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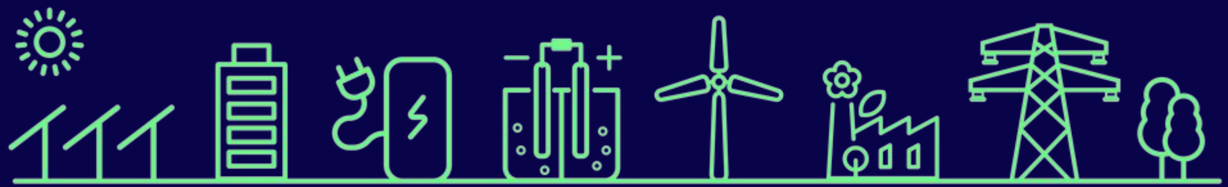
Keynote
„Challenges in the power market“

IEA Wind Task 51

DWD Offenbach; 30.09.2025



SEtrade's AI-based energy trading platform, which uses self-generated "digital twins" to optimize physical assets fully automatically.

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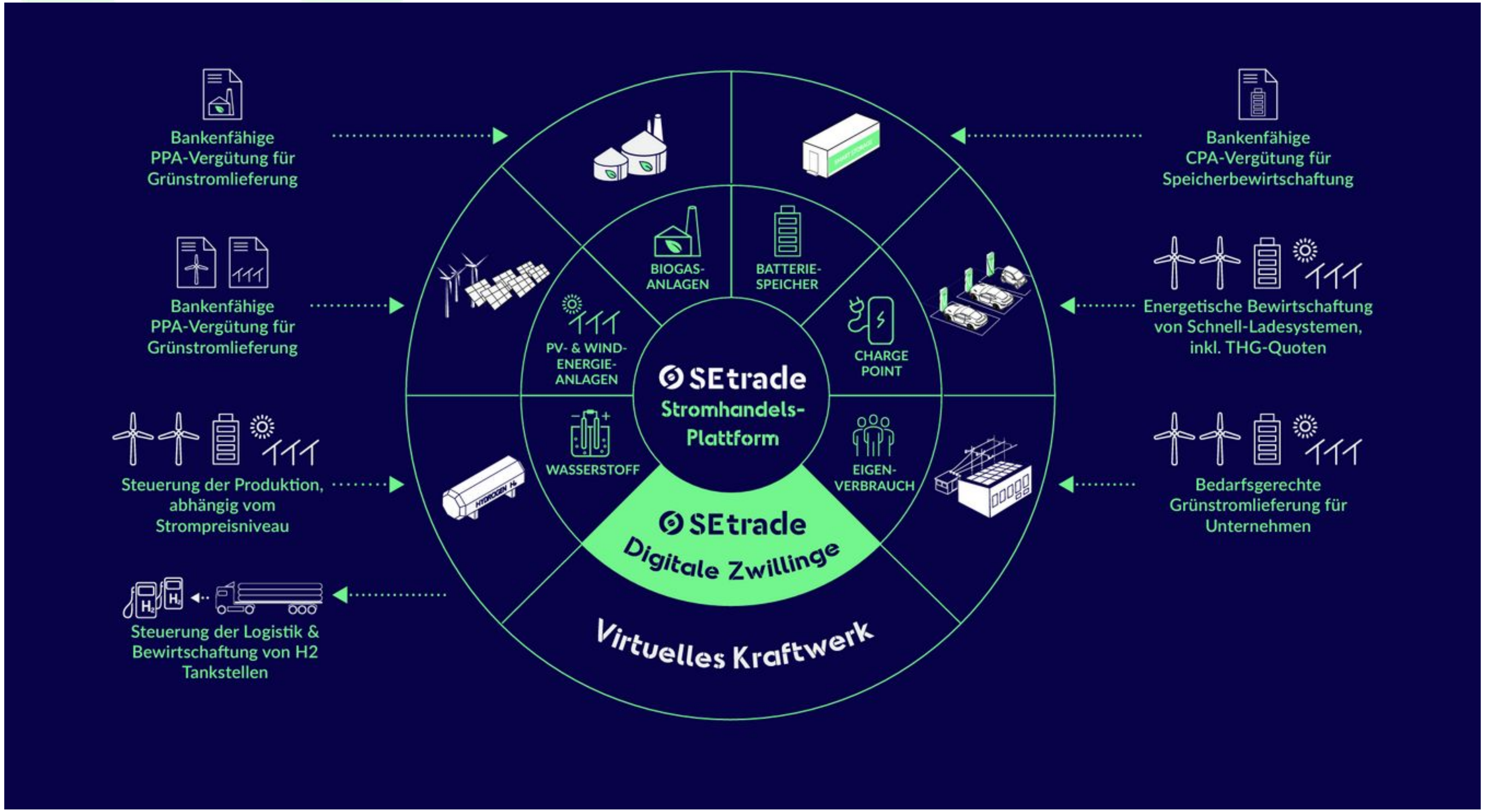

