

THE DEMAND /REQUEST OF ENERGY AND THE ECONOMY OF ENERGY SOURCES

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Abstract: The modern society, in its development has been using energy without any care and now, to deal with the situation, we should pass from the expenditure of petrol and natural gas to that of a bigger quantity of fuel and to promote new sources of energy; and at the same time, to reduce the request of energy.

Keywords: energy, economy, sources

1. INTRODUCTION

Even if it would be possible for us to maintain the actual expenditure of energy for each inhabitant, we could not deal with the situation in 30 years when, because of the raised number of inhabitants, the expenditure of energy will double. Being aware of this critical situation, we should find a way to spend less energy. Figure number 1 shows how we can obtain a considerable reduction of the necessary quantity of energy on long term by simply reducing the rhythm in which the expenditure of energy grows.

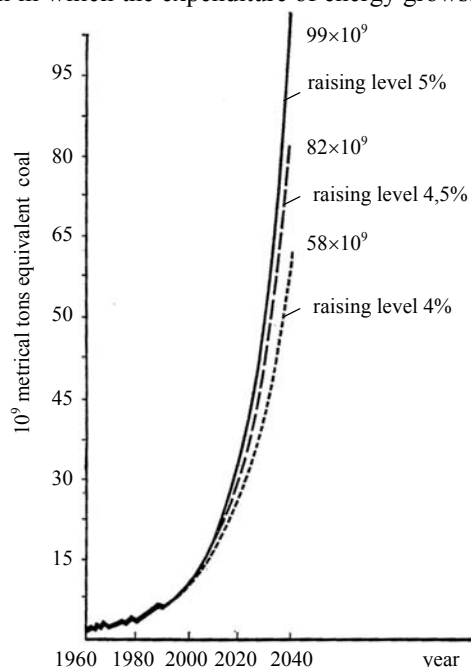


Fig.1. The world's yearly consumption of energy estimated at a raising level of 5, 4,5 and 4% with the indication of the final request in the three cases.

Lately we have enjoyed that the price of fuel/petrol have been relatively low but this hasn't contributed to the

study of the way in which we can improve technology in order to use energy. So, there hasn't been done too much research work in this domain.

Lately, we have started to think of possible ways to save energy. Research and development will contribute to the identification and reduction waste and inefficiency. The possible political or economical consequences that could affect the industrial structure must be adapted to different socio-political average. They should very according to the habits, culture or the economic level of each country. The actual studies show us; as a result, that the consumption of energy for each inhabitant has risen (if we take into account the national brute product of different countries).

In 75% of the countries (72 % of population), the annual consumption of energy is less than 2 kilowatts for each inhabitant and, 22% of the countries in Europe have been using between 2 up to 7 kilowatts, the rest of 3% (especially The United States and Canada) are using more than 7 kilowatts. In this way, the consumption of energy for each inhabitant in The United States is twice bigger than that in Great Britain and thrice bigger than the consumption of energy in France. This doesn't take into account a different quality of life in the same proportions in these countries. It would be essential for us to make a thorough analysis of the existent correlations between different social indicators and the energy consumption amount for each inhabitant in so as to try to evaluate the quantity an inhabitant needs for an acceptable quality of life hi any case, it is obvious that a high quality of life doesn't necessary ask for a continuous raise for each inhabitant (figure 2) [1].

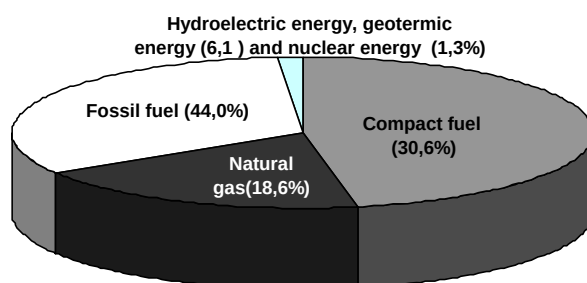


Fig. 2. The world(-market) consumption of energy according to the source

Another important possibility to implement an efficient politics concerning the saving consumption of energy is to alert people about this (energy saving) problem. This can be realized by insisting upon the indication of the energetic efficiency of different products and through the advertising control. It would be very useful to speak about this problem in public and to familiarize with it. Consumers must understand that it is important not to waste energy.

The examination of the dates viewing the distribution of energy would be another important thing useful for the reduction of the request and waste of energy. Let's not forget that science and technology plays an important role. The methods that can contribute to the reduction off the energy consumption can be classified into 3 big categories:

1. The development of some processes of production, which are using lees energy and the reduction of the technological processes or materials which are using/consuming too much energy;
2. The obtaining of some finite products, which are requiring a small quantity of energy consumption and, that have a lower aging coefficient;
3. The organization of some systems (at the level of production, and at the more general level of the socio-economic systems) - which will minimize the requested quantities of energy in order to attain some objective dates.

From a more general point of view, the reorientation problem of some society objectives stays foot; the main scope is to find new options and decisions on the social utility base and on that of the energy saving problem. This problem is beyond the political frame within the science and technology domain.

2. HOW MUCH ENERGY COULD WE SAVE IN THE INDUSTRIALIZED COUNTRIES?

Starting with the year 1960, in most of the industrialized countries, the consumption of energy for each inhabitant has almost doubled. For this reason, we might think that if we could save half of the quantity, it

would be possible for us to attain our target. Although life hasn't been so bad before 1960, we should take into consideration the psychological aspect of the problem, according to which any luxury once attained becomes an imperious necessity. Any deficiency/lowery in our standard of living is difficult to put up with. Let's take into consideration two aspects: a person who succeeds to save energy but doesn't complain about it and the limited number of working places as a result of the limitation of a wasteful and null production from a social point of view (figure 3) [2].

