

Wind Tenders in Europe: An Overview of Challenges and Key Success Factors



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Agenda

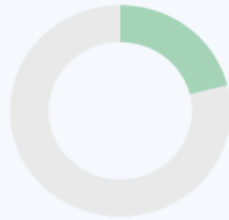
1. Wind power in 2023
2. Wind energy support mechanisms: Contracts for Difference
3. Wind energy auctions in 2023: developments
4. Indexation of auction strike prices
5. European Commission guidance on renewable energy auctions

1. Wind power in 2023



EU's wind energy generation in 2023

Annual



19%
of the EU's
electricity demand



201 GW
onshore wind
capacity

17%
of EU electricity demand
met by onshore wind

24%
average onshore wind
capacity factor*



19 GW
offshore wind
capacity

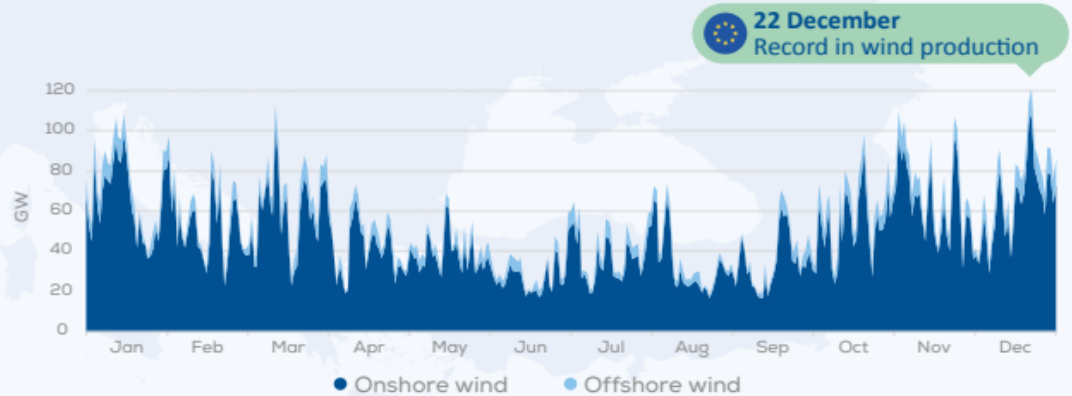
2%
of EU electricity demand
met by offshore wind

