

An aerial photograph of a rural landscape. In the foreground, several white wind turbines are visible, some partially obscured by a green semi-transparent box. The middle ground shows a mix of green forests and golden-brown agricultural fields. In the distance, a small village with red-roofed buildings is nestled in a valley. The sky is a pale, hazy blue.

GREENPEACE

ENERGY

Mein Strom. Mein Gas.
Meine Entscheidung.

proWindgas

a crucial element for the cross-sectoral
energy transition

Advanced Alkaline Electrolysis and Applications 2018

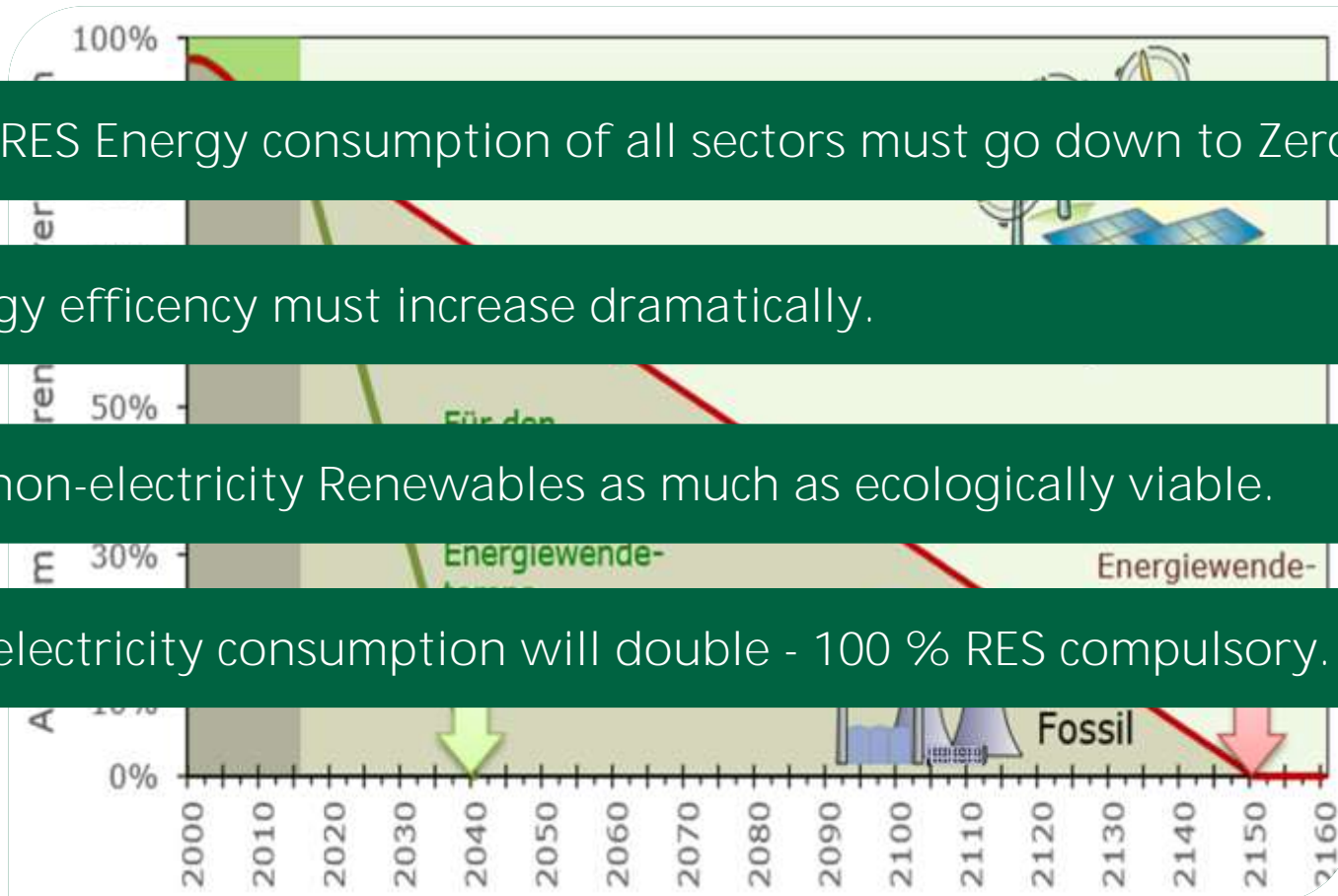
Erich Pick | Greenpeace Energy eG

Who is Greenpeace Energy eG?



