



PRI  GEN

SDE tracker: reduce risks without costs

Summary of SDE tracker

- Renewable Energy projects in the Netherlands are supported by the so-called SDE support system.
- The SDE support system presumes you are achieving a certain market value for the power you produced.
- Priogen offers the SDE tracker; this will guarantee you to receive the exact market value as projected in your SDE subsidy grant.
- Using the Priogen SDE tracker safeguards your business; there's no forecasting risk, no market risks, no hedging costs, and no hassle. Plus, we offer all of them free of costs!
- Priogen can offer the SDE tracker free of costs. We leverage our exceptional forecasting and portfolio management skills to outperform the market and in turns capturing the margin.



Background: SDE basics

- ▶ In the Dutch Market, the renewables on lands are supported by the SDE system.
- ▶ The SDE system consists of a guaranteed price (Basis Bedrag; BB) per MWh produced. The price includes the 'market value' and an 'uplift' to cover the higher costs of the renewable power compared to the 'market value' of power.
- ▶ The 'market value' is called "CorrectieBedrag (CB)" in SDE terminology
- ▶ The government pays out: BB minus CB
- ▶ **The SDE recipient is responsible for achieving CB; performing better or worse is at one's own risk.**
 - ▶ The government (in practice: research institute ECN) calculates CB each year. CB calculations are based on EPEX prices, shaping factors, EPEX costs and imbalance costs. The CB is the same for every renewable source (so all wind parks on land have the same CB, all solar parks have the same CB etc.).

For good order: there is some additional complexity due to a floor in the pay out, however that is out of scope of this presentation; effects are currently neglectable. See <https://www.rvo.nl/subsidies-regelingen/stimulering-duurzame-energieproductie/aanvragen-sde/berekening-sde> for all the relevant details

Perspective of an asset owner

- ▶ Renewable investment is 'hedged' by the receiving of the BB ("SDE subsidie beschikking")
- ▶ The actual income comes from
 - ▶ Government pays out: BB-CB (circa 50-60% of the BB)
 - ▶ Power Off-taker pays out: CB (circa 50-40% of the BB)
- ▶ As an asset owner, you want to ensure that the CB used by the Government is equal to the CB received by the Power Off-taker
 - ▶ Priogen achieve this by offering the so-called SDE tracker
- ▶ For good order: selling GoO provides additional incomes, this is however (so far) not corrected for in the BB price.

How is CB determined

- ▶ Determine the yearly EPEX baseload price (public information)
 - ▶ Non-weighted average of 365 daily EPEX prices
- ▶ Determine the discount for shaping and imbalance (see appendix)
 - ▶ This is determined by SDE/RVO (calculation methodology is partly a black box)
- ▶ The shaping and imbalance factor for wind is around 85% (*). This means that a MWh of power produced by a windmill has an average value of 85% of annual baseload EPEX price.
 - ▶ Why not 100%?
 1. If there is more wind -> lower EPEX day price
 2. If there is no wind -> higher EPEX day price
 3. Inevitable forecasting errors leads to imbalance costs
 4. 'Window to market costs' (EPEX membership & fees etc.)

(*) for solar, approaching 100%

Priogen offers the SDE tracker to help to alleviate the market risks for renewable asset owners

- ▶ Priogen mirrors the ECN calculation of CB and takes all the related market risks (*)
- ▶ Result: Asset owners receive the CB from Priogen and BB-CB from SDE. The net result: Asset owners receive BB
- ▶ Advantages for Asset Owners
 - ▶ De-risking the projects; the projects are budgeted on BB and the asset owners now can secure it by receiving the BB
 - ▶ No hedging or forecasting/imbalance risks,
 - ▶ No operational hassles
- ▶ Priogen has extensive forecasting and trading know-hows which enable us to lower imbalance costs in comparison to ECN's calculations; therefore, we can offer the SDE tracker to asset owners.
- ▶ Please note that GoO is the outside scope (and provides additional upside).

(*) excluding GoO
and Floorprice risk

Priogen also offers alternatives to the SDE tracker (1/2)

1. Fixed discounts (e.g. 13% for wind, 5% for solar); Priogen buys every MWh 'as produced' for 87% (100%-13%) of the baseload price

Advantages

- No forecasting, shaping or imbalance risk
- Suitable for the portfolio of the renewable assets
- Possibility to outperform SDE assumptions
- Possibility to 'click' the baseload price

Disadvantage

- May leads to mismatch with SDE subsidy (price Priogen's payout will deviate from the CorrectieBedrag-price that SDE assumes)

Priogen also offers alternatives to SDE tracker (2/2)

2. Imbalance discounts only (e.g. 3%); Priogen buys every MWh 'as produced' for 97% (100%-3%) of the hourly EPEX price.

Advantages

- No forecasting or unbalance risk.
- Suitable for the portfolio of the renewable assets.
- Possibility to outperform SDE assumptions.

