

RELATIONSHIP BETWEEN ENERGY PRICE AND IMPROVEMENT OF ENERGY MANAGEMENT SYSTEM IN IRAN

Jalil Badamfirooz , *Azada Ghafari, *Seyed Mohammad Mojabi and *Amir Mohajer Tehrani

Research Scholar, Department of Economics and Cooperation, University of Mysore, India,

* Researcher at the Institute of Environment and Sustainable Development.

Abstract:

Continuation of Energy Subsidy Plan has caused the economic system resources to be distributed through energy carriers. Distribution of sources through implementing energy carrier subsidizing policy was followed by deviation of prices of energy carriers from the marginal cost. Consequence of this policy is reduction of energy productivity. Energy subsidizing has caused the proportion of the price of energy carriers to the price of the other production factor not to be in proportion to the facilities and constraints of Iranian economic system and manufacturers and consumers are provided with incorrect information on energy carriers. The consequence of providing them with incorrect information is that the production technology is propagated with low efficiency and manufacturing efficiency stands at a low level due to employing inefficient technology. Therefore, deficiency of manufacturing management is one of the expenditures of energy subsidizing. Since subsidies removal plan only consider price. It is unable to achieve all its goals, as non-price factors and price factor can play a crucial role. Therefore, non-price factors should also be considered in policymaking to decrease the consequences caused by inflation due to removing diesel energy subsidy if possible. Although price adjustment of energy carriers is considered as an inevitable and essential issue in the country, it is necessary to provide necessary conditions to move toward optimal consumption of these carriers before implementing price policies on energy carriers. Presenting energy management approaches to encounter with the negative effects of increasing energy price in industry is a principle.

KEYWORDS:

Energy Management, Energy Subsidy, Industry, Iran, production of Energy.

INTRODUCTION

One of the effective factors in the economic growth and development process is paying attention to the importance of energy and its management. Energy management means selection of a correct pattern and creation and implementation of correct methods and policies in producing and consuming energy. These policies and methods lead to lowering destruction of energy resources, decreasing detrimental effects caused by improper use of energy on environment and society. Some of the objectives of energy management in different industries and institutes can be referred to as gaining a general knowledge on an industry, cutting manufacturing costs, decreasing energy consumption, improving efficiency of energy consumption. Iranian industry sector is one of the major consumers of energy. The standard solution to manufacturers and consumers of energy in industry is first step toward energy management.

The 2025 Outlook Document considers the leading economic position for the country. The economic growth of 8 percent was also considered for the country in the macro provisions of the Fifth Plan of Development. Moreover, removing diesel subsidy is an inevitable necessity. Achieving such an important goal requires applying the policies, which are coordinated in the different sectors of the country

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that engage the issues in direct and indirect manner. One of the generative sectors of economy is industry and economic dynamics and depression of the country depends upon dynamics and depression of the industry sector. Consequently, achieving the economic growth of 8 percent without inclusive economic growth will not be possible. In the industry sector, energy is also considered as the strategic and effective input. Therefore, elimination of energy subsidy has crucial effects on the stability of energy price, security of energy supply, and considering international and regional conditions in decision-makings and country's energy policies for industry.

Energy Management Approaches in Iranian Industry:

1-Macro Management Approaches

· Implementing Energy Management Law: Energy Management Law discusses fundamental issues concerning efficiency improvement in supplying and consuming energy. This law deals with all the economic sectors of the country. By implementing country's Energy Management Law, the industry sector, as the other economic sectors, will take steps toward becoming more effective.

· Creating an independent energy management in Iran and paying attention to the importance of potential of energy saving at all the stages of production, distribution and its infrastructures. At present, the structure of Iranian energy sector has developed in an irregular and entangled manner; it seems that creating some changes in the departments in charge of energy in the country is so necessary and inclusive that it is impossible to make such a change by setting up a committee. However, it is necessary to revise and reconstruct the present structures and to remove taking responsibility spirit dominant in the current institutions. This requires devising the present structures of energy management. By creating an independent energy management, energy consumption is controlled and energy is consumed more efficiently in all sectors including industry sector.

