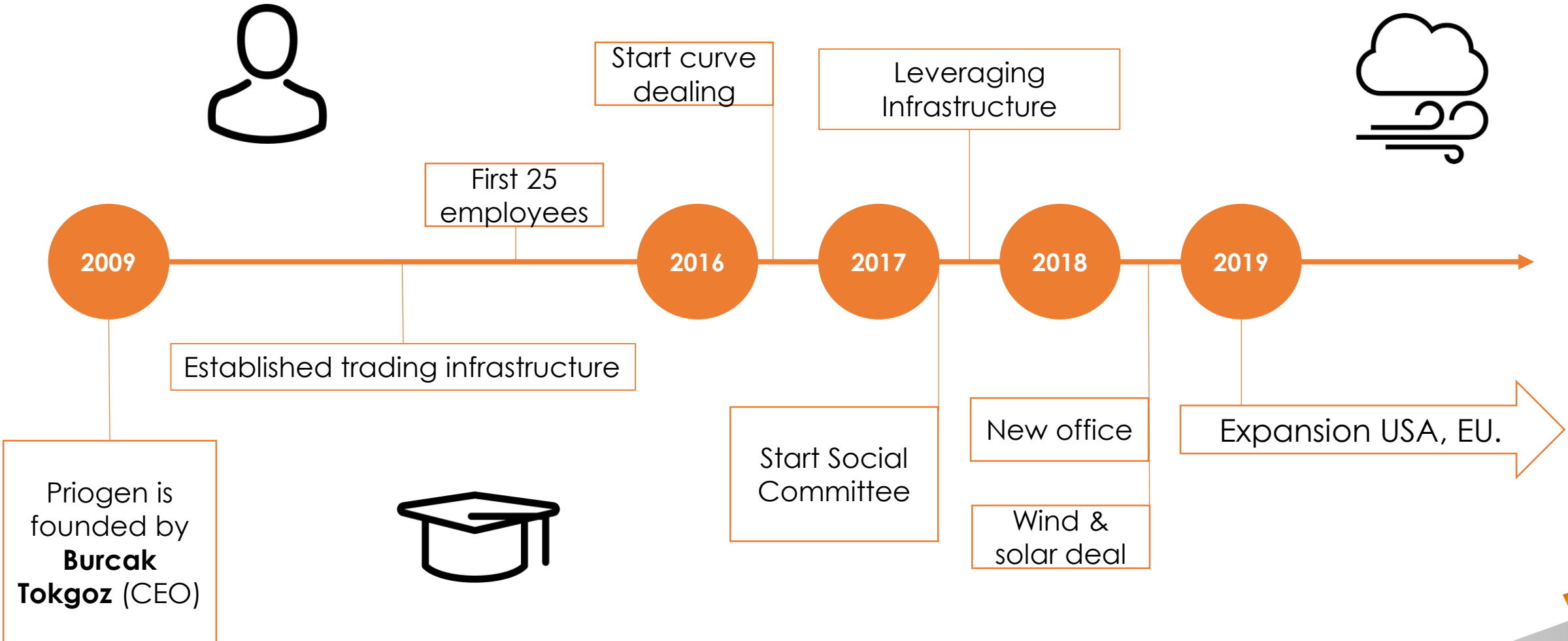




Company overview

Introduction Timeline



Priogen core business is taking risks

Description

Power Trading

- Directional position taking based on output of fundamental price forecasting model
 - Cross country arbitrage based on power flow forecasting
 - Hourly arbitrage
 - Time spreads
-

Gas Trading

- Power/Gas flexibility optimization
 - Taking over interruptability risk
 - Cross country arbitrage based on fundamental price forecasting
 - Virtual storage optimization
-

PPAs

- Taking over the management of wind & solar parks, providing a.o. revenue guarantees (up to 5 year ahead)
 - Providing “full service” retail profiles, taking over forecast & imbalance risks
-

Virtual powerplant

- Converting Real PowerPlants risks and opportunities into a standardized contract (“Virtual Power Plant”), bridging the gap between physical producers and major trading houses
-

