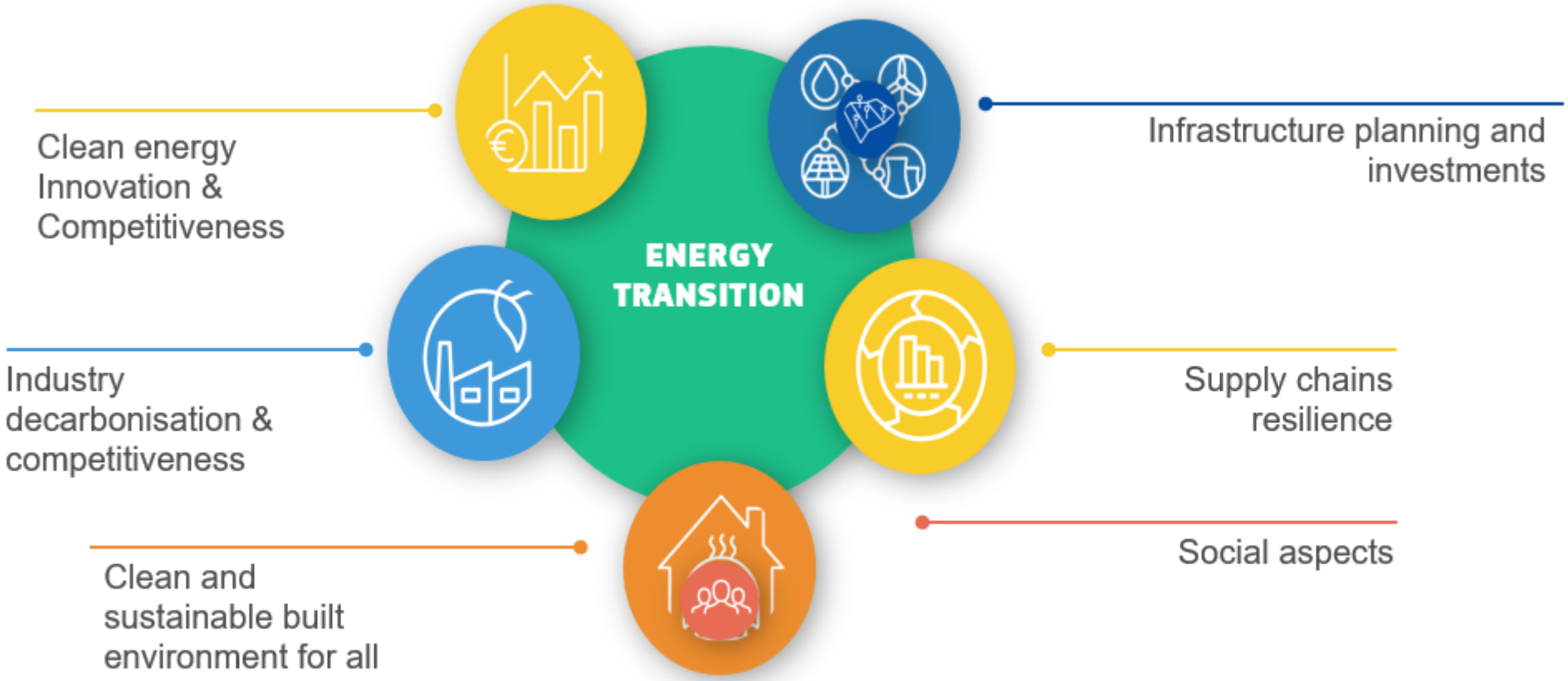
Ausbau von Wind und PV und Potenzial in der EU, in Deutschland und in Frankreich

How the JRC Energy and Industry Geography Lab supports the Energy Transition

Dr Paul Elsner, Joint Research Centre, Unit C.7

Konferenz Wind und PV in der Raumplanung: Zwischen Ausbauzielen, Verfahren und Flächenverfügbarkeit

