

# EEX Power Derivatives PPAs and Long-Term Hedging

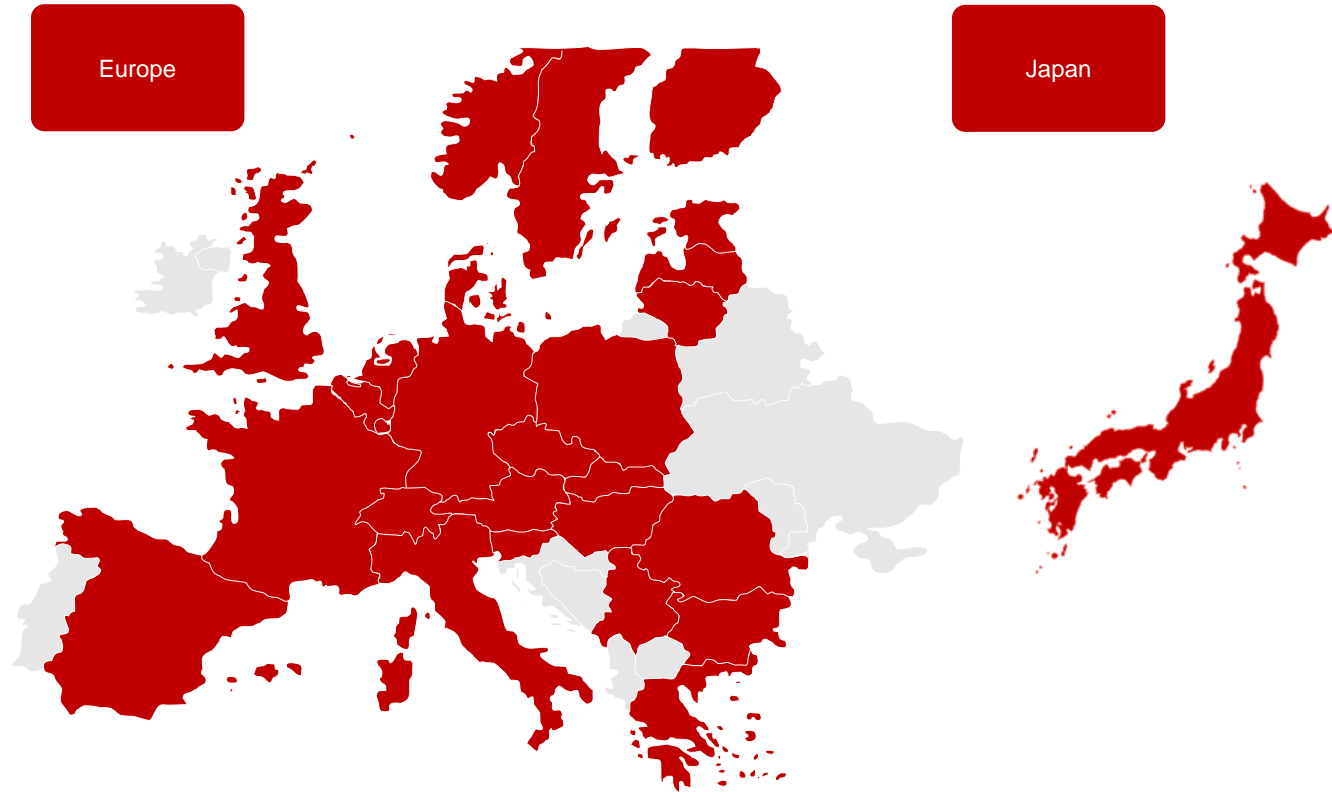
# EEX Power Derivatives Markets

- The standard Power product setup of EEX comprises financially settled Futures with the following maturities for Base and Peak Load.\*
- Each product has as its underlying the Spot index for the respective market (ie. for German power, the day-ahead price for the AMPRION control zone).
- EEX lists Power Futures for **20 European markets**.

