

REZ Guide
For Wind Energy Investors



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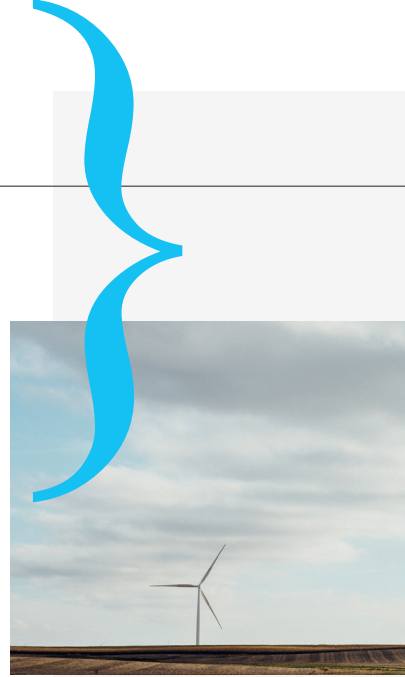
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Abbreviations



ACLM	: Allocation on Condition of Local Manufacturing
ACULME	: Allocation on Condition of Using Locally Manufactured Equipment
CA	: Chartered Accountant
CAPEX	: Capital Expenditure
CPA	: Certified Public Accountant
BRSA	: Banking Regulation and Supervision Agency
EIA	: Environmental Impact Assessment
EBRD	: European Bank for Reconstruction and Development
EIB:	: European Investment Bank
EMRA	: Energy Market Regulatory Authority
EPIAS	: Energy Exchange Istanbul
EU	: European Union
GDRE	: General Directorate of Renewable Energy
GEPA	: Solar Energy Potential Atlas
GET	: Green Economy Transition Programme
GIS	: Geographical Information System
GIZ	: Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
IBRD	: International Bank for Reconstruction and Development
IRENA	: International Renewable Energy Agency
IDB	: Islamic Development Bank
JBIC	: Japan Bank for International Cooperation
MENR	: Ministry of Energy and Natural Resources
MoSIT	: Ministry of Science Industry and Technology
OPEX	: Operating Expense
OIZ	: Organized Industrial Zone
PA	: Public Accountant
PV	: Photovoltaic
R&D	: Research and Development
REZ	: Renewable Energy Resource Zone
SGM	: General Directorate of Industry
YEKDEM	: Renewable Energy Sources Support Mechanism
SPP	: Solar Power Plant
TESK	: Confederation of Turkish Tradesmen and Craftsmen
TEIAS	: Turkish Electricity Transmission Company
TL	: Turkish Lira
TOBB	: Union of Chambers and Commodity Exchanges of Turkey
TSE	: Turkish Standards Institute
TSKB	: Turkish Industrial Development Bank
TSMS	: Turkish State Meteorological Service
USD/USD _{cent}	: US Dollar / US Dollar cent
VAT	: Value Added Tax
WPP	: Wind Power Plant



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Introduction

1.1. On the Project

Turkey has the goal to reduce its dependence on energy imports.

The objective of Turkey's National Renewable Energy Action Plan (REAP) under the Regulation 2009/28/EC is to design the strategies to promote the development of renewable energy in Turkey.

According to the targets stated in the National Renewable Energy Action Plan, it is aimed to strengthen the electricity grid so as to enable integration of more renewable electricity to the system as a part of the efforts towards acceleration of the development of renewable energy. Turkey is determined to generate 30 % of her total power generation from renewable sources by the year 2023. To this end, an additional 34 GW of hydropower, 20 GW of wind energy, 5 GW of solar energy, 1 GW of geothermal and 1 GW of biomass will be established. Additionally, another important aim is to establish an appropriate framework that will suitably support promotion of distributed electricity generation based on renewable resources.

The project "Promotion of Grid-connected Renewable Energy in Turkey" implemented by GIZ aims to help build the capacity of Turkish institutions to utilize German and international experience in the renewable energy sector and implement expansion targets on a sustainable basis. As a result of the project, the Turkish institutions and agencies will benefit from experience of Germany and other countries in the field of renewable energies, thus will be empowered to establish an improved environment for energy policies, to promote greater use of renewable energies and to sustainably implement Turkey's goals of expanding power generation from renewable energies. Moreover, relevant Turkish institutions will obtain the knowledge on the prerequisites for a sustainable and appropriate design for system integration of the renewable electricity to the grid in the future.

Turkey has significant potential for renewable energies. Although legislation for promotion of renewable energy is already available, there are still many challenges in terms of implementation of the legislation and domestic value-added goals. The project aims to build the capacity of Turkish institutions to utilize German and international experience in the renewable energy sector and implement expansion targets on a sustainable basis.





The project includes the following components

1. Optimization of legal, economic and technical conditions applicable for feeding renewable electricity to the grid.
2. Establishment of cross-sectorial policy dialogue involving the government, administration and private sector actors (including the banking industry) and the civil society.
3. Support for grid operators and electricity suppliers through knowledge transfer for securing the integration of renewable energies into the grid.

The project is expected to contribute to the reduction of greenhouse emissions and improve Turkey's supply of electricity from sustainable and locally available sources. This will help to protect the climate, increase energy security and strengthen the Turkish economy for the future.





1.2. Objectives

The purpose of the present study is to provide a guide for investors, to introduce currently available opportunities and to highlight the attractions of Renewable Energy Zones (REZs) and to present application processes with regards to the REZs.

Furthermore, the Manual provides guidance and promotion on both the wind power plant investments and wind turbine manufacturing investments.

This study aims to achieve the following objectives:

- :: To present the roadmap on grid connection application process for wind energy investments in Renewable Energy Resource Zones (REZ).
- :: To conduct attractiveness analysis of Wind Energy investments in REZ.
- :: To describe the steps for the development of wind power plants (site selection, micrositing and optimization, power efficiency analysis, electric output assessment, etc.).
- :: To investigate the attractiveness of wind energy investment within the scope of REZ model.
- :: To explain the localization component, local content and support mechanisms.
- :: To define the financing/funding opportunities for investors.
- :: To develop checklists for investors listing the documents and permissions required for the application procedures.

* In this document, the terms "investor", "company" and "participant" have been used interchangeably in order to refer to a natural or legal person who has participated in the REZ competition, or won the competition, or has gained the right to obtain prelicence or licence, in accordance with the the laws and regulations that arrange the REZ model.



Energy Market in Turkey

2.1. Market Structure

09

The Turkish Energy Market is regulated with the Energy Market Law No. 6446. The purpose of the Law is to ensure that the power supply meets the demand in a way that is of high quality, sustainable, low cost and environmentally friendly. One of the basic principles is to allow the consumers to choose among providers to supply their power needs instead of a monopolistic source.

With the regulations and supervision of the Ministry of Energy and Natural Resources (MENR) and the Energy Market Regulatory Authority (EMRA), the foundations of a price efficient and a stable competitive environment are established.

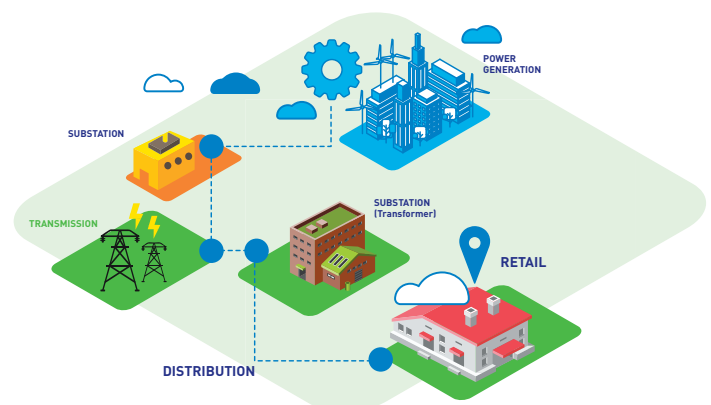
The activities that are involved in the process from production to consumption of energy are generation, transmission, distribution, wholesale, retail, market operation and import/export. (Figure 1). Among these activities, transmission is exclusively carried out by the state owned company TEIAS. Other activities in the process are performed by public and private organizations.

Within this scope, the power is generated by public and private companies as well as the legal entities of organized industrial zones. The power generated or the corresponding capacity can be sold to procurement companies, to independent consumers or consumers that have dedicated direct power lines. The national power distribution system has been divided in 21 regions and is operated by the private distribution companies. The legal entities of organized industrial zones can also take on the responsibility of distribution in the respective zones. According to the regulation on unbundling the distribution and retail activities, there is also a separate retail company at each distribution region.

The consumers get their power from the retail company of the respective region or from a procurement company if they are qualified as an independent consumer.

In the competitive environment established under this structure, it is EPIAS's responsibility to make sure that a reliable reference price for electricity is formed without discrimination to equal parties and to operate the energy market in a financially strong, consistent and transparent manner.

The roles, rights and responsibilities of all the actors in the market are regulated by MENR and EMRA. All activities in the energy market can be carried out by acquiring a Corresponding Licence from EMRA. The details of the licensing processes are described in the Electricity Market License Regulation. The power generation plants built under the REZ model will have to get a Power Generation Licence when they qualify and details of this are given in Section 3.2.3.



F.1 Activities in the Energy market



2.2. Renewable Energy in Turkey

Table No 1

Plant Type	Price (USDcent/kWh)
Hydraulic Generation Plant	0.073
Wind Energy Generation Plant	0.073
Geothermal Energy Generation Plant	0.105
Biomass Generation Plant (inc. waste gas)	0.133
Solar Energy Generation Plant	0.133

T1 :: Prices in YEKDEM

The companies that generate power from non-fossil and renewable energy resources such as hydro, wind, solar, geothermal, biomass, biogas, wave, stream, tidal stream are subjected to the procedures and principles set forth in the Energy Market Law No. 6446 and in the Law No. 5346 on the Use of Renewable Energy Resources for the Purpose of Power Generation. Both laws describe specific procedures for renewable resource types.

With the Law No. 5346, the companies that generate electricity from renewable energy resources become entitled to benefit from several important incentive mechanisms. The most important of such incentives is the Support Mechanism for Renewable Energy Resources (YEKDEM). The companies that generate power from renewable energy resources, with the exception of those Licenced under the REZ model, have the right to sell their power at the rates described in the Law (Table 1), during the first 10 years of the operational period of the power plant after commissioning. Each year, by the 31st of October, the companies who want to exercise this right are required to apply to EMRA to be included in YEKDEM in the following year. Depending on the prices in the free energy market, the companies can decide to be part of YEKDEM or not, on a yearly basis.

The Law No. 5346 also includes gradual support prices (Table 2) based on power plant components in order to promote the use of locally manufactured products in the wind power plants. According to this tariff, the price of the power generated wind power plants can get up to 3.7 USDcent additional local product support, depending on the technology. Hence the total purchasing price of power from wind energy can reach up to 11 USDcent .

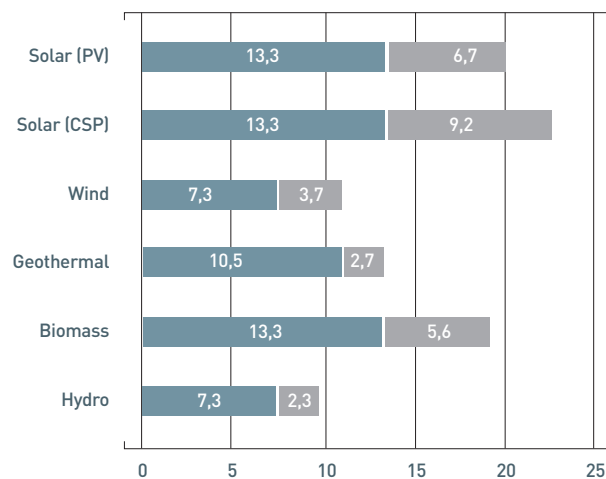
When additional local product supports are added to YEKDEM purchase prices, the prices for each renewable energy resource are given in Figure 2.



Table No II		
Plant Type	Domestic Manufacturing	Addition for Local Products (USDcent/kWh)
C.Generation plants based on wind energy	1- Blade	0.008
	2- Generator and power electronics	0.013
	3- Turbine tower	0.035
	4- Entire mechanical equipments in the rotor and nacelle (excluding the payments for blades, generator and power electronics)	0.006

T2 :: Additional tariff in YEKDEM for local wind power products

The developers, who obtain Generation Licence under the REZ model, will be subject to the procedures of YEKDEM, with the exception of feed-in tariff and duration of period for which the feed-in tariff will be applied. These companies will also not benefit from the Table 2 even if the products used in the power plant have been manufactured in Turkey under the scope of ACULME or ACLM.

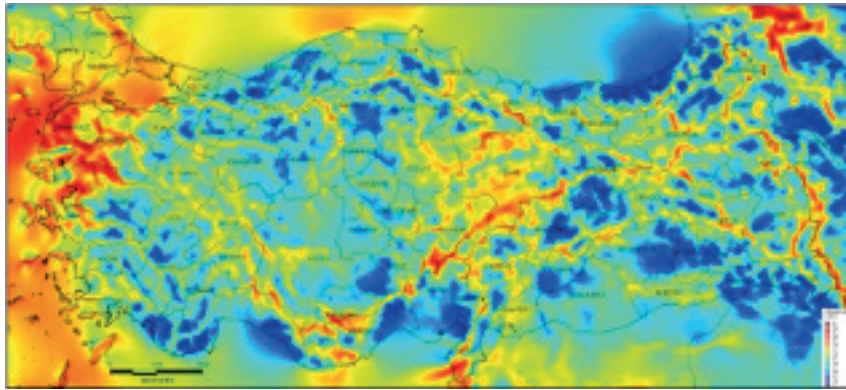


F.2 YEKDEM Purchase Prices and Additional Local Component Supports

■ YEKDEM Purchase Prices
 ■ Additional Local Component Supports

Wind Market in Turkey

2.3.1. Wind Energy Potential of Turkey



F.3 Annual Average Wind Speed at 100 m (m/s)

The first wind power plant of Turkey, which has 1.5 MW capacity, was commissioned in 1988 in İzmir, Çeşme.

