Abstract

The municipalities, as a public corporation and a part of local governments, have a substantial role on both conservation and energy efficiency. Conservation and energy efficiency are two improved concepts improved parallel to the policies about environment.

As is known the energy sources are consumed rapidly in the world and we need more energy because of the boom industry and technology. Therefore the governments make new policies on the international and national stages. One of these policies is “the energy efficiency”. Sustainability and the energy efficiency are two concepts that progressing correspondingly. The administrative authorities have to execute the energy policies with regard to conservation and the environmental policies.

The municipalities are a part of the administration and have lots of obligations about the energy and conservation. In Turkey these obligations are numerated in Municipality Law numbered 5393. Under Article 14 of Municipality Law, “conservation and environmental health” is regulated but the concept of “energy efficiency” is not regulated in accordance with the international regulations. Although there is no particular regulation about the energy saving and efficiency in Municipality Law, “Energy Efficiency Strategy Document” is enacted by Turkish Government in 2012. This Document assigns many responsibilities to the municipalities with regard to provide the energy efficiency. For instance, a metropolitan municipality has a responsibility to enforce transport master plans at metropolis interested in public transportation and fuel wastage with priority and supporting transport systems one another by establishing bicycle and car parking areas in the public transportation stations. Thus a metropolitan municipality can obtain an energy efficiency and sustainability for a clean environment and more energy without more cost.

Keywords: energy, efficiency, municipality, sustainability, conservation

1. Introduction

The need for the new energy sources increases in our world that is consumed the fossil fuels rapidly. However finding and utilising new sources are excessive in amount. Thus utilising the existing energy source efficiently comes to order. In that context the substantive concept is the energy efficiency.

The energy efficiency is an objective all over the World and Turkey to render permanently. In this respect many international and national regulations had been made abundantly. The World Bank supports and implements lots of projects in cooperation of national organizations. We are going to find out the answers about energy efficiency in our study.

- Firstly, in which stage is Turkey about energy efficiency?
- What are the latest legislations concerning the energy efficiency in Turkey?
- How are the international and national regulations applied?
- What are the legal obligations of municipalities in Turkey with regard to the energy efficiency?
2. The Notion of Energy Efficiency

The decreasing of consumed energy without decreasing the quality and quantity of produced energy is called energy efficiency. At first sight it seems to be impossible but this can be existed with subordinate precautions. For instance, the energy efficiency can be provided in a building, by an isolation that preventing the heat inside to go outside within the quality and quantity of energy utilised in thermic system. In other words, the isolation system of buildings, is one of the varieties of energy efficiency methods. When a compact fluorescent light bulb (CFL) uses less energy than an incandescent bulb to produce the same amount of light, the CFL is considered to be more energy efficient. Another detailed definition of energy efficiency is; decreasing the waste of energy by the system of heat, steam, electric, air pressure, waste recycling, decreasing the consumption without decreasing the production [1]. Fundamentally, the energy efficiency is a concept that regards to the sustainability of energy [2]. As a matter of fact we are confronted with the solar energy which is the key resource of the other varieties of energy such as wind, biomass, geothermal. Solely it is explicit that all of the varieties of the sources are not illimitable. Therefore we need renewable energy sources as well as the depletable fossil energy resources. However the occupied energy growing out of either fossil resources or the renewable energy resources must be utilised efficiently and effective. In the contrary, increasing of carbon emissions all over the world causes the progressive complications related to the climate change.

The energy efficiency is related with the energy security[3]. Concurrently, it decreases the need for the fossil fuels.

In light of the foregoing, how can we achieve the efficiency of energy? What are the regulations made legally?

2.1. The Energy Efficiency Indicators

In a country there are many indicators to understand the energy efficiency levels[6]. These indicators can change from a country to a country. For instance, an interpretation about the energy efficiency shall be made by examining the consumed energy indicators of industry, residences, services and transport. In some cases, we can examine the sub-indicators in industry (agriculture, chemical, coal, iron and steel…) or in transport (railway, roadway, airway or waterway) to find out the energy efficiency level of a country.

