

# How can seasonal climate forecasts help your business?

Prof. Alberto Troccoli

University of East Anglia and World Energy & Meteorology Council, Norwich, UK

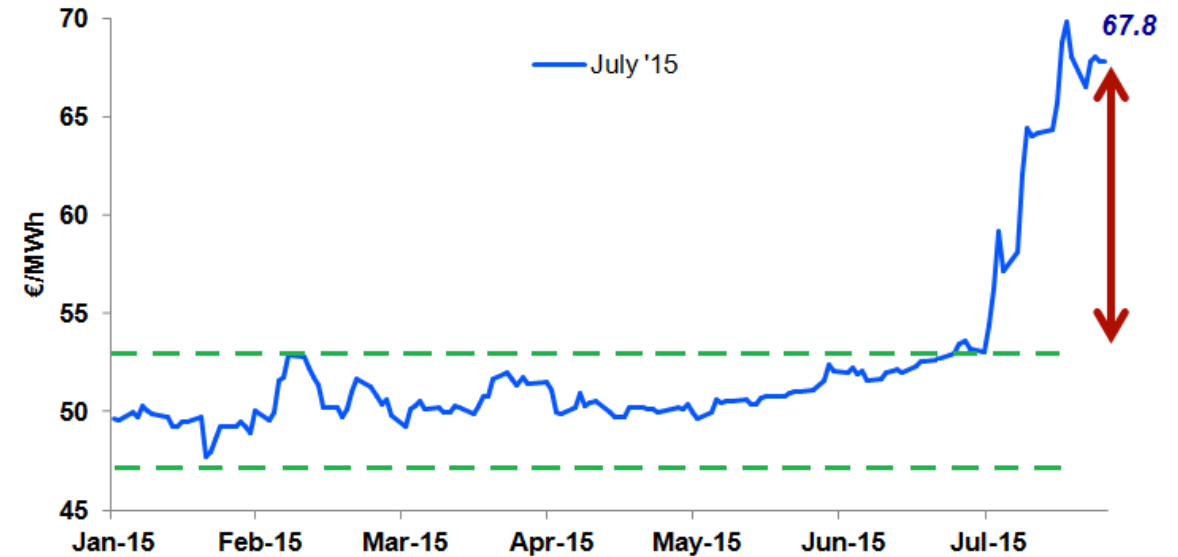
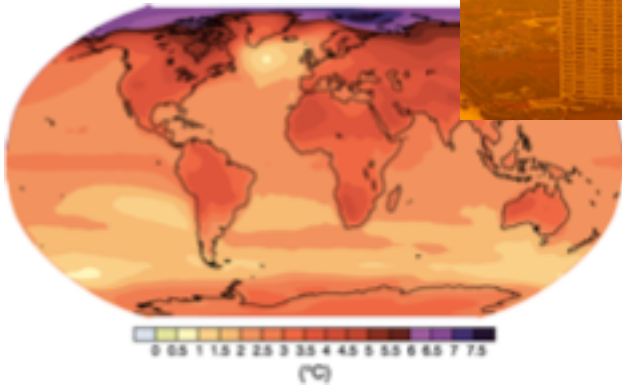
1<sup>st</sup> SECLI-FIRM Stakeholder Workshop, Brussels, 7 June 2018

- Why this EU H2020 Research & Innovation Project  
The Added Value of **Seasonal Climate Forecasts** for Integrated **Risk Management Decisions** (SECLI-FIRM)?
- How SECLI-FIRM will assess the value of seasonal climate forecasts
- What will SECLI-FIRM produce



