

# PPA models for small actors

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# Vindenergi Danmark

## The turbines owners electricity company

- Influence, Ownership and Profit sharing

## Three important cooperation partners



## Product development

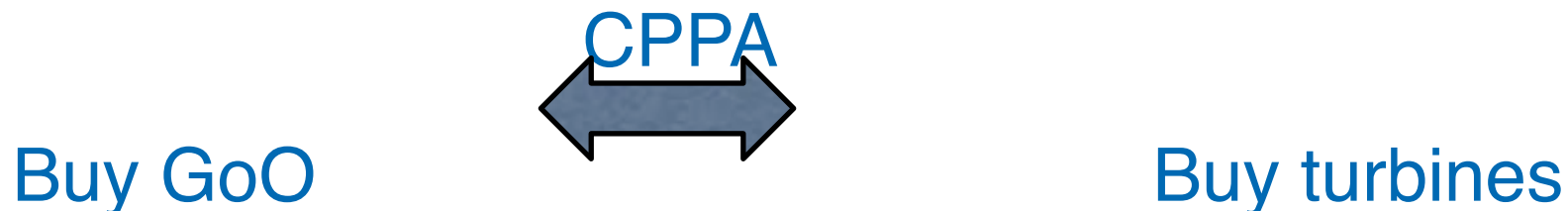
- Fixed full offtake prices in competition from three partners
- Portefolio trading on behalf of owners
- Optimising price pr. kWh through down regulation (Curtailment)

## Vindenergi Danmark in numbers

- 1.800 Shareholders
- 3.200 Turbines
- 2.950 MW
- 12 employees
- 1,3 Mia. DKK in Turnover
- 6,3 TWh (2017)

# PPA and/or GoO

- VEDK: PPA 6 TWh wind power including portfolio management of the GoO
- 6 TWh GoO trading to end-costumers and energy companies
- CPPA=PPA + GoO? Only add on dispatching and perhaps price hedging on both sides



# Small wind power actors



- Aggregating the wind power and making large deals possible
- Finding smaller consumers/corporates
- Smaller actors reducing the counter party risk



# Hedging the power price?



- Why complicate the deal?
- Different hedging strategies from corporates and wind power producers point of view?
- Timing of the hedge
- Long term spot PPA with an option of non-corresponding financial hedging on both sides
- The long term spot PPA with nordpool hourly spot prices as a benchmark.
- The result is still the same: GoO with physical delivery to the corporate and a financial pick-up to the wind power producers making the investment profitable.

# Additionality

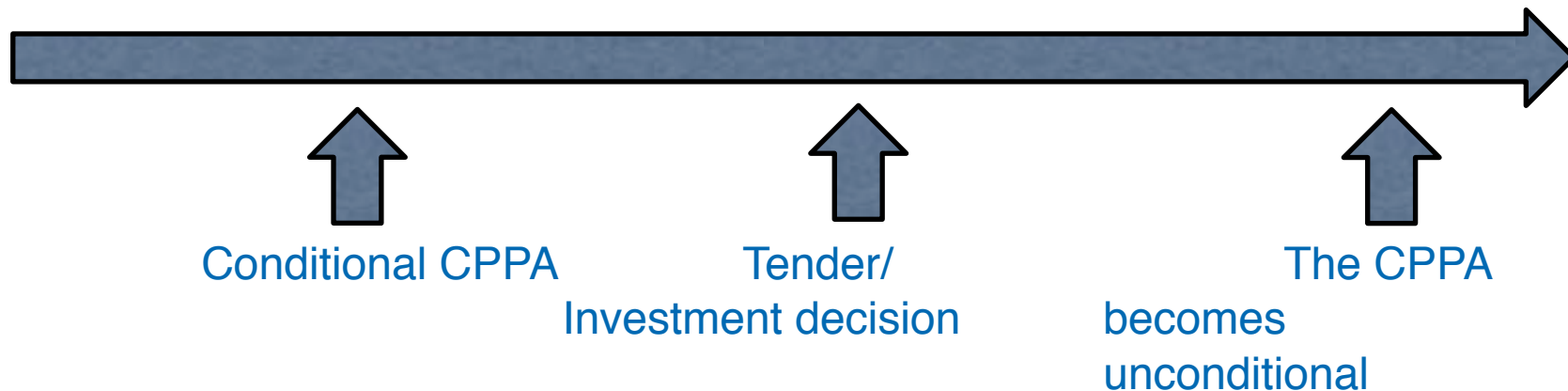
- The most important element of an CPPA in comparison to a long term GoO deal is the potential of additionality
- Can a CPPA trigger an investment decision in wind power?

# Additionality and tenders in Denmark

- Danish tender on new renewables end 2018 and end 2019 to be constructed within 2 years.
- The lower the offers the more MW.

# CPPA, additionality and the Danish tenders

- Danish tender on new renewables end 2018 and end 2019 to be constructed within 2 years.
- CPPA with additionality can only be made as an option, i.e. the PPA is only done if the project is winning, and the CPPA income can be used in the calculation of the offer.





# CPPA, additionality and the Danish tenders

- Non awarded offers can sign CPPA with true additionality, i.e. investing without public support

# Summing up

- Vindenergi Danmark has a large volume PPA ready to be converted to CPPA
- Vindenergi Danmark can aggregate smaller wind power projects to large scale deals or alternatively fit smaller corporate needs.
- Long term CPPA can be made as spot deals, unbundling the financial hedging decision.
- CPPA's can be made with **additionality** also with the new tender coming up in Denmark. Danish onshore wind power could be first to grid parity.