JRC C7: Energy Transition Insights for Policy



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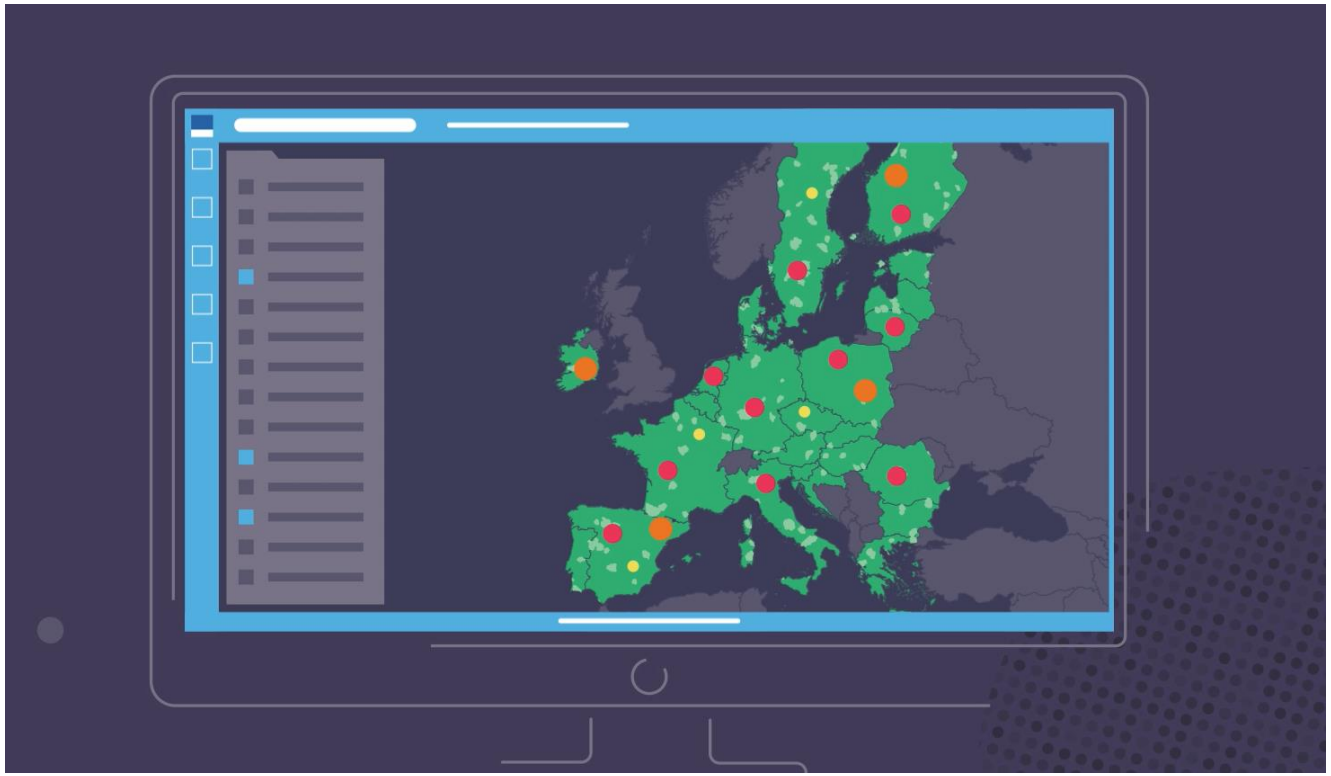
EIGL in a nutshell



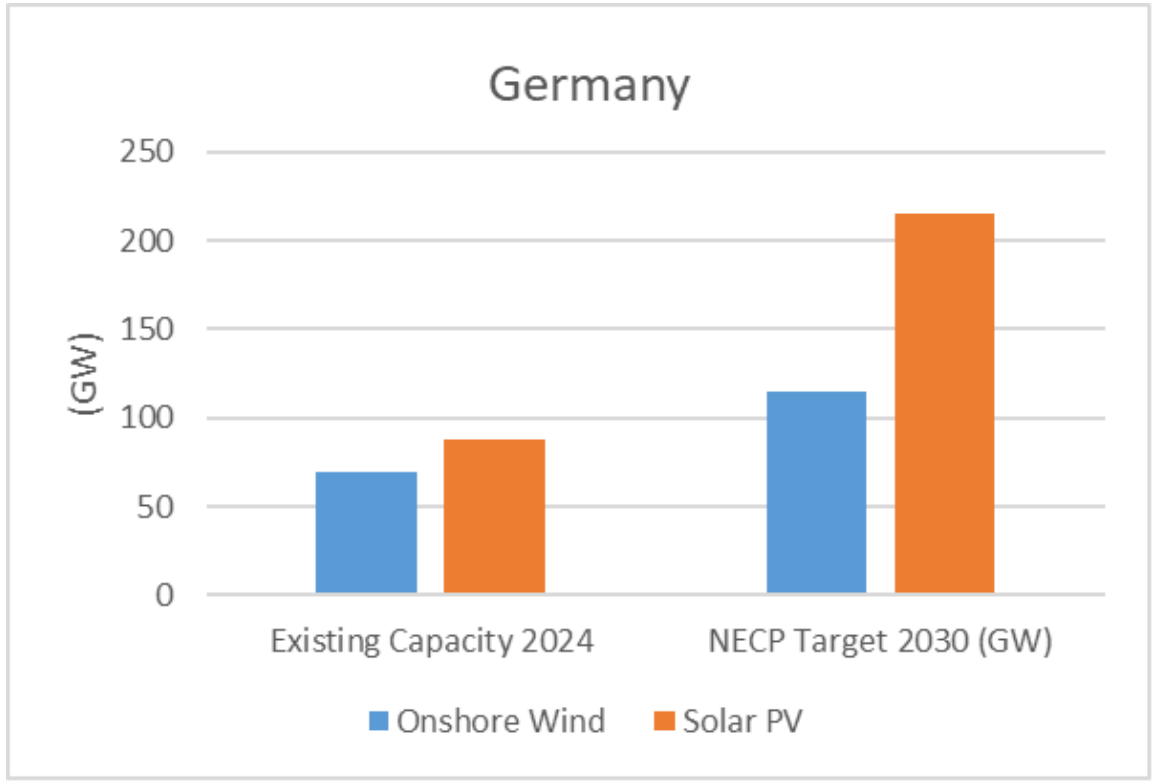
- Support policy making by providing spatial analyses
- Information hub for collection, validation, sharing, visualisation of spatial data
- Direct support to the Commission, Member States and industrial stakeholders (REPowerEU, industrial strategy)
- Publicly available

