



Climate services for energy: sharing knowledge through case studies

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This project has received funding from the Horizon 2020 programme under grant agreement n°776787. The content of this presentation reflects only the author's view. The European Commission is not responsible for any use that may be made of the information it contains.

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- ▶ Why do we need to elaborate case studies?
- ▶ Case studies application: example of case study development in the S2S4E project
- ▶ Main challenges and key learnings
- ▶ Q&A

Objectives

- ▶ Understand why developing case studies is relevant before, during and after the development of the S2S4E project.
- ▶ Identify how we can use case studies with potential users.

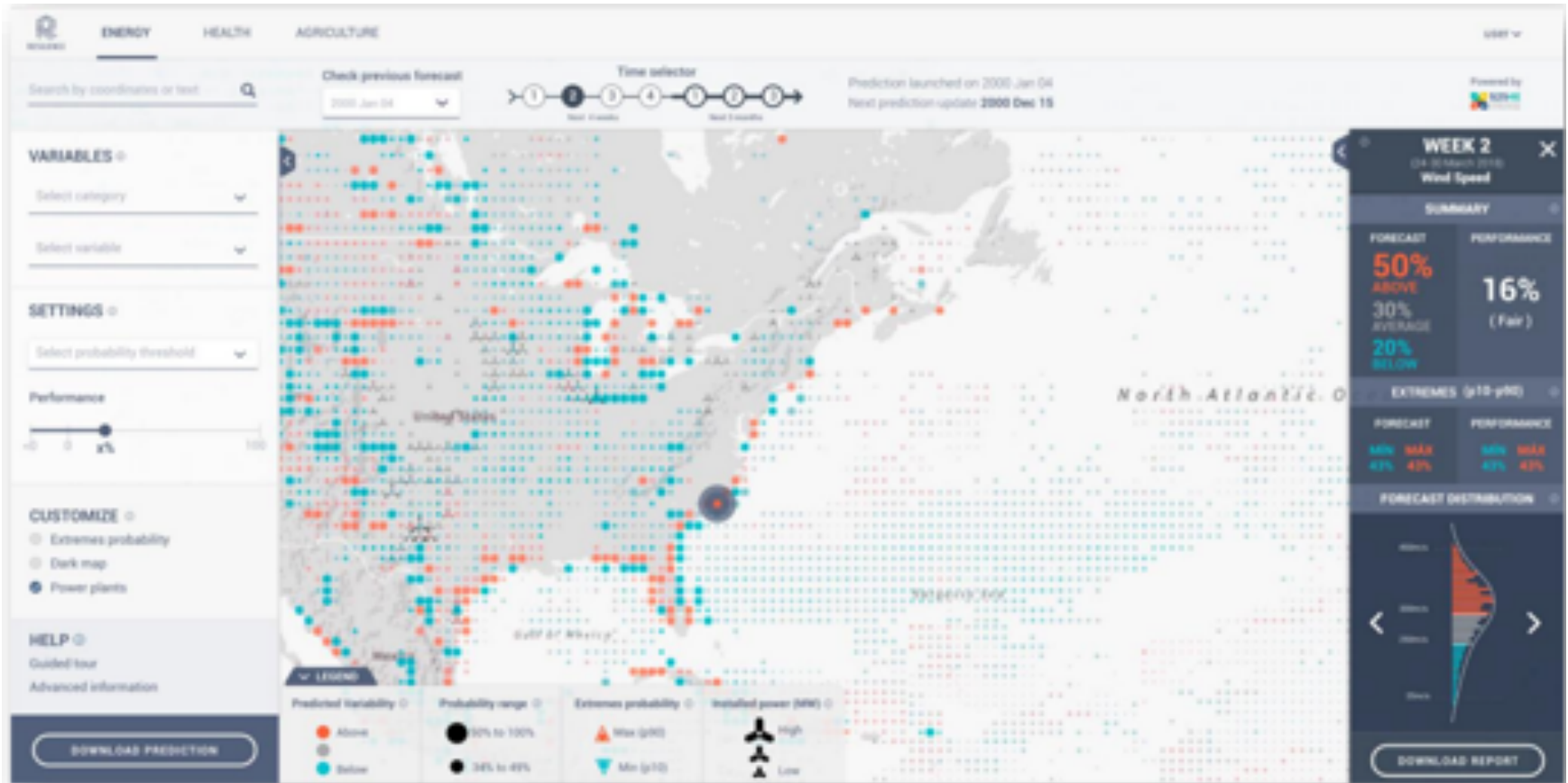
The S2S4E project - DST

- ▶ Sub-seasonal to Seasonal climate forecasting for Energy
- ▶ 3 year project, funding by the European Union H2020 programme for **Research and Innovation action** (GA n°776787)
- ▶ Consortium led by BSC with 12 partners (European research centres, energy companies, SMEs and consultancy firm)



- ▶ S2S4E project aims to make the European energy sector more resilient to climate variability and high impact events, by **offering a new decision support tool (DST)**. The tool is based on S2S climate predictions, to help energy industry and policy makers to assess how well different RE sources will meet demand over extended time horizons (weeks to months).
- ▶ S2S4E DST launch during the European Sustainable Week 2019, and a beta version is now free available (<https://s2s4e-dst.bsc.es/#/>)

S2S4E - DST



Why do we need to elaborate case studies?