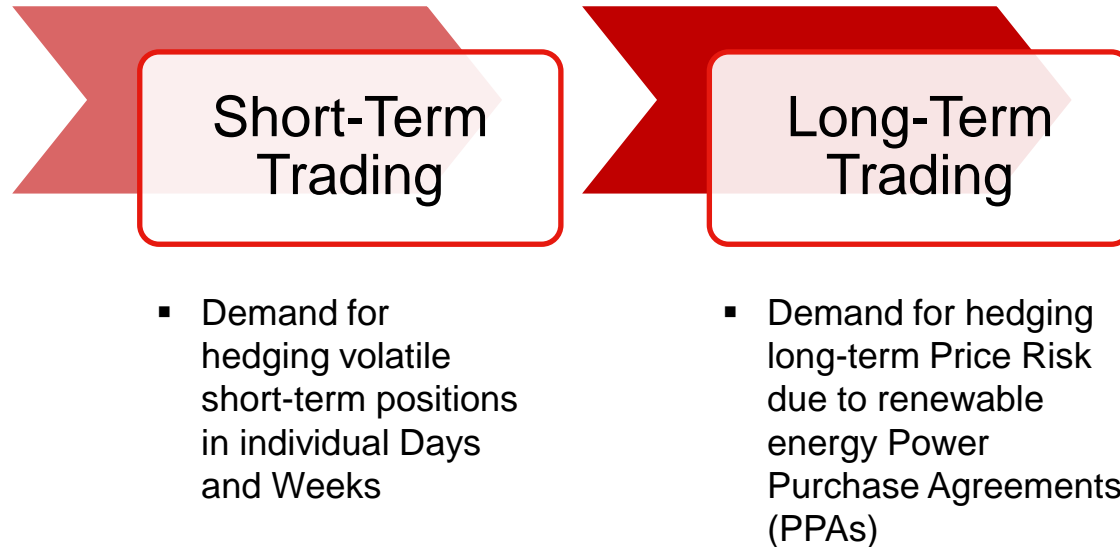
Day 1	Day ...	Day ...	Day 13																
Weekend 1	Weekend 2																		
Week 1	Week 2	Week 3	Week 4	Week 5															
Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10										
Quarter 1	Quarter 2	Quarter 3	Quarter 4	Quarter 5	Quarter 6	Quarter 7	Quarter 7	...	Quarter 11										
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10										

Extended maturities for DE, ES, IT Base Load

# Market Coverage – EEX Power Derivatives



# Renewables are driving two major trends in Power Derivatives markets



# Role of the Exchange in the PPA Market

## Price Transparency

- EEX's market prices provide reliable price references.
- Project developers and buyers of PPAs can assess their valuations against EEX wholesale prices.

## Price Risk Management

- Manage power price risk for renewable energy assets.
- Reduce the overall risk exposure for the largest risk element in RE portfolios.

