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## CAPACITY OF THE ENERGY SOURCES TO STEER GLOBAL POLICY AND TURKEY'S ENERGY STRATEGY

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### Abstract

Energy is the common need of all living creatures and things from daily life needs to the productions of complex structures. Governments encounter problems in supplying the energy of their nations as reliable, cheap and constant. In an environment where common worry is same but the main need of fossil fuels are running out, to reach at the source creates a competitive environment and for this reason reserves cause various conflicts. It is not coincidence that conflict areas of the world are also the areas where fossil fuel reserves are high. For this reason, it is seen that hydrocarbons are used as a tool in steering international policy. Having Russia using natural gas transmission network as a political manoeuvre in order to steer Ukraine crisis or having Iran attaching importance to the natural gas agreement which is done with Turkey in order to configure their economics which was subjected to the American Economic Embargo since 1980s, epitomize this situation. The aim of this study is to provide information about the reserve status of the hydrocarbons, to explain how they develop the global policy and to interpret how the start of use of alternative energy sources in Turkey may influence this situation.

**Keywords:** Hydrocarbons, Conflict, Alternative Energy Sources, Russia, Iran.

### Introduction

Conflicts which emerge very often in various sizes between the governments and pre-government organizations in every stage of at least the known history, doubtlessly depend on different reasons. However, while this assumption is not meaning that the conflict occupies certainly a central place in the agenda of the governments and the time period of that they live in peace is limited, it doesn't bring with it either the thought of conflicts absolutely emerge as concrete military struggles. Governments are, most of the time, in peaceful relations both with their neighbors and with the rest of the governments of the world. However both governments and non-governmental actors maintain their presences within visible or invisible conflicts or conflict potentials in the international relations system which is constituted by the bounded relations of the independent states (Brown and Ainley, 2007: 1-6).

It is likely to classify the conflict reasons, in general or distinctly, in various ways. One of the most common and general reasons is the problematic of the natural resources share. Governments compete in order to acquire, produce and sell the natural sources that they consider as an important factor of their national powers and sometimes they refer to old or new types of colonial tools in order to establish rights on the rich resources owned by undeveloped countries. As for today, it is not possible to think the competition experienced either in Middle East, or in Middle Asia or in Latin America in where there is a strong USA influence, apart from these "resource wars" (İnat, et.al., 2007: IX-XIII).

The conflicts named "resource wars" by Michael T. Klare might be seen also in the future, as in the past and today, for the materials which may be diversified according to the region and need such as petrol, natural gas, water and valuable stones or timber. Furthermore Klare predicts that a rapacious demand will be encountered in the use of consumer goods required for working, by the increase of human population and economic progress, spread of industry and development of the personal wealth level, and accordingly the need for the natural resources will increase. Having more need for the natural resources, inevitably, means the increase of the conflicts engaged for these resources (Klare, 2005: 27-34).

At the point, some factors come to the forefront such as which resources can be used to which extent and for which purposes, their productivities, the advantages of their use and the problems they can cause, how long can they be used. In this text, it will be studied that which resources can be a subject to the "resource wars" and accordingly, whether or not it is possible to make a preference among these resources.

### 1. A General Classification of Hydrocarbons

It is possible to classify the resources discovered and used until today and to detail them among themselves. However, by considering the limitedness of setting forth a discussion in a short text, care will be

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taken to make a distinction which may be criticized by being reductive, but which is assumed basic and general.

"Fossil resources" which are called as "hydrocarbon resources" as well and meeting approximately 86% of the energy need on the earth, include coal (26%), petrol (36%) and natural gas (23%). In this table, while nuclear energy is having a rate of 6%, renewable resources for which especially environmentalists, looking for alternative resource against hydrocarbon, dwell on, have a rate of 7% (Klare, 2009: 27). While renewable resources may be living organisms such as plants; most of the time it is the energy generated from water, sun, wind, wave, flux and reflux and geothermal resources. Though hydrocarbon resources which is a mixture of underground plant and animal fossils, are renewable in theory, they are accepted as unrenewable as it might take centuries. One of the most basic reasons for supporting renewable energy resources against the hydrocarbons which are inevitable to be drained, is that hydrocarbon resources have high carbon emission that is the rate of carbon dioxide they emit to the atmosphere is high (Pala, 2003: 6-7). Another energy resource which needs separately to be evaluated is biofuels. Such as fossil fuels, the biofuels which are acquired from newly died plant and animal residues or living plants unlike the fossil fuels are accepted under the heading of renewable energy resources. Biofuels which are used in common as gasoline in vehicles and for heating purposes in the buildings, are acquired generally from plants such as sugar cane, sugar beet or animal oils. Features of the biofuels is creating lesser air pollution comparing to the fossil fuels and having higher energy density (Smil, 2000: 411-412). Nuclear energy for which it is asserted that they are more preferable comparing to the hydrocarbons as they have lesser carbon emission, is not as popular as mentioned renewable resources (Ürün, 2003: 127).