Credibility

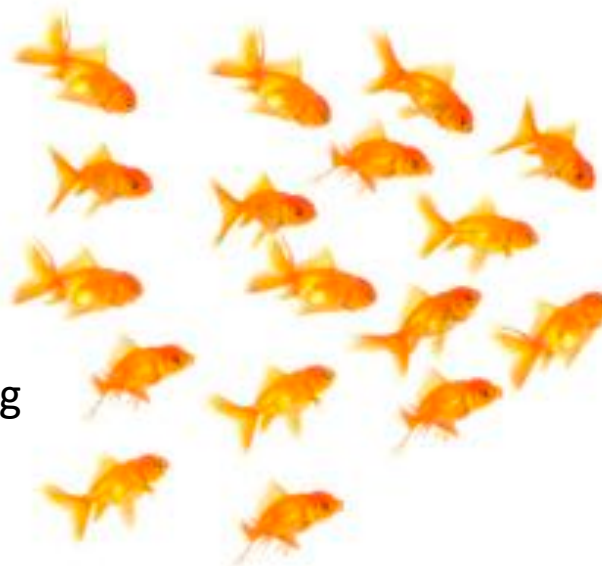
Research
motivation

Effectiveness
evaluation

Theory development-testing

In-depth knowledge

Marketing & sales



Persuasion

– One needs **to convince** the reader that the conceptual argument is plausible, so case studies can bring additional justification for one's argument (Siggelkow, N.; 2007)

- ▶ For potential users “case studies can help showcase how climate information and knowledge would have been useful at the moment of the event, and also illustrate how to translate probabilistic model outcomes into deterministic decision-making”

Why do we need case studies within the S2S4E project?



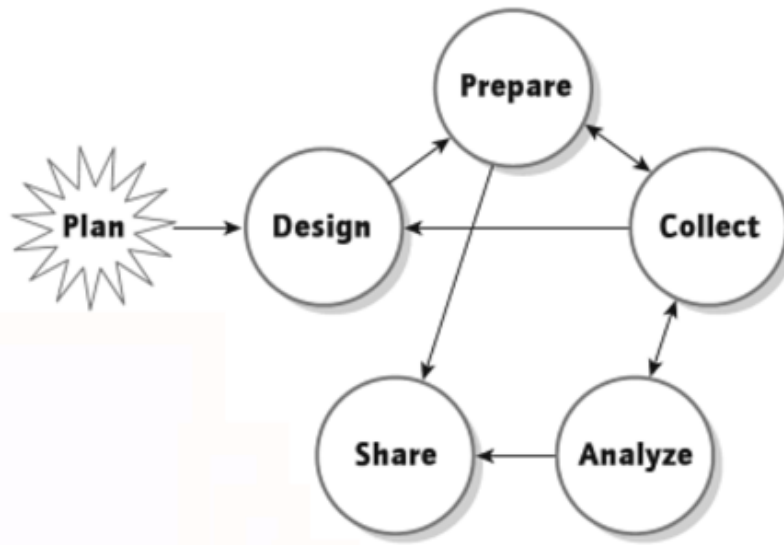
- ▶ Identify gaps in climate services.
 - ▶ Demonstrate the potential of the forecasts used in the DST for energy players.
 - ▶ Proposal phase (1 to 4) and new (5 to 8)
- ▶ Identify the added value of the DST to decision-making for the energy sector.
- ▶ **Build credibility and trust during the commercialization process**

Deliverable 2.1 - https://www.s2s4e.eu/sites/default/files/2018-09/s2s4e_d21.pdf

Deliverable 4.1 - <https://www.s2s4e.eu/sites/default/files/2019-06/D4.1-submitted.pdf>

<https://www.s2s4e.eu/climate-services/public-deliverables>

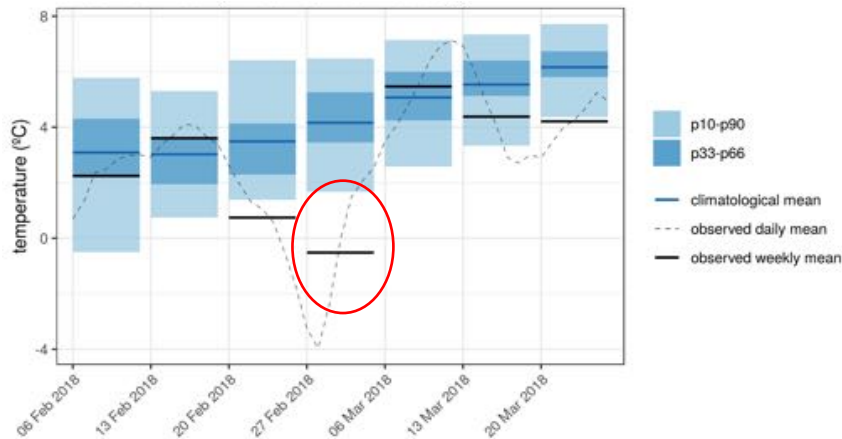
Case studies application in the S2S4E project



