

TEASER FOR 1 GW WIND RE-ZONE (YEKA) TENDER PACKAGE

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1. TURKEY'S ENERGY OUTLOOK

Turkey has become one of the fastest growing energy markets in the world, paralleling its economic growth over the last ten years. Following the successfully implemented privatization program in the said period – power distribution is now completely in private sector hands, while the privatization of power generation assets is set to be completed within the next few years – has given the country's energy sector a highly competitive structure and new horizons for growth.

Economic expansion, rising per capita income, positive demographic trends and the rapid pace of urbanization have been the main drivers of energy demand, which is estimated to increase by around 5 percent per annum until 2023. The current 78 GW (as of the end of 2016) installed electricity capacity is expected to reach 120 GW by 2023 to satisfy the increasing demand in the country, with further investments to be commissioned by the private sector. As part of its efforts to offer sustainable and reliable energy to consumers, Turkey offers investors favorable incentives, such as feed-in-tariffs, purchase guarantees, connection priorities, license exemptions, etc., depending on the type and capacity of the energy generation facility.

In the last decade, the Turkish government has made significant reforms in the provision of energy, moving forward the participation of private entities, and thus creating a more competitive energy market. The privatization of energy generation assets, coupled with a strategy to clear the way for more private investments, has resulted in an increased share of private entities in the electricity generation sector, from 32 percent in 2002 to 75 percent in 2016. Another step taken by the Turkish government towards a more competitive energy sector is the establishment of an energy stock exchange which moved forward the liberalization of the market, ensuring transparency, and helping to maintain a healthy balance between supply and demand.

Turkey has substantial amount of renewable energy potential and the utilization of this potential has been increasing for the last decade. As of the end of 2016, the hydro and wind resources constitute the great majority of Turkey's renewable energy resources, accounting for 26.681 MW and 5.738 MW respectively of the total installed capacity of more than 78 GW. On the other hand; solar, biomass/biogas and geothermal energy resources will also comprise a significant portion of the total capacity as rapid growth in utilization of these resources will be experienced in the coming years.

In the Electricity Energy Market and Supply Security Strategy Paper of May 2009, primary target has been defined as to increase the share of domestic and renewable energy resources in the total installed power capacity. On the other hand, Turkey's ambitious vision for 2023, the centennial anniversary of foundation of the Republic, envisages grandiose targets for the renewable energy resources including;

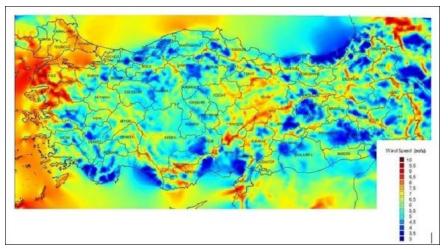
- Increasing the share of renewables to 30 percent
- Maximizing the use of hydropower
- Increasing wind power installed capacity to 20,000 MW
- Increasing biomass installed capacity to 1500 MW
- Installing power plants with 1000 MW of geothermal and 5,000 MW of solar energy

2. WIND ENERGY MARKET IN TURKEY

Turkey offers perfect natural conditions for wind power installations with a total 48 GW wind potential and an average wind speed of more than 7m/s at 50m.

Wind energy is the most dynamic and lucrative market for local and international investors with about 1 GW regular capacity additions every year. The supportive instruments of the government for renewables including feed-in-tariff and local content support have provided the required background for stable growth of wind energy power plants. The capacity installation of only the last year hit a record high with about 1.3 GW new installation and as of the end of March total installed power has reached about 6 GW.

Figure 1. Turkish Wind Resource Map



As seen from the Figure-1, wind energy is one of the most important renewable energy resources which are still untapped in Turkey with a potential of nearly 48 GW. There are large suitable and untapped areas for wind power plants (WPP) in Agean and Mediterranean regions.

Under current legislative environment, real persons or

legal entities can install a wind power plant through unlicensed and licensed models. While unlicensed model adresses to the projects under 1 MW capacity, licensed model is used for those above 1 MW installed capacity. However, due to the nature of wind energy technologies, licensed model has been the preferred option for wind power plants in Turkey.