Disadvantage

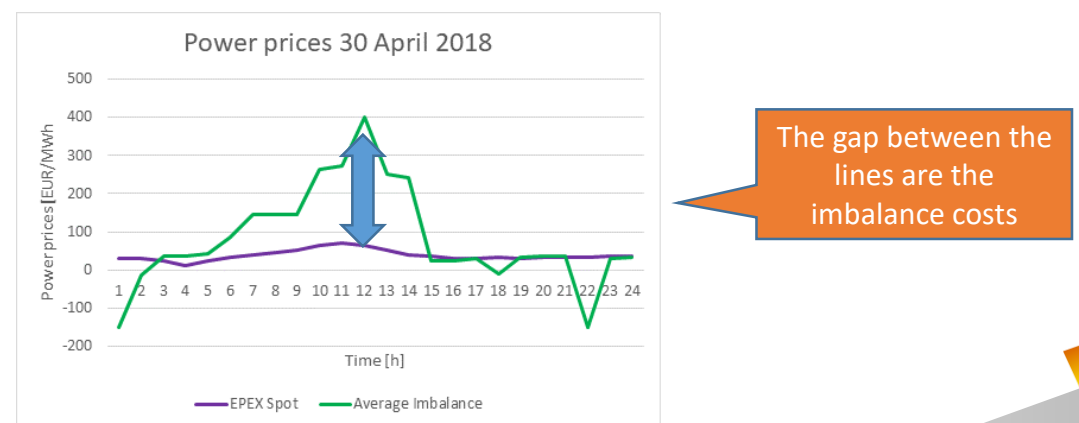
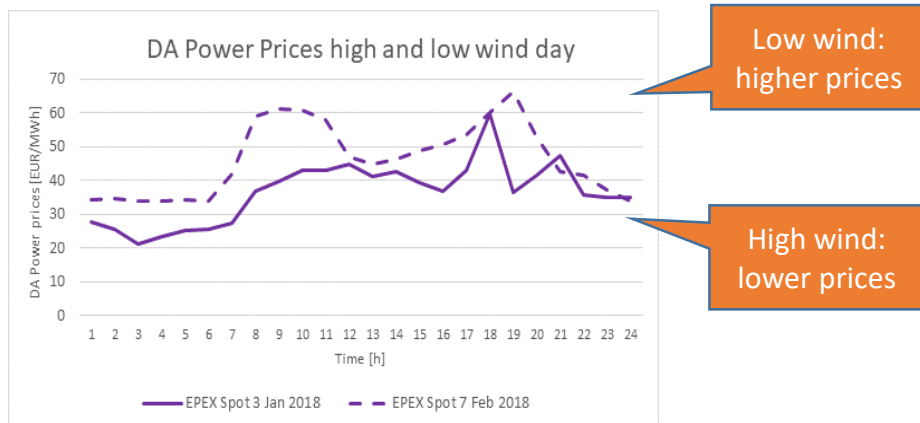
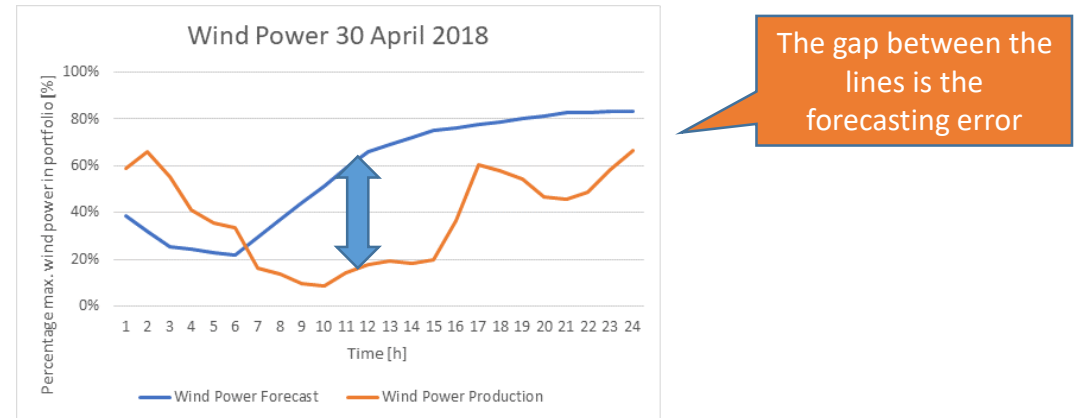
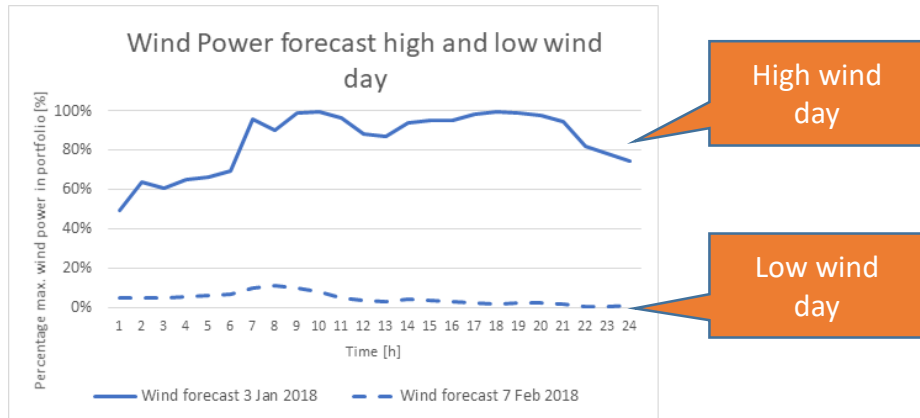
- May leads to mismatch with SDE subsidy (prices that Priogen pays out will deviate from the CorrectieBedrag-price which SDE assumes)
- Risk of underperforming SDE assumptions.
- Income volatility; the full 'cannibalisation risk' ("more wind leads to lower EPEX prices")

3. Forecasting DA only (may include bonus/malus)
4. Cash flow analysis, based on 20 y climatology

Appendix: Shaping & Imbalance costs

- Shaping Costs: the prices are lower when there is lots of wind (as more supply leads to lower prices)

- Imbalance costs: The inevitable forecasting errors lead to additional costs, as imbalance costs can be 10* normal prices. This means one bad day of forecasting could cost 10 days of revenues...



Priogen



- Why:** enable the energy revolution
- How:** analyze, forecast and manage financial value of MW variation by data driven approach
- What:** maximize electric flexibility value

Contact details Mr. Remco Frenken:

- ▶ rf@priogen.nl
- ▶ +31683970398
- ▶ www.priogen.com