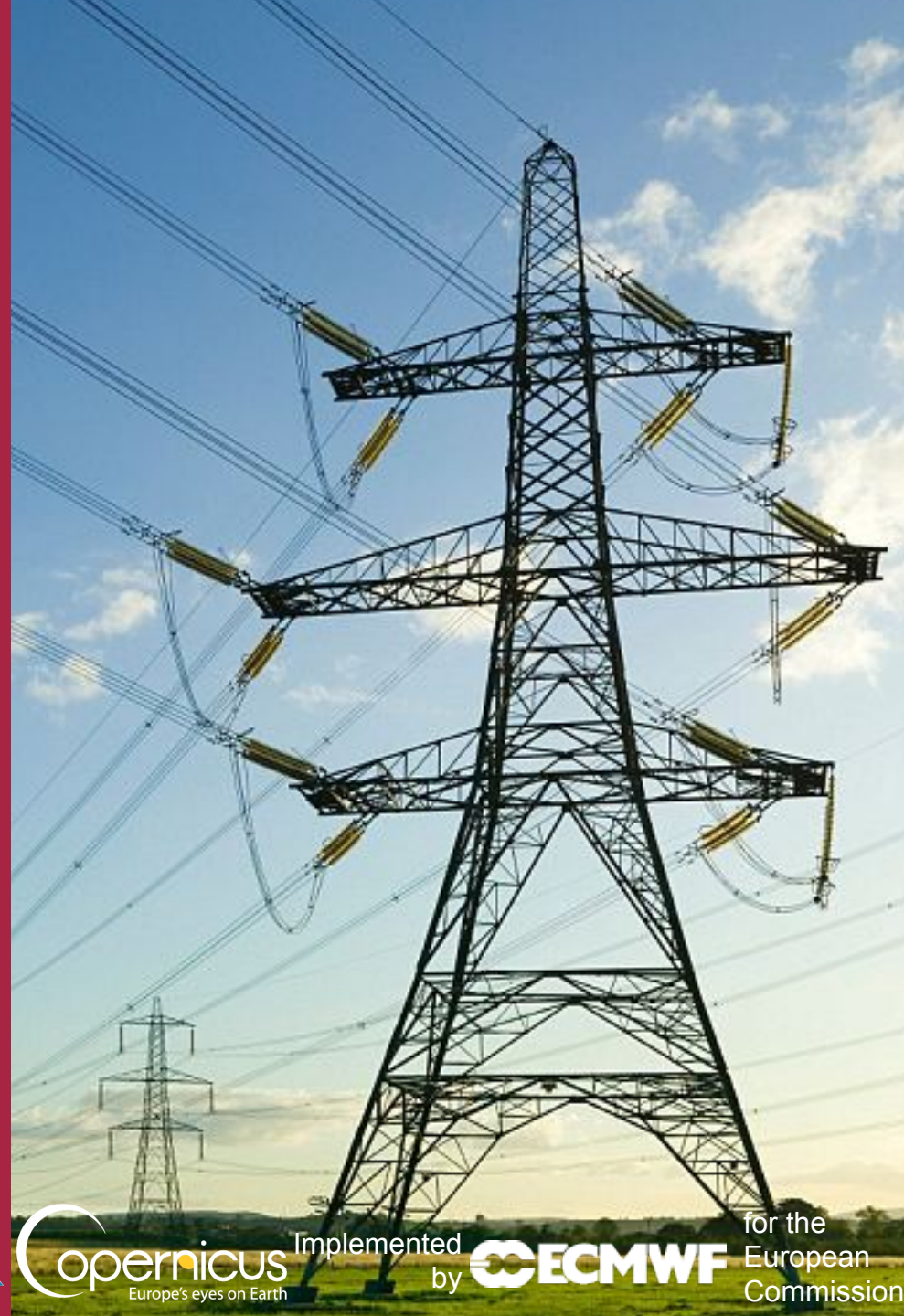


European Climatic Energy Mixes (ECEM)

**Alberto Troccoli &
The ECEM team**

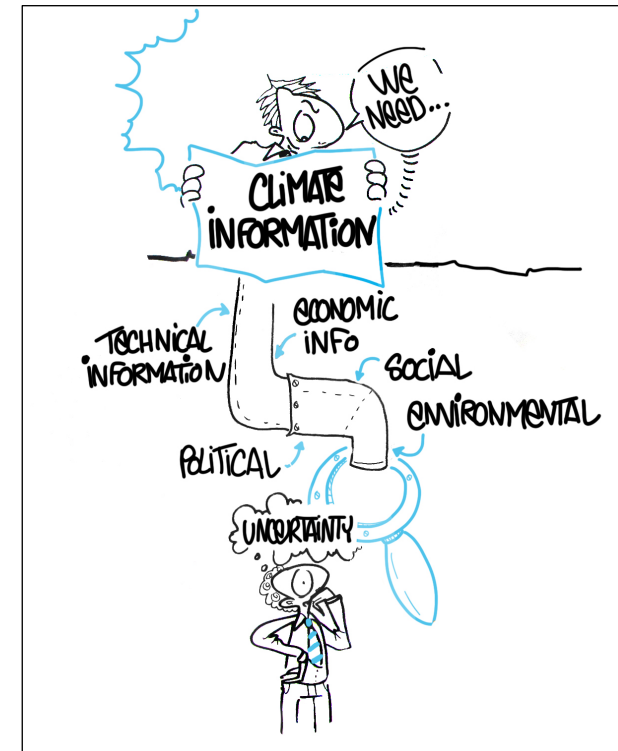
30 March 2016



Motivation

How will climate affect future energy mixes?

