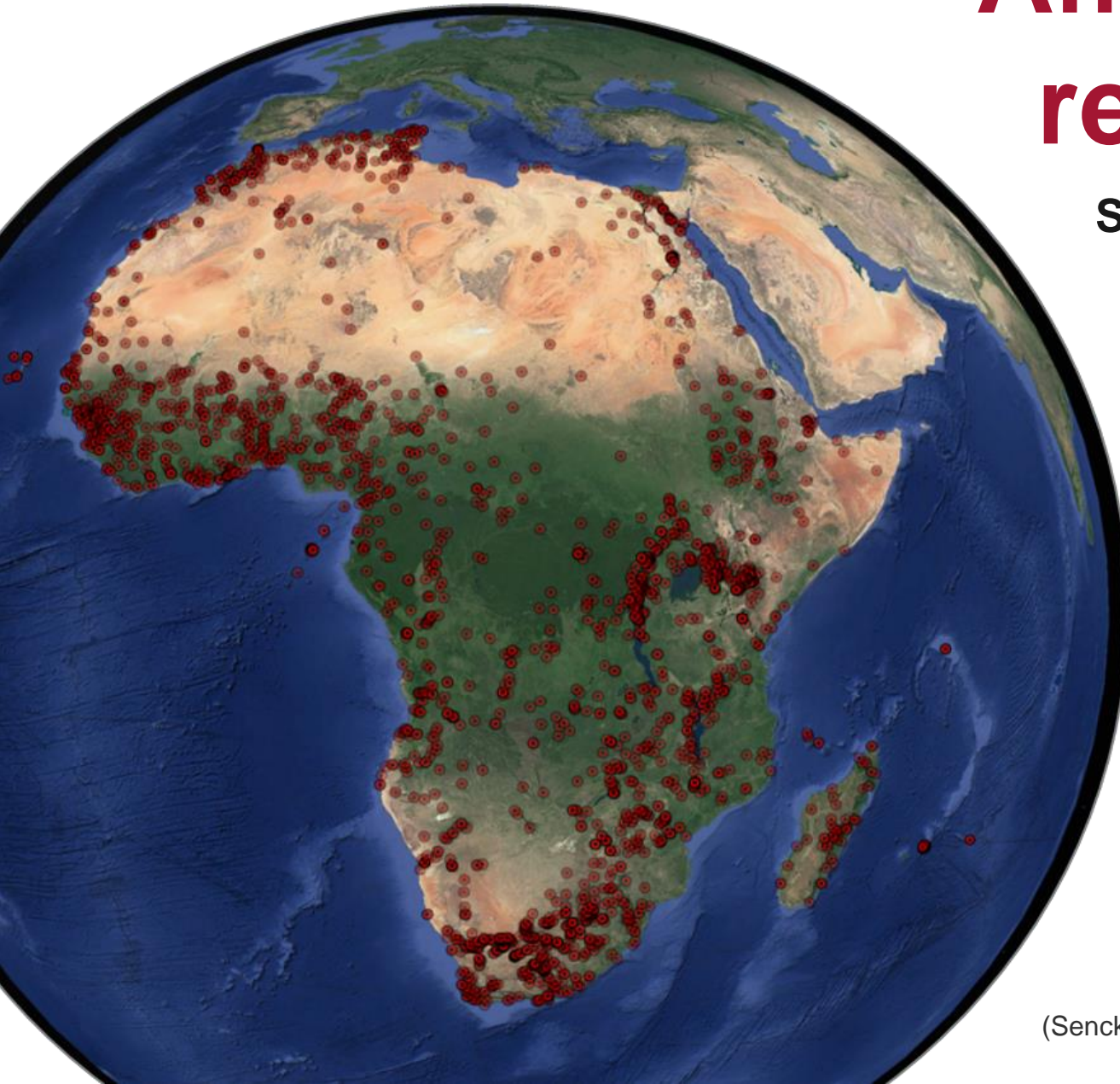




Africa goes renewable

**Sustainable pathways
towards universal
renewable electricity
access in Africa**



Rebecca Peters

*Doctoral Scientist
Environmental Systems Analysis
Department of Geosciences
University of Tübingen
Germany*