- Founded in 1999 by Greenpeace
- Green utility
 - Clean Energy for customers and
 - Commitment for Energy Transition
- Registered cooperative, not profit oriented
 - 24.000 members
- 170.000 customers
 - RES Electricity according to Greenpeace specifications(ca. 400 GWh/a)
 - *pro*Windgas (ca. 150 GWh/a)
- Installation of RES infrastructure
 - 14 wind parks, 3 PV parks;
85 MW, 150 Mio € Invest
 - Electrolyser

Consequences of the Paris Climate Treaty for Germany



Non-RES Energy consumption of all sectors must go down to Zero asap.

Energy efficiency must increase dramatically.

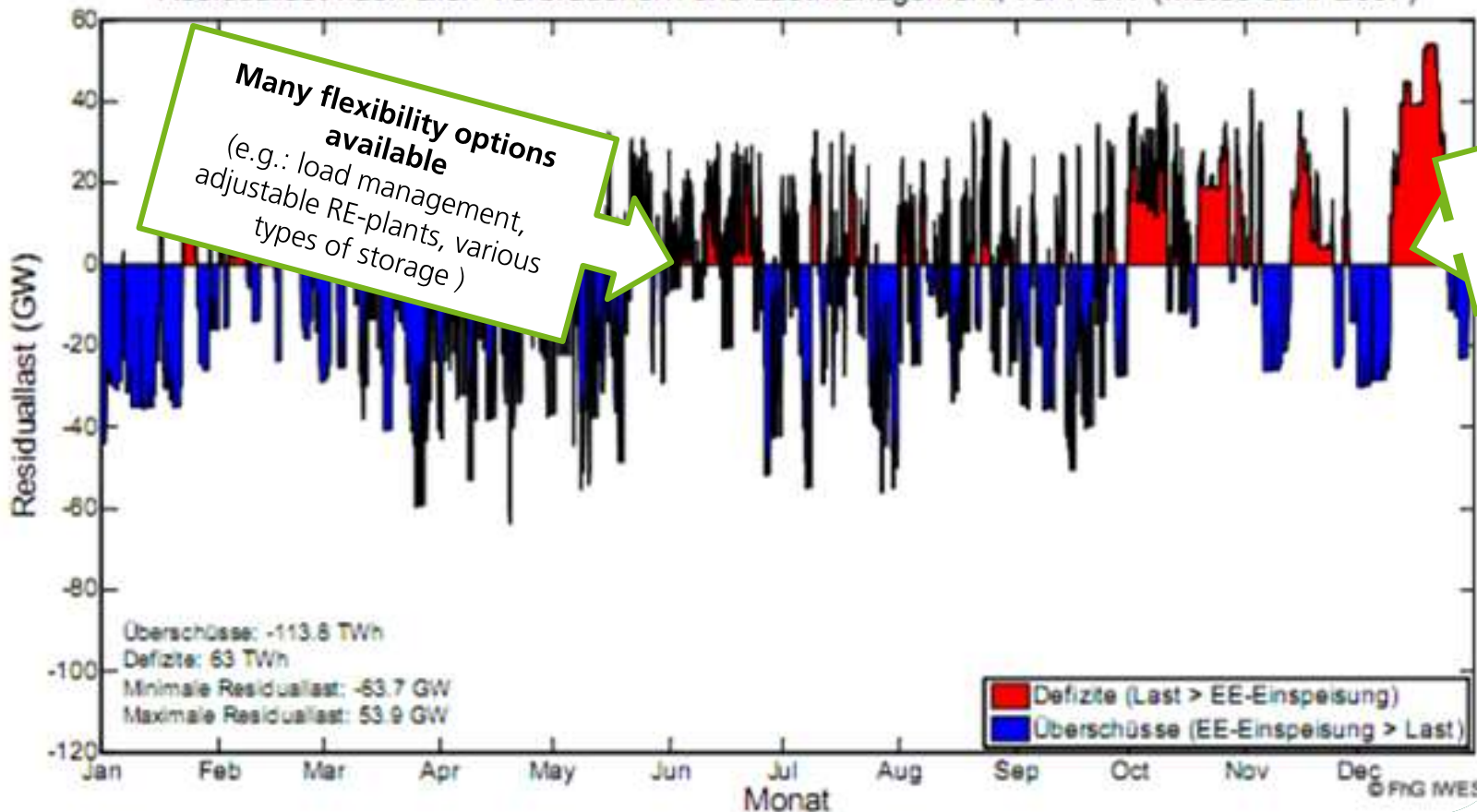
Use non-electricity Renewables as much as ecologically viable.

