BELGIAN OFFSHORE WIND ENERGY TENDER & CORPORATE PPA'S

Brussels – 05/07/2023

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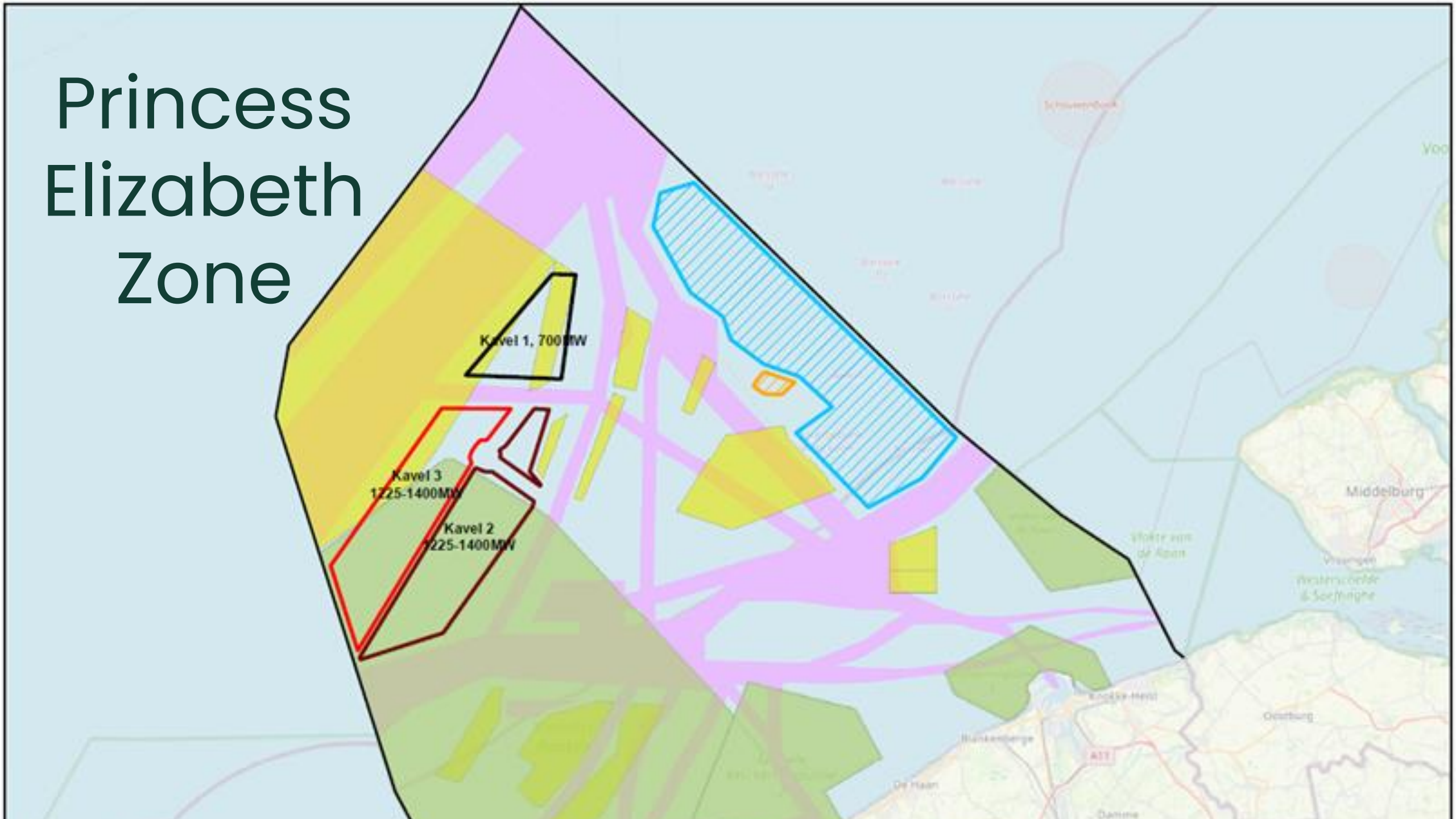
UPDATE OFFSHORE TENDER

