

The role of guarantees of origin in financing wind energy projects – „HKN“ in Germany

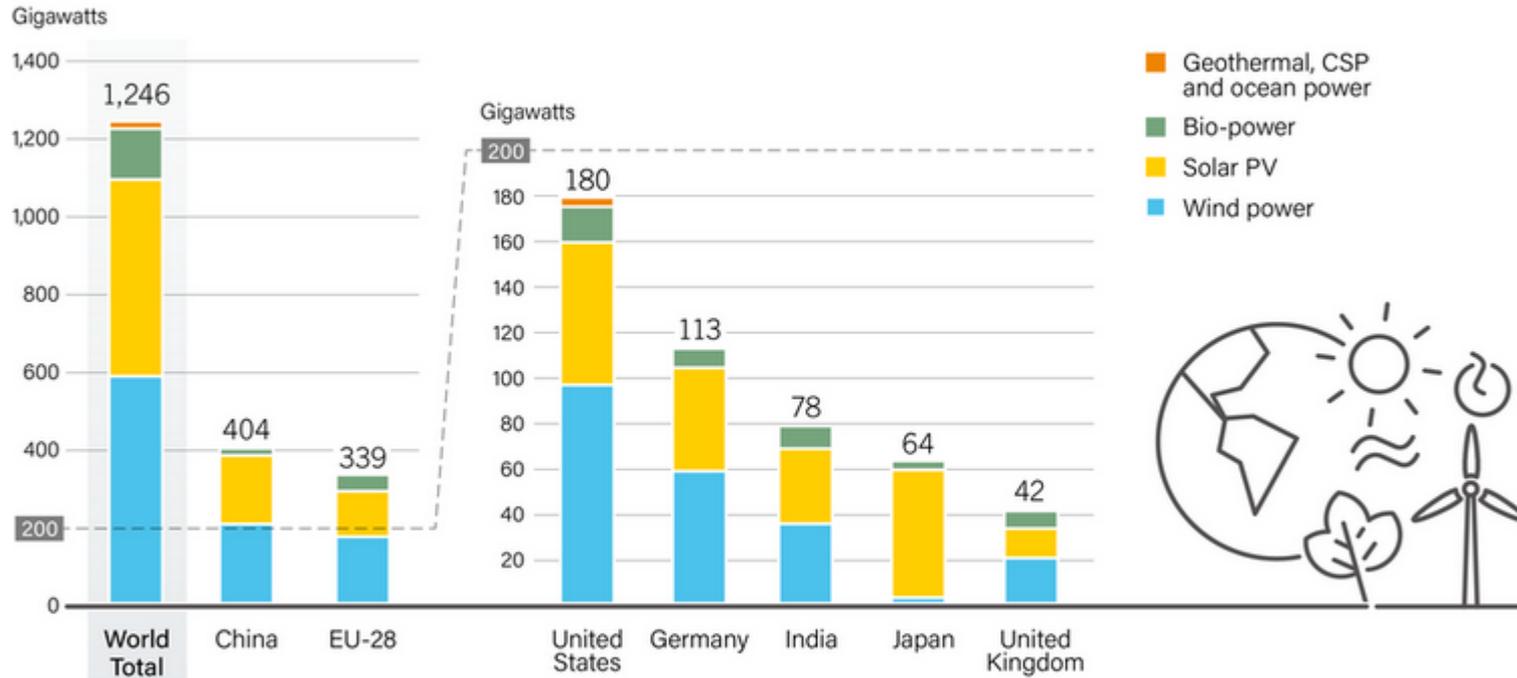
**>> *Projektfinanzierung der Windenergie in Deutschland und Frankreich:
Rahmenbedingungen, Herausforderungen und Ausblick***

OFATE/ MTES; Paris - La Défense, 12.11.2019

Eva Hauser

What we've achieved up until now!