34%
average offshore
wind capacity factor*

466 TWh

EU wind energy generation

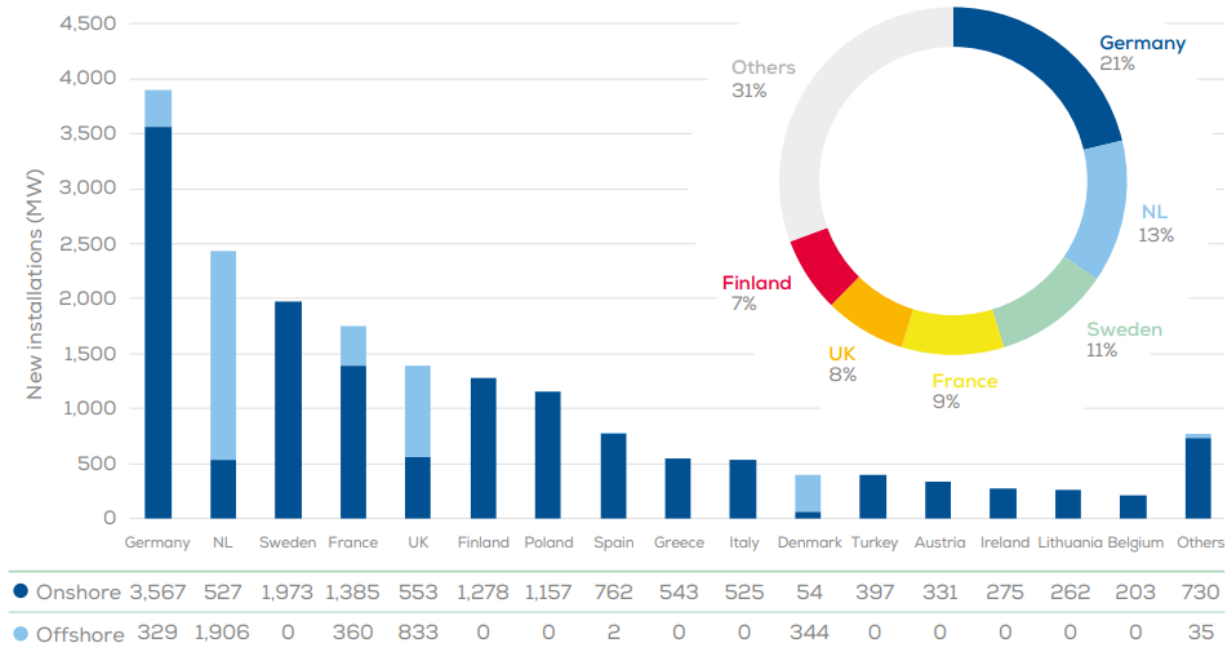
Highest wind energy shares



*Capacity factors of entire fleet including old turbines

Europe installed 18 GW of wind energy in 2023. Germany leads, the Netherlands and Poland set a new record

FIGURE 2. New onshore and offshore wind installations in Europe in 2023



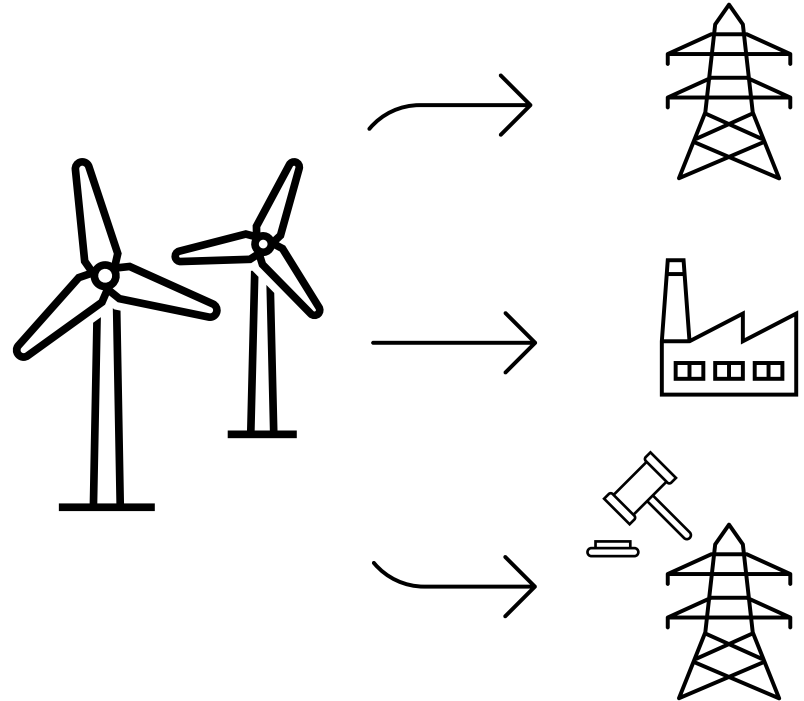
2. Wind energy support mechanisms: Contracts for Difference (CfDs)



First of all, why do we need auctions?