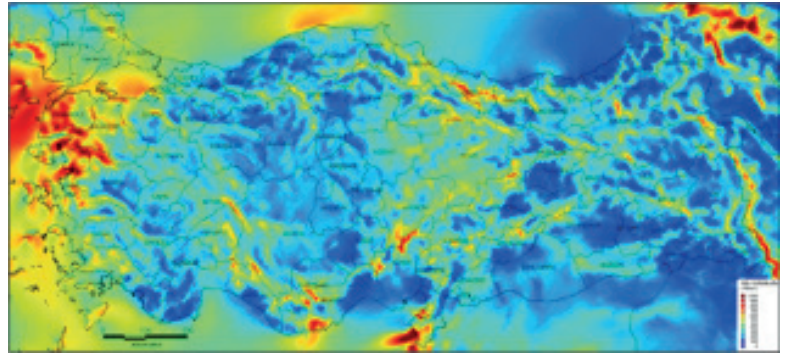
The market experienced a relatively slow rate of growth until 2007. But in 2007, with the publication of the Turkish Wind Energy Potential Atlas (REPA) and the decision of EMRA to accept wind energy licence applications, a significant acceleration has been achieved.

REPA has been started in 2006 by the GDRE (then called as Turkish Electrical Power Resources Survey and Development Administration) as a project where the main purpose is to clearly determine the wind energy potential of Turkey. Within the scope of the project, the first activity was to execute the mesoscale atmospheric weather forecast model called WRF. The inputs to the model are the NCEP/NCAR Reanalysis data sets, the NASA SRTM topographic digital elevation maps and land use information acquired through satellites. The model has generated the wind data for a typical meteorological year. In the next stage these data have been converted into geographical format so that they can be processed with GIS tools. At the end of the study, for each 200 x 200 meters cell that falls in a rectangle that covers the entire country, the annual, seasonal and monthly averages of the wind speed and wind direction at hub heights of 30, 50, 70 and 100 meters have been obtained, as well as air density, wind power density, capacity factor, air pressure, ambient temperature and roughness data.

Based on the results of REPA, the map of annual average wind speed at 100 m above ground level can be seen in Figure 3 (REPA 2007).

In addition to the wind speed, another factor that significantly affects the power output is the air density. The calculation of wind power density includes this critical component. Therefore, the wind speed map must be consulted together with the wind power density map.

F.4 Annual Average Wind Power Density at 100 m (W/m^2)



The Figure 4 displays the map of annual average wind power density at the 100 m height. component. Therefore, the wind speed map must be consulted together with the wind power density map. The Figure 4 displays the map of annual average wind power density at the 100 m height.

Another main difference of REPA from similar studies around the world is that it does not only involve the mapping of wind resources, but also determines the wind energy potential of the country by using scientific calculations. In order to achieve this purpose, several map layers have been added to the GIS application, such as the land slope, elevation, bathymetry, urban areas, lakes, rivers, wetlands, roads, railways, airports, ports, existing power plants, substations, power transmission lines, earthquake fault zones, forests, bird migration paths, environmental protection areas and natural parks. For each of these layers which can actually create obstacles to the installation of wind farms, certain threshold values have been determined, such as 100 m to the shoreline, 500 m to urban areas and maximum slope of 20%. By filtering out the areas which do not meet the threshold criteria, the areas that are suitable for wind turbine installation have been determined. Subsequently, the total capacity has been calculated for these areas where the wind speed is at least 7.5 m/s.

As a result of the calculations, it has been determined that the wind energy potential of Turkey is 37 GW onshore and 11 GW offshore, giving a total installed capacity potential of 48 GW in wind energy (REPA 2007). The western part of the country has significantly higher potential. The coastal

areas of the Aegean Region and the western part of the Marmara region are the areas with the highest wind speed values. Moreover, Mersin, Hatay, Kayseri and Sivas are the provinces where the average wind speed is significantly higher. The wind energy potentials of the geographical regions of Turkey can be seen in the table below:

Geographical Region	Onshore Wind Energy Potential (MW)
Aegean	14.975
Marmara	12.704
Mediterranean	5.335
Black Sea	2.472
Eastern Anatolia	986
Central Anatolia	914
Southeastern Anatolia	0
Total	37.386

T3 :: Wind Energy Potential of the Geographical Regions of Turkey

2.3.2. Current Situation

The effort to generate power from wind in Turkey dates back to 1980's. The first installation of wind power plants started with the 1,5 MW Germiyan SPP in Çeşme İzmir. In the following years, the more plants have been installed. During the same period of time, the power market of Turkey has undergone a significant change, resulting in a structure where free market initiatives gain importance and the public authorities play the regulation role. As a result of this renovation process, the Law on Use of Renewable Energy Resources for Power Generation (No. 5346) was published in the Official Gazette in 2005. Law No. 5346 eased the process for the installation of renewable energy power plants and the power generated from renewable energy sources has gained the legal protection with well-defined purchase prices.

With the power purchase guarantee arising from the Law, the number of renewable energy investors has significantly increased. In the year 2007, when the installed capacity was only 150 MW, the REPA wind atlas has been published. EMRA accepted the wind licence applications in November of the same year. The total of the installed capacities of some 750 applicants exceeded 82.000 MW. After the release of the secondary legislation and the allocation of grid capacity to wind power, in 2011 the evaluation phase of this huge amount of applications has been completed and 57 projects with a total installed capacity of 2,122 MW have gained right to obtain the prelicence.

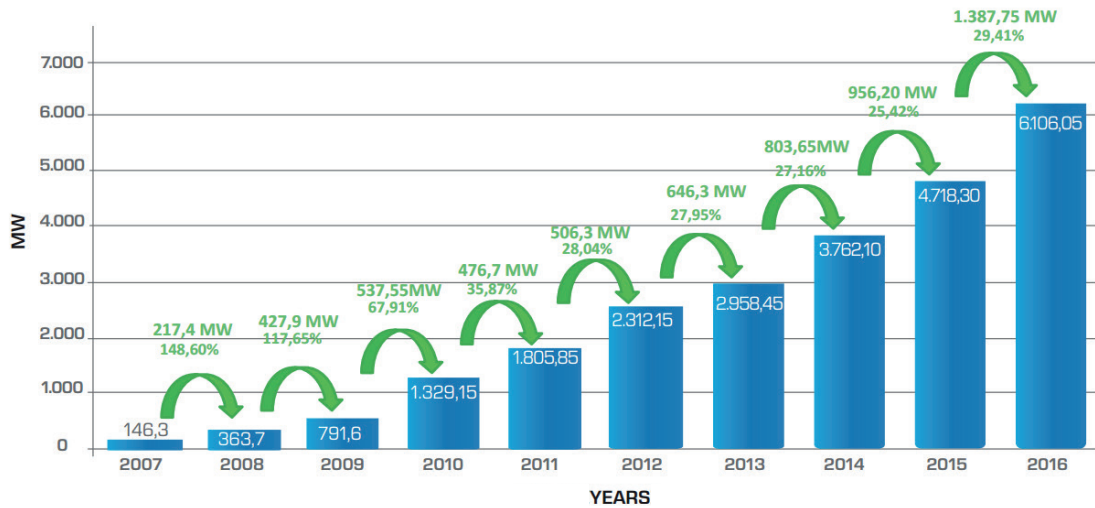
Under the conditions of a rapidly growing wind energy sector, the projects that applied for licence in 2007 were neither required to make measurements nor had an upper limit for the installed capacity. But in later stages, it has become apparent that certain measures are required. In 2013, TEIAS has announced capacities ranging from 30 MW to 260 MW for different regions of the country, reaching a total of 3,000 MW. The companies who want to participate in this capacity have taken their on-site measurements during 2014. In April 2015, 1,096 projects with a total capacity of 42,273.65 MW have submitted licence application files to EMRA. The process

of evaluation of these applications still continues. When the inspection and evaluation phases are completed, if the amount of applications exceed the regional capacity and/or if there are projects that overlap, the projects are invited to compete against each other on the basis of regions. The competitions for certain regions have been executed in June 2017. After the completion of the competitions in the remaining regions, 3,000 MW of projects will gain right to obtain prelicence.

TEIAS announced another 2,000 MW capacity in May 2015, which corresponds to the wind capacity that can get connected to the power grid until 2020. In order to benefit from this capacity, the investors will apply to EMRA on the dates 2 – 6 April 2018. When the competition process for these applications are completed, another 2,000 MW wind power plant will be on their path for realization.

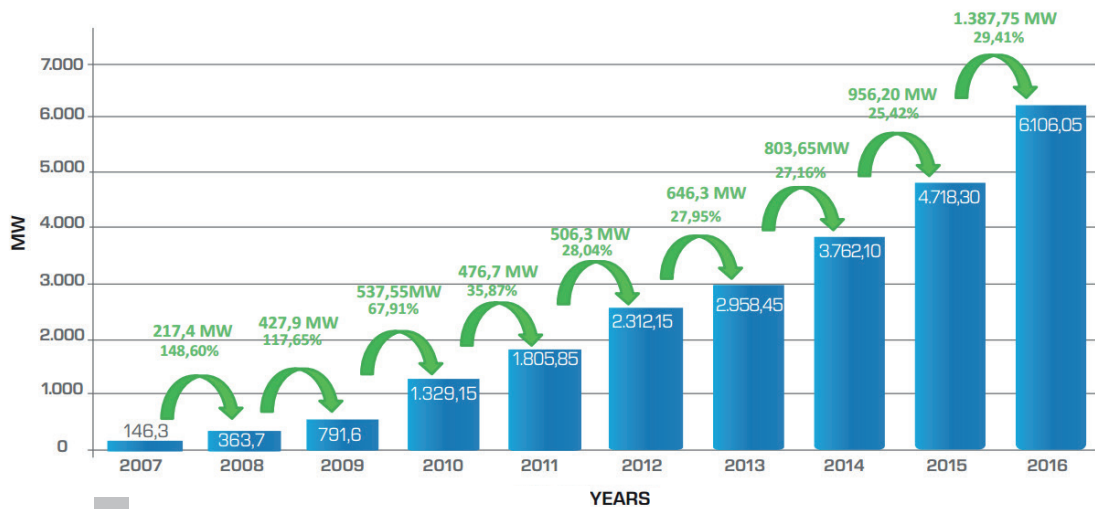
Based on the information released by EMRA, there are 244 licensed projects with a total of 9,940.25 MWe installed capacity, out of which 5,622.44 MWe are already operational, while 4,317.80 MWe are not yet operational. Considering the capacity projections for 2020, the 5,000 MW new capacity will also be added to the capacity not yet built, reaching an amount approximately 9,300 MW ready for wind turbine procurement during the next few years. Moreover, the extensions of the existing power plants can vary between 1,000 MW to 3,000 MW (Tiryaki 2016). All of these power plants will have the right to benefit from the additional tariff for locally manufactured equipment. This creates a significant market for REZ investors who will manufacture wind turbines in Turkey.

, Turkish Wind Energy Statistics Report published by the Turkish Wind Energy Association on a semiannual basis provides very detailed information about the current status of the wind energy sector of Turkey (TÜREB 2017). In this report, three charts that are highly relevant for REZ investors will be copied to this document. The first of these charts is about the annual increase of the installed capacity. As seen in Figure 5, the installed capacity of wind power plants in Turkey has shown a steady increase since 2007.

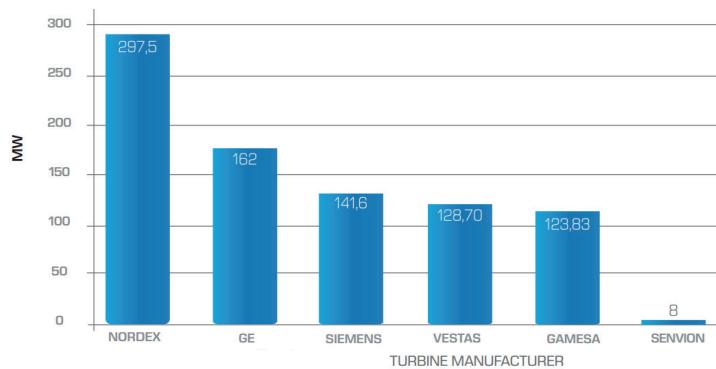


F.5 Annual Change in Installed Wind Capacity

The other two charts relate to the market shares of the major wind turbine manufacturers (Figure 6 and Figure 7).



F.6 Installed Capacities of Wind Turbine Manufacturers



F.7 Capacities under construction of Wind Turbine Manufacturers

2.3.3. Process for Wind Power Plant Development

Each renewable energy source has a specific technology, hence requires special project development and construction processes. In power plants that produce electric power from wind energy, the main components that constitute the wind turbines are manufactured at factory floor and transported to the installation site for mounting. Depending on factors such as the structure of the wind turbine, topographic characteristics and weather conditions, the duration required for the installation of a wind turbine can be expressed in days. Despite the short duration of installation, due to large requirements for land and large dimensions of the wind turbines, the period preceding the construction is relatively much longer in wind power plants. In this section, the road map of the wind power plant development process is summarized.

2.3.3.1. Site Selection

Site selection is the process of identifying the wind power plant area by considering the technical, economic and administrative constraints.

The most important factor in WPP project development is the site selection. This is due to the site-dependent nature of wind. If the location of a wind turbine is shifted for a few hundred meters, the energy output can change drastically. When compared to other critical decisions such as the decision on installed capacity or selection of wind turbine model, site selection is the most difficult and costly to revise. Changing the area of the wind energy project is almost equivalent to starting it from scratch.

