



Assistance to NERC: Regulatory Support Program

Regulatory framework for E-RES support in Ukraine

Kiev, October 5th

AF-MERCADOS
ENERGY MARKETS INTERNATIONAL
Finding new paths for energy markets

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EBRD – Renewable Energy Projects in Ukraine



Ukraine
Sustainable
Energy Lending
Facility

- Investment facility of up to €50 million for fostering RE projects in Ukraine.
- Provides debt finance as well as development support to eligible RE projects.

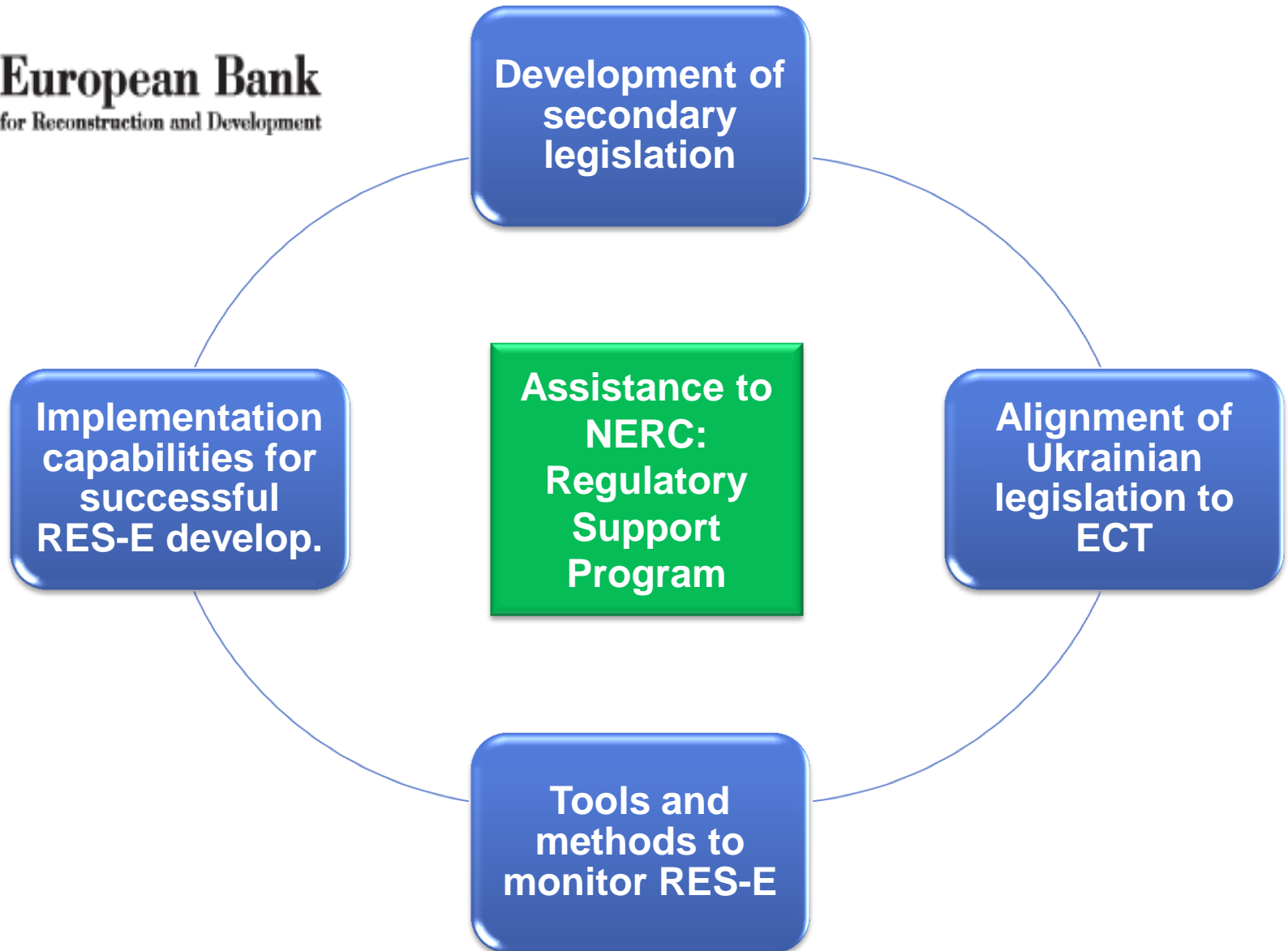
Assistance to
NERC:
Regulatory
Support
Program