Supervision:
Prof. C. Zarfl
(University of Tübingen)
Prof. K. Tockner
(Senckenberg Society for Nature Research)

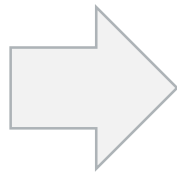


Africa goes renewable



Current challenges:

- Lack of access
- Increasing population
- Climate change mitigation calls for independence from fossil fuels



National starting points to “ensure access to affordable, reliable, and modern energy for all” (SDG 7) differ.



Africa goes renewable



Current challenges:

- Lack of access
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Role of hydropower:

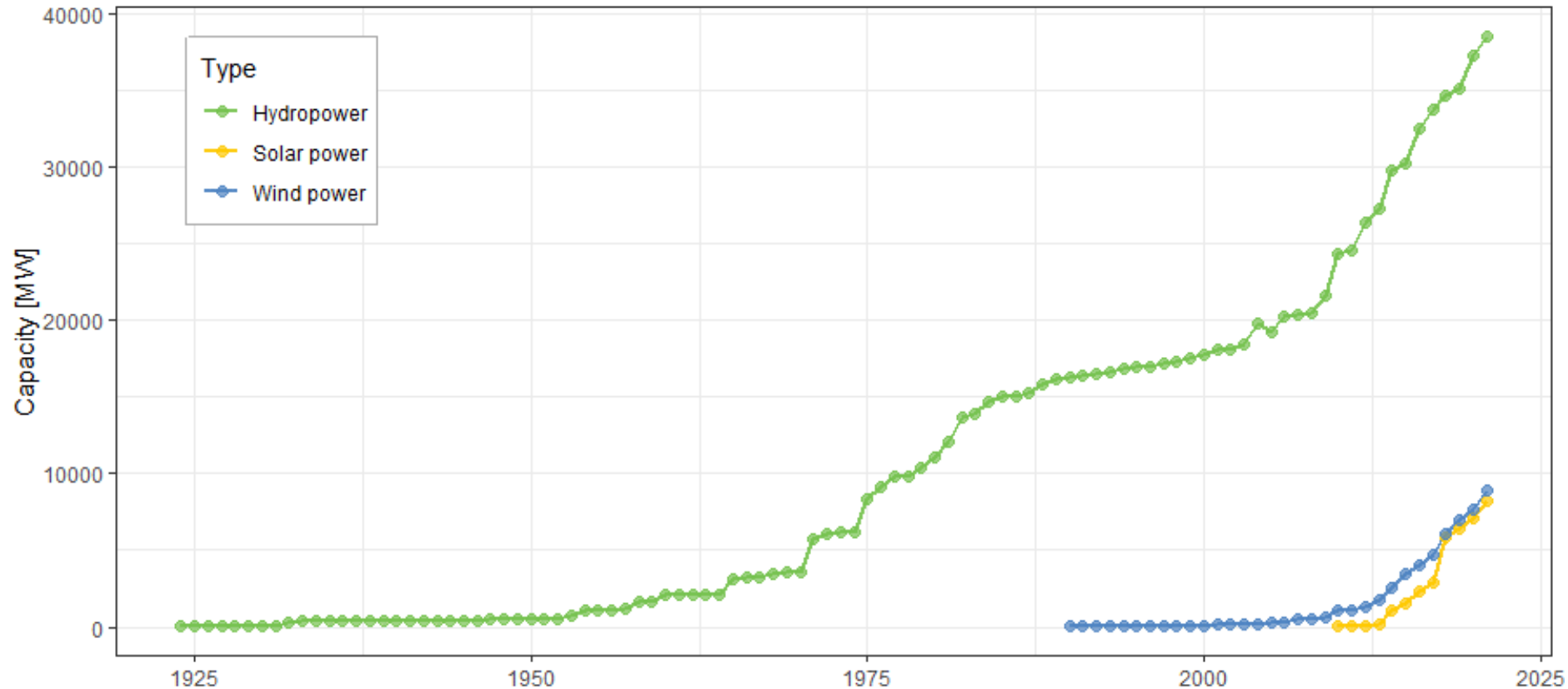
- The most established and economic technology
- Ecological, socioeconomic, and political impacts
- Vulnerable to streamflow changes