In REZ model described as "Allocation of Grid Connection Capacity for REZs", site selection is the responsibility of the investor. The winner of the REZ competition has to make the site selection immediately and submit the selected site to MENR in 90 days that follows the signing of the REZ Right of Use Contract. MENR investigates the proposed sites and declares the appropriate ones as REZ. The details of this process are described in Chapter 3 of this Guide.

The first step in site selection is the validation of the wind resource at the site. Under ideal conditions, the decision must be based on the results of the wind resource assessment study of the long-term correlated data generated from the data collected from the site for at least one complete year. But in most cases, the allocated time period for site selection does not allow enough time to take on-site measurements. Hence the developers are inclined to make use of other resources such as wind maps and wind atlases. Wind atlases are obtained by executing a mesoscale weather forecast model which is fed with the global meteorological archive data, topographic information and land use data obtained from satellites. At the end of the simulations, wind data is obtained at desired spatial and temporal resolutions and at desired height above the ground.

REPA Turkish Wind Atlas published by GDRE in 2007 is the most relevant source of information for prospective YEKA investors (REPA 2007). In REPA, the spatial resolution is 200 meters, the heights above the ground are 30, 50, 70 and 100 meters and the temporal resolution is annual, seasonal and monthly averages. For each point in Turkey, the wind speed, wind direction, air pressure, ambient temperature, air density, roughness, wind power density, wind class and the capacity factor calculated for the reference wind turbine can be obtained from REPA. In addition to REPA, the investors can also refer to third party data resources, among which anemos GmbH, Vortex, AWS Truepower are worth mentioning.

When the site selection process is initiated by utilizing the generic wind atlases, it is very beneficial for the developers to deploy wind energy experts to the site in order to make on site observations. The site visit will make it possible to confirm the wind resource at the site. The experts of wind energy resource assessment can make use of certain indicators at the site, such as vegetation, topography and opinions of the local people, in order to verify the wind resource at the site. Moreover, a site visit will provide the developers with valuable first hand information about the obstacles for wind flow, situation of the vegetation, general environmental conditions, site accessibility, distance to grid connection location, land ownership and land use.

In the following steps of the WPP development, several permits and licences must be acquired. The cancellation of a site due to the failure to obtain permits means the annulation of all efforts up to that point in time. This problem is very crucial especially in REZ model where there are strict time limits. For this reason, prior investigation related to the obtainability of the permits must be conducted at an early phase of the project development. Even if all doubts may not be eliminated, risks identified at this early stage can be professionally managed in later stages. As the prospective investor has yet no legal rights on the project area, these investigations are generally conducted in a verbal manner, rather than written official communications. Some of the topics that must be investigated at this stage can be listed as follows:

- :: Mining activities,
- :: Cultural and natural assets,
- :: National parks and protected areas,
- :: Bird migration paths,
- :: Land ownership and current prices,
- :: Land class and agricultural value,
- :: Whether the area is registered for other uses in land development plans,
- :: The military and civilian aviation and communication activities in the region,
- :: Seismic hazard,
- :: Condition of roads that will provide access to the site,
- :: Grid connection conditions,
- :: Alternative paths for the power transmission lines,
- :: Underground lines such as petroleum, gas or power.

At the last stage of the site selection process, based on the technical and

administrative information gathered so far, a preliminary project is prepared and pre-feasibility studies are conducted. After covering the costs for installation and operation, if the revenues from the wind power plant meet the expectations of the investor, the site selection is completed.

Site selection can be quite difficult and it should be handled in great detail. There can be many reasons for abandoning a site. Taking such probabilities into consideration, it is wiser to start with installed capacities that are a few times larger than the finally targeted amount.

2.3.3.2. Wind Resource Assessment

Even though the generation of power from renewable energy resources has several environmental and economical advantages at global and national scales, a rational investor has the primary goal of meeting the revenue expectations. In order to meet the expectations, the costs have to be minimal, while revenues must be as high as possible. As wind is an intermittent source of energy and it can display variations over time, it is crucial to make precise calculations for energy output, hence revenues. In order to achieve this, wind resource assessment studies are conducted, so that uncertainties which can not be eliminated are at least quantified.

The first step of a wind power assessment study is taking on site measurements at the planned project site. The number of measurement stations are determined in a way so that they represent the planned wind turbine locations. The measurement stations are erected and data is collected for at least one full year, preferably under the supervision of expert independent consultants. The technical specifications of the wind measurement stations and the procedures that must be applied during the measurement period, the rules that must be obeyed and records that must be kept are all very well defined in internationally accepted standards and technical guidelines.

Once the proposed sites are announced as REZ by the MENR, it is beneficial for the investor immediately start the measurement process. Longer measurement periods decrease the level of uncertainty in wind resource of the project.

The data collected from the measurement station are first passed through a quality control procedure. The data that do not conform with the international quality standards and technical guidelines have higher uncertainty values, results in a project that appears to have high risks.

Except certain ideal conditions, the measurement period in wind energy development efforts does not exceed a few years. However, the economic lifespan of wind turbines is at least 20 years with the present technology. Planning a project with such life expectancy can not be realistically performed by using data collected on such period as one year. For this reason, it is essential that the data collected from the site is correlated with long term data sets, in order to identify the long term wind resource characteristics of the site. There are several sources of long term reference data sets, so the one that best correlates with the measurements must be selected. The wind power plants that are not based on long term correlated data are prone to face high economic and technical risks in the future phases.

The Technical Specifications of the REZ competition can impose lower or upper limits to the installed capacities of the wind power plants that will be developed under REZ model. Especially in case of lower limits, the size of a wind power plant can be in the range of square kilometers. In such large areas, there must be several measurement locations at once. But, whatever the number of measurements is, determining the wind resource of the entire area is a prerequisite for making wind turbine configuration optimization. To achieve this purpose, certain models are used together with the long term correlated measurement data. The wind simulation model should also take the topography into consideration. Especially in complex terrain, i.e. if there are hills and valleys in the area, simulation tools that rely on the principles of computational fluid dynamics must be preferred over simple models.

The wind turbines in a wind farm have effects on each other, which is called "wake effect". The wind turbines that are at the front will disturb the wind flow reaching the wind turbines located behind, hence decrease their power output. The modelling software is capable to calculate these effects and optimize the wind turbine configuration in order to maximize the overall energy output. During the optimization, other factors that affect the wind turbine erection are also considered in addition to the wind resource. This activity is called "micrositing" in wind energy terminology.

In order to perform the micrositing and the energy output calculations, the wind turbine model that will be used must be determined. Under normal conditions, the developers choose from appropriate models of different manufacturers, based of certain selection criteria. However in case of REZ model, it is possible that the process will follow a different path. As the investor can prefer to manufacture the wind turbine model or several models that meet the wind characteristics of the selected REZs. The other approach can be to select the REZs that meet the wind requirements of the wind turbine that they can manufacture or acquire from the domestic market. In either way, the wind turbine class must be compliant with the wind characteristics of the site.

The overall purpose of the wind resource assessment study is to determine the uncertainties associated with the planned wind power plant. The companies competent in this domain have their approaches to determine the uncertainty values that include all of the factors that can affect their power output calculations. Then the power output values are calculated in a probabilistic manner, by taking the uncertainties into the calculations. The results of this calculation are called transgressional probabilities and are expressed such as P50, P70 or P90. The transgressional probabilities are the main determinant of the financial evaluation of the project from the lenders' perspective. When the P50 value is closer to P90 value, the uncertainty of the project is considered to be low, so the revenue component of the cost and revenue analysis is more reliable. Such projects are considered to be of low risk in terms of power generation.

2.3.3.3. Land Use Rights and Permits

According to the legislations, wind power plant projects have to make a prelicence application to EMRA. During the prelicence phase, the developer which has been granted the prelicence, is expected to acquire the necessary permits and conduct the activities to obtain the rights for using the land.

The activities start with the land use permitting process for the land that will be required for wind turbines, switchyard, other necessary facilities and the roads that will provide access. Licensed wind power plants that will be installed on privately owned land have the right for expropriation. For the land owned by the Treasury, there are several incentives in order to support the development of the renewable energy resources. The right of use of the land owned by the public agencies depends on the relevant legislation of the particular agency that owns the land. Forests are also considered under this scope.

The land that will be used for the facilities and the roads must also be registered on the land development plans. Therefore, the next step is the permitting process for land development plans, which requires the collection of opinions of several public agencies. Each agency will evaluate the project from its specific point of view and their relevant legislation and develop the opinion of the agency about the project. For instance, the Food, Agriculture and Livestock Directorates will evaluate the project from perspective of present agricultural activities and future development plans, while the Cultural and Tourism directorate will examine if the site conflicts with cultural preservation areas. When the opinions of all agencies are positive, then the project can get the land planning permit.

Another important analysis that must be conducted during the wind farm development is the Technical Interaction Analysis. The purpose of this analysis is to analyse the potential effects of the planned

wind farm on the communication, navigation and radar systems. Technical Interaction Analysis is conducted by the TUBITAK. This process of making the application for the analysis and the subsequent process is described in detail on the web pages of the GDRE.

The approvals of the preliminary design project, the project and the final design, which are required in order to start the construction works at the site, should also be obtained during the prelicence phase.

EIA certificate is another very important document that has to be obtained at the prelicence phase. The EIA documents are issued by the Ministry of Environment and Urbanization according to the relevant legislation. The details of the processes to obtain the EIA document are described on the web pages of the Ministry of Environment and Urbanization. The impacts on the following are considered during the EIA process:

- :: Species that can be endangered,
- :: Impacts on birds (raptors and migratory birds),
- :: Visual impacts,
- :: Noise impacts,
- :: Impacts on land use,
- :: Impacts on historical, archaeological, cultural and natural heritage,
- :: Impacts on water resources,
- :: Impacts of public health,
- :: Impacts on the local economy and development,
- :: The waste and pollution that originate from the plant during the construction and operation phases.

2.3.3.4. Grid Connection and Power Purchase Agreements

In the development of the wind energy project, the grid connection agreement is the main determinant of the electrical design of the project, while the power purchase agreement describes the main factors that influence the economic analyses and financing conditions.

According to the legislative framework in Turkey, the developers who want to get a wind energy licence are first required to make a licence application to EMRA. If there is more than one project in the connection site, they will

be put through a competition by TEIAS for the available grid capacity on a regional basis. For the WPPs which applied for the licence before 2015, if they gained the grid connection right with a competition, they are required to pay the contribution margin to TEIAS, regardless of whether the power is sold in YEKDEM. The WPPs that submitted the prelicence application to EMRA in or after 2015 and gained the grid connection right after the competition, will either sell the power at the price decided in the competition or pay the participation payment to the grid operator. This second mechanism can lead to several scenarios depending on whether the power is sold at YEKDEM, whether the financial offer in the competition is above or below zero and whether locally manufactured products are used or not. The details of this mechanism are determined with the Regulation on the Competition of Prelicence Applications for Generation of Power from Wind and Solar Energy, which has been published in the Official Gazette No. 30065 on 13.05.2017. In summary, the power purchase agreement of the WPPs which applied in or after 2015 is determined with the competition.

The major difference in REZ projects is that the power purchase agreement is actually the REZ Right of Use Agreement which is signed after the competition. The information about the selling price and duration of the power from REZ plant are all determined in the REZ Right of Use Agreement.

After completing the permitting and right of use processes, the company who wins the competition will sign the Grid Connection Agreement with TEIAS or the regional distribution company, depending on the installed capacity of the project. The Grid Connection Agreement is the main document that determines the capacity limits, load flows, voltage controls and system protection requirements based on the technical and geographical conditions of the wind power plant project. The power plant which is constructed as described in this agreement, is then entitled to sell its power within the scope of YEKDEM or directly on the free power market.

2.3.3.5. Financing the Wind Power Plant

The developer who wins the REZ competition, gets the right to use the grid capacity, obtains the necessary permits during the prelicence phase and signs the grid connection agreement, will need to finance the project in order to proceed with the equipment procurement phase. In large scale wind power projects, 100% equity financing is very rare. In general, the investors will use their equity in order to leverage external financing. At this stage, the financial strength of the developer company and the real investors backing the developer become important, as well as the economic analyses of the project itself.

In the economic analyses, the power output estimations determine the income of the project. In the power output estimations, the losses should be considered and the amount of net power that can be fed into the grid should be used in subsequent calculations. On the expenses side of the analysis, there are the initial investment (CAPEX) and operational (OPEX) costs of the wind power plant. The main components of the initial investment expenses arise from the nacelles, blades, towers, foundations, transformer stations, power transmission lines and conversion systems in the plant, power transmission lines to the grid connection point, transportation and installation, roads, crane pads, communication and control systems, land on which the plant is constructed, permitting processes, project development, engineering services and general administrative costs. The typical sources of the operational costs are the staff costs, maintenance costs, consumables costs, land use costs such as rent, grid connection fees, insurance premiums, taxes and general administrative costs.

By considering all the costs and estimated revenues, several economic analyses such as internal rate of return, debt service capacity ratio and return on equity

are conducted in order to get a ultimate financial picture of the project. The investor then applies to banks and other lenders with the information for the financing of the project.

The lenders evaluate the loan application in great detail, usually consulting with third party independent consultants. At the end of the evaluation process, the lender determines the conditions under which the specific project can be financed. These conditions are the ratio of equity, source of equity, interest rate, grace period, loan duration and the collaterals to be provided by the investor. When the investor and the lender come to an agreement on the

2.3.3.6. İnşaat ve Kurulum

The WPP project that has been in the planning phase up to this point finally becomes ready for construction and installation. The first step at this stage is to finalize the equipment procurement, installation and construction contracts. Then the companies which have been contracted will perform the civil, mechanical and electrical processes according to the project design documents, contracts and the relevant legislation.