- Provides support to further development of regulatory framework through direct assistance to the National Energy Regulatory Commission of Ukraine.

Effective RES
deployment in Ukraine



Regulatory Support Project - Scope of Work



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Regulatory framework for E-RES promotion



- **On September 2008, the Parliament amended effective legislation (in particular, the Electricity Law) and introduced green tariff for electricity produced from RES.**
- **On April 2009, the Parliament adopted another amendment to the Electricity Law which has the following major provisions:**



Green tariff is technology-specific via application of different Green Coefficients.

- **Green tariff** is in effect till January 1, 2030
- **Green tariff** reduces currency risk: UAH/EUR adjusted;
- **Green Coefficient** will be reduced by 10%, 20% and 30% for RES plants commissioned or modernized after 2014, 2019 and 2024, respectively.
- **The wholesale electricity supplier** is obliged to purchase (at green tariff) the RES electricity not sold to consumers or Oblenergos
- **RES plants** should receive full payment in monetary form for electricity sold with no offsets applied;
- **Special conditions are applied for investors:**
 - from 2012: 30% of materials, equipment, capital assets, works and services from Ukrainian origin
 - from 2014: not less than 50% of the overall project cost
- **Grid owners** may not refuse the plants to access such grid;
- **Grid owners** or operators will bear the cost of grid connection of RES plants with respective compensation received from the NERC when approving their respective tariffs.



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Further developments - Local Share Content requirement

- According to the Electricity Law, all E-RES should have a minimum share of local content:
 - For commissioned in 2012, the obligation is 15% of local component.
 - For commissioned in 2013 – 30%.
 - For commissioned in 2014 – 50%.
- This share is mandatory to obtain the Green Tariff.
- The published version of the methodology foresees step-by-step process for LSC definition:



Further developments - Local Share Content

- **Preliminary approval** will provide confidence to the investor in two issues:
 - Way to calculate the LSC is correct.
 - If while construction the preliminary agreed process is followed, then the investor can be sure he will be granted with the Green Tariff.
- After approving the Green Tariff, NERC has the possibility of an **audit** of licensees.

The document has been submitted by the NERC for comments on September 15. After October 15 NERC will prepare the final version for approval.



Further developments - E-RES Connection

- Connection rules based on successful international experience but fitted to match Ukrainian needs
 - Close cooperation between NERC, Consultants, NAER and NEC Ukrenergo
 - Technical issues related to intermittent power generation from these sources. No particular requirements introduced for small hydro generation.
- Allocation of connection cost
 - The existent legislation calls for connection to be “free of charge” for investor.
 - Suppliers have to include the expenses associated with new E-RES connection in their investment plans to be finally approved by NERC.

The final version of the document will be ready by the end of October. NERC is looking forward to initiate the consultation and approval process with other involved stakeholders, CMU, Ministry of Finance, etc