Tinne Van der Straeten

The North Sea a sustainable value chain

Princess Elizabeth Zone



Tender
Goals

Highest possible injection of renewable energy

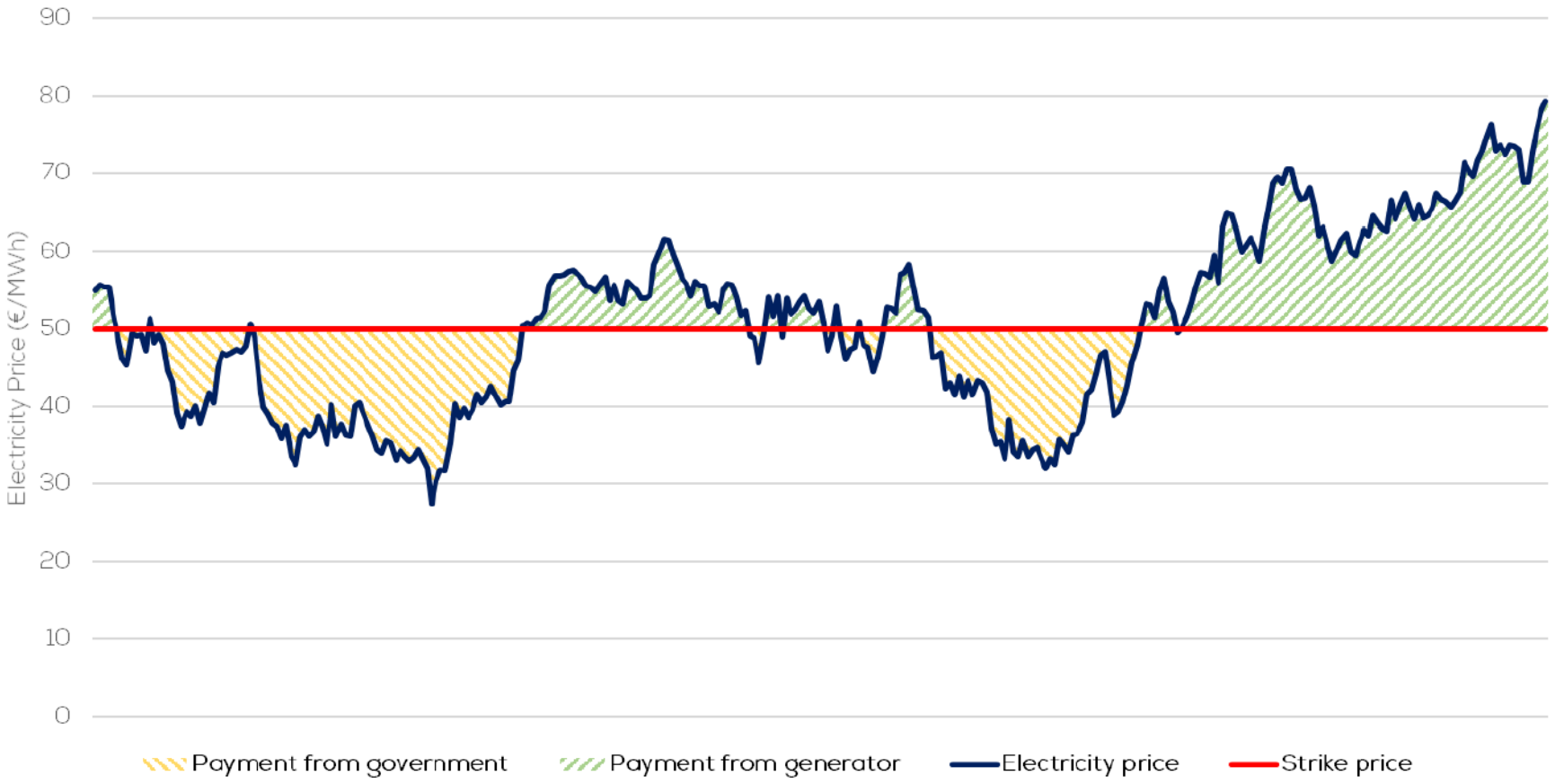
Limiting risks for investors

Lowest possible energy price for all consumers

Enabling citizen participation

Avoiding windfall profits

Support Mechanism – 2-sided CfD



Support mechanism – 2-sided CfD

2-sided CfD is a price stabilization mechanism

- Price difference = strike price – reference price*
- Total price difference = price difference * AAP (Active Available Power)

Lowest financing costs and lowest production cost
Protection against windfall profits
Allowing large range of candidates, thereby increasing competition

* this can be a positive or a negative number

Support Mechanism – 2-sided CfD

Implementation modalities
Strike Price will have a maximum allowable value – to be determined in a study
Indexation for 30% of the strike price reflecting the O&M portion
Maximum cap in EUR per year as government risk - to be determined in a study
Electricity reference price

- Aim is to reflect reality as much as practically possible
- Weighted average of the spot prices and the Belgian offshore wind production per month
- Correction factor

Active Available Power to determine price premium

- Incentive for operators to maximize renewable energy production and to react correctly to market signals

Duration – 20 years
Yearly maximum cap to be decided in study

Stable price towards industry and citizans

Carve-out possible

- Posssibility to carve out part of the electricity production towards industry and citizens in the form of fixed price PPA's – pay as produced
- Max 50% of the production (up to 75% in case of RECs)
- Maximum fixed price of the PPA ≤ strike price + 3 EUR/MWh
- Fall back possibility
  - In case of market change
  - One time fall back per PPA volume part in case of issues with the PPA,

Overview of the tender criteria

Admissibility criteria

Technical capacities
Financial strength and stability
Requirements for the grid connection
Maximum strike price
Minimum installed capacity
Minimum share of citizen participation
Cybersecurity
Exclusion criteria

Award criteria

	Strike price	Innovation in business model
points	90	10

Admissibility criteria

To assure bidders will be able to realize the projects on time and have enough resources both technically as well as financially, while allowing a large number of participants to increase competitiveness.