When the installation is complete, after the grid compliance analyses and tests, the wind power plant is commissioned and hence the power sales period starts.





According to the REZ Regulation,

the objective of REZ model is the efficient and effective use of the renewable energy resources by setting up large scale renewable energy zones (REZs) on publicly owned, Treasury and private lands; fast track realization of planned projects by allocation of these properties to investors; enabling the local manufacturing or local procurement of the advanced technology equipment used in the RE power plants; and contribution to the technology transfer.

These objectives can be summarized in three main expectations from the REZ model:

- :: The renewable energy investments developed under the REZ model will be large scale projects;
- :: The investment process will be shortened, in particular by facilitating the allocation of publicly-owned and treasury properties;
- :: It will be ensured that in order to qualify for REZ model, the locally manufactured products should be used in their power plants.

3.1. Legislative Framework

The list of the laws and regulations that determine the REZ model explained in the Guide are given under this section. The legislative framework may extend beyond this list. The investors are advised to investigate the entire set of laws and regulations in more detail.

3.1.1. Laws

- :: Law No. 5346 of 10.05.2005 on Use of Renewable Energy Resources for Power Generation
- :: Law No. 6446 of 14.03.2013 on Energy Market
- :: Law No. 4737 of 09.01.2002 on Industrial Zones
- :: Law No. 5746 of 28.02.2008 on Supporting Research, Development and Design Activities
- :: Law No. 4817 of 27.02.2003 on Work Permits for Foreigners
- :: Law No. 4875 of 05.06.2003 on Foreign Direct Investments



3.1.2. Cabinet Decisions

- :: Cabinet Decision No. 2012/3305 On State Support for Investments (as published in the Official Gazette dated 19.06.2012 and numbered 28328)
- :: Cabinet Decision No. 2013/5625 on Prices and Durations Applicable for Renewable Energy Based Power Generation Plants and on Local Contributions (as published in the Official Gazette dated 05.12.2013 and numbered 28842)
- :: Cabinet Decision No. 2015/8317 On Extension of Certain Durations Described in Law No. 6446 (as published in the Official Gazette dated Official Gazette dated 24.12.2015 and numbered 29572)
- :: Cabinet Decision No. 2016/9093 of 11.08.2016 On Method of Calculation of the Number of R&D Staff to be Employed at the R&D Centers

3.1.3. Regulations

- :: Regulation on Starting Business and Working Licences (as published in the Official Gazette dated 10.08.2005 and numbered 25902)
- :: Regulation on Certification and Support of Renewable Energy Resources (as published in the Official Gazette dated 21.07.2011 and numbered 28001)
- :: Energy Market Licensing Regulation (as published in the Official Gazette dated 02.11.2013 and numbered 28809)
- :: Implementing Regulation on Monitoring and Supporting the Research, Development and Design Activities (as published in the Official Gazette dated 10.08.2016 and numbered 29797)
- :: Regulation on Renewable Energy Zones (as published in the Official Gazette dated 09.10.2016 and numbered 29852)

3.1.4. Communiqués

- :: Communiqué on Implementation of the Decision on State Support for Investments (as published in the Official Gazette dated 20.06.2012 and numbered 28329)
- :: Communiqué on Locally Manufactured Products (as published in the Official Gazette dated 10. 13.09.2014 and numbered 29118)
- :: General Communiqué on Law No. 5746 on Supporting the Research, Development and Design Activities (as published in the Official Gazette dated 30.09.2016 and numbered 29843)

3.2. Procedure for Developing REZ Wind Projects

Regulation on Renewable Energy Zones describes the rules on how REZs are identified; how investors submit their applications for the right of use of REZs; how the investors are selected through the competition; and the activities of the winner of the competition during the prelicence, licence and operational phases of the project. In this section, the processes described in the Regulation are summarized.

The procedure for implementation of the REZ model as described in the Regulation is carried out by the MENR.

3.2.1. Determination of Project Zones

The first step of the REZ model is determining the resource zones. This task can be accomplished in two manners: REZs being determined by the MENR, or allocation of grid connection capacity for REZs. The details of both methods are described in this section.

3.2.1.1. REZs Determined by MENR

For the first step, MENR identifies the REZ candidate areas in consideration with the resource efficiency and land ownership through scientific analysis of topographic base maps, energy resource atlases and measurement data and making pre-assessment studies on the public and private lands. Also, the grid connection status of such areas are requested from TEIAS. After the approval of the MENR, the areas are declared as "REZ Candidates" on

the website of the GDRE (www.yegm.gov.tr). After this step, GDRE initiates more detailed studies on the REZ candidates.

MENR takes the necessary precautions to prevent other institutions making changes on the existing zoning status during the process. Moreover, MENR investigates the area for any kind of obstacle for the installation of a power plant. Based on the information gathered, the total capacity that can be installed in the area is determined. Field measurements are taken in the zone and technical and economic studies are conducted by using the collected onsite data. At the end of all of these studies, based on the resource potential of the area and on the costs of installation, the final decision on whether the area is suitable for investment is made by the MENR and it is published in the Official Gazette as a REZ (www.resmigazete.gov.tr).

Once an area has been determined as a REZ candidate, MENR has one year to complete the studies described above. The process for the reallocation of the properties as REZs by their respective owners starts at this stage.

If deemed necessary by MENR, further studies and works such as environmental impact assessment, geological and geotechnical surveys, expropriations, preparing topographic maps, parcelling, construction zoning and power transmission infrastructure can be conducted, in order to make the REZ well-prepared for investment. However, MENR is not required to perform these studies for all the REZ areas.

MENR shall decide the timing of projects concerning investments on declared REZ areas.

In some REZ applications, the investment area can overlap with an Industrial Zone Specialized on Energy. In such cases, the REZ allocation is made in coordination with the MoSIT. According to the Industrial Zones Law No. 4737, an industrial zone is "a production area founded according to this Law with the purpose of promoting



the investments, redirecting the savings of Turkish citizens working abroad to such investments and increasing the inflow of foreign capital into the country". This definition clearly describes the objective of the Law. The activities related to the industrial zones are conducted by the MoSIT. The areas proposed as industrial zones by this Ministry shall be evaluated by a commission that also includes representatives from other ministries and then the decision is published in the Official Gazette after the approval by the Cabinet. The costs of expropriation of the land shall be borne either by the MoSIT or by the investor itself. The land is then registered to the ownership of Treasury and allocated to the investor only for industrial zone purposes.

The investors who will operate in an industrial zone are required to make a contribution payment. The amount of this payment is determined by the Cabinet and cannot exceed 5% of the total investment cost. Then the investor is obliged to obtain an "EIA Positive Decision or "EIA Not-Required Decision" as per the EIA legislation in force. For EIA process of projects located within an industrial zone, the assessment committee consisting of representatives from relevant institutions and organizations shall come to a decision without requiring on-site studies. In parallel with the decision of this committee, the Ministry of Environment and Urban Planning shall finalize the EIA process in a maximum duration of two months. After this step, the investor is granted with all permits, approvals and licences including the right of easement within latest 3 months, who is then obliged to obtain licenses and permits related to renewable energy investment project. The activities performed inside an industrial zone can benefit from the

support mechanisms declared by the Cabinet Decisions. One of the very important advantages provided by the Law No. 4737 is related to the land development plans. The 1/5000 Master Development Plan and 1/1000 Implementing Development Plan, parcelling plans and any modifications thereof, as well as studies, maps, plans and projects on the infrastructure are prepared and put into effect by the MoSIT.

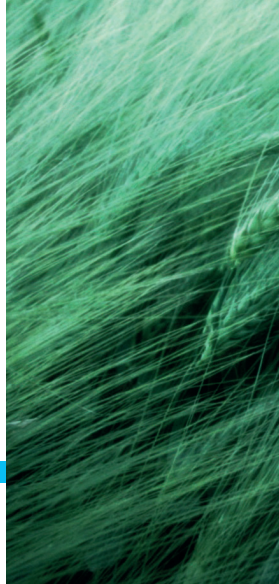
Even if the land that has been determined as a REZ is not an industrial zone, the projects can still have the chance of being considered as an individual investment area and hence benefit from the advantages of the Law 4737.

3.2.1.2. Allocation of Grid Connection Capacity for REZs

Another method that can be applied by MENR in order to determine a REZ is to apply the procedure for the allocation of grid connection capacity to REZs. MENR utilizes this method when it is preferred that the REZs are determined in coordination with the winner of the competition, instead of determining the REZs first and then inviting companies to compete. This will enable faster progress at the period prior to the competition.

The basic idea of the method is the allocation of the grid connection capacities which have been announced by the MENR on a regional basis, to the winners of the competitions for grid connection capacity allocated for REZs based on resource types, with the terms of the REZ Right of Use Contract. The main difference from the method where the REZs are developed by the MENR, is that the companies who want to make investments in REZs, first has to win the competition. It is only when a company wins the competition by offering the lowest financial offer it can sign the REZ Right of Use Contract and hence utilize the capacity of the region. The companies who join the competition are required to make an offer for the entire capacity.

The procedure that the winning company has to follow is described in 3.2.2.6.



3.2.2 Competition and Winning the REZ Right of Use

3.2.2.1. Announcement of REZ Competition

From the investors’ perspective, the process for the REZ development process is initiated with the publication of the “REZ Right of Use Competition Announcement” in the Official Gazette.

In the announcement, MENR will share the appropriate information about the technical details of the zone, administrative conditions, grid connection capacity, eligibility criteria, conditions of Letter of Bank Guarantee, upper limit for the power purchase price and the envisioned duration of power purchase, the location and time for the application and information about how the Specifications can be acquired.

The investors are given at least 30 days starting with the publication of the announcement, in order to prepare and submit their application for REZ.

3.2.2.2. Eligibility for REZ Competition

The investors willing to apply for the REZ competition are required to comply with the criteria listed in the Regulation and the Specifications.

It may be required that the entrants of the competition meet certain conditions regarding their local and international ownership structure. All such requirements are described in the Specifications.

The Specifications also describes if joint ventures can participate in the competition, the conditions for forming the joint venture and how the business references of the joint venture will be determined.

3.2.2.3. Application and Evaluation

The list of documents that are required to be submitted in the REZ application and the criteria that these documents have to meet are described in the Specifications.

The financial offer which has to be a part of the REZ application contains basically the information on the price that the company gives commitment to sell the power generated, with the condition that the price does not exceed the upper limit of the purchase price per kilowatt-hour specified in the REZ competition announcement. The validity period for the financial offer should be at least 120 days. The financial offer is submitted in an envelope sealed with signature and stamp.

All of the documents should either be submitted as the original or notarized copies. Moreover, all documents shall be in Turkish. Documents that are not in Turkish shall be translated to Turkish according to the rules described in detail in the Regulation.

The financial offer, which is sealed, signed and stamped, shall be placed in an outer envelop together with the other documents. This larger envelope, which should also be sealed, signed and stamped, shall be submitted to the address specified in the announcement until the date and time specified in the announcement. Applications not submitted on time will not be taken into account. The delays arising from the postal services will not be taken into consideration.

A committee that will be formed by the members appointed by the MENR will evaluate the application files that have been submitted. On the date specified in the announcement, the outer envelopes will be opened and the presence of the Application Letter, Receipt of the purchase of the Specifications, Letter of Bank Guarantee, the envelope containing the financial offer and the signed Specifications will be checked. Application files, which do not include all of the principal documents, will be left out of the evaluation.

At this stage, the financial offers will not be opened. In 20 days, the committee will investigate each document in detail. If the documents other than the ones listed in the previous paragraph are missing, incorrect or impossible to evaluate the content, the applicant may be required to make corrections or explanations during the given period of time. The details of this process are described in the Regulation. When necessary the evaluation period can be extended for an additional 20 days.

The date, time and location of the competition is determined by assessing the time it will take the committee to finalize the investigation of the application documents. This information shall be announced on GDRE website as well as being communicated to the addresses of the applicants.

3.2.2.4. Competition

During the competition session, with the presence of the competitors, the financial offers of the applications that have been approved after the evaluation of the committee will be opened and the competition will start.

The competition relies on the method of openly cutting back from the upper limit of purchase price of electric power per kilowatt-hour specified in the announcement. The committee has the right to define a lower limit on how much the price will be reduced at each round. As a first step, the participants who have submitted the lowest five price offers are identified. If there are more than one company who have offered any of these five lowest prices, all such companies participate in the competition. Companies that have offered higher values than the lowest five offers are dropped out of the competition.

Starting from the company that has the highest offer, all companies participating in the competition are asked if they will revise their price to a value lower than the lowest valid offer. In the case where the financial offers of more than one companies are exactly the same, the committee decides which company will start first. If the company declares that no further price reduction is possible, the company is considered as withdrawn from the competition and the its last offer is registered in the the competition protocol which is then signed by the company officials. The procedure of asking the participants if they will make further reductions is performed repeatedly in rounds, until all participants declare that they have their final offer.

At the end of the competition session, all participants but the winner withdraw from the competition. When the final offers are sorted from lowest to highest, the participants except the lowest three gain right to retrieve their Letter of Bank Guarantee. The committee registers the results of the competition session into the protocol. After the approval of the protocol by the Minister of Energy and Natural Resources, the company with the lowest offer is invited to sign the contract.



3.2.2.5. REZ Right of Use Contract

The company that offered the lowest price when compared with the upper limit of the power purchase price is invited to sign the REZ Right of Use Contract by the committee. Once the invitation is received, the company finalizes its business registry procedures in maximum 30 days and submits the Trade Registry Gazette, partnership structure, the Letter of Bank Guarantee issued in the name of the contracting company and the work plans for the power generation facility and for the factory, in case of ACLM, to GDRE. If the competition is won by a joint venture, all tasks shall be accomplished within the specified period of time. When these documents are received by the MENR, the contract is signed. The REZ Right of Use is applied within the conditions set forth in the Contract and the Specifications.

