

Attracting Private Investments into Clean Energy Projects

The Electricity Price Guarantee Fund

Georg Zachmann, Yuri Kubrushko

19.02.2025

SPONSORED BY THE



Federal Ministry
of Education
and Research

Status of Fund Discussions

- Discussion on the electricity off-take price guarantee fund gained momentum after initial proposals by UWEA and EUEA associations in early 2024 and with GDU at the URC in Berlin in June 2024
- GDU observes and supports parallel efforts from other expert groups elaborating similar ideas aimed to de-risk electricity off-take
 - for example, the concept of PPA Guarantee Fund/PPA Marketplace from Business Advisory Council – part of the Multi-agency Donor Coordination Platform for Ukraine created by G7
- Interest by project developers, financiers and IFIs materialized throughout 2024
- UWEA and EUEA secured support to the concept from the Ministry of Economy and Ministry of Energy in 2024
- Pillar II of the Ukraine Facility:
 - Approximately €2 bn possible allocation to support investment projects in Ukraine
 - Funds are mostly channeled via “pillar assessed” IFIs (such as EBRD, IFC, KfW, etc.)
 - IFIs/investors need to submit their applications to the European Commission
- Discussions with IFIs, DG ENEST and other key stakeholders in December 2024 and January 2025 indicated continuous interest in the Fund’s concept

Electricity Price Guaranteed Fund – Why is it Needed?

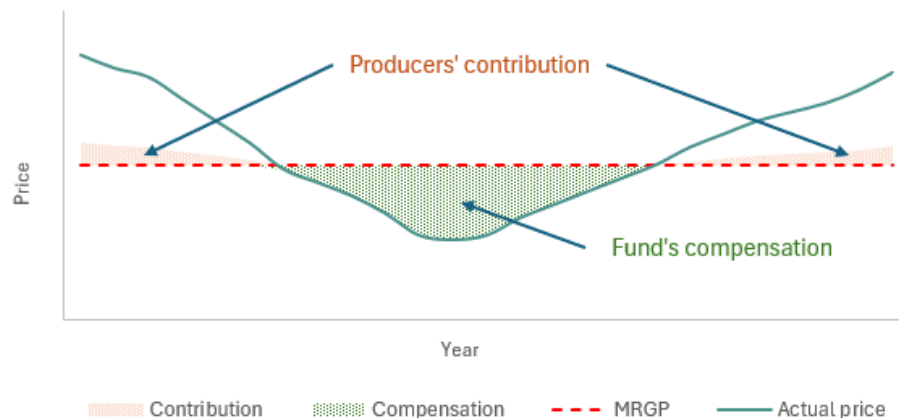
- After the 2024 Guaranteed Buyer’s pilot renewable auctions failed, bankability problems of new clean electricity generation projects in Ukraine became visible. Main reasons are:
 - war risks
 - uncertainty brought by the war (electricity generation/demand mix, economic development, etc.)
 - inability for investors to find off-takers willing and able to guarantee long-term PPAs
 - non-stable regulatory framework (price caps, frequent changes of regulations, etc.)
- **The Fund’s main purpose:** enable financing and implementation of the maximum amount of the ready-to-build clean electricity projects not waiting for completion of the war, reduction of existing uncertainty, supporting market-based sale of electricity and not interfering with electricity regulatory framework
- The technologies supported by the Fund as well as the respective amount of generation capacity to be guaranteed will be defined jointly by the donors and the Government of Ukraine to achieve the goals set in the 10-year generation adequacy plan prepared by the TSO
- The Fund will act as a catalyst **for fostering confidence among investors and lenders** as well as **accelerating electricity market development** by facilitating more private energy projects

