Renewable Energy Regulatory Framework in Ukraine

View of Private Investors

04 April 2012

IMEPOWER

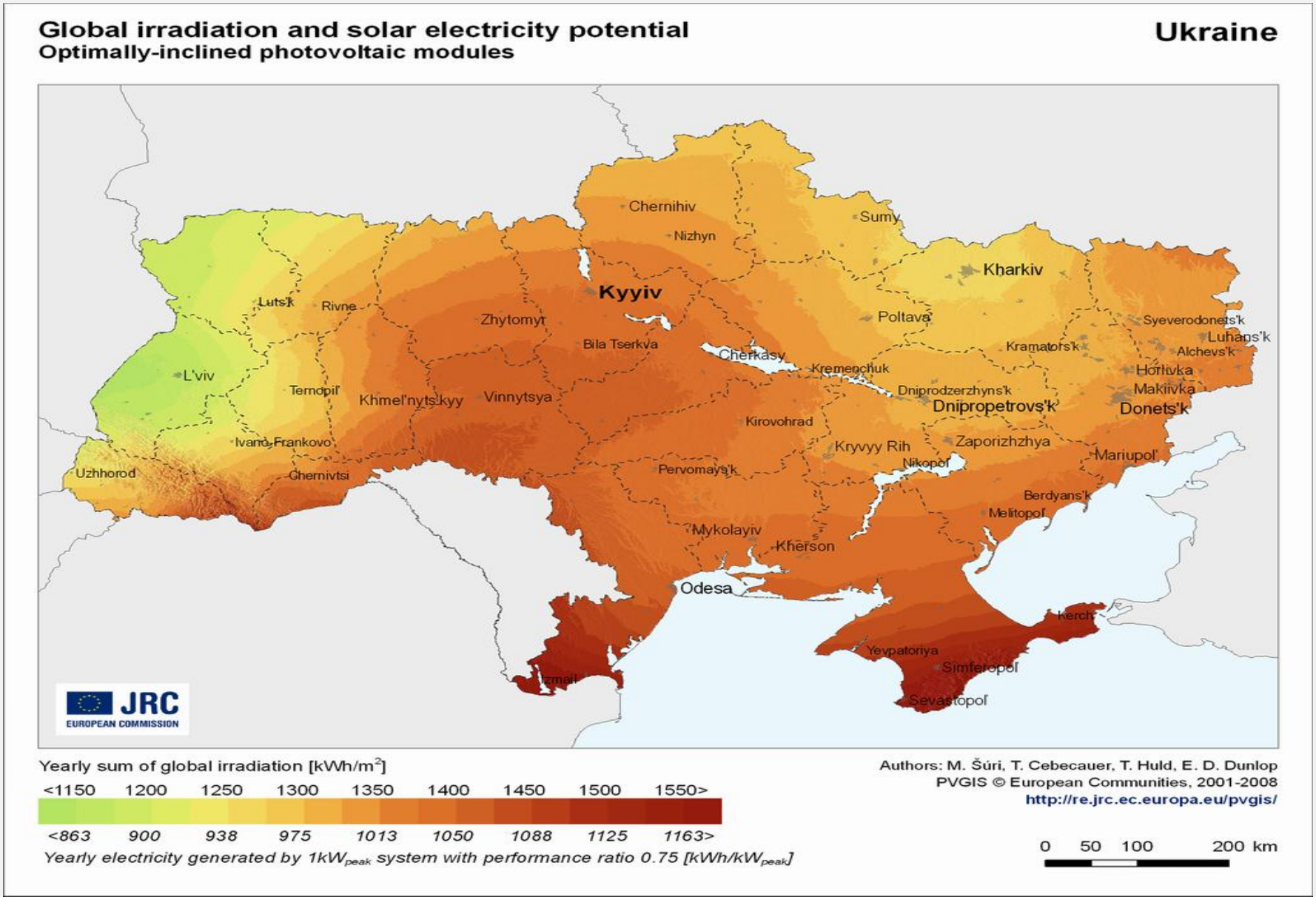
ULP Ukrainian Legal Partnership

Ukraine’s Wind Potential

Areas with High Wind Potential

Crimea	3 700 MW
Nikolayev region	3 600 MW
Kherson region	3 500 MW
Zaporozhe region	3 200 MW
Donetsk region	2 000 MW
TOTAL	**16 000 MW**