If the company that offered the lowest price does not sign the contract, the companies with the second and third lowest offers can also be invited to sign the contract. The details of this process are described in the Regulation.

3.2.2.6. Determining REZs in Grid Connection Capacity Allocation

In REZ competitions that involve the Allocation of Grid Connection Capacity for REZs method, in at most 90 days after the signature of the Contract, the company is required to identify one or more areas suitable for WPP projects within the limits of the grid connection region specified in the competition announcement. Unlike the

method where the REZs are developed by the MENR, the activities of taking onsite measurements and making technical and economical assessments based on the collected data are not performed by the GDRE.

The Specifications of the REZ competitions which implement the Allocation of Grid Connection Capacity for REZs method, will include certain acceptance criteria for REZs. If the REZ alternatives proposed by the company do not meet these criteria or the terms in the legislation, new REZ alternatives can be asked for, with the condition that they are in the same connection area and with the same capacity. On the other hand, if the proposed areas meet the criteria, they are published in the Official Gazette as REZs.

During the given period of time, if the company fails to determine REZs that will match the capacity specified in the Contract, the Right of Use Contract is amended with the capacity of the REZs that have been determined. When making this amendment, the other articles of the Contract remain unchanged. Moreover, if the installed capacity of the determined REZs cannot reach the 70% of the capacity specified in the contract, the REZ Right of Use Contract is annulled and the Letter of Bank Guarantee is forfeited. To explain this with an example, if a company that signs the contract for a grid connection in region A, where the WPP connection capacity is 20 MW, identifies a 15 MW REZ that can be approved by MENR, the contract is amended for 15 MW. If the company can only identify a REZ of 13 MW capacity, the contract is annulled.

In the process that follows the determination and publishing of the REZs as defined here, the next step is to carry out the studies and to acquire all the permits according to the Specifications and the Contract. MENR will act as a facilitator in this process. The main criterion for this support is the behaviour of the company in accordance with the founding principles of the REZ model and the conditions of the Specifications and the Contract. The company has the responsibility to conduct all processes and operations necessary to make the REZ ready for installation and fulfill all the obligations, at its own expense.

For the reasons of force majeure or for reasons due to the legislation in force, if the areas identified by the company and announced as REZs are no more suitable for investment, the case will be evaluated by the MENR and with the condition of remaining in the limits of the same grid connection region, new REZs can be identified and published.

3.2.3. Licensing Process

The company who won the competition and signed the REZ Right of Use Contract moves forward to the power generation prelicensing and licensing stages that are executed by the EMRA. If the Contract covers several REZs at once, the licensing process for each individual REZ is conducted separately. The legislative arrangements on these processes are described in the Regulation on Licensing in the Energy market.

3.2.3.1. Prelicence

In the REZ competitions where the REZs are identified by the MENR, within the 45 days that follows the signing of the REZ Right of Use Contract the company who won the competition has to submit the prelicence application documents as described by the Regulation on Licensing in the Energy market to EMRA. In REZ competitions that involve the Allocation of Grid Connection Capacity for REZs method, within 45 days after approval of the REZs and publication in the Official Gazette, the prelicence application with the documents described in the Regulation shall be submitted to EMRA. The investor can fulfill the capacity requirement with more than one REZ. In this case, the licence application for all REZs must be made in the specified period of time. Otherwise, all the rights pertaining to the REZs not applied for are lost and the company has to pay penalties proportional to the unapplied capacity. Moreover, if the total of the capacities of the unapplied REZs exceeds 30% of the capacity allocated to the company, in other words if the applications do not reach the 70% of the capacity specified, the REZ Right of Use Contract is annulled and the Letter of Bank Guarantee is called on.

For power projects developed under the REZ model, there is no requirement for submitting a wind or solar measurement report.

The investors will gain the right to obtain the prelicence document, if they complement the missing documents

identified by EMRA in at most three months. When the document requirements of EMRA are not met in time, penalties and sanctions similar to the case of not applying for REZs will be valid. The company will have to pay penalties proportional to the capacities of the REZs for which the missing documents are not complemented. The rights pertaining to these REZs will be lost. If the total capacity of REZs for which the missing documents are not complemented is more than 30% of the allocated capacity, the REZ Right of Use Contract is annulled and the Letter of Bank Guarantee is called on.

If in the REZ Specifications, there is a special condition on the duration of the prelicence, these conditions will be taken into account. During this period of time, the investors perform the activities in order to gain right to the power generation licence and to acquire all necessary permits. The details of all such activities are described in the Regulation of EMRA.

In projects where ACLM method is used, the time it will take the investor to make committed factory operational is also determined in the Specifications. The investor implements the activities towards the installation of the manufacturing facility according to the business plan that confirms with the time allocated. In this period, independent third party inspection service will be used in order to monitor the progress of the activities and to report to MENR on a quarterly basis. The process for resolving the delays and the relevant sanctions are described in detail in the Regulation. Once the manufacturing facility becomes operational the following documents shall be submitted to the MENR:



- :: Acceptance, commissioning, certificate for starting business and working licence: The procedures for the issuance of these documents and their requirements are described in the Regulation on Starting Business and Working Licence which has been published in the Official Gazette No. 25902 published on 10.08.2005. The documents can be acquired from the municipal authority of the region or the organized industrial zone managing company.
- :: Capacity Report: The report is issued by the Industrial Chamber to which the company is registered, after the inspection of the experts appointed by the Chamber. The report is subject to the approval of TOBB.
- :: Certificate for Locally Manufactured Product: The certificate is issued by the chamber/exchange, connected to TOBB or TESK, where the manufacturer is registered. The details of this process are described in the Communiqué on Locally Manufactured Products that has been published in the Official Gazette on 13.09.2014. The Locally Manufactured Product Certificate that will be utilized in the REZ model is required to comply with the conditions of the REZ Specifications as well as the Communiqué.
- :: Certificate and documents to prove that the process and product quality meets the promised standards: The quality standards required to meet will be determined with the Specifications. Therefore, the investor has to explore how the documents to prove each standard will be acquired.

In ACULME projects, a method similar to ACLM will be applied. The investor will install the power generation plant in the time allocated and an independent third party inspector monitors the process and the progress will be reported to MENR on a quarterly basis. The process for resolving the delays and the relevant sanctions are described in detail in the Regulation.

3.2.3.2. Licence

In REZ projects implemented with ACLM method, EMRA is informed by MENR on the completion of the installation of the local manufacturing facilities and on the progress of the R&D activities as planned. The investor, who also completed all the other responsibilities, can submit the Power Generation Licence application to EMRA.

The validity period of the Generation Licences for the projects developed under the REZ model are determined with the Specifications.

After acquiring the licence, the investor can start the installation of the power generation plant. In REZ projects that implement the ACLM model, the company has the obligation to install the power plants by using the products that it committed to manufacture in its own factory. If this requirement is infringed, even at a certain proportion of the power plant, the penalties and sanctions described in the Regulation will be applied. On the other hand, in REZ projects that implement the ACULME model, the locally manufactured products must be procured for the entire plant.

The investor gets the approval of MENR for the work schedules on the construction of the power plant and the annual commissioning plan. The duration for the completion of the power plant is determined with the Specifications. The process for resolving the conflicts with the work schedule and the relevant sanctions are described in detail in the Regulation.

The conditions about how the Letter of Bank Guarantee will be released are described in the Specifications.

3.2.4. Selling the Power



The companies that have gone through the competition and licensing phases and that have acquired the provisional acceptance of the power generation facility, obtain the rights to generate and sell electric power. The power is sold under the framework of the YEKDEM, with the exception that the REZ Right of Use Contract determines the sale price and the duration is determined in the Specifications. It is very important to notice that the specified duration of power purchase starts immediately with the signature of the REZ Right of Use Contract. The reason for this application is to urge the company to accomplish the investment in the shortest possible time and start generating power. The conditions under which this duration can be extended are described in the Regulation.

The selling price of the power will be as determined in the Competition and undersigned in the REZ Right of Use Contract. This price remains the same throughout the power purchase period and is not subject to review. Even if the power plant is commissioned partially, the power generated at the plant is subject to the terms of YEKDEM.

As the REZ model already incorporates the requirement for using locally manufactured products, the projects do not have right to benefit from additional support for local products as described in Law 5346.

The validity period of the power generation licences issued for projects developed under the REZ model are determined with the Specifications. How the investor will act at the end of the licence period is determined by the relevant legislation of the landowner of the REZ.

3.2.5. R&D Activities

There is a requirement to conduct R&D activities during the execution of the REZ projects that implement the ACLM model. The investor will perform R&D activities according to the R&D Plan, in the R&D centre that will be set up. The conditions for and the minimum duration of the R&D activities are determined in the Specifications.

The law that regulate the promotion and support of the R&D activities in Turkey is the Law on Supporting the Research, Development and Design Activities No. 5746. The R&D activities that will be performed within the scope of the ACLM model are also subject to this Law. The investor is required to set up an R&D Centre immediately after signing the REZ Right of Use Contract.

An R&D Centre is described as follows in the Law:

“R&D Centre: The organizational units of legal equity companies, narrow tax-payer institutions or those the business centres of which are located in Turkey, set up with the purpose of performing the R&D and innovation projects or to perform R&D and innovation activities conducted in order to meet the orders; units which are organized separately within the organizational structure, which are exclusively engaged in R&D activities in the country and those that employ minimum 50 full-time equivalent personnel, possessing the necessary R&D background and capability”

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With the General Communiqué No. 5746 on the Law on Supporting the Research, Development and Design Activities, the number of minimum full time equivalent personnel has been reduced to 15.

As it can be understood from the definition of R&D Centre, the investors that will develop projects under the REZ model are required to create an organizational unit under their organizational structure, where at least 15 full time equivalent R&D personnel are employed. This number can be altered with the Specifications. The full time equivalent R&D personnel is calculated by summing up the working times of the R&D personnel for the centre activities in a quarterly basis and dividing this number to the full time work of a single personnel in a quarter. For example, suppose that there are 45 R&D personnel participating in the R&D activities, 5 of which work full time, and the remaining 40 are spending 25% of their work time to R&D activities. Therefore the full time equivalent R&D personnel is calculated as $(5 \times 1) + (40 \times 0.25) = 15$. The calculation in this example is simplified for the sake of clarity. Actual calculations must be based on quarterly working times. According to the Law on the Work Permits for Foreigners (No. 4817), foreigners can work in the R&D and design activities.

At a first glance, setting up an R&D Centre appears to be an additional load on the investor. However, by conducting R&D activities, the investors are entitled to benefit from the support mechanisms described in the Law 5746 and the Regulation on Implementation and Monitoring of Activities for Supporting the Research, Development and Design Activities (as published in the Official Gazette dated 10.08.2016 and numbered 29797) which describes how the Law is executed. The following cost items can be considered as R&D expenses:

- :: Raw ingredient and material expenses
- :: Depreciation
- :: Personnel expenses
- :: General overhead

With the condition of conforming with the R&D activities described in Regulation on Implementation and Monitoring of Activities for Supporting the Research, Development and Design Activities, the above mentioned expenses can be subject to the following supports:

- :: Discount in the corporate revenue and commercial revenue, equal to the total amount of R&D and innovation expenses
- :: Income tax withholding support
- :: Social security contribution support
- :: Stamp tax exemption
- :: Customs duty exemption.

The investors have to compile the documents to prove that they meet the criteria for R&D Centre and submit them to the MoSIT in order to be issued the R&D Centre document. The Evaluation and Inspection Committee monitors the R&D activities performed in the Centre. The annual activity report is submitted to the Committee. The centre is inspected every two years. The reports of the monitoring and inspections are submitted to the MENR on an annual basis.

3.2.6. Standards and Certifications



In order to prove that the locally manufactured equipment and/or components are complying with the Turkish and international standards and criteria, documents such as Type Certificates, Product Certificates and Unit Test Certificates shall be submitted. These documents shall be issued directly by TSE or by entities accredited by international accreditation bodies. If there is no standard defined for certain equipment, the documents of the components that constitute the equipment shall be supplied.

Both the investors, who are manufacturing for their own use and those who procure the equipment from the third party local manufacturers, are required to arrange for the inspection of TSE on the conformity to the standards. The certificates issued by TSE shall be submitted to MENR during the prelicence phase. The sanctions that will be applied to the investors, who fail to submit the documents in a timely manner, are described in the Specifications.

3.2.7. Locally Manufactured Products

One of the major objectives of the REZ model is to enable the local manufacturing or local procurement of the high technology equipment used in the renewable energy power plants and the transfer of technology. To achieve this objective, the investor itself or a third party manufacturer should manufacture the equipment described in the Specifications.

The Specifications of the REZ competitions clearly describe which of the ACLM and ACULME methods will be followed. While the investor can be asked to only manufacture locally (ACLM) or only procure from local manufacturers (ACULME), it can be obliged to do both at the same time or the decision may be left to the investor themselves. In other words, the ways these methods are combined depends on the policies of the MENR on the development of the local renewable energy

industry and this policy will be revised per each REZ competition and reflected in the Specifications of that specific competition. But the basic rule of utilizing locally manufactured products is essential.

Whether a product is considered as a local product is determined based on the ratio of local contribution. In each REZ Specifications, the minimum limit for the ratio of local contribution is clearly indicated. The method for calculating the ratio of local contribution and the arrangements regarding the Certificate for Locally Manufactured Product are described in the Communiqué on Locally Manufactured Products. The Locally Manufactured Product Certificate that will be utilized in the REZ model is required to comply with the conditions of the Specifications as well as the Communiqué.

The Communiqué on Locally Manufactured Products describes the principles and procedures on how the product is identified as local and the certification process. The Communiqué is executed by MoSIT.