Technical

300 MW offshore wind with experience and an active role in the project management
Technical grid compliance
Minimal installed capacity

Financial

- bidders most have at the end of the year previous to the year of the bid have 75 mio EUR as assets for Lot 1 and 150 mio EUR for Lot 2 and 3.
- 70 mio EUR bond for Lot 1 and 140 mio EUR for lot 2 and 3 to be released from 50% of the turbines installed
- Maximum Strike Price to be determined in study

Admissibility criteria

Citizen participation
The Belgian North Sea belongs to all Belgian citizens.
Leave No One Behind - promoting and shaping an inclusive energy transition to allow democratic access to renewable energy sources;

An increased acceptance and active participation in the energy transition, via enhanced citizen information and awareness creation;

Promoting democratic participation via renewable energy communities to increase the involvement of citizens in the decision-making process for offshore wind projects;

A financial return to society, creating a positive effect on the local economy through social innovation;

Admissibility criteria

Citizen Participation

Minimum of 1% of total CAPEX (equivalent to 5% equity participation)
Both Financial participation (loans) or equity participation

Detailed plan to be submitted, including communication on risks and opportunities
evaluation 1 year after final take-over – possible fine

Others

- Cybersecurity
- No firm in difficulty
- in order with payment of tax debts and social security

Award criteria

	Strike price	Innovation in business model
Points	90	10

Award Criteria

Citizen Participation

3 Forms of citizen participation:

1. 2% of total capex (equal to 10% in equity) via renewable energy community
2. 4% citizen participation of full total capex (minimum 1% + 3% additionally)
3. Clear communication plan, sensabilisation and active involvement described in a detailed plan.

Promoting REC as per EU Directive 2018/2001:

open participation of natural persons, local authorities, municipalities, educational institutions, associations, other energy communities or small and medium-sized enterprises, having effective control

primary purpose is to provide environmental, economic or social community benefits rather than to make a profit

renewable energy projects (offshore) are owned and co-developed by this legal person;

Award Criteria

Citizen Participation

Two options will be examined for the distribution of points with a view to making a choice between the two options when the Royal Decree Tender is drawn up:

- Option A
  - Financial Participation (3 points)
  - Access for renewable energy communities (3 points)
  - Communication (3 points)
  - If a combination of two of the previous criteria is used, an extra point will be awarded (1 point)
- Option B
  - Financial Participation and Access for renewable energy communities (6 points)
  - If the bidder uses not only a Financial Participation but also provides Access for renewable energy communities, an additional point will be awarded (1 point)
  - Communication (3 points)

Check is done on the realisation of the values 3 years after the installation of the wind farm

BELGIAN OFFSHORE WIND ENERGY TIMING

Directorate general Energy
Brussels – 05/07/2023

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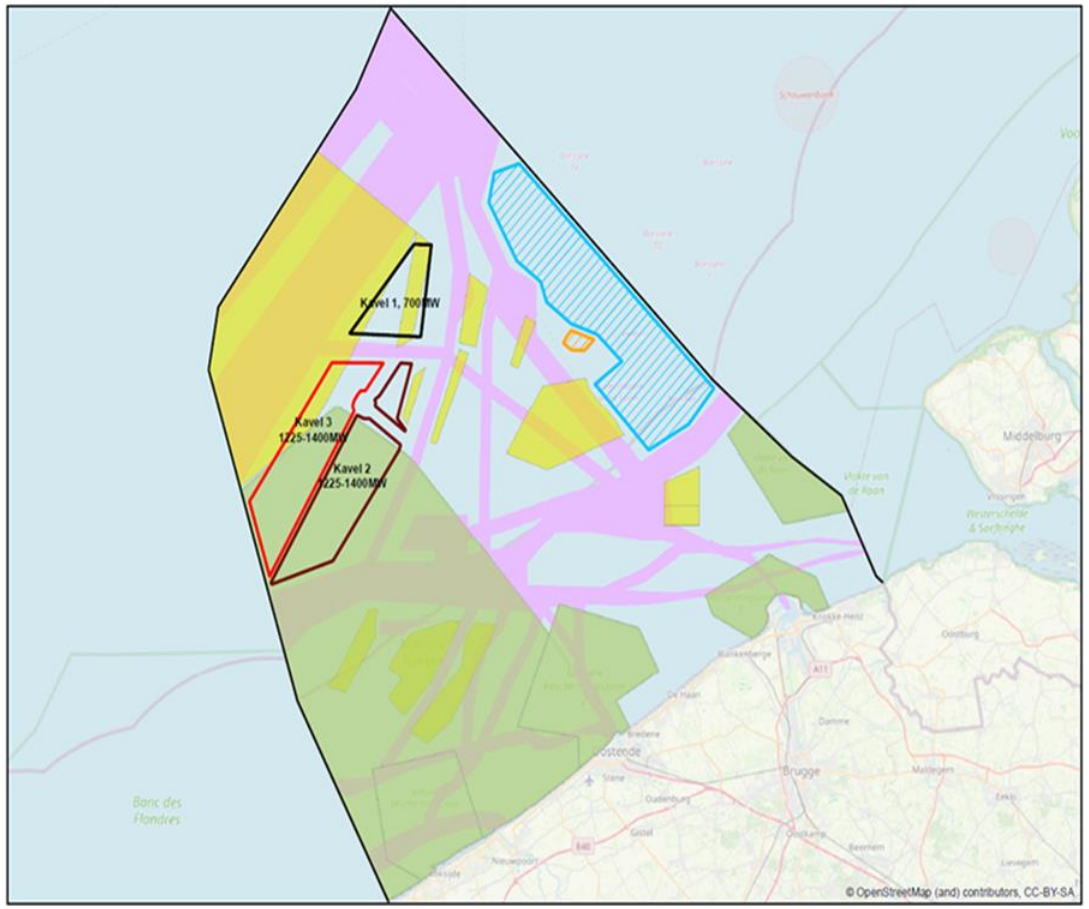
Lots within the PEZ

281 km² for the PEZ
(225 km² for the eastern zone)

- Council of Ministers' decision of 15/10/2021: envisaged capacity for PEZ of 3,15 – 3,5 GW + connection through an energy island