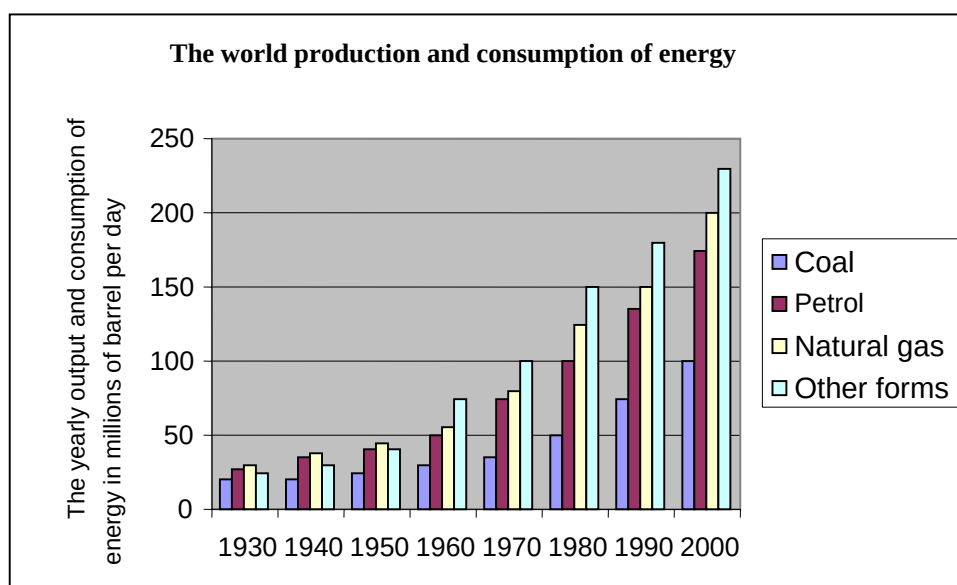


Fig. 3 The world production and consumption of energy

Consequently, governments are obliged to take these problems into consideration and to undertake adequate actions by using economic and convincing methods of arrangement which to aim at the energy conservation and at equal sacrifices apart from the social classes. Research and development at the same time have a very important role in the reduction of energy request through a better utilization of it, because there is more room to improve the projects of the machines and of the processes from all sectors.

But more important, energy savings can be realized by recycling materials, or using durable products, or by developing some methods of production which to reduce the waste/ lose of materials (for e.g. using powder metallurgy and plastic modeling instead of processing machines) and, by replacing the great consumers of energy materials with products which need less energy. The success of an energy saving politics depends much of the operation's results which goal is to preserve materials.

The continuous improvement of productivity in agriculture is founded on the raised use of some technological products and services, which consume too much energy. The same agricultural system was introduced in the countries in course of developing, especially through the techniques of the "green revolution".

Here is enough to say that a substantial economy of energy in the agricultural sector can be obtained by using the chemical fertilizer and, by replacing chemical insecticides with biological methods of fighting against parasites and by improving all the other stages of the food cycle (from harvesting to storing and distributing methods). With a special concern regarding the energetic aspect of these problems.

Another big consumer of energy is the transport sector. Here, such a process of saving energy would directly affect the citizen, particularly the American citizen; taking into consideration the low efficiency of the American automobiles. In this country, the total energy used for the transportation of travelers represents more than 20% of the energy balance of the whole country. The research and the development in the transport sector are very important because energy is being used under the form of fuel derivatives. So, in this sector, saving energy means saving fuel, first of all.

As long as the real price of oil continues to slow down, the scientific and technological researches are

oriented towards the solving of the most important issues: speed and comfort; the saving of fuel being neglected at first. There are some possible improvements that can be made at all technical parameters of the automobiles in order to reduce the waste of oil. The automobile's efficiency can be obtained through a correct matching of the engine and of the transmittance at load, by the recovery of energy resistance braking, through the process of aerodynamic resistance, and a process of improvement at the level of suspension system/device and reducing the weight of the machines/cars. The biggest machines/automobiles, which often transport only a passenger, constitutes the most eloquent example of wasted luxury [3].

Besides the economical and technical aspects of this problem, the restrained connection between transport and the use of the territory, the problem of the urban locations must be taken into consideration. New residential and industrial quarters or downtown areas continue to appear in the suburban regions and this burdens the transport facilities and encourages people to travel by car. The control over the models of urban and suburban development in order to constitute integrated communities (which to combine aspects such as location, working places and entertaining) may contribute to the reduction of oil consumption and finally to the reduction of social tensions.

The transport sector includes a large variety of private and public systems, which offer a big range of products and services. There are big differences of energy efficiency within different systems of transport of travelers or goods. At a minutely observation of these figures we may discover that a very important saving of energy can be realized by orienting transports towards the collective systems which are consuming less energy. This orientation can be easily realized through politico-economic measures and technical improvements in the quality of public transport. The pattern of engines with internal combustion hasn't been changed lately. From a technical and a mechanical point of view Diesel and Stirling engines which are more efficient than the engine with internal combustion or that with advance sparking and are offer some future hope. Still, any major progress can't be foreseen in the near future because the efforts of improvement have been delayed for long.

3. CONCLUSIONS

Saving energy in the industrial process will not affect citizen's comfort so much. And, if prices raise the processes will become unprofitable. There are many ways to save energy, such as: the recovery of heat, the elimination of waste of heat, the use of new systems of heating and, generally speaking improved ways that can lead to the saving of energy with 10 or 20% in the majority of sectors. Other ways to save energy can be realized by modifying the existent processes or by elaborating new processes and new instruments. The efficiency of such instruments constitutes the most important factor when it comes to take new initiatives.

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