## The Added Value of **Seasonal Climate Forecasts** for **Integrated Risk Management Decisions** (SECLI-FIRM)

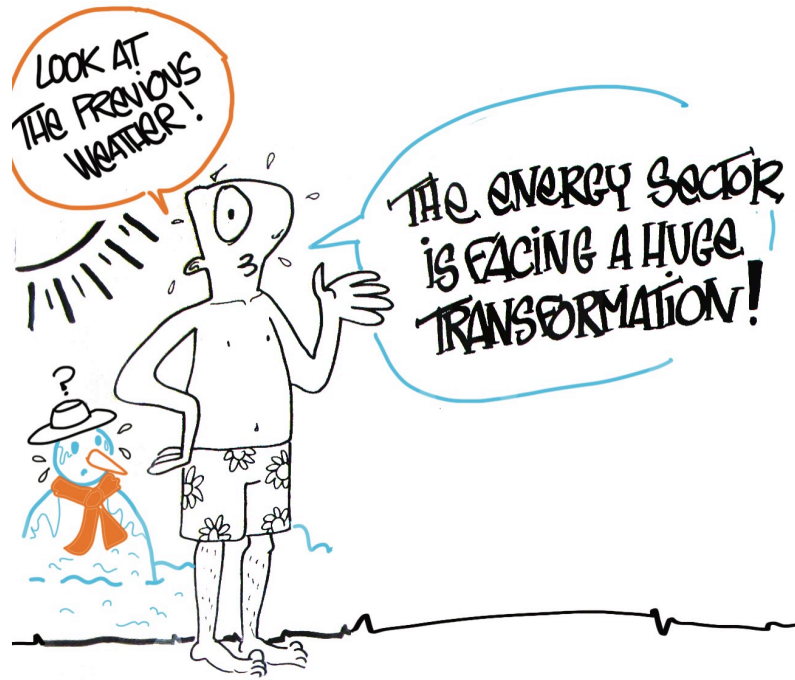
- Duration: 42 months – Feb 2018-Jul 2021
- Partners: 9 (see logos below)
- Budget: 4.6 M€



Italian spot power prices in July 2015

Climatic factors play an increasing key role in portfolio management of energy and water industries due to changes in both the climate and industry

