Accelerating the growth of wind power under the pressure of energy security

MISTRA Electrification stakeholder webinar

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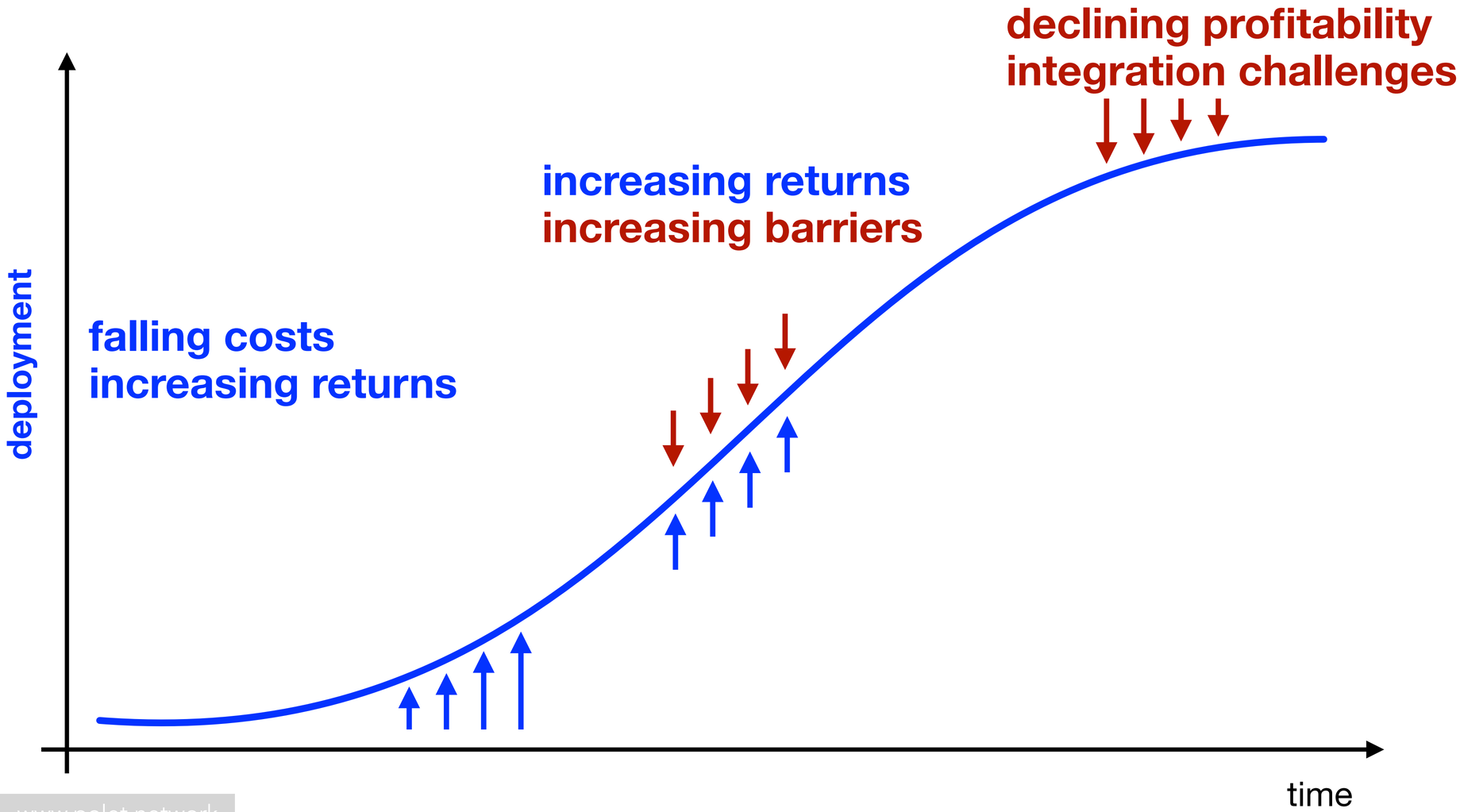
With input from Vadim Vinichenko

