10-Year price forecast for HUPX and SEE power markets 2025 - 2035

Hungary, Romania, Bulgaria, Greece and other SEE countries

Created as guideline for strategies optimization of

- Investors in renewable generation
- Conventional generation owners and power utilities
- Investors in battery storage
- National ministries and regulators
- Optimization of portfolio of power traders, suppliers and industrial consumers

Provides and explains

- Referent power prices for 2025-2035
- Risks of negative prices and prices below German market
- Safeguarding of investments
- Strategies for scaling up or down of investment
- Optimization of trading, supply or consumer portfolio

Analyses, scenarios and evaluation of

- Risk of negative prices and portfolio optimization
- Growth of new Solar and Wind capacities
- Grid limitations, congestions and development
- Impact of Non-flexible generation
- Behavior of conventional generation capacities
- Power demand growth
- Phase-out and commissioning of generation

Data delivered as

- 24- profile for each month for the next 10 years
- Separate data for Monday to Friday, Saturday, Sunday, and monthly averages
- Separate data for each month
- Price difference between DE and SEE markets
- Updates based on change of model parameters

THE GOAL OF THIS 10 YEARS HUPX AND SEE MARKETS FORECAST

There very are ambitious and intensive plans for investments in Renewable Energy Sources (RES) in Hungary and Southeast Europe (SEE) over the next 5-10 years.

The markets in Hungary and SEE are already experiencing impacts from new solar power installations in the past two years. Such significant new installations, especially in solar power, could have a huge impact on market prices in Hungary and SEE.

A large proportion of power generation in Hungary and SEE is based on non-flexible sources, including lignite-fired power plants, run-of-river hydro power plants and nuclear power plants. Flexible generation from reservoir hydro power plants and gas-fired power plants accounts for only 24% of the total generation in this region.

Additionally, gas units outside Greece and most of the hydro reservoir generation exhibit only limited flexibility in response to market price volatility.

Due to the large share of inflexible generation in the region, the impact of new solar generation on the HUPX price and prices in other SEE markets will be very high.

In the next 10 years (2025-2035) markets in Hungary and SEE are likely to experience more frequent negative prices or price settlements below those of the German market due to several factors:

- Excessively high planned investments in new RES generation
- Relatively weak transmission grid
- Limited prospects for an increase in electricity consumption
- A large share of non-flexible conventional generation in Hungary and SEE
- Sub-optimal operational behavior of existing lignite and gas-fired power plants.

THE MAIN GOALS OF THIS FORECAST ARE TO EVALUATE THE EFFECTS OF NEW RENEWABLE ENERGY INVESTMENTS AND PLANNED FUTURE INVESTMENTS IN CONVENTIONAL POWER PLANTS

REPORT PROVIDES

Market prices for the period 2025-2035 for Hungarian, Romanian, Bulgarian and Greek markets. Market price in Slovenia, Croatia, Bosnia, Serbia, Montenegro, Albania and Northern Macedonia can be extracted as a ratio between Hungarian, Romanian, Bulgarian and Greek markets.

The amount of energy on Hungarian, Romanian, Bulgarian and Greek markets which cannot be exported due to transmission grid limitations and too high surplus of energy.

The amount of expected **lignite and gas fired** power generation in the next 10 years under different scenarios.

The main benefits of this forecast for INVESTORS IN RENEWABLE ENERGY

Obtaining the **reference input price** for Hungary and other SEE markets for the next 10 years, enabling them to evaluate their investments against forecasted prices

Analyzing the **risk of negative prices** in Hungary and SEE, as well as the risk of price settlements below the German market for different hourly delivery profiles and different scenarios

Making informed decisions to establish **Long-Term Power Purchase Agreements (PPAs)** in a timely manner, safeguarding their renewable energy generation from excessively low or negative prices

Reevaluating their investment in renewable energy generation, including the possibility of timely selling the project or scaling down the investment.

The main benefits of this forecast for CONVENTIONAL GENERATION OWNERS AND UTILITIES

Reevaluating investments in gas-fired power plants by considering the forecasted **availability of energy** across the region, forecasted market conditions and the projected demand for gas-fired power generation over the next 10 years

Preparing conventional power generation facilities, including lignite, hydro and gas-fired plants, for **different future operational regimes** to maximize their value amidst evolving market prices over the next decade

Offering inputs for assessing the advantages of **investing in energy storage solutions**, such as batteries, and in increasing the generation flexibility of existing conventional power plants

Highlighting the need for **lignite and gas-fired power generation facilities** to adapt by enhancing their operational flexibility in the coming years

Preparing different **maintenance strategies** for power plants, depending on different future scenarios and price impacts of different scenarios

Enhancing the planning process of **new investments**.