Still electricity consumption will double - 100 % RES compulsory.

Windgas

Security of Supply with 100 % RES

Residuallast nach allen Verbrauchern und Lastmanagement, vor PSW (Meteo-Jahr 2007)



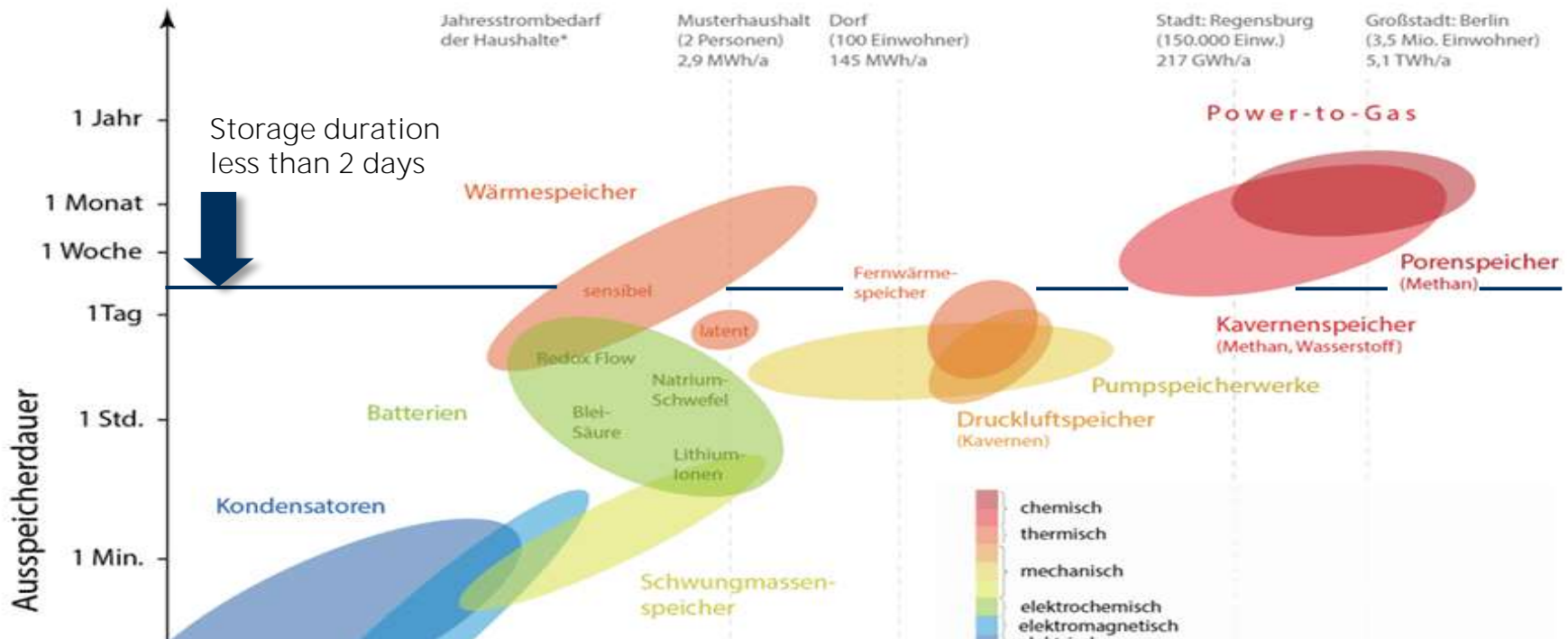
Many flexibility options available
(e.g.: load management, adjustable RE-plants, various types of storage)

Windgas only

Why Greenpeace Energy's commitment to Windgas?



Because energy transition needs it



- Primary injection of hydrogen up to the technical limit of admission of the gas network
- Improvement of the gas network for higher hydrogen blending
- For additional hydrogen: methanation

Windgas

Cost of Energy Transition with / without Windgas (in Germany)



Year and RES percentage achieved a) with Windgas b) without Windgas

Why Greenpeace Energy's commitment to Windgas?