Electricity Price Guaranteed Fund: Initial Concept

- The Fund will be financed by international donors and can be managed by one of IFIs/DFIs, another reputable international institution, or by independent agent
- The Fund will guarantee a certain minimum electricity price to renewable investors: e.g. if annual average Day Ahead Market price goes below the strike level agreed between the Fund and the investor (for example, 65 EUR per MWh), the Fund will compensate the difference to investor to cover annual electricity production volume
- Investors will have **flexibility how to sell electricity**: under PPAs to electricity consumers and/or to suppliers/traders, on merchant basis or any combination of these options
- When electricity market prices are higher than agreed strike levels, investors will pay certain premium to the Fund (various options are presented in this presentation)
- Initial fund size: as an option, EUR 300 million is suggested for pilot stage to provide guarantees to wind projects with installed capacity of 1.5 GW (indicative figure that depends on guarantee conditions/benchmark price), with further capital additions to support more projects/technologies
- Duration of the guarantees provided by the Fund = debt financing tenor + 2 years buffer
- All details and figures related to the Fund are subject to discussion with key stakeholders

Electricity Price Guaranteed Fund: Basic Principle of Operation

- Main aim is to underpin the bankability of private projects in clean electricity generation by guaranteeing the **minimum level of average electricity market price in Ukraine**. This provides investors and lenders with visibility in terms of guaranteed minimum revenue levels for the underlying projects
- The guarantee offered by the Fund will only serve as a **mitigation of potential major electricity price drop in Ukraine below the levels that are critical** for repayment of investments and is **not meant to provide guaranteed revenues to investors** (like auction-based support schemes do)
- Specific parameters guarantee product and practical aspects of the Fund's work will be defined by the Fund's investors/donors in dialogue with key stakeholders



Electricity Price Guaranteed Fund: Choices to be made (1/3)

1. Fund Manager

Some Alternatives:

- a. One of IFIs/DFIs
- b. Reputable international organization/agency
- c. Private operator (audit firm, insurance company, etc.)

Considerations:

Balancing operational efficiency & risk expertise (private) vs. broad stakeholder alignment, transparency, better ability to exercise political conditionalities, and public accountability (public)

2. Supported Technologies

Some Alternatives:

- a. Wind
- b. Solar
- c. Biomass/biogas
- d. Gas-fired generation
- e. Any combination of these options

Considerations:

With significant efforts underway to expand gas generation in Ukraine (TSO auctions), further support may not be a priority now. Renewables, however, will benefit from targeted de-risking and policy focus

Electricity Price Guaranteed Fund: Choices to be made (2/3)

3. Investor Eligibility for Fund's Guarantee

Some Alternatives:

- a. Companies with new ready-to-build projects in Ukraine can apply
- b. a + confirmed equity for the project

Considerations:

Weighing up the benefit of supporting ready-to-deploy projects, which can be quickly implemented, against the potential of a broader envelope that could foster competitive deployment

4. One Company (Applicant) Limit

Some Alternatives:

- a. No limits for one investor to get full quota
- b. 25% limit
- c. 50% limit
- d. Any other %

Considerations:

A ceiling on share of guarantees for a single company may be beneficial for supporting market competition and ensuring that small/mid-size projects can compete against large projects

Electricity Price Guaranteed Fund: Choices to be made (3/3)

5. Allocation of Guarantees

Some Alternatives:

- a. Competitive selection
- b. “First come first serve” principle

Considerations:

Balancing simplicity (first come, first serve) vs. fairness and efficiency (competitive selection)

6. Price Benchmark, The Basis for Guarantee

Some Alternatives:

- a. Average annual or monthly baseload Day Ahead
Market price
- b. Hourly DAM price
- c. Capture price for certain technology

Considerations:

Simplicity of implementation (average price for long periods) vs. profiles that are closer to actual sales patterns (hourly/capture prices). Each option will have an impact on chances and frequency of pay-outs from the Fund

7. Contribution Fee (paid by electricity producers to the Fund)

Some Alternatives:

- a. Progressive fee rate
- b. Fixed fee rate

Considerations: Aligning contributions with earnings (progressive) vs. easier management (fixed)

