Citizen-led initiatives in the German wind energy sector – a qualitative and quantitative exploration

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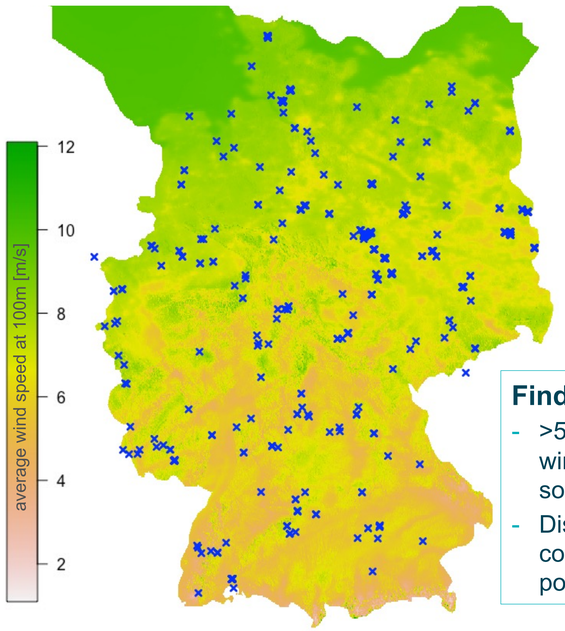
Distribution of wind production units across Germany

(Fig. 1; Source: COMETS database; raster map: DTU, 2021)



Legend

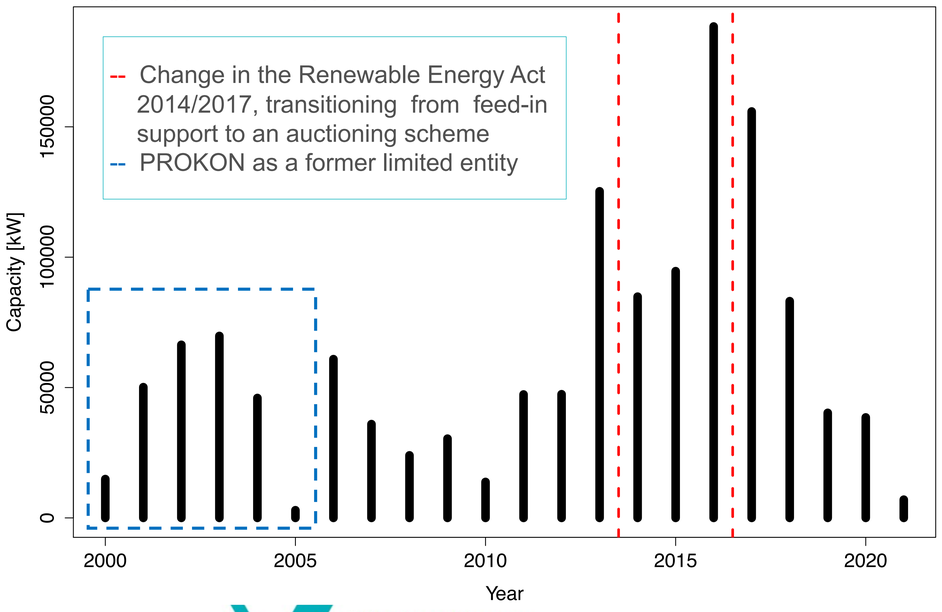
- × wind production unit owned or co-owned by cooperative

Findings

- >50% cooperatives active in the wind sector are from the southern federal states
- Distributed over the whole country, despite wind yield potential

Share of onshore wind capacities owned by cooperatives

(Fig. 2; Upper limit of capacities; Source: COMETS database)



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Citizen-led activity in Germany

- Cooperatives are the most common legal form of citizen-led initiatives engaging in the energy transition in Germany
- Cooperatives are associations ruled democratically – one member, one vote principle (International Cooperative Alliance, 1995)
- Cooperative members have a platform to bring forward business models that meet social, environmental and cultural needs in addition to economic ones

Results & Conclusion

- 132 cooperatives in the wind energy sector identified with 571 production units (c.f. Fig. 1)
- 0.9-1.4 GW installed capacity of onshore wind turbines in total
- Wind turbine shareholders are cooperatives, municipalities, private/commercial entities
- Analysis of business models from wind cooperatives (Fig. 3)
- Visible boom in wind capacities added by cooperatives before change of EEG to auctioning scheme in 2017

References

Wierling , A., Zeiss, J.P. , & von Beck, C. (2020). Comets database.

Dilger, M. G., Konter, M., & Voigt, K.-I. (2017). Introducing a co-operative-specific business model: The poles of profit and community and their impact on organizational models of energy co-operatives. Journal of co-operative organization and management, 5, 28-38.

Osterwalder, A., Smith, A., Clark, T., Pijl, P. v. d., & Pigneur, Y. (2010). Business model generation : a handbook for visionaries, game changers, and challengers. Hoboken, N.J: John Wiley.

International Cooperative Alliance (1995). Statement on cooperative identity, values & principles. Retrieved from https://www.ica.coop/en/cooperatives/cooperative-identity

DTU (2021). Global wind atlas. Retrieved from https://globalwindatlas.info/area/Germany

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COllective action Models for Energy Transition and Social Innovation

Key activities

- Realization and operation of wind installations and services
- Trade and sales of electricity (trade of electricity)
- Consulting & information services
- Business management
- Other energy (indirect investment in RE projects & businesses, joint purchase & operation of charging points & e-mobility solutions)

Key resources

- **Assets:** Member shares and trust
- **Human capital:** Technological know-how (e.g., wind installation, electricity production, energy markets), other know-how (social, legal/regulatory, operational & management), local knowledge & networks
- **Property:** access rights & ownership (e.g., space for wind turbines)

Value proposition

- Promotion of and access to (local) renewable electricity and energy services, upgrade of energy infrastructure
- Improving transparency of energy services for customers
- Reduction of GHG emissions
- Contribution to local economy (creation of jobs)

Key partners

- **Public sector** (municipality, communal infrastructures & utilities)
- **Citizens:** Other cooperatives & collective action initiatives (e.g., renewable energy cooperatives)
- **Private sector** (local banks, public funds, commercial partners, sales platforms, local energy businesses)

Costumers*

- Industrial and commercial enterprises (e.g., network operators, third party renewable energy/electricity providers)

Member promotion

- Enabling dividends and provision of energy services
- Joint realization of low carbon energy project
- Contribution to energy democracy (e.g., influencing local energy planning & decision-making)

Members*

- Natural persons
- Other cooperatives and legal entities under private and public law

Cost structure

- Cost for realization & operation
- Costs for energy infrastructure
- Costs for purchase, trade & sale
- Business management costs
- Financing of consulting and information services
- Other costs

Revenue stream (depending on BM)

- Full feed-in tariff
- Partly feed-in tariff
- Auctioning scheme (start 2017)
- Charges for consulting
- Profit from electricity (re)sales
- Investment dividends
- Beneficiaries from third parties

Fig. 3: Business model canvas wind energy cooperatives based on Osterwalder et al. (2010) & extension by Dilger et al. (2017) in dashed boxes.

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