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## IEA Wind Task 36 “Probabilistic Forecasting Games and Experiments” Initiative

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One key strategy to fight climate change worldwide is to invest in renewable energy sources (RES) and increase their integration into the power system. In recent years, we observed how extreme weather conditions, together with growing penetration levels of RES, are increasingly affecting the power system operation and planning, as well as electricity markets. The inherent uncertainty of such events and the associated uncertainty in the power generation from RES can no longer be ignored by the energy industry. In other words, current deterministic methods have reached their limit due to the inherent inability to model and convey forecast uncertainties.

Probabilistic information and forecasts have been shown to improve decision-making in many weather-related processes. By dealing with uncertainties, the end-user takes responsibility, but also gets the possibility to harvest the benefits of knowing and being able to calculate what is at stake. Last but not least, knowing the uncertainty of an event in advance opens the possibility to act upon such uncertainty rather than acting on the event itself and thereby mitigating costly side effects or being able to secure safety.

In 2020, the IEA Wind Task 36 “Wind Energy Forecasting” has for this reason started an initiative “Probabilistic Forecasting Games and Experiments” in collaboration with the Max-Planck Institute for Human Development. The main goal of this initiative is to empirically investigate the psychological barriers to the adoption of probabilistic forecasts and to enable stakeholders to understand and explore their benefit and use. With the initiative, the IEA Wind Task 36 wants to establish interdisciplinary teams to promote testing and playing with forecast games and experiments to give end-users a “feel” of where the hidden possibilities are to improve decisions and developers a platform to:

- Discuss
- Educate
- Inspire

the energy and meteorology community for the development, deployment and communication of uncertainties of weather and energy forecasts to end-users for better decision making.

The task leaders have started to setup a platform with a list of forecasting games and experiments developed by the task, in cooperation or by cooperating institutions, researchers or companies as well as invite others outside the tasks community to share links or data to games and experiments.

The initiative will be presented and the first experience with the task's own games and experiments briefly discussed. The many open questions and considerations when looking forward towards the establishment of training and educational tools for probabilistic forecasts will be formulated and posed to the meteorological and psychological/behaviorism research community to enhance the collaboration and establish a stronger link for this interdisciplinary work.