Making known those who are in charge of country's energy field and lack of applying cross-organizational decision-making by some policymaker institutes.

Implementing energy supplying policy instead of gas supplying or electricity supplying.

Homogenization and equalization of 4 factors, including management, technical and information knowledge, human resource and investment.

Appropriate policy-making in the field of oil products aiming to produce products with higher value.

Creating supportive laws on renewable energies and making authorities familiar with the available potentials of the country in this concern.

Planning to exploit gas fields of the country.

2-Micro Management Approaches

Determining price formula for industries and using discriminatory pricing method for industries:

Non-pricing improvement methods in industry and non-industrial fields such as household and transportation can be executed and implemented within the goal-oriented pricing policies. Adjusting the price of carriers in a managed manner to convey consumption from nonproductive sectors to economic productive sectors, adjusting prices in a step-by-step manner and parallel to doing improvement processes in household and industrial sectors along with period a systematic method for the price of energy carriers for a long interval, on the one hand, motivate consumers and on the other hand, make it possible to plan and perform goal-oriented medium-term and long-term measures for manufacturers. Therefore, it is necessary to determine and announce price formula for consuming energy of industries which is a function of the changes of the global prices, energy consumption rate, energy intensity rate, profitability and return on investment, geographical region of activity in terms of being far or near to feed, rate, deprivation and the other important and effective economic, political and social functions. At present, these factors are considered while determining the price of energy carriers of the industries of the country. For instance, in the Forth Development Plan, the price of natural gas as an alternative for diesel for industries had been determined by the state at the beginning of the plan based on its minimum level of the industries in the neighboring countries. By adopting such a method, the fluctuations of the domestic and global prices and other factors with respect to the paperwork in inputs of energy will lead to imposing heavy costs to the state and industries. Hence, one of the important objectives of the Fifth Plan is determination of energy price formula and its functions for industries.

Development of industries based on natural gas feed, gas conversions and decreasing dependency on petrol and diesel: Using gas by converting it into various products, so called gas conversions, is an issue, which has not been considered by the decision-makers of the country during recent years, despite its considerable advantages as compared with the other methods of gas consumption. This occurs when the income, obtained of raw gas that has converted into various products using gas conversions technologies, becomes ten and sometimes hundred times bigger.

New technologies, known as “gas conversions”, encompass the methods, processes and technologies that change methane of natural gas into at least 200 valuable products within many value chains. Converting gas into chemical materials such as diesel, jet fuel, dimethyl ether, methanol, propylene, ethylene, urea, ammonia, soot, carbon nanotubes, acetylene, and other petrochemical products creates value added for natural gas upto several times more expensive than its raw price. It also creates jobs and develops side industries. In addition to meeting domestic needs, it leads to creating jobs, exporting products and gaining great foreign currency income.

3- Technical Management Approaches:

Constructing combined cycle power plants.
Providing preliminary energy of steam power plants using other fuels such as coal.
Optimal use of associated gas at wells.
Quick implementation of gas storage projects
Assessing energy in industry
Establishing energy services companies (ESCO)

Relationship between Energy Subsidy Removal and Improvement of Energy Management System in Iranian Industries Sector:

The elimination of energy subsidy has brought about many problems for the industry sector. The increase in the price of energy items caused the increase in the production expenditure. In the industry sector, the increase of price of energy caused the production to be damaged. One of the reasons for this loss is the deficient structure of Iran's industries; because the structure of Iran's industry is based on the cheap energy. It can also be said that production technology in the industry of Iran has a great deal of energy loss. Under such circumstances, the industries of Iran are forced to manage consumed energy in the production sector.