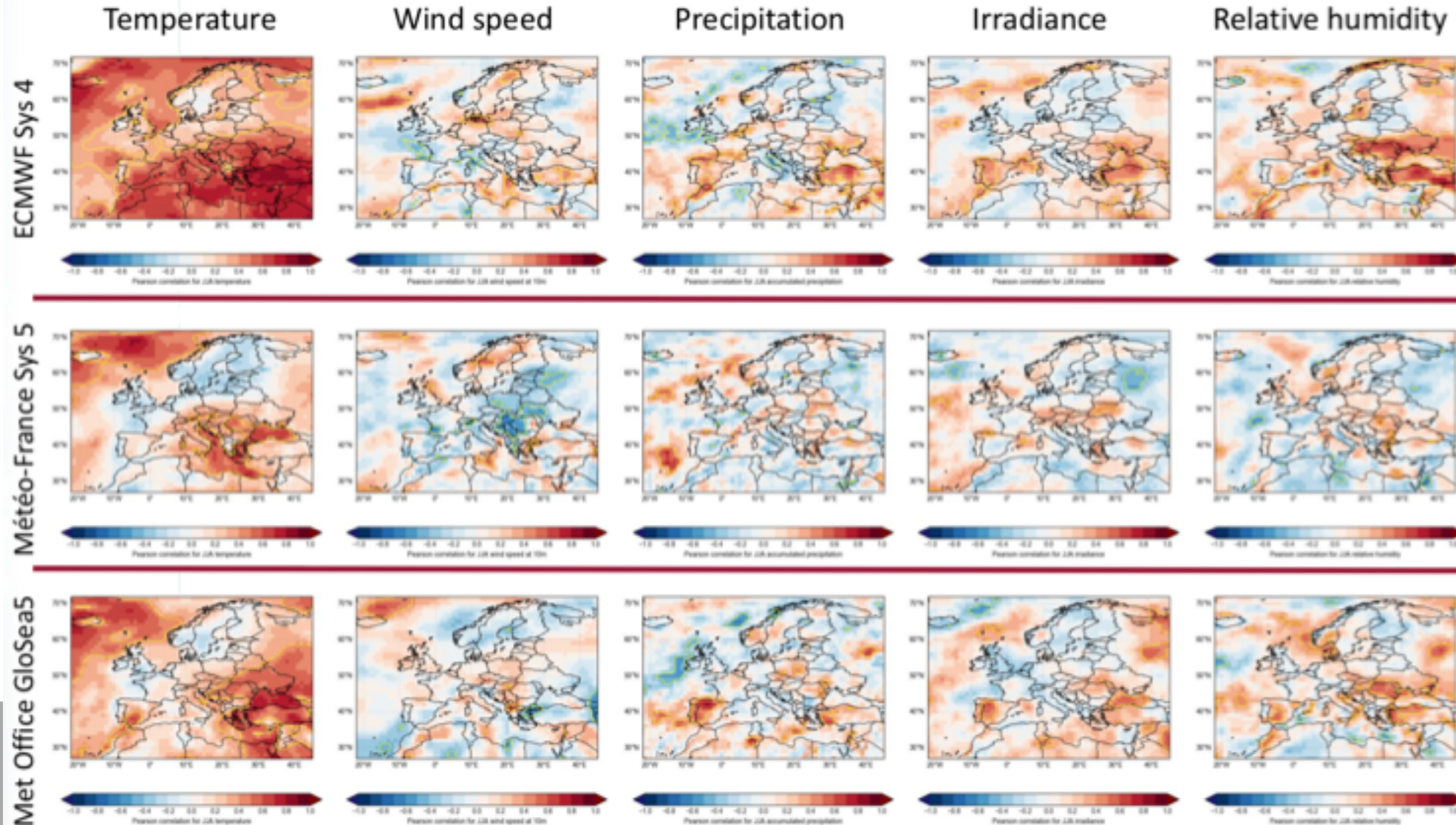




An increasing proportion of weather-dependent generation is being injected into the power systems. Let's not forget energy demand also is affected by climate.