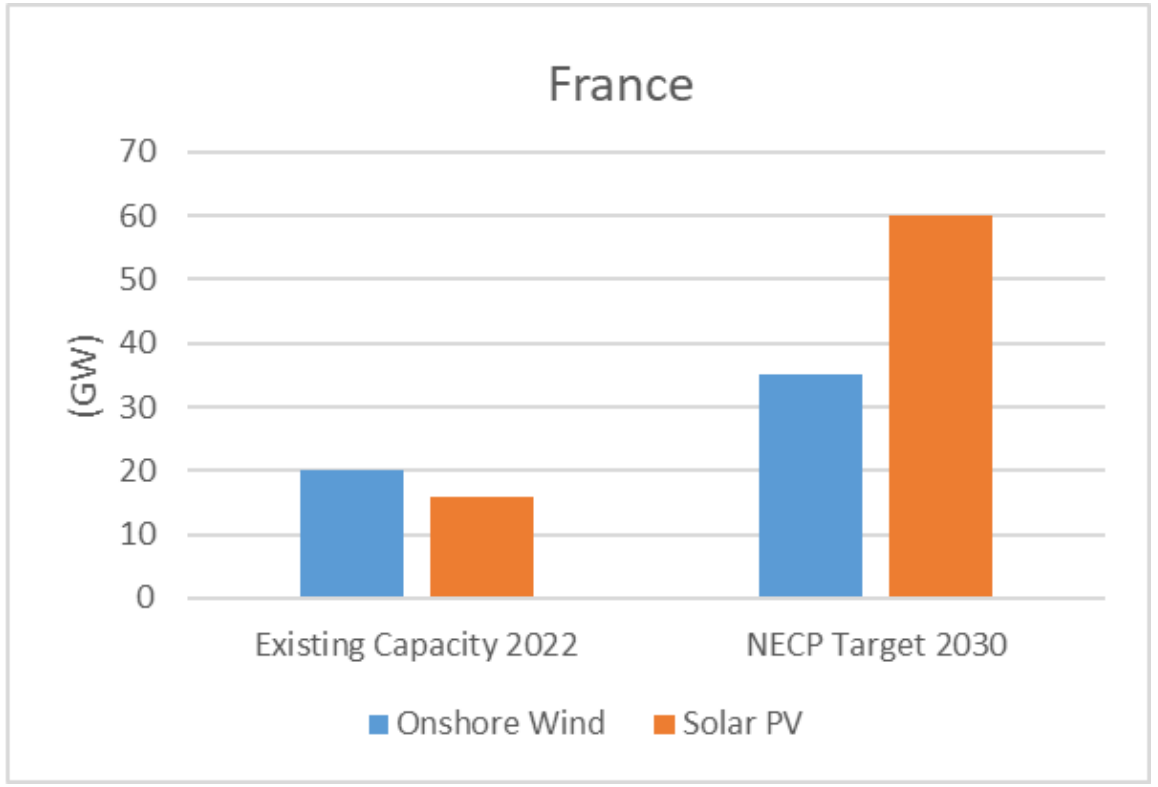
European Commission

Introduction & background

- **European Green Deal:** a clean, circular economy and zero carbon
- **Massive changes needed** in energy and industrial infrastructure
- We need to know:
  - Where will we produce clean energy in future (green electricity, hydrogen)?
  - Where is this energy needed (industry, energy sector, households)?
  - How do we transport it from producers to users (gas and H_2 network, power lines)?
- Support development of the **infrastructure needed for a clean energy system** by providing spatial insights and analysis

National Energy and Climate Plans (NECP)





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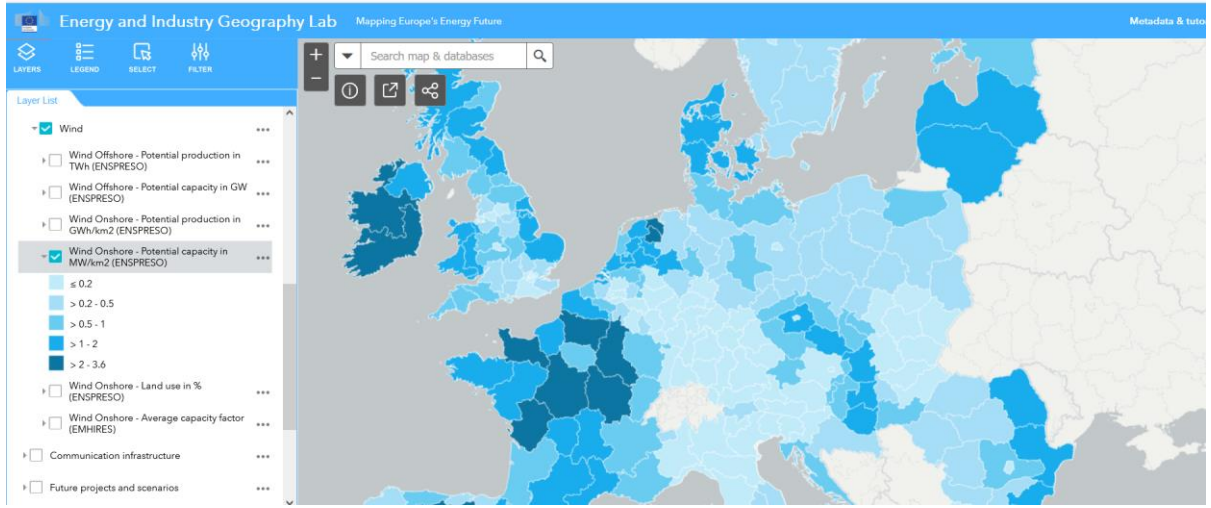
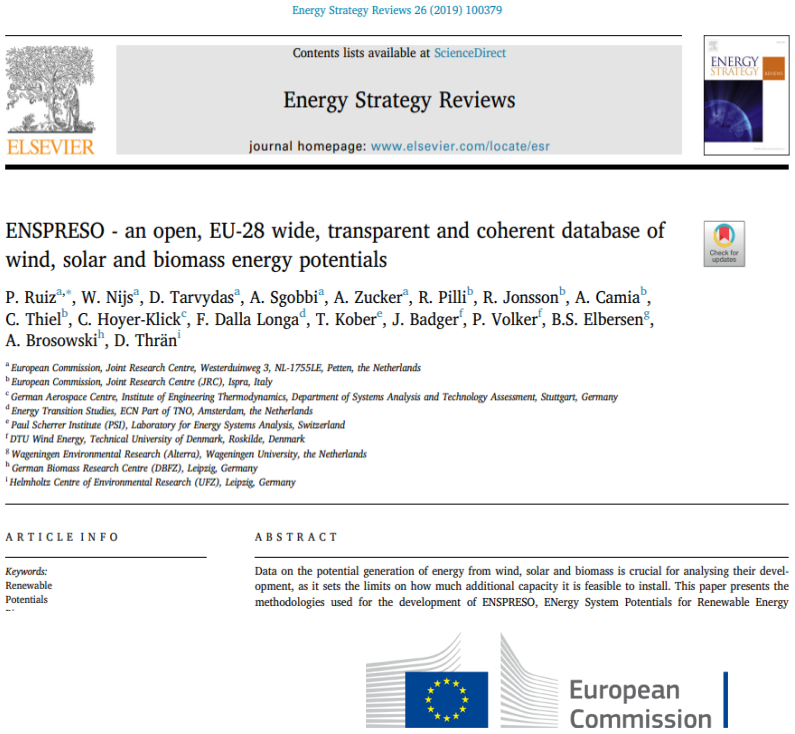
How much potential do we actually have?

