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REBIRTH OF ENERGY: RENEWABLE ENERGY ON THE AXIS OF GLOBALIZATION, TURKEY'S SOLAR ENERGY APPROACH

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ABSTRACT

The purpose of this research is to identify a rebirth of energy. Energy is a part of our lives or our lives are part of energy. Renewable energy is the most significant example for this new improvement concept. When the globe becomes a more global, all systems start to work together like domino effect. Countries which are developed and developing ones try to find a place for this new formation and their affect. Turkey has a specific place on the renewable energy especially in solar energy because of its geographical location. In this work we will focus on Turkey's stance and work on renewable energy, solar energy resource.

Keywords: Energy, Globalization, Solar Energy, Renewable Energy.

Introduction

Energy is a fundamental to the quality of our lives. Nowadays, we are totally depend on an abundant and uninterrupted supply of energy for living and working. It is a key ingredient in all sectors of modern economies.[1] Energy use is the building block of the social development of countries. It is the key input in economic growth and there is a close link between the availability of energy and the growth of a nation. Growing of a nation feed from energy efficiency of nations. Developed and developing countries resolve each other with

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[1]http://ec.europa.eu/research/energy/print.cfm?file=/comm/research/energy/gp/gp_imp/article_1081_en.ht, Research &Innovation, European Commission, EU and Energy Research, (accessed 22 December 2016)

this energy hub. We see that each country is not sufficient in terms of energy and it comes from the nature of nature. We can define this situation as sufficient for one superior to the others. Energy has a connection with lots of thing and the question is why is energy important? Firstly, easy availability of energy helps in the process of industrializations in a country. Secondly, production of energy leads to the efficient utilization of natural resources. For example solar energy, wind energy and hydro-electricity power can be generated by using sun light, wind and water resources respectively. These are the basic point which classified energy as a significant. Nowadays, energy has a new dynamics, it calls her rebirth; renewable energy. Can the world create itself like a snake from the beginning?

Globalization

The concept of globalization has been emerged in 1980. After this date, it was used more prominently. There are some effects that have become evident; acceleration of technological developments, more prominent information economy, rise of neo-liberal policies, and development of multinational capital in the global market. In general statement of globalization, Globalization is not the same as globalism, which points to aspirations for an end state of affairs wherein values are shared by or pertinent to the entire world's five billion people, their environment, their roles as citizens, consumers or producers with an interest in collective action designed to solve common problems. Nor is it universalism-values which embrace all humanity, hypothetically or actually.[2] There are some features of globalization; Change in consumer habits and increase in consumption behavior in consumer behavior, the transformation of the production, marketing, distribution, consumption of resources from national to international scale, digitalization of trade and economy, the development of information and communication technologies, use of advanced technology in the production of goods and services, after the dissolution of the soviet union decompose of the bipolar world (socialism and liberalism), the rise of economic walls, global changing, the emergence of flexible, dynamic, volatile, fast-paced circles and markets, fast developing technology, digital revolution, increased competition, innovation, iincrease in unknowns in parallel with increasing knowledge, increase in research and development activities, radical changes in human resources area, economic dynamism and fundamental innovations, trade liberalization, gradual expansion and strengthening of financial markets.[3]

With the concept of globalization, the world has become more global so that countries have more knowledge about each other. Regions, countries, and people become closer, is this good or bad especially in terms of energy? Globalization has been caused by two fundamental changes on energy politics. Firstly, the desire to have energy resources in

[2] Rosenau, James "The Dynamics of Globalization: Towards an Operational Formulation", San Diego, Paper presented at the International Studies Association Convention, San Diego, 18 April.
[3] Özdemir, Abdullah "Key Role in the Globalization Process: Energy Policies", Ankara Chamber of Commerce, January/February 2012.

developing countries from developed countries. Secondly, increasing environmental problems due to energy use. It is not so good because most of the states have entered the competition without being ready. States are not separated developed or developing ones. They have been oppressed and oppressor.

The Importance of Renewable Energy and Source

Renewable energy sources are inexhaustible and importing is not easy. Particularly in countries where both renewable and conventional energy sources are scarce, are the unluckiest countries in terms of long-term energy costs and dependence. Countries with renewable energy potentials tend to alternative energy sources as conventional energy sources such as oil become expensive.

The use of energy based on fossil fuels, dependency on fuels, high import costs and environmental problems, as well as the rapid depletion of world fossil fuel reserves are increasing the importance of renewable energy sources. The economy; It is known that energy is the primary input of production, goods and services. For this reason, the European Coal Steel Community, the first step of the European Union, took coal as an energy source and iron as a raw material. As you can see, energy is at least as important an economic element as raw material. Energy is external dependency, which means that the entire economy is outsourced. Renewable energy sources meet energy demands in terms of less cost, quality and even less pollution of the environment due to global warming.

Renewable energy sources often have an intermittent or irregular output depending on weather and wind conditions. An increase in the use of intermittent power in the electricity system often leads to an increased need for regulating power. Energy sources used for regulating power are primarily hydro and combustion plants. Wind Power, Biomass, Hydro Power, Solar Energy and Ocean Energy are the most important sources.

