DEVELOPMENT AND CLASSIFICATION OF ENERGY-SAVING ACTIVITIES FOR HOUSING AND COMMUNAL SERVICES

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Anotation. *For housing and communal services, preparatory measures were proposed, which included the active implementation of energy-saving technologies, the mechanism of economic stimulation, methodological and scientific developments, industrial production of energy-saving equipment. much of the energy consumed by the human side is turning into useless heat due to the low efficiency of using available energy resources. Three areas of proposed energy conservation have been considered. A number of general energy conservation recommendations and specific recommendations relating to individual energy conservation systems have been considered.*

Key words*: energy saving for housing and communal services, energy efficiency, rationalization, resource saving, thermal insulation, insulated pipes, pressure regulators, heat supply, energy saving economic mechanism.*

INTRODUCTION

In the field of housing construction of the Republic of Uzbekistan, comprehensive measures are being taken to develop and practice economically cost-effective and reliable methods in the implementation of energy conservation work, and certain results are being achieved. The new Uzbekistan development strategy for 2022-2026 sets out important tasks, including “saving energy in the construction sector and increasing the energy efficiency of barrier structures, improving the quality of construction and design work, and widely introducing renewable energy sources in housing and communal services, objects of the social spheres and other areas, and improving energy efficiency.”[8]

The final goals of the energy-saving policy in housing and communal services are to reduce the cost of production costs and services of Housing and communal services enterprises and, accordingly, to soften the process of reforming the payment system for housing and communal services for the population when transferring industry to a harmless mode of operation. President of the Republic of Uzbekistan Shavkat Mirziyoyev in Decree No. 5 of August 22, 2019 “on rapid measures to improve the energy efficiency of economic sectors and the social sphere, the introduction of energy-saving technologies and the development of renewable energy sources”in Uzbekistan in order to dramatically increase the energy efficiency of the future national economic sectors, the energy saver paid special attention to the issues of introducing new technologies (measures) into all

areas of the national economy, as well as measures for the development of renewable energy sources.

The active implementation of energy-saving technologies for housing and communal services is possible only in the presence of legislative and regulatory documents, an economic incentive mechanism, methodological and scientific developments, preparatory measures involving the industrial production of energy-saving equipment.[10]

Currently, the situation is developing as follows:

* Industrial base for the production and implementation of energy-saving technologies for housing and communal services, including measuring instruments, regulatory systems, new efficient closed structures;

* There is almost no economic incentive for housing and communal services to save energy.

Efficiency is applied in practice to assess the effectiveness of any system. Efficiency can be increased by reducing inefficient losses, which is ultimately the ultimate goal of energy saving.

MAIN PART

When developing energy-saving measures for housing and communal services, the following are necessary:

1) conduct a detailed examination and determine the most important energy losses;

2) determine the technical essence of the assumed improvement - the principles of obtaining economics;

3) Calculate the potential annual savings in terms of physical and monetary;

4) determine the composition of the equipment necessary for the implementation of the recommendations, its approximate cost, cost of delivery, workshop and commissioning;

5) assessment of the general economic effect of the proposed recommendations, taking into account the above points.

For their implementation, it will be optimal to use technologies that significantly reduce the energy loss in the system with minimal costs.

There are three energy saving junctions for housing and communal services.

The first line is very effective and affordable for the initial stage of implementing energy saving policies for housing and communal services-this is the rationalization of the use of fuel and energy. Due to the implementation of this route, the cost of fuel and energy can be reduced by 12-15%.

The second is related to the structural restructuring of the economy and the transformation of the images of the development of energy-intensive and low-energy sectors. Resource savings account for 10-12% of available consumption.

The Third Line provides for the introduction of energy-saving technologies, processes, apparatus and equipment for housing and communal services in the most energy-intensive

industries and housing utilities. This direction reduces the need for energy sources by 25-30%.

Unfortunately, much of the energy consumed by the human side is turning into useless heat due to the low efficiency of using available energy resources. The approximate distribution of energy used in a year in the world is given in Table 1.1. The energy value in this table is given in the size of the amount of coal in megatons (Mt) that gives the available energy when burned.

Table 1.1 annual energy consumption in the world

Energy form	Quantity, Mt	Source
Feeding humans and feeding on work animals	650	Sunshine (now)
Firewood	150	Sunlight (past tense)
Hydropower plants	100	Water movement
Coal, oil, gas, peat	6600	Sunlight (past tense)

Of the above nuances of energy saving for housing and communal services, attention should be paid to:

1) saving resources and reducing heat loss:

* thermal insulation, increasing the thermal resistance of the structures surrounding the premises;

* modernization of heat supply and water supply systems;

* use of unconventional energy sources;

2) accounting and regulation of energy resources and water consumption;

3) Creating an economic mechanism for saving energy;

4) improving tariffs, standardization, certification and metrology systems aimed at saving energy.[9]

Measures are being taken to consistently modernize and technological re-equip the power and gas supply system in the country, to improve the basics of energy conservation and the mechanism of mutual calculations for supplied electricity and natural gas. (*1.1-picture*)

1.1-picture. Ensuring the rational use of energy resources.