- ENergy System Potentials for Renewable Energy SOurces (ENSPRESO)
- EU-wide, open dataset for energy models on renewable energy potentials, at national and regional level, first published 2018
- Wind (onshore/offshore), solar PV and Biomass
- Currently update underway to provide high-resolution

ENSPRESO data on 1 km2

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ENSPRESO - an open, EU-28 wide, transparent and coherent database of wind, solar and biomass energy potentials

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ABSTRACT

Data on the potential generation of energy from wind, solar and biomass is crucial for analysing their development, as it sets the limits on how much additional capacity it is feasible to install. This paper presents the methodologies used for the development of ENSPRESO, ENergy System Potentials for Renewable Energy

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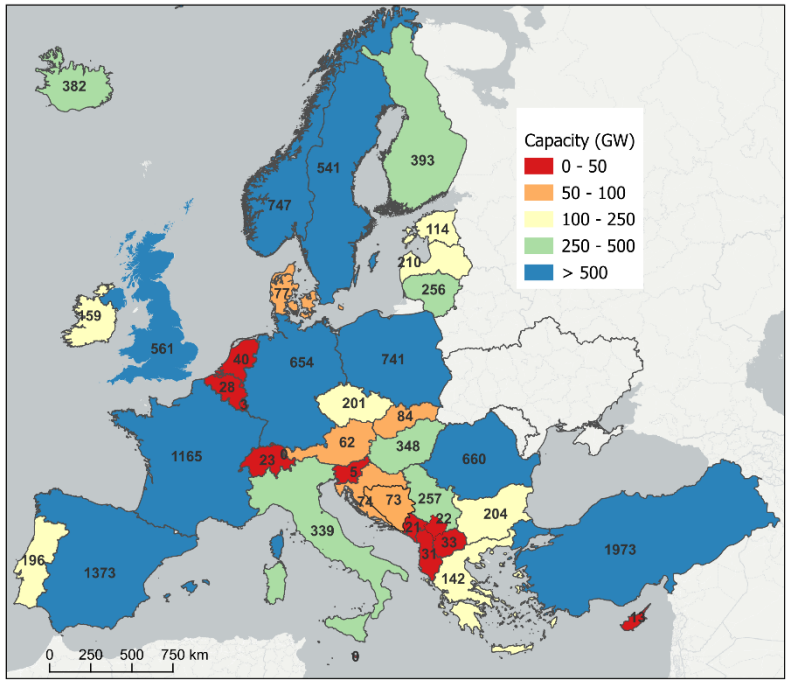
Onshore Wind Scenarios based on setback distances



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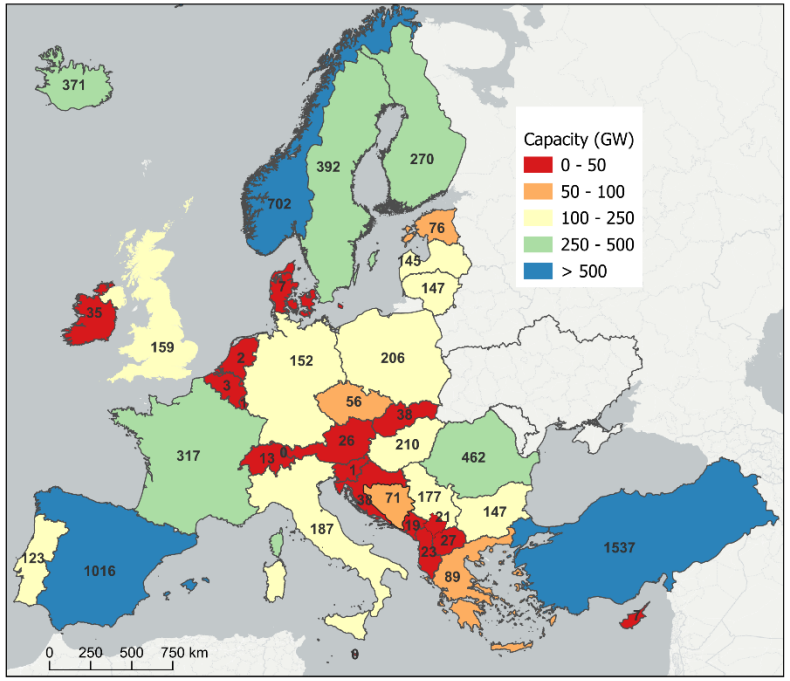
High Scenario
(500 m)