FIGURE 9
Renewable Power Capacities in World, EU-28 and Top 6 Countries, 2018



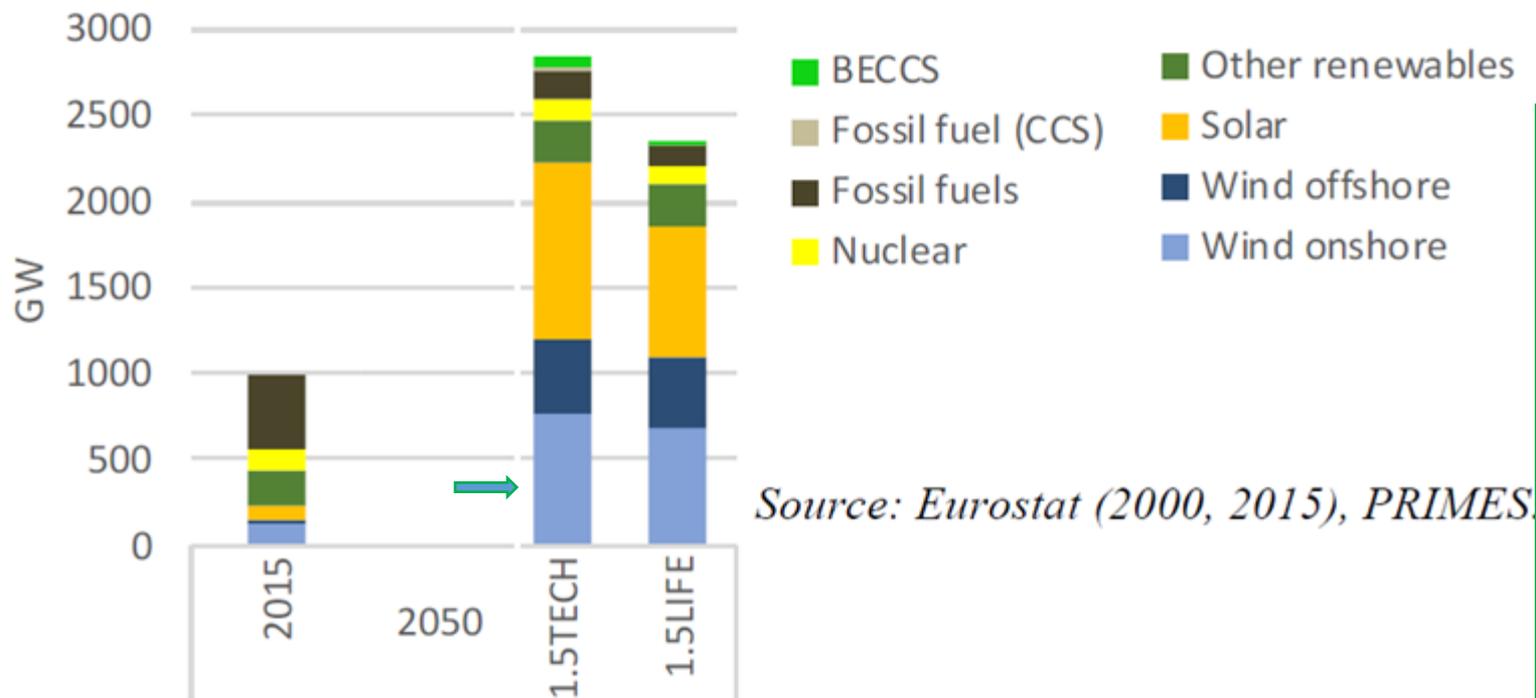
Note: Not including hydropower.

 **REN21** RENEWABLES 2019 GLOBAL STATUS REPORT

Source: See endnote 195 for this chapter.

What we still should have to do to reach the 1,5°C-target – two possible scenarios (from the EU Commission’s view point)

