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Climate Services for Clean Energy

The challenges of probabilistic forecasts

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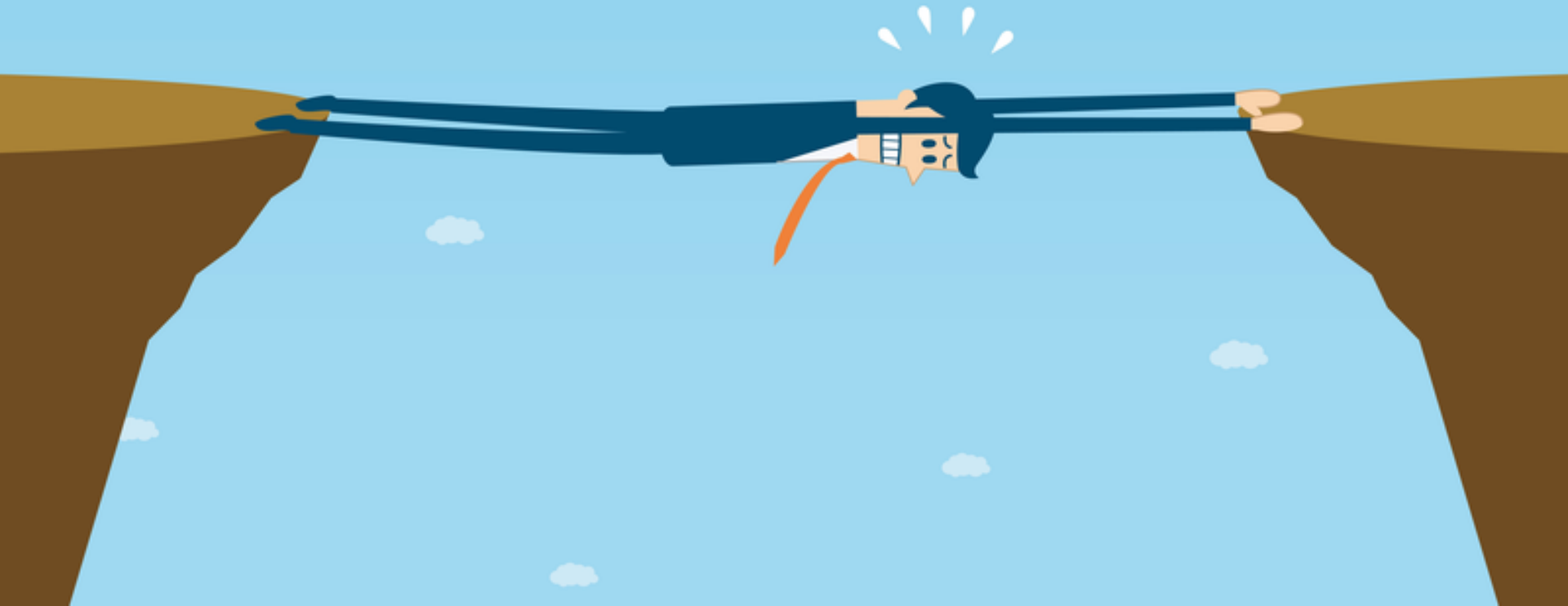
Perspectives from an outsider

CLIMATE SERVICES



UNCERTAINTY

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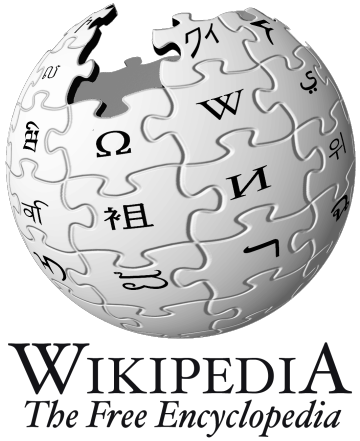
Uncertainty

means lack of precision or that **the exact value for a given time is not predictable, but it does not usually imply lack of knowledge**. Often, the future state of a process may not be predictable, such as a roll with dice, but the probability of finding it in a certain state may be well known (the probability of rolling a six is 1/6, and flipping tails with a coin is 1/2). In climate science, the dice may be loaded, and we may refer to uncertainties even with perfect knowledge of the odds. Uncertainties can be modelled statistically in terms of pdfs, extreme value theory and stochastic time series models.



Uncertainty

Uncertainty is a situation which involves **imperfect or unknown information**. It applies to predictions of future events, to physical measurements that are already made, or to the unknown. Uncertainty arises in partially observable and/or stochastic environments, as well as due to ignorance, indolence, or both.

USERS

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Reliable

is a charactheristic of a forecast system for which **the probabilities issued for a specific event vary a proportion of times equal to the climatological frequency of the event**. A reliable system which predicts, for example 50% (or 20%, or 73%) probability of rain, should, on averge, be correct 50% (or 20%, or 73%) of the times, no more, no less.

Cambridge Dictionary

USERS

reliable

adjective · UK /rɪˈlaɪ.ə.bᵊl/ US /rɪˈlaɪ.ə.bᵊl/

B1 **Someone or something that is reliable can be trusted or believed because he, she, or it works or behaves well in the way you expect:**

Is your watch reliable?

reliable information

Gideon is very reliable - if he says he'll do something, he'll do it.

The challenge is…
Building TRUST

1 Users ≠ Decision makers

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2 Typologies of decision makers (WHO?)