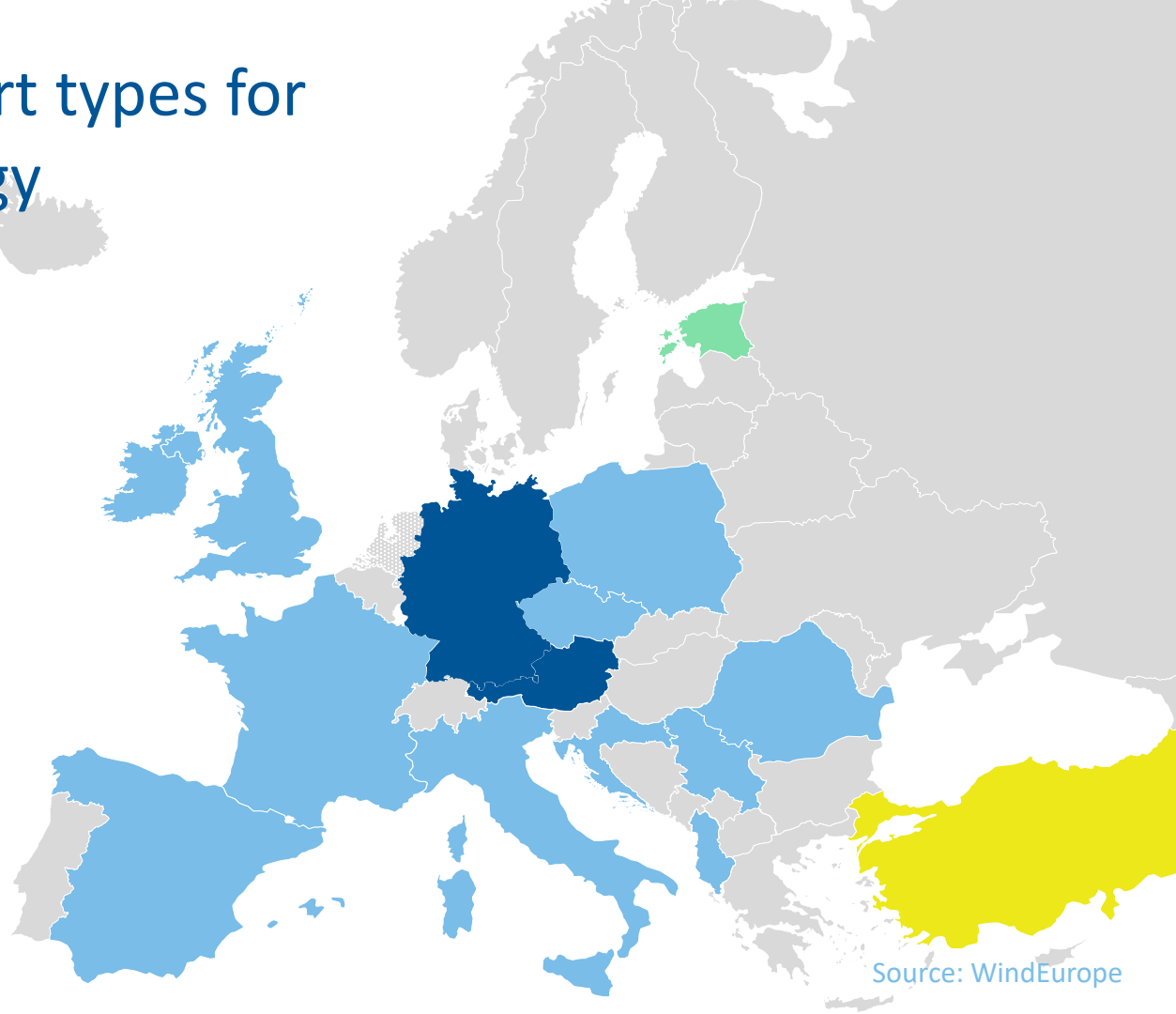
3 ways to deploy wind energy projects

- Merchant: wind farm operator revenues are exclusively based on electricity prices
- Power Purchase Agreements (PPAs): bilateral agreements between wind farm operator (supplier) and buyer
- Government-organised auctions

