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GENERAL DIRECTORATE OF RENEWABLE ENERGY

Statement on Energy Efficiency and Renewable Energy – Opening Session, 2nd Preparatory Meeting of the 21st Economic and Environmental Forum, Kyiv, 16-17 April 2013

Energy Efficiency

Global price fluctions in energy sector, increasing demand in developing countries, future scenerios concerning the depletion of fossil fuels which today are commonly used in energy generation and climate change caused by global warming form the energy security risks throughout the world. This situation has directed the countries to use renewable energy sources and energy efficiency and accelerated the decisive steps on these issues.

Besides having a transition economy as an OECD member, Turkey has different dynamics with its young population, increasing production and technology infrastructure. In developing Turkey energy use increases more rapidly than the European average due to reasons such as increasing population and prosperity, industrialization. While Turkish economy grew by 8.9 % in 2010, dependency on foreign energy reached to 74 %. Projections show that within the next 10 years the increase in annual primary energy demand will be 5 %, the electricity demand will be 6.7 % and 7.5 % for the low and high scenerios, respectively. On the other hand, the need for investment in the energy sector within the next 15 years is calculated to be in the order of $ 130 billion.

In this perspective, Turkey's energy policy is arranged for utilizing the limited natural resources with their environmental effects, transforming them to a clean, safe, efficient and cheap energy supply to increase development of the country and prosperity and, being an energy corridor and energy terminal to transfer Eastern rich energy resources to Western markets. Accordingly, we want to make use of indigenous and renewable energy sources in the maximum amount, but also want effective and efficient use of energy at every point.

Energy efficiency is one of the most important components of the national strategy objectives just like energy supply security, reduction of the risks of dependence on foreign technology,

environmental protection and enhancement of the effectiveness of the fight against climate change. The importance given to energy saving works is increased by recognizing the importance of sustainable development. To ensure the highest level of energy efficiency in a country, evaluating the potentials in the country, strategy determination on realization of the legal, administrative and structural requirements parallel to international and EU standards are prior and inevitable.

In recent years, Turkey has given more importance to energy efficiency to provide energy supply security to the fast growing economy, to reduce pollution and energy load on economy. Including the Energy Efficiency Strategy and Energy Efficiency Law, an important distance has been covered on this subject to form the legal and institutional framework and support energy efficiency.

There are issues within the context of theLaw and related regulations, such as increasing and supporting energy efficieny, setting up energy efficiency consulting companies (EVD), forming energy managent systems, promoting energy efficiency investments (Productivity Enhancement Project (VAP) and Voluntary Agreements), increasing energy efficiency in transportation and buildings, preventing the sale of inefficient appliances and increasing awareness. In addition, Energy Efficiency Coordination Board has been established to effectively execute the energy efficiency efforts across the country with all relevant organizations and to monitor and coordinate the outcomes. Following up the implementation of decisions taken by the Board and secretarial services are carried out by the Ministry of Energy and Natural Resources.
Within the scope of the legislation, in the field of energy efficiency education, audit, consultancy and project services are being expended throughout the country by giving authorization to universities with certain qualifications, chambers of electrical and mechanical engineers, and energy efficiency consulting companies (EVDs).

Energy management is an obligation in buildings and businesses having growth over a certain size. TS EN ISO 50 001 Standard for Energy Management System is formed and realized appropriate to user manual and conditions standards. There are already over 5000 certified energy managers in Turkey.

"Building Energy Performance (BEP) Regulation", which mainly includes the mandatory implementation of the new buildings, has come into force in accordance with Energy Efficiency Law that evaluates energy efficiency in buildings with a holistic approach. In accordance with these regulations, building licenses are not given to the building projects which do not meet the minimum performance criteria and standards on architectural, thermal insulation, heating and cooling systems and electrical wiring issues for buildings. Some of the most important applications brought by the BEP regulations can be summarized as follows; establishment of central heating systems in buildings having the total area of occupancy over 2000 m^2; insulation; obligation for application of the renewable and cogeneration system investments to a specific portion of building cost; requirement for preparation of Energy Performance Certificates; periodic maintenance and control; automation, heat and temperature control, minimum standards to be applied to installations.