The equipments used in the scope of the REZ model are industrial products. These products should meet the following conditions:

- :: *The manufacturer should operate in compliance with the Industrial Registry Licence which is issued by the MoSIT,*
- :: *The ratio of local contribution shall be 51% or higher,*
- :: *It should either be entirely manufactured or obtained in Turkey or major steps of the manufacturing process and the activities that add the economical value to the product should take place in Turkey.*

If the requirements of the Communiqué are met, the products manufactured in the Free Zones can be considered as local. In the Specifications for the REZ competition, there can be additional rules and limitations for manufacturing in the free zones.

The main formula used in order calculate the ratio of local contribution which constitutes the fundamental condition for a product to be qualified as locally manufactured, is as follows:

$$\text{YERLİ KATKI ORANI} = \frac{\text{NİHAİ ÜRÜN MALİYET TUTARI (TL)} - \text{NİHAİ ÜRÜN İÇİNDEKİ GİRDİ MALİYET TUTARI (TL)}}{\text{NİHAİ ÜRÜN MALİYET TUTARI (TL)}} \times 100$$

While calculating the total cost of the final product and the cost of imported inputs in the final product, the costs of the direct and indirect materials, the costs of direct and indirect labour and the general overhead attributed to the product are taken into account. Even if an input is procured from the local market, the decision whether it will be included in the imported inputs is made by looking at its origin. Therefore the ratio of local contribution of the input materials also becomes important. The manufacturer has to control the origins of all of the items in the product tree in a cascading manner. For example, the manufacturer can procure the resin utilized in the manufacturing of wind turbine blades from a local company, but if this material does not comply with the rules of the Communiqué and if it does not possess a Certificate for Locally Manufactured Product, it will be considered as an imported input.

The procedure of getting a Certificate for Locally Manufactured Product is described both in the Communiqué and in the TOBB Principles for Preparation of Certificates for Locally Manufactured Product. These documents can be found on the Internet pages of TOBB.

According to the Principles, the manufacturer should make an application to the chamber/ exchange to which it is registered with the following documents:

1. Application letter for Certificate for Locally Manufactured Product (Appendix 1 of the Principles),
2. For legal entities, signature circulars of the persons authorized to represent the manufacturer, or notarised copies,
3. The Letter of Commitment signed by the persons authorized to represent the manufacturer (Appendix 2 of the Principles),
4. Copies of the licences of the PA, CA, CPA,
5. Copies of the documents proving the qualification of the inspector,
6. Calculation Workbook for Ratio of Local Contribution (Appendices 3 A, B, C and D of the Principles),
7. The samples of the invoices of local and imported direct inputs, containing information compatible with data in the Calculation Sheet for Ratio of Local Contribution
8. Copy of the Industrial Registry Certificate.

The document that creates the basis for the evaluation of the application is the Calculation Workbook for Ratio of Local Contribution. The workbook consists of three sheets (App-3 A, B, C of Principles) which contain the costs of the inputs and one last sheet where the actual calculation is shown (App-3 D of Principles).

Direct and indirect material inputs to the final product are given in App-3 A, direct and indirect labour costs are given in App-3 B and the general overhead, such as depreciations, repair and maintenance costs, rents, costs of operational materials, energy/transportation/water costs, are given in App-3 C. In all three sheets, local and imported inputs are shown separately. Costs of selling, costs of after sales support, product warranty costs, interests, financing costs and the overhead that cannot be attributed to manufacturing should not be included in the calculation. Licences, patents and royalties acquired from abroad and the services of the foreign consultants are added to the imported input costs. For the inputs that have been procured from the local sources, a control of origin shall be conducted. If the product is imported it is shown among the imported inputs. When calculating the costs of the imported inputs, the date of arrival to the factory is taken into consideration and the effective exchange rate of the Central Bank of Turkey is used to calculate the input cost. For the products, which originate from a foreign country, even if it is purchased from a local reseller, they are considered as imported input.

In App-3 D (Figure 9), using the information in the previous sheets, the Ratio of Local Contribution is calculated as the proportion of the cost of inputs that are not imported to the total cost of the final product.





The Workbook is controlled and approved financially by the PA/CA/CPA and technically by the inspector. The inspector is determined among the academicians who have expertise in this domain by the manufacturer. It is also possible that the Chamber/Exchange appoints an inspector.

The Chamber/Exchange issues the Certificate for Locally Manufactured Product if all of the below mentioned conditions are met:

- a) The product shall be produced by a manufacturer that possesses an Industrial Registry Certificate and the domain of the manufacturing is coherent with the content of that certificate,
- b) The product should entirely be manufactured or obtained in Turkey or the important phases of the process shall be done in Turkey or the last important labours and acts that are economically indispensable are performed in Turkey,
- c) The Ratio of Local Contribution shall be at least 51%.

The Certificate for Locally Manufactured Product is valid for one year after its issuance. The manufacturers can get a single certificate for several products that fall into the same group. A Certificate for Locally Manufactured Product can be issued even if the product is actually manufactured by a third party, provided that it takes place in Turkey.

If they comply with the rules in the legislation, the products manufactured in the Free Zones can also get Certificate for Locally Manufactured Product. However, if there are any limitations in the REZ Specifications, they shall be taken into consideration.

In terms of the confidentiality of the information shared with the Chambers/Exchange during the process of Certificate for Locally Manufactured Product, these organizations have to act as described in the legislation.

Financing Wind Energy Projects

4.1. Financing of Renewable Energy

In recent years, the interest shown in the renewable energy investments is increasing rapidly on a global level.

As of 2015, the global renewable energy investments have reached a value of 305 billion USD (IRENA 2017). One of the main reasons for this rapid growth is the decrease in the costs, especially in solar energy, due to technological advances in the renewable energy. A significant increase is also observed in the new investments in developing countries, while the developed countries do not maintain the same acceleration.

As the renewable energy investments have become popular, the need for financial resources is also increasing. With the introduction of policies aiming at the prevention of the global warming, new programmes have been initiated in order to canalize the globally available sums of monetary resources to renewable energy investments. The functions of policy development and financing are rapidly being implemented both by multinational organizations such as World Bank, European Union and Inter-American Development Bank, and by the governments and finance organizations of individual nations.

Instead of direct investment into renewable energy projects, the financial resource owned by the public are usually spent towards the programmes that will serve the purposes of decreasing the risks of the investment projects and establishing a steady environment for them. The long term purchasing mechanism applied in the REZ model is a typical example of this situation. The commitment on the purchase of the power generated from the power plant in the REZ at a fixed price over a predefined period of time will function as a strong warranty when the investor seeks for the finance of the project. Moreover, the REZ projects are not only supported through power purchase duration and price guarantee but also by mobilizing all possible facilities such as special support mechanisms for renewable energy, investment incentives, R&D support mechanisms, industrial zone incentives for the benefit of the REZ investors. All of these arrangements will allow the investor bring a project to the financing organizations with more predictable conditions at a smaller cost.



As with the other renewable energy projects, the main source of expenditures appear at the initial investment phase (CAPEX) and once the plant is in operation, the cost of operation (OPEX) of the plant is significantly smaller, mainly because there is no input cost (PV Financing). Therefore, the major obstacle that the investors are facing is the financing of the initial investment. But an equally important problem is to ensure that the power generated from the renewable energy project covers this large initial investment cost.

Apart from the choice of financing source, renewable energy investors have to conduct detailed preliminary studies in order to determine the initial and operational expenditures of the project in a realistic manner. The wind energy potential of the project area shall be identified with advanced scientific tools and methods and the power that will be generated and fed into the grid shall be estimated as precisely as possible. The values obtained from such studies will be used in financial analysis such as cash flow projection, net present value and rate of return. All of these analyses will help the identification of the risks of the project and structuring the finance so as to mitigate these risks. Since more precise and detailed analysis will lead to less uncertainty, the risks will become more manageable; hence the cost of financing will decrease.

Financing models that rely upon loans are usually structured as owner's equity and external debt. In general, during the initial development phases of the project, the owner's equity is more widely used, while at the time of actual investment external debt becomes the main source of finance.

The most common method for financing the renewable energy projects is the project financing. In this method, the warranty for the finance is directly met with the revenues generated from the financed investment asset. The liabilities of the project are independent from the capital power of the project owner or its activities in other domains. After the economic crises experienced in Turkey in the past, the banking sector is precautious in loan allocation procedures. For this reason, most of the renewable energy projects are still being financed through structures that rely upon the financial strength of the project owner, in other words a strong warranty based on the corporate finance. Especially large-scale investors are meeting their needs for financing beyond their equity by showing the general activities of the corporate company and the corporate financing capabilities as sources of warranty. The important point is that the investors wholly own the plant built while also carrying all the risks of it. In some cases it may happen that the investor uses 100% equity. This finance model is usually more costly than loans, however in cases where the project sizes are small and faster progress is crucial, this method can also be preferred. When considering the sizes of the REZ projects, this option does not appear as a viable alternative. However, in REZ projects where ACLM is used, the significant portion of the investment cost will already originate from the products manufactured in a factory that also belong to the investor, so the calculation of the percentage of owner's equity in the project finance will require a different approach.

Another source of finance widely used for financing the renewable energy projects are the institutional investors. Institutional investors include banks, insurance companies, pensions, mutual funds, hedge funds and similar organizations. The fact that these investors are usually interested in large-scale projects (a few hundred million USD) is compatible with REZ projects. However, these funds prefer steady revenues with small risk from investment projects that are in operation phase. The share of the clean energy projects constitutes only 3% of the overall investment portfolios of institutional investors. (IRENA, 2017)



Renewable energy, that by itself is a new domain, also triggers the introduction of innovative products in the finance sector. One such product is the Green Bond, which is designed to generate resources from the capital markets. Green bonds are investments with steady income and they aim at canalizing the resources raised from capital markets to clean and environment-friendly projects. Being a tool effectively used for the finance of renewable energy projects, green bond have first been issued in 2008 by the World Bank. The bonds have shown a very high acceleration and by the month of October of 2016, they have reached a global total of 62 billion USD. In Turkey, the first green bond has been issued by TSKB with a total amount of 300 million USD and 5 years term and this product has proven to be very attractive to international institutional investors.

Another new method for the financing of the renewable energy projects are applied by the companies called Yield Co.'s. These companies are formed by gathering the operational facilities with stable income and long-term contracts under the roof of a single company. Having no risks arising from activities such as project development, R&D and construction, these companies can significantly diminish their capital costs because of their consistent structures. In practice, when the renewable energy plant is commissioned, the owner of the plant transfers the assets to a new company apart from the main company. This new company goes into the capital markets such as public offering in the stock exchange to raise money. In order to evaluate the applicability of this method to REZ projects, the investors have to carefully analyse the legislation and the REZ Specifications.



4.2. Turkish Banking Sector

When analysing the economic crisis of 2001, upon observing that the Turkish banking sector had severe operational problems, significant structural reformations became necessary, so Banking Regulation and Supervision Agency (BRSA) was founded. BRSA, within the framework of the tasks and responsibilities assigned with the Laws, is a high regulatory authority which aims at ensuring reliability and stability in financial markets, establishing a competitive environment for the financial system, providing an effective loan system, protecting the rights and benefits of the account owners and taking necessary measures in order to ensure that the organizations subject to BRSA's regulation are operating in a healthy, proper and secure manner in the market discipline.

As with all other banking activities, the financial activities concerning the financing of renewable energy are also handled through the banks that are subject to the regulations of BRSA. Especially the lists of documents and information that the Banks will require the investors to submit, are originating from their obligations to BRSA.

Almost all of the banks active in Turkey are offering products aiming at the financing of the renewable energy projects; some of them are significantly more eager and hence efficient in this domain, when compared to the others. As they define themselves as investment banks and they offer special products for renewable energy, Turkish Development Bank and Turkish Industrial Development Bank are worth

being mentioned in this document. The full list of the Banks active in the market can be found on the Internet pages of BRSA. The details of which products are offered in the field renewable energy can be analysed on the Internet pages of the banks.

4.2.1. Turkish Development Bank

The 99.08% paid-up capital of the Turkish Development Bank belongs to the Undersecretariate of Treasury. The mission of the Bank is described as "meeting the finance requirements of the business entrepreneurs, contributing to the spreading of the capital within the society and transforming it structurally, cooperating with domestic and foreign organizations and providing consultancy". Turkish Development Bank offers support to companies active in the fields of industry, tourism, education, healthcare, energy through financial tools named as Development Investment Loan, Development Working Capital Loan, and Development Short and Medium Term TL Loan.

Bank also acts as intermediary organization for several international funds:

- :: Islamic Development Bank Loans for Renewable Energy and Energy Efficiency Projects
- :: KfW (German Development Bank) Loans for Renewable Energy and Energy Efficiency Projects
- :: European Investment Bank (EIB) Loans for Small and Medium Enterprises
- :: European Investment Bank (EIB) Loans for Environment and Energy Projects
- :: World Bank Loans for Renewable Energy and Energy Efficiency Projects
- :: European Investment Bank (EIB) Loans for Renovation and Energy Efficiency Projects in Tourism Industry
- :: Japan Bank For International Cooperation (JBIC) Loans For Renewable Energy and Energy Efficiency Project
- :: KfW (German Development Bank) Loans for Infrastructure Projects

(www.kalkinma.com.tr)

Turkish Development Bank offers services such as investment services, apex banking activities, appraisal – expertise, feasibility study, training and consulting to public and private sector clients.

As of 31.03.2015, the Bank has allocated 4,409 million TL funds to renewable energy projects. 2,205 million TL and the payment amount to the companies have reached 1,860 million TL. Thus, 146 projects with total installed capacity of 1,761 MW have been financed. Out of 54 projects that are in operation, one is wind and two are solar power plants.