Feed-in-tariff as a power purchase guarantee is granted to licensed and unlicensed renewable energy investors in line with the Turkish Government's support policy for renewable energy resources. A purchase guarantee of 7,3 USD-cents/kWh (more than the average spot market price) is granted for wind electricity for the first 10 years of operation. Also, additional local content incentives are available for the wind power plants operating under a generation license for the first 5 years of operation. Investors can benefit from local content support for wind turbine components. These subsidies may reach up to 3,7 USD-cents/kWh totally (Blades: 0,8 USD-cents/kWh, Generator & Power electronics: 1,0 USD-cents/kWh, Tower: 0,6 USD-cents/kWh, Complete mechanical parts in rotor and nacelle: 1,3 USD-cents/kWh)

3. RE-ZONE (YEKA) MODEL AND RE-ZONE TENDER FOR 1 GW CAPACITY WIND POWER PLANTS (WPP)

The Ministry of Energy and Natural Resources (the MENR) issued the Regulation on Renewable Energy Resources Zones on October 9, 2016 in the Official Gazette. The new regulation has introduced a new investment model to support renewable energy investments and incentivize local manufacturing of renewable generation assets. The main purposes of the Regulation are to use renewable energy resources much more efficiently and effectively by identifying renewable energy zones on the public, treasury or private-owned territories, to realize the renewable energy investments much more rapidly, to manufacture renewable energy equipment in Turkey, to use locally-manufactured equipment/components and to contribute to research and development activities through technology transfer. A renewable energy resource zone (RE-Zone) and its electrical connection capacity utilization rights can be offered to an eligible entity under the "Allocation on the Condition of Local Manufacturing" or "Allocation on the Condition of Using Locally-Manufactured Equipment" mechanisms.

In the first mechanism, the legal entity being offered the RE-Zone and its connection capacity utilization rights must establish an equipment manufacturing factory in Turkey according to the standards and the relevant terms of references (ToR) of tenders. A Reseach and Development (R&D) Centre must be established by the legal entity as well. In the R&D Centre, R&D activities must be implemented at a certain period of time and in line with the pre-determined obligatory conditions like budget, number of employees and staff qualifications. In this mechanism, locally-manufactured equipment and the other local components which are defined in the ToR must be used in the RE-Zone.

In the second mechanism, RE-Zone and its electrical connection capacity utilization rights are given to a legal entity who wins the competition and commits to procure locally-manufactured equipment and other related local components (balance of the plant) for the power plant from available Turkish factories. The equipment and components have certain levels of local content ratios as defined in the ToR's and must be compatible with the national or international standards.

Turkey has recently finalized the largest-ever solar power auction based on the first mechanism on March 20, 2017 with the 50:50 consortium of Turkey's Kalyon Enerji and South Korea's Hanwha Q CELLS winning the tender for the construction of a 1-GW solar power plant in the Karapınar district of the Central Anatolian province of Konya. The winning bid was a price of USD 6.99 cent/kWh. The tender – held in a reverse auction where the ceiling price per kWh was USD 8 cent/kWh – will see 1 GW of installed capacity along with a manufacturing factory for photovoltaic (PV) equipment coming online over the next two years. Under the terms of the tender, the power purchase contract will be valid for 15 years, and the solar equipment used must be domestically sourced. The total investment in this solar energy mega project is estimated at USD 1.3 billion. The solar power plant will be operational for 30 years and meet the energy needs of more than 600,000 households. The project company will also be conducting R&D activities in Turkey for at least 10 years with the employment of at least 80 % local staff.

The first mechanism is currently the option preferred by the MENR in order to icrease the manufacturing capabilities for the key renewable energy equipment which do not exist in Turkey. Therefore, the first mechanism will apply to the 1 GW wind power plant project for which the details of the tender will be dealt with in the following sections.

3.1. RE-ZONE TENDER FOR 1 GW CAPACITY WIND POWER PLANTS (WPP)

The MENR announced in the Official Gazette dated April 13, 2017 the new RE-Zone tender for 1 GW capacity wind power plants that will be installed in different provinces of Turkey in line with the connection capacities listed in the Table-1. The second of its kind, the new wind RE-Zone tender will be based on the model of "Allocation of Capacity on the Condition of Local Manufacturing" as in the 1 GW solar plant. The Ministry has set July 27, 2017 as the deadline for submission of the financial offers for the tender.