- Council of Ministers' decision of 23/09/2022 on the lots: division into three lots with corresponding maximum installed capacity of
  1) 700 MW
  2) 1225 – 1400 MW
  3) 1225 – 1400 MW



Timing

- High level timing published on the website of the FPS Economy
- The timing is a reasonable estimate based on the normal timeframes for the different procedures

- Preliminary phase
  - Preliminary studies
  - Legal framework
  - Permitting

- Tender and construction phase
  - Link with onshore developments (Ventilus and Boucle du Hainaut)

Tender and construction phase

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Tender and construction phase

- Onshore developments
  - Ventilus
  - Boucle du Hainaut
- Extension of Modular Offshore Grid (MOG II)
  - Island construction (Princess Elisabeth Island)
  - Construction of offshore electrical connection per phase
    - Phase 1 : 700 MW (AC)
    - Phase 2 : 1400 MW (AC)
    - Phase 3 : 1400 MW (HVDC)

Injection will only be possible when onshore projects are operational
(Ventilus for phase 1 and Boucle du Hainaut for phase 2 and 3)

- Wind farm connection per phase
  - Link with the onshore developments
  - Between 3.15 GW and 3.5 GW
  - 3 lots
    - Phase 1 (link with construction Ventilus)
      - **Lot 1 : max. 700 MW**
      - **Start tender in 2024**
    - Phase 2 (link with construction Boucle du Hainaut)
      - **Lot 2 : max. 1400 MW**
      - **Lot 3 : max. 1400 MW**
      - **Start tender in 2026**

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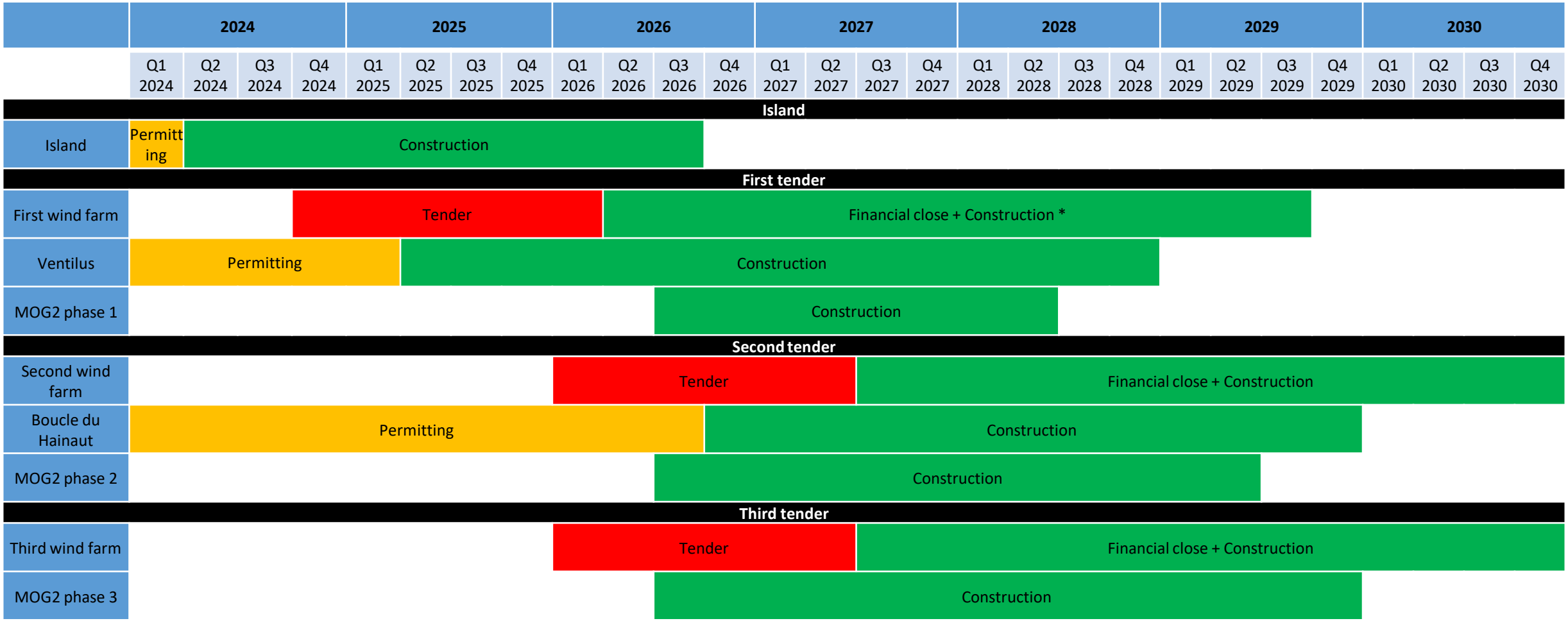
Tender and construction phase



This timing is a reasonable estimation based on the standard regional procedure for obtaining the integrated environmental permit, not taking into account any possible delay for unexpected circumstances, appeal procedures or a possible need for resubmission of the permit requests.

** End 2028 : first windturbines in service*

.be

- PPA’s
  - Timing

    The winner of the tenders will have 3 years upon commissioning to sign and notify the PPA’s (corporate PPA's of PPA's with local energy communities).

  - Monitoring

    The CREG will monitor the provisions of the PPA's to ensure compliance with legal requirements (carve-out, PPA's price, etc.).