2.2. The Concepts Related with the Energy Efficiency

The energy saving is not the same concept of energy efficiency. Energy saving is a method of energy efficiency. The first saving method is switching of the lights. Whereas the methods of energy saving is varied. One of these methods is advancing new technologies that save energy. Consequently, the sustainability is rendered[5].

The energy intensity points the consumed energy per Gross National Product (GNP)[6]. If the energy intensity is in low levels in a country, the energy efficiency is at high levels. Because the consumed energy is low level. Accordingly, the energy efficiency and the energy intensity is in inverse proportion[7].

3. The Energy Efficiency In the World and Turkey

In the world, leading countries about the energy efficiency are Japan, USA, Germany, Switzerland and Denmark. In Japan, the business enterprises and the government Works in a cooperation about the sustainability and efficiency of energy and they issue reports and projects related with this task [8]. One of these projects is issued in 2014 by Takenaka Group called Takenaka Project[9]. This Project aims realizing sustainable society through urban creation. In that context Takenaka Group adopted some principles. For instance, “building energy-efficient vertical city”. The vertical buildings are planned like a small town. The top floor is the control department. Topdown to the building, the floors are by order of hotel, offices, museum and department stores. From the department stores you can reach to the railway, underground or roadway directly. Thus the energy waste is minimized. This is a distinguish project for urban planning.

3.1. The Energy Efficiency Under The Turkish Legal System

The Ministry of Energy advances new policies about the energy efficiency in a cooperation with the private sector projects [10].

There is a principal Law with regard to energy efficiency in Turkish Legal System. Law of Energy Efficiency has been applied since 2007. The notion of energy efficiency discribed in Turkish Law under the Law of Energy Efficiency numbered 5627, Article 2 (j): “Decreasing of the consumed energy in buildings without decreasing the standard of living and the quality of the service; in industrial corporations without decreasing the producing quality and quantity. As can be seen, the energy efficiency is not only related with the consumer and also relates with the producer.

People have to take into consideration that the sustainability and the efficiency of the energy both in their houses. Also the manager of business enterprise has to produce goods with taking into account of the energy efficiency.

Despite the lawmaker does not give an explicit task to the municipalities with regard to the energy efficiency, the Law numbered 5627, has lots of tasks about the efficiency. Therefore, this Law can be accepted a specific act for municipalities’ tasks about energy efficiency. While we review the Law numbered 5627, the headline of Article 3 says: “Definitions” and goes on “The application of this Law... The public sector includes:........ local governments”. Put another way, the Law numbered 5627 is applied for he local governments. The main point of this Law is regulated in Article 1: “The utilising the energy in an efficient
way, protection of wasteful expenditure, decreasing the main costs of energy in economy and rating the energy efficiency on protection of nature.

In Turkey, the local governments charge with varied tasks under the related laws. The role of the municipalities in energy efficiency is the origin of our study. However we have to take into consideration of Law of Municipalities numbered 5393. The Article 14/1(a) of this Law, the municipalities have a duty of “...... environment and protection of health and environment”. Thus the Law does not give a task to a municipality to supply “energy efficiency” concretely.

In Turkey, there are many legal documents related to the energy efficiency. One of them is The Strategy Document of Energy Efficiency”. The Higher Planning Board enacted this document in 2012. This document gives lots of tasks to the public sector and the private sector within the framework of energy efficiency. The specific duties for municipalities are named in this document. Within the regulations named in this Document, the legal gaps are removed. The main objective of this Document is decreasing the energy consumed 20% until 2023. In Turkey the studies related to the energy efficiency is coordinated by The Department of Renewable Energy located under the Ministry of Energy.