30 May 2023

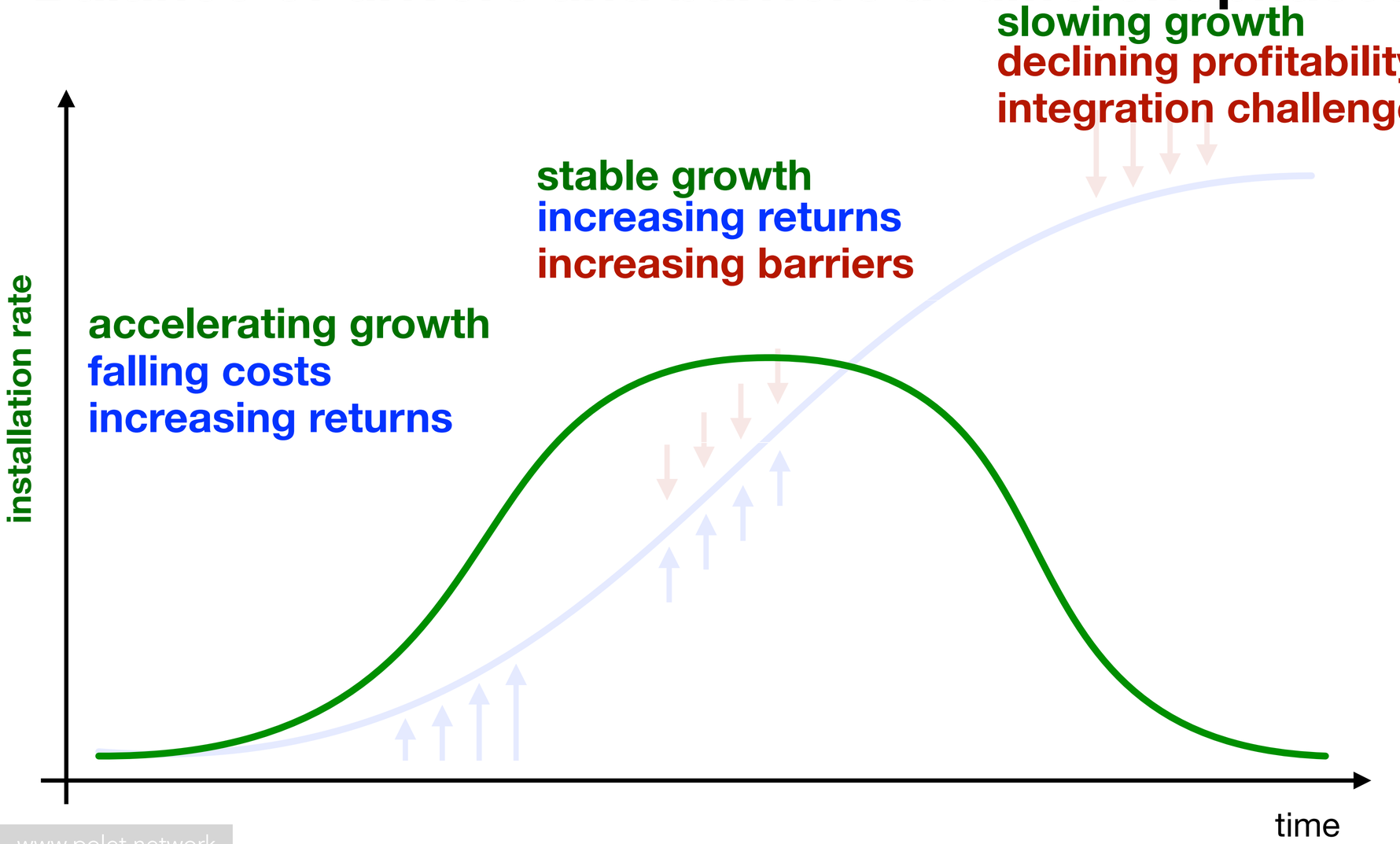
Cumulative technology deployment

Balance of drivers and barriers at different phases of S-curve

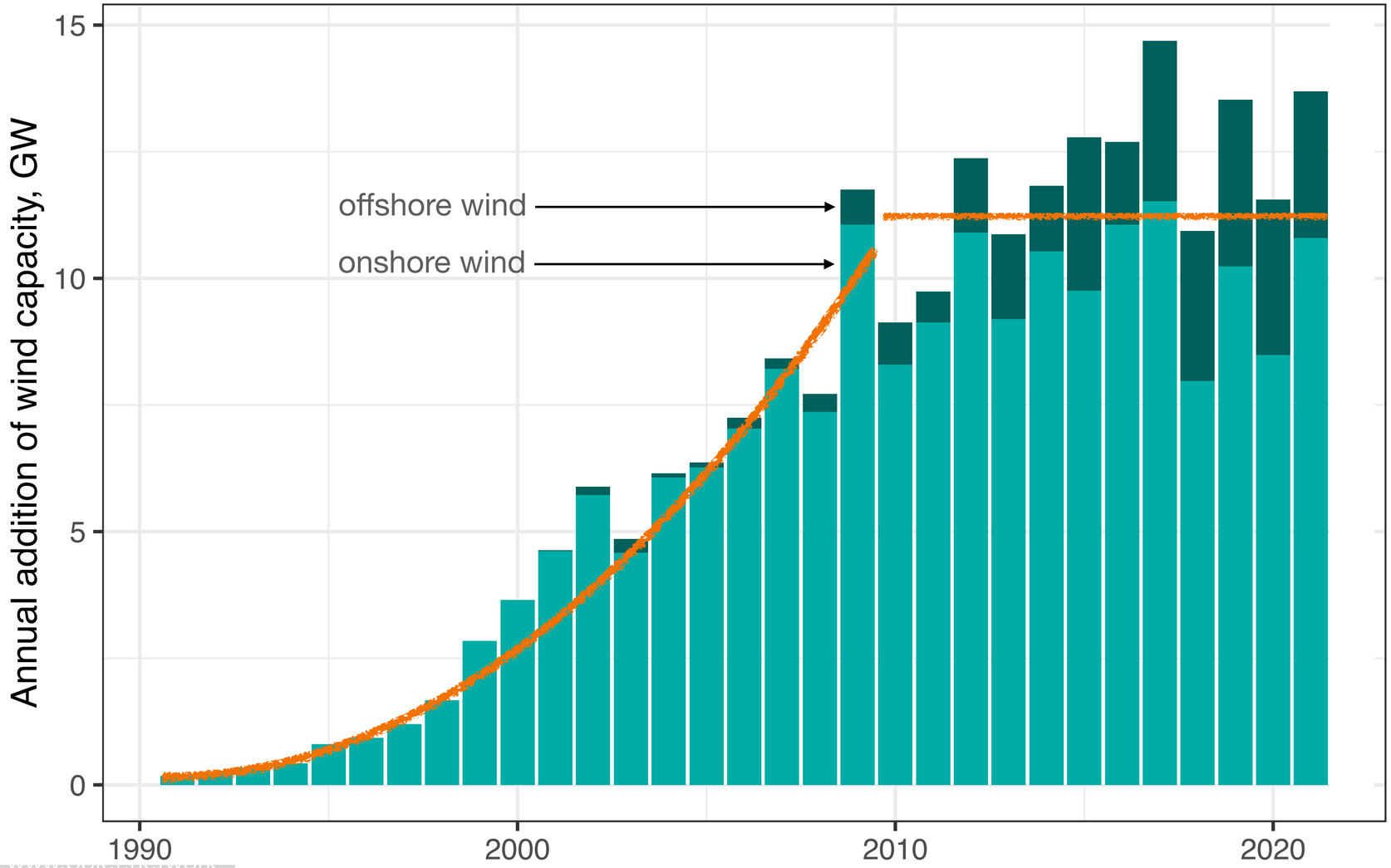


The rate of technology additions

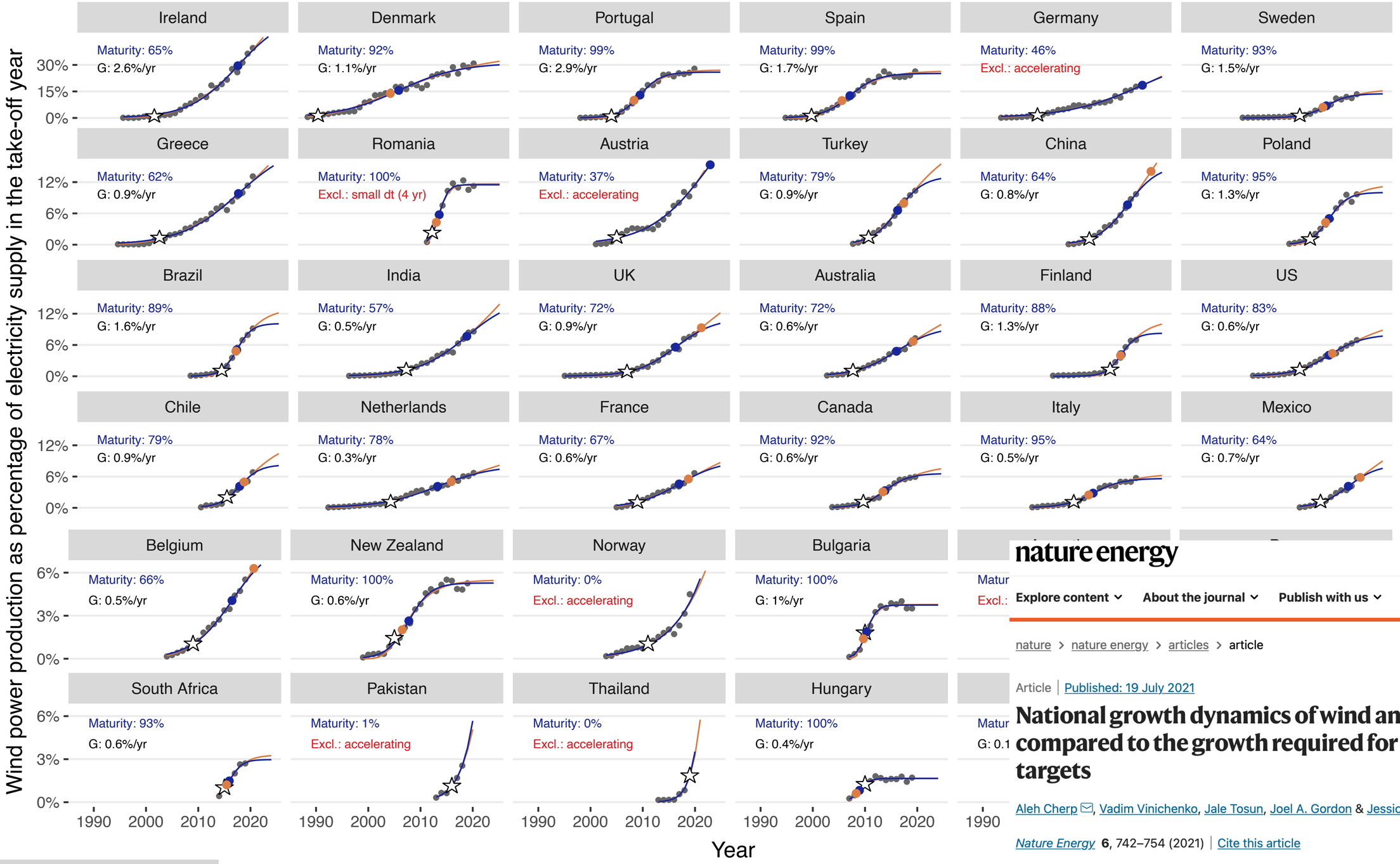
Balance of drivers and barriers at different phases of S-curve