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The potential role of PPAs in an energy sourcing strategy

5 July 2023

Reasons why companies choose to sign a PPA

PowerPulse

Link with production asset	▪ Go one step further in green energy purchasing ▪ Link with a concrete renewable energy production asset ▪ Additionality: PPA reason why project is built
Value of LT position	▪ Long term power hedge, not easily available on exchanges ▪ Long term price certainty for GOs ▪ Potential cheaper way to source energy/GOs (case dependent)
Communication and compliance	▪ Communication value towards stakeholders ▪ Be in line with recommendations of chosen carbon accounting standards
Future-proofing RES purchasing	▪ Perceived limitations to pure GO purchasing ▪ PPA more robust and credible way to purchase renewable electricity ▪ Start with smaller PPA to learn about impact (e.g. for share of volume or small site)

Recent PPA trends

PowerPulse

PPA supplier trends

- **Utility developers** sometimes do **attractive new-build within portfolio** thanks to higher forward prices
- **PPA route** still used for more **expensive LCOE projects** with **utility developers**
- **Pure developers** are still looking for **PPAs** for most of their projects
- Renewed PPAs on **existing assets** for **shorter time period**

PPA pricing trends

- **Fixed prices** are **norm** for offsite PPAs (typically with indexation)
- Recently higher tendency towards **financial PPAs**
- **High price** environment for PPAs remains as **LCOE is still high** for wind and solar

Comparison between physical an financial corporate PPAs

PowerPulse

	Physical PPA	Financial PPA
Practical functioning	▪ **Production** volume **transferred to buyer's perimeter** (e.g. as produced or as nominated) ▪ Typically the volumes **enter the supply contract** of the buyer	▪ Renewable producer **sells output in day ahead market** as **main revenue stream** ▪ **Delta** between **day ahead price** and **PPA price**: **cash settlement** between parties (payment possible in both directions)
Interaction with supply contract	▪ Volatile renewable output **changes shape of residual consumption profile** ▪ Needs to be **stipulated in supply contract** and could **impact mark-ups** (depending on characteristics)	▪ **No impact**
Hedging impact	▪ Can lead to **hedging constraints** in **supply contract** (compared to situation before PPA)	▪ **Hedging** possibilities in **supply contract unchanged** ▪ Hedging can be **constrained** due to **company's policy** (unchanged hedging could lead to **higher energy market exposures** than before PPA)
Accounting impact	▪ Depending on PPA characteristics, **executory contract may be possible** (though assessment could label PPA as lease or financial derivative)	▪ **Often** seen as **financial derivative** (though assessment could lead to different conclusions, e.g. PPA could also be seen as a lease)

Note: This slide is a generalized and simplified overview of corporate PPAs, any assessment of a PPA needs to be done on case by case basis

Main PPA price formulas and attractiveness assessment

PowerPulse

Fixed price PPAs

- Example of components included:
  - **Fixed price predefined** for all **power output** of renewable asset
  - **Fixed price predefined** for **GOs**
  - Potential **indexation parameter**
- **Most common** offering in Belgium currently

Variable price PPAs

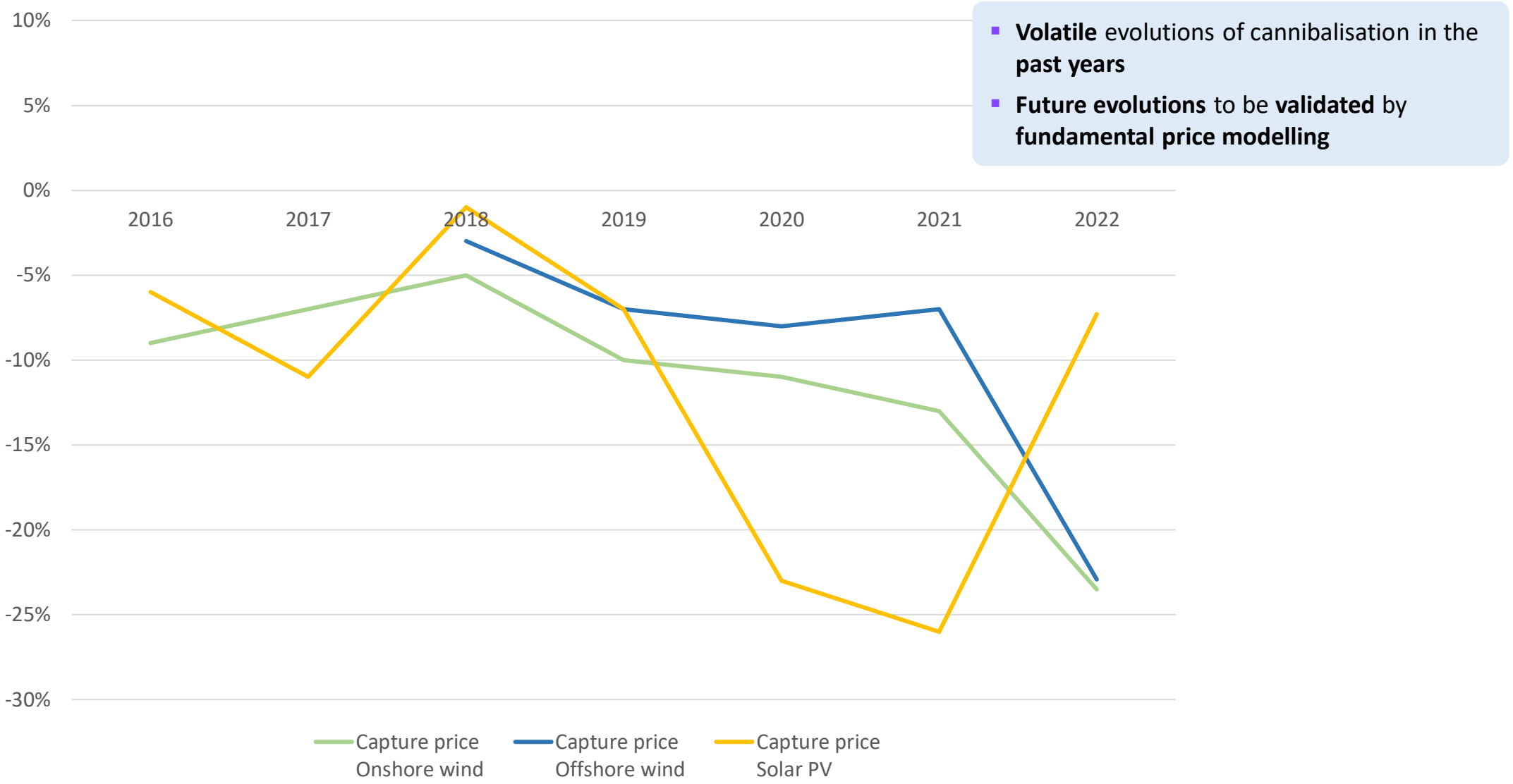
- Example of components included:
  - **Indexation to published price f**or all **power output** of renewable asset
  - E.g. average spot or forward during a period
  - Potential **correction factor**
  - **Fixed or variable** price for **GOs**
- Currently **less common** in Belgium (though was much more common 2 years ago)