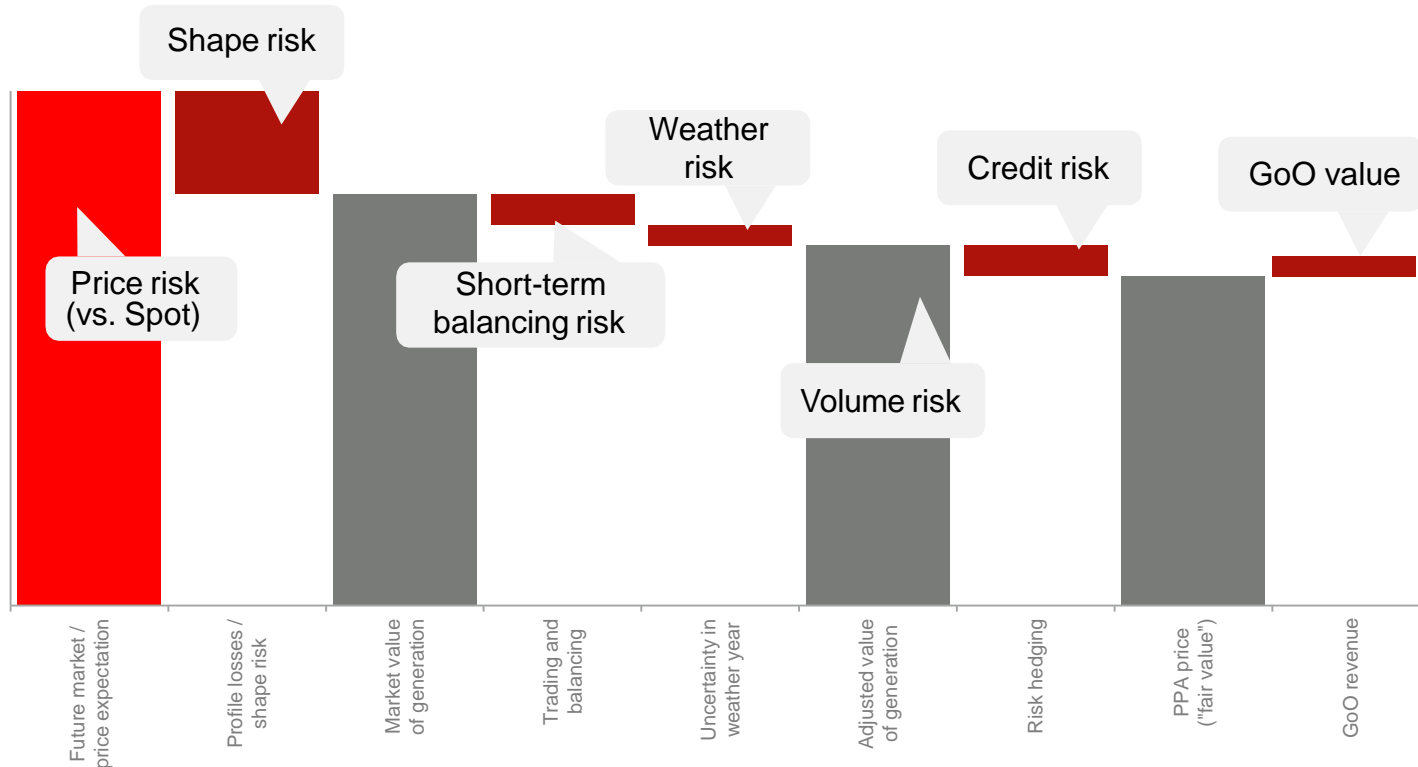
## Counterparty Risk Management

- Trading and hedging on EEX alleviates counterparty risk for trading participants.
- This is especially important for long-term risk management.

## Enabler of Renewable Energy Growth

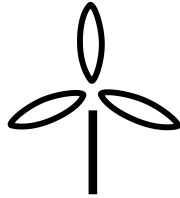
- Price and counterparty risk is offloaded onto the clearing house, freeing internal risk capacity within trading participants.
- This enables taking on more PPAs and facilitates growth of renewable energy capacity in Europe.

# Price Risk is the most important risk factor in a PPA



# How are EEX Members active in PPAs?

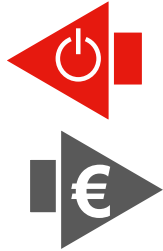
EEX Members and RE Developers sell Power via Long-Term PPAs



EEX Members buy Power via Long-Term PPAs and build RE assets



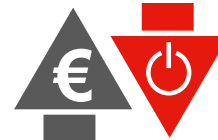
EEX Members provide balancing services on Spot & hedge via Futures



