

WP 4 Energy Supply

Concepts for EER for TA in Grodno Republican Programs of Energy Efficiency

Summary of Draft Version



Overview of Program Documents in Belarus

At present all the actions that touch upon the topic of Energy Efficiency in Belarus are regulated by the program documents approved by the government that also serve as a conceptual basis for the further development in the sphere of Energy Efficiency. These programs are elaborated by the responsible bodies and administrations in the Ministries. Later on these programs are approved by the Council of Minister of The Republic of Belarus.

Once the program is accepted it settles the order of local action. On the basis of the program Regional Executive Committees create their own program documents that regulate activities in the regions.

At present the activities in the sphere of energy efficiency are regulated by the **Republican Program of Energy Saving for 2011-2015** (approved by the decree of the Council of Ministers of the Republic of Belarus from the 24-th of December 2010 № 1882).

The main points of this program are focused on increasing the share of utilization of local energy sources (wood, saw dust, peat, biogas), increasing the share of renewable energy sources utilization (wind, solar), modernizing existing energy facilities in order to raise their effectiveness and introduction of new technologies that will allow to reduce energy consumption.

There also some other programs that act in the Republic of Belarus at present:

- **State Program of Constructing Energy Facilities on the Local Sources of Fuel for 2010 - 2015** (approved by the decree of the Council of Ministers of the Republic of Belarus from the 19-th of July 2010 № 1076). This program states the objectives for construction of energy producing facilities working on the local sources of fuel.
- **State Program of Constructing hydroelectric power stations in the Republic of Belarus for 2010 - 2015** (approved by the decree of the Council of Ministers of the Republic of Belarus from the 17-th of December 2010 № 1838). It states the objectives of constructing hydroelectric power plants in Belarus.
- **State Program of Constructing energy sources operating on biogas for 2010 - 2012** (approved by the decree of the Council of Ministers of the Republic of Belarus from the 9-th of June 2010 № 885). The program states the objective of constructing biogas power plants.

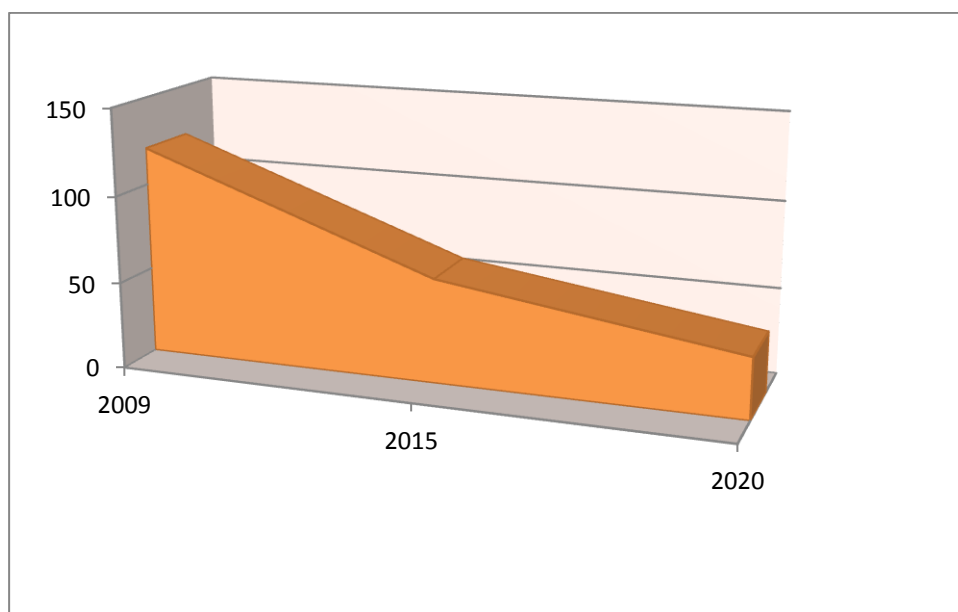
Each of these programs has its local manifestations on the regional level and Regional Executive committees act in the frames of these documents.