Emerging role of solar and wind power:

- Falling prices for wind and solar energy
- Advantage: Availability and potential
- Challenge: Energy storage



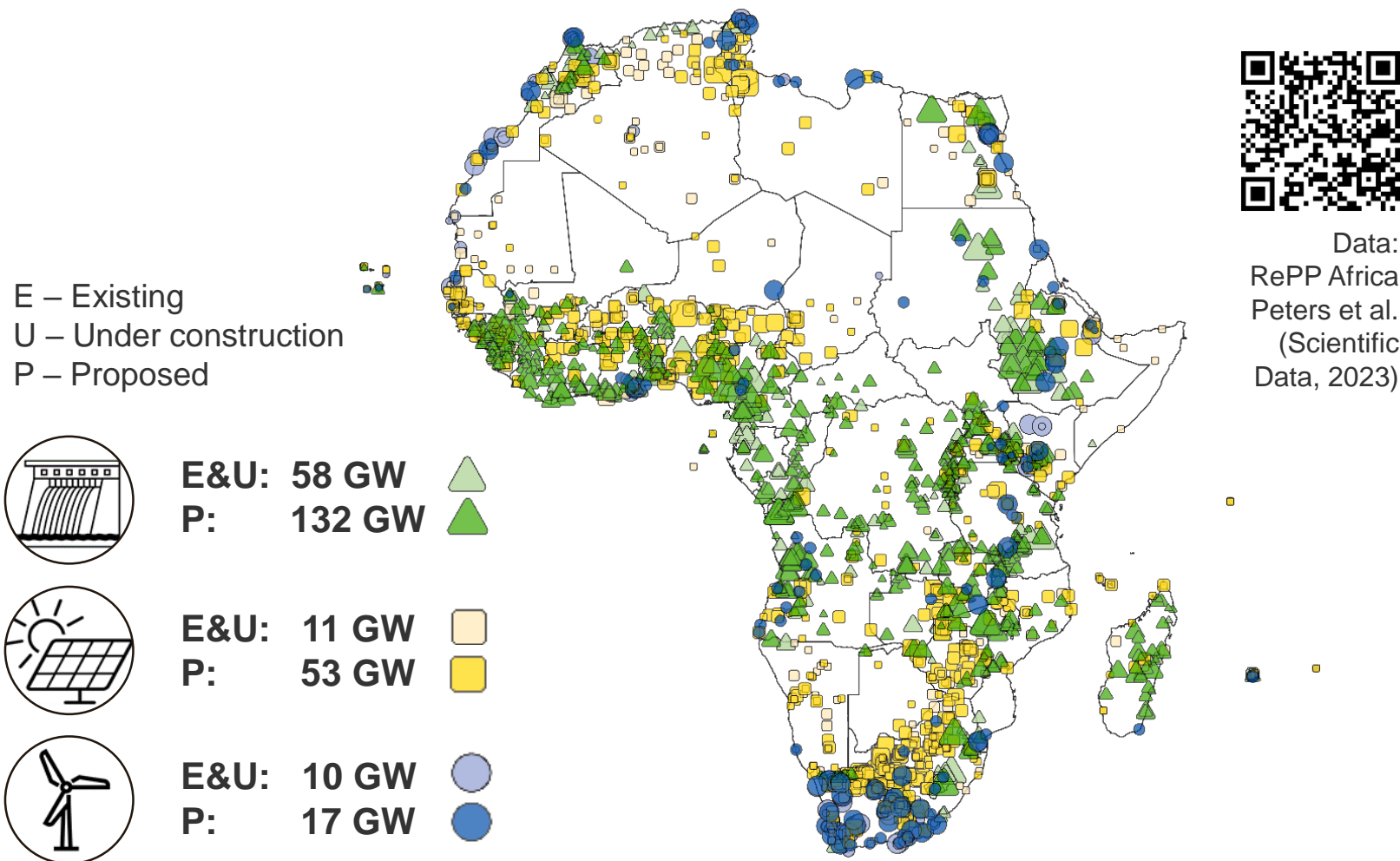
*Hydropower is the most established technology, but **wind and solar** have grown rapidly and become **increasingly competitive**.*