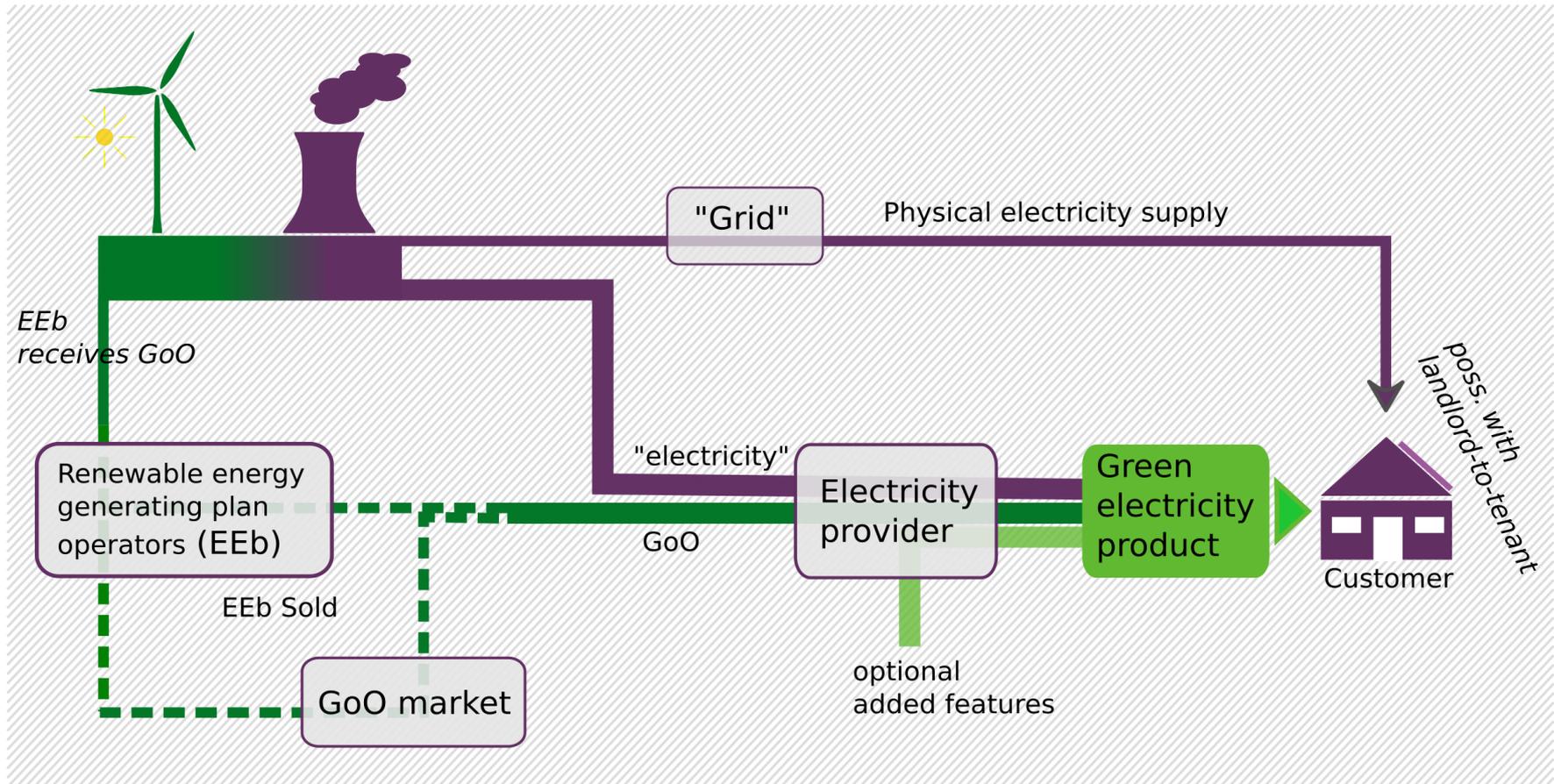
Figure 24: Power generation capacity



 **Necessary to reach the 1,5°C-target: largely multiplying the installed (V)RE capacity**
 **How can we achieve this goal?**

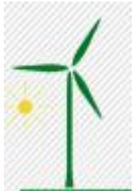
“The solar capacity that starts from smaller base today shows also a spectacular growth, from 95 GW in 2015 and some 320 GW in 2030 ... up to some 1000 GW in the 1.5TECH scenario. ... This corresponds to annual installations ... to over 40 GW (1.5TECH) between 2030 and 2050. Wind and solar alone represent 53% of total net capacity installed by 2030, and [up] to 80% (P2X, COMBO and 1.5°C scenarios) by 2050.” [EU COM 2018, In-Depth-Analysis to COM(2018) 773, S. 77f.]

Three components of „green electricity products“



- GoO are one (invisible) component of the green electricity product sold to the customer
- What role do the revenues from the GoO have for the RE installations' owners/ investors?