In the sphere of energy efficiency of housing stock some other documents exist that set the goals of energy efficiency and energy saving. One of such documents is **Complex Program on Design, Construction and Renovation of Energy Efficient Living Houses in the Republic of Belarus for 2009-2010 with the perspective until 2020** (approved by the decree of the Council of Ministers of the Republic of Belarus from the 1-st of June 2009 № 706), that directly settles the matters of energy efficiency in the housing stock.

Complex Program on Design, Construction and Renovation of Energy Efficient Living Houses in the Republic of Belarus for 2009-2010 with the perspective until 2020

This complex program was elaborated by Ministry of Architecture and Construction in cooperation with the Ministry of Housing and Communal Services (at present department of Housing and Communal Services of Ministry of Architecture and Construction), State Committee on Standardization, Ministry of Industry, Ministry of Energy, Regional Executive Committees, Minsk City Executive Committee and other interested parties and is pointed at achieving energy economy and energy independence of the state.

This program defines an energy efficient living building as the house with the rate of use of thermal energy for heating not more than 60 kWh/m² annually and decrease of that number by the year of 2020 to the level of 30-40 kWh/m² annually. According to the old norms of construction the use of thermal energy for heating in a living house was on the level of 100-130 kWh/m² annually. Thus, the saving by 2020 will amount up to 77%-60%



Pic 1: Dynamics of usage of thermal energy for heating

The planned outputs of the program include decrease of energy consumption and increase of comfort and quality of life in living buildings.

The measures that are planned to be implemented in the frames of this program include the following construction activities:

- Applying isolation layers on the walls of the building. Thickness depends on the parameters of the construction materials.
- Applying isolation material on the flat and steep roofs to prevent heat losses on top floors.

- Applying window panels in new buildings and exchanging the old wooden windows with window panels in existing housing stock.
- Exchanging the entrance doors to prevent thermal bridges in stairwells.
- Installation of the individual heat meters
- Installation of new energy efficient technologies on energy producing facilities
- Replacement of old equipment with newer and more efficient
- Installation of systems for air recuperation

The need for the complex program appeared in Belarus when it became clear that renovation of the old buildings doesn't give a full saving effect. Certain things like installation of plastic windows raised problems which are better solved on the stage of designing the house then on any later stage. After the installation of plastic window panels the income of the fresh air has reduced that imposed the necessity of rearranging ventilation system.

The normative value for resistance of heat transmission for windows is not less then 1 m²°C/W. It is planned to create the new enterprises producing such windows. Thermal modernization of living buildings strives to achieve the values of resistance to heat transmission for external walls on the level of 3,2 m²°C/W, for combined coverings and camp ceilings on the level of 6 m²°C/W.

Grodno Target Area - Lida

In the frames of the Complex Program in Lida it is planned to implement the following set of activities:

- Replacement of existing pipes in centralized heating network with preisolated pipes by 2015
- Replacement of centralized heating points between the multi-apartment houses with individual boilers in each house
- Installation of cogeneration plant for the new district in the North West of Lida
- Construction of the living houses according to the new standards of energy efficiency stated by the Complex Program
- Introduction of Biogas facilities in the district of Lida
- Thermal Isolation of envelopes of existing living buildings

These particular measures are approved by the Administration of Housing and Communal Services and Executive Committee of Lida. Their implementation will take place gradually within the period of 5 years.

The district of Lida acquired official status of high energy efficiency demonstration zone in 2009. In connection with this in Lida it is planned to implement some additional activities in the sphere of energy efficiency:

- Replacement of bulbs in street lights with the energy saving bulbs
- Replacement of bulbs in traffic lights with LEDs
- Installation of solar powered traffic signs (two have already been installed on the bridge near Ditva village)

New cogeneration power plants will be introduced in new districts of the city. At present the new district in the North-west of Lida is constructed. It is also planned to build new district “Север”.



Pic. 2: New district “Sever” top view



Pic 3: New district “Sever” side view

The construction of living houses in the new districts will be performed with regards to the new energy efficiency programs and standards of construction. Installation of new equipment will provide higher level of energy efficiency in the buildings of the district. The residents will be trained to use new equipment and control the level of consumption of heat energy. This will reduce the consumption and raise the culture of energy consumption. New districts are planned to comply with the most strict energetic standards.

Imprint

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