EE DEVELOPMENTS IN BUILDINGS
Republic of Moldova

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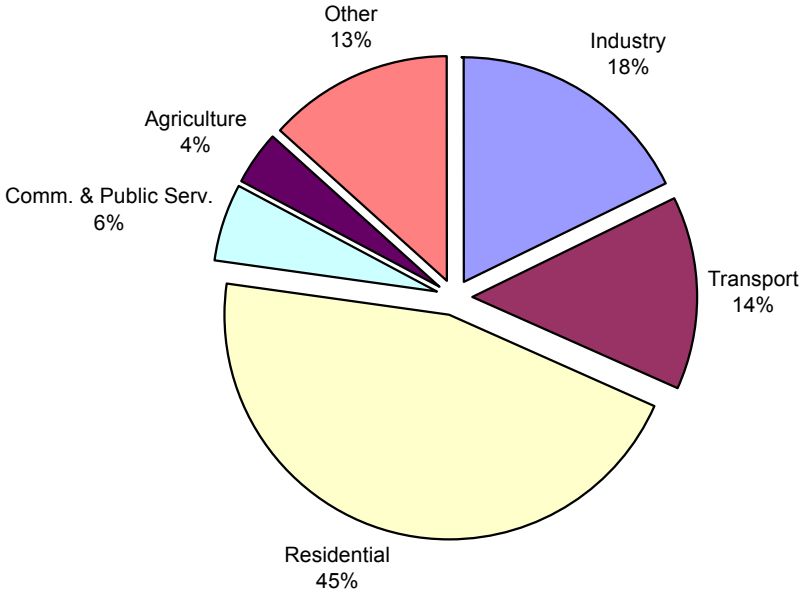
INTRODUCTION

- The Republic of Moldova is highly dependent on energy imports. 97% of the energy needs (fossil fuels and electricity) are covered from imports.
- The weight of expenses for energy imports in the national product is high, thus straining the national economy to an utmost extent. In absence of national fossil energy resource, promotion of energy efficiency and development of renewable energy resources is the best means to reduce this strain.

Energy Consumption Breakdown

The residential sector of Moldova consumes 45% of total energy

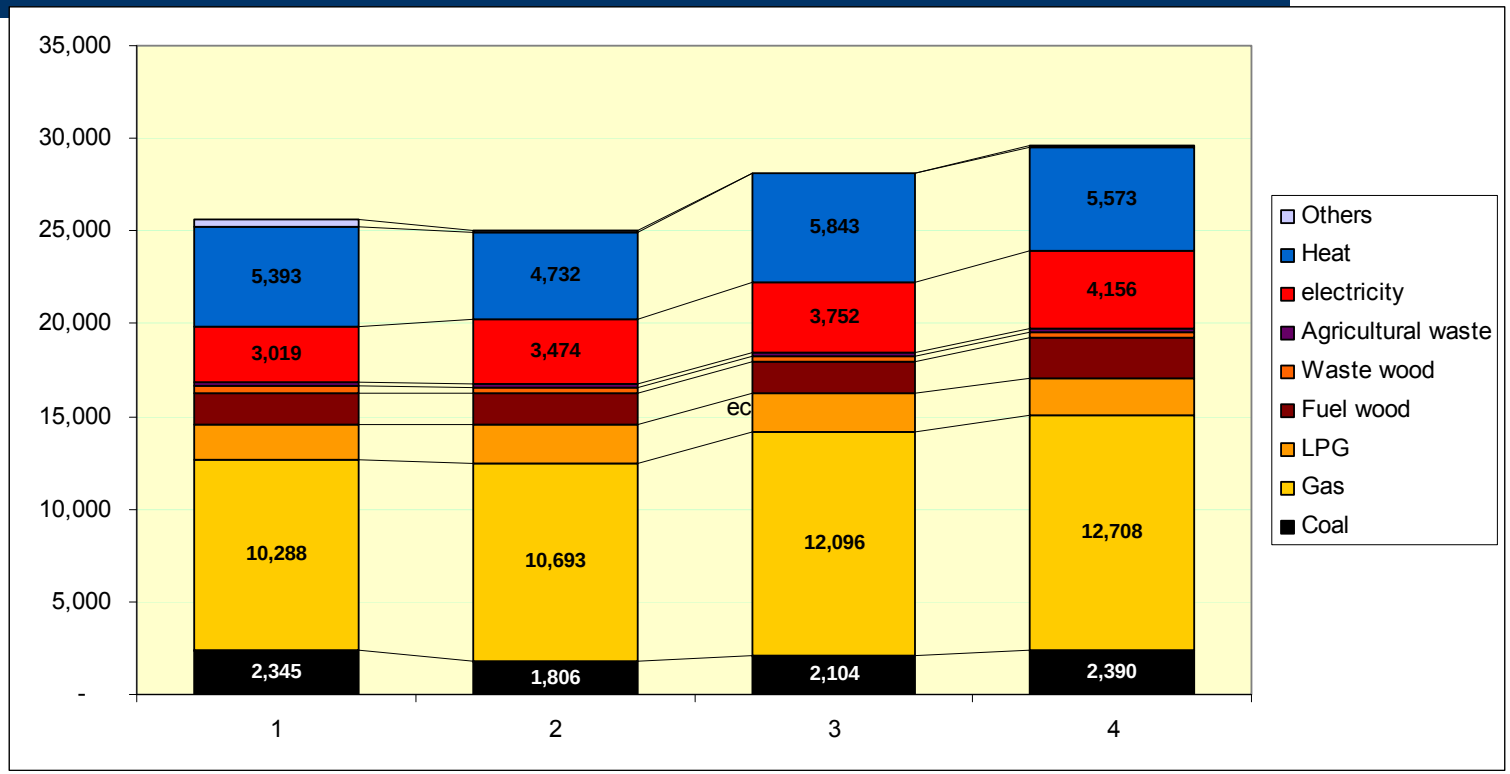
No complex programs to address the thermal rehabilitation of the existing buildings stock.