4.2.2. Turkish Industrial Development Bank (TSKB)

Headquartered in Istanbul and established in 1950 with the support of World Bank and the Central Bank of Turkey and shareholding of private commercial banks, Turkish Industrial Development Bank (TSKB) is Turkey's first privately owned development and investment bank. Since the day it was founded, TSKB has been supporting Turkey's sustainable growth with its deep knowledge and experience as well as the broad array of corporate banking, investment banking, and consultancy services that it provides its customers. Within the scope of corporate banking activities, the Bank provides financing solutions to energy projects (hydroelectric, wind, geothermal, solar, biomass, coal, natural gas). Based on the data provided at the end of 2015, the financial amount of the projects financed by the Bank has reached 6.5 billion USD. The total installed capacity of the 133 renewable energy projects that have been financed has exceeded 4,000 MW. 51% of these projects are hydroelectric, 34% is wind, 9% is geothermal and 6% is biomass. TSKB has also provided 750 million USD finance for the privatization of 8 power distribution regions and the investment financing of these regions.

(www.tskb.com.tr)



4.3. Foreign Sources of Financing for Wind Projects

4.3.1. European Bank of Reconstruction and Development

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European Bank of Reconstruction and Development has been founded in 1991 with the main purposes of building market economies and supporting the development of private sector and entrepreneurs. The domain of activity of EBRD has been widened with time and now investments in 30 countries are actively supported. 65 countries from 5 continents of the World are the shareholders of the Bank. It is also the objective of the Bank to assist the development of the member countries by being integrated in the global economy. In addition to public, institutional and legal restructuring projects, EBRD also provides support to projects in the fields of agriculture, tourism, real estate, transportation, natural resources, energy, manufacturing, finance, information and communication technologies.

EBRD executes its activities in the field of energy through several programmes. In the past, the Sustainable Energy Initiative programme has been conducted. Since 2015, the Green Economy Transition programme is in operation.

The strategy and capital framework of the Green Economy Transition for the period of 2016-2020 is as follows:

- :: GET financing of up to €18 billion with annual GET financing reaching over €4 billion by 2020;
- :: Based on historical leverage of EBRD climate finance, these funds would mobilise another €60 billion for a total project value up to €78 billion; and
- :: Driven by the EBRD business model, between half and two-thirds of GET financing would be expected to be in the private sector.

Detailed information on EBRD and GET can be found on the Internet pages of the Bank.

(www.ebrd.com)

4.3.2. European Investment Bank (EIB)

European Investment Bank (EIB) is a bank that mainly finances the investment projects in the member states of the European Union. The Bank, whose shareholders consist of the member states, aims at contributing to the balanced and smooth development of the domestic market, in line with the benefits of the Union. To accomplish this, utilizing the capital markets and equity, the Bank finances certain projects by giving loans and without expecting to make profits. The projects financed include the projects for the development of underdeveloped regions, modernization and restructuring of administrations, institutionalizing the domestic markets or creation of new job areas which cannot be financed by members. The Bank also finances projects that involve the common benefit of several member states but cannot be financed by the individual member states. The application domains of the projects can be listed as transportation and communication, environment, sustainability of the energy resources, and the competitiveness of European institutions and SMEs.

The Bank also supports the realization of the cooperation policies of the Union towards the non-member countries, by providing loans to suitable projects non-member third party countries. In this context, projects from all around the world can be supported.

(www.eib.europa.eu)

Environment, climate and reduction of CO2 emissions are among the priorities of the EIB. By supporting the projects in the energy sector, targets that will be achieved are the reduction of greenhouse gas emission through the sustainable and renewable energy projects; decreasing the dependency on finite sources of energy; creating an integrated European energy market; ensuring a competitive energy supply market; improving the energy efficiency technologies; increasing the number of research, development and innovation in energy; ensuring supply security through the diversification of the energy resources; the use of local resources in order to decrease the dependency on the imported resources. To achieve these objectives, products such as lending, structured finance, investments for funding of funds, initiatives such as ELENA and JASPERS, funding partnerships, research, development and innovation incentives are offered.

4.3.3. World Bank

World Bank is actually a group that consists of five organizations. These organizations are:

The International Bank for Reconstruction and Development (IBRD): lends to governments of middle-income and creditworthy low-income countries.

The International Development Association (IDA): provides interest-free loans and grants to governments of the poorest countries.

The International Finance Corporation (IFC): is the largest global development institution focused exclusively on the private sector. IFC helps developing countries achieve sustainable growth by financing investment, mobilizing capital in international financial markets, and providing advisory services to businesses and governments.



The Multilateral Investment Guarantee Agency (MIGA): was created in 1988 to promote foreign direct investment into developing countries to support economic growth, reduce poverty, and improve people's lives. MIGA fulfils this mandate by offering political risk insurance (guarantees) to investors and lenders.

The International Centre for Settlement of Investment Disputes (ICSID): provides international facilities for conciliation and arbitration of investment disputes.

(www.worldbank.org)

4.3.4. Islamic Development Bank

The Islamic Development Bank has been founded as an international Islamic finance institute. The objective of the Bank is to assist the economic development and social improvement of the member states and the Muslim societies according to the Islamic law. By using finance tools that conform to the Islamic Law, the Bank on the one hand provides capital and loans to productive projects and organizations, on the other hand financial support is given to the member states towards economic and social improvement. Additionally, funds for special purposes can also be created. There is one such fund in order to support renewable energy. The Turkish Development Bank offers loans for renewable energy based on a fund provided by the Islamic

Development Bank. This fund is utilized towards the construction of energy plants based on renewable energy and investments of energy efficiency. The limits, terms and credit ratios are determined on a project basis by the experts.

(www.isdb.org)

4.3.5. Japan Bank for International Cooperation (JBIC)

Japan Bank for International Cooperation is a financial organization wholly owned by the Japanese government. It was founded in 1999. The primary aims of the Bank are to improve the economic cooperation between Japan and overseas countries; provide funds for foreign investments; and to promote the international trade. The Bank plays a very important role in the import and export of Japan as well as in the investments of the Japanese companies in underdeveloped countries.

The Renewable Energy and Energy Efficiency Credit provided by JBIC to Turkey is utilized in the financing of the renewable energy projects being developed by the private sector and the energy efficiency projects. The funds are managed by the Turkish Development Bank. (<http://www.jbic.go.jp>)

4.3.6. German Development Bank (KfW)

The KfW Group of Banks is a development bank owned by the German Federal Government and the State. It supports the sustainable improvement of the economic, social and ecological living and economic conditions, in the areas of SMEs, business start-ups, environmental protection, housing, infrastructure, educational support, project and export financing or development cooperation.



On behalf of the Federal Government, KfW is responsible for the implementation of the loans and financing contributions made available under the financial cooperation with Turkey. The financial cooperation of KfW is focused on promoting the small and medium sized enterprises, and supporting renewable and efficient energy. The projects are implemented directly by the Turkish government or by the partner banks.

The Renewable Energy/Energy Efficiency Credits by KfW are directed to private sector organizations that make investments in the fields of power production from renewable source and energy efficiency. The upper limits of the supported projects are €15,000,000 and financing can be provided up to 80% of the investment amount. The credits are allocated through the Turkish Development Bank.

(www.kfw-entwicklungsbank.de)



Support Mechanisms

5.1. Foreign Direct Investments

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5.2. R&D Incentives

The fundamental principles of the foreign direct investments to Turkey have been described with the Law No. 4875 on Foreign Direct Investments, as published in the Official Gazette dated 17.10.2003. This law, which has been prepared by considering the economic developments as well as the international best practices, functions as a guide for investors, giving clear and understandable messages to them and informing them on the basic principles and the rights and responsibilities arising from the other legislative documents. With the Law, the previous screening/approval system has been converted into a notification-based system; the basic concepts such as "foreign investment" and "foreign direct investment" have been redefined based on the internationally accepted standards.

According to the Law, "Unless stipulated by international agreements and other special laws: 1. Foreign investors are free to make foreign direct investments in Turkey, 2. Foreign investors shall be subject to equal treatment with domestic investors." Therefore, the major components of the foreign direct investments to Turkey appear as "Freedom to Invest and National Procedure". Foreign direct investors act under equal rights and responsibilities compared to the local investors, except for a limited number of sectorial restrictions.

Related to the R&D Centre that shall be founded within the scope of the REZ that implements ACLM model, there are several supports and incentives that originate from the Law No. 5746 and the Regulation on Implementation and Monitoring of Activities for Supporting the Research, Development and Design Activities. For the costs of raw ingredients and materials, depreciations, personnel costs and general overhead that occur during the implementation of the R&D plan, the investor can benefit from the following incentives:

- :: Discount in the corporate revenue and commercial revenue, equal to the total amount of R&D and innovation expenses
- :: Income tax withholding support
- :: Social security contribution support
- :: Stamp tax indemnity
- :: Customs duty exemption

The investors have to compile the documents to prove that they meet the criteria for R&D Centre and submit them to the MoSIT in order to be issued the R&D Centre certificate. The R&D activities performed in the Centre are monitored by the Evaluation and Inspection Committee. The annual activity report is submitted to the Committee. The centre is inspected every two years. The reports of the monitoring and inspections are submitted to the MENR on an annual basis.

5.3. Investment Incentive System

In the REZ model, in order to promote the renewable energy investments, there is the possibility that the projects are accepted for *Investment Incentive System*.

If such a method is utilized in any of the REZ competitions, the rules will be explained in the Specifications. The information given in this section describes the incentive system and its application from a general perspective.

The Investment Incentive System being applied in Turkey aims at:

- :: Increasing the manufacturing of products that have high import dependency, in order to reduce the current deficit,
- :: Supporting investments that involve high and mid-high technology with the purpose of enabling the technological transformation,
- :: Increasing the investments to underdeveloped regions,
- :: Reducing regional development disparities,
- :: Improving the efficiency of the support components,
- :: Promoting investments for clustering.

The legislative framework for Investment Incentive System is set up with the Cabinet Decision on the State Support for Investments and the Communiqué on the Implementation of the Decision on State Support for Investments.

Investments are supported via four different incentive schemes: general, regional, large scale and strategic investments. In the regional incentive scheme, different scopes of incentives are given to investments in different regions. Large-scale investments are investments in predefined subjects exceeding a certain amount. Strategic investments aim to promote the production of intermediate goods or products with low, if not none, production capacity and high import dependence. Strategic investments should also be larger than certain amounts. All other investments that do not fall into any of these categories can be supported with the general incentive scheme.

With different incentive schemes, the investors are provided with several supports. The general description of these supports is as follows:

- :: **Customs Duty Exemption:** Investment machinery and equipment imported within the scope of the incentive certificate will be exempted from customs duty.
- :: **Value Added Tax (VAT) Exemption:** Investment machinery and equipment imported and/or locally provided within the scope of the incentive certificate will be VAT exempt.
- :: **Tax Deduction:** Reduced income or corporate tax rates will be imposed on the investor's income under the incentive scheme according to the characteristics of the investment until the amount calculated on the basis of government's contribution rate, determined by the same scheme and corresponding to a certain percentage of the fixed investment amount, is reached. The contribution rate to investment refers to the rate of the fixed investment subject to tax deduction, whereas tax deduction refers to the rate of income or corporate tax to be reduced until the contribution rate is reached
- :: **Social Security Premium Support for Employer's Share:** For any additional employment created by an investment, the amount corresponding to the employer's share of the social security premium on legal minimum wage, paid by the investor, is covered by the Ministry.
- :: **Land Allocation:** Publicly owned land will be allocated for investments with incentive certificate under large scale, strategic and regional incentive schemes in accordance with the rules and principles defined by the Ministry of Finance, depending on the availability of such land in the provinces where investments are made.
- :: **Interest Rate Support:** This support will be available for investment loans, borrowed to finance the investment, with a maturity of at least one year. The Ministry will cover a specific portion of the interest/profit share of the loans that do not exceed 70% of the fixed investment amount registered on the certificate.
- :: **VAT Refund:** VAT collected on the building & construction expenses made for Strategic Investments will be rebated provided that the fixed investment amount is over 500 million TL.
- :: **Income Tax Withholding Support:** The withholding tax imposed on the income tax of employees will not be levied for new staff employed for the investments made in Region 6. This support will be available for the investments in Region 6 only. There is no upper limit for income tax withholding support and it is applicable for 10 years.
- :: **SSP Support (Employee's Share):** This scheme allows for the Ministry to cover the employee's share of the social security premium paid by the investor to the Social Security Institution in the amount corresponding to the legal minimum wage, for additional personnel recruited for new investments in Region 6. This support will be available for Regional, Large Scale and Strategic investments in Region 6 only. There is no upper limit regarding the SSP support, and it is available for 10 years.

The descriptions given above are general information. The applicability of each depends on the incentive scheme and on investment location, size and sector. The most recent versions of the tables given in this section, as well as detailed description of the investment incentive system can be seen on the Internet pages of Ministry of Economy (<http://www.ekonomi.gov.tr>).

Table 4 summarizes the scopes of the incentives:



Schemes/Supports				
	General Investment Incentive	Regional Investment Incentive	Large Scale Investment Incentive	Strategic Investment Incentive
VAT Exemption	+	+	+	+
Customs Duty Exemption	+	+	+	+
Tax Deduction		+	+	+
Social Security Premium Support (Employer's share)		+	+	+
Income Tax Withholding Support*	+	+	+	+
Social Security Premium Support (Employee's share)		+	+	+
Interest Rate Support**		+		+
Land Allocation		+	+	+
VAT Refund***				+

T4 :: Summary of Incentive Instruments. The regional incentives by provinces in Turkey are shown on the map in Figure 8.



The regional incentives by provinces in Turkey are shown on the map in Figure 10.