3 Understand motivations (WHY?)

- **Planning budget**
- **Reduced losses/costs**
- **Increased revenues**

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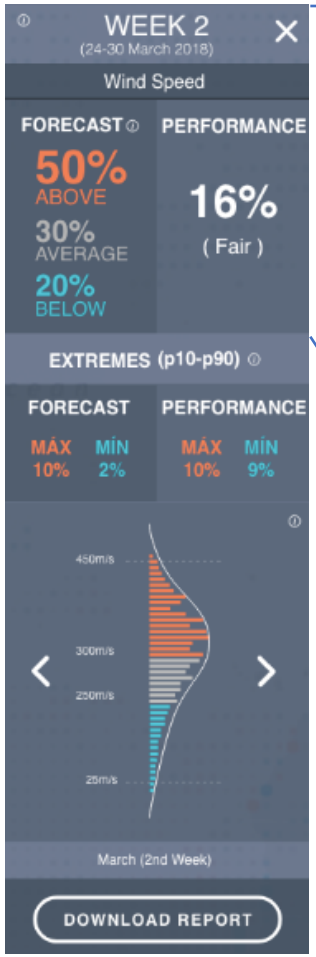
4 Climatology vs. Predictions (WHICH?)



Translating and explaining skill

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5 Action triggers (WHEN?)

Setting probability tresholds

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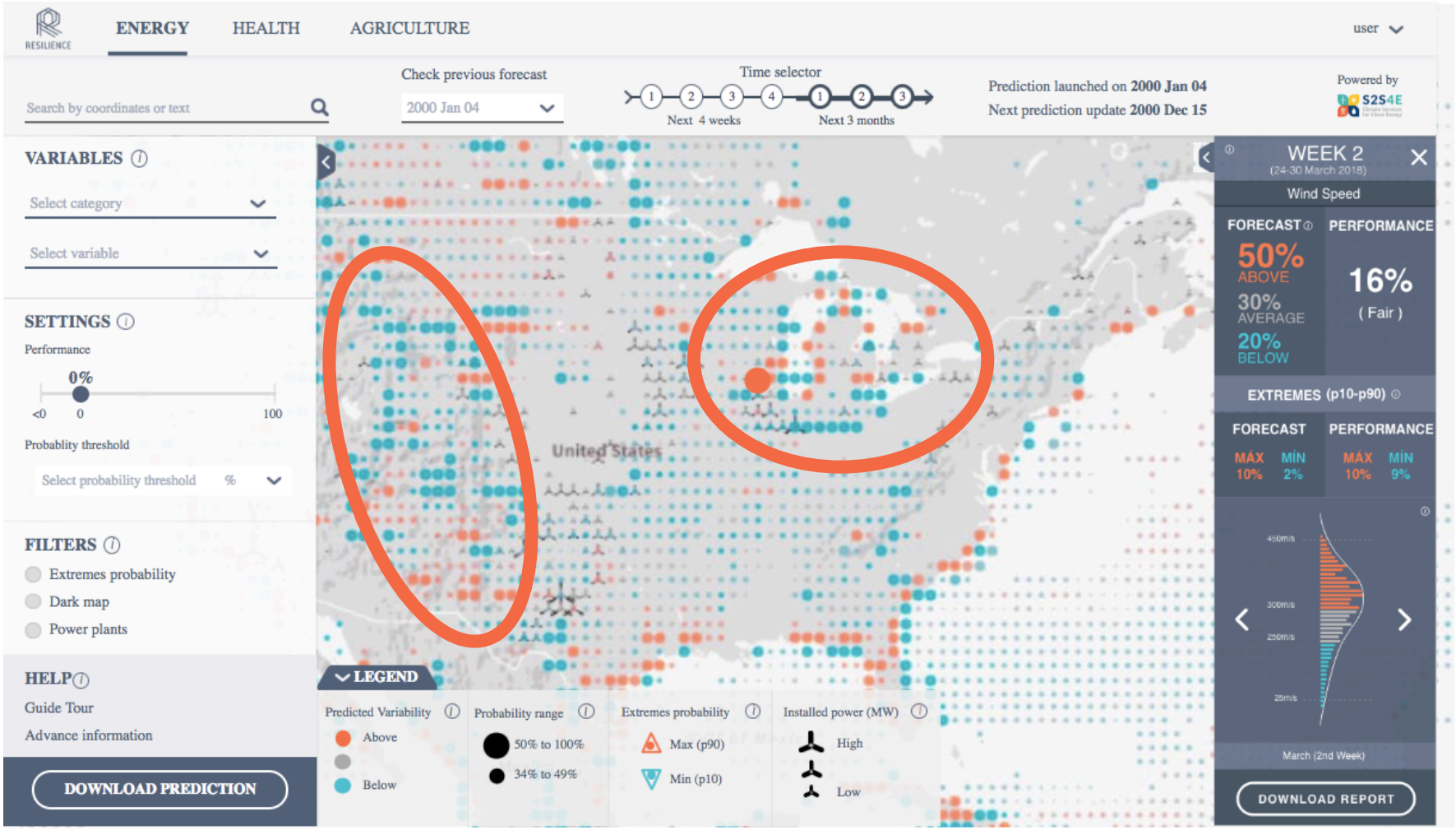
5 Action triggers (WHEN?)



and many more…

“certificate the quality of the data used for the service”
Abdulla Sakalli

“Create capacity so users can understand probabilities”
Svetlana Aniskevich, Natalja Ozernova

“Provide proper visibility to a service so it can just be found on google indicating a problem”
Rasmus Lauridsen

…

Thank you

Get in touch for more information!

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