Correlation  
for Summer  
(Jun-Jul-Aug)  
with forecast  
start date  
1 May

Bett et al., 2018

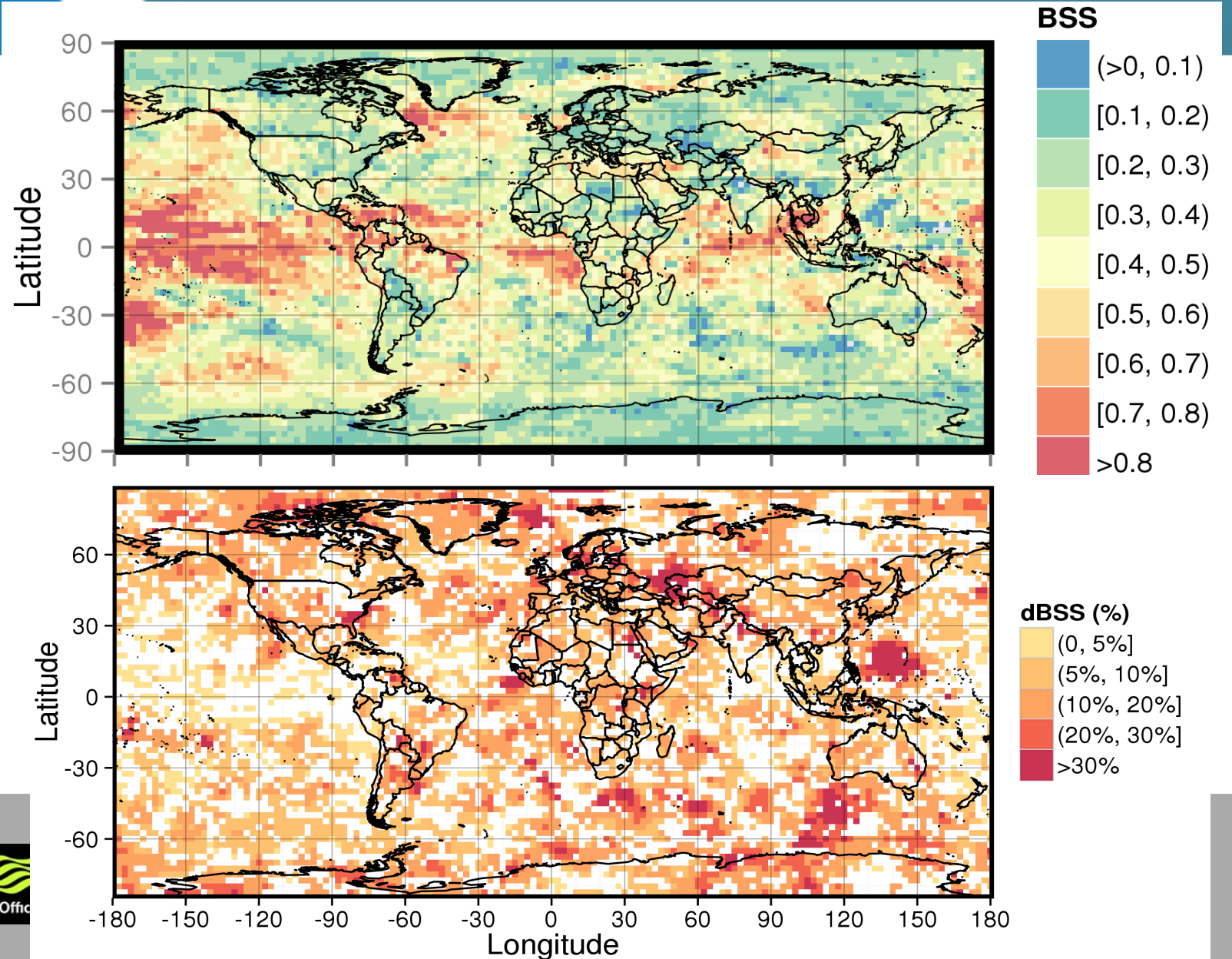




Max [Grand MME]