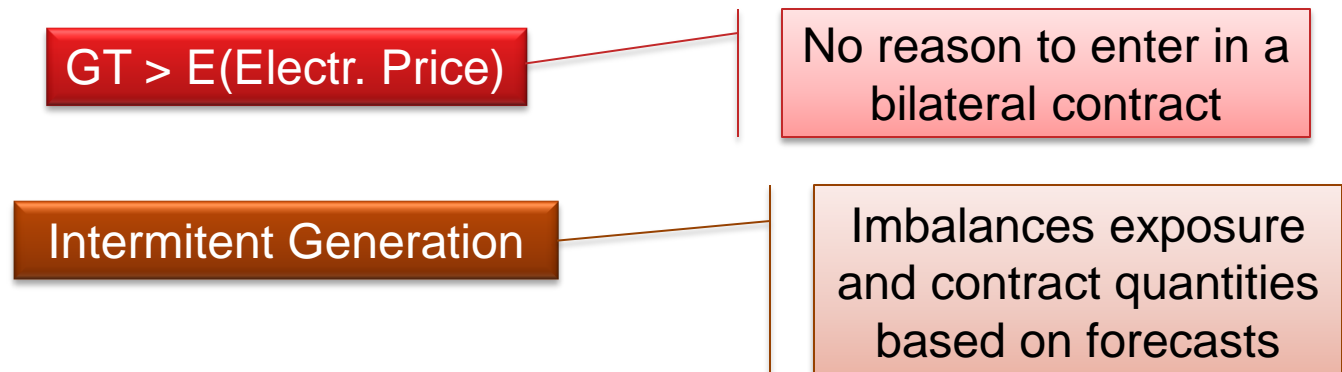
Further developments - GoO System and Registry

- GoO is an electronic document which guarantees that the energy has been produced from RE sources (Electricity labelling).
- This document will enable E-RES producers to invoice electricity sales at the Green Tariff.
 - 1 GO corresponds to 1 MWh of electricity generated.
- Participation in the registry will be mandatory
- The registry will operate similarly to a web-banking system, i.e.:
 - RES Generators obtain an (electronic) account for each RES plant.
 - This account is credited when Gos are issued and debited when GOs that are used and/or cancelled.
 - The producer shall request the issuance of GoO.



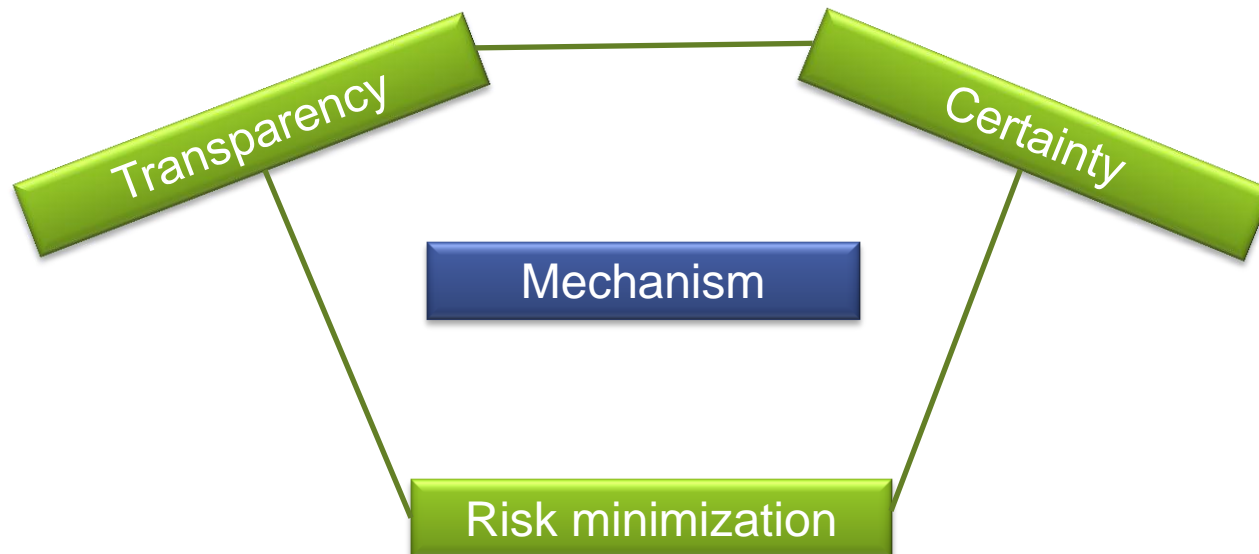
Further developments - Operation in BCBM