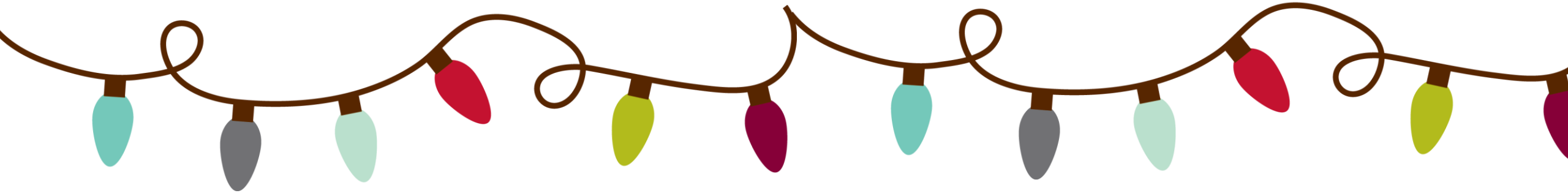
Service

- Wind & Solar output forecasting
- Window to Market
- Junior partner in renewable research projects, providing forecasting and risk mgt expertise



Priogen Culture

- Monthly drinks
- Quarterly teambuilding
- Christmas Party
- Informal atmosphere
- Priogen Academy





Solar and wind park management

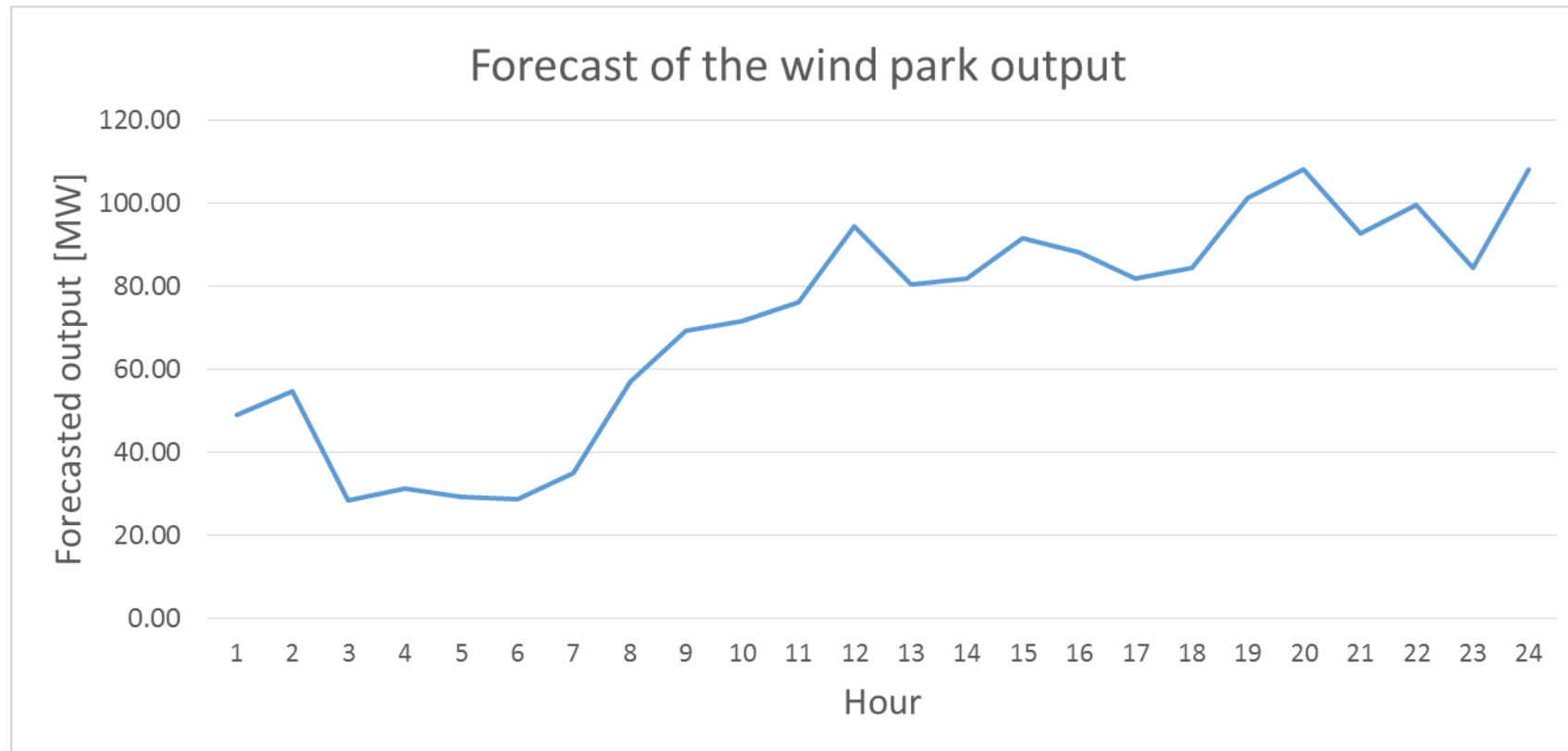
Question: why would wind park owners sign a PPA instead of selling their wind park output on their own?