Max [Grand MME] minus  
Max [ENSEMBLES or  
CliPAS/APCC] JJA

Alessandri et al., 2017

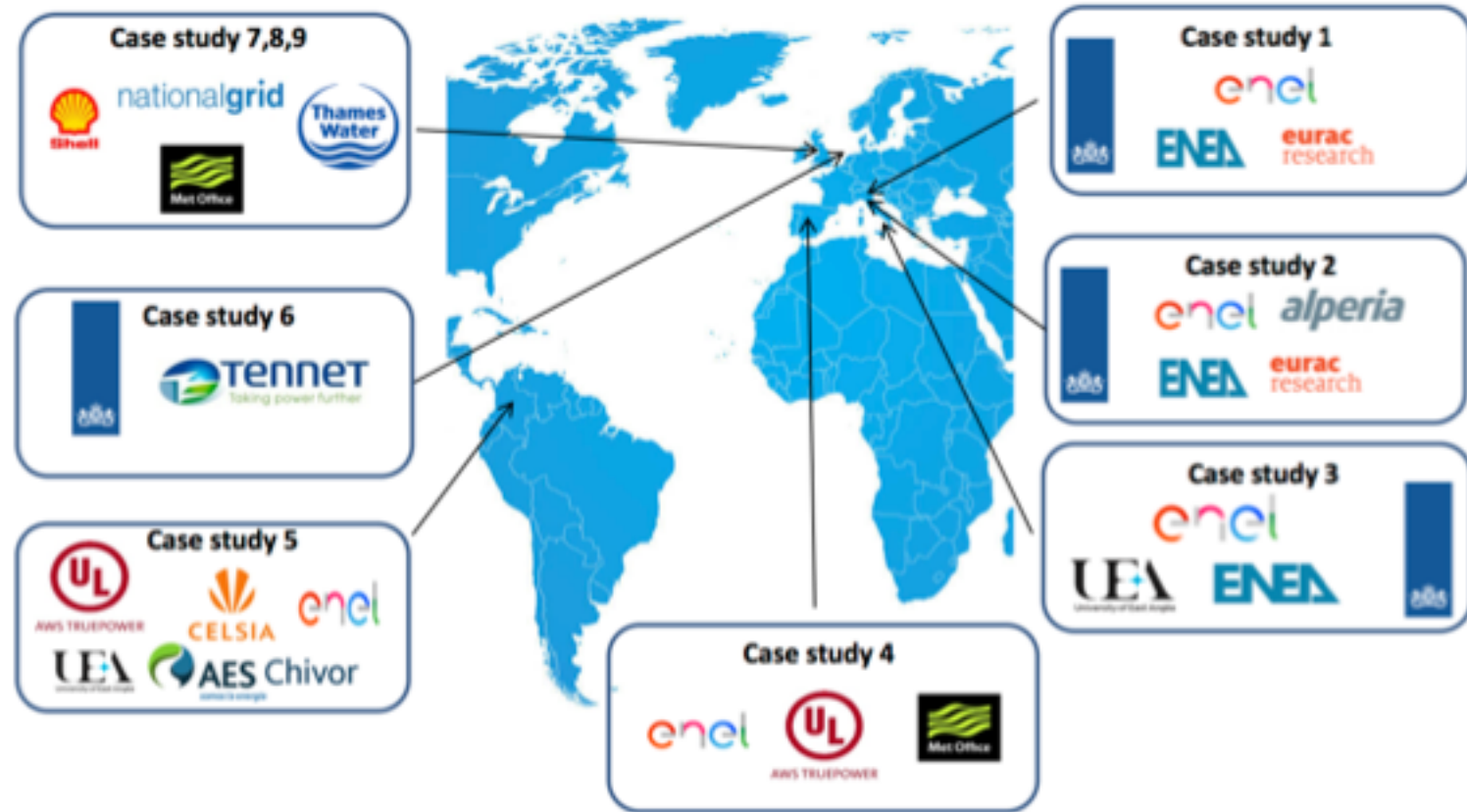




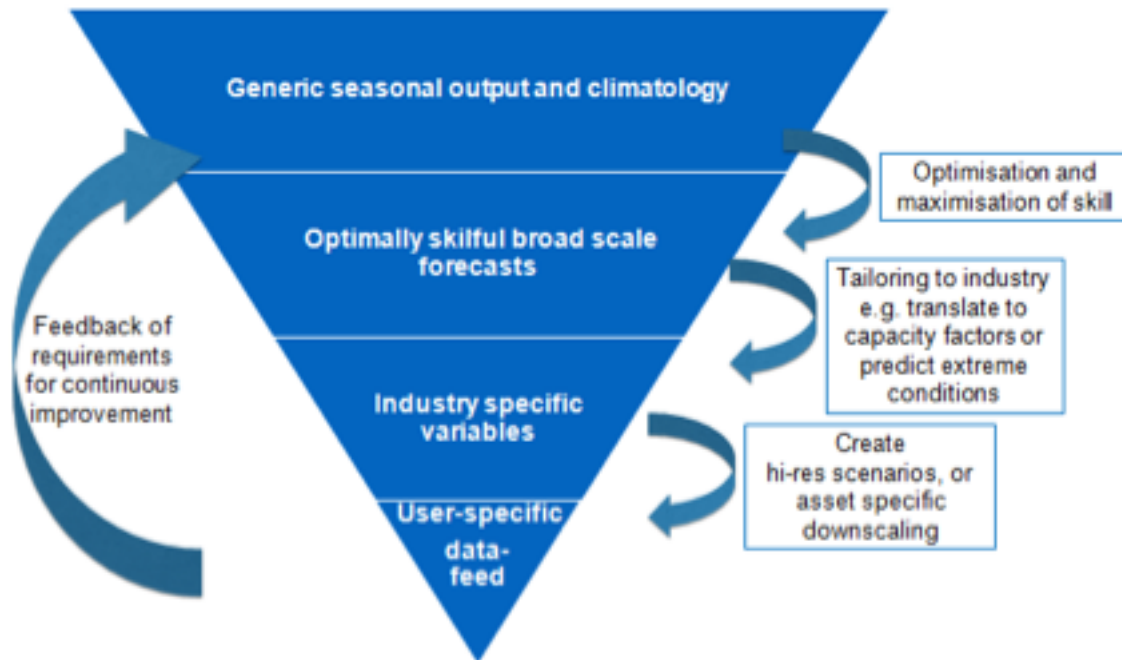
A control case will only utilise climatological conditions based on historical averages, while a test case will also consider individually optimised and tailored state-of-the-art probabilistic seasonal forecasts

Nine cases for Europe and S. America will be investigated.