Petrol which is mainly an input of the industrial sector, emerges in daily life in various fields. It is used in many different areas including agriculture, cosmetics, textile, cleaning chemicals, plastic industry besides transportation and industry. Notably petrol, hydrocarbon resources are the primary energy resources steering governments to the conflicts. While the "hydrocarbon man's era" (Yergin, 2007: 510) in the words of Daniel Yergin which started specially after World War II was being one of the main factors forming the global economics which is in the direction of globalization in 20th century, they brought a murderous power struggle together that was creating a ground for the "Source of Barbarity" (Parlar, 2003) description of Suat Parlar aside from the diplomatic pressures. It is not a coincidence that political movements emerged in 20th century in three waves form, supporting to have environmental movements and environment ethics involved in politics (Yergin, 2007: 732-735).

At this point, it must be discussed, are hydrocarbon resources innocent raw materials which are productive, essential and not different from other energy resources, or are they a trump which can be exchanged easily with alternative energy resources, as often mentioned by environmentalists, not but what getting scared in one hand of losing the function in power struggles between the governments, in the other hand of protecting the environment.

## **2. A Short Discussion Over the Future of the Hydrocarbon Resources**

The attempt of determining the place of hydrocarbon resources in the future which are most used in the current situation, by comparing the advantages and disadvantages of the materials from which energy is acquired, requires some main notes to be written down. First of those is, because of 20th century is the time period in which resource wars are encountered at the maximum, one mustn't fall into the mistake that the biggest accused is the hydrocarbon resources and especially the petrol among all the resources. It is no doubt a right assumption that 20th century hosts the resource wars generously. Having said that 20th century is a century spreading the nature of the war, its tools, destroying power, social conversions, political developments, reciprocal dependency in the global economics, together with the globalization throughout the earth in real and increasing their effect, and as being a century on which many things have been written, many discussions have been made and many reviews done and its being the century we are living in, this century is showing every experience with a magnifier. To place the wars done for golden, valuable stones, silk, spices, fresh water and various raw material sources which are done in especially colonialism period in the former centuries, on a less important corner of the political history, to declare the victory of petrol in order to establish a parallel between the valuable resources of the former centuries and the petrol without understanding the changes within the nature of 20th century and to create conflicts, will not be in compliance with the analytical approach<sup>1</sup>. Thus, no matter energy is generated or not, it is not rational to say that the wars that governments make for the resources have reach at the peak by hydrocarbons.

However, though it has different variations depending on the geography, it is a fact which may be easily observed that petrol has a potential to create violence concertizing as the intervention of either great

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<sup>1</sup> Over 20th century and its nature, see. Hobsbawm, 2007.

powers or internal conflicts. Petrol pulls both great powers and the leader elites of the countries having petrol resources into the struggle of profitability, in parallel to the rate of place it took in the global economics. In parallel to the dependency rate to the income gained from petrol sources, the share allocated for main social services in these countries such as education and health is low. It is determined by statistics that income gap increase in the countries achieved richness depending upon the petrol export and difficulties emerged to comply with the development factors such as average lifetime, baby death rate, elementary education term and success. It is known also that tax system is out of function in these countries, democratic demands do not increase, human rights are often violated under the authoritarian regimes (Renner, 2004: 26-29). Of course an inorganic hydrogen and carbon mixture cannot be accused for all these problems. However, lack of management and financial imbalance for which a ground has been established by the economics depending upon the exportation of hydrocarbons, can be seen as responsible of these problems.

In the other hand, no matter what is the level of the conflict that hydrocarbon resources cause on the world history, one of the facts accepted is that these resources have an end as well and this end will come in a very close future. While the assertion of that resources will diminish before 2050 is accelerating the discovery of new deposits and how to extend the period to benefit from known deposits, the figures declared concerning the reserves vary (Lacoste, 2007: 328). This is strengthen the hands of optimistic ones heralding that renewable resources will be started to be used instead hydrocarbons, public resources such as sun and wind might globally be used and a cleaner world order where conflicts for resources will be lesser shall be exist (Klare, 2009: 26).