Example, wind park management 30th of April 2018

STEP 1: Wind forecast

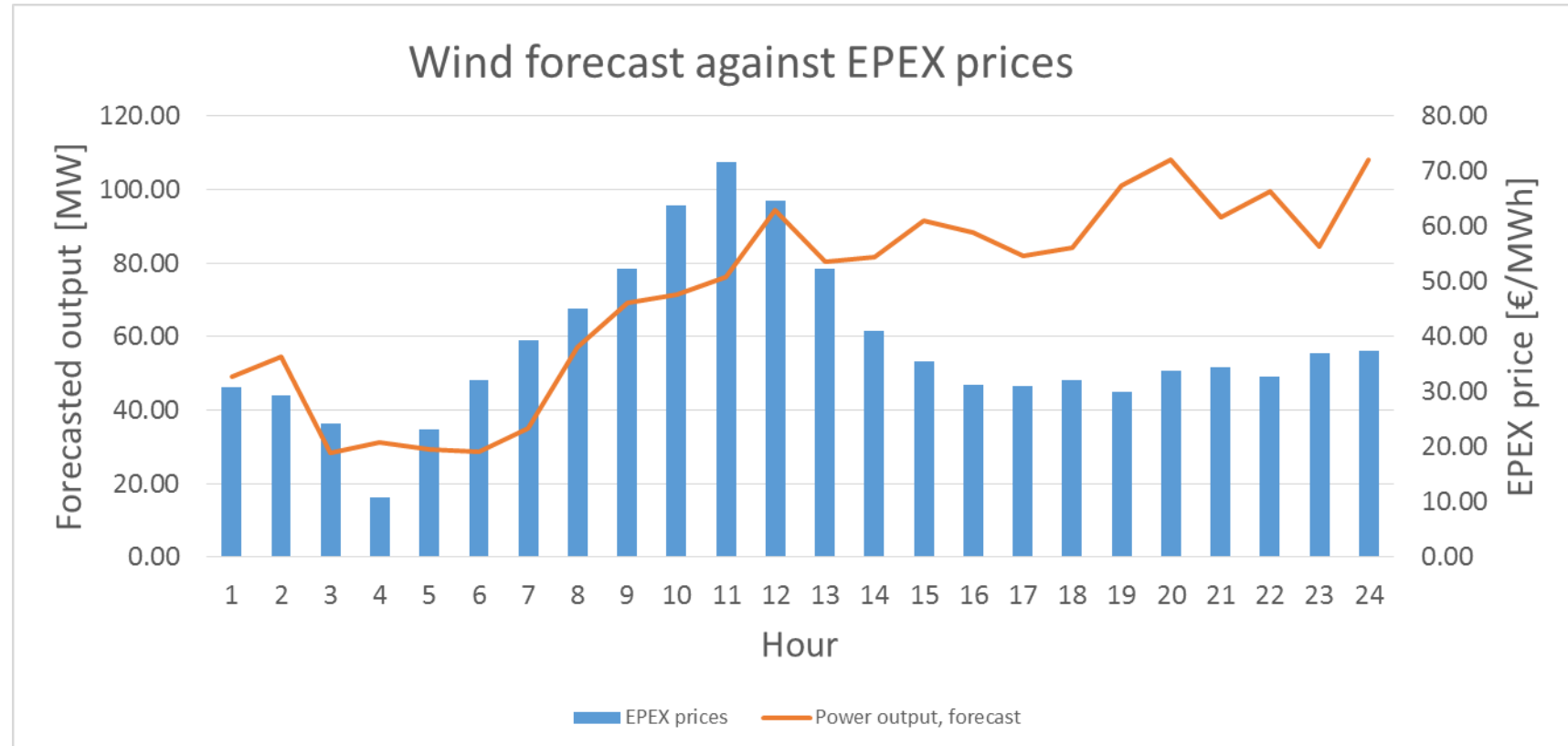
Which variables
should be taken
into account?