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Mid Scenario
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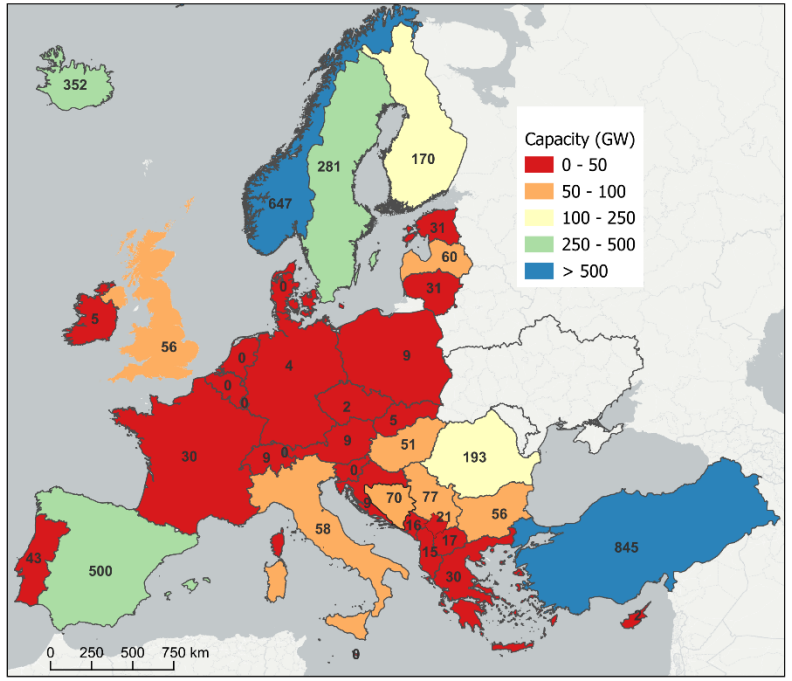

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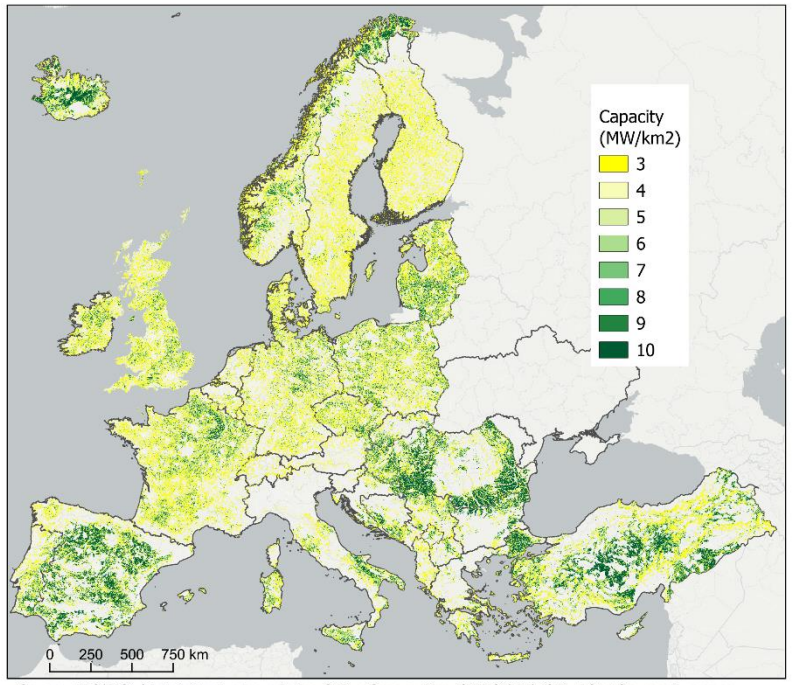
Low Scenario
(2000 m)

European Commission

Onshore Wind Scenarios based on setback distances: Spatial footprint



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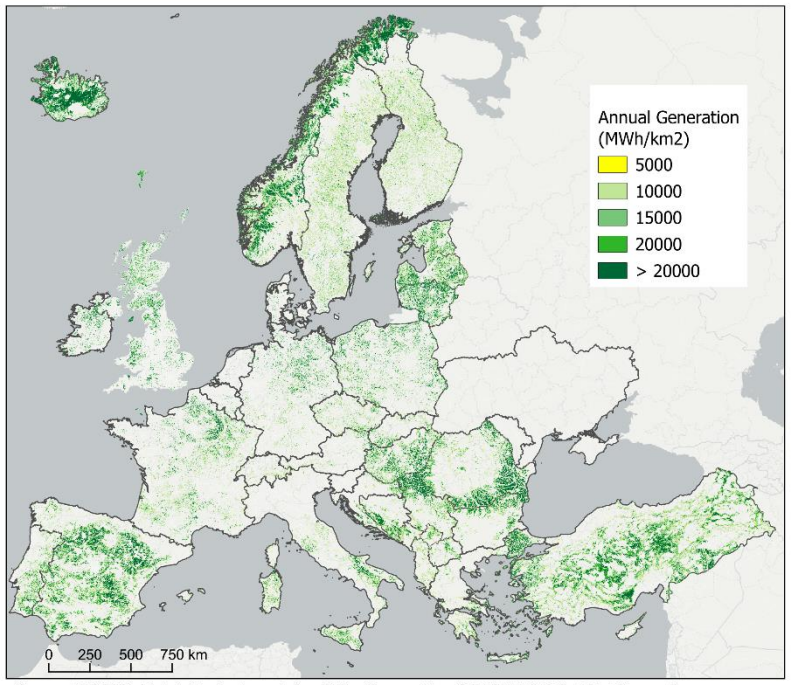
High Scenario
(500 m)