The main measures to save resources and reduce heat transmission include:

* step-by-step replacement of the central heating system with MIT in the block-modular version;

* introduction of decentralized heat supply sources in economically desirable locations;

* reduce heat transmission in engineering networks by step-by-step transition to modern pipes, including polyurethane foam insulated pipes;

* optimization of operating modes of heat and water supply networks by introducing an adjustable drive of automated control systems and pumping units, replacing pumps with a higher installed capacity;

* reconstruction of heat points using efficient thermal-mechanical equipment (e.g. plate water heaters;

* extensive use of equipment and internal surface condition Control and diagnostic equipment of heat and water supply systems;

* application of the latest methods and technologies for cleaning the deposits of heat exchange equipment, boilers, water supply systems and Wells;

* replacement of outdated shut-off valves and sanitary devices in apartments and individual houses;

* transfer boilers to gas fuel as much as possible;

*optimization of combustion processes in boilers and the introduction of optimal regulation tables using automation and control tools, redistribution of heat loads by annealing heat networks;

* the use of pressure turbines against boilers installed parallel to the gas arrivals unit to generate additional electricity;

* provision of water treatment regimes, prohibiting the commissioning of boilers (both with new construction and after overhaul of equipment) that are not equipped with water treatment tanks, have not undergone timely adjustment tests;

* replacement and cleaning of networks using new methods of cleaning in a trench-free way;

* performing adjustment work on thermal networks of buildings and heating and hot water supply systems;

* installation of pressure regulators at entrances to public and residential buildings, which reduces excess pressure to a minimum, which leads to irrational consumption of water from cranes and leakage from sanitary and technical fittings.

In many countries around the world, energy consumption issues have been implemented since the 1970s through public energy efficiency policies and special programs. Today, the industrial sector accounts for nearly 40% of the world's annual primary energy consumption and approximately that much of global carbon dioxide emissions. In this direction, the international standard ISO 50001 is adopted, which regulates energy efficiency issues.

For example, the activities of most organizations are included in the list of international energy efficiency programs, the largest of which is the International Energy Agency (XEA)-Energy Efficiency. At the same time, such organizations exist in the European Union, in the United Kingdom, Mexico, Canada, the United States, the Republic of South Africa (JAR), Indonesia, South Korea, Japan, India, Iran, the people's Republic of China, New Zealand, the Russian Federation, Brazil, Australia and other countries (*1.2-picture*).

1.2-picture. Energy efficiency and economy

The use of unconventional energy sources should be considered as one of the promising energy savings in housing and communal services, which is at the same time an aspect of solving environmental problems.

Equipping buildings and buildings occupied by public sector organizations with access accounting instruments is also one of the priorities. The implementation of such measures allows budget organizations and municipal enterprises to save heat and water payments from 15% to 60%.

Among other things, a system must be created that provides extensive installation and maintenance of Accounting units, as well as devices that regulate the consumption of heat, water and other energy sources,

Accounting schemes should be developed for all levels of district, residential microdistrict, homeowners company, residential building, apartment consumption. In all cases, it is necessary to minimize the fleet of measuring instruments and try to shorten their nomenclature..

There are the following types of energy-saving activities for housing and communal services:

1) low cost;

2) average costs;

3) high costs.

The period of reimbursement of low-cost activities is less than two years, they are carried out in the order of the current activities of the budgetary institution or enterprise..

The period for covering average events is from 2 to 5 years, these activities, as a rule, are carried out at their own expense.

The high cost recovery period is more than 5 years, they require additional investments.

CONCLUSION/RECOMMENDATIONS

There are a number of general energy conservation recommendations for housing and communal services and a number of specific recommendations regarding individual energy conservation systems.

General recommendations include:

* appointment of energy carriers for housing and communal services in budgetary institutions responsible for the implementation of consumption and energy saving measures;

* drawing up guidelines for the use, management and use of all Heat Supply Systems and periodic control by the administration of institutions for their implementation; establishment of a specialized "energy bureau" under large organizations;

* improvement of the arrangement and optimization of lighting, ventilation, water supply systems;

* compliance with the rules for the use and maintenance of energy systems and individual power plants for housing and communal services, the introduction of activated and deactivated schedules for lighting, ventilation, thermal curtains, etc.;.

* Organization of work on the use of luminaires, their cleaning, timely repair of window frames, gluing of Windows, repair of bathrooms, etc.;

* conducting explanatory work with students and employees on energy saving issues for housing and communal services;

* conducting periodic energy checks, drawing up and configuring energy passports:

* quarterly verification and correction of energy and resource consumption agreements with energy supply organizations for housing and communal services,

At the first stage of implementation, priority measures should be carried out, which include low costs in the development of energy saving programs.

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