The tender calls for a reverse auction from the ceiling price of 7,00 USD Cents/kWh and set-up of 1 GW wind power plants as well as local manufacturing plant and R&D facility. The legal entity who has acquired the utilization rights for 1 GW must establish a turbine assembly plant utilizing locally made components from local industrial suppliers or from the local factories it will install. The government will purchase the electricity generated from the power plants at the price determined in the tender for 15 years following the signing of the Agreement on the Allocation of RE-Zone Utilization Rights with the MENR.

The assembly plant will in the first stage be supplying locally-manufactured components to the 1 GW capacity RE-Zone WPPs. The plant must be set up within 21 months following signing of the Agreement according to standards and work plans submitted in the application stage. The WPPs will be licensed for at least 30-year period and will not be benefiting from any additional premium or support from the YEKDEM mechanism.

3.1.1. Terms of Reference (ToR) for 1 GW Capacity Wind RE-Zone Tender

In accordance with the Terms of Reference of the tender, the legal entity (joint venture or consortium) that will apply to the tender must have, as a condition of eligibility, the following qualifications and (following the tender) must realize the tasks below mentioned upon signing the Agreement on the Allocation of RE-Zone Utilization Rights:

Qualifications:

- For the joint ventures, technology provider and local Turkish partner (real Turkish citizen) must have at least 20 % shares each. For consortiums, technology provider must have at least 51 %, while the investor partner (responsible for WPP projects) must have a local Turkish partner (real Turkish citizen) with at least 25 %. For consortiums, more than one WPP project company (as investor partner) cannot be shareholder in the consortium as different legal entities, unless they have formed a WPP company under one legal entity.
- Technology provider company must have a work completion of "having manufactured turbines with at least 2000 MWe capacity including key nacelle components between 01/01/2014 and 31/12/2016.
- Technology provider can offer combined work completion documents testifying to the manufacturing details in different manufacturing plants for the relevant period.
- The joint venture or consortium must satisfy either of the following financial criteria:

Total sales revenues or turnover for 2014, 2015 ant 2016 years \geq 300.000.000 TRY (or its equivalent in foreign currency)

Total assets' value ≥ **100.000.000 TRY** (or its equivalent in foreign currency)

Required Tasks to be fulfilled after the tender:

- Signing of the Agreement on the Allocation of the RE-Zone Utilization Rights within 30 days following the tender,
- Submission within the first 90 days following the signing of the Agreement to the Ministry of potential RE-Zones eligible for WPP installation with a total capacity of 1000 MW of which 400 MW must be picked from the three provinces of "Edirne-Kırklareli-Tekirdag." Applicants can submit potential RE-Zones up to 1700 MW capacity, with each candidate RE-Zone having at least 50 MW installation capacity. From the total RE-Zones submitted to the Ministry, at least 700 MW (70 % of 1000 MW) should be evaluated by the Ministry positively as potential RE-Zones and and at least 280 MW (70 % of 700 MW) must have been picked from the three provinces abovementioned.
- Evaluation by the Ministry of Energy and identification of the appropriate RE-Zones;
 announcement of the identified sites as RE-Zones in the Official Gazette within 120 days following the Signing of the Agreement;
- Notification of the Energy Market Regulatory Authority (EMRA) about the identified RE-Zones for the following procedures about pre-licensing and licensing within 10 days following the Announcement,
- Prelicense-application by the winner to EMRA within the 45 days following the Notification (EMRA must grant pre-license within 3 months.)
- Obtaining all unfinalized permits and finalizing all other procedures for licensing pursuant to the Licensing Regulation
- Installation of an assembly plant within 21 months following the Signing of the Agreement on the Allocation of RE-Zone Utilization Rights that will manufacture wind trubines with the localization requirements defined for different components (Table-2)
- Procurement of locally-manufactured components from local manufacturers operating within Turkey and in the Free Trade Zones,
- Establishment of an R&D center within 21 months following the Agreement on the Allocation of RE-Zone Utilization Rights that will perform R&D activities for at least 10 years regarding the identified technical areas.
- Utilization of locally-manufactured turbines in the identified RE-Zones
- Employment of both white-collar and blue-collar workers in turbine factory and R&D center as 90 % and 80 % respectively,
- Employment of at least 50 full-time technical staff in R&D activities.