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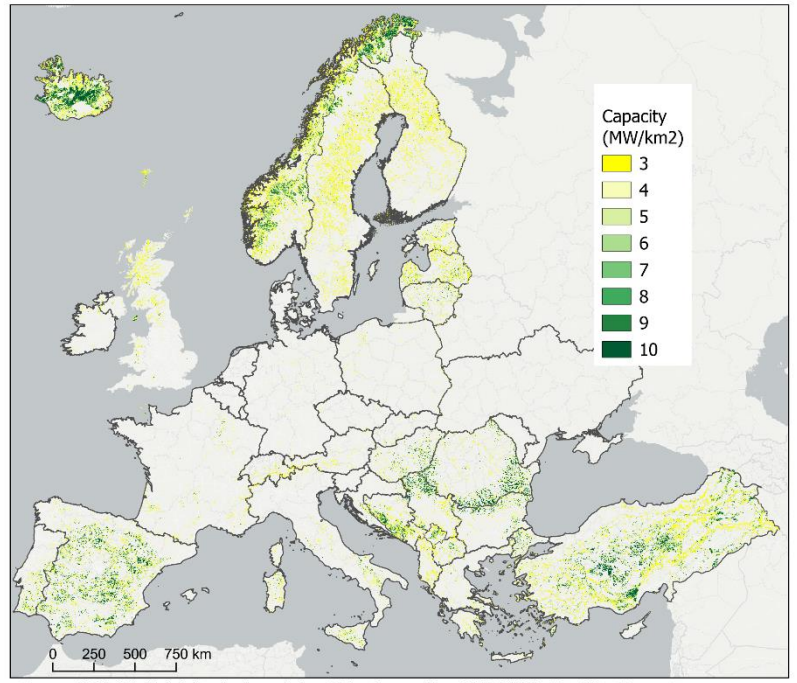
Mid Scenario
(1000 m)



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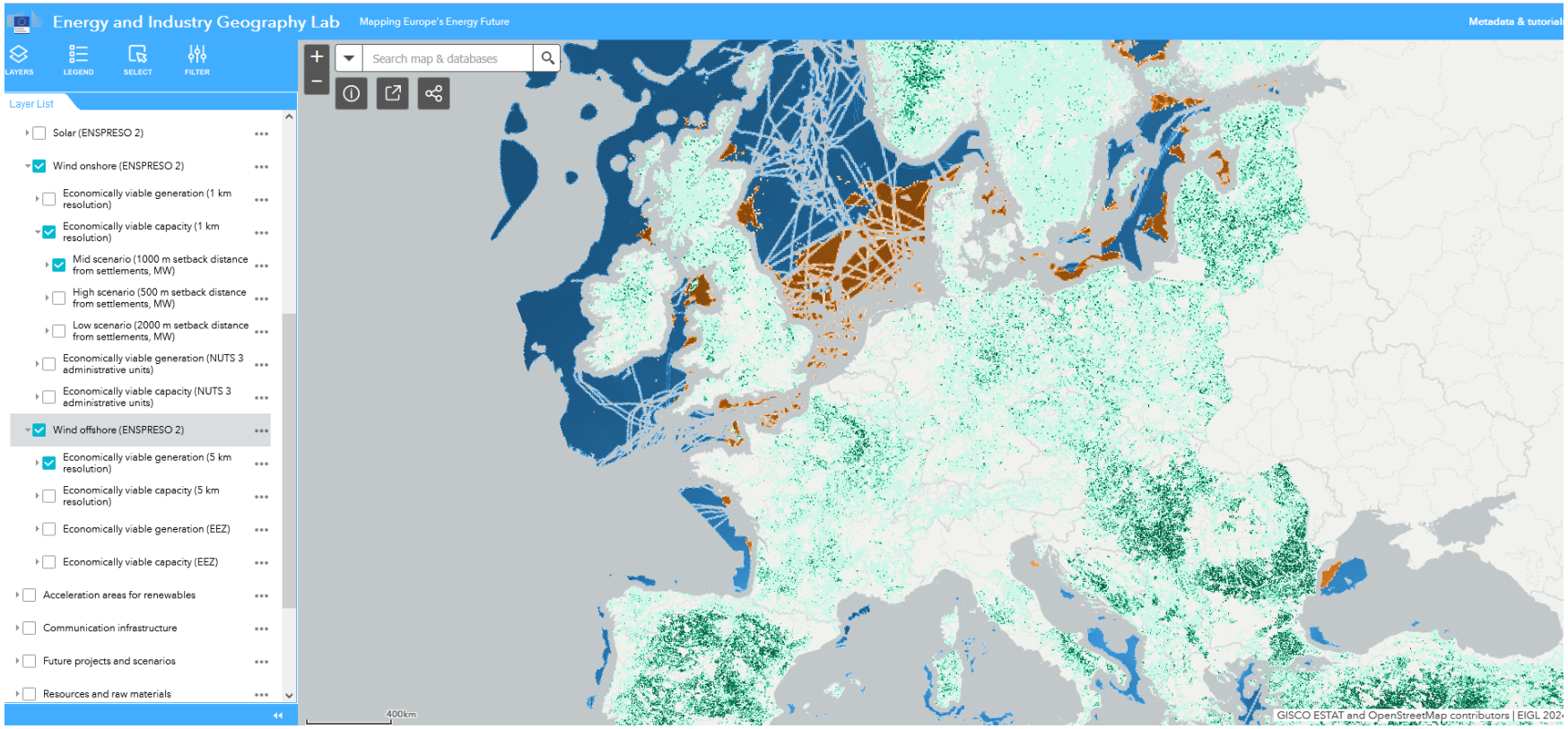
Low Scenario
(2000 m)