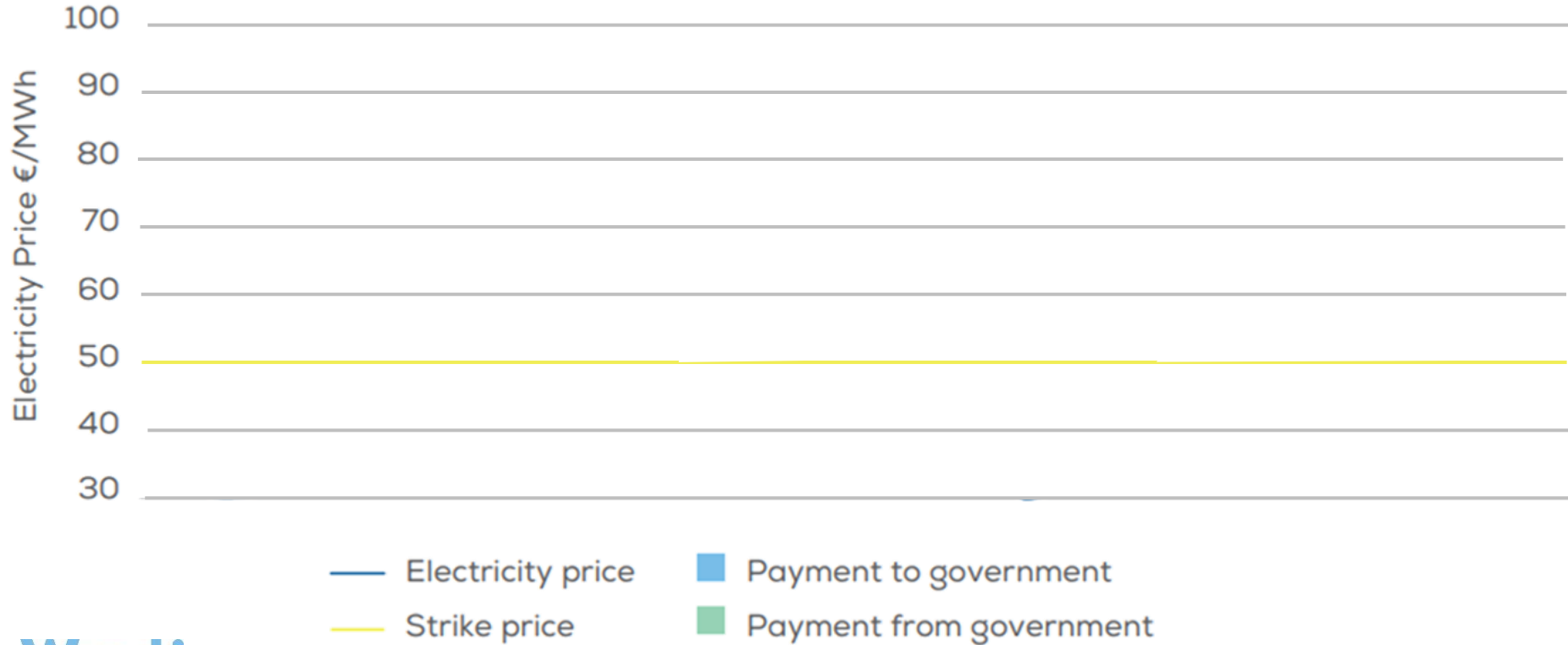


Government support types for onshore wind energy

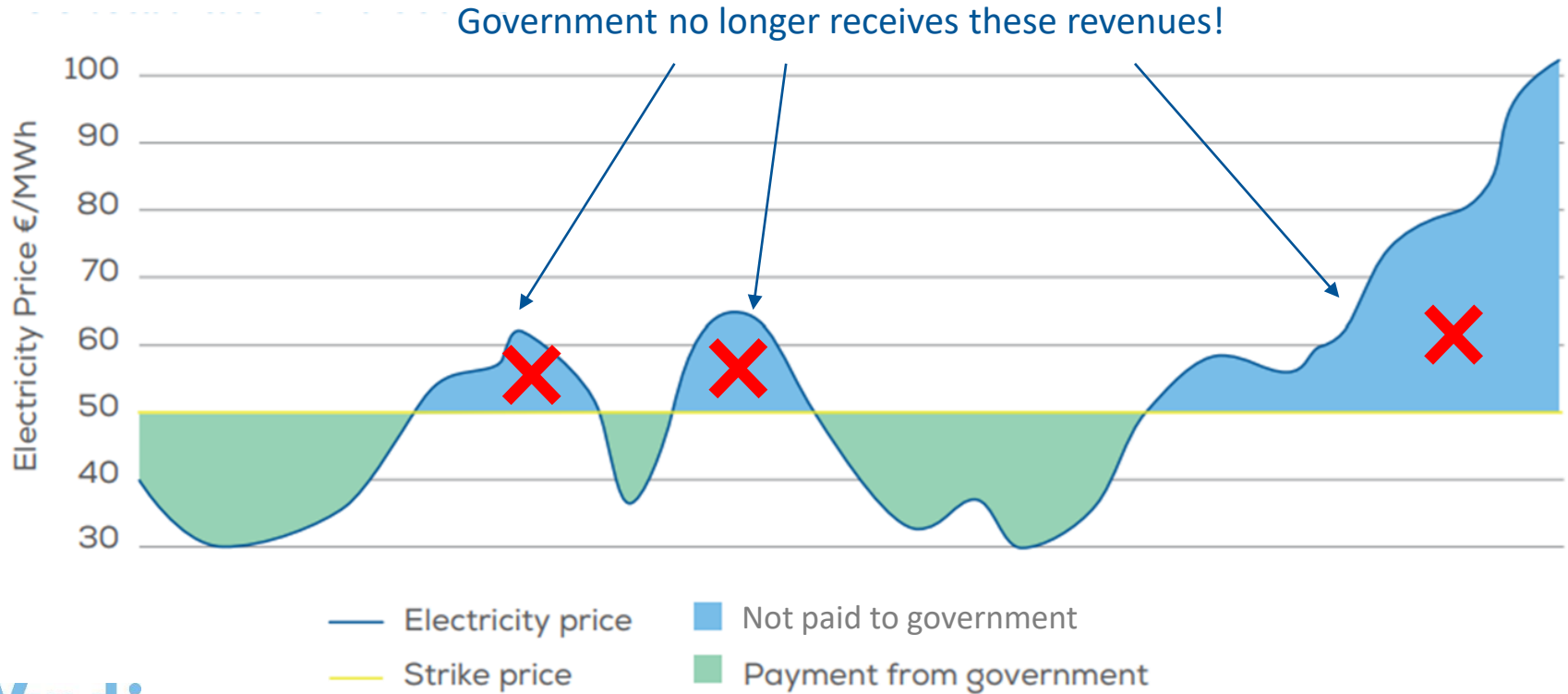
- 1-sided CfD
- 2-sided CfD
- 1-sided CfD (capped)
- Feed-in-Tariff



