Systematic and Sustainable Energy Efficiency in Armenia

Proceedings of the Final Workshop at the State University Yerevan

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SYNERGIA - Systematic and Sustainable Energy Efficiency in Armenia

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IX. Energy Economy

Introduction. The project of broshyury, the idea of which occurred during the performance of research within the SYNERGIA project is presented.

The results of a sociological survey of different sectors of the population showed a low level of awareness of people about the energy efficiency projects, the impact of different energy resources consumption on the environment. This fact, as well as the experience of our colleagues in SYNERGIA project became the basis for the submission of the project on creation of this guide. The manual is intended to be submitted to the school discipline on the economy, as a source of knowledge on energy economics.

The content of the manual must be complied with the curriculum on the subject of the economy, however, it could be focused on the general public, it can include recommendations to improve energy efficiency projects.

To preview the presentation of the brochure it had been chosen two themes from the overall subject of the economy.

Theme 1: The subject, the problem, the production factors and the economic system of the economy.

Theme 2: Supply and demand. Pricing in the market.

Here in parallel with the basic concepts of economic theory it had been given the definitions of the electricity market, electricity as a commodity, which has a number of features that significantly influence on the formation of the cost in its production, and that the differences in costs sometimes underlie the differences in fees for its use (tariffs).

It have been observed the features of electric power from a consumer perspective. In contrast to other goods the consumer gets it exactly at the point in time when there is a need for it. The examples explain the behavior of supply and demand of electricity as a commodity. In the guide simple questions are posed such as:

- where does the electricity emerge,
- how and by what do people warm up,
- What is the energy efficiency and conservation.

It had been listed the relevant answers.

In the first theme there were presented the definitions of Economy and Energy Economics by the parallel ways. In this way the students can imagine what is the purpose of economy of energy and what problems it may treated in the overall economy. There are quite descriptive and simple manners (corresponding drawings: mechanical energy, light energy, electrical energy) about the definitions for the various types of energy.
In the paragraph "Production and Energy" it is stated why the energy is needed in the common life. Foremost, people are willing to consume energy. Secondly, the energy needed is the production resource. Without any form of energy, we could not produce goods and services. Thirdly, we know, that energy, as well as other goods and resources are limited. Energy resources are natural, then it is quite costly to develop and produce them. It is represented the relationship between these needs in the figure.

The electricity is represented in a quite detailed and descriptive way as a unique product, and the fact that the electrical energy as a commodity has a number of features that significantly influence on the formation of the cost during its production, and that the differences in costs sometimes underlie the differences in the fees for its use (tariffs). At first we consider the features of the electrical energy from the point of view of the consumer and then as the electrical energy used at the present time and it is not a product of nature. It was created by the human in different ways.

As that widespread practical use of electrical energy compared to the other forms of energy due to the relative ease of its preparation and transmission over long distances, we described the major Traditional (heat (CHP), the water flow energy (thermal power plants), nuclear power plant (NPP) and Non-traditional (wind energy, tidal energy, solar energy) sources of electricity by the drawings and by the way of the energy production.

In the following section we describe the rationality of people, and the comparison of their benefits and costs, which are arising out of an action, is very essential. Then for explaining the energy efficiency, at first it is explained the efficiency criterion and what it means the efficient allocation of resources.

As a result, it is talked, that from this point of view, people consume one or another form of energy (for example, the electricity or the natural gas or other forms of energy for heating the houses).

The second chapter begun by describing what is a market? How it is works?? And what kind of markets they know? After general questions it is defined what is electricity market? In the figure it is clearly visualized the whole supply chain process of electricity production, transportation and consumption. Then it is divided primary energy markets and market of electric power.

In order to explain the attitude of buyers to the product, introduces the concept of demand. The demand of the good is introduced via tables, graphs and functions. Effect of price changes to the demand is explained through the example of the “electricity” good. It is said that if electricity prices increase, consumers can reduce the use of electrical appliances. This will be a short-term reaction. They can even replace old appliances to the new. It will be a long-term reaction. Both effects will reduce power consumption. In the separate column presented characteristics of Giffen goods. In the paragraph of “Demand of the goods” also represented sectors of electricity demand. They are: Population, Industry, Budget organizations, Transport, Irrigation, and Heating etc.

In this section it is explain in detail the formulation of commodities supply, in case of electricity. Through the tables and the graphs described the rule of supply of the goods and responsiveness of the quantity supplied of a good to a change in its price. In the picture it is shown that Electricity comes to the houses and at other locations across the immense power and network cables, that the pupils have imagination what kind of good is electricity. Then it is explained that Electricity market is unlike other commodity markets, based of it we cannot storage electricity and that’s mean that supply and demand of the electricity must be balanced.
As a conclusion we looked through the characteristics of Armenian electric power market. It is represented typical conditions of our market. They are as follows: a) consumption is not entirely depend on the price, b) the main alternative for home heating is natural gas, in general, it isn’t easy to replace heating with oil or firewood and etc.

After the completion of the energy economy course the different sectors of the population will increase the level of knowledge of the energy efficiency projects which will bring to significant savings in energy use.

Knowing that, for example, the replacement of light bulbs in the entrances of apartment buildings with more energy saving ones or installing solar panels on the roofs of houses, will bring to the significant financial savings for all the residents of these homes and which will be one of the visible results of this guide. It is very important, to give knowledge on energy-efficient use of appliances that you need to know for insulating homes that efficiently - central or individual heat supply since the school agenda answers to these questions must be substantiated by specific examples and calculations.

Plan - Contents

1. Energy Alphabet

   Answers to the questions-what? WHERE? FOR WHAT?

   1.1 Where does the electricity supply begin?

   1.2 How people do warm up?

   1.3 What are the energy efficiency and conservation?

2. Energy efficiency projects

   2.1 What is the energy efficiency project?

   2.2 What should we know about the warming of the house?

   2.3 Central or individual energy supply?

   2.4 Where is the heat lost?

3. The maintenance and management of multistory buildings (New solutions for the old problems).

   3.1 The lightening of the porches and courtyards.

   3.2 The installation of solar panels on the roofs of multistory buildings.

4. The advice for the energy efficiency for using household appliances.

Համարթման առաջին հիմնական կարգերից է ստեղծել ապահովություն, որն անցնում է համարթման միջոցով, որպեսզի համարթման անմիջական հաշվարկներն ու նպատակները կազմված են համարթման համար և անհարթման համար.

The plan shows the list of topics that need to be considered in the energy efficiency projects. It is important to know the energy-saving methods and appliances that will bring significant savings in energy use.

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