European Commission

High Resolution Potential Data for RES Generation

- **ENSPRESO 2**
  - Onshore wind (1 km)
  - Offshore wind (5 km)
  - Solar PV (1 km)
  - Biomass (NUTS 2)



https://energy-industry-geolab.jrc.ec.europa.eu/

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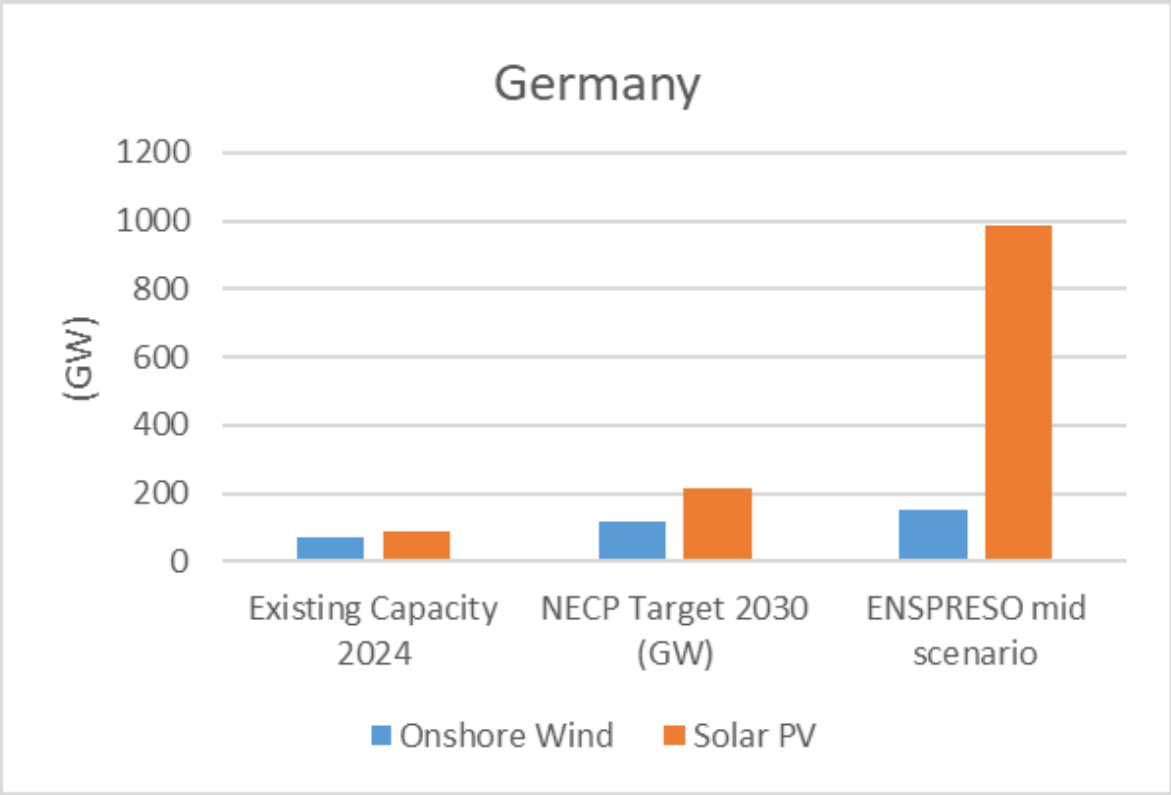
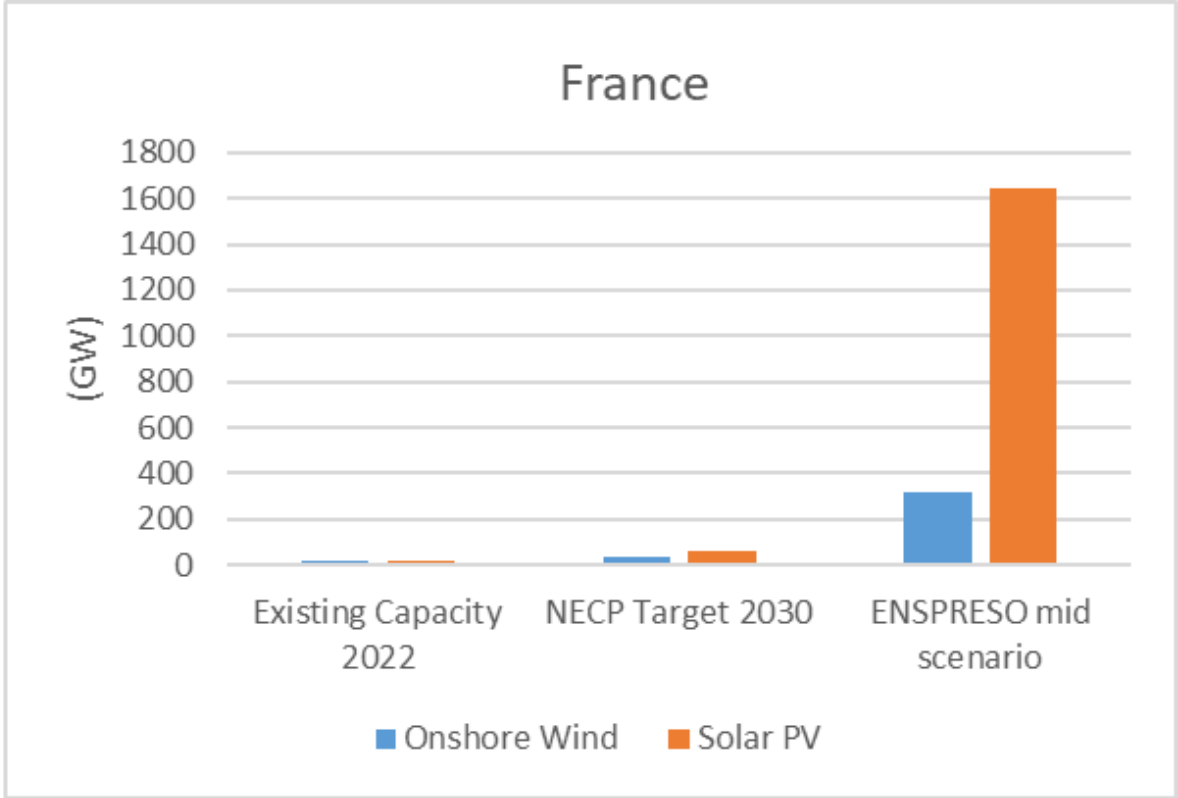
NECP Targets vs. ENSPRESO estimates