Data: RePP Africa, Peters et al. (2023)



Electricity generated from all existing and proposed renewable plants can meet 76% of Africa's projected electricity needs.



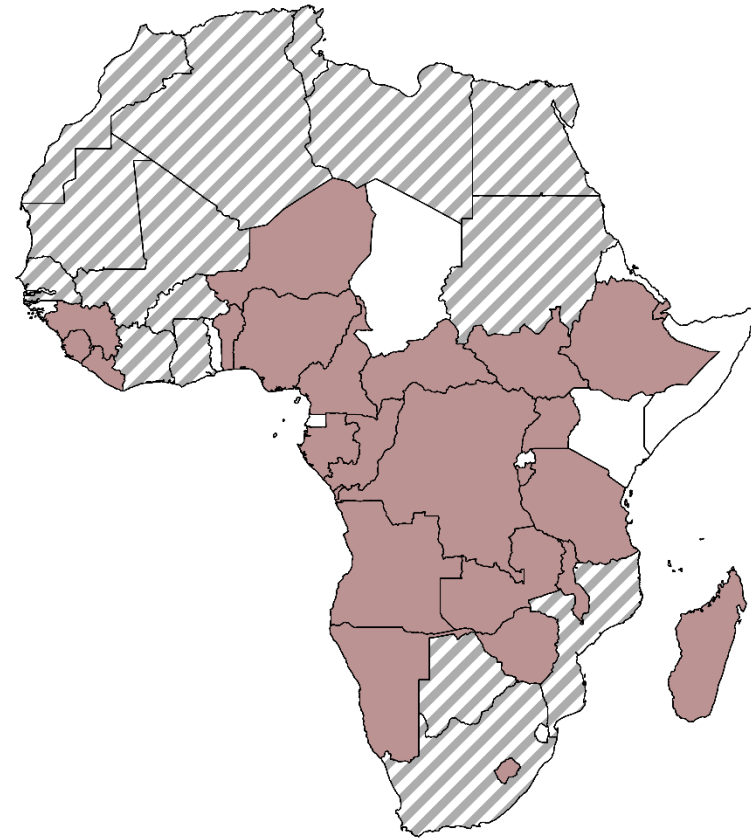


36 African countries have sufficient or more RE capacity (existing and proposed) to meet projected electricity demand in 2050.