A (German) specificity: EEG-electricity (and its „green origin“) cannot be „sold twice“



Electricity users pay the EEG-Contribution & get their percentage of EEG-Strom

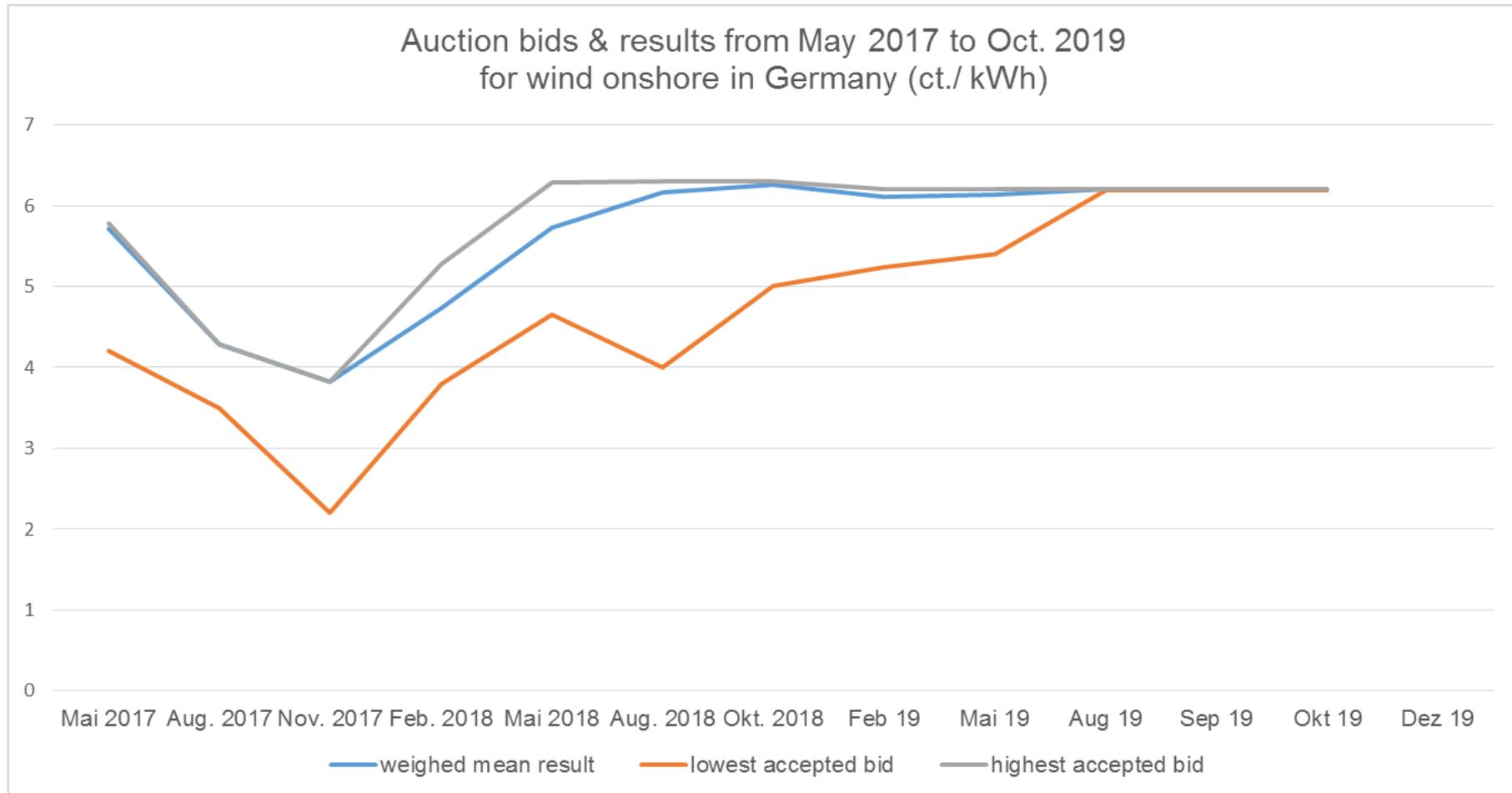
The „Leitmotiv“ of the EEG

RE producers get their feed-in-tariff (equivalent)

- The EEG prohibits double marketing and double gains for RE-owners
- It assures that EEG-payers get an equivalent for the money they pay.