- The future BCBM will represent a major change for the Ukrainian Wholesale Electricity Market (WEM):
 - Over-the-counter bilateral contracts;
 - Standardised bilateral contracts traded at a Power Exchange;
 - Balancing Market;
 - Ancillary service market.
- Market will be reformed following a phased transition
 - The Single Buyer will remain active during the transition process. Therefore it will not affect E-RES settlement.
- Direct sales introduces some challenges:



Further developments - Operation in BCBM

- There are several options on the way of E-RES participation at the BCBM which have been proposed for discussion with NERC and stakeholders.
 - State guarantees the procurement of E-RES at the Green Tariff during the entire period of the Green Tariff's validity.
 - Thus the challenge is on designing the mechanism that will ensure:
 - ◆ E-RES producers to receive the money for the electricity sales
 - ◆ Allocate this costs among the society



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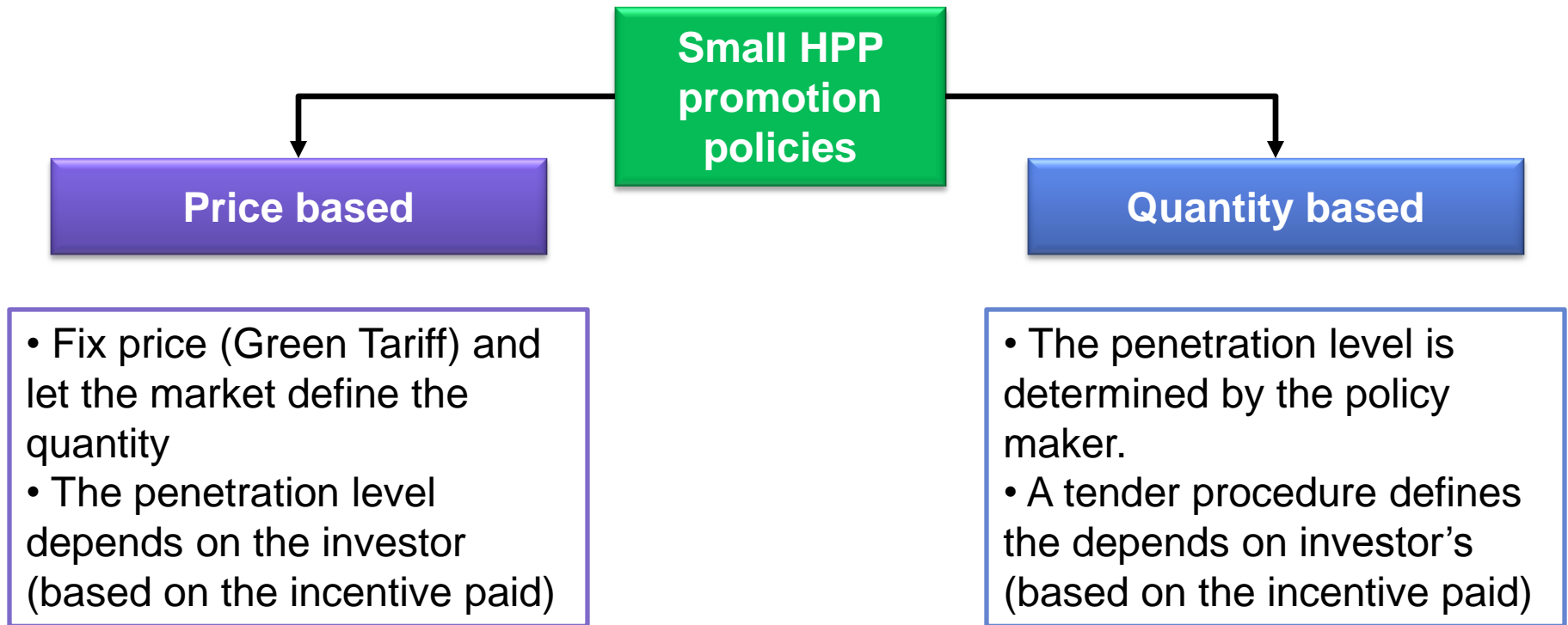
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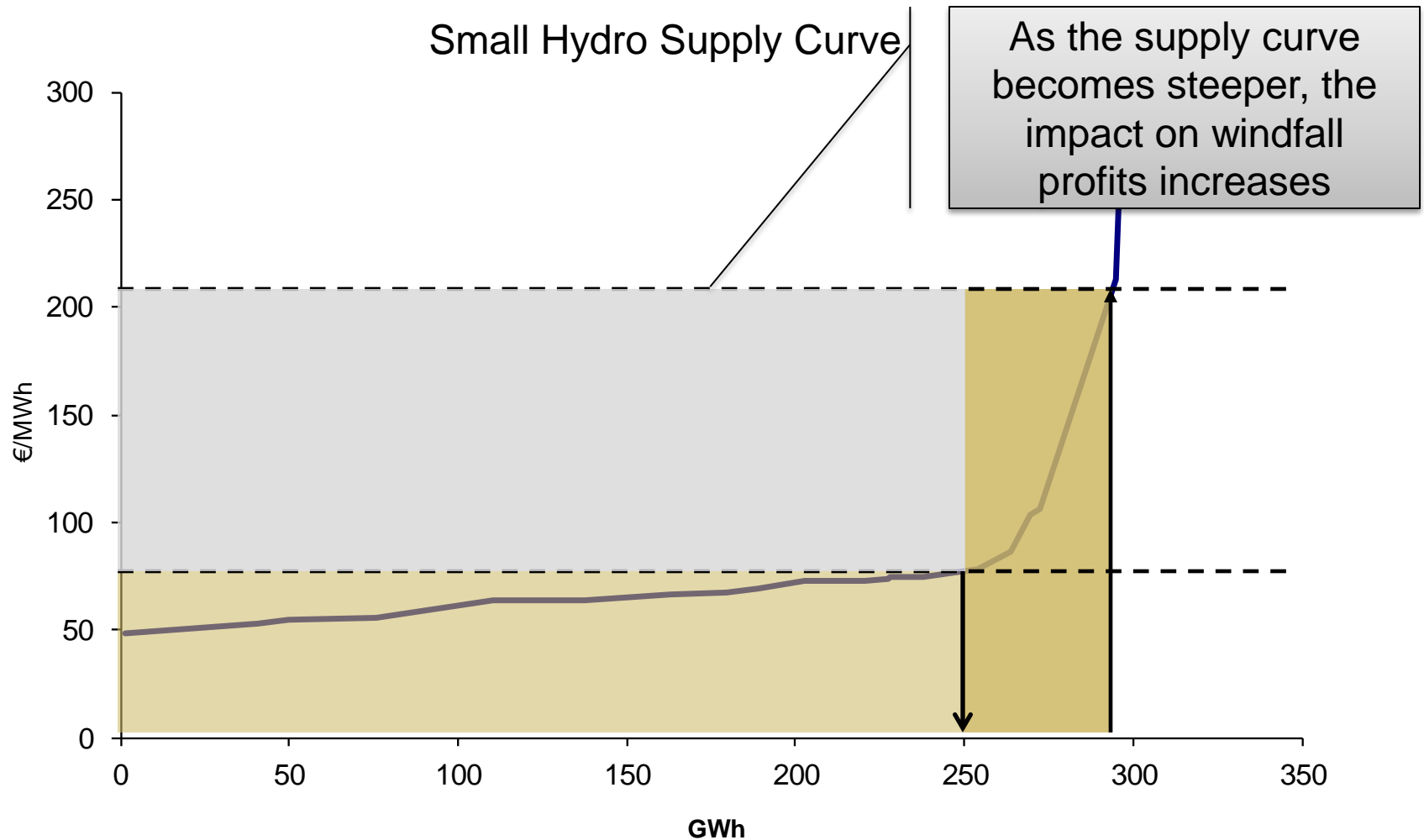
Small Hydro Development - International practice



Which one is more suitable?