Other terms of the reference for the tender are listed below:

- Top of the electricity selling price as a base level for the competition is 7,00 USD-cent/kWh.
 No additional premiums are paid for locally manufactured equipment/components.
- The licensing Regulation applies to the WPPS to be installed and the power plants are granted generation licenses for at least 30 years.
- The prelicensing and construction periods for each RE-Zone are 24 months and 36 months respectively.
- Generated electricity from the WPPS is purchased by the Government for 15 years from the Signing of the Agreement under YEKDEM mechanism and no other instrument is used by the company for electricity sales for the relevant period.

- Any losses in electricity flow resulting from the market operation orders of TEIAS (system operator) that exceeds 2% of the total electricity generated in a certain billing period is compensated in the next billing period.
- Applicant must submit to the Ministry a 1-year letter of guarantee worth 10 million USD, which is exact, convertable to cash partially or wholly, and which is arranged by banks established in Turkey according to Law of Banking No: 5411, or by foreign banks who are allowed to operate in Turkey according to their legislation, or by Banks who operate in Turkey under counter-guaranty of banks or credit institutions active outside Turkey
- The winner of the tender must submit to the Ministry a 20-year letter of guarantee woth 50 million USD which is exact, convertable to cash partially or wholly. The previous letter submitted in the application stage is returned to the winner.
- No price increase will be made for any reason in the electricity purchasing price. And no time extension will be made except for force majeure.
- The manufacturing plant will benefit from 5'th Region Incentives (Priority Investment Incentive Scheme) and the Ministry of Energy will offer its assistance for acquisition of Strategic Incentives pursuant to the relevant legislation.
- If the competition is won by a joint venture, a commercial legal entity must be established by the partners according to the shareholding structure submitted before the tender and the establishment must be finalized before signing the Agreement on the Allocation of RE-Zone Utilization Rights.
- If the competition is won by a consortium, the Agreement is signed with the manufacturing company and WPP company according to the consortium statement submitted before the tender.

Connection Regions and Connection Capacities (Table-1)

Number	Connection Region (Provinces)	Connection Capacity (MWe)		
1	Kayseri - Niğde	200		
2	Sivas	200		
3	Edirne - Kırklareli - Tekirdağ	700		
4	Ankara - Çankırı - Kırıkkale	200		
5	Bilecik - Kütahya - Eskişehir	150		
6	Malatya	150		
7	Burdur - Denizli - Uşak	100		
	Total	1700		

3.1.2. Turbine Manufacturing Factory and Work Plan

The legal entity who has acquired the RE-Zone utilization rights must establish an assembly-based turbine manufacturing factory (with the capacity of manufacturing at least 150 turbines per year) in Turkey (Free Trade Zones are not permitted) within 21 months following signing of the Agreement on the Allocation of the RE-Zone Utilization Rights and utilize the manufactured turbines in the RE-Zones where WPPs will be installed in accordance with the work plan and capacity submitted following the tender.

The wind turbines will be manufactured with an electrical generation capacity of at least 2,3 MWe and will be compatible with the following, but not limited to, the standards below.

- IEC 61400-22 "Wind Turbines Part 22: Conformity testing and certification
- IEC 61400-1 "Wind Turbines Part 1: Design Requirements

The manufactured turbines will be certified by national accreditation institutes which have signed a mutual recognition agreement with International Accreditation Forum.

The components of each wind turbine (see Table-2) will be procured from the manufacturers in Turkey or from the facilities (different from the assembly plant) to be installed by the winner in Turkey (including Free Trade Zones). The components will be manufactured according to the localization ratios indicated in the Table-2 and will be certified as Domestic Product by the Authorized Financial Consultants pursuant to the Domestic Product Decree.