Wind power in Europe — stable growth



Source: compiled from IEA and IRENA



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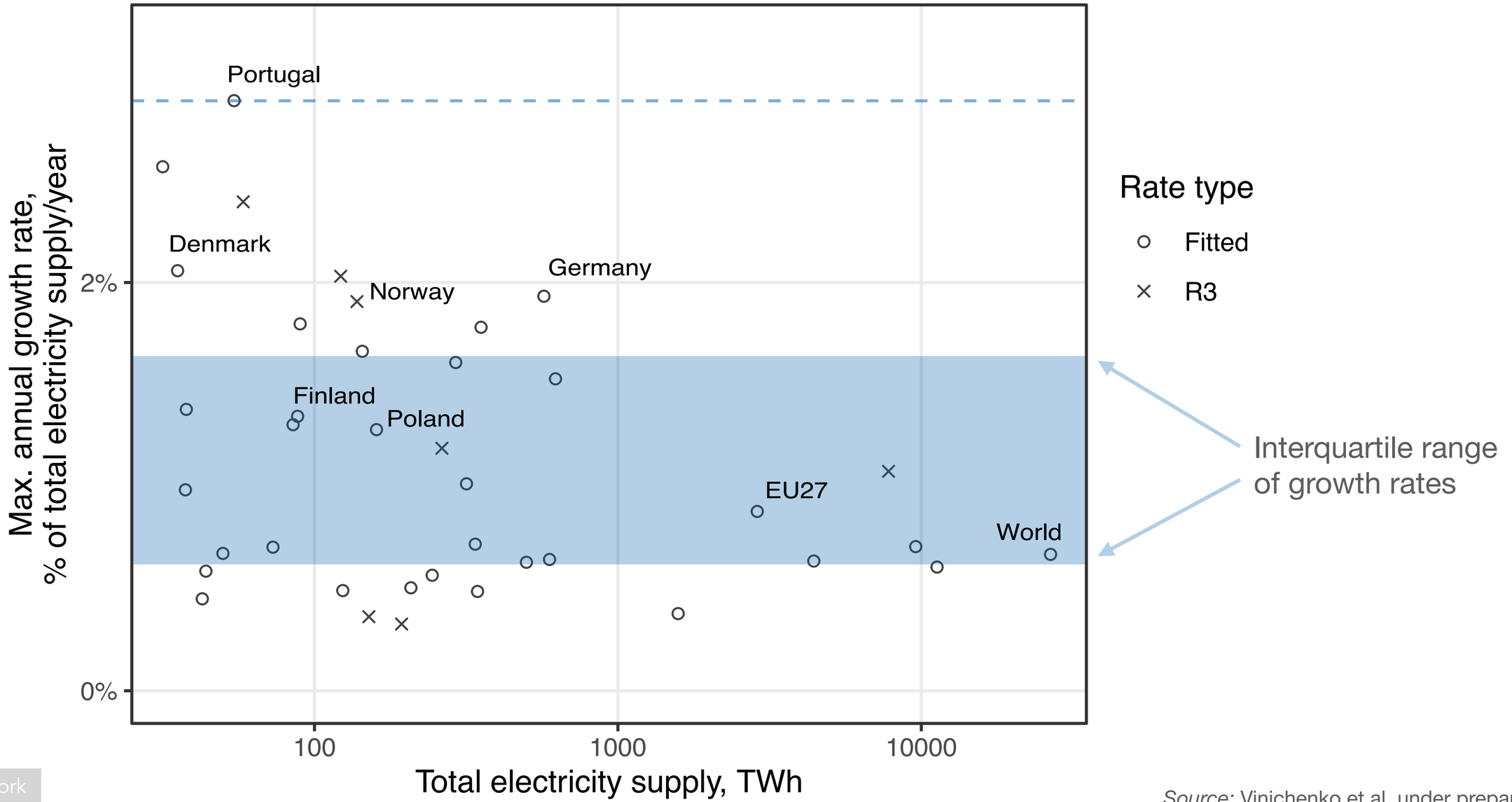
Article | Published: 19 July 2021

National growth dynamics of wind and solar power compared to the growth required for global climate targets

Aleh Cherp, Vadim Vinichenko, Jale Tosun, Joel A. Gordon & Jessica Jewell

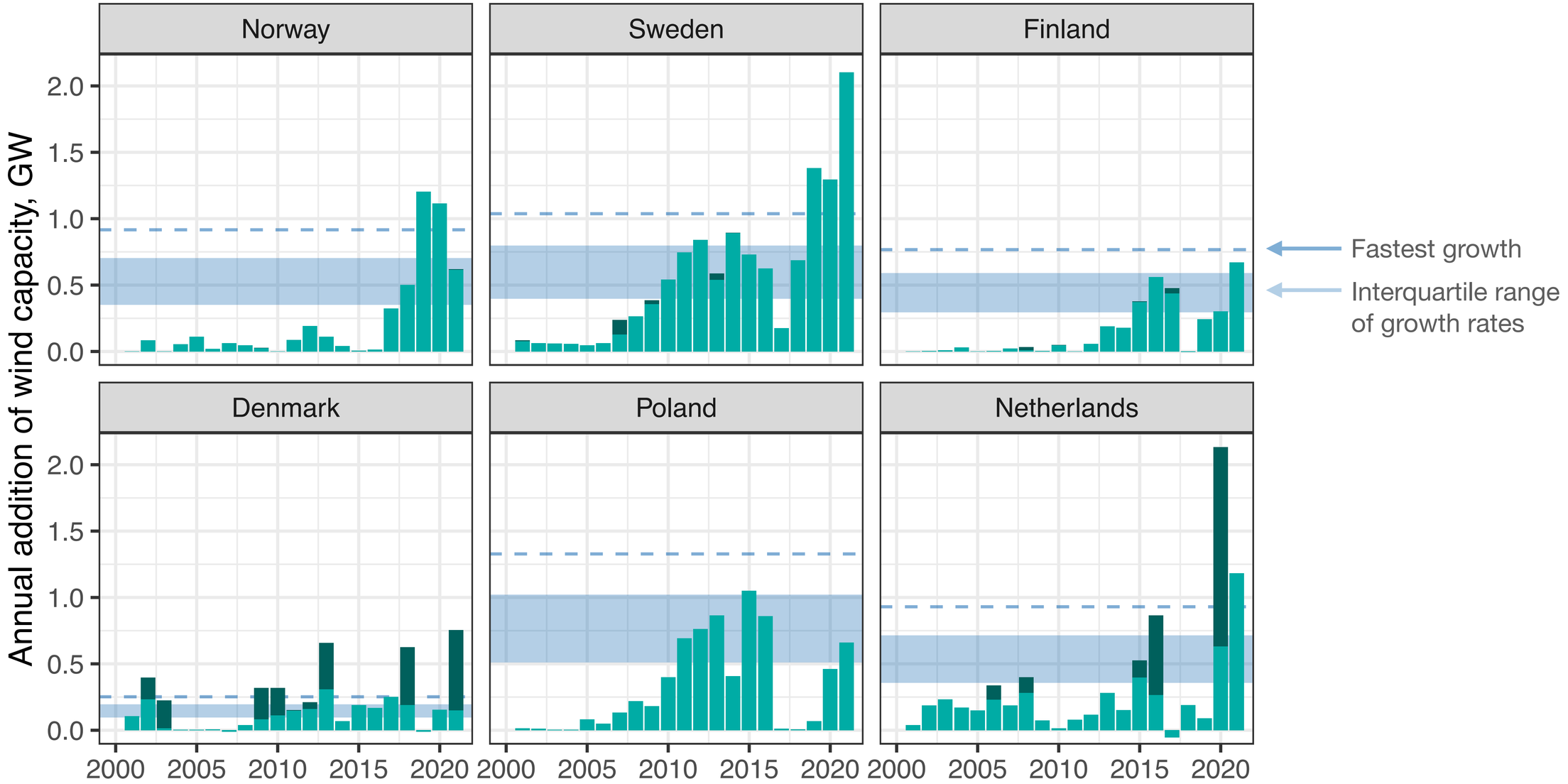
Nature Energy **6**, 742–754 (2021) | Cite this article