The managers of industries in Iran have concluded that they have to make structural changes in the management of energy in order to survive in the production market. After the elimination of energy subsidy was done, the reformation of the structure of energy management has been the first positive step in the industry sector. The only solution ahead of the industries which enable them to remain in the competition market is to reform the industry structure which would consume a lot of energy. On the whole, eliminating the energy subsidy, some of the industries in Iran could decrease a good deal of their consumed energy through the methods of optimization of management of energy.

1- The Transportation Sector:

The transportation industry of Iran is the biggest energy consuming sector in Iran. In the year 2008, more than 43% of the total consumed energy of country has been used in the transportation sector. The energy being cheap, especially that of petrol has caused the uneconomic use of it by travelling in personal cars in different parts of country of Iran. Using the old cars with high consumption- as a result of energy being cheap- has been another reason for the huge consumption of energy in the transportation sector. More than 95 % of consumed energy of Iran was related to the transportation sector. Eliminating the subsidy of petrol, the government and private sectors were forced to decrease their expenditure level. Therefore, in the first step, the following actions were taken to reduce the consumption of fuel in the transportation sector:

Development of the public transportation system (bus, railways): It was done in a way that the transportation of travellers showed a growth of 55% in this sector in the year 2012 compared to 2008.

Removing the old and high consumption cars from transportation system: Government, by offering facilities to the private sectors and forcing the government sectors to take up necessary measures ,has caused that several thousands of old and high consuming cars to be moved out of the transportation system of the country.

The required technical instruction given to the consumers:

Informing people with regards to transportation through media caused the consumers to know about the methods of saving the fuel consumption. This awareness had a positive effect in decreasing the consumption of fuel. Through the years before the elimination of energy subsidy, the petrol consumption has had a 10% growth per year on average and in the year 2007, the daily consumption of petrol was about 74 million liters. With the policy of elimination of the petrol subsidy, the average consumption of petrol in the year 2012 was about 65 million liters which indicates decrease of petrol in the transportation sector. Before the removal of energy subsidy, the average consumption of petrol for each car had been 11 liters but in the year 2012, the average consumption of petrol for each car was about 7 liters and indicated a reduction of 35% of the petrol consumption for each car per day. (The report from the Iran's Study Center for Energy)

2- The Construction Industry:

The young population and the developing economy of Iran have made it a necessity to construct houses in the private and public sectors. One of the important energy consuming sectors of Iran is the construction industry (40% of the consumed energy is related to the housing and business sector); because - energy being cheap-the principles of saving energy have not been an issue in the construction industry of Iran. Removing the energy subsidy, the consumers of this sector have faced the increase in prices. Therefore, the necessity of attending to the energy management in order to reduce consumption of energy in the construction sector of Iran has been felt. Based on the report from the Iran's Study Center (2008), the total consumed energy in the country is more than 50 billion dollars in all sectors of country. 40% of the consumed energy is related to the housing and business sector. According to calculations, the potential of economizing in this sector is about 30%. Therefore, per year it can be expected that a minimum of 6 billion dollars can be saved if the energy is properly managed in the housing sector can be expected. Based on this prediction, as a result of the reformation of the consumption model in the housing industry, we can expect to save up to 7 billion dollars worth of energy. From the year 2008 onwards, different rules and technologies were used by private and public sectors in order to reduce the amount of energy consumption in the housing industry. They include:

Installation of the system of energy management in the whole public and private houses.

Installation of the intelligent system to control heat and cold in all government and service buildings and apartments.

Using new energies (sun energy) in the housing industry.

CONCLUSION

Continuation of Energy Subsidy Plan has caused the economic system resources to be distributed through energy carriers. Distribution of sources through implementing energy carrier subsidizing policy was followed by deviation of prices of energy carriers from the marginal cost. Consequence of this policy is reduction of energy productivity. Energy subsidizing has caused the proportion of the price of energy carriers to the price of the other production factor not to be in proportion to the facilities and constraints of Iranian economic system and manufacturers and consumers are provided with incorrect information on energy carriers. The consequence of providing them with incorrect information is that the production technology is propagated with low efficiency and manufacturing efficiency stands at a low level due to employing inefficient technology. Therefore, deficiency of manufacturing management is one of the expenditures of energy subsidizing.