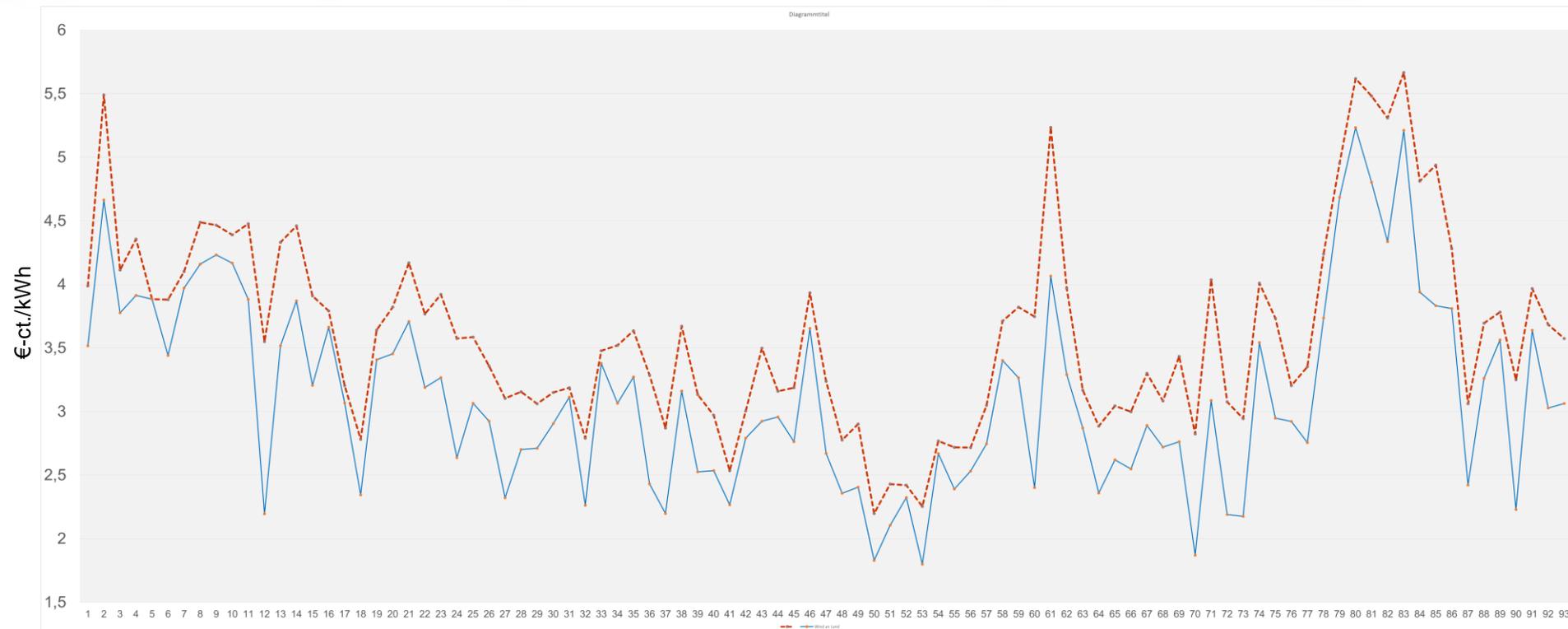
Results of the EEG-auctions for wind onshore since 2017 in Germany

Graph: IZES gGmbH with figures from www.bundesnetzagentur.de



- Auction results have reached a (quite uniform and stable) value of 6,2€/kWh since May 2019 – but with with very low bid volumes.