2-sided CfD



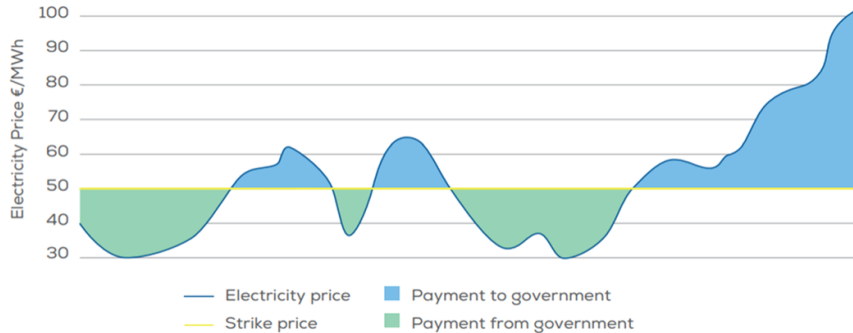
1-sided CfD



What are the pros and cons?

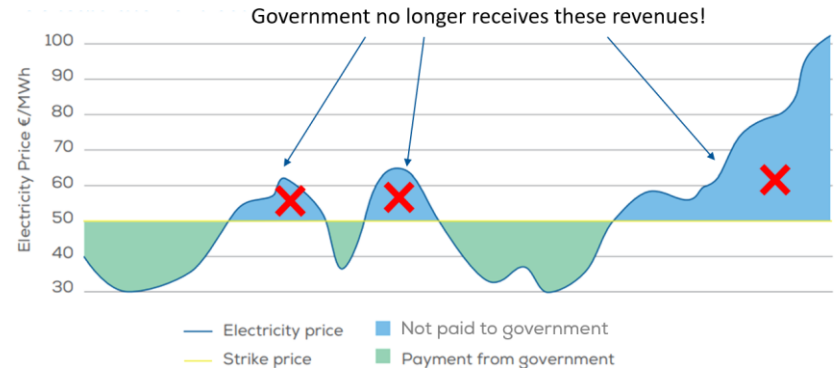
2-sided CfD

- More predictability for both government and wind farm operators:
 - wind farm operators are compensated in case of low electricity prices
 - government is compensated in case of high electricity prices



1-sided CfD

- Allows government to set a lower bidding price ceiling, as wind farm operators can get compensated by high electricity prices
- However, government budget cannot benefit from volatile electricity market prices → wind farm operators keep revenues