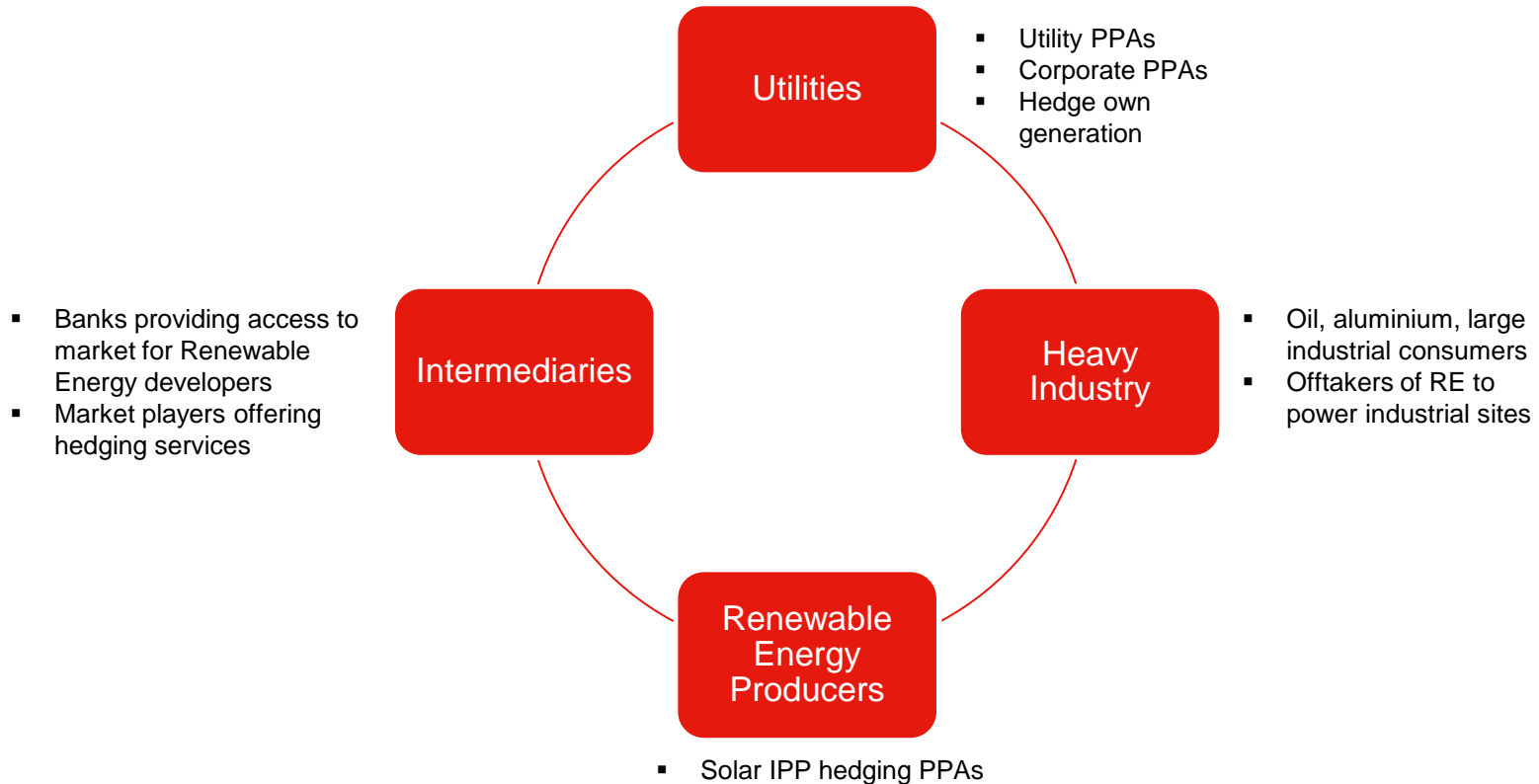
Banks provide financing once PPA is in place