Plans that optimistic people who predict the switch to the renewable energy resources agree and their assumptions are as follows: Current hydrocarbon companies shall turn into renewable energy resource companies; national and global energy generation and distribution structure shall be structured again in compliance with the generation and distribution of renewable energy resources; thus, a clean energy oriented market shall emerge unlike it is today and this will globally ensure to have a cleaner and cheaper energy (Gelbspan, 2004: 49).

However, this optimism include many points that may be criticized. Even focusing only sun and wind as they are unlimited, inexhaustible and open for public use, creates many questions requiring answers. It is not possible to deny that it is an advantage that sun and wind, at least in the current period, do not have any side wastes which may harm the nature and humans. Anyhow we can't say that these two energy resources do not harm the environment at all.

Wind energy facilities lead destruction in the migratory routes of especially the birds. Furthermore, they change micro-climate of the region they are located and they cause harm on the environment by making noise pollution unlike it was thought. However, as it is not known that how long it will take to produce the technology required in order to achieve energy from sun and wind, to get this technology spread, there is not any entry proving that they can substitute the current situation with a cost less than total cost of the hydrocarbons. Even when it is assumed that their economical load will be lesser, it is not likely to make sure that they will not form a basis for a new conflict. Such that, while it can be predicted that in this scenario geopolitical importance of the regions where wind is blowing regularly and spanking, it doesn't seem impossible that equator and along the axis may get involved in a likely energy conflict as sunlight falls right and close to right angle. Besides, production of this new technology shall be done by the countries or companies having a technology ready to realize this, technology of absorbing most sun light or generating most energy by wind might replace the technology of bringing up oil and refining. This technology might be sold to the developing and third world countries by some countries or countries, these regions might become an area of a new technology export struggle. In brief, it is likely that a change to be done in the type of energy might create new struggle areas, but inversely might lead to a miraculous global peace, though they harm the environment less.

Effect of biofuels, which are more preferable comparing to fossil fuels, in America Continent on the agriculture and husbandry constitutes an example to these unexpected negative returns. Leaving most of the plants such as corn and sugar beet in order to increase biofuel production in North and South America to this sector and directing a minor part of them to the agriculture as food, made a serious famine in animal husbandry and accordingly a health problem a current issue (Westcott, 2007). Also, searching new energy resources is not non-problematic as it is seen. "The Sunshine Project" which is tried to be developed in Japan between years 1974-1992 where is very poor in the aspect of hydrocarbon resources, has shown how a minor change of temperature in the ocean water can cause irrevocable changes and cause impairment in stratosphere, while trying to make use of the ocean water. Accordingly, while making use of a new energy source or at the stage of developing a new technology for this purpose, it must be proven that nature will be

harmless than the current damages made already on it, before starting the extensive usage of this technology, at least by a simulation (Matsumoto, 2005).

Besides, another objection to the assertion of, no conflicts will emerge as long as resources can be renewed, can be brought from the thesis of that production and trade of these resources will be devolved to the market in current neo-liberal economic order, and market will certainly cause conflicts. The subject is open for discussion separately about should these resources be devolved completely to the government or to the private capital. In this context it can be discussed how have the energy resources of the states adhered to the socialist Soviet Russia in Middle Asia been governed within the Federation and after disintegrated and which is more advantageous for the regional and Middle Asian governments. However, as the current situation is based on the share of resources in the market, it can be said that a interest competition will cause a conflict in the end by a Hobbesian approach. As mentioned before, the change in the energy type shall not deactivate the market as a designator. To think that conflict will not be required as long as resources are renewed, is objecting also to the thesis of hypothetical human community conflicting for "limited resources", in the "nature state" where possession is not set in a modern sense yet<sup>2</sup>.

### **3. Turkey's Energy Potential and the Policy of Renewable Energy Sources**

When fossil fuels burn which are from scarce resources group, the carbon dioxide gas (CO<sub>2</sub>) emits and as result of mixture of this gas with other gases, sunbeams cannot reflect. This circumstance causes greenhouse effect and causes global climate changes to emerge. In the studies which are done over global warming, it is predicted that sea level will increase 1 meter until 2040 and comments are done as in many cities will sink. Furthermore, what threatens the future of human being is not carbon dioxide emission only, also carbon monoxide (CO), sulphur dioxide (SO<sub>2</sub>) and nitrous oxide also threaten the human health. While increase of carbon monoxide is causing deaths, sulphur dioxide increases the rate of cancer incidents and nitrous oxide causes human immune system to crash (Özkaya, 2016). When all these effects are considered, countries develop individual projects and policies concerning the renewable energy sources which do not harm the environment.