Selection of elements included in fixed price PPA attractiveness assessment:

- **LT market prices**
- **Cannibalisation factors**
- **GO prices**
- **LCOE comparison**

Resulting annual cannibalisation rates from long term model prices

% Delta compared to annual Belpex/Long term price (negative figures indicate lower achieved offshore wind prices compared to Belpex/LT price)

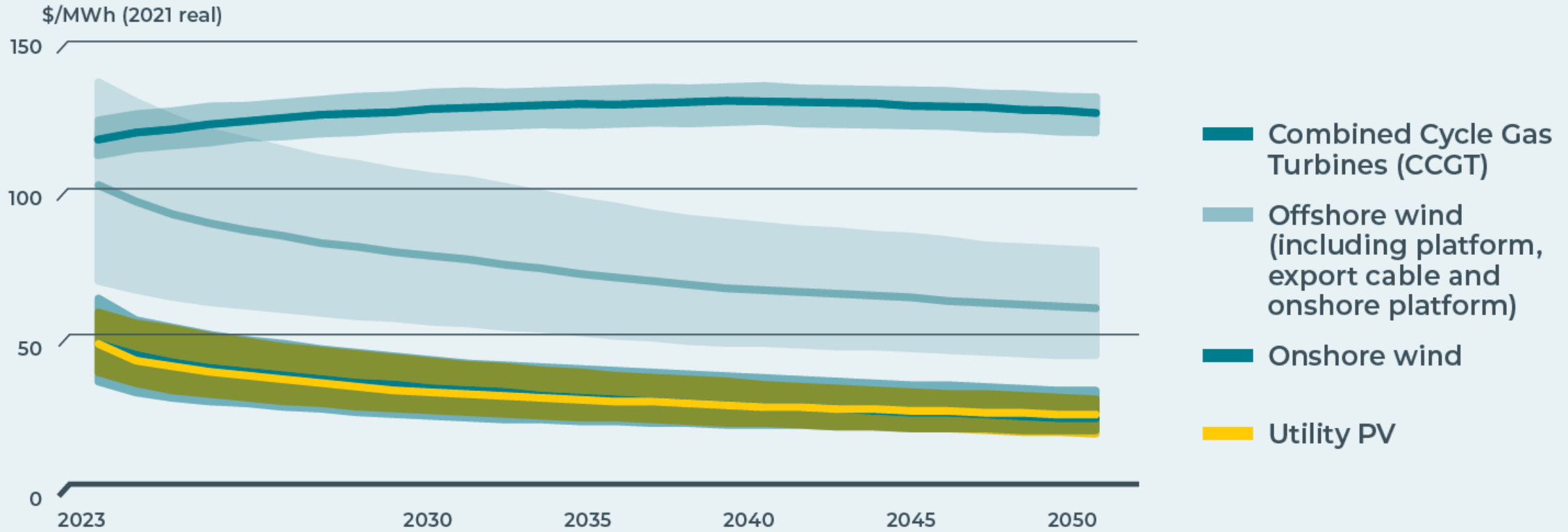


- **Volatile** evolutions of cannibalisation in the **past years**
- **Future evolutions** to be **validated** by **fundamental price modelling**

