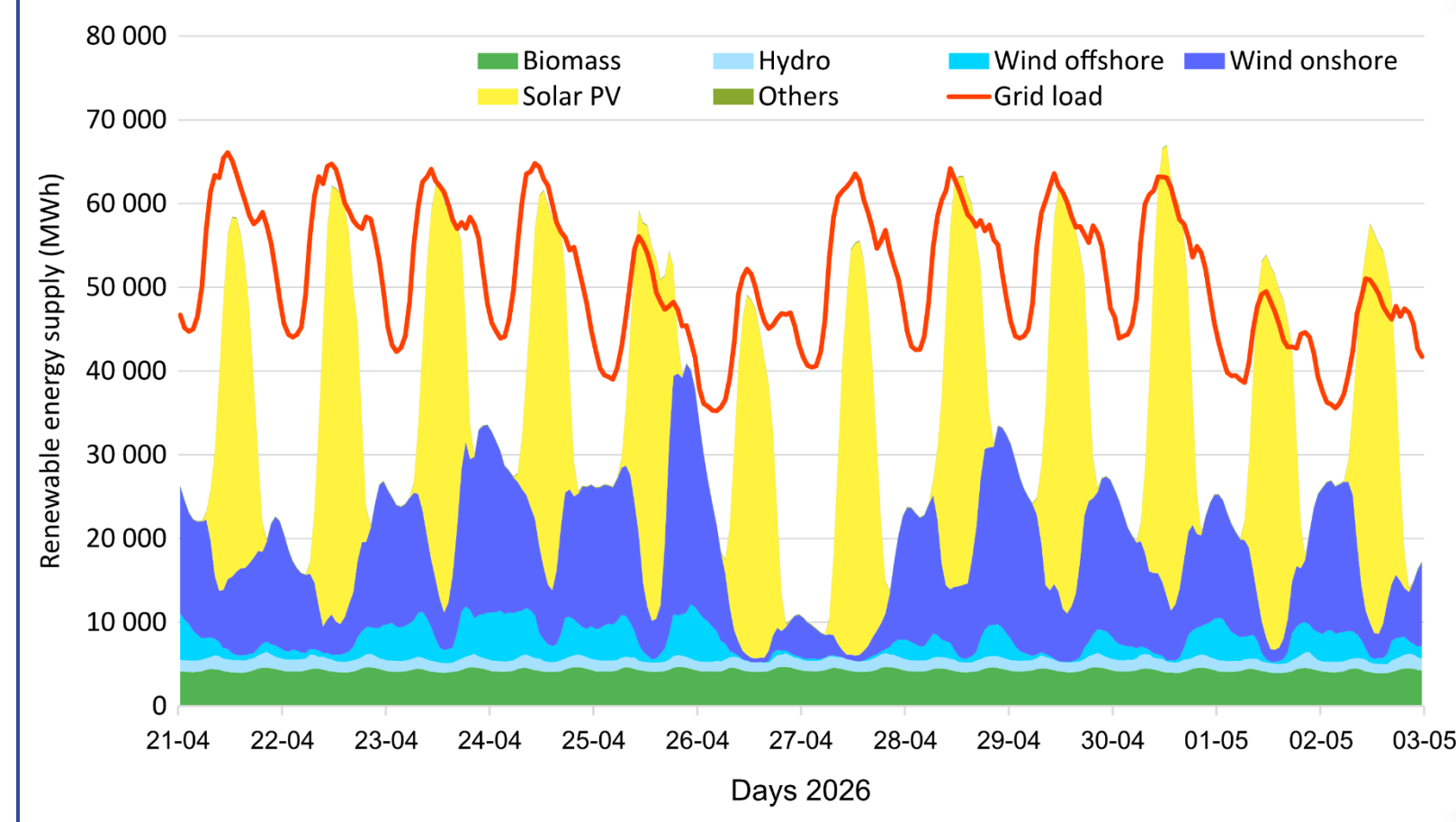


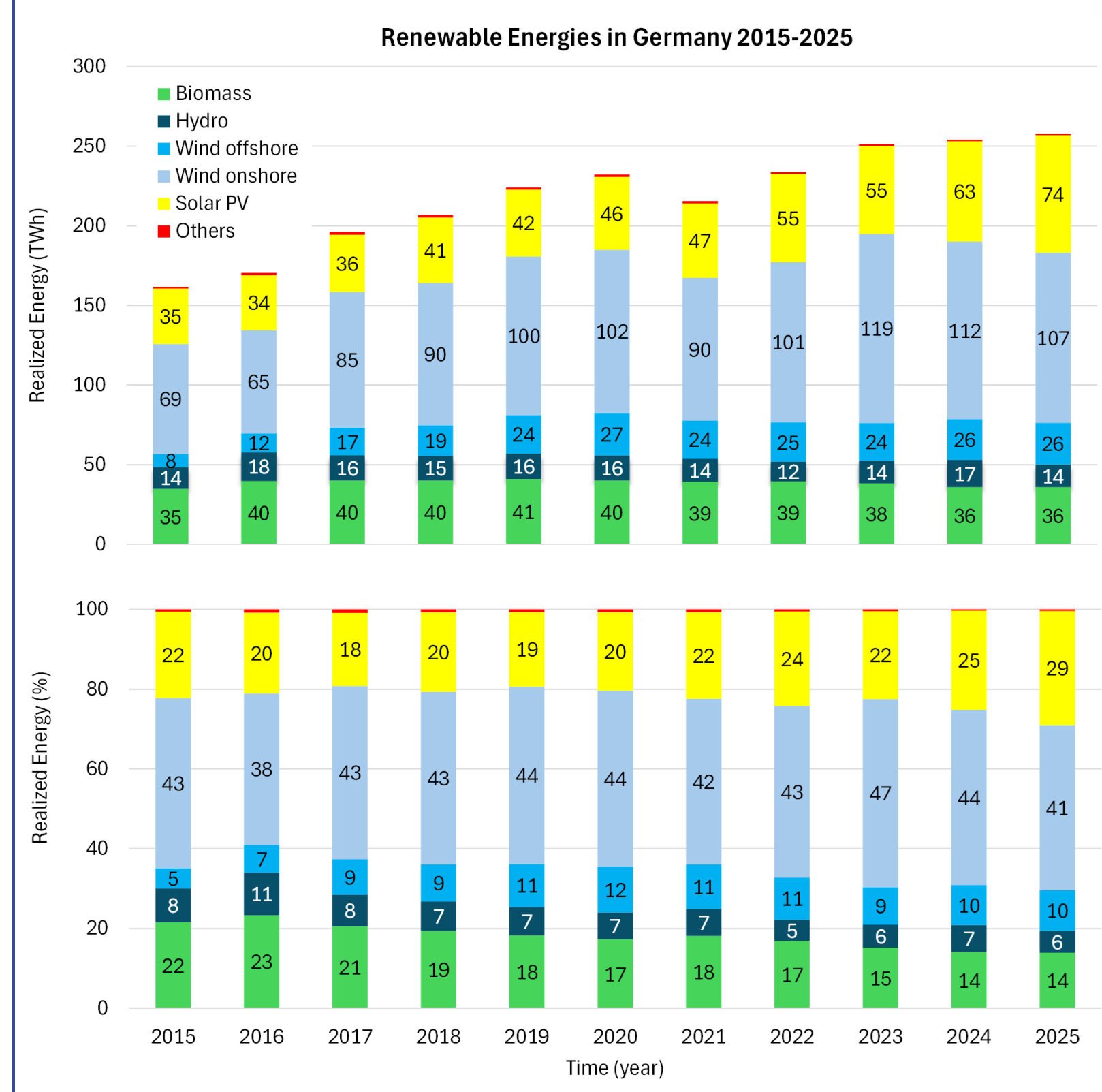
# From energy shortage to timing problem in Germany's renewable transition

Paula Brändle, Natalie Fanning, Sarah Fineiß, Laurenz Hamann, Tim Hegering, Milan Ruff, Sijen Sprich

