Complementarity and droughts of renewable energy resources across the globe

Creating platforms to share the data and motivate stakeholders to take action!

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Project description

Transitioning rapidly to predominantly renewable energy is necessary to mitigate climate change. A significant technological challenge is how to increase shares of variable renewable energy sources, such as wind and solar power, in energy systems while maintaining reliability. One important method to increase shares of variable renewable energy sources is to exploit their complementarity. Power production can be smoothed, and reliability can be increased by combining at least two variable renewable energy sources. Complementarity as a policy tool has been suggested to increase both variable renewable energy sources integration and economic benefits. However, few, if any, policies explicitly support complementarity in the planning and development of new decentralized and renewable energy assets.

We have produced a data set of indicators for variable renewable energy resources (solar and wind power) availability, complementary and resources droughts for all European NUTS3 regions. We argue that making it available to the public in an easy way can contribute to create awareness of the importance of exploiting complementarity of renewable energy resources. Furthermore, we would like to the share the underlying code and data to facilitate the replication of the analysis in regions across the globe.

The assistant's activities within the project include:

1. development of a jupyter notebook explaining the calculation methodology
2. creation of an (online) dashboard presenting the generated data set in an intuitive and informative way.
3. Co-authorship of a scientific paper/book chapter (if desired)

The working schedule is very flexible, but the assistant can expect in person meetings at the beginning, at the end and somewhere mid time of the project. We will also have a status meeting every two weeks, which could be in person or online. Working days and hours can be agreed to fit the personal agenda of the assistant.

Job requirements

We are looking for an open data enthusiast with interest in the energy transition, and solid programming (python) and data analysis/visualization skills. Experience creating online dashboards/Jupiter notebooks is a major asset.