Ukraine's Solar Potential



Green Tariff Regulatory Framework

- New Green Tariff Law has come in force on 22 April 2009
- Special feed-in (green) tariffs were established for wind, solar, biomass, small hydro (<10 MW) and geothermal power plants
- Green tariffs are fixed until 2030 with guaranteed electricity off-take by the Wholesale Electricity Market Operator (under existing "single buyer" market model)
- Green tariffs are revised on a monthly basis to follow changes in UAH/EUR currency exchange rate (with guaranteed "minimum floor" set in EUR)
- Green tariffs are applied to new construction projects as well as existing renewable energy plants
- Green tariff system was tested in real life – National Electricity Regulatory Commission approved green tariffs for many renewable energy producers, including wind, solar, and small hydro plants
- Reduction of green tariffs by 10%, 20% and 30% for RES plants commissioned after 2014, 2019 and 2024 respectively
- Local content requirement – 15% starting 2012, 30% starting 2013 and 50% starting 2014 with additional criteria set for solar projects
- PPA is signed and green tariff is approved after the renewable power plant has been commissioned

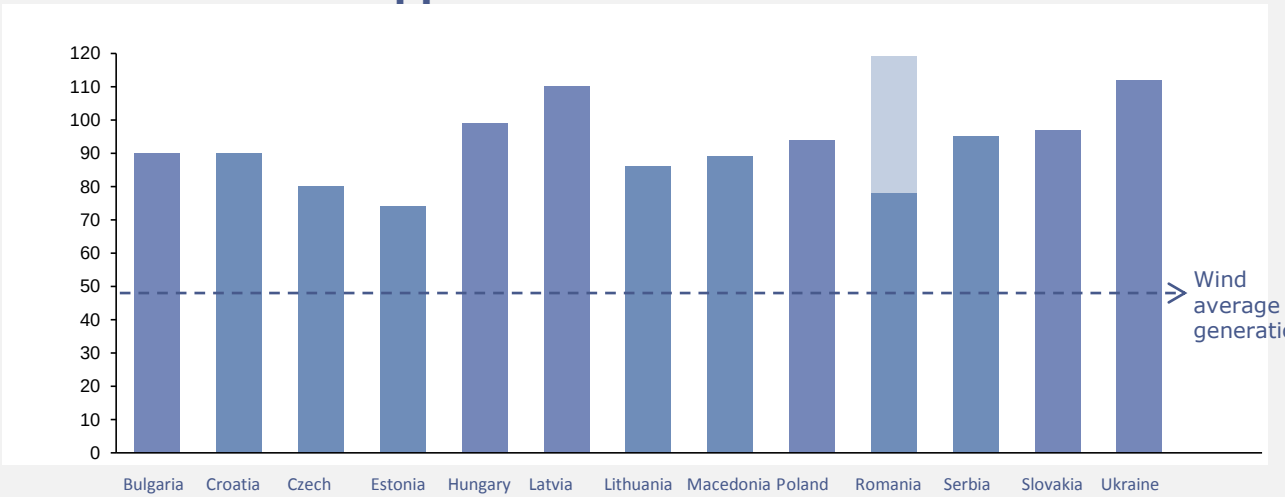
Green Tariff Support Scheme

Green Tariffs in Ukraine

Types of RES	Green Tariff, EUR/MWh*
Wind plants with installed capacity <600 kW	64.6
Wind plants with installed capacity of 600-2,000 kW	75.4
Wind plants with installed capacity of more than 2 MW	**113.1**
Biomass plants	**123.9**
Solar plants of different types	**465.3 / 445.9 /426.5**
Small hydro plants	77.5

** net of VAT*

Wind Support Schemes in CEE Countries



Source: KPMG Energy & Utilities

Most Advanced Wind Farm Projects

Developer	Project	Location	Total Capacity, MW	Commissioned Capacity, MW	Turbines
Wind Parks of Ukraine	Novoazovskiy Wind Park	Donetsk region	107.5	37.5	Fuhrlander 2.5 MW
	Ochakovskiy Wind Park	Mykolayiv region	200	25	Fuhrlander 2.5 MW
	Berezanskiy Wind Park	Mykolayiv region	200	-	Vestas 3.0 MW
Vindkraft Ukraine	Novorosiyskiy Wind Park	Kherson region	9	3	Vestas 3.0 MW
DTEK	Botievo WPP	Zaporizhya region	195	-	Vestas 3.0 MW
	Berdyansk WPP	Zaporizhya region	150	-	TBD
Filasa International	Bahchisarayskaya WPP	Crimea	200	-	Vestas 3.0 MW
	Turgenevskaya WPP	Crimea	200	-	Vestas 3.0 MW
	Holmogorskaya WPP	Crimea	200	-	Vestas 3.0 MW
Eurocape New Energy	Primorskaya WPP	Zaporizhya region	450	-	TBD
EuroUkrWind	Western-Crimean WPP	Crimea	250	-	TBD
Konkord Group	Kazantipskaya WPP	Crimea	100	-	TBD
	Sivashskaya WPP	Crimea	180	-	TBD
Eco Optima	Stariy Sambir	Lviv region	12.5	-	Fuhrlander 2.5 MW