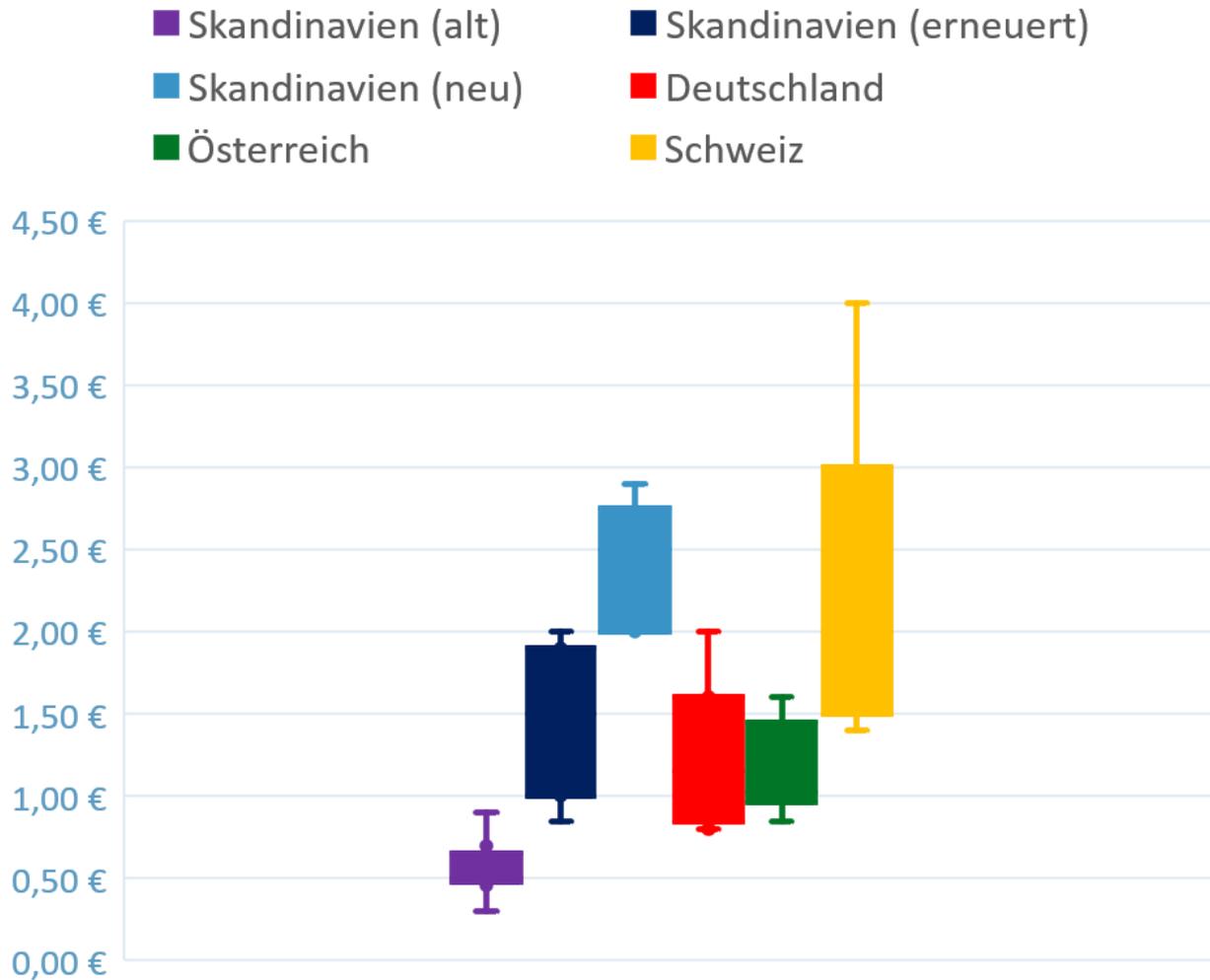
Wind (onshore) market value in comparison with monthly mean EEX spot prices (since 2012)



- The mean monthly EPEX-values since 2012 reaches 36,3 €/ MWh.
- Mean earnings from onshore wind electricity reaches 31,2 €/ MWh.
- There was only one month (May 2012) where the market value of wind onshore minimally exceeded the EPEX Spot mean price.