Tender includes direct drive and conventional geared technologies. Total localization ratio of each wind turbine must be 65 % at least. All the components in Class-A (see Table-2) and at least four of the components in Class-B must be manufactured with the localization ratios indicated. If the required localization is not satisfied in at most one of the Class-A components, the lacking localization ratio is complemented by extra localization in Class B and C. Localization ratio of a turbine represents the total of weighted scores for each component. The components not satisfying the minimum localization ratios indicated are not granted the relevant weighted scores.

3.1.3. Research and Development (R&D) Centre and R&D Activities

The legal entity who has acquired the utilization rights for RE-Zone must establish a Research and Development (R&D) Centre in Turkey (except for the Free Trade Zones) within the scope of the R&D Law (Law no. 5746). Establishment studies for the R&D Centre must start within one-year period following the signing of the Agreement on the Allocation of the RE-Zone Utilization Rights and be completed within 21 months following the signing of the Agreement. R&D activities according to the submitted 'R&D plans' must be carried out during a 10-year period. In the R&D Centre, a number of technical staff defined in the ToR must be employed fulltime in related R&D activities.

R&D annual budget must be at least 2 million USD for the first operational year excluding the fixed assets and machinery-equipment costs. The annual budget for the second year must be at least 5 million USD and 5 million USD for the each following year. R&D Center will benefit from subsidies defined within the scope of relevant legislation. The basic R&D areas to focus on are as follows:

- 1. Rotor-Blade Design
- 2. Generator Design
- 3. Increasing Turbine Tower Carrying Capacity
- 4. Network Frequency Management and Energy Storage
- 5. Installation and Operation of Operational Center of Excellence
- 6. Control Software
- 7. Material Technology and Production Techniques
- 8. Innovative Gear-Box

At least five technical areas are determined by the winner including at least three of the areas abovementioned.

3.1.4. Competition Process and Identifying the Electricity Purchasing Price

The legal entities who will participate in the tender must submit all application forms defined in the ToR. The Commission opens big closed envelope including all application forms according to the document registration order with the presence of the applicants at a place on a date/time specified in the competition announcement and checks all the documents within the scope of the contents stated in the ToR. If one of the application letter, receipt of received ToR, Letter of Guarantee, financial offer envelope and signed ToR is missing and / or if one of these is found as incorrect, application will not be taken into consideration.

Financial offer envelopes of the applicants who are entitled to participate in the competition are opened by the Commission at a specified place on a specified date/time with the presence of all eligible applicant authorities. Offers in the financial offer envelopes are ranked and a competition based on a dutch-auction method is carried out among maximum five designated participants with the lowest financial offers. If there is an equality in the financial offers while determining the least five financial offers, all the applicants with equal offers will be included in the competition.

The Competition continues, based on the lowest price offered, till reaching the lowest price offer by deducting from the last given offer in each time respectively. Applicants, who submit their final price offer and not giving a new offer, sign the Official Dutch Auction Report and cannot offer again in the competition. The applicant who has the lowest price offer at the end of the competition will have RE-Zone utilization rights. The whole and final price offers of the applicants are registered in the Official Dutch Auction Report issued by the Commission and it is signed by the all eligible applicants.

The Commission's Official Dutch Auction Report is submitted to the approval of the Minister. The competition is finalized with the approval of the Minister, approved applicant with the lowest price offer is invited to sign the Agreement on the Allocation of RE-Zone Utilization Rights. The MENR may cancel the competition at any stage until the Signing of the Agreement.