Turkey is the second country where electric and natural gas demand is increasing at most since 2002, after China. Increasing energy demand of Turkey increases also the dependence on petrol and natural gas. Moreover Turkey meets only 27% of its energy need from its own resources, against this, remaining needs are met by import ([http://www.mfa.gov.tr/turkiye\\_nin-enerji-stratejisi.tr.mfa](http://www.mfa.gov.tr/turkiye_nin-enerji-stratejisi.tr.mfa)). While energy dependence of Turkey in 2011 was 71,6%, when it is 2012 this rate increased up to 74,3%. In gross final energy consumption; the rate of renewable resources is 10% in 2012 and the electric generation from renewable energy resources is 27% (<http://www.tuik.gov.tr/PreHaberBultenleri.do?id=16124>). As per energy policies, Turkey tries to assure this dependence by trying to ensure diversity in the aspects of source country over different lines.

Having relations tensed up with Iran Islam State because of Syria policy of Turkey and with Russia because of shooting down warplane of Russia on 24th of November 2015, led Turkey into concerns which purchases natural gas from these two countries. However these two example incidents caused Turkey to query energy dependence of Turkey once again and to search for sustainable alternative energy resources. Furthermore, it is predicted that the energy demand which is 125 million tons of oil equivalent (toe) in 2014 will increase up to 210 toe in 2023. When energy resources distribution is examined, it is seen that energy demand of Turkey is acquired from 35% natural gas, 28.5% coal, 27% petrol, 7% hydro and 2.5% renewable resources. Moreover Turkey acquires its electric energy from natural gas in the rate of 47,9%. The country importing 99% natural gas, supplies 55% of it from Russia and 18% of it from Iran ([http://www.mfa.gov.tr/turkiye\\_nin-enerji-stratejisi.tr.mfa](http://www.mfa.gov.tr/turkiye_nin-enerji-stratejisi.tr.mfa)). Thus Turkey must take care of its relations with Russia and Iran.

While Iran was a country having tensed relations with USA, it brought its relations with western world to the point of breakaway because of the assertion that it supports terrorism as well as that it didn't open its nuclear activities to the observation of international auditors. USA prevented Iran natural gas to be exported to the international markets by enacting a law predicting sanctions against this country in 1996 (ILSA-Iran-Libya Sanctions Act). Turkey signed a natural gas agreement with this country while this country was in this situation and undertook to buy 190 barrels of natural gas corresponding 20 billion dollars during 22 years from Iran (Kor, 2004: 65). From that moment on, Iran become an important partner from which Turkey purchases natural gas. Thus, Iran could have found a buyer for itself in a situation where it was

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<sup>2</sup> This objection reflects an idealist perspective. Subject could be discussed within the framework of realist- idealist and neorealist-neoliberal paradigms. However, as it is a discussion exceeding the limits of the text, this way is not preferred. For a discussion maintained so as to include this framework upon energy resources, see. Barkdull, 2000.

imposed with sanctions. Having USA declared that the sanctions imposed on Iran would be removed, caused happiness on Iran nation. This new situation is a source of concern for Turkey which is an important buyer of Iranian gas. Accordingly energy policies and politics interlock and are articulated each other.

While Turkey was establishing its relations with Russia on the basis of energy, it mustn't forget the energy crisis that this country has experienced with Ukraine in 2009. Ukraine rejected to pay the price policy for which Russia predicted in this region for natural gas because they didn't find it rational, and become not to be able to pay their due debts dating back. Upon this, Russia cut the natural gas which was being transferred to Ukraine on 1st of January 2009. Even discussions were brought one step forward and Russians asserted that Ukraine was stealing daily 65 million cubic meter of natural gas from the gas which is transferred to the Europe over Ukraine. Even, according to Russians, Ukraine cut the gas itself which was being transferred to Europe, by closing the valve. Ukraine states that it is Russians who cut the gas, by denying these assertions of Russians. In the end Russians and Ukrainians cannot come to a point in any way because Russians want to raise the price of the gas that they sell, and Ukrainians claim additional charge because of they are the transit country for the gas transferred to the Europe. This situation imposed additional costs both to European countries and to Turkey, and caused them in the other hand to encounter heating problem in the middle of winter (Yorkan, 2009). Even this example all by itself reveals the confrontational identity of hydrocarbons. Dependence of Ukraine on Russian natural gas in the ratio of 60% leads Russia to use its hydrocarbon resources as a gun. EU countries make diversification of resource and supplier country, by starting out from natural gas crisis of Ukraine in 2006 and 2009. EU countries pursue a policy towards increasing their usage ratio of renewable resources at least 20% until 2020 (İşeri, 2014).