These represent recent seasons with anomalous climate conditions leading to problematic and quantifiable impacts for the energy and/or water industry. They will be co-designed by industrial and research partners



## Process Chain for Seasonal Forecasting



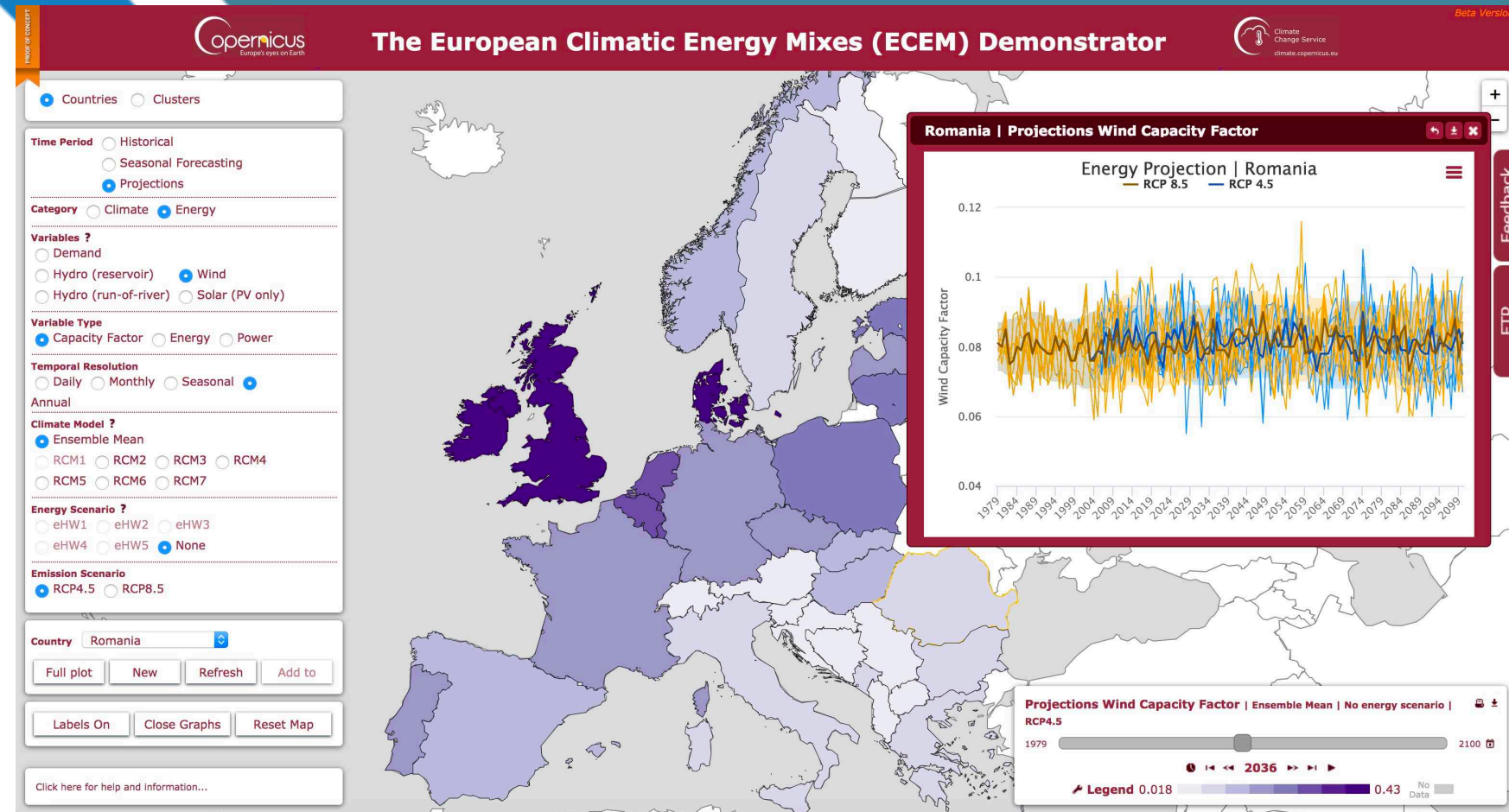
SECLI-FIRM will tailor seasonal climate forecast for decision making according to tested procedures