This is how ChatGPT envisions a “digital twin” in the energy market

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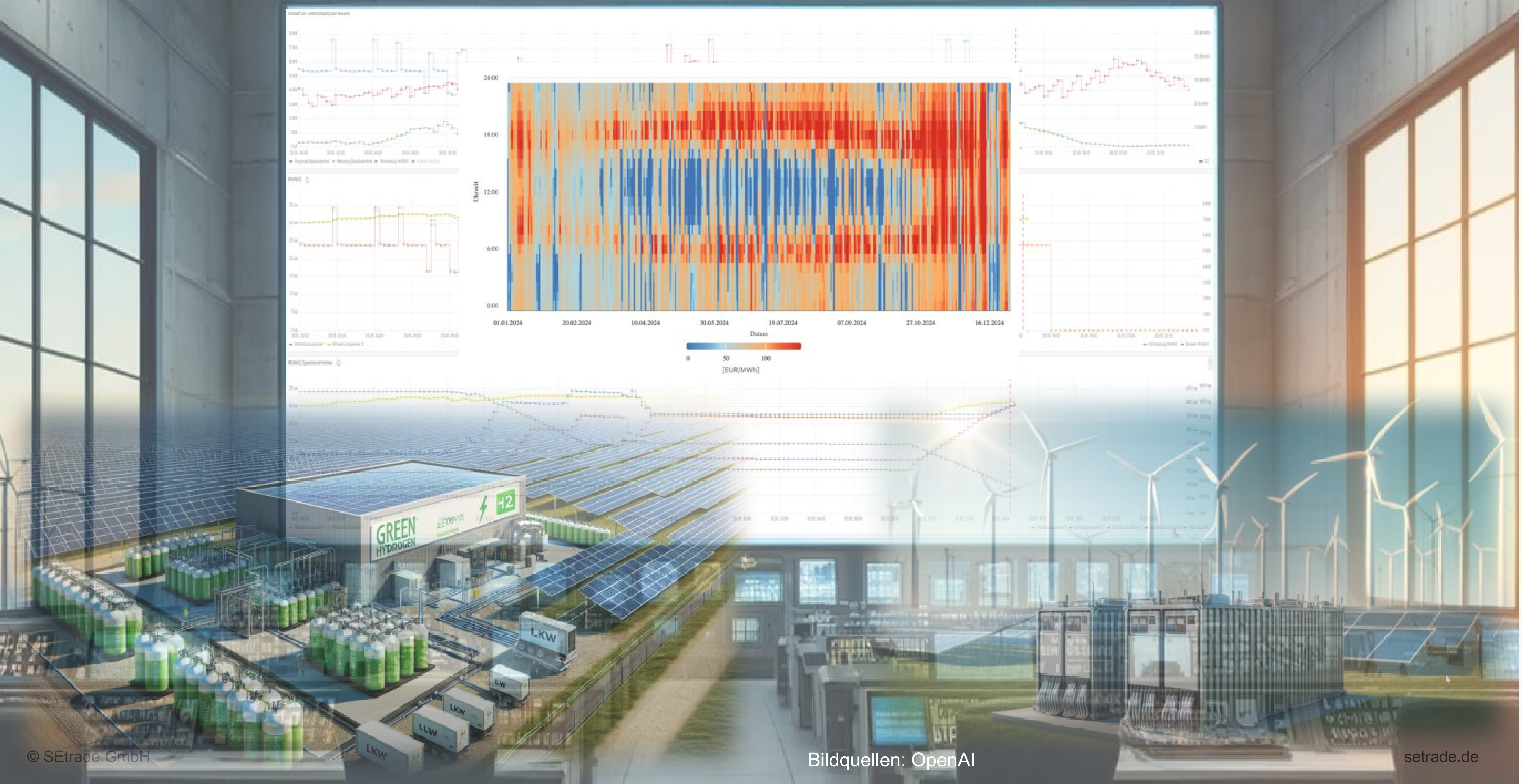

Bildquellen: OpenAI

The energy industry’s current dilemma.