Maximum annual growth rate of wind power



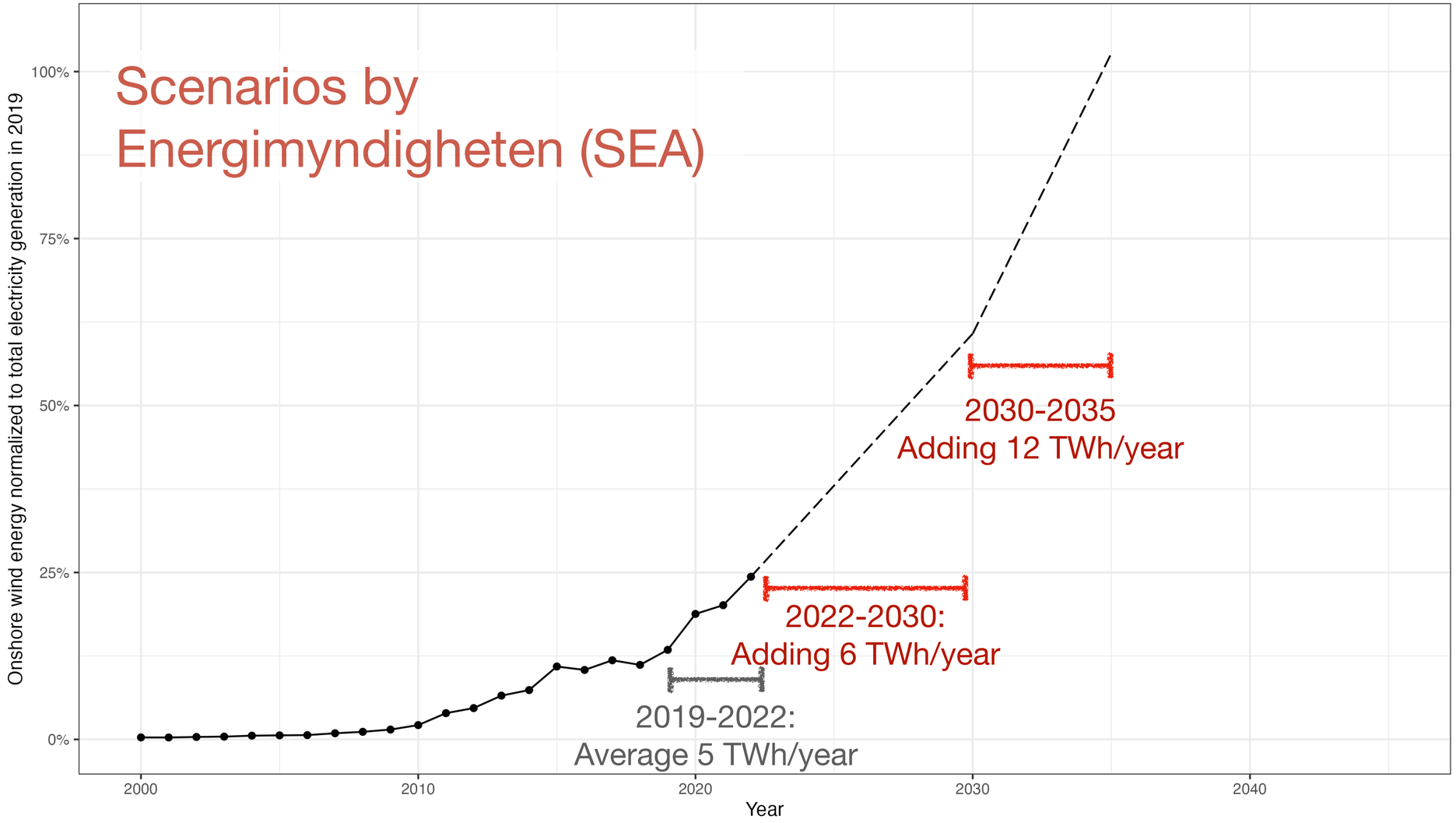
Source: Vinichenko et al. under preparation

How fast has wind power grown in Northern Europe?