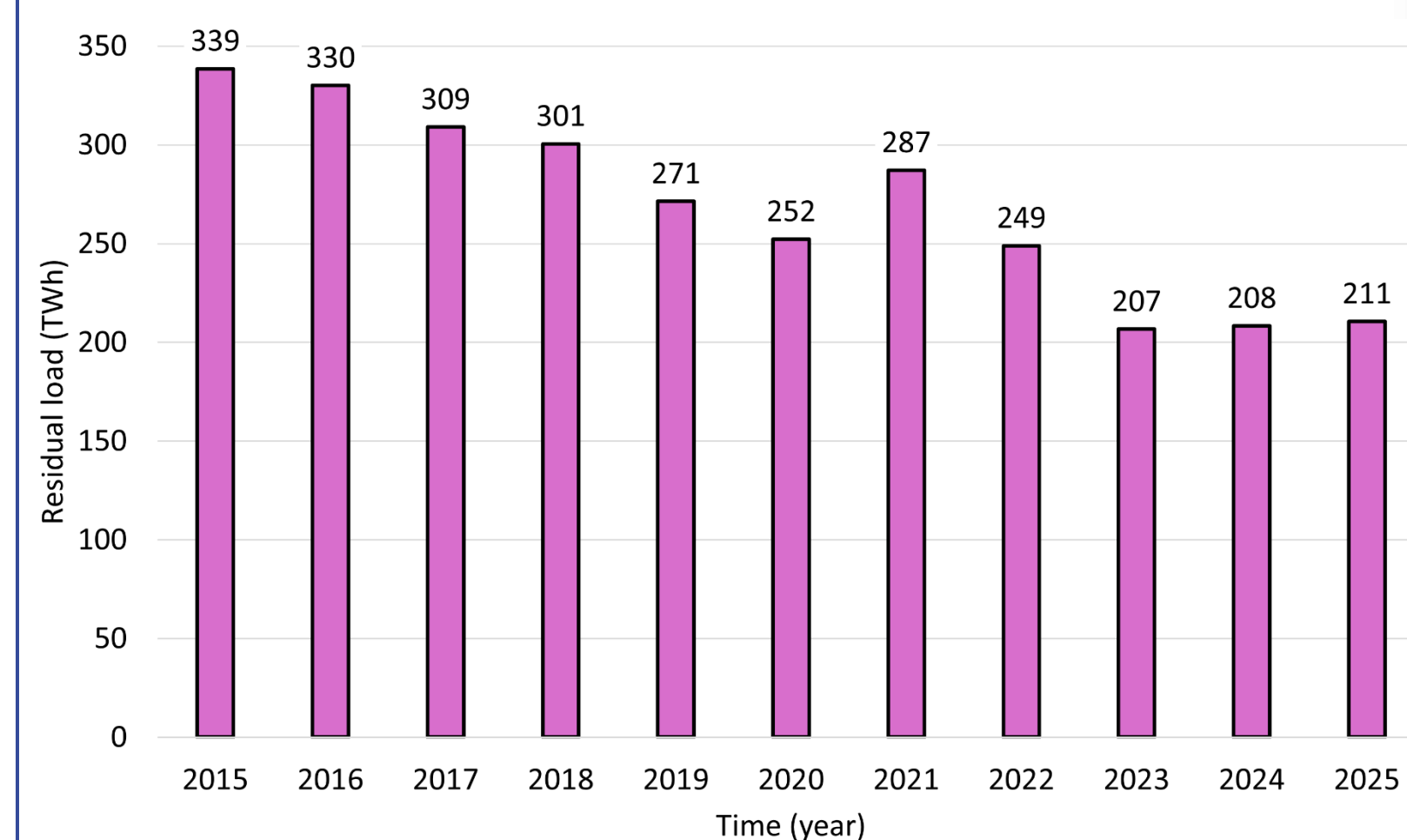
## SMARD - Electricity market data for Germany [1]