EEX Members sell Power via LT Corporate PPAs

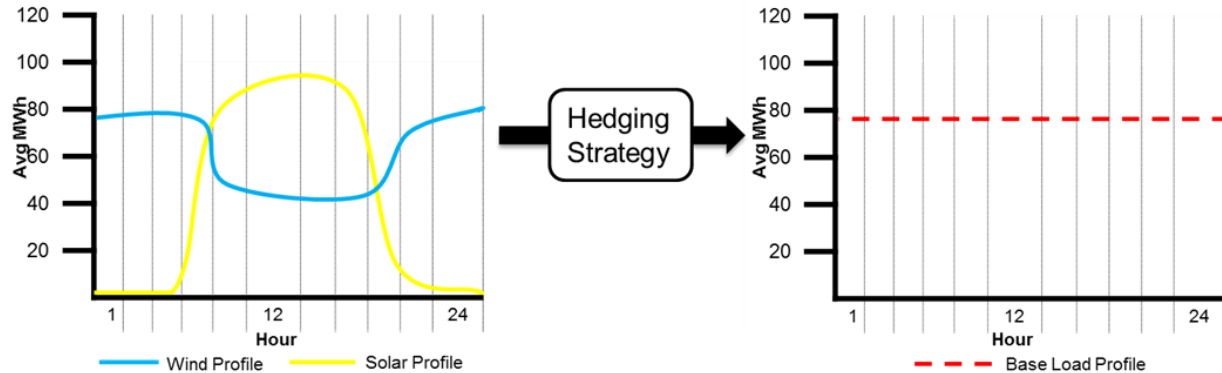


# Who are the PPA Hedgers on EEX?






# Managing Renewable Energy Price Risk with Base Futures requires a Hedging Strategy



- Base Futures are a **best-fit product** and attract the most liquidity, creating a **strong price signal** and opportunities for trading at fair market prices
- To use the Base Futures to manage the risk of a wind or solar profile, a **Hedging Strategy needs to be designed** to translate the variable generation profile into a constant Base load profile
- Different Hedging Strategies can be employed, such as a **value-neutral hedge**

# Development of Long -Term Hedging at EEX



May 2018	First long-term PPA hedge registered up to Cal+6 in Spanish Power
June 2018	First long-term PPA hedge registered up to Cal+6 in German Power
April 2020	Sonnedix becomes a member of EEX, first solar IPP
September 2021	Cal+10 goes live for German, Spanish and Italian Power Spanish regulatory intervention / gas price cap
February 2022	Russia – Ukraine war; 4 long-term deals registered in 2022 to Cal+5
April 2023	First Cal+1 to Cal+10 deals registered in Spanish Power, totalling <b>3.2 TWh</b> First 8-year strip to Cal+10 registered in Italian Power
December 2023	28 long-term deals registered in Spanish and Italian Power in 2023, totalling <b>6.22 TWh</b>
May 2024	First Cal+1 to Cal+10 deal registered in Italian Power

# Long-term hedging in Spanish Power (1/2)



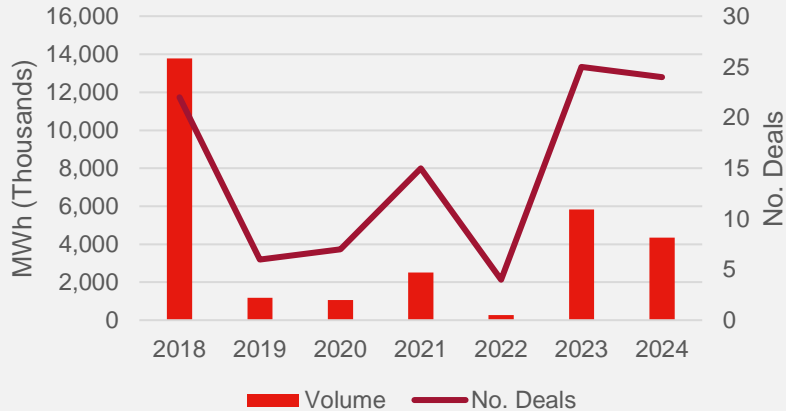
Since 2018, **102** Long-Term deals up to CAL+10 reaching **> 29 TWh**

	Trade Date m/y	Product	Trade Price	Traded Volume in MWh	Initial Margin in % of Notional Value
1	5/2018	Q3 up to Cal24 (20 lots)	48.75 €	1,139,760	<b>3.38%</b>
...					
39	6/2021	Q+3, Cal22 to Cal26 (5 lots)	53.50 €	241,200	<b>5.65%</b>
...					
99	04/2024	Cal25 up to Cal33 (2 lots)	53.80 €	157,776	<b>10.30%</b>
100	05/2024	Cal 25 up to Cal 33 (1 lot)	54.00 €	78,888	<b>10.19%</b>
101	05/2024	Cal 26 up to Cal 33 (1 lot)	54.20 €	78,888	<b>10.16%</b>
102	05/2024	Cal25 up to Cal29 (5 lots)	55.35 €	219,120	<b>9.15%</b>