Electricity Price forecast Used in Modelling: Annual Average Price

Price scenarios for modelling, EUR/MWh

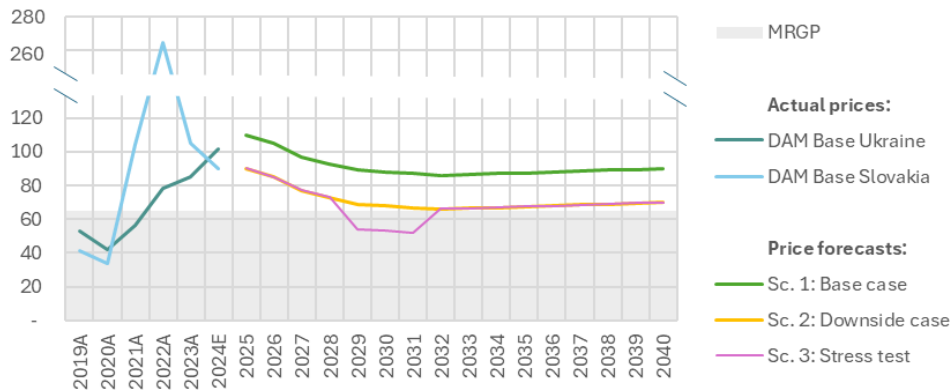
	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Sc. 1: Base case	110	105	97	93	89	88	87	86	87	87	88	88	89	89	90	90
Sc. 2: Downside case	90	85	77	73	69	68	67	66	67	67	68	68	69	69	70	70
<i>Sc2 vs Sc1: difference</i>	<i>(20)</i>	<i>(20)</i>	<i>(20)</i>	<i>(20)</i>	<i>(20)</i>	<i>(20)</i>	<i>(20)</i>	<i>(20)</i>	<i>(20)</i>	<i>(20)</i>	<i>(20)</i>	<i>(20)</i>	<i>(20)</i>	<i>(20)</i>	<i>(20)</i>	<i>(20)</i>
Sc. 3 (Stress-test)	90	85	77	73	54	53	52	66	67	67	68	68	69	69	70	70
<i>Sc:3 vs Sc2: difference</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>(15)</i>	<i>(15)</i>	<i>(15)</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>

- **Scenario 1: Base case (Likely)** – reflects 2024 expert view of the electricity price dynamics based on the vision of demand evolution, electricity generation capacity expansion, perspectives of cross-border flows, etc.
- **Scenario 2: Downside case (Unlikely)** – reflects the impact of various factors that put downward pressure on electricity prices in Ukraine (substantial volume of excessive generation capacity, further presence of price caps set by the Energy Regulator, major currency devaluation, etc.)
- **Scenario 3: Stress test (Very unlikely)** – evaluates the Fund's ability to provide compensation to electricity producers in the event of prolonged low electricity price levels for 3 years (2029-2031 were taken for illustration)

Price Dynamics in Ukrainian and European Electricity Markets

- When modelling Scenarios 2 and 3, historical electricity prices were used to assess possible market lows
- The analysis identified periods of significantly low prices in both Ukraine and Europe, driven by objective factors
- The prices in the low-price period between 2019 and 2021 served as our stress test prices, and were influenced by:
 - A surplus of available capacity in Ukraine at that time
 - Relatively low energy resource costs
 - Price caps, which restricted electricity prices to:
 - 33 EUR/MWh during night-time hours
 - 70 EUR/MWh during day-time hours
- The gradual easing of price caps has removed downward pressure on electricity prices in Ukraine
- In Europe, low electricity prices were mainly linked to reduced energy resource costs, particularly natural gas prices. However, no significant further drops in natural gas prices are currently anticipated

Actual vs forecasted prices , EUR/MWh



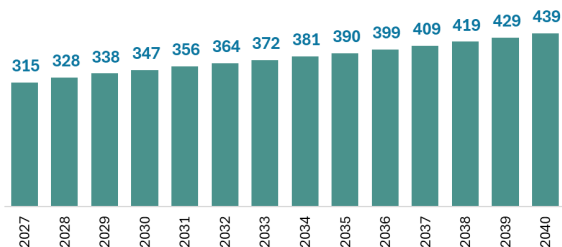
Modelling Assumptions: Wind Power Plants