LCOE evolutions looking forward

PowerPulse

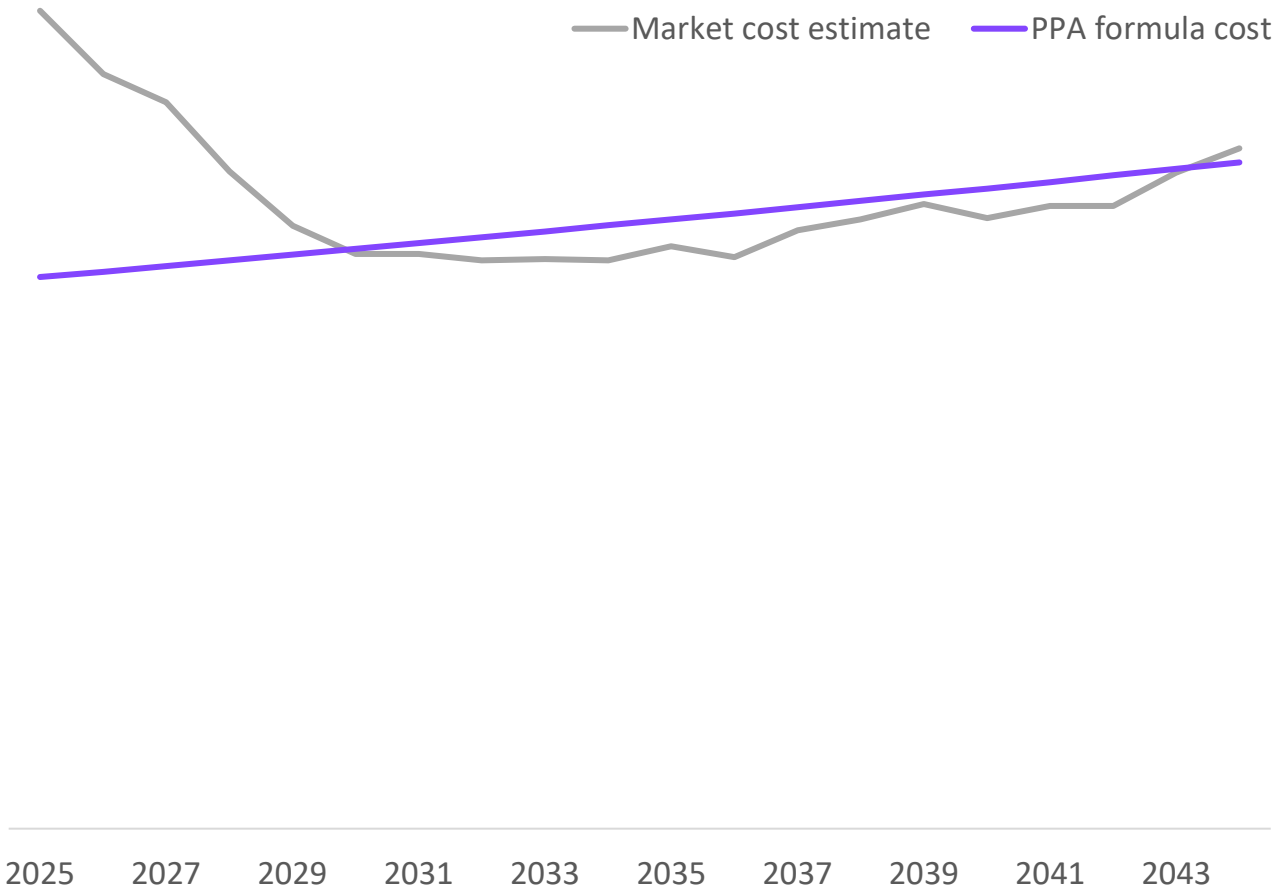
FIGURE 14 - LCOE OF DIFFERENT NEW-BUILD POWER GENERATION TECHNOLOGIES IN GERMANY [BNEF-2]



Source: Elia

Performance hypothetical PPA formula vs market purchasing

Average annual cost levels



PPA formula cost:

- Fixed contractual power price
- If applicable:
  - GO price
  - Indexation formula
  - Imbalance cost

Market cost estimate:

- Long term baseload power prices
- Cannibalisation rates
- Inflation expectations
- GO prices

Note: This slide shows a hypothetical assessment of a PPA contract with fixed prices

18/07/2023

Hello

INTRODUCTION TO CPPA'S

Opportunities & risks associated with CPPA

The opportunities that CPPA can offer to buyers are well known:

1. Protection against energy price volatility
2. Diversification of energy sources across multiple technologies
3. Long term supply of renewable energy and additionality
4. Certainty and traceability of power source

> “However, PPA’s are a game of risk allocation. Every risk has a price, and depending on who’s assuming it, the PPA will be structured differently, and the price will evolve accordingly. Identifying and managing those risks is key.”

Main risks associated with CPPA

1. PRICE RISK

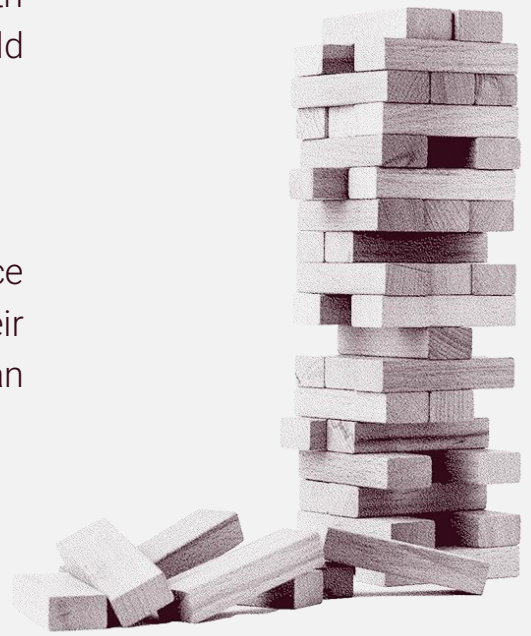
Assuming buying a CPPA with a fixed price element to the pricing formula, this is the risk that the value of the underlying commodity differs from the pre-agreed price. In this case, a high PPA price could lead to competitive cost disadvantage for energy intensive sectors. Mitigation mechanisms can be built in contractually (caps and floors, …)

2. VOLUME RISK

The risk that the renewable power plant over- or underproduces electricity in the settlement period compared with the expected production. Several reasons (weather, outage, maintenance,…) can lead to under delivery which would lead the buyer having to purchase the missing volume on markets.