Windgas as long-term storage for renewable energies

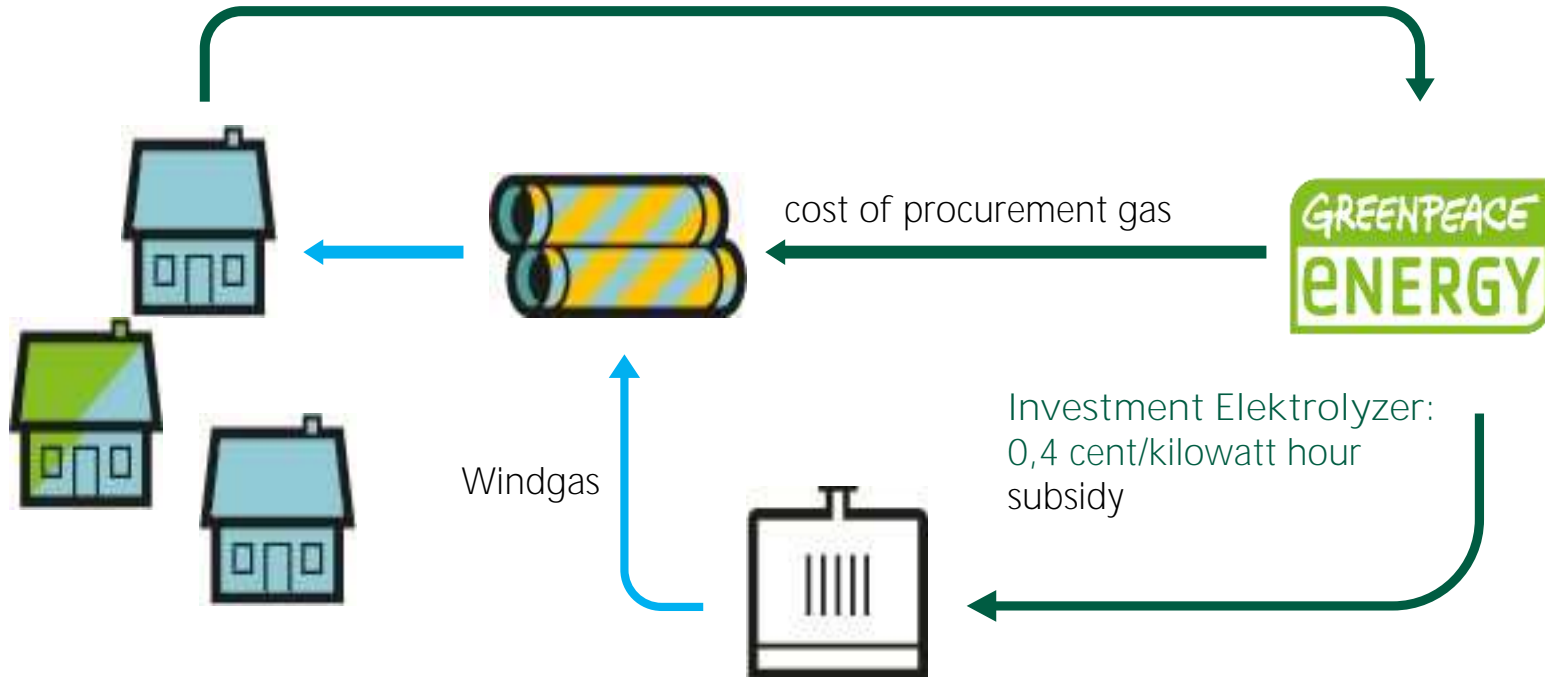
- What Greenpeace Energy does:
 - Scientific research.
 - Lobbying.
 - Raise public awareness.
 - *pro*Windgas as „market maker“:
 - Product that mixes natural gas with a (small) share of Windgas;
 - Customers pay 0,4 ct/kWh premium.
 - Installation/Operation of electrolysers.
 - Purchase of Windgas from electrolysers in possession of third parties.



Windgas-Tarif

Tarif *pro*Windgas

5,90 cent per kilowatt hour, inkl. GPE subsidy
9,90 Euro basic rate per month



Activities and projects

Investment in projects and purchase of hydrogen

Investment in Projects

- Windgas Haßfurt
- Another project under implementation, location Schleswig-Holstein
 - Based on limit feed in into electricity grid, after that integration of an old wind farm
 - ... further projects with various partners in negotiation

Furthermore purchase of hydrogen from

- Hybridkraftwerk Enertrag
- Energiepark Mainz
- ... further offers were tendered

Our electrolyser in Haßfurt / Germany



1,25 MW PEM (Siemens)

Runs with „surplus“ wind energy

Primary balancing power for electricity grid



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Thank you for your attention!

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