Reviewing Iranian energy subsidy policy and removing its subsidy have led to the increase of the costs of energy carriers in the country. Following this issue within a short period brings about economical and social consequences; therefore, it should be considered in energy pricing adjustment process

The revision of the management structure in energy sector is the prerequisite to use the relative advantage of removing energy subsidy. This competition is considered in energy and development sector of manufacturing technology to rationalize energy carriers and to improve efficiency of processes and equipment. Realization of the abovementioned affairs requires revision of energy management system, which should be performed parallel to energy subsidy removal. Economic requirements and allocation necessities for revising energy management structure make it necessary to study the negative and positive effects of removing energy subsidy.

Following removal of energy subsidy, a series of managerial measures should be performed to compensate the negative effects of cost of energy and to provide necessary grounds for revising energy management structure. Some of the measures are carried out within a short period with long-lasting effects; the results of the other measures are realized within a long period. The result obtained from removing

energy subsidy in the industrial sector indicates that short- and long-term managerial approaches should be presented in different sectors of industry. Offering energy management approaches within three sections of macro, micro and technical industry and its implementation for the following years is required. Favorable management of energy leads to optimal balance of energy, improvement of energy efficiency, and success of energy subsidy removal. Therefore, by an appropriate and timely planning, it is possible to take a giant leap toward Iran energy management system.

REFERENCES

1. Amuzegar, Jahangir (2005-10-03). "Iran's Third Development Plan: an Appraisal". http://www.redorbit.com/news/science/258875/irans_third_development_plan_an_appraisal/index.html.
2. Bloomberg (2011). Iran Gasoline Consumption Falls 13% after Government Price Rise.
3. Blumberg L. J. and Holahan J. (2008). Targeting Subsidies: Employers versus Individuals, Timely Analysis of Immediate Health Policy Issues, October 2008.
4. Ferry D. et al. (2002). "Health Insurance Expansions for Working Families: A Comparison of Targeting Strategies," *Health Affairs* 21.4: 246–54.
5. Iran daily (2010): Energy Subsidies Reach \$84b.
6. Los Angeles Times: (2010-12-18). "Iran may limit cooperation with nuclear watchdog". <http://www.latimes.com/news/nationworld/nation/wire/sns-ap-iran-nuclear,0,5909101.story>.
7. New York Times (2011): Supreme Leader in Iran Supports Bid to Cut Subsidies. Tehran Times: (2008-06-24). "Majlis special committee to study economic reform plan". http://tehrantimes.com/Index_view.asp*code=171486.
8. Tehran Times: (2009-12-07). "President: Opposition to subsidy plan is „politically motivated“". http://tehrantimes.com/Index_view.asp*code=209285. Retrieved 2010-01-30. *Turquoise Partners: Investment Monthly* (January 2011).
9. United States Energy Information Administration: *Environmental Issues in Iran* (2000).
10. "Why Iran's Ahmadinejad is pushing to cut popular government subsidies". *CSMonitor.com*. (2010-04-30). <http://www.csmonitor.com/World/Middle-East/2010/0430/Why-Iran-s-Ahmadinejad-is-pushing-to-cut-popular-government-subsidies>.
11. http://www.fichtelegal.com/en/news_article.php*news_id=69 Central Bank of IRI- national accounts Official website of IRI Ports and Shipping Organization Official website of IRI Road Maintenance and Transport Organization Official website of IRI Railways and data from Raja Company Official website of IRI Aviation Organization



Jalil Badamfirooz

Research Scholar, Department of Economics and Cooperation, University of Mysore, India,