Example, wind park management 30th of April 2018

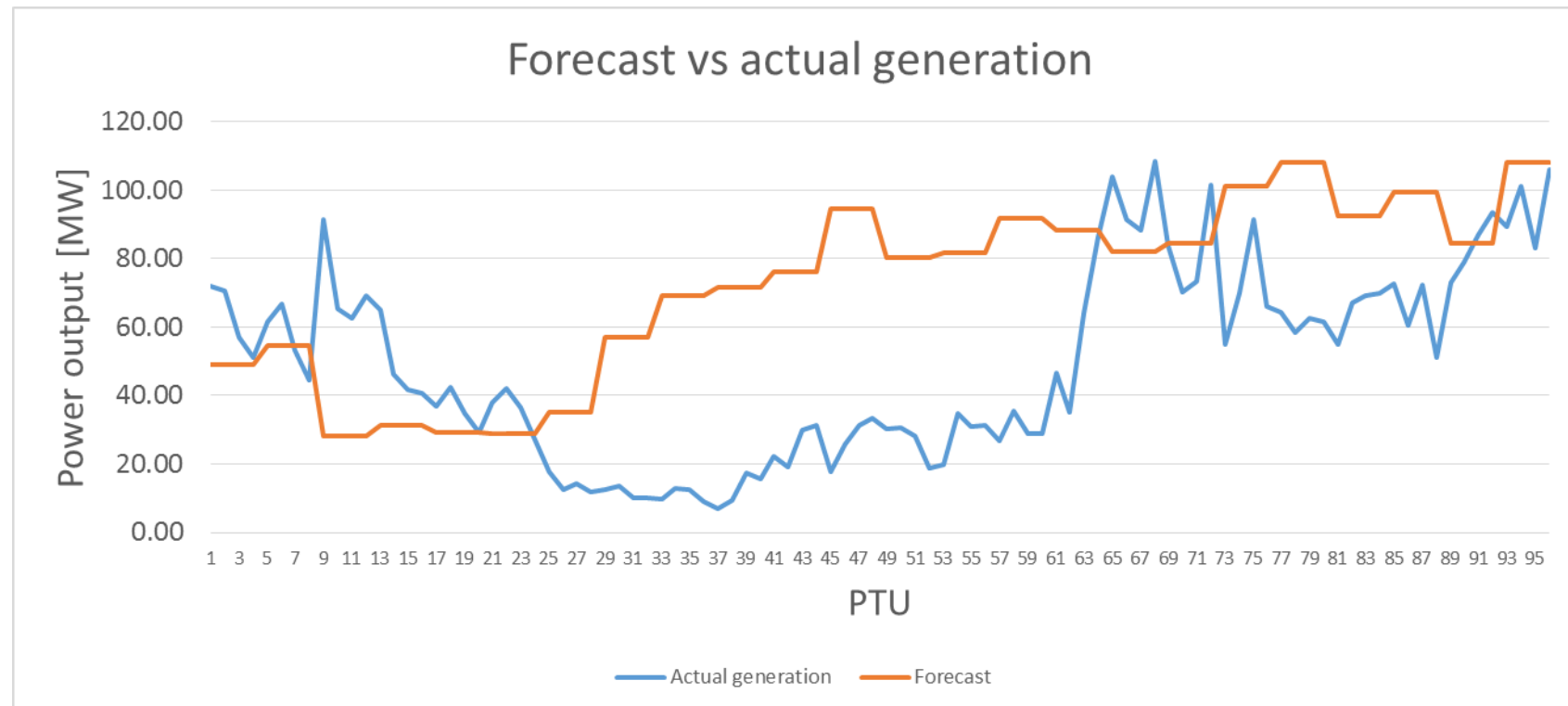
STEP 2: Sell on the day ahead market

Revenue: € 68 552



Example, wind park management 30th of April 2018

STEP 3: Actual generation and intraday trading



And then this happens...

Netbeheerder Tennet wendt landelijk stroomtekort af

Maandagochtend dreigde een landelijk stroomtekort. Vermoedelijk had dit te maken met een gebrek aan wind en zon.

✍️ Guus Ritzen ⌚ 30 april 2018

IMBALANCE PRICES UP TO € 400!!!