4. The Obligations of the Municipalities About Energy Efficiency

The municipalities have obligation about a public service related to the protection of nature and the health of nature under the Law numbered 5393. However the municipalities have obligations about the energy efficiency. Under the Energy Efficiency Strategy Document enacted in 2012, the first obligation of a municipality is " the higher rate of energy need in buildings and higher limitation of emmission." Accordingly, the municipalities going to establish the yearly demand of energy at hotels, hospitals or schools and maintain the restoration of the buildings in accordance with the energy efficiency. Barely the municipalities will achieve this task within the cooperation of The Ministry of Environment and Urban.

Another fundamentall obligation of the municipalities is taking into consideration of a requirement of sustainability while the municipalities grant licence to the business buildings more than 10000m², luxury detached houses and the residences. Accordingly, the evidence of sustainability in international and national sides for the new buildings is needed and the municipalities has to give licence accordingly. Hence the municipalities will supply to prevent energy losses. The construction enterprises have to built the buildings in accordance with the energy efficiency for the risk of the construction licence.

4.1. The Energy Efficiency in Transportation

In transportation the energy efficiency is a fundemantal concept. For instance, using the public transportation devices leads to a supplement to the energy efficiency. In this regard, the municipalities should expand the government spending for public transportation opportunities and carry out projects about the public transportation.

In Energy Efficiency Strategy Document, there is a substantial obligation of metropolitan municipalities. Under this document, the metropolitan municipalities have to prepare a new transportation master plan. The fuel consumption will decrease, the carbon emissions will be descended, the mass transportation will be promoted, in mass transportation stations the parking areas for cycles and the other vehicles will be built therein. Thus, the transportation systems support each other and the fuel consumption will decrease. We have to stand on the energy efficiency in transport especially. Because in 2008, By-law about the Energy Efficiency in Transportation is enacted. This by-law assessed the rules taking into consideration by the municipalities and the metropolitan municipalities when they are planning their master plan of transportation therein. For instance, when the drivers have a stall speed in the traffic, they can benefit the green band system and they do not meet any red light to stop. Hereby the drivers’ fuel consumption decrease.

The municipalities should build parking areas on the entrance of the cities for the vehicles. Thence, the drivers can park their car sor the other vehicles on the entrance of the city and then they can use public transportation vehicles. By using the public transportation vehicles, there is no traffic problems, environmental pollution and no fuel consumption.

The actions of the municipalities for promoting the taxi stands are the methods of the energy efficiency in transportation. Actually, the fuel consumption of the taxis, occupy the traffic unduly, shall be inhibited. Thus the traffic problems should be resolved spontaneously in metropolitan like Istanbul. We can say that, there is a direct proportion among the fluent traffic and the energy efficiency. As in a fluent traffic the fuel consumption and the energy consumption of the drivers’ will decrease. Consequently, the carbon emission shall decrease and the air pollution shall be prevented positively.

The municipalities have to evaluate the sustainability and the efficiency in common. Notwithstanding, the metropolitan municipalities and the others that have a population more than 100,000, make a master plan of urban transportation. These plans are made for 15 years, and reviewed in every 5 years. Municipalities should make their transportation master plans considering the zoning plans in common. Because they have to expand their potential of public transportation. In this way, the sustainability and the efficiency in transport should
be ensured. For example, a municipality can built cycle roads for promotion of riding cycles. Thus the transportation of the urban eases and the fuel consumption decreases.

The municipalities have an obligation related to raising the traffic flow in urban. As a matter of fact, when the traffic density decreases, the energy efficiency will increases. Whereas a driver trying to move in a congested traffic consumpts more fuel and energy. Therefore, the municipalities have to evolve new projects for reducing the traffic density.

Another precaution for reducing the energy consumption is keeping a separate roadway for public transport vehicles. The municipalities should make a roadway plan for realizing this.

5. Consequences

The energy efficiency decreases the consumed energy in a country and also the external dependence. Therefore it has a substantial role on Turkey’s energy security.

In Turkey, the cooperation between the public sector and private sector is not sufficient. For instance, The Japan enterprise, Takenaka is a good example for the cooperation of public-private.

In Turkey the corporations should reserve capital for energy efficiency. The government should promote this sector and enact new legislation in our legal system.

6. References

[10]. www.enerji.gov.tr