Heat Subsidy Analysis for Residential Buildings Lviv, Ukraine

PROJECT BACKGROUND

The goal of this project was to evaluate the effects that installation of heat control units, as well as heat and hot water meters had on the consumption levels of heat and hot water in a multifamily building in Lviv, Ukraine. Also, the project aimed to increase the understanding of how energy efficiency measures can contribute to cost savings from lower heat and hot water utility bills for residents. Moreover, the analysis addressed the decrease in municipal subsidies to each household as a result of consumption based billing for heat and hot water services. The project was funded by the United States Agency for International Development (USAID) and implemented by the Alliance to Save Energy (Alliance).

Key Results

- Cost Savings residents: US $11,100/year
- Cost Savings municipality: US $290/year
- Payback period: 5.9 years in the building on Stryjska Street building, and 1.5 years in the building on Pasichna Street
- Municipalities affected:City of Lviv, Ukraine
- Measures introduced: Heat meters and heat control units installed
- Financing Made Available: US $7,400 (USAID)

PROJECT APPROACH

The Alliance experts chose two multifamily buildings in Lviv as subjects for the analysis, which took place from 1999 to 2001. The first building, located at 78 Stryjska Street had 205 apartment units, where as the second building, located at 85 Pasichna Street housed 108 apartments. The reasons for selecting these two particular buildings were:

a) heat and hot water meters were installed almost simultaneously in both buildings;

b) the large number of households in each building provided for a large sample generating a diverse range of results.

The heat and hot water meters were installed in the building on Strykjska Street on August 4, 2000, and on September 15, 2000 in the Pasichna Street building, costing 16,000 UAH and 13,000 UAH respectively. The meters started to collect measurements in October 2000. The Alliance collected the data on heat and hot water consumption 12 months before and after the meter installation (October 1999, October 2001). The Alliance considered two important factors when analyzing the data:

1. the increase of tariffs on energy consumption
2. changes in the subsidy structure, which occurred during the period of analysis.

Prior to the installation of heat meters in the buildings, heating bills were calculated for each apartment based on the square meters of the apartment. Hot water bills were based on the number of people in each apartment. After the installation of heat and water meters, the billing for both services was based on consumption recorded by meters.

It is worth mentioning that tariff changes that took place while the project was in progress were also taken into account: e.g. on April 1, 2000 the heat tariff rose from 0.65 to 0.86 UAH per square meter, while the monthly hot water tariff increased from 4.68 to 7.23 UAH per person.

RESULTS

As a result of meter installation, the collected data indicated a decrease in heating and hot water service bills for both buildings.

Subsequently, this led to an overall decrease in household expenditures on utilities. On average, monthly expenditures on heat and hot water bills of households living in 78 Stryjska Street decreased by 28 percent, from 520 to 375 UAH. The residents on Pasichna Street fared better as their monthly expenditures decreased by 38 percent, from 574 to 354 UAH.

Lower payments resulted in lower subsidies paid to all residents in both buildings. The total subsidy amount per household on Stryjska Street was decreased by 57 percent from 144 to 61 UAH, and for households on Pasichna Street by 12 percent from 111 to 98 UAH. The total annual savings for the municipality amounted to 2727 UAH in the building on Stryjska Street and 8925 UAH in the building on Pasichna Street. When taking into account the tariff increase that occurred in April 2000, total savings amount to 6,906 UAH in the building on Stryjska Street and 11,750 UAH for the building on Pasichna Street.

Considering the savings for the municipality without accounting for the tariff increase, and the 16,000 UAH and 13,000 UAH installation costs, the payback periods for the installation of the control and measuring equipment were 5.9 years in the building on Stryjska Street building, and 1.5 years in the building on Pasichna Street. These periods represent how long it takes for municipality to regain the installation costs through reduced expenditures on heating and hot water subsidies.

LESSONS LEARNED

The installation of heat and hot water metering, and the accompanying analysis contributes to the efforts of demonstrating how energy efficiency measures can help alleviate the burden of increasing utility tariffs on low-income households. This example demonstrates that both the residents and the municipality stand to gain financially from installation of metering devices and consumption-based billing methods. As a result of such billing methods, the heat and hot water suppliers will find it beneficial to implement energy efficiency measures, subsequently increasing efficiencies of entire networks, and stimulating a strong domestic market for energy efficiency practices and technologies.

For More Information:

Anatoliy Kopets
Alliance to Save Energy
Lviv, Ukraine
Email: akopets@gmail.com
www.munee.org

Last Update: February 2006

USAID FROM THE AMERICAN PEOPLE
reeep renewable energy & energy efficiency partnership

The information presented here was collected by MUNEE, with funding from the United States Agency for International Development and the Renewable Energy & Energy Efficiency Partnership.