- This is the usual picture of plants built over the past 20 years based on the Renewable Energy Law (EEG) – following the “**produce and forget**” principle.

- Building and operating such plants has been almost completely uneconomical since this year at the latest. With renewable energies now accounting for 60% of electricity generation, the simultaneous generation of electricity during periods of sunshine and wind is so high that it permanently exceeds demand

→ **The result is negative electricity prices**

What causes negative electricity prices?

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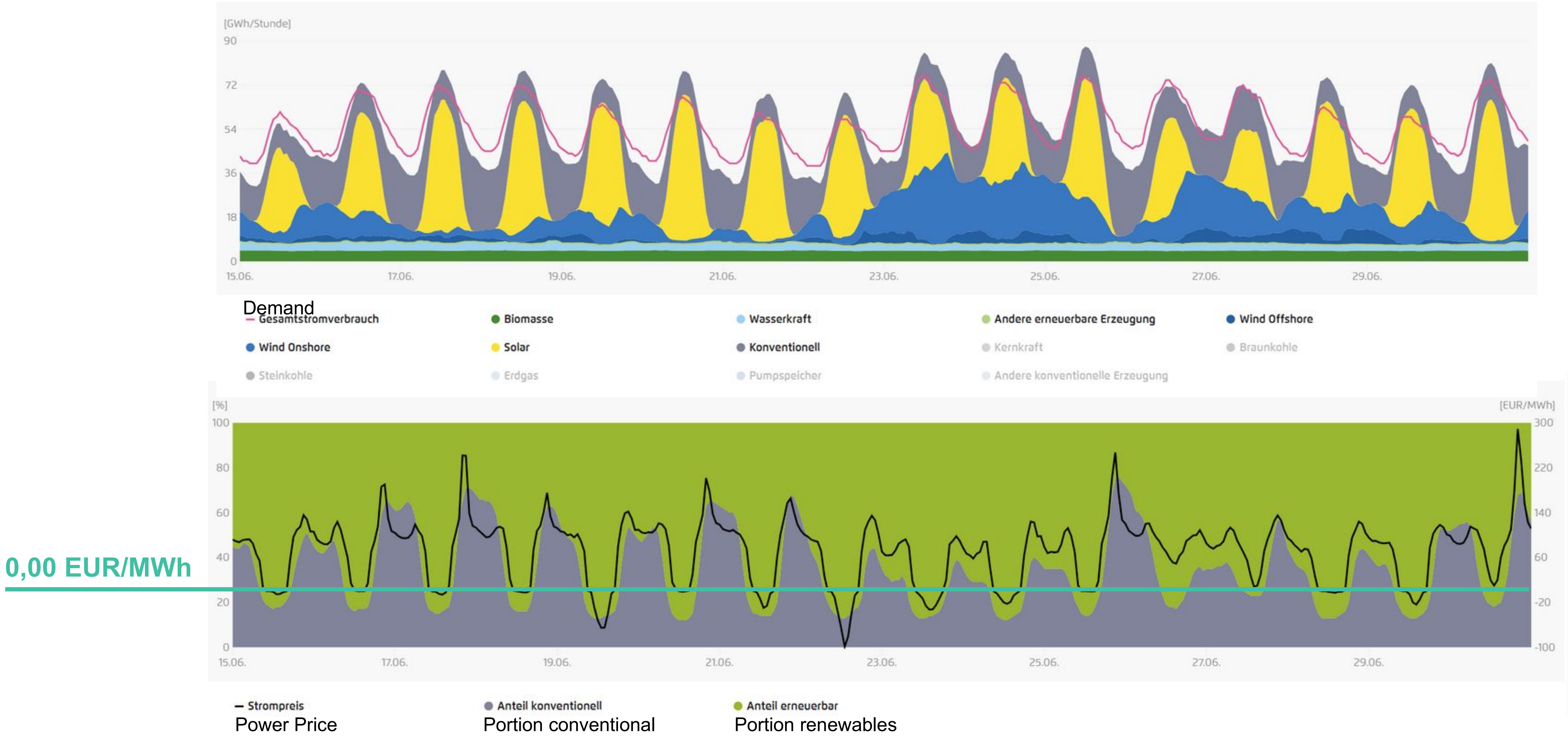

In June of this year, we saw negative energy prices almost every day at noon.