1. Enhanced performance of seasonal climate forecasts in specific geographical areas applied to particular industry user-defined questions
2. Quantified (socio-)economic added-value of seasonal climate forecasts for the case study examples
3. A proof of concept/demonstrator of climate service, building on existing technology developed by EU Copernicus Climate Change Service



SECLI-FIRM will demonstrate how the use of improved seasonal climate forecasts can add socio-economic value to decision-making, in the energy sector, as well as in the water sector, with implications for other sectors



<http://ecem.climate.copernicus.eu/demo>



## Use of seasonal forecasts by the UK National Grid Operator

### Case Study 8

### Winter weather & energy system balancing

DRAFT DOCUMENT – version 0

The objective is to illustrate the benefits of using seasonal forecast information to better predict the UK winter mean electricity demand and wind power



## Wind and wave conditions during seasonal 'shoulder' months in the North Sea and energy logistics

### Case Study 7 Wind & wave conditions and energy logistics

DRAFT DOCUMENT – version 0



The aim of this case study is to illustrate the application of seasonal forecast in the offshore oil and gas industry for the identification of calm weather windows in autumn and spring months to reduce operational costs



**Executive Summary: Wind and wave conditions during seasonal 'shoulder' months in the North Sea and Energy logistics**

#### Boosting Decision Making

The aim of this case study is to illustrate the application of longer-range forecast data than are typically used by the offshore oil and gas industry for the identification of calm weather windows in autumn and spring months, facilitating earlier decision-making and reduced operational costs for the marine energy sector.

#### The seasonal forecasting context

Seasonal forecast evaluation will consider the skill of predicting calm weather windows in autumn (September to November) and spring (March to May) months in the North Sea within the years 2016 to 2018 – illustrated from the point of view of the Asset Manager or Meteocean Engineer planning operations such as those involving drilling, large infrastructure installation or decommissioning activities.

#### Sectoral challenges and opportunities

The expense of working in the offshore environment places special emphasis on the requirement to reduce supply chain costs, such as those related to vessel charter and personnel management, through efficient operational planning. At present, the application of the latest weather science developments by the offshore oil and gas industry is traditionally very conservative, with limited use of fortnightly, monthly and sub-seasonal outputs, or even climate projections and teleconnections.

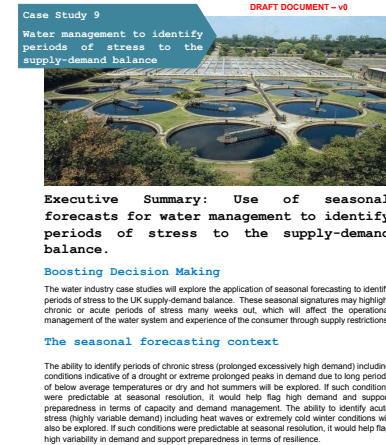
## Use of seasonal forecasts for water management to identify periods of stress to the supply-demand balance

### Case Study 9

Water management to identify periods of stress to the supply-demand balance



By targeting periods of stress to the UK supply-demand balance, we will assess the role of seasonal forecasts in the operational management of the water system and in the experience of the consumer through supply restrictions





# Thank you for your attention

If you would like to know more about the  
SECLI-FIRM project, please visit:

<http://www.secli-firm.eu>