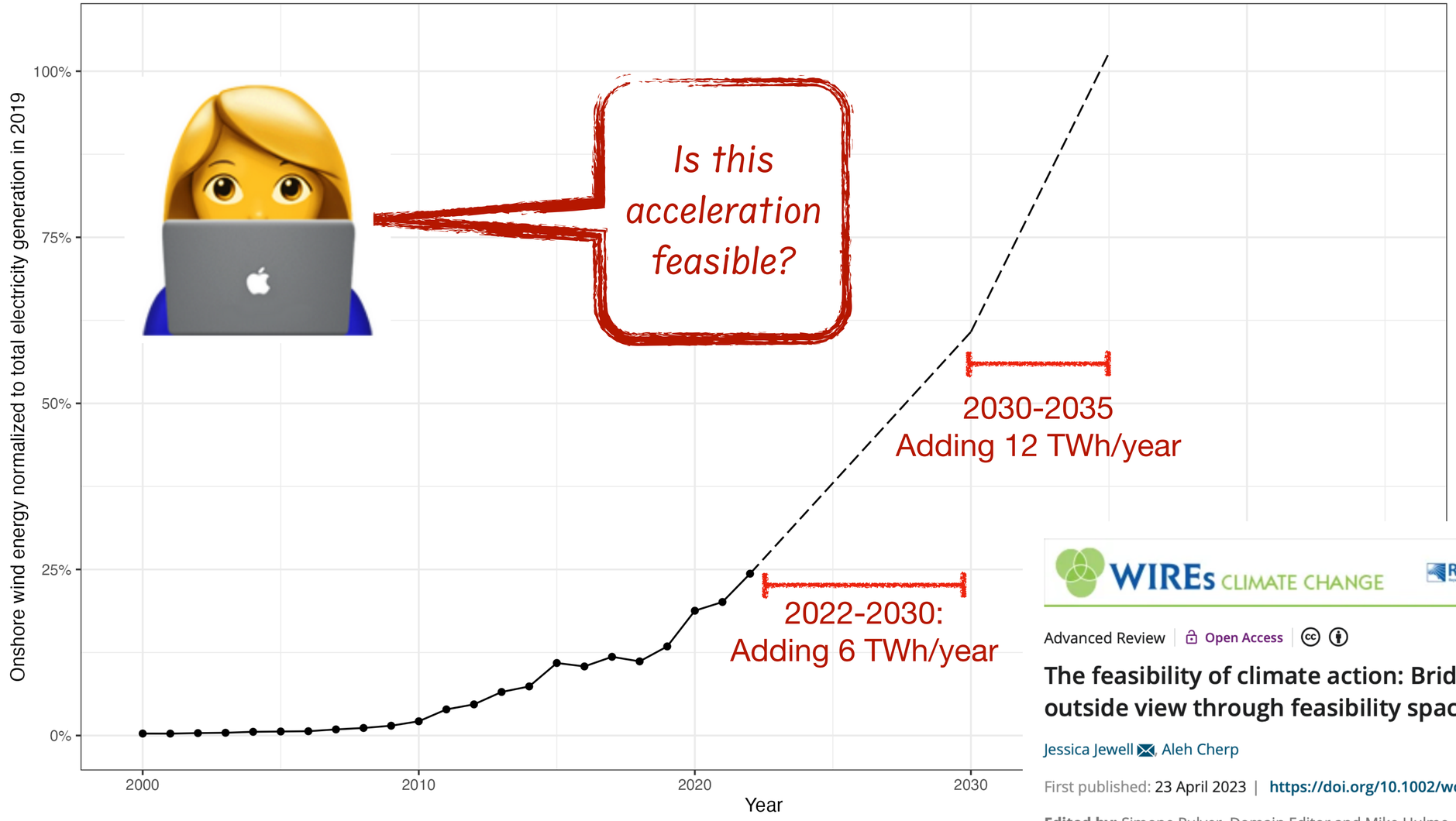


Source: calculated based on Cherp et al. 2021

Wind power in Sweden as share of electricity



Wind power in Sweden as share of electricity



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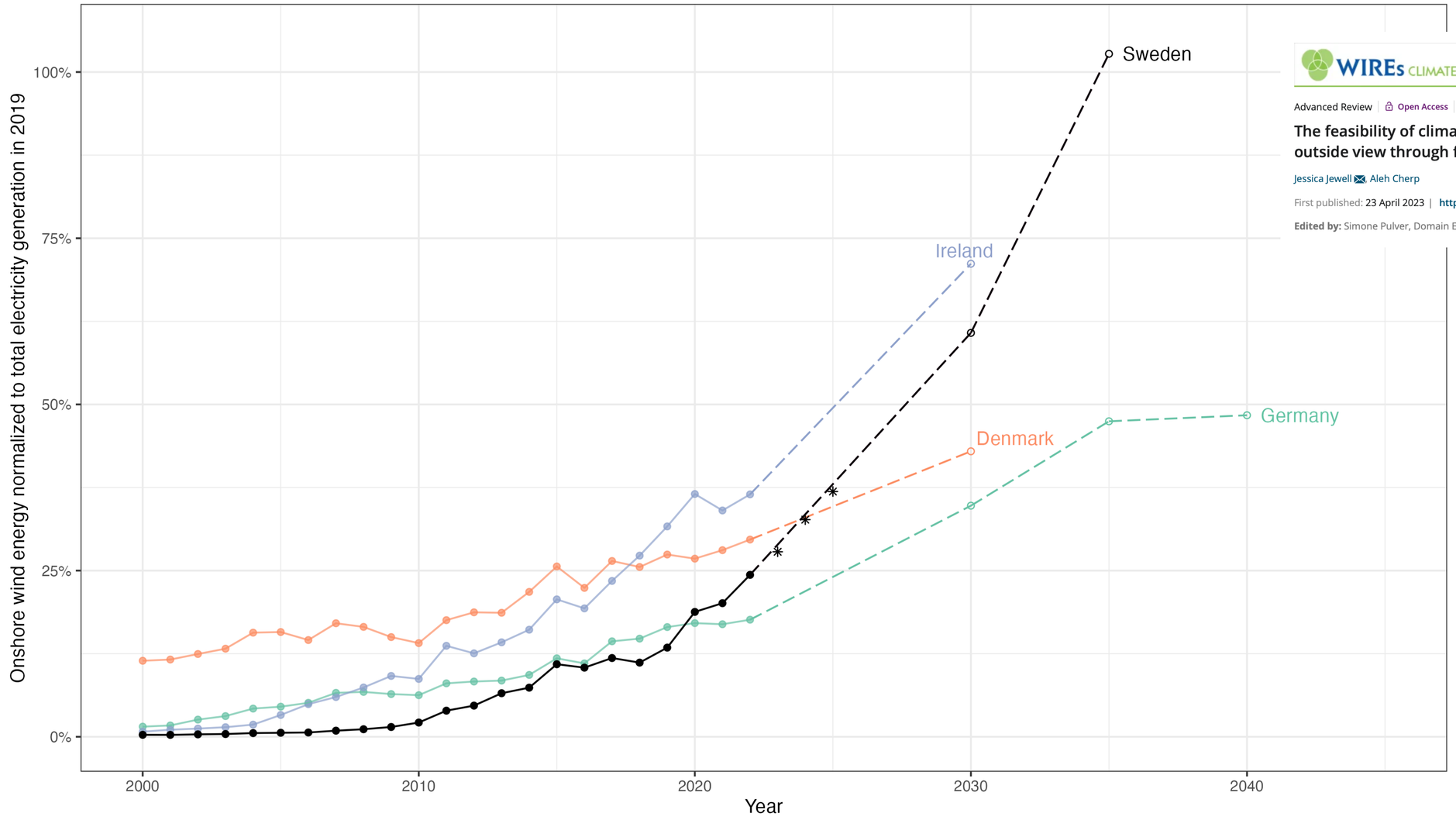
The feasibility of climate action: Bridging the inside and the outside view through feasibility spaces