*** There is a number of old inefficient wind farms under operation with total capacity of 85.6 MW**
**** Total capacity of wind projects, which have been declared, exceeds 15,000 MW**

Major Announced Solar Projects

Developer	Project	Location	Total Capacity, MW	Commissioned Capacity, MW
Active Solar	Perovo Power Station	Crimea	100	100
	Ohotnikovo Power Station	Crimea	80	80
	Mitayevo Power Station	Crimea	31.5	31.5
	Rodnikovoye Power Station	Crimea	7.5	7.5
	Portfolio of projects	Crimea	150	-
	Portfolio of projects	Odessa region	150	-
Ekotechnik Praha	Boguslav Solar Station	Kyiv region	42	-
	Litin Solar Station	Vinnitsa region	54	-
Rengy Development	Portfolio of projects	Vinnytsia region	60-65	-
SunElectra	Portfolio of projects	Odessa region	25-30	-
Beten	Portfolio of projects	Kherson region	28-30	-
Kromwel	-	Ternopil region	4	-
Ukrgelios	-	Lugansk region	3	-
Infocom	-	Zaporizhya region	3	-

*** There is a number of other small 1-5 MW projects under development, which were not included in the table**
**** Total capacity of wind projects, which have been declared and are under development, exceeds 15,000 MW**

Opportunities and Challenges for RES Development

Incentives and Opportunities

I.1.OPPORTUNITIES

- High RES potential in many regions
- Many projects are currently under development for all types of RES
- Ability to receive co-financing via Kyoto protocol mechanism (RES plant construction can qualify as JI Project)

I.2. INCENTIVES

- High level of Green Tariffs for most of RES types
- Enough time for payback of investments (green tariff is set until 2030)
- Hedging against local currency devaluation (pegging green tariffs to UAH/EUR rate fluctuations)
- Guaranteed electricity off-take by the Wholesale Electricity Market Operator
- Obligation of network owners to connect RES plats

Challenges and Risks

II.1.RISKS

- Complication permitting and licensing procedures (land, EIA, grid connection, etc.)
- Inability to sing Power Purchase Agreement at the beginning of project development (green tariff is approved and PPA is signed at the end of the project cycle after construction phase)

II.2.CHALLENGES

- High cost of borrowing, high risk investments due to low country rating
- Absence of clear guidelines from the Government regarding level of capacity that can be absorbed by grid
- Announced reform of electricity market with planned transition from effective single buyer model to bilateral contracts and uncertainty of transition

Problems – Local Content Requirement

- No detailed procedure for calculation of the Local Content Requirement approved by the Regulator during almost 2 years after the new version of the Green Tariff Law (set of amendments to the Electricity Law) was approved by the Parliament
- Current situation does not allow international producers of equipment to plan their activities and re-allocate part of the production to Ukraine to meet LCR
- *Conclusion:* RES developers and investors are not able to plan properly implementation of their projects
- *Solution:* approve procedure for LCR calculation as soon as possible taking into account proposals from industry participants
- *Solution:* soften sanctions towards developers for not being able to meet LCR (reduction of green tariff should replace current "black or white" eligibility principle)

Problems – Grid Constraints and Tariff Affordability

- No studies performed by the TSO to assess grid constraints and impact from construction of RES plants on the grid stability
- No studies performed by the Government to assess green tariff affordability and define appropriate level of RES to keep electricity prices from uncontrolled growth introduce the system of quotes and ensure their fair allocation
- More than 15 000 MW of wind farm projects and 1 000 MW of solar projects have been announced
- Given tariff affordability considerations and grid constraints the reasonable limit for solar+wind capacity is between 2 000 and 3 000 MW
- *Conclusion:* 80-90% developers will not be able to complete their projects
- *Solution:* improve grid connection procedure by issuing technical conditions only to advanced projects, introduce the system of quotes and ensure their fair allocation

Problems – Too Much Support for Big Projects

- Current green tariff system provides incentives for construction of large solar and wind parks (70% of projects have >100 MW capacity)
- Small and medium size RES projects get the same or smaller green tariff, while the relative development costs are higher
- Small and medium size projects are more sustainable and cause less impact on grid and environment
- Biomass, biogas, landfill gas projects are also very important to resolve existing environmental problems and reduce emissions
- *Conclusion:* green tariff support system does not send proper signals
- *Solution:* introduce different scale of green tariffs for each RES type giving preference to small and medium size projects
- *Solution:* introduce green tariff for biogas and landfill gas projects

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