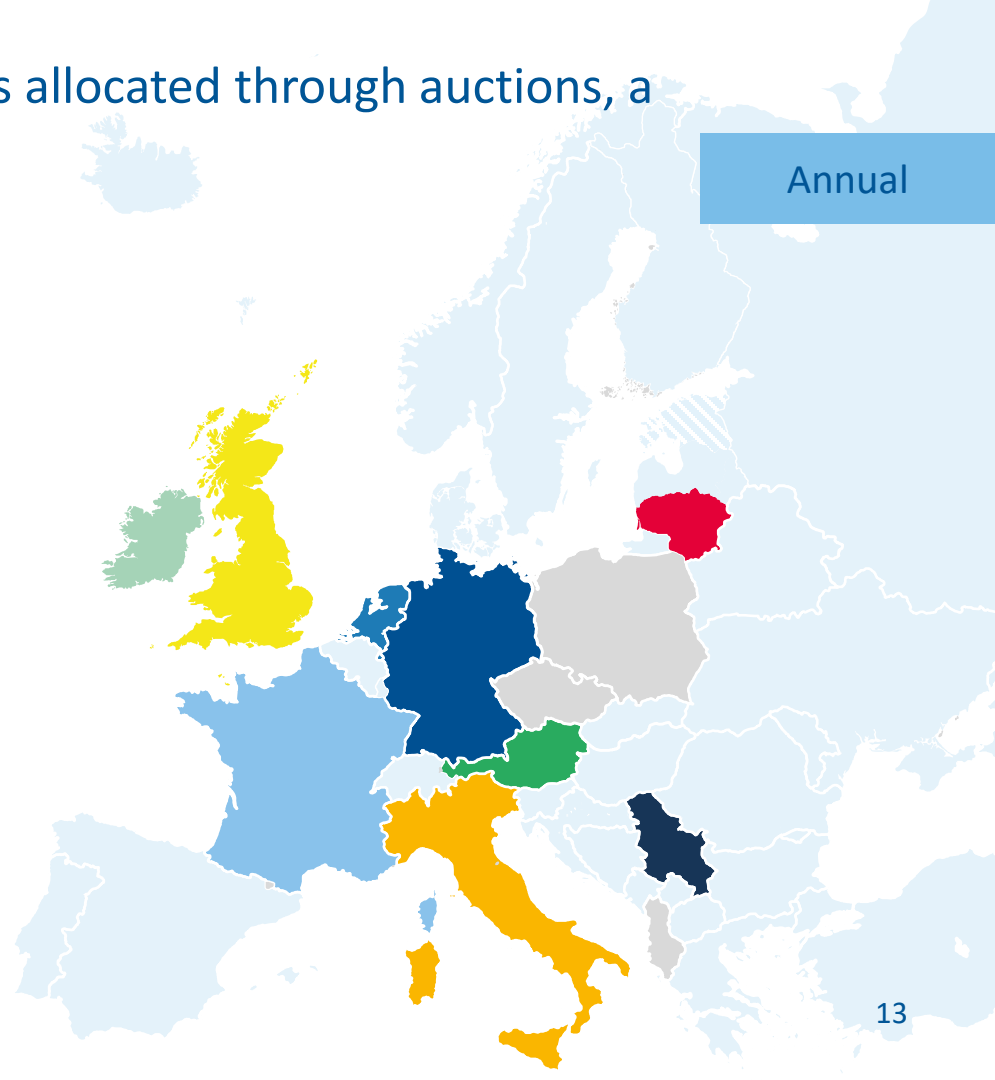
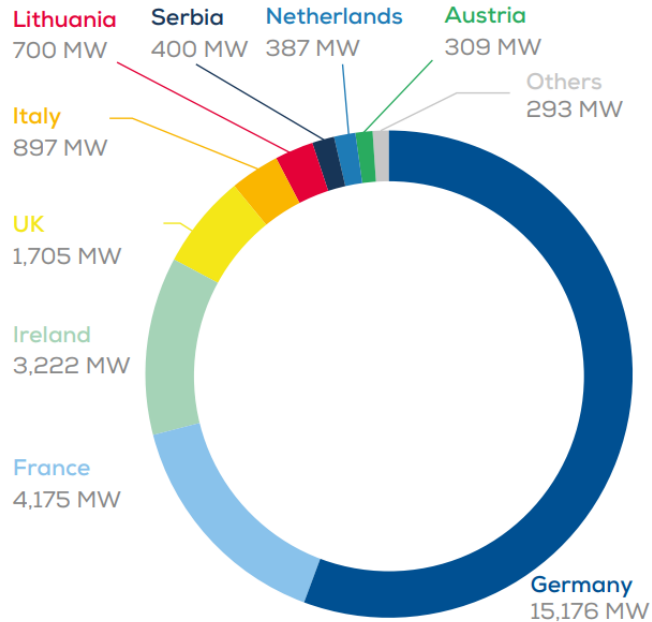
3. Wind energy auctions in 2023: developments