When we look at the Turkey side, energy is one of Turkey's most important development priorities. Turkey has a large potential for renewable energies. Currently electricity is mainly generated in Turkey using thermal power plants which consume coal, lignite, natural gas and fuel oil, geothermal energy and hydro power plants. Turkey has no large oil and gas reserves. The most significant developments in renewable production have been observed in wind, hydropower and geothermal energy production. Turkey's demand for energy and electricity is increasing rapidly and heavily dependent on expensive imported energy resources that place a big burden on the economy. As would be expected, the rapid expansion of energy production and consumption has brought with a wide range of environmental issues at local, regional and global levels. The most important renewable

sources for Turkey's energy sector are solar in its various forms, wind, and biomass, hydro and geothermal.[4] In the next chapter we will refer to turkey's solar energy approach in detail.

Turkey's Solar Energy Approach

Today, with the developing technology, the usage areas of solar energy are increasing and taking place in different places. These can be briefly summarized as follows; to meet electricity needs of houses and other buildings, heating of various places such as buildings, houses and greenhouses and obtaining hot water, cooling process, drying process, the distillation of water, garden lighting, lightning of roads and streets, calculators and watches, charging of mobile phones and other portable devices, artificial satellites and sun beds, sun vehicles (yet prototype), airplane (yet experimental) and cooking.[5] As we see, the use of solar energy addresses a very common area. And of course Turkey wants to get her pie in this delicious cake.

Turkey is lucky because of its geographical position in terms of solar potential. Our country is located on a sunny belt between 36 ° - 42 ° north latitudes with a surface area of 781,000 km2 and is in an extremely good geographical position in terms of solar energy potential. Turkey has 380 MWh solar electricity potency in one year and can produce electricity using solar light. This electricity can be electrolyzed to give cleaner fuel, hydrogen and oxygen. In 1960, solar energy could be alternative energy in Turkey. An Institute was established in the field of solar energy. This is the first and still only institute established in Turkey. With this institute, Turkey goes into action about solar energy. Turkey's energy regulator granted its first ever solar license in late 2015. It is a 49-year generation license granted to Turkish developer Solentegre Energy Investment, for an 8 MW facility to be installed in the eastern province of Elazig. Turkish regulators held tenders for solar capacity in various regions of the country in 2014 and 2015. There are two domestic production of solar panels; Solar Thermal Collectors and Photovoltaic Modules. In the first model, there are more than 50 companies in Turkey carrying out production of solar thermal collectors. The industry is well developed with high quality manufacturing and export capacity. Total production capacity is estimated to be 1 million m2, and total production volume is approximately 700 thousand m2. The exports volume is estimated to be 200 thousand m2 and the imports volume is negligible. And the second model, the photovoltaic sector in Turkey is still fairly small, providing work for only a small number of employees. The main actors consist of several companies and a number of research institutes. There are approximately 30 companies which are operating in Turkey's PV sector. The main business types are importer, wholesale supplier, system integrator and retail sales. The companies

[4] Temiz, Dİlek ve Gökmen, Aytaç "The Importance of Renewable Energy Sources in Turkey", International Journal of Economic and Finance Studies, Vol 2, No 2, 2010.
[5] Kılıç, Fatma Çanka "Solar Energy, the latest situation in Turkey and Production Technologies" Engineer and Machine, Vol 56, No 671, 2015.

serve in the installation, engineering and project development sectors. PV modules, battery charge controllers and inverters are mainly imported. Batteries, solar lighting systems, etc., may be supplied by the domestic market. Some of the domestic products (batteries, tempered glass, etc.) are exported. Currently, there isn't any production of solar cells (photovoltaic modules) in Turkey. Therefore, there is a significant potential for investment in this field.[6]

Where multiple applications were received for the same substation, a bidding process determined the winner. For the Elazig project the developer bid TL 827,000 (present equivalent of US$280,000) per MW for the license. So what is next? Turkey has high solar capacity and needs the installed power capacity from solar. Turkey has an average annual total sunshine duration of 2,640 hours (a total of 7.2 hours per day), which gives it the largest potential among European countries after Spain. At the same time, Turkey is largely dependent on oil and natural gas imports to fuel its growing power generation needs, and needs to diversity its energy sources. The combination of these realities should see further solar licenses being issued.

Conclusion

Energy has an importance for a sustainable world. Nowadays, economic and political things measured by energy. Every country has not the same energy development, because of geographical factors. For this reason, the development levels of the countries are different each other. Energy is not the only reason, but the most significant reason for this development.

With the new concept globalization, world become a big globe and countries become more close each other. There is a big differences start between developed and developing countries. Those who hold the power have become more effective on the weak. Globalization comes with the new energy resource; renewable energy. If the network of renewable energy is very wide, developing countries will not have this type of technological sufficiency. Therefore, developed countries want to create dependence on them in every kind of energy. Turkey is the one of the developing country and she dependent on many countries in terms of energy (oil and natural gas). But when we look at renewable energy, especially in solar energy, Turkey is very clear to develop. Turkey's big chance comes from her geographical position. Turkey has an efficient solar energy because of located on a sunny belt. Nature of the countries and globalization has the most significant effect on the development level. Every renewable thing a good reason to be hopeful in nowadays.

[6] http://www.assolombarda.it/fs/2009716154128_78.pdf , Solar Energy in Turkey, Republic of Turkey Prime Ministry Investment Support and Promotion Agency, (accessed 06 January 2017)

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