Input	Comment
<p>Timeline: 2027-2040</p>	<ul style="list-style-type: none"> • 2 years for commissioning after the guarantee is secured in 2025 • 2040 is assumed as the Fund's end year for illustrative purposes – to be defined by donors/investors and lenders
<p>Supported capacity: 1.5 GW Load factor: 35%</p>	<ul style="list-style-type: none"> • Each project's share in the fund will be defined by its installed capacity • Load factor: Ukrainian average % was applied to all Fund participants to determine their amount of contributions/compensation
<p>Donors' injection: €300 mln</p>	<ul style="list-style-type: none"> • In this illustrative case (with guarantee of annual average market price), the Fund's size of EUR 300 million should be sufficient to guarantee 1.5 GW of installed wind capacity worth EUR 1.6-1.7 billion
<p>MRGP: 65 EUR/MWh</p>	<ul style="list-style-type: none"> • MRGP (minimum required guaranteed price) is applied at this level for illustrative purposes during modelling • Final MRGP level will be set via the auction organized by the Fund or calculated by the Fund's manager

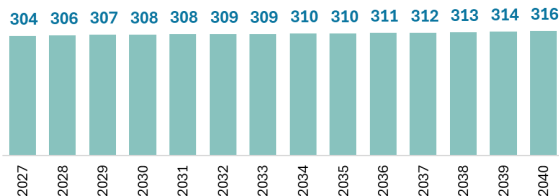
Modelling Results by Electricity Price Scenario: Wind Power Plants

Fund's cash balance @ Progressive fee rate

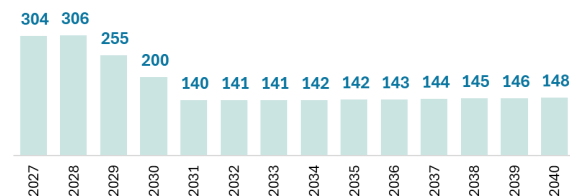
Scenario 1: Base case, EUR mln



Scenario 2: Downside case, EUR mln



Scenario 3: Stress test, EUR mln



- Price levels substantially exceeding Minimum Required Guaranteed Price (MRGP) result in the Fund's capital growth of approximately 50% by the forecast period's end

- Under a scenario where prices are reduced by 20 EUR/MWh relative to the base case, the cash balance maintains stability and remains near its initial position

- During an extended period of market downturn (3 years of prices below MRGP at historically low levels), the fund deploys 50% of its initial capital to provide compensation to electricity producers

Source: IMEPOWER calculations



ANNEX

Partners



Electricity Price Guaranteed Fund vs. Renewable Incentive Schemes (1/2)

Key features	Electricity Price Guarantee Fund	State Incentive Schemes (CfD, FiP)
Main purpose	Strengthening the bankability of clean electricity projects and construction of maximum capacity as soon as possible. Supporting the projects that do not rely on any state support schemes	Implementing long-term national plans on transition from fossil fuel to renewables. Auction-based allocation of the support by the state
Benefits to investors	Mitigation of potential major electricity price drop in Ukraine below the levels that are critical for repayment of investments	Ensuring guaranteed revenues to investors
Eligibility	Private investors	Any type of investors, including state-owned
Responsible entity	Fund is managed by IFI/reputable international institution	State agency/company (UA: Guaranteed Buyer with legacy problems related to household PSO and FiT)
Form of the state support	No subsidies/support from the state	Long-term contract (UA: 12-year CfD contract with Guaranteed Buyer)

Electricity Price Guaranteed Fund vs. Renewable Incentive Schemes (2/2)

Key features	Electricity Price Guarantee Fund	State Incentive Schemes (CfD, FiP)
Procedure for selection of projects	<p>Auctions based on minimum electricity price to be guaranteed by the Fund.</p> <p>The Fund's Manager defines the procedure and winner selection criteria</p>	Auctions based on price bids for electricity with defined cap price
Type of market operation	Market-based sale of electricity (PPAs, merchant sale)	Market-based sale of electricity with the guaranteed revenues (via CfD, FiP)
Payments to investors	Annual or monthly payments if average market price goes below the minimum required guaranteed price (MRGP)	Monthly payments if indicative market price is below the auction strike price
Contributions from investors	Annual contributions (based on defined %) to the Fund if average market price exceeds the MRGP	Monthly reverse payments if indicative hourly market price exceeds the auction price (can be also "one-way" FiP)
Source of payments to investors	Initial contributions to the Fund by donors + contributions from investors (payment for guarantee)	In-country sources (UA: special RES-surcharge to TSO's transmission). Can be enhanced by IFI guarantees

