

THE PROJECT

The majority of residential multifamily buildings throughout Ukraine are poorly insulated due to inadequate construction standards that existed several decades ago. Consequently, these buildings do not use and distribute heat efficiently. Tremendous heat losses occur in both the common areas and individual apartment units. In addition, the quality of utility services provided to these buildings has been low. Simple weatherization measures for windows and doors can significantly reduce these heat losses, and subsequently increase comfort in apartments. Some residents who are aware of these measures have used “paper and glue” every winter in order to seal the drafty windows and doors. However, this practice is not effective or widespread enough to make a significant impact. Therefore, it is clear that mass scale low-cost energy efficiency measures are needed for increasing comfort, decreasing energy waste and lowering the environmental impact of the housing sector.

PROJECT APPROACH

In 1998, the Alliance to Save Energy (Alliance) cooperated with the City of Lviv to implement modern, low-cost energy-efficiency measures in a typical residential building and thus demonstrated how low-cost energy efficiency measures can decrease heat losses in apartments and common areas. The United States Agency for International Development (USAID) and Lviv City Executive Committee provided US \$2,800 (8400 UAH) for the project.

The Housing Department of the Lviv City Executive Committee assisted the Alliance experts in the selection of an appropriate building to test window weatherization

Key Results

- Energy Savings: 57.2 GCal/year
- Cost Savings (28 apartments): US \$691/year
- Policies Introduced: Lviv Housing Department recommended implementation of low-cost window weatherization techniques in all buildings where co-owners associations and housing cooperatives were in place
- Municipalities affected: City of Lviv, Ukraine
- Financing Made Available: US \$2800 (USAID)

technologies. The chosen 6-story building located at 11 Dragana Street housed 28 apartments and one commercial office space. 92 percent of the apartments in this building were privatized, and a co-owners association has been formed. The building was connected to the district heating network and equipped with a heat meter, which was critical for accurately monitoring energy saving results in the building. The maintenance services in the building were provided by the private housing maintenance company MZHK “Postyp”. The wooden windows and doors of the building enabled silicon strip weatherization method to be used for refurbishment.

A Czech distribution company supplied the silicon strips, manufactured by VARNAMO Company of Sweden, to the Ukrainian market specifically for this project in Lviv. The effectiveness of these strips had already been tested in similar buildings in the Czech Republic, Slovak Republic and Poland. The technicians from local housing maintenance companies performed the weatherization measures with administrative support from the housing maintenance company MZHK “Postyp”.

RESULTS

All of the weatherization measures in the building were completed during a one-month period. Most of the 130 windows needed only minor repairs before the silicon strips were installed. Annual heat savings amounted to 57.2 GCal. Annual cost savings for each household unit amounted to US \$691 (2074 UAH) with a payback period of approximately four years based on the heat tariff in Lviv (1 GCal = 36.3 UAH/US \$12.1).

After the project, many apartment residents commented that the project contributed to elimination of drafts and considerable improvements in indoor comfort. This project served as a catalyst for other low cost weatherization projects in residential as well as school buildings of Lviv. For example, local companies headed the installation of building level heat control systems in 10 residential buildings located at 6, Dunaiska Street; 10, Rakovskoho Street; 12 and 16, Masaryka Street; 1, Lypova Aleya Street; 11, Lystopadna Street; 78, Stryiska Street; 56, Saharova Street; 59, Naukova Street; 61, Naukova Street.

LESSONS LEARNED

This project served as a catalyst for widespread low-cost weatherization measures throughout the city of Lviv. It demonstrated that such measures could help achieve energy savings of up to 16 percent in multifamily buildings throughout Ukraine. One of the barriers to such measures, however, is the low heat and hot water utility tariff. The tariffs that are set below cost-recovery levels discourage energy-saving investments because the payback periods are significantly longer than if the tariff was market-based. Another barrier is that property ownership and management structures such as homeowners associations in Ukraine have not created an environment that promotes

end-user initiated implementation of energy saving projects. Nonetheless, an encouraging insight from this project in Lviv is that effective housing management associations and maintenance companies play a crucial role in stimulating residential energy efficiency and comfort improvements.

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