**Total Trade Volume in MWh 28,995,720**

# Long-term hedging in Spanish Power (2/2)

## Volume and Number of Deals



- Cal+10 went live in H2 2021, however long-term hedging stagnated due to Spanish regulatory intervention and the energy crisis in 2022
- In 2023 **deal flow and volumes rebounded** in line with recovery of EU power markets
- **2024 YTD** deal flow is already nearly reaching that of 2023

## Volume and Initial Margin



- Initial margin values reflect recent volatility and have therefore reduced in line with **return to stability** in European power markets.
- Stable IM levels contributed to renewed growth and interest in long-term hedging.

# Example: Long-Term Hedge in Spanish Power

Trade Date	Product	Expiry Year	Trade Price	Lots	Initial Margin per Contract	Trade Volume (in MWh)
05/02/2024	Spanish Power Base Year	2025	54.20 €	1	64,826 €	8,784
05/02/2024	Spanish Power Base Year	2026	54.20 €	1	41,785 €	8,760
05/02/2024	Spanish Power Base Year	2027	54.20 €	1	42,223 €	8,760
05/02/2024	Spanish Power Base Year	2028	54.20 €	1	56,940 €	8,760
05/02/2024	Spanish Power Base Year	2029	54.20 €	1	61,224 €	8,784
05/02/2024	Spanish Power Base Year	2030	54.20 €	1	51,596 €	8,760
05/02/2024	Spanish Power Base Year	2031	54.20 €	1	52,034 €	8,760
05/02/2024	Spanish Power Base Year	2032	54.20 €	1	52,034 €	8,760
05/02/2024	Spanish Power Base Year	2033	54.20 €	1	51,913 €	8,784
					<b>525,996 €</b>	<b>87,672</b>
					<b>Initial Margin in % of Notional Value</b>	<b>9.80%</b>

- The trading and clearing fees for this deal amounts to **1095 EUR** per counterparty.
- Market participants **benefit from counterparty credit risk** especially for long-term hedging.

\*Check daily values "Scanning Ranges" from ECC Reports & Files: <https://www.ecc.de/en/risk-management/reports-and-files>

\*\*ECC Acceptable Collateral: <https://www.ecc.de/en/risk-management/acceptable-collateral>

# Long-term hedging in Italian Power

Since 2023, **13** Long-Term deals up to CAL+10 reaching **> 1.1 TWh**

Trade Date m/y	Product	Trade Price	Traded Volume in MWh	Initial Margin in % of Notional Value
01/2024	Cal 26 up to Cal 33 (1 lot)	74.90 €	70,128	<b>7.64%</b>
03/2024	Cal 26 up to Cal 33 (1 lot)	Variable	70,128	<b>7.21%</b>
03/2024	Cal 26 up to Cal 33 (2 lots)	Variable	140,256	<b>7.21%</b>
03/2024	Cal 26 up to Cal 33 (1 lot)	Variable	70,128	<b>6.91%</b>
03/2024	Cal 26 up to Cal 33 (1 lot)	Variable	70,128	<b>6.92%</b>
03/2024	Cal 26 up to Cal 33 (1 lot)	Variable	70,128	<b>6.87%</b>
03/2024	Cal 26 up to Cal 33 (1 lot)	Variable	70,128	<b>6.83%</b>
04/2024	Cal 26 up to Cal 33 (1 lot)	Variable	70,128	<b>6.69%</b>
05/2024	Cal 25 up to Cal 34 (1 lot)	78.00 €	87.648	<b>7.28%</b>

**May' 2024 - First Cal+10 deal registered in Italian Power**

# Settlement Process for Long-Term Expiries

Establishing daily settlement prices to Cal+10 is done through a methodology combining regular Fair Value calibration and a pricing model.