Graph: IZES gGmbH with figures from www.netztransparenz.de

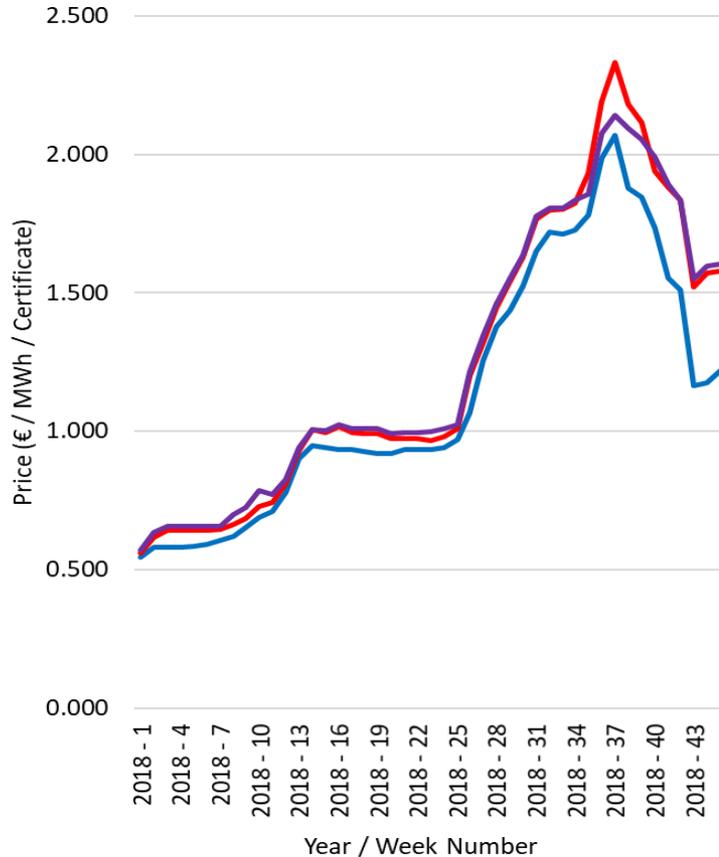
GoO prices start to become differentiated



- A price differentiation of different types of GoO starts to get visible.
- Prices partly mirror the age criteria of German green electricity providers.
- „Old“ scandinavian hydro power defines the price settings.

GoO prices are rather volatile and depend from weather conditions

ICAP Weekly Report Data
(Wholesale price assuming aged, large-scale
unsupported Nordic generation)



— Average (Bid,Ask) 2018 — Average (Bid,Ask) 2019
— Average (Bid,Ask) 2020

- ❖ The consequences of the dry summers even in Scandinavia had massive effects on prices for Scandinavian GoO.
- ❖ This volatility may be strengthened through the ongoing climate crisis.
- ❖ Neither the prices nor their volatility are useful for establishing GoO as a reliable means for triggering RE investments.

Obstacles for a market driven RE expansion

Quelle: RECS (2018), Seite 10 (Annual Report)



- Actually, there is a „reserve“ of more than 200 TWh renewable electricity that could obtain GoO
- This forms a serious obstacle for a market driven RE expansion as long as GoO prices are as low and as volatile as they are.

Market Development 2009-2017 [1], [8] - Grexel analysis [9]

Where green electricity products - and GoO - could make a difference

- ❖ In helping to keep (well planned) RE installations in operation who will have passed the 20 years of EEG-feed-in-tariff
- ❖ In refinancing installations who made/ make 0€-bids within RE auctions via spot market revenues (actually offshore wind whose first commissioning may start from 2021 onwards)
- ❖ In refinancing (via PPAs) RE installations that are built in addition to the EEG (without lessening the EEG-corridors)
- ❖ In case that the market values of some RE installations exceed the spot market prices and enable RE producers to switch (on a monthly basis) to the „sonstige Direktvermarktung“

Conclusions

- The RE capacity has to be significantly expanded in order to reach the 1,5°C-target!
- GoO prices are rather volatile and depend not only from the amount of available renewable energy.
- They cannot really be considered as a reliable source of revenues for potential RE investors.
- Actually, there is a „reserve“ of more than 200 TWh renewable electricity that could obtain GoO which forms a serious obstacle for a market driven RE expansion.
- In order to reach the 1,5°C-pathway, we still do need reliable and rather riskless financing instruments!

Thank you!

Eva Hauser

IZES gGmbH
Altenkessler Str. 17, Geb. A1
D-66115 Saarbrücken

hauser@izes.de