Similarly, Turkey tries to eliminate its dependence on Russia and Iran by the project of establishing a nuclear plant in Akkuyu and Sinop. However, even this development is influenced from politic progresses. Establishment of Akkuyu nuclear plant has been undertaken by Russian state nuclear company of Rosatom. After Russia's warplane was shot by Turkey, it is started to be discussed whether or not this project will be suspended. According to the agreement which is signed between parties, as it is predicted to get severe compensation paid in the event of either party unilaterally terminates the agreement, Rosatom cannot terminate the agreement at all. Contrary to the news took place in press about it was suspended, Russian and Turkish authorities state that project is in operation as it was planned. Though the tension between Russia and Turkey did not influence the construction of Akkuyu Nuclear Energy Plant for which it is predicted to meet 10-12% of Turkey's energy, it influenced the project of Turkish Flow Natural Gas Pipeline which will transfer the Russian gas to Europe over Turkey. Mentioned project was suspended (Girit, 2015).

Turkey must tend towards the renewable energy resources in order to avoid from getting its dependence on energy to be used as a trump. Turkey already uses biomass energy, hydraulic energy and geothermal energy among the renewable energy resources. In accordance with its location, Turkey has actually the potential to make use of the solar energy at most. The aim of Turkey must be electric generation from solar energy. However, solar energy is used in order to supply warm water in houses at most (Bacak, et.al., 2009: 12-13). Sunshine duration of Turkey is annually 2.640 hours. When monthly sunshine duration of Turkey is examined, it is seen that it reaches at maximum in July and minimum in December. Southeast Anatolian Region of the country is receiving the most sunshine and Mediterranean Region follows it. But when overall data throughout the country are considered, solar water heaters have possibility to run in full capacity almost in every region of Turkey in a portion of 70% of a year. With these characteristics, it is available for any kind of solar energy application (Dünya Enerji Konseyi Türk Milli Komitesi, 2009: 121-122).

As the country has a rough and mountainous terrain, gross hydraulic electric energy potential has a high value like 430-450 billion KWh/year. Turkey, with awareness of this situation, plans to construct 510 Hydroelectric Energy Plants (HES) (Görez and Alkan, 2016).

Turkey has established the General Directorate of Renewable Resources adhered to Ministry of Energy and Natural Resources by a statutory decree enacted on 2nd of November 2011. The aim of this structure is developing projects in order to make evaluations by determining the hydraulic, wind, geothermal, solar, biomass and other renewable energy resources of the country by making measurements (<http://www.eie.gov.tr/hakkimizda.aspx>). Accordingly, it learns the energy potential as well as carrying out activities concerning the use of them. For example, "The Project of Wind Energy Monitoring and Estimation" is carried out by the coordination of General Directorate. It is aimed to acquire wind electric by establishing more wind turbines (Çalışkan, 2016).

### **Conclusion**

To make a comparison for qualification and productivity of each energy resource in the current order and in a future scenario, exceeds the limitedness of this short text. But the point which has to be certainly stated is that having a change in the energy type will not be discussed only in the framework of

that it harms the environment and cause bloodshed in the international arena. The changes occurred in the energy resources used in the production processes, changed the qualification of the progress of human being and caused big changes both in economic and social relations. Accordingly, likely changes in the energy resources and the energy type shall be the motor power of the technological, economic, social and political changes (Pala, 1996: 20). This causes that such a change will not easily become real, and even if hydrocarbon reserves become insufficient against the increasing population, to what extent many factors such as manufacturing cost, market status, geopolitics, politics will let this change to become real, will reveal as main setters (Pala, 2003: 13). In this case, to say that non-developed or developing countries will not be able to take a share from new energy resources again and struggling with hydrocarbons bears the potential of creating a basis for new policies which will increase political instability, apart from protecting the environment (Boehmer-Christiansen, 2003: 69).

It will be appropriate to end the discussion by "surprise factor" of Yergin. According to Yergin, if there is a lesson which shouldn't be forgotten about the future of the petrol; the best policy in petrol, is expecting the unexpected that is believing in the surprise. This surprise may be a war sometimes, sometimes technological dangers and sometimes ethnical, religion, and social conflicts (Yergin, 2007: 729). However, no matter where is this surprise coming from, it is not ready to end yet.

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