Fair Value  
Market Survey

+

Daily Settlement  
Methodology

- **Bi-Weekly Market Survey** of trading members providing their Fair Values of the curve to Cal+10 for the German, Italian and Spanish Base Load Calendar contracts.
- On days where there is no market survey, trade or order book pricing information in the respective contracts during the settlement price window:
  - A **pricing model** based on an algorithmic extrapolation of real market prices in near-term expiries is used to establish settlement prices.

If you would like to participate in the market survey, please contact the  
**EEX Market Operations Team:**  
T +49 341 2156-222, [trading@eex.com](mailto:trading@eex.com)

# EEX publishes a daily price curve for the next 10 years for DE, ES and IT Power

## German Power Base 10.06.2024

Future	Last Price	Last Volume	Settlement Price	Volume Exchange	Volume Trade Registration	Open Interest
Cal-25	93.30	8,760	93.06	5,877,960	3,346,320	71,930
Cal-26	82.61	8,760	82.45	499,320	438,000	17,884
Cal-27	73.00	8,760	72.72	131,400	236,520	6,132
Cal-28	-	8,784	67.83	8,784	8,784	744
Cal-29	-	-	66.46	-	-	89
Cal-30	-	-	65.53	-	-	58
Cal-31	-	-	66.16	-	-	45
Cal-32	-	-	64.60	-	-	36
Cal-33	-	-	65.10	-	-	23
Cal-34	-	-	64.80	Backwardation	-	0

<https://www.eex.com/en/market-data/power/futures>

6 weeks historical data  
available online



# Coming soon: Spanish Mon-Sun Peak Future

## Purpose of Peak Products

- Originally designed to hedge price exposure during peak demand times.
- Traditionally focused on high electricity consumption periods, primarily Mon-Fri.

## Shift in Hedging Demand

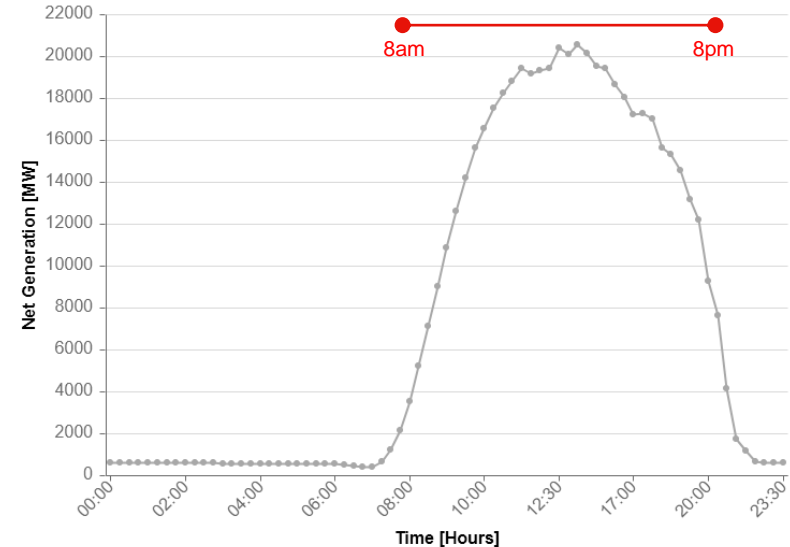
- Growing need to hedge price risk for solar power assets.
- Solar power production needs a different hedging approach due to its continuous nature.

## Spanish Mon-Sun Peak Future

- Aimed to address solar power hedgers' needs.
- Encompasses a full week's power production during 8am-8pm.
- Reflects continuous solar power generation, not limited to weekdays.
- The high prevalence of solar power in Spain makes it an ideal test market for the new Peak products, which can be extended to other markets.
- Maturities will be offered from **Days to Calendars**

## Solar Generation in MW, Spain

4 June 2024



Source: [ENTSO-E Transparency Platform](#)

**Planned for Q4 2024**

Thank you

For any questions, please contact:  
[sales@eex.com](mailto:sales@eex.com)

Or visit our dedicated website at:  
<https://www.eex.com/en/markets/power/power-purchase-agreements-hedging>