The main benefits of this forecast for investors in BATTERY STORAGE

Gaining insights into power price trends and profiles over the next 10 years, enabling a comprehensive **evaluation of the potential value of battery storage** investments

Assessing investment viability by considering the expected **number of hours with negative prices** each month over the next decade, under various scenarios

The main benefits of this forecast for NATIONAL MINISTRIES OF ENERGY AND REGULATORS

Adjusting existing **National Energy and Climate Plans** to align with forecasted market prices over the next 10 years, taking into account the impacts of various RES investment scenarios on the market

Coordinating national **RES support measures** to optimize outcomes and safeguard national decarbonization strategies, based on projected market conditions

Reassessing support for **new investments in gas and nuclear power plants**, based on forecasted energy availability in the whole region and forecasted market conditions

Developing measures to both **protect and attract investors** under the new market conditions expected over the next decade

The main benefits of this forecast for POWER TRADERS

Gaining insights into **price risks**, potential for negative prices, and Hungarian-German price spreads in the coming years and months

Assisting in **portfolio planning** for the next 2-3 years
Evaluating the value of RES portfolios in the forthcoming years

The main benefits of this forecast for ELECTRICITY SUPPLIERS

Price analysis and forecast to help suppliers **properly price their power supply offers**

Improvement of **hedging strategies**

Identification of risks in their existing portfolio and support in decision-making to restructure the sales portfolio

Evaluation of the **potential for large price drops** in Hungary and SEE in the coming years

The main benefits of this forecast for INDUSTRIAL CONSUMERS

A price analysis of market price development over the next 10 years will enable industrial consumers to more effectively **evaluate their planned investments** in production facilities and the impact of power prices on production costs

Many industries have planned investments in power generation to reduce dependency on market prices. The price forecast data from this study will assist them in assessing the **value of their energy efficiency measures** and investments in the flexibility of consumption and own power generation

SCENARIOS AND VARIATIONS ANALYZED FOR THE NEXT 10 YEARS

The following main scenarios are analyzed for the period 2025-2035:

Scenarios taking into account RES Investment as the most impactful factor on HUPX prices:

a) Pessimistic: 33% of the planned/expected renewable energy generation is realized

b) Realistic: 50% of the planned/expected renewable energy generation is realized

c) Optimistic: 100% of the planned/expected renewable energy generation is realized

Scenarios taking into account consumption increase:

a) 1% annual consumption increase over the next 10 years

b) 2% annual consumption increase over the next 10 years

Scenarios covering different behavior of lignite and gas units:

a) Units behave as in 2023 (sub-optimal behavior, as in the year 2023)

b) Units exhibit flexible behavior (maximum flexibility)

Decommissioning of existing units and commissioning of new units are subject to quite firm planning and variations against the main scenario will not significantly impact HUPX and SEE prices. Therefore, analyzing different scenarios of commissioning and decommissioning of conventional units is deemed unnecessary.

The total analysis covers 12 main scenarios and 8 variations of Scenario 1, resulting in 20 scenarios in total.

Scenario 1, selected as the main scenario, for which 8 variations are calculated, includes:

- Realistic investment in renewables (50% of national targets).
- 1% annual consumption increase.
- Sub-optimal behavior of gas and lignite-fired units, identical to 2023. In this scenario, units do not fully respond to market prices but operate based on availability, partially following national consumption and market prices.

	RES investments					Behaviour of lignite and gas units	
	Realistic	Optimistic	Pessimistic	1%	2%	as in 2023	flexible behavior
Scenario 1	**X**			**X**		**X**	
Scenario 2		X		X		X	
Scenario 3			X	X		X	
Scenario 4	X			X			X
Scenario 5		X		X			X
Scenario 6			X	X			X
Scenario 7	X				X	X	
Scenario 8		X			X	X	
Scenario 9			X		X	X	
Scenario 10	X				X		X
Scenario 11		X			X		X
Scenario 12			X		X		X

The following parameter variations are applied to the base case scenario - Scenario 1:

Temperature variations:

a) Average temperature (already included in the 12 scenarios)

b) 2°C below the average temperature

c) 2°C above the average temperature

Hydrology variations:

a) Average hydro generation (already included in the 12 main scenarios)

b) ca. 15% below average hydro generation

c) ca. 15% above average hydro generation

Variation in installed capacity of batteries:

In the base case, it is assumed that up to 5,000 MW of batteries will be gradually installed over the next 10 years.

a) A variation with 3,000 MW less installed battery capacity (resulting in 2,000 MW in total)

b) A variation with 3,000 MW of additional installed battery capacity (resulting in 8,000 MW in total)

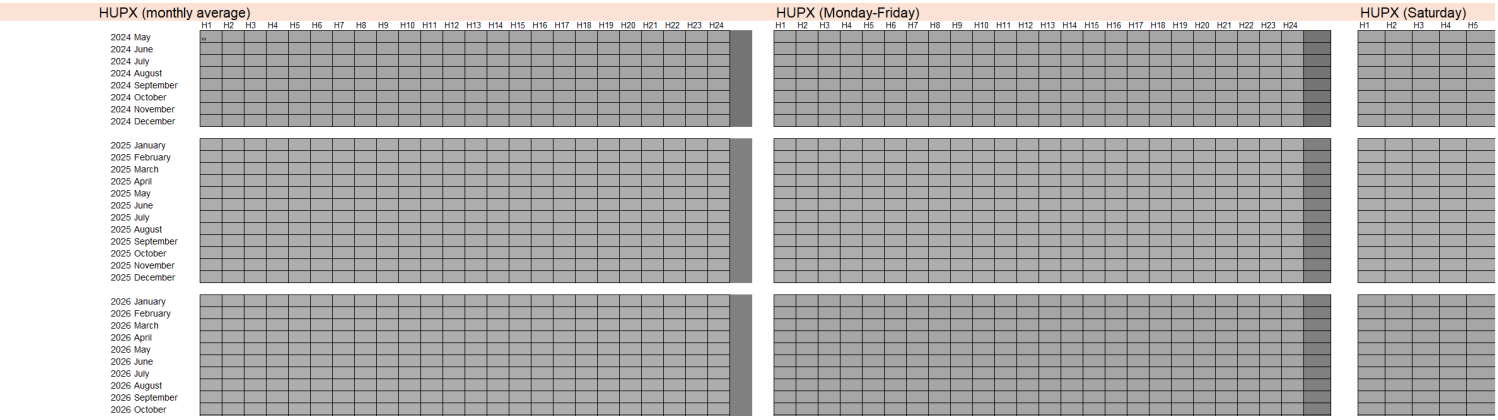
MAIN OUTPUTS OF MARKET SIMULATIONS

The following are the 9 output datasets from simulations provided in an Excel file for each of the 20 scenarios:

1. HUPX price for 2025-2035
2. OPCOM price for 2025-2035
3. IBEX price for 2025-2035
4. HENEX price for 2025-2035
5. HUPX-EPEX(DE) price spread
6. Surplus of energy in the Hungarian market at the German price level
7. Surplus of energy in the Romanian, Bulgarian and Greek markets at the HUPX price level
8. Lignite-fired power generation for 2025-2035
9. Gas-fired power generation for 2025-2035

Resolution of output data

- Average hourly data for each of the 24 hours of each month for the next 10 years
- Separate data for Monday to Friday, Saturday, Sunday, and monthly averages
- Separate data for each month



Number of output data points in the delivered Excel file:

- 11,520 data points for each of the 9 simulation outputs per scenario, calculated as follows: 10 years × 12 months × 24 hours × 4 (Monday-Friday, Saturday, Sunday, and monthly average) = 11,520.
- For the simulation results of 9 outputs in each scenario, this amounts to 9 × 11,520 = 103,680 data points per scenario.
- Across 9 simulation outputs in 20 scenarios, this results in 20 × 103,680 = 2,073,600 data points in total.

THE DELIVERED EXCEL FILE CONTAINS 2,073,600 DATA POINTS FOR 9 OUTPUTS ACROSS 20 SCENARIOS. THIS PROVIDES A SUFFICIENT AMOUNT OF DATA FOR MOST ANALYSES ANY USER WOULD WISH TO CONDUCT INDEPENDENTLY.

FOR PRICING, ORDERS AND SUPPORT OF "HUPX AND SEE MARKETS PRICE FORECAST 2025-2035" CONTACT US ON OFFICE@BALKANENERGY.COM OR +41 44 586 98 55