More than 27 GW of wind capacity was allocated through auctions, a new record

Annual

FIGURE 10. Share of awarded support in wind energy auctions in 2023



Countries are increasing their auctions price ceilings

	Support type	Before	After	Difference	
	1-sided CfD	€59/MWh <i>(until 2022)</i>	€74/MWh <i>(from 2023)</i>	+€15/MWh	+25%
	1-sided CfD	€82/MWh <i>(until Sept 2023)</i>	€96/MWh <i>(from 2024)</i>	+€14/MWh	+17%
	2-sided CfD	€65/MWh <i>(until FER 1 round 12, mid-2023)</i>	€80/MWh <i>(from FER X, 2024-2028)</i>	+€15/MWh	+25%
	2-sided CfD	£53/MWh <i>(UK CfD AR 5, 2023)</i>	£64/MWh <i>(UK CfD AR6, 2024)</i>	+£11/MWh	+21%

(All values in the table are rounded)

Low bidding ceiling led to undersubscribed auctions and delays

RECHARGE

Wind

Gigafair
of

Just 4
\$49/M


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Vattenfall halts 1.4GW North Sea wind project amid rising costs

Vattenfall made the decision after “considering market conditions today”, its CEO says.

Florence Jones | July 20, 2023

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Offshore wind in government

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Auctions strike prices have increased since 2022

TABLE 3. Auctions and tenders for wind energy support schemes in 2023

Onshore	Auction	MW awarded	Type of auction	Support mechanism	Price in €/MWh
Albania	2023 onshore wind auction	223	Technology specific	Contract for Difference	65
Austria	EAG - 2023 March round	101	Technology specific	Feed-in-premium (floating)	82
	EAG - 2023 June round	53	Technology specific	Feed-in-premium (floating)	82
	EAG - 2023 September round	-	Technology specific	Feed-in-premium (floating)	-
	EAG - 2023 December round	155	Technology specific	Feed-in-premium (floating)	93
Czechia	2nd call	20	Technology neutral	Contract for Difference	140
	3rd call	25	Technology neutral	Contract for Difference	140
Estonia	Technology neutral 2023	Undisclosed	Technology neutral	Feed-in-premium (floating)	21.9-39.8
France	AO PPE2 Neutre	78	Technology neutral	Contract for Difference	87
	AO PPE2 Eolien terrestre 4th round	1,160	Technology specific	Contract for Difference	85
	AO PPE2 Eolien terrestre 5th round	930	Technology specific	Contract for Difference	87
	AO PPE2 Eolien terrestre 6th round	1,007	Technology specific	Contract for Difference	87
Germany	EEG - February round	1,441	Technology specific	Feed-in-premium (floating)	73
	EEG - May round	1,535	Technology specific	Feed-in-premium (floating)	73
	EEG - August round	1,433	Technology specific	Feed-in-premium (floating)	73
	EEG - November round	1,967	Technology specific	Feed-in-premium (floating)	73
Ireland	RESS 3	148	Technology neutral	Contract for Difference	100
Italy	FER 1 bidding round 11	214	Technology neutral	Contract for Difference	65
	FER 1 bidding round 12	10	Technology neutral	Contract for Difference	65
	FER 1 bidding round 13	673	Technology neutral	Contract for Difference	75
Poland	2023 round for systems above 1 MW	25	Technology neutral	Contract for Difference	27.4-71.4
Serbia	2023 round	400	Technology specific	Contract for Difference	68
Netherlands	SDE++ 2023	387	Technology specific	Feed-in-premium (floating)	60
UK	Allocation Round 5 Onshore wind	1,481	Technology specific	Contract for Difference	60
	Allocation Round 5 Remote Island wind	224	Technology specific	Contract for Difference	60