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Spatial Data central to support RED Article 15

- RED III, Article 15b: “Member States shall carry out a coordinated mapping for the deployment of renewable energy”
- Article 15c: “Designate sufficiently homogeneous land, inland water, and sea areas where the deployment of a specific type or specific types of renewable energy sources is not expected to have a significant environmental impact”

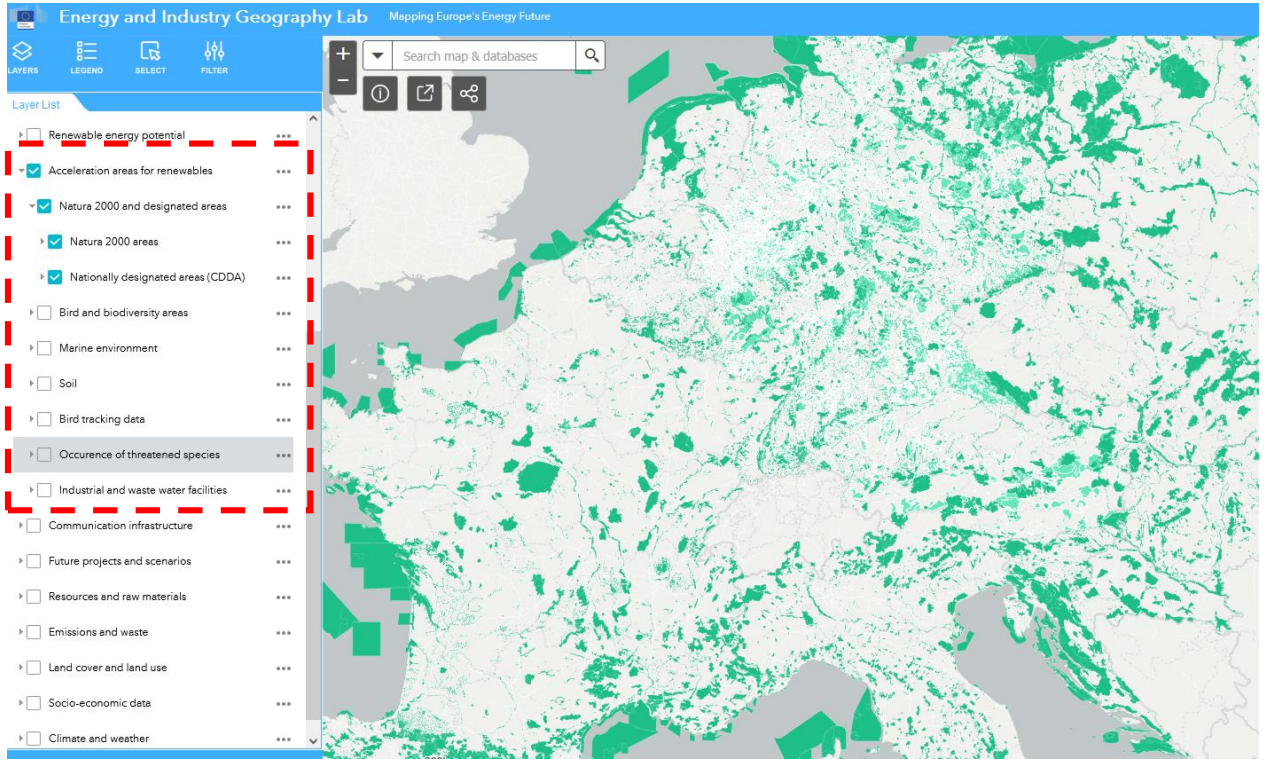
Criteria listed:

- Potential for RES generation
- Projected demand for energy and opportunities for flexible demand response
- Availability of energy infrastructure (grid/storage)

European Commission

EIGL aiming to support identification of acceleration areas

- Challenging to identify and curate data layers
- Strong reliance on modelled data.
- Scattered data sources across public institutions in range of formats and resolution
- Often little leverage of available data from existing/previous RES project planning applications



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Conclusion

- Substantially more renewable energy potential available than listed in targets
- Increased awareness that RES planning is a spatial exercise
- GIS and geospatial modelling increasingly important tools
- Good and coherent high resolution data on RES potential available
- Access to wide range of planning data often problematic

Thank you!
Merci beaucoup!
Vielen Dank!

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