- ★ The **energy sector** is undergoing a **major transformation** – increasing share of power supply from variable renewable energy (RE) sources, demand variability is also increasing;
- ★ This is taking place against a **variable and changing climate**. Thus it is important to develop robust climate-based tools to advise energy planners and policy makers



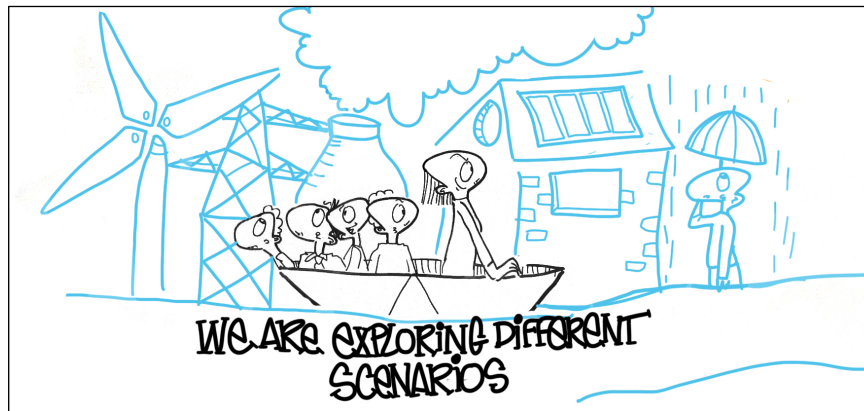
Impacts

- ★ ECEM provides input to energy experts in charge of anticipating the transformation of the sector, through either long-term planning or medium-term operational activities;
- ★ Does the role of temperature on thermal plant efficiency, or the variability of renewable energies, or indeed the climate-related variability in demand impact your sector? If so, ECEM could assist you with your work.



Objective

- ★ Integration of energy & climate information for energy mixes assessment
- ★ Is climate important for energy planning?
- ★ What can climate research & development learn from interaction with energy sector?
- ★ ECEM service is produced in close collaboration with prospective users



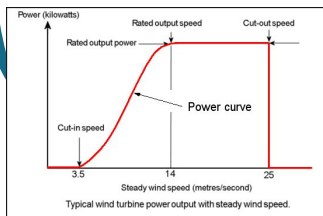
From Climate variables to Energy systems

Calibrated ECVs (WP2)

Temperature
Rainfall
Wind Speed
Cloud Cover
Solar Radiation
Others ?
River Discharge

+Ancillary

Define Models / Transfer Functions
Select / Gather relevant Datasets



Energy Variables

Demand
Wind Power
Solar Power
Thermal Power
Hydro Power

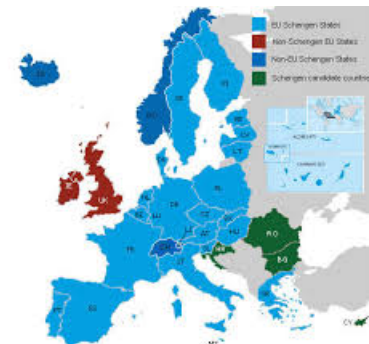
- Skill & Reliability
- Assessment of Seasonal Forecasts of Energy Variables

+ Extreme Events Case Studies

Impacts of Climate Variability & Change on Energy Variables

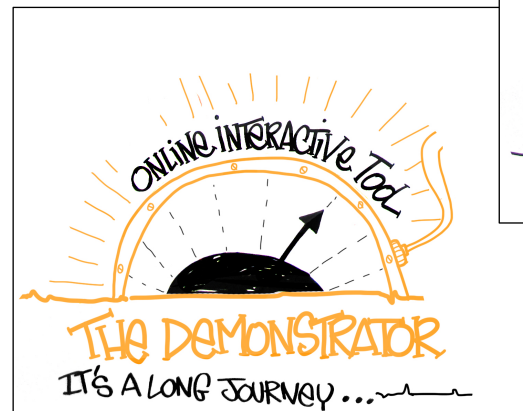
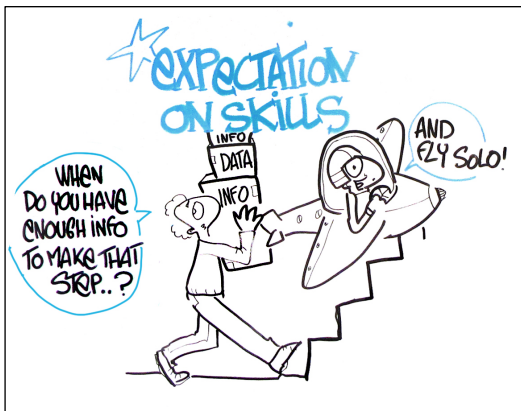
- Country Scale
- Historical Period
- Seas. Fcst
- Clim. Proj.

WP4



The Demonstrator

The purpose of the ECEM demonstrator is to enable the energy industry and policymakers to assess how well different energy supply mixes in Europe will meet demand, over different time horizons (from seasonal to long-term decadal planning), focusing on the role climate has on the mixes.



Thank you

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