<https://www.nrc.nl/nieuws/2018/04/30/landelijk-stroomtekort-afgewend-door-netbeheerder-tennet-a1601355>



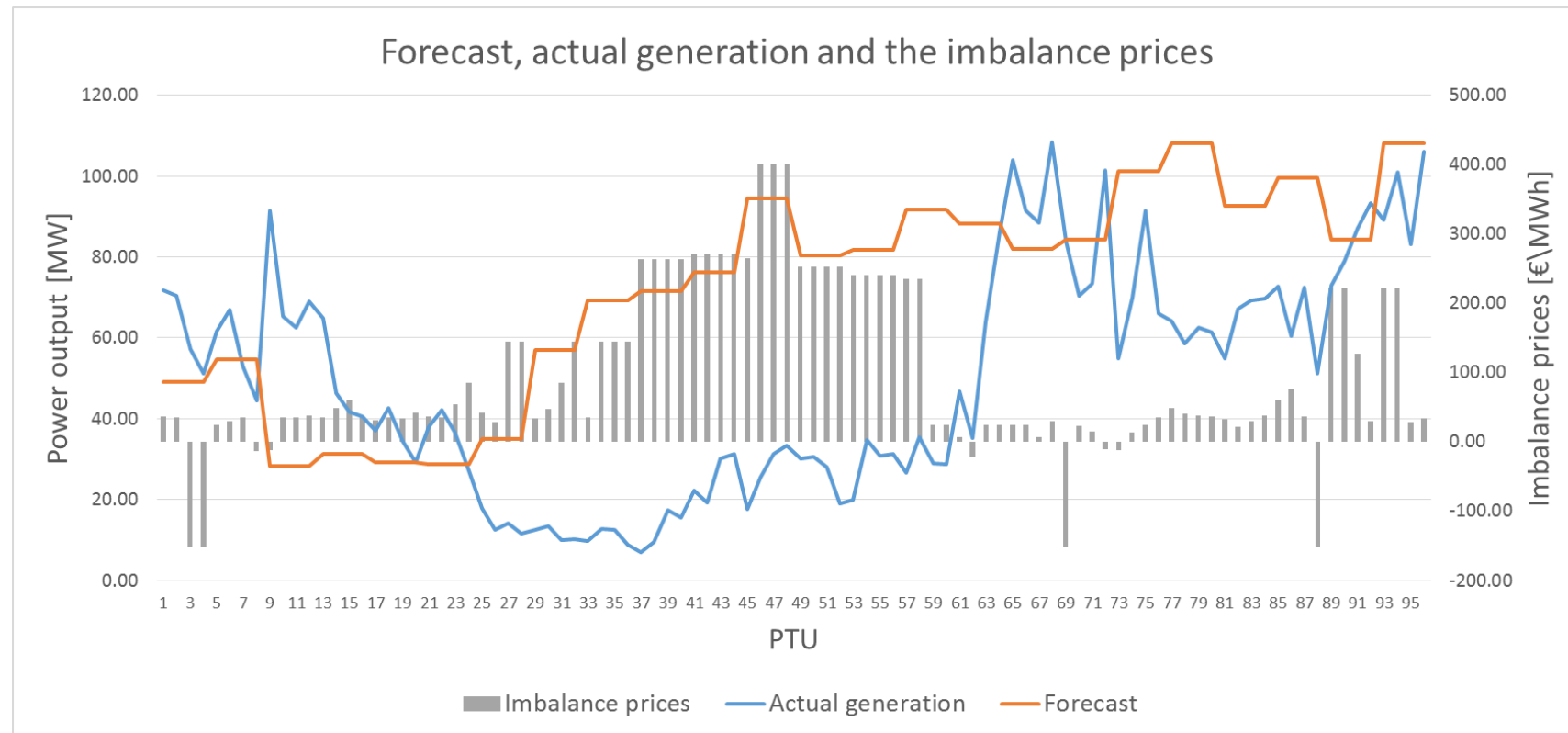
Example, wind park management 30th of April 2018

STEP 4: Paying for the imbalance

EPEX: € 68 552

Imbalance cost: € 103 339

Total revenue: € -34 787



Question: why would wind park owners sign a PPA instead of selling their wind park output on their own?

- Peace of mind
- Risk reduction
- Financial security to boost investment

Why would Priogen dare to take that risk?

- Good at forecasting
- Great understanding of the market
- Trading (of big volumes) doesn't scare us
- Before signing PPA trustworthiness of the client, profitability of the deal and deal duration are checked