## Renewable Energy Generation 2015-2025

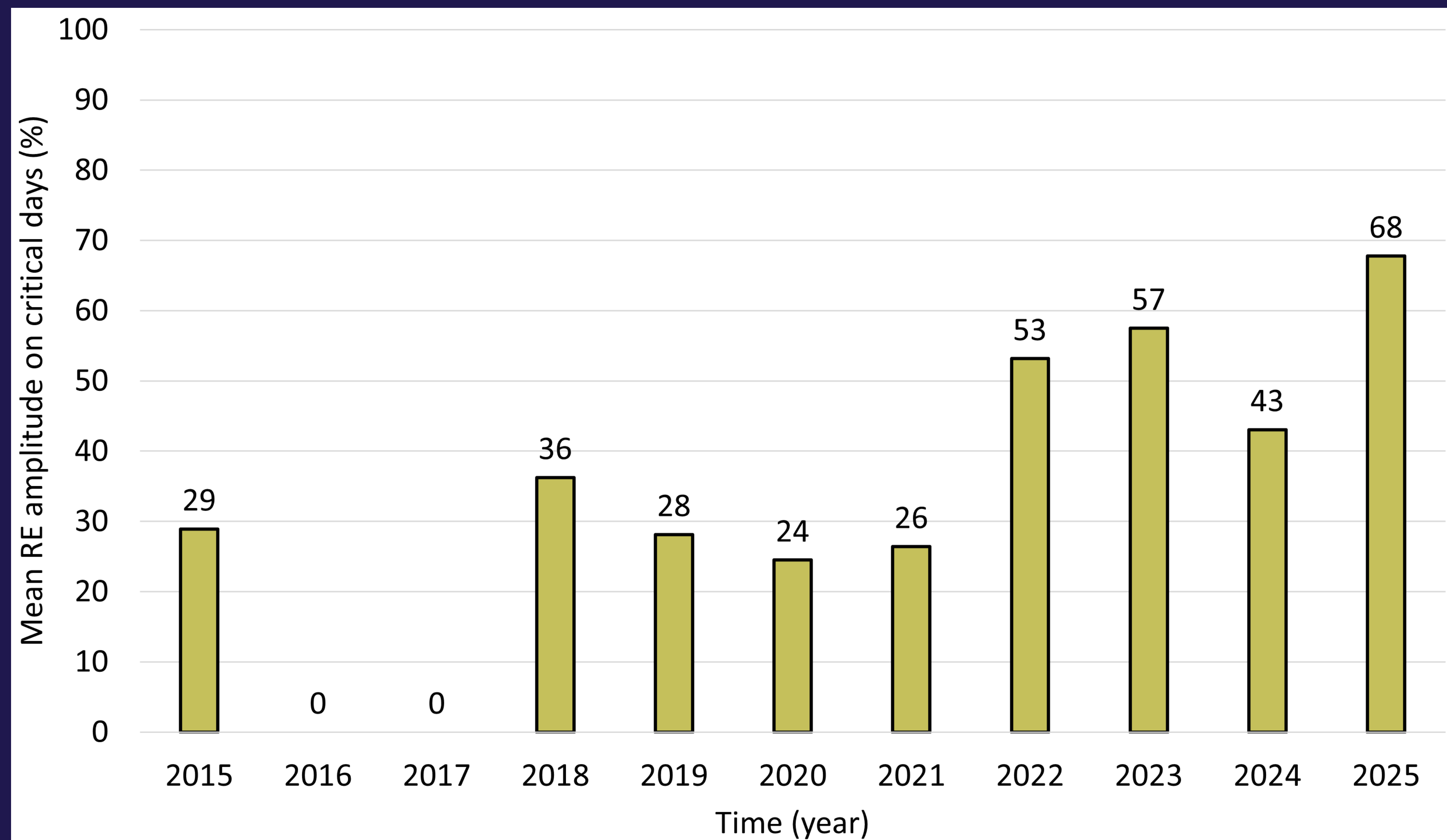


## Annual residual load 2015-2025



# The