3. SHAPE/PROFILE/CAPTURE RISK

The risk that the renewable power plant produces excess electricity when prices are very low or negative and vice versa. When large volumes of renewable are produced simultaneously, the capture price in the system during their production time will decrease (canibalisation). Therefore, Produced PPAs, for instance, are commonly lower than Fixed Volume PPAs since the offtaker bears the market price risk related to deficit volume amounts.



Virtual PPA

Scenario 1: Market Price > Strike Price

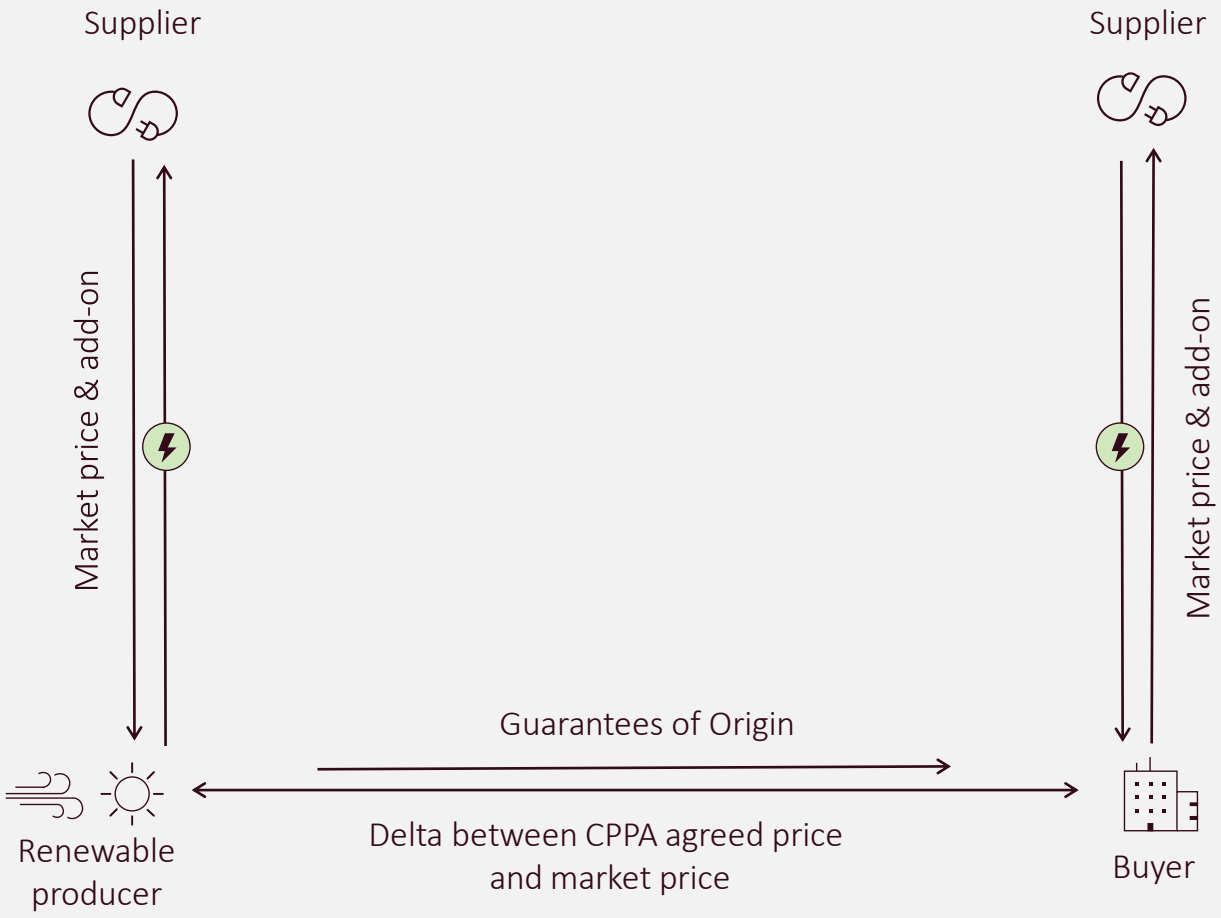
Seller would earn more than agreed. Producer has to compensate the difference between Market price – strike price to the buyer.

Scenario 2: Market Price < Strike Price

In this case, the buyer would consume electricity at costs lower than agreed. The buyer must pay the difference between strike price – P1 to the Seller.

- Financial settlement, no delivery
- No impact on consumption profile of buyer
- Guarantees of origins are transferred between Producer and Buyer
- Can be (re)qualified as financial instrument and be treated as such in accounting (Mark to Market,…)

Cross border VPPA



1. Buyer and producer in the same market

Market price: 95 EUR/MWh
Strike/CPPA price: 80 EUR/MWh

Seller needs to pay the difference (15 EUR/MWh) to buyer

2. Buyer (BE Market) and producer (Market 2) in two different markets

BE Market price: 95 EUR/MWh
Market price 2: 70 EUR/MWh
Strike/CPPA price: 80 EUR/MWh

Buyer needs to pay 10 EUR/MWh to cover difference.
He will end up paying 105 EUR/MWh

Q&A

Brussels – 05/07/2023

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