The impact of negative electricity prices on new PV plants

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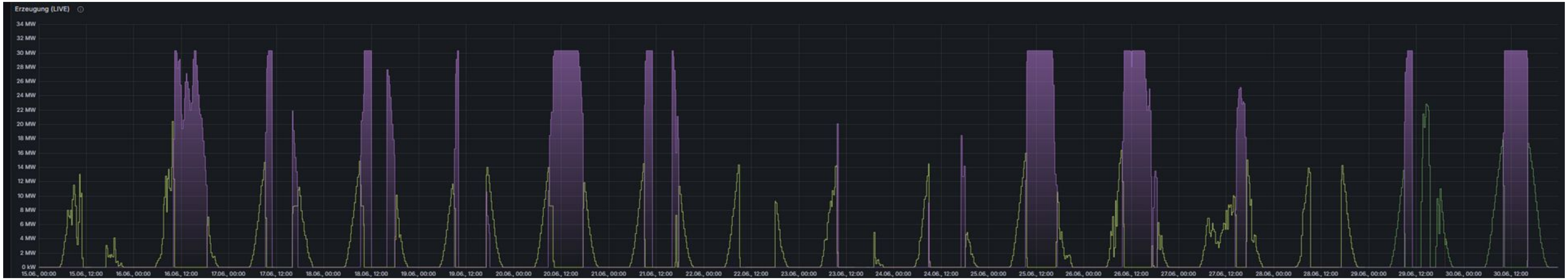

Under the new Solar Peak Act, new PV plants receive no subsidy (market premium) from the very first hour of negative prices → they receive no payment for producing energy during these hours.

This does not apply to periods during which the shutdown was only regulated by the grid operator for redispatch reasons.

The consequence is that new plants could run into serious cash-flow issues after the first summer.

→ A wave of bankruptcies is expected

→ That would be a tragedy for the energy transition.