German Efficiency Paradox

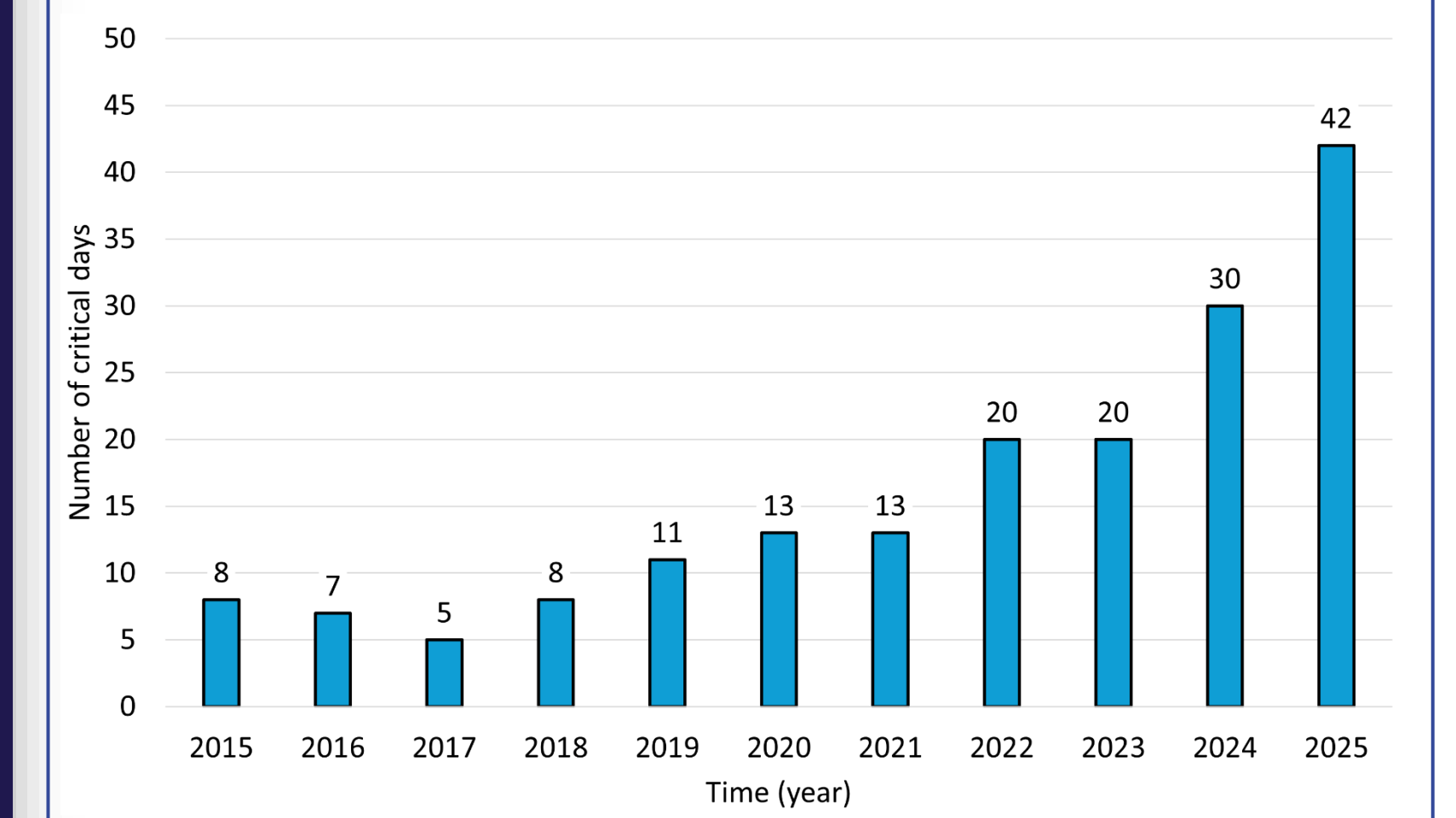
## The mismatch between renewable electricity supply and demand