Wind
EUROPE

Wind energy in Europe

2023 Statistics and the outlook for 2024-2030



Auctions strike prices have increased

TABLE 3. Auctions and tenders for wind energy support schemes in 2023

		2022	2023	Difference	
Onshore	Auction				
Albania	2023 onshore wind auction	Strike price	€82/MWh	€87/MWh	+€5/MWh +6%
Austria	EAG - 2023 March round	Awarded capacity	Awarded: 45 MW <i>(Tendered: 190 MW)</i>	Awarded: 309 MW <i>(Tendered: 692 GW)</i>	+264 MW +570%
	EAG - 2023 June round				
	EAG - 2023 September round				
	EAG - 2023 December round				
Czechia	2nd call	Subscription rate	24%	45%	-
	3rd call				
Estonia	Technology neutral 2023	Strike price	58€/MWh	€73/MWh	+€15/MWh +26%
France	AO PPE2 Neutre	Awarded capacity	Awarded: 3.2 GW <i>(Tendered: 4.6 GW)</i>	Awarded: 6.4 GW <i>(Tendered: 9.8 GW)</i>	+3.2 GW +100%
	AO PPE2 Eolien terrestre 4th round				
	AO PPE2 Eolien terrestre 5th round				
	AO PPE2 Eolien terrestre 6th round				
Germany	EEG - February round	Subscription rate	70%	65%	-
	EEG - May round				
	EEG - August round				
	EEG - November round				
Ireland	RESS 3	Strike price	€65/MWh	€72/MWh	+€7/MWh +11%
Italy	FER 1 bidding round 11	Awarded capacity	Awarded: 213 MW <i>(Tendered: 5.7 GW)</i>	Awarded: 897 MW <i>(Tendered: 2.9 GW)</i>	+684 MW +321%
	FER 1 bidding round 12				
	FER 1 bidding round 13				
Poland	2023 round for systems above 1 MW				
Serbia	2023 round	Subscription rate	4%	31%	-
Netherlands	SDE++ 2023				
UK	Allocation Round 5 Onshore wind				
	Allocation Round 5 Remote				

4. Indexation of strike prices



2 approaches observed in Europe

Indexation to Consumer Price Index (CPI)

- CPI is an index that mostly reflects changes in prices of consumer goods
- Typically, strike price is entirely indexed to the CPI
- Least reflecting of the variation in prices within the wind energy industry prices

Indexation to wind energy industry prices

- Custom-made: government decides what index to include
- Typically, it includes a 2-step indexation:
 - CAPEX (usually 70% of strike price)
 - OPEX (usually 30% of strike price)
- It best reflect the variation in prices within the wind energy industry prices

Strike price indexation for onshore wind

- CPI indexation
- Wind industry prices indexation



The French approach to strike price indexation



CAPEX indexation

1. Takes into account indexes on copper, steel, transport, debt cost, hourly labour cost, and producer price index of French industry.
2. Indexation between the month of end of the application period and the 12th month before commissioning.

OPEX indexation

1. Take into account indexes on hourly labour cost and producer price index of French industry.
2. Indexed annually between the start and the end of the 2-sided CfD contract.

The French approach to strike price indexation



CAPEX indexation

$$K = (1 + 4 * (TauxDette_E - TauxDette_C)) * (0,33 * \frac{ICHTrev-TS_E}{ICHTrev-TS_C} + 0,56 * \frac{FMOABE0000_E}{FMOABE0000_C} + 0,01 * \frac{IndexCu_E}{IndexCu_C} + 0,06 * \frac{IndexAcier_E}{IndexAcier_C} + 0,04 * \frac{IndexTransport_E}{IndexTransport_C})$$

OPEX indexation

$$L = 0,7 + 0,22 * \frac{ICHTrev - TS}{ICHTrev - TS_0} + 0,08 * \frac{FMOABE0000}{FMOABE0000_0}$$

The French approach to strike price indexation



CAPEX indexation

$$K = (1 + 4 * (TauxDette_E - TauxDette_C) + 0,01 * \frac{IndexCu_E}{IndexCu_C} + 0,06 * \frac{IndexAcier_E}{IndexAcier_C} + 0,$$

OPEX indexation

$$L = 0,7 + 0,22 * \frac{ICHTrev - TS}{ICHTrev - TS_0} + 0,08 * \frac{F}{F_0}$$



**Cahier des charges de l'appel d'offres portant sur
la réalisation et l'exploitation
d'Installations de production d'électricité à partir de l'énergie mécanique du
vent, implantées à terre.**

AO PPE2 Eolien terrestre

5. European Commission guidelines of renewable energy auctions

Wind Power Package



15 actions to strengthen Europe's wind energy industry

Auction design is a key focus (actions 4-6).

The European Commission:

- proposes a set of pre-qualification criteria for wind energy projects (Action 4)
- stresses the critical importance of Member States indexing their auction strike prices (Action 4).

Guidance on renewable energy auction design



The document includes guidance on:

- When to designate non-price criteria (NPCs) as pre-qualification criteria (Section 7.1) or as award criteria (Section 7.2).
- The importance of penalties (Section 8.1) to discourage speculative bidders.
- The importance of indexing strike prices (Section 8.2).
- The importance of setting adequate bidding ceilings, to avoid auctions undersubscription.

Thank you!



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