Benefits of Priogen managing wind and solar parks

- More investments in renewable energy
- More stability in the grid

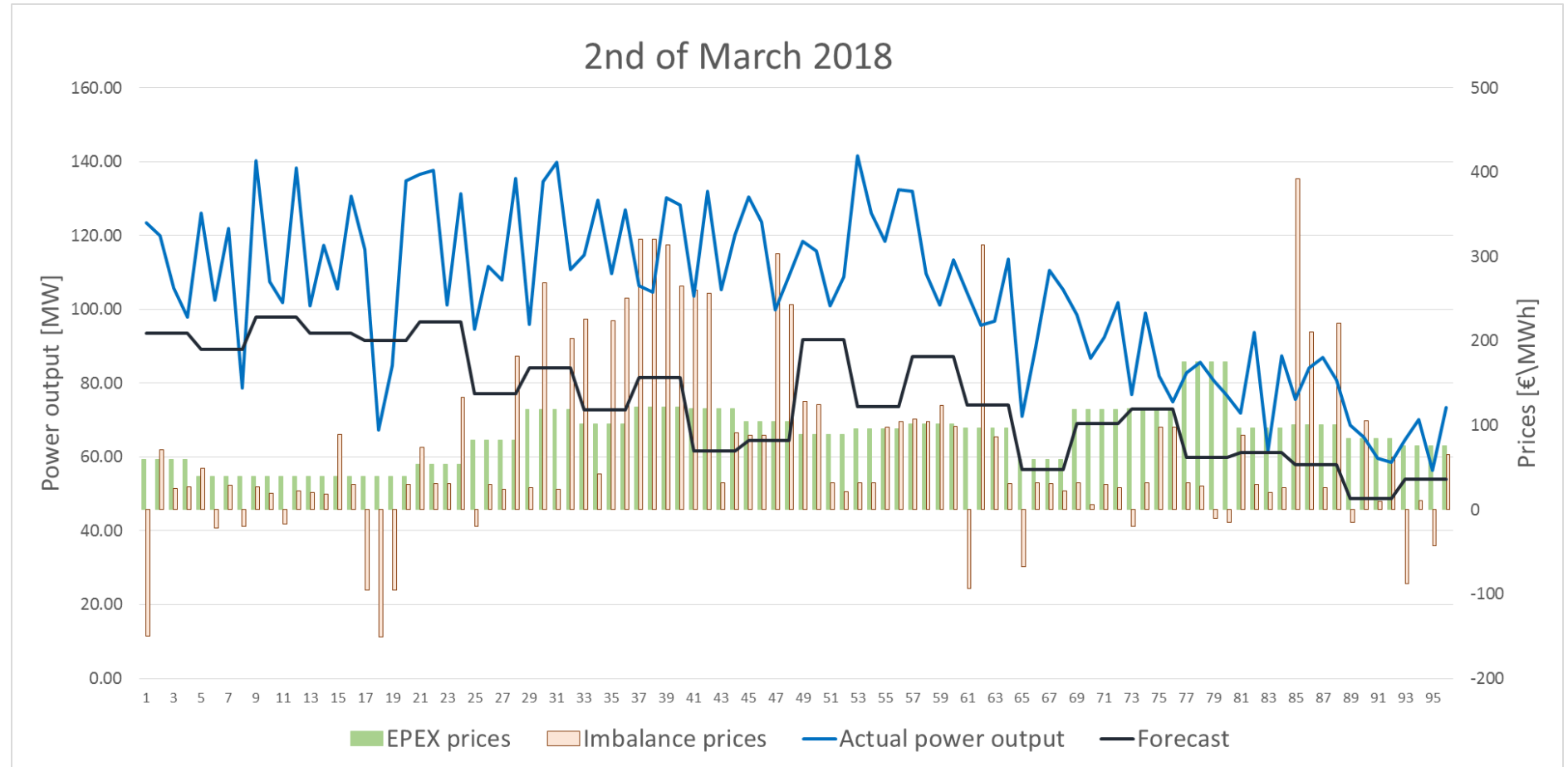


Example, wind park management 2nd of March 2018

EPEX: € 149 848

Imbalance cost: € -67 664

Total revenue: € 217 512



How is managing wind park and solar park different?

- Taking in account hour -> quarter conversion
- Wind all day, sun only in the peak
- Grid connection
- Wind is generally more difficult to predict but solar is more volatile



To summarize...

- Priogen is a risk taker
- Providing financial security boosts investments in renewable energy
- Key elements of park management are:
 - DA forecast
 - Selling forecast on the DA market
 - Intraday trading
 - Bearing imbalance costs
- We are in it for the money but our activities help the environment





Internship/ job opportunities

<https://priogen.com/>



Available projects:

- Economic feasibility of solar panel orientation under grid constraints
- Comparison of storage value in different European countries
- Effect of regulatory decisions on renewable power adoption



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 Anna Stawska:

► as@priogen.nl

► +31 (0)20 - 7525 369

► www.priogen.com