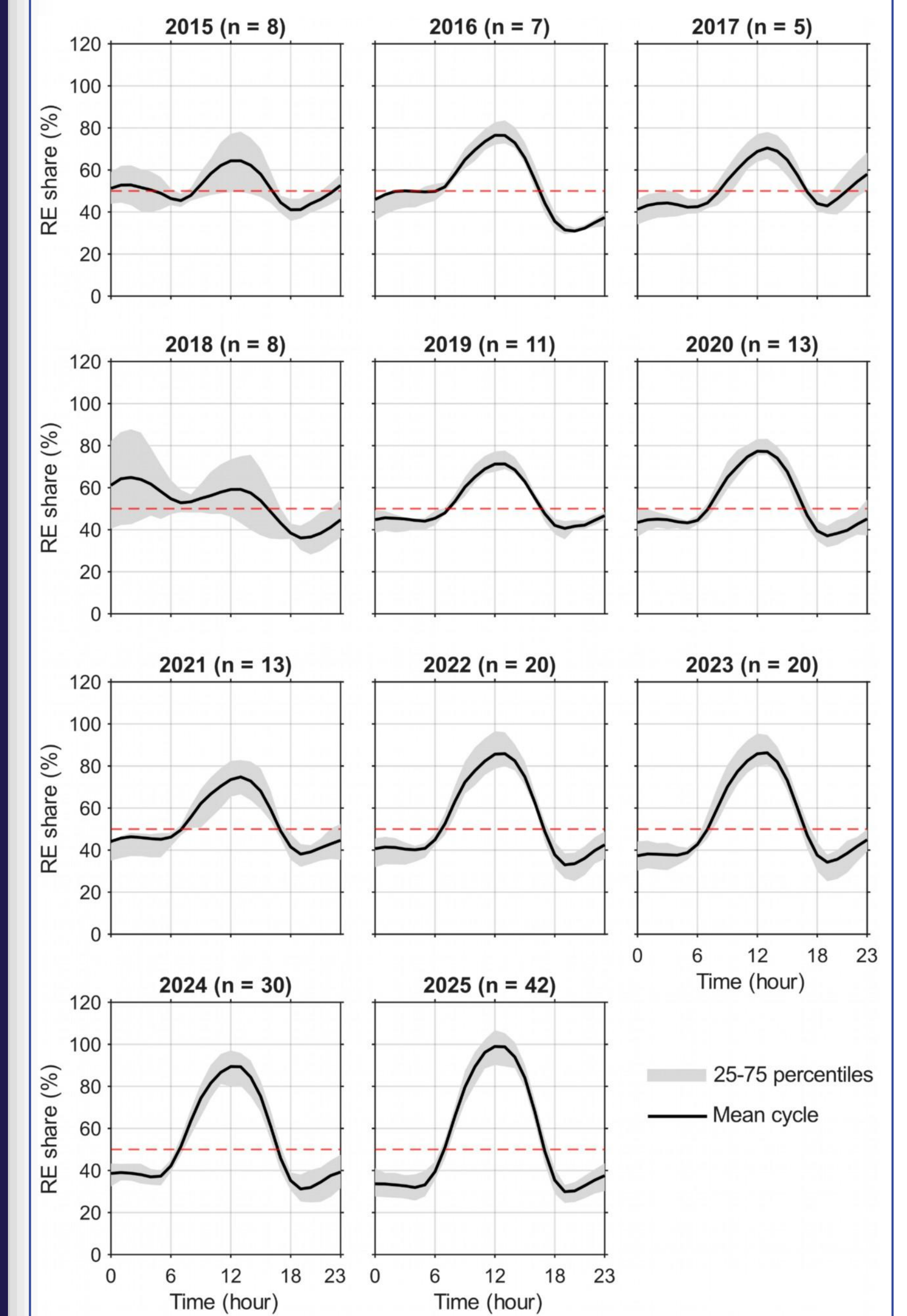
Download the poster

## Critical production days

$$D_{crit} = \{d: \bar{p}_d \geq 50\% \wedge n_d(p_h \geq 50\%) < 12\}$$



## Mean daily RE share cycles



## Conclusions

- Renewable energy availability in Germany is and remains highly variable in space and time
- Spatiotemporal variability should be a key driver for further RE expansion
- Expansion of smart grids, wind energy and electricity storage capacity must be consistently pursued to offset the imbalance between supply and demand

## References

[1] - Electricity market data for Germany. <https://www.smard.de/en/ueber-uns>