On the other hand the arrangements directed to limitation of usage and sales of the products using enegy inefficiently have been enforced consistently with the European Union legislation and politics. In accordance with the Energy Efficiency Law; the arrangements related to boilers, burners, room heaters, combi boilers, electrical motors, air conditioners, electrical household appliances and household lamps should be made but the arrangements related to

household and official electrical and electronic equipment, simple set-top box signal converters, lamps, lighting equipment, external power supplies, circulating pumps, televisions, household cooling equipment, household washing machines, household dishwashers have been enforced until now.

In the year 2008, which was announced as Energy Efficiency Year, "NATIONAL ENERGY EFFICIENCY MOVEMENT" had been commenced with the participation of public, private sectors and non governmental organizations for the purpose of using energy efficiently and effectively at each point and avoiding its waste with the priority of electrical energy and with this initiative it was proposed to use energy efficiently and effectively at each point and prevent its waste in terms of protecting energy supply safety of our country at the highest level and decreasing greenhouse gas emissions with the priority of electrical energy. In this context; an assistant governor had been charged as "Energy Efficiency Coordinator" in cities and Governors had been prepared Action Plans to implement in their cities and they had executed. With the close collaboration of Ministry of Interior and Ministry of Education, energy efficient lamps had been distributed to the students in primary schools. Awareness and support meetings directed to promoting usage of energy efficient motors in the industrial zones in various cities had been arranged with the collaboration of manufacturers and importers of electrical motors. Furthermore Energy Efficiency Project Competitions in Industry (SENVER) have been arranged in each year for the purpose of exposing, introdusing and promoting energy efficient and environmentally-conscious projects and technologies, which are implemented by our industrial establishments, and increasing exchange of information between the industrial establishments and encouraging new and similar studies on the subject of energy efficiency. In addition to these "Energy Efficiency Week" activities have been arranged in second week of January of each year for the purpose of increasing energy efficiency consciousness of the society, increasing efficiency in the production and usage of energy, promoting national energy efficiency movement. An important coil of the energy efficiency week activities is the National Energy Efficiency Forum and Fair event realized with the participation of national and international experts where the progress, bottlenecks and solution proposals in energy efficiency are discussed. In the framework of this event, discussion sessions like conference and panels, fair activities including energy efficient products and technologies, activities of awarding persons and establishments making successfull studies with prizes and various cultural and art activities are occured. 3rd National Energy efficiency Forum have been realized in Istanbul on January 12-13, 2012 with the participation of 117 speakers and about more than 5000 audiences.

The Energy Efficiency Strategy Paper have been published in the Official Gazette of February 25, 2012 and enforced with the decision of High Planning Council dated February 20, 2012 with the decision number 2012/1 for the purpose of forming a clear and certain future plan and coordinating between the public, private sectors and non governmental organizations for increasing the effectivity of the energy efficiency studies carried out until now. It is targeted with the Paper that amount of energy consumed per gross domestic product (GDP) of Turkey in the year 2023 (energy intensity) will be decreased to at least 20% of the value of the year 2011.

Our Ministry have given importance to the national, international and regional collaborations and have realized activities in this direction in the context of the energy efficiency studies. From this point of view international collaborations and projects, the knowledge and experience of the world have been transferred to our country and also our country's knowledge and experience have been shared with the region countries with the programs like

training. In this regard projects increasing energy efficiency in industry, in buildings and in household electrical appliances supported by Global Environmental Forum (GEF), the Project on " forming and development of Energy Efficiency Monitoring and Evaluation infrastructure in Turkey" in cooperation with The Netherland, project for developing infrastructures in the 3rd countries with the support of Japan International Cooperation Agency (JICA) and project directed to pilot applications in the industrial zones with the collaboration of US Department of Energy (DOE) have been already enforced.

Renewable Energy

As you know, the global price fluctuations in the energy sector in developing countries, demand growth, energy production, energy scenarios for the future of today's large share of fossil resources which are of relatively limited and the negative effects of global warming has increased the importance of renewable energy sources and energy efficiency, they almost have made it indispensable.