Jessica Jewell, Aleh Cherp

First published: 23 April 2023 | https://doi.org/10.1002/wcc.838

Edited by: Simone Pulver, Domain Editor and Mike Hulme, Editor-in-Chief

Wind power in Sweden compared to other countries



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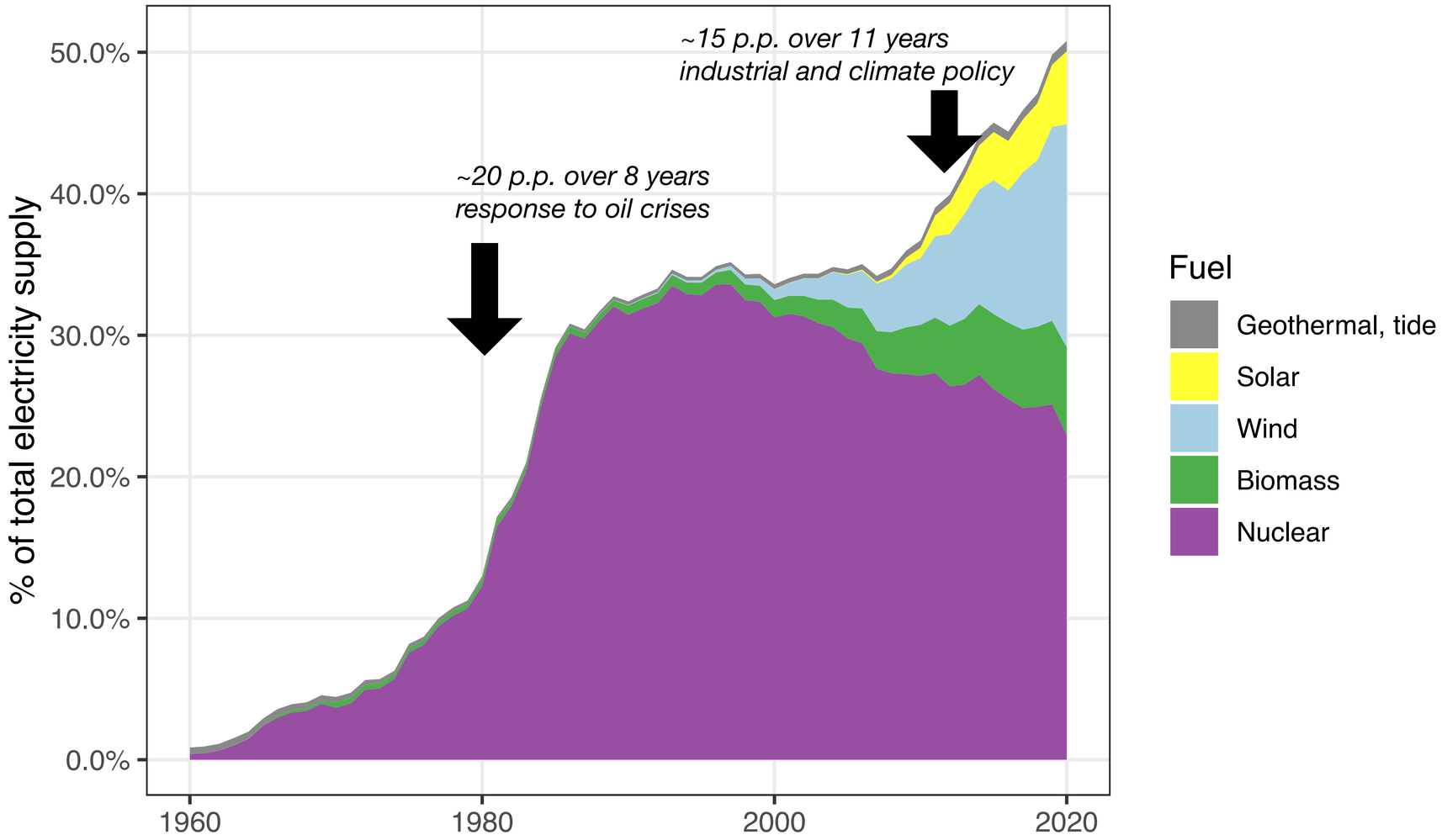
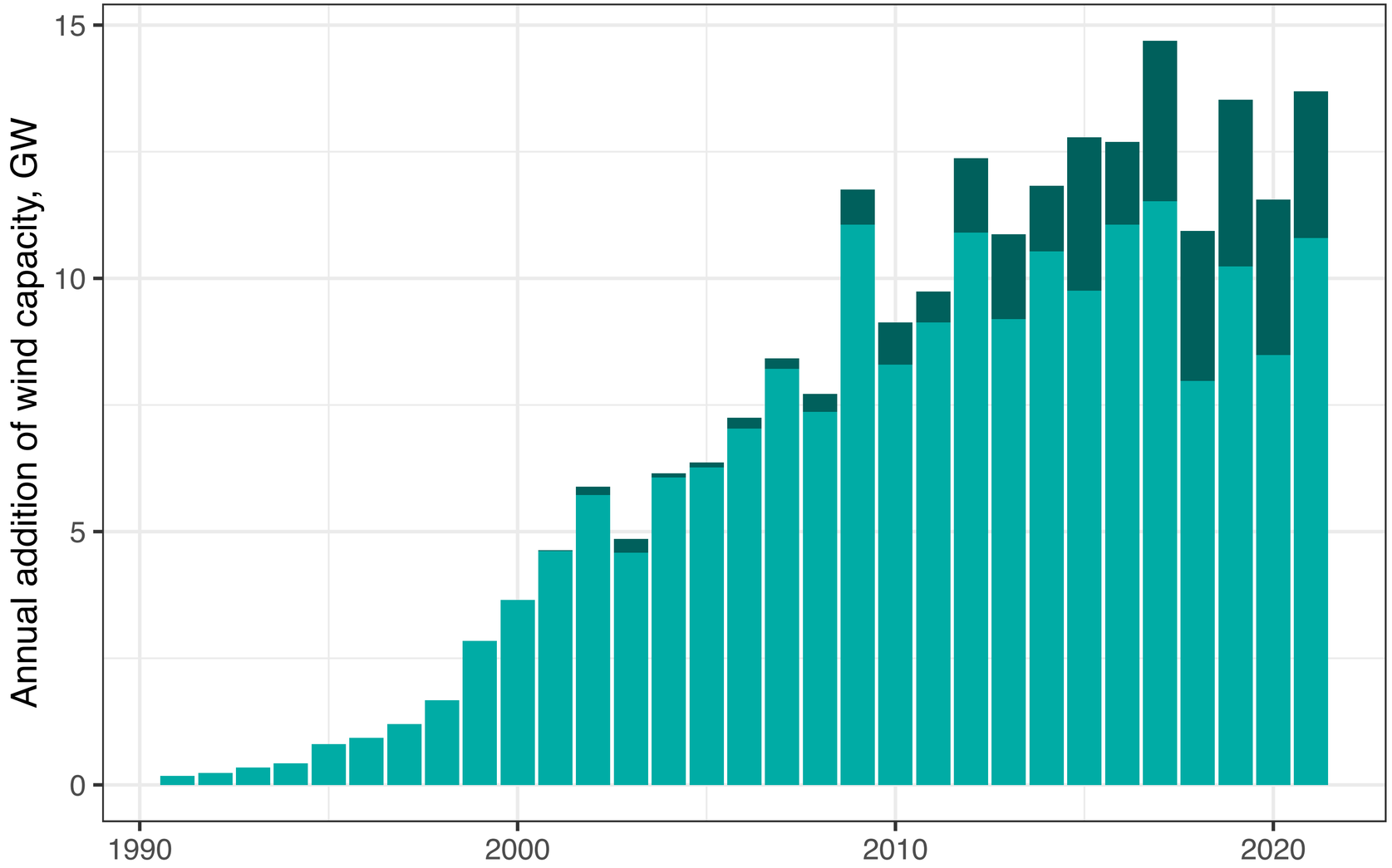
Technology growth accelerates in response to crises