Approaches to Determining the Contribution Fee (1/2)

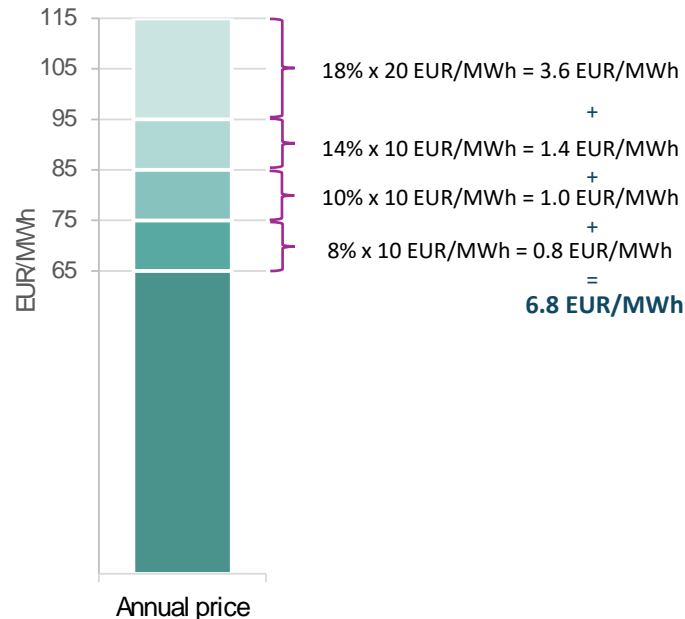
1. Progressive fee rates (base approach)

- Rates increase progressively as electricity market price levels rise
- Electricity price ranges are divided into brackets, each with a corresponding fee rate
- Prices below the MRGP are exempt from fees
- Such approach ensures that higher earnings are matched with proportionately higher fees

Rates used in modelling

Price range	Fee, %
65-75 EUR/MWh	6%
75-85 EUR/MWh	10%
85-95 EUR/MWh	14%
>95 EUR/MWh	18%

Fee calculation example at 115 EUR/MWh:

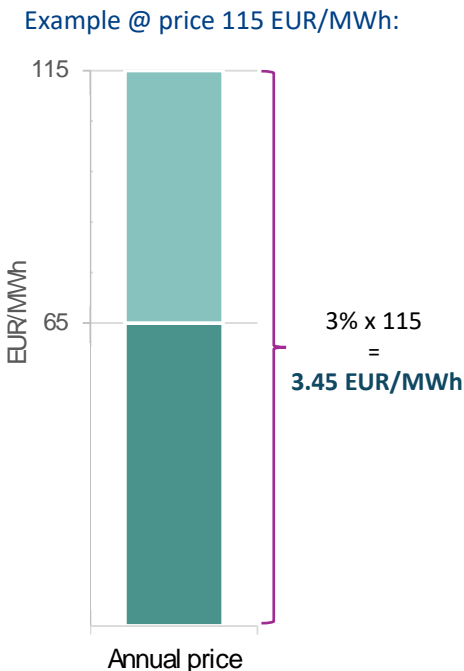


Approaches to Determining the Contribution Fee (2/2)

2. Fixed fee rates

2.1. Fixed rate applied to full price

- A fee rate is applied to the entire price...
- **...but the effective producers' price is guaranteed to remain at or above the MRGP level.**
- For presentation purposes, the fee is set at 3% of the total price, regardless of price range



2.2. Fixed rate applied to a portion of a price above MRGP

- A fee rate is applied only to the portion of the price exceeding the MRGP
- Fees are applied only to higher earnings, leaving the MRGP portion untouched
- For illustration, the fee is set at 6% for the portion of a price above MRGP