In this perspective, and the maximum amount of indigenous and renewable energy sources we first made a special emphasis on enjoyment.

In our country, the electricity consumption ratio of renewable energy has been 25 % in this amount. 88 % of this amount belongs to renewable hydro power, 10 % to wind energy, 1 % to geothermal and the remaining part of to the0.6 % to the biomass.

In 2023, Primary energy supply may be around 210 million tons of oil equivalent, while the supply of electrical energy from 400,000 to 450,000 GWh band is estimated to take place.

The capture of such a target higher than the average European Union countries, due to limited resources do not meet the objectives of the EU countries, considering the export of clean energy for Turkey and emissions trading is an opportunity. It the case that the electromechanical parts of the power plants are produced domestically, this target will also create a turnover of billions of Dollars for the manufacturing industry and prevent the natural gas import of 12 billion Dollars per year.

Electricity production sites based on renewable resources are environmental friendly and have the power to decrease the export dependence. Also they are advantageous because of their price efficiency in total life cycle with respect to the thermal plants. Because of the investment and support in this kind of plants in developed countries, the technology grows and investment costs decrease. Even the solar power plants which are the most expensive now, is increasingly getting.

On the other hand, since we still have very little amount of renewable resources in our country, the investments are mostly based on import. To prevent our trade balance to be adversely affected from this situation, in other words; to payback the import in site investments by natural gas saving in reasonable periods, it is necessary to support the domestic manufacturing first. Rapidly develop indigenous R & D incentives are considered along with.

DG of Renewable Energy Resources: Regarding the renewable energy resources, energy efficiency and energy information technologies, we are doing measurements and projects,

improving energy potential maps, evaluating the applications by performance measurements, setting up sample applications, planning R&D projects to make the new technologies assimilated in the country, promoting these project to be applied, contributing the arrangement of legislations, giving technical support to the state organizations and investors.

Turkey is a country's EU accession process, and therefore carried out studies on the energy legislation to be compatible with EU regulations. Turkey also gives significant importance to encourage the energy production using renewables in a cost effective manner. Revised the "Electricity Energy Market and Supply Security Strategy Paper" in 2009. In this paper, some targets defined related with renewables as follows;

1. By 2023 the share of renewable energy in total electricity production is 30%.

2. By 2023 all the hydroelectric potential of Turkey can be used as economic exploitation.

3. Geothermal energy potential of 600 MW will be implemented until 2023.

4. 20000 MW of wind energy by 2023,

In order to reach the targets defined in the "Electricity Energy Market and Supply Security Strategy Paper", The Turkish Parliament improve the editing Parliament'enached through "**Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electricity"** on December 29, 2010. The purpose of this Law is to expand the utilization of renewable energy resources for generating electrical energy, to benefit from these resources in secure, economic and qualified manner, to increase the diversification of energy resources, to reduce greenhouse gas emissions, to assess waste products, to protect the environment and to develop the related manufacturing sector for realizing these objectives.

The law follows the general lines along with the 10-year guaranteed price mechanism has been granted on the basis of such resources.

a. Hydroelectric and wind power : 7,3 US cents/kWh
b. Geothermal power : 10,5 US cents/kWh
d. Biomass power (including landfill gas) and solar power: 13,3 US cents/kWh

These prices are provided outside the premises to be used in the trade which in the case of electromechanical installations tear it up resources on the basis of quantities specified in the law for five years on the basis of facilities benefit from additional incentives may be also.

Incentives provided by the law, provided positive impetus for renewable energy investments in Turkey. As an example, the installed wind power capacity of 18 MW at 2003 increased to 2.400 MW today. Depending on economic and technological developments in Turkey as much as possible will take advantage of solar energy. Current arrangements in the short term, the 600 MW solar power plant is aimed at the establishment.

These studies, as well as 1000 kWe up to the renewable energy power plants to be cleared for the investor to obtain licenses and setting up a company in this regard without obligation to work towards the secondary legislation has been completed.