The development of negative energy prices in recent years – Day Ahead auction

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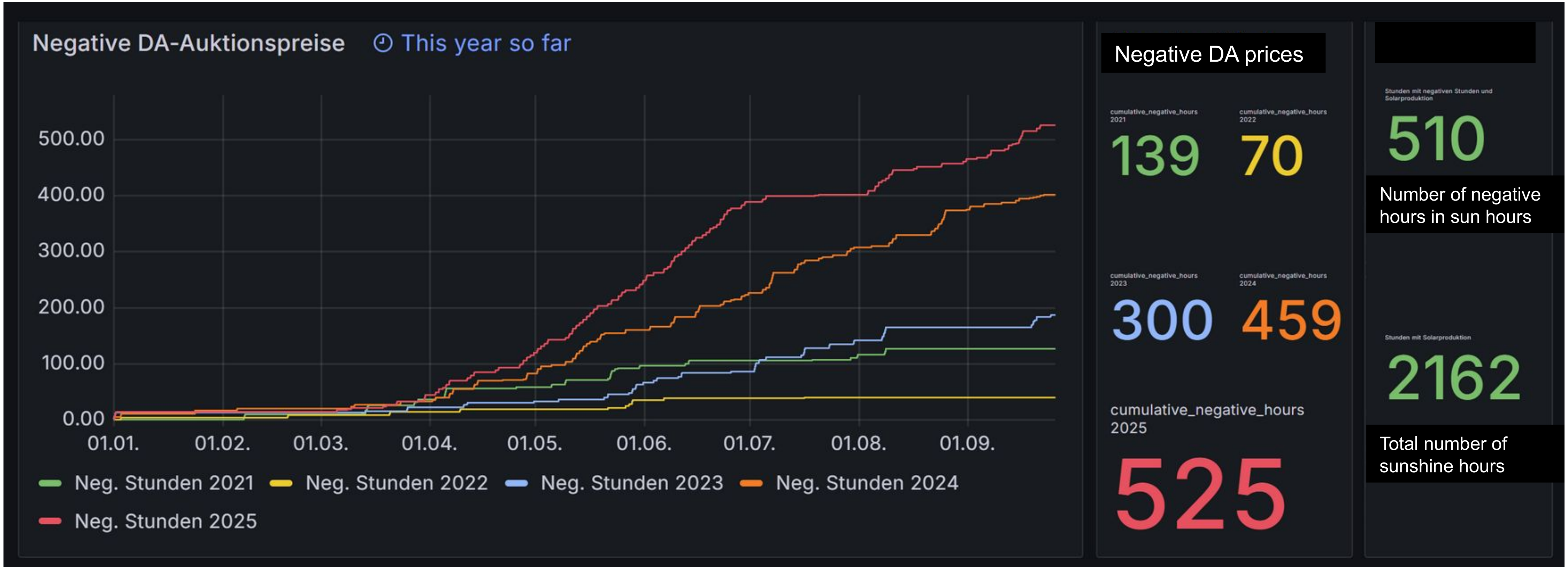
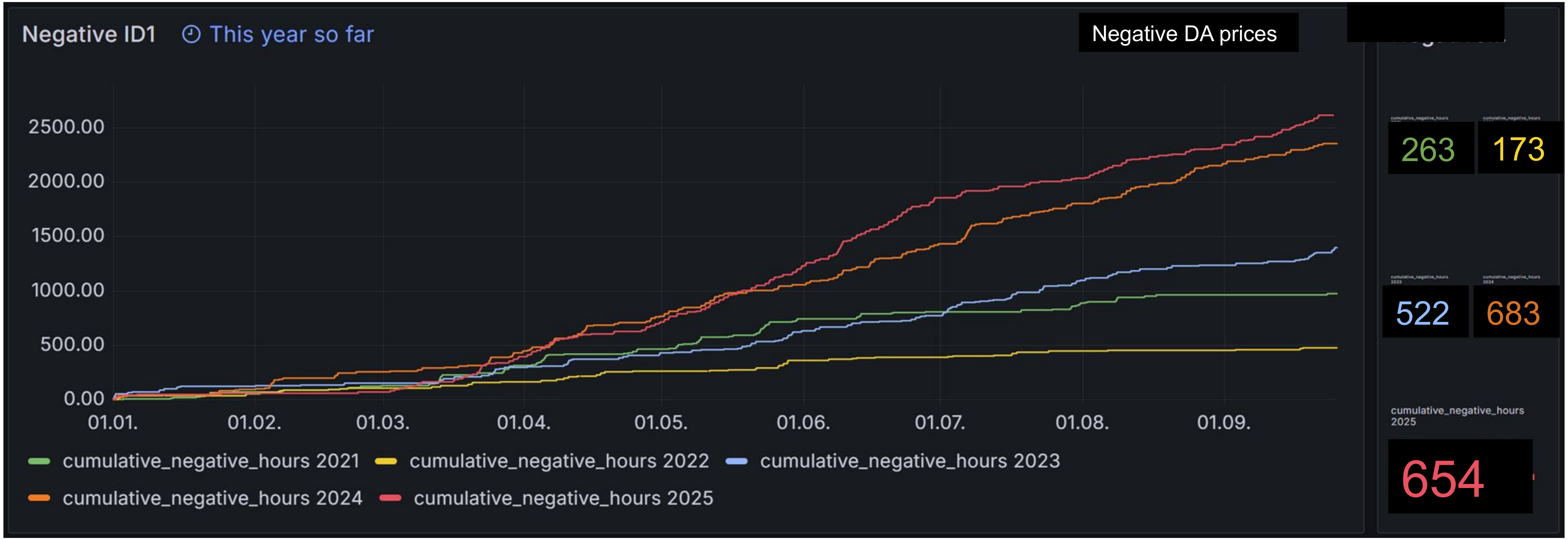


This year, prices were negative during 25% of all sunshine hours. However, this does not mean that solar energy has only fallen by 25%.

→ As a result, the total amount of energy fell by around 40%

The development of negative energy prices in recent years – Continuous intraday trading



Price trends on the various energy trading marketplaces vary, as there can be a time lag of up to 30 hours between trading points.

This results in expectations that meteorology and feed-in forecasts will broaden their focus.

Two different examples of market price developments as a result of changes in feed-in forecasts within 24 hours

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If the feed-in (generation) forecast before of the day-ahead auction includes a 24-hour change probabilities and their likely effect on prices, renewable plants would be far more profitable

Requirement to extend the consistency of forecasts

Weather → Generation → Price: The Causal Chain

- Hub-height wind → turbine power curve → feed-in
- In addition to feed-in, grid congestion is one of the main reasons for market price changes.
- **Don’t stop at MW !! → include price impact**

Deliver Price Impact

- Probabilistic price distributions → pinball quantiles
- Scenario buckets (P10/P50/P90) including grid congestion scenarios
- Ramp alerts with price sensitivity (€/MWh per ΔMW in Δt)

Takeaway & Call to Action

- **Think in €/MWh, not just MW**
- **Better forecast of gusts & ramps**
- **Gust nowcast + price impact; shared KPIs; data sharing**

I look forward to the discussion.

Thank you for your attention.

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