- The answer is not straight forward as each alternative has its pros and cons.
- As SHHP can present large cost volatility, only a thorough analysis of the supply curve for this technology can help taking the decision.

Small Hydro Development - International practice



Small Hydro Development - International practice

- If costs for electricity produced at HPP are site specific and a large volatility on generation costs can be expected, then a tendering process can be an attractive alternative.
- Given the incentives that an administrative procedure generates, promoting transparency becomes a paramount for the process.
- In order to keep the procedure as transparent as possible, the EBRD and other IFI have developed guidelines (or good policies) for awarding processes.
 - **Main Principle:** awarding of concessions by a public sector entity should follow a **formal competitive tender process** designed to achieve the policy objectives of economy, efficiency, transparency and accountability.

According to the existent international experience, when tendering the hydro concessions, the criteria for granting the winner can be based on:

1. The lowest electricity price in PPA; or alternatively
2. The highest price for the right to use the land.



Case Study: HPP development in Kyrgyz Republic

- Strategic plan for small and medium HPP development:
 - Recommend investment and regulatory framework enhancements
 - Prepare pilot-projects for implementation
- 20 identified potential sites and the selection of 4 potential sites
- KR has a PP promotion scheme (total remuneration 65 €/MWh)
 - The analysis determined that the promotion scheme was not enough to develop none of the potential sites.
- Why we have proposed tendering process in KR?
 - There is not experience in the country in RES investments.
 - Bids of potential investors in each tender will give the Government the possibility to assess the risk perception of investors and correct the price premium or the whole promotion mechanism.
 - We observed large cost volatility in the plants under analysis, therefore, this mechanism will decrease infra-marginal rents.
 - Tailored project-specific off-take contracts will reduce risks linked to missing regulation.



Case Study: HPP development in Kyrgyz Republic

- Guidelines for tendering:

- A tender is organised for each site separately.
- Bidders offer an energy price (USD/MWh) or a capacity price (USD/kW). In the last case all the produced energy is for the buyer.
- The winner of the tender is awarded the project with the corresponding information and permits:
 - ◆ Pre-feasibility study;
 - ◆ Licenses;
 - ◆ Environmental permit;

and a PPA with the distribution company for a period that may be established between 10 to 20 years.

- The awarded investor has the obligation to construct and commission the plant in a certain period of time pre established in the tender documents. Otherwise, the investor loses the guarantee and the license.