TABLE-2 LOCALIZATION

				Minimum Local Content Ratio (%)		Component Localization Score	
WPP's Components	Turbine/site main Components	Sub-Components	Component Localization Class	Conventional Geared)	Direct drive with synchronous / permanent magnet generator	Weighted Score	Total Score
1. Wind Turbin	ne					100	65
	1.1. Tower						
		1.1.1. Tower	A	65	65	17	
		1.1.2. Mechanical tower interior components	A	65	65	4	
		1.1.3. Anchor, anchor plates, anchor chain, bolts and fasteners	A	70	70	1	
	1.2. Rotor	146000000					
		1.2.1. Rotor blade	A	60	60	19,5	
		1.2.2. Rotor hub	A	60	60	2,3	
		1.2.3. Rotor blade bearings1.2.4. Main or fixed shaft	B B	51 51	51 51	$\frac{1}{2}$	
		1.2.5. Pitch system *	(B + B)	51	51	4,5	
		1.2.5.1. Drive unit in pitch system	В	51	51	2	
		1.2.5.2. reduction and pinion gears in pitc system	h B	51	51	2,5	

1.3. Nacelle						
	1.3.1. nacelle housing, spinner and canopy	A	70	70	2	
	1.3.2. main frame, bed/generator frames and bed plate	A	65	65	3	
	1.3.3. Yaw ring	A	55	55	1	
	1.3.4. Yaw system*	(B + B)	51	51	3	
	1.3.4.1. Drive unit in yaw system 1.3.4.2. reduction and	В	51	51	1,5	
	pinion gears in yaw system	В	51	51	1,5	
	1.3.5. Main shaft bearing and main shaft bed	В	51	51	1,7	
	1.3.6. Cooling system	В	51	51	1	
	1.3.7. Brake system	B B	51 51	51 51	1,2 1,3	
1.4. Electro-mechanical			51	51	20	
j g	power conversion systems 1.4.1.a. Gear box		51	0	15	
Generator with conventional geared Option-a	1.4.2.a. Generator with conventional geared	Aa	55	0	5	
ect drive with synchronous / permanent magnet generator Option-b ***	1.4.1.b. Direct drive with synchronous / permanent magnet generator	(A + B)	51	51	20	
Direct drive with synchronou permanent magnet gene Option-b **	1.4.1.b.1. Rotor casting/housing	Ab	0	51	1,5	
Dii	1.4.1.b.2. Stator casting/housing	Ab	0	51	1,5	
	1.4.1.b.3. siliceous/	Ab	0	51	1	

15 1	magnetic stator plates 1.4.1.b.4. Brake and lock systems Power systems	Ab	0	51	1	
1.5. 1	1.5.1. Turbine Transformer	A	51	51	1,5	
	1.5.2. Power converter	B	51	51	3	
	1.5.3. Electronic power					
	controller	В	51	51	3	
1.6. (Others					
	1.6.1. Aviation beacon system	С	51	51	0,5	
	1.6.2. meteorological instruments / sensors	С	51	51	0,5	
	1.6.3. internal nacelle crane, hoist	С	51	51	0,5	
	1.6.4. Auxiliary castings and fittings	С	51	51	0,5	
	1.6.5. Lubrication system	C	51	51	1	
	1.6.6. Grounding / lightning system)	С	51	51	0,5	
	1.6.7. Monitoring, data acquisition, control systems	С	51	51	3	
	1.6.8. Others	С	51	51	0,5	
2. Balance of Plant -B						
2.1. I	Electrical inf <mark>rastructure</mark>					
	2.1.1. Main transformer	D	51	51		
	2.1.2. Low and Mid-Voltage Cells	D	51	51		
	2.1.3. Power, control and signal cables	D	51	51		
2.2. C	Civil works					
	2.2.1. Steel - reinforcing tower base can/basket	D	51	51		
	2.2.2. Steel - reinforced concrete	D	51	51		
2.3. (Others					

	2.3.1. Transportation& handling 2.3.2. Insurance		
3. Others			

^{*:} The components in "1.2.5." and "1.3.4." are granted the relevant weighted score if they're manufactured with 51 % localization and certified as Domestic Product.

Wind Turbine Components

- If the required localization is not satisfied in at most one of the Class-A components, the lacking localization ratio is complemented by extra localization in Class B and C.
- At least four of the components in Class-B must be manufactured with the localization ratios indicated and be certified as Domestic Product.

Balance of Plant -BoP

• All the components in Class-D must be certified as Domestic Product.

^{**:} Option-b in "1.4.1.b." is granted the relevant weighted score of Option-a (20 score), if Electro-mechanical power conversion system is manufactured with 51 % localization and certified as Domestic Product.