F.10 Figure 10 – Regional Incentives by Provinces in Turkey



Support Measures			Regions					
			I	II	III	IV	V	VI
VAT Exemption			YES					
Customs Duty Exemption			YES					
Tax Deduction	Tax Reduction Rate (%)	None OIZ*	50	55	60	70	80	90
		OIZ*	55	60	70	80	90	90
	Reduction Tax Rate (%)	None OIZ*	10	9	8	6	4	2
		OIZ*	9	8	6	4	2	2
Reduced Tax Rate (%)		None OIZ*	15	20	25	30	40	50
		OIZ*	20	25	30	40	50	55
Social Security Premium Support (Employer`s Share)	Term of Support (years)	None OIZ*	2 years	3 years	5 years	6 years	7 years	10 years
		OIZ	3 years	5 years	6 years	7 years	10 years	12 years
	Cap for Support (%)	Non OIZ*	10	15	20	25	35	No limit
		OIZ *	15	20	25	35	No limit	No limit
Land Allocation (none OIZ)			YES					
Interest Rate	TL Denominated Loans (points)	NONE	NONE	3 puan	4 puan	5 puan	7 puan	
	FX Loans (points)	NONE	NONE	1 puan	1 puan	2 puan	2 puan	
Maximum Support Amount(Bin TL)		NONE	YOK	500	600	700	900	
Social Security Premium Support (Employees Share)			NONE	NONE	NONE	NONE	NONE	10 years
Income Tax Withholding Support			NONE	NONE	NONE	NONE	NONE	10 years

T5 :: Regional Investment Incentives

Table 5 summarizes the terms and percentages for each of the incentive regions:

The terms and ratios of incentives received within the scope of the strategic investment are given in Table 6.



Strategic Investment Incentives							
SUPPORT MEASURES		REGIONS					
		I	II	III	IV	V	VI
VAT Exemption		YES					
Customs Duty Exemption		YES					
Tax Deduction	Tax Reduction Rate (%)	90					
	Reduced Tax Rate (%)	2					
	Rate of Contribution (%)	50					
Social Security Premium Support (Employer's Share)	Cap for Support (%)	7 years (10 years Region 6)					
	Cap for Support (%)	15 (unlimited for Region 6)					
Land Allocation		YES					
Interest Rate Support	TL Denominated Loans (points)	5					
	FX Loans (points)	2					
	Maximum Support Amount	50 000					
Social Security Premium Support (Employees Share)		10 years (only in for investments in Region 6)					
Income Tax Withholding Support		10 yıl years (only in for investments in Region 6)					
Ffor building expenditures of the strategic investments over 500 Million TL)		YES					

*Not exceeding 5% of the investment amount

T6 :: Strategic Investment Incentives

The terms and ratios of incentives received within the scope of the strategic investment are given in Table 6.

The investors of REZ should carefully explore the Cabinet Decision and the Communiqué, in order to identify the incentive schemes that matches the conditions in the REZ Specifications and take the relevant terms and ratios into consideration.

If investors prefer to receive the incentives, the documents listed in the Communiqué shall be prepared and submitted to Ministry of Economy. The procedures for the application as well as the steps that follow are executed by the Directorate of Incentive Implementation and Foreign Investment. The Directorate investigates the project, which will be supported, from several perspectives such as macro economical aspects, demand-supply equilibrium and sectorial, financial and technical points of view. If necessary the opinions of relevant institutions and organizations can also be referred. At the end of the study, if the project is found to be eligible for the support, the Investment Incentive Certificate and the lists of local and import equipment and machinery are approved by the Directorate.

The terms, conditions and scope of each incentive scheme are broadly described in the Cabinet Decision and the Communiqué. Moreover, the "Step by Step Guide for Government Support through Investment Incentive Certificate" which is available in the Internet pages of the Ministry of Energy provides a good source of information to the investors on the rules as well as the procedures.



5.4. Other Support Mechanisms

The Law No. 6745 "on Investment Incentives on Project Basis and Amendments to some Laws and Decree Laws" as published in the Official Gazette dated 07.09.2016 describes the support mechanism for investments on a project basis.

In accordance with the targets in the development plans and annual programmes, the projects that are approved by the Ministry of Economy and that satisfy the criteria of meeting the existing or future needs, ensuring security of supply, reducing foreign dependency, enabling technological transformation, being innovative, R&D intensive and high value added; can be supported with the following mechanisms:

- :: Up to 100% discount on corporate taxes,
- :: Contribution to investments with a ratio not more than 200%,
- :: Corporate tax exemption limited with the revenues obtained from the investment, for a duration of up to 10 fiscal terms starting with the operational period,
- :: Income tax withholding incentive,
- :: Customs duty exemption,
- :: For investments made on Treasury properties, right of access or right of ease without charge for up to 49 years or/and free of charge transfer with the condition that the planned employment having been

- :: Incentive on employer's share of social security premium for up to 10 years,
- :: Recompensation of up to 50% of the energy costs relevant with the investment, for up to 10 years,
- :: Interest or divided support or grant support for the investment loans used for the financing of the fixed investment costs, for up to 10 years,
- :: For the salaries of the qualified personnel, wage support for up to 20 times the minimum gross value of the minimum wage, for up to 5 years,
- :: Becoming shareholder of the project with the condition that the shares do not exceed 49% of the investment amount and that the shares are offered to public or purchased by the investor, in 10 years time.

The decision on which of these supports will be applied and to what extent will be made by the Council of Ministers.

Moreover, the Council can decide any of the following:

- :: PDeclaring purchase warranty to the product of the project based investment for an amount and duration,
- :: Making exception to permits, allocations, licences, registrations and other restrictions,
- :: Rearranging the legal and administrative processes in order to shorten and investment period and simplify the investment,
- :: Taking decisions for all kinds of infrastructure investments when necessary.

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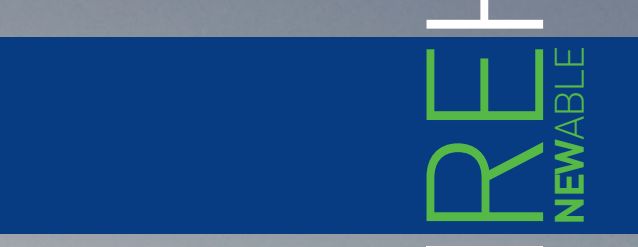
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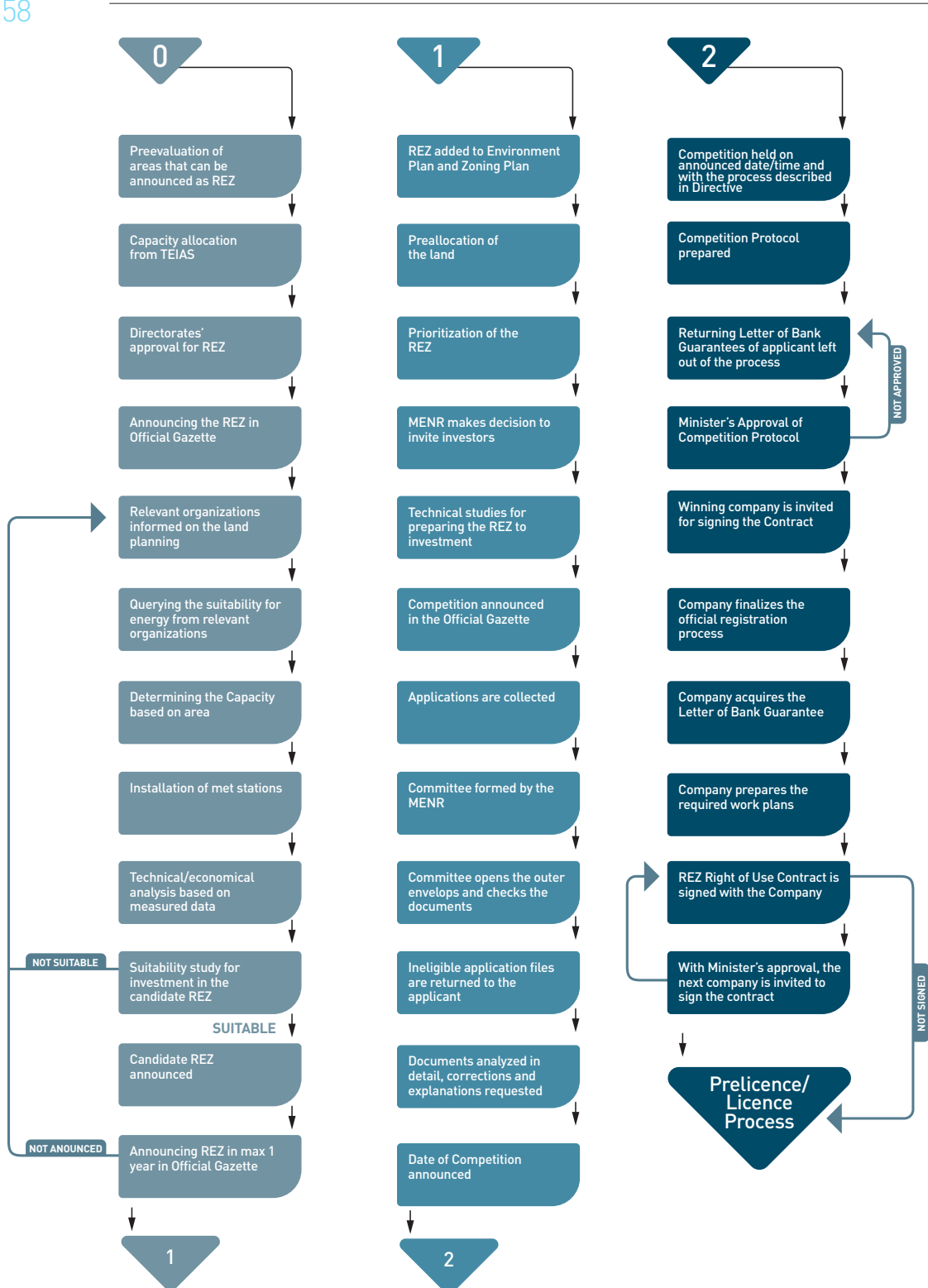
Appendices

7.1. REZ Process Workflow

Appendice-1

REZ Guide
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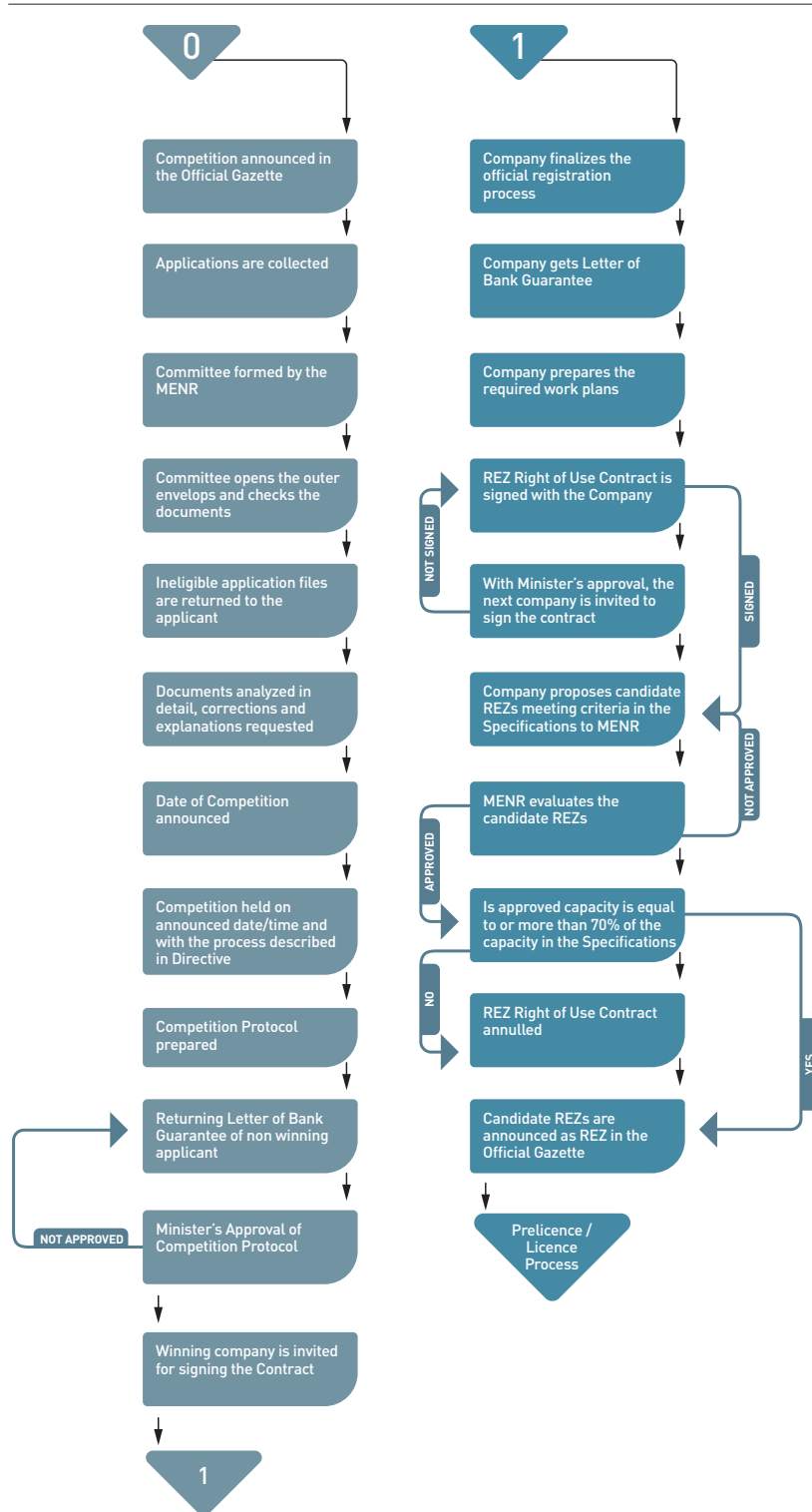
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7.2 REZ Process Workflow in case of Capacity Allocation Method

Appendice-1







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