2021



2050

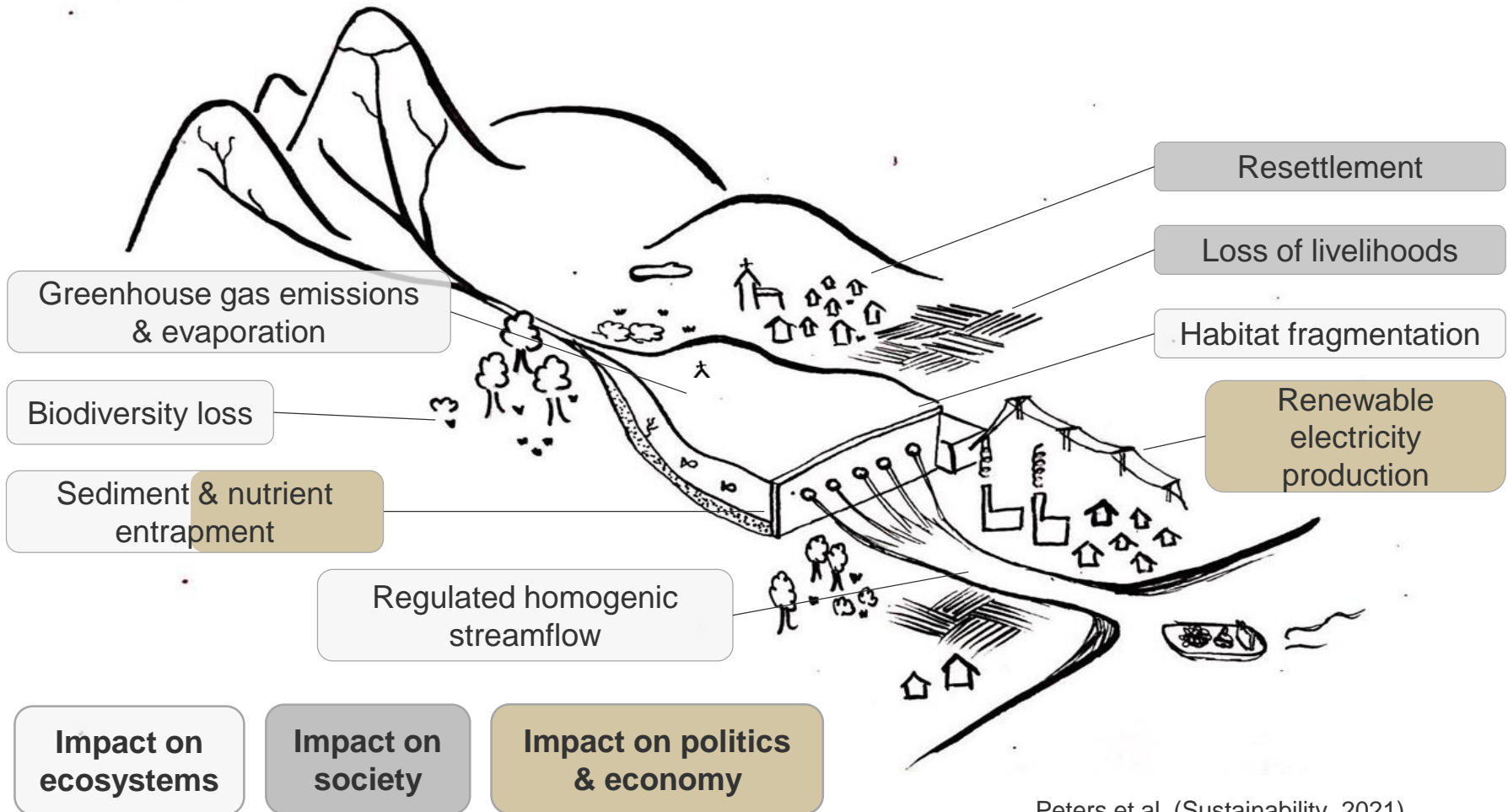


Shortfall Sufficient Surplus

Peters et al. (submitted to Nature Reviews, 2023)



*Hydropower plants operating with reservoir storage **impact environment and society**. Shifting to wind and solar can protect river systems.*



Peters et al. (Sustainability, 2021)



*RE infrastructure is not without **impact**. Power plants need to **operate efficiently** and be **smartly combined**.*

Minimize
plant failure

Avoid
harmful
infrastructure

Combine
renewables

Share
electricity





Africa goes renewable

Sustainable pathways towards universal renewable electricity access in Africa

1. National **starting points** to “ensure access to affordable, reliable, and modern energy for all” (SDG 7) differ.
2. Electricity generated from all existing and proposed renewable plants **can meet 76%** of Africa’s projected electricity needs.
3. Renewable infrastructure is not without **impact**. Power plants need to operate efficiently and be smartly combined.



rebecca.peters@uni-tuebingen.de



<https://uni-tuebingen.de/de/243007>