Low-carbon energy growth in Europe

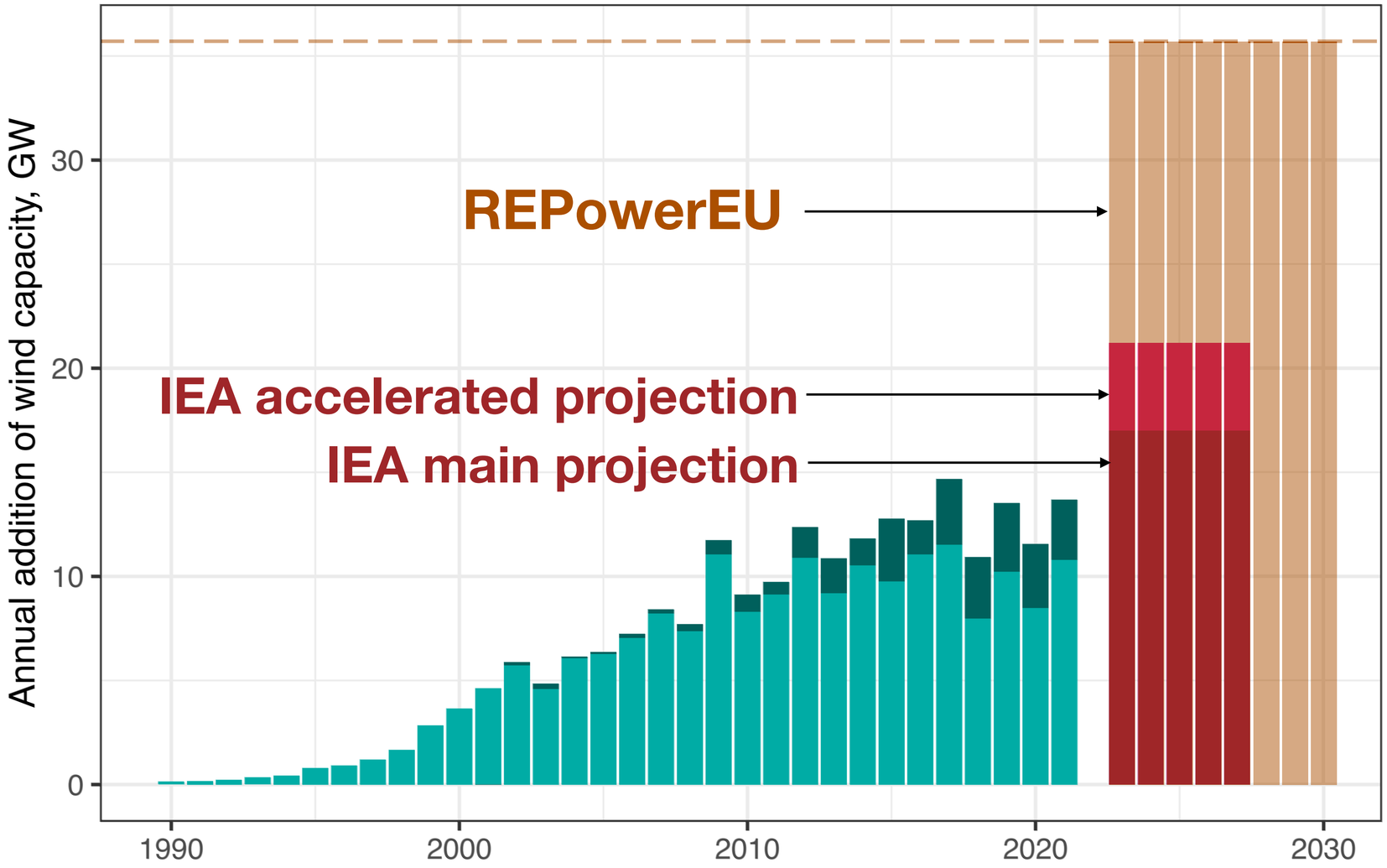


Own analysis based on IEA 2021

Targets make historical growth faster

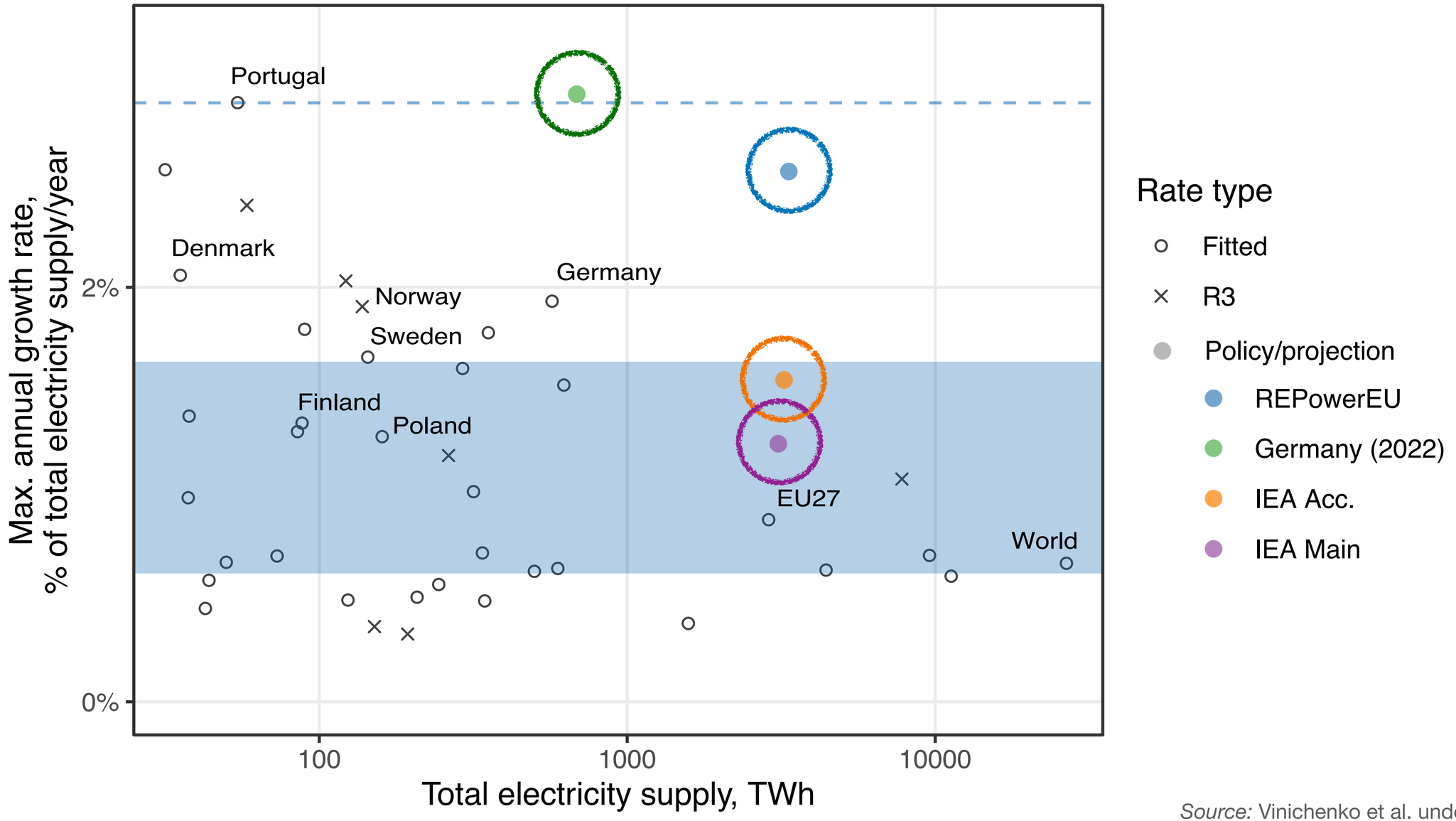


Targets make historical growth faster



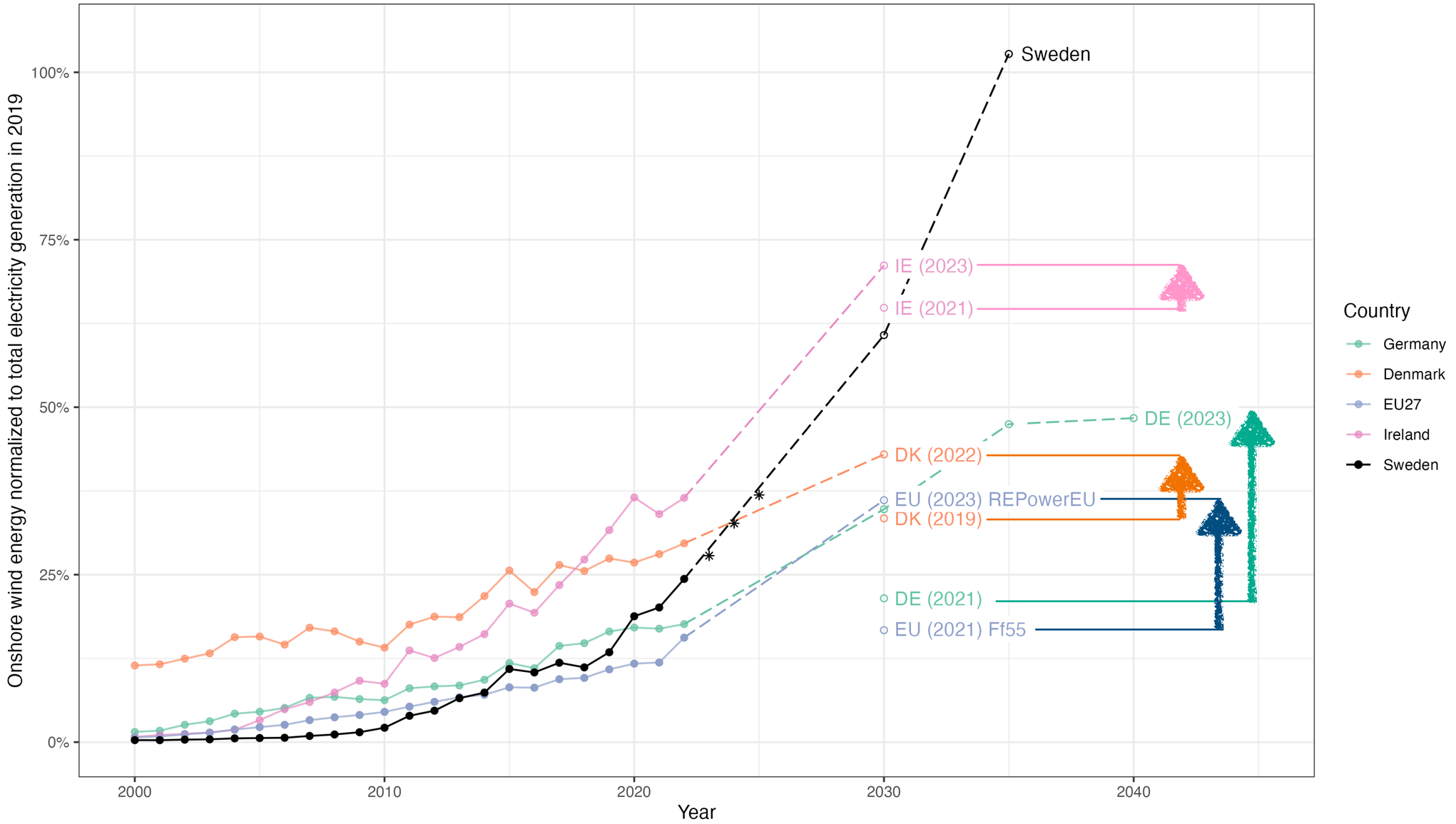
Source: compiled from IEA and IRENA

Targets compared to maximum historical growth rates



Source: Vinichenko et al. under preparation

National targets scaled up since the war

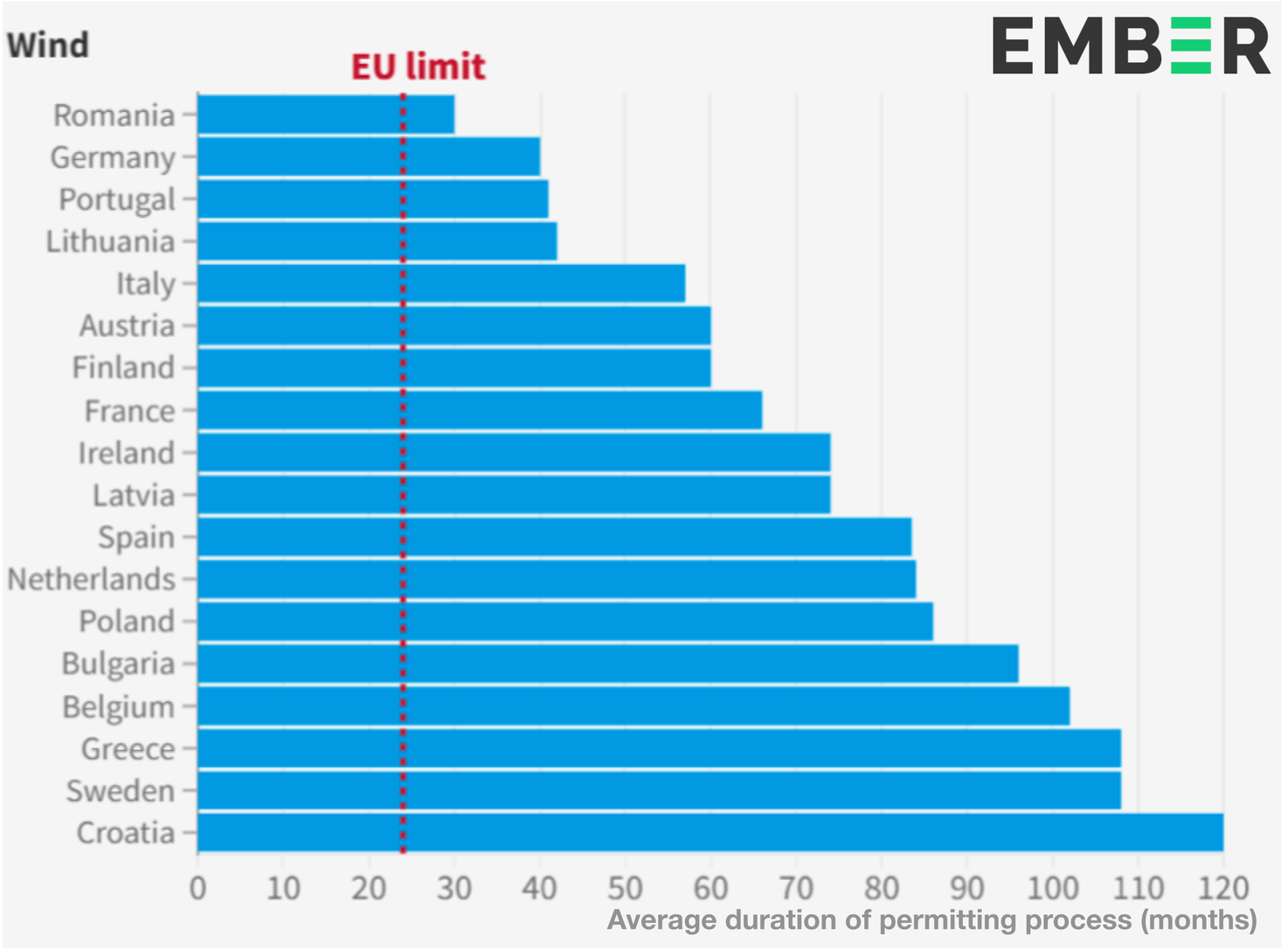


Policy solutions to (re)accelerate growth

- Compensating affected communities
  - profit sharing / compensations from developers
    - E.g. 0.2 cents/kWh in Germany
  - tax sharing

Policy solutions to (re)accelerate growth

- Compensating affected communities
- Reducing uncertainties of the permitting process



Policy solutions to (re)accelerate growth

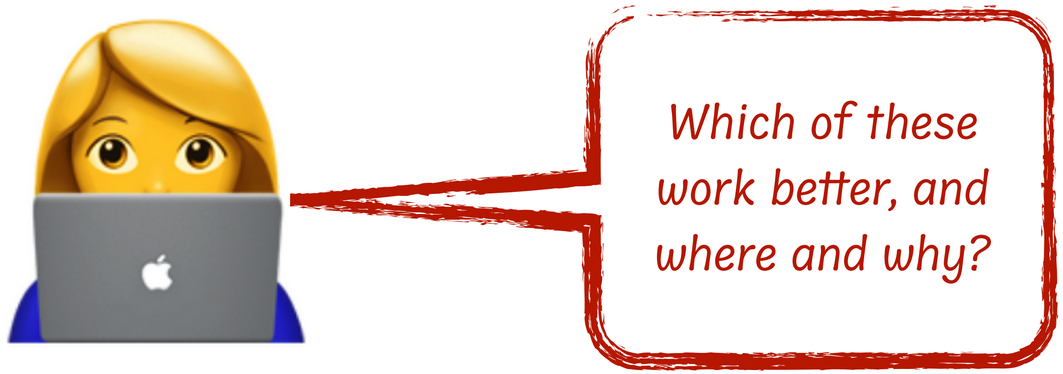
- Compensating affected communities
- Reducing uncertainties of the permitting process
- Forceful designation of land

“The use of wind turbines is in the overriding public interest and serves public security”

German Onshore Wind Energy Act

Policy solutions to (re)accelerate growth

- Compensating affected communities
- Reducing uncertainties of the permitting process
- Forceful designation of land
- We are open for collaboration!



Conclusions

- Growth rates of wind in Europe are stable and have not been increasing
- Sweden is a frontrunner on wind power deployment but needs to maintain high levels of growth
- Current energy security crisis has led to ambitious national plans for accelerating growth in Europe
- Various policies are considered to reduce barriers to faster deployment
- More research is needed about the effectiveness of these policies