The Process of Case Study Method (Yin, 2013)

- ▶ 8 in-depth interviews (8 different companies from different countries)
- ▶ All of them use or consider using information on S2S time scales in decisions related to the company's operations, finances or investments.
- ▶ Development of an interview guide narrative and structure (1.5 - 2 hrs)
- ▶ Analyses of the results, and sharing (D2.1, D2.2, D4.1)
- ▶ Iterative process!

Case study 7 – Cold spell in France and Europe, 2018



Cold spell over central Europe

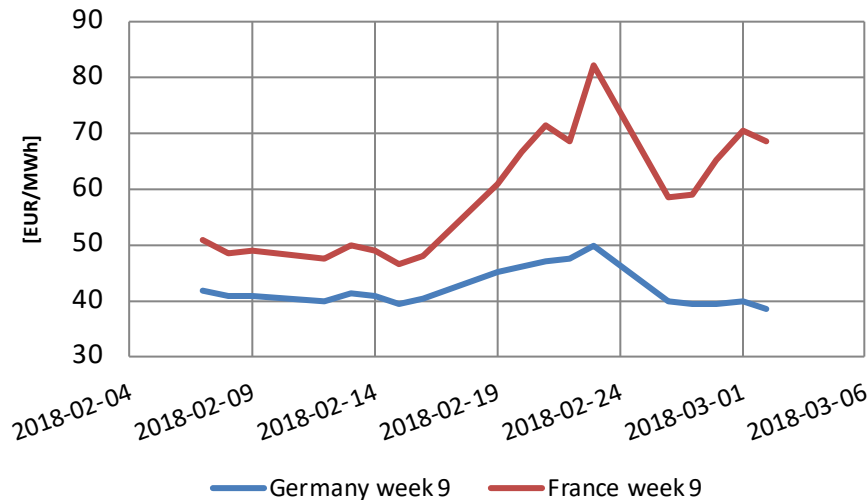
Region:	Europe/France	Period:	27 Feb–5 Mar, 2018
Forecast type:	Sub-seasonal	Main interest:	Energy demand
Forecast available:	Temperature and demand		

- ▶ Temperature weekly mean observed for the period from February 20th to March 6th, 2018, was below the climatological 10th percentile in Europe. The daily variations were quite strong with observed temperature differing from climatological mean by about 8°C.
- ▶ In France, the seasonal outlook by Météo France announced a rather mild winter, leading the users to consider the possible cold spell as temporary anomalies.
- ▶ The extreme cold event – The Beast from the east – is still remembered by the users, behind the repercussions in energy demand and transmission.
- ▶ Electricity consumption for heating increased, after a very warm January all over central Europe, catching some market participants off guard.

Case study 7 – Cold spell in France and Europe, 2018

- ▶ During the analysis of **“Economic gains from using S2S forecasts in the energy producer’s decision-making by analysing relevant case studies” (D2.2)**, case study 7 goal was to better understand how S2S information can be used in the energy trading decision-making process.
- ▶ Illustrative scenarios of different decisions during the trading of energy (buying) were defined **with the help of the users**.

Week 9 baseload future settlement prices 2018



- ▶ Results from the analysis of the illustrative simulations showed that forecasts of temperature and demand would have improved power trader's strategies (i.e. by allowing savings during the purchase of energy).
- ▶ However, in real world operations, traders base their decision on many other variables in addition to weather.

German Phelix DE/AT Baseload Future settlement price (EUR/MWh) and French Financial Baseload Future settlement price (EUR/MWh) for week 9 in 2018. Source: EEX



Case study 7 - Cold spell in France and Europe, 2018

- ▶ This case study could be used in the future for marketing during the commercialization process of the DST:
- ▶ Having an accurate S2S forecast could help producers and traders of electricity to mitigate their financial risks.
- ▶ Power traders could use accurate S2S forecast to support and improve their decision-making process.
- ▶ S2S forecast could help to anticipate and mitigate climate variability impact in the energy market prices.
- ▶ Develop NEW Case Studies emerging from the trial period of the DST

Main challenges and key learnings

Data availability



Information confidentiality



Difference in profiles



The initial interview with users is only the first step for developing a case study. However, it takes much more researcher-user work and collaboration to create a good insightful and persuasive case study - A blue gold fish-

Thank you

Get in touch for more
information!



Public reports of the project will be available for
download on the S2S4E website: **www.s2s4e.eu**



Project coordinator: Albert Soret, Barcelona
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