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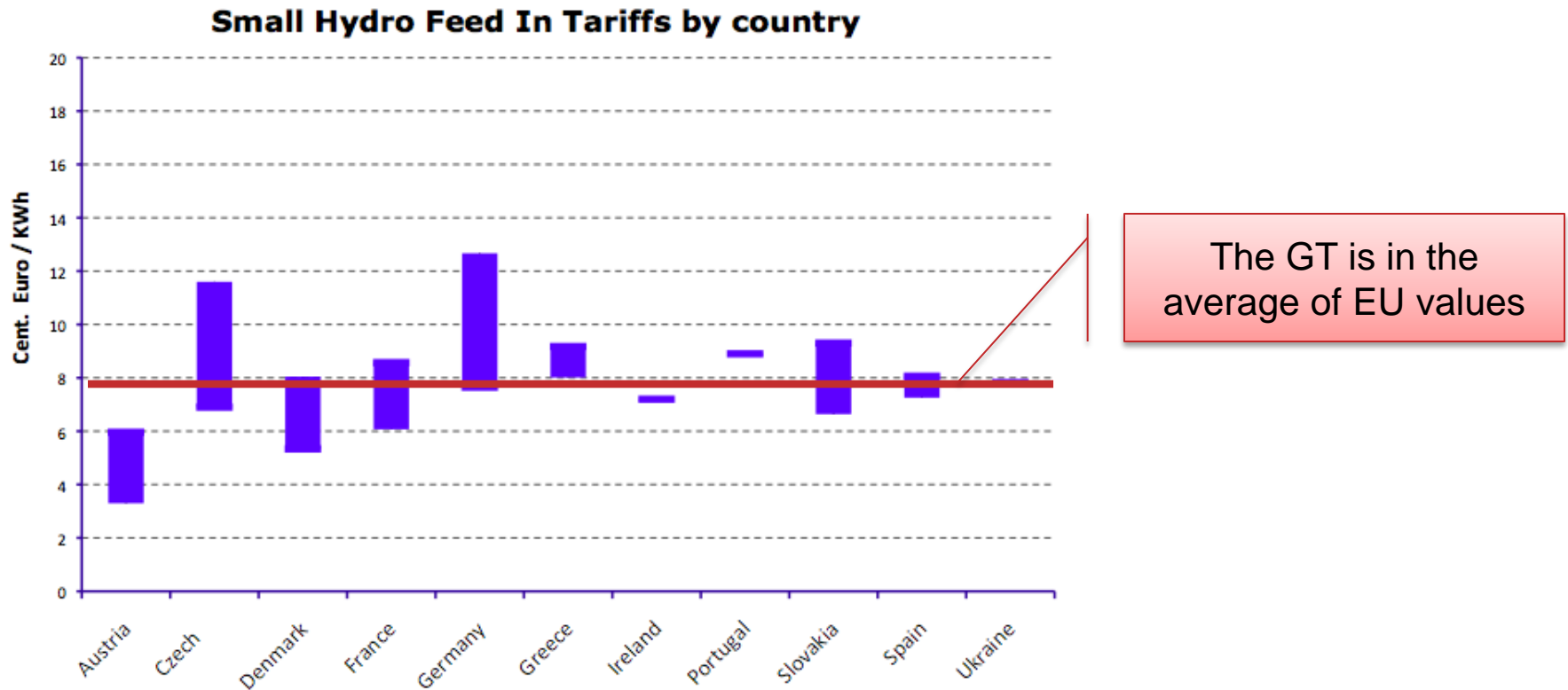
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Small Hydro Operation in Ukraine

- Small Hydro (up to 10 MW) is promoted through the Green tariff
- According to the Electricity Law of Ukraine, small hydro developers can claim for the Green Tariff with minimal value of 84.18 kop/kWh.



Small Hydro Operation in Ukraine

- According to the Atlas of Energy Potential (2001):
 - Total annual generation SHPP potential is equal to 12,501 GWh.
 - Economically feasible SHPP potential is 3,747 GWh.
- Therefore in Ukraine exists significant potential both in:
 - New small and medium hydro development
 - Modernization and reconstruction of old hydro facilities
- For Small HPP the existent FIT seems suitable to ensure economical viability (under analysis). Nevertheless, there are some pending issues:
 - Green tariff awarded after construction of plant complicates project finance.
 - Approval process involves too many layers: village/city, + oblast + central agencies; scope for limiting approval authority to lower level.
 - Cost of connection.



Small Hydro Operation in Ukraine

- Medium scale HPP (>10MW) is not covered by the Green Tariff
 - Therefore the proposal would be to introduce tendering procedures for the medium HPPs.
- The tendering procedure will be developed taking into account transparency requirements defined by IFI.
 - Investors will have the possibility to receive assistance from IFI
- The winner of the tender (small price offered) shall be granted with all permits and licenses (e.g, construction license, generation license, selling license) and will sign the PPA for 10-20 years.
- This activity is under development. To introduce of such policy we involve all the stakeholders, such as: NERC, Water State Agency, NAER, investors in HPP, etc.



Thank You