Energy Consumption in Residential Sector (1)

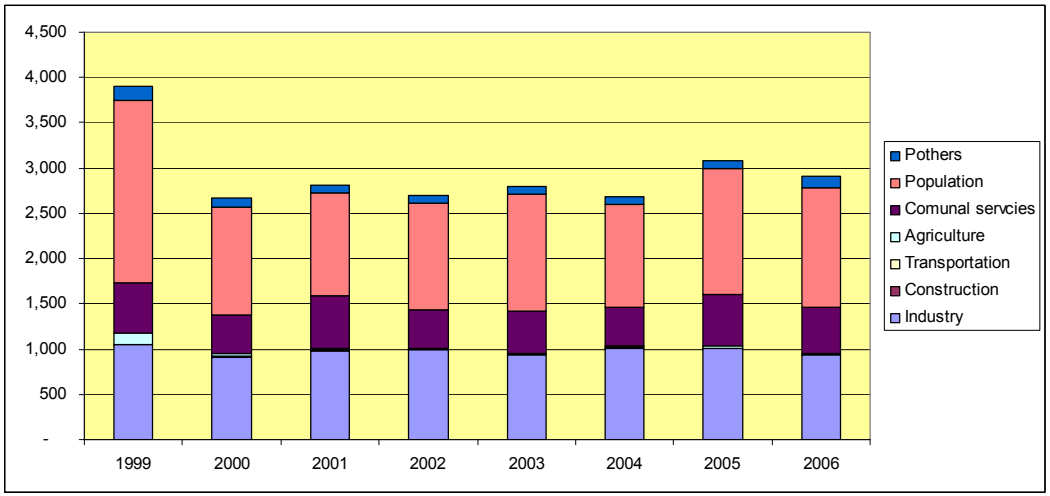
- Between 2003 and 2006 the energy consumption of the households increased by approx. 16%.
- The increased energy consumption was mostly covered by natural gas and, to a lower extent, by electricity.

Energy Consumption in Residential Sector (2)



Heat Consumption per Groups

- The residential sector is the largest heat consumer with approximately 35%, followed by the industrial sector with 32%, and commercial and public services consumer with 17%.



HEAT/Buildings (1)

- The closure of DH system, in general, has created a chaotic situation in many cities. Individual heating systems using different types of fuel and disregarding minimal security standards have been installed with highly negative effects on environment and building constructions. In the year 2003, 36 cities received tailored heat plans providing a number of options to recover the heating supply in the urban areas, but hardly anyone of them has been fully or at least partially been implemented.
- In Chisinau and Balti, practically all buildings connected to DH, are equipped with heat meters and flow meters (for DHW). In combination with consumption based billing, the heat energy demand was reduced by an estimated 30% which results in a corresponding reduction of the fuel consumption.
- The heat load was reduced by an estimated 15%, which means that when replacement investments are made, the capacities will correspondingly be reduced, while the replacement investments costs will decline.

HEAT Buildings (2)

- Currently, most consumers do not dispose of individual controls (thermostatic valves) and heat cost allocators, which would enable a proper cost distribution according to the individual consumption with the buildings. This would result in additional heat savings.
- In buildings with collective heating systems supplied by building-wise or small local boilers consumption based billing is usually not applied. Final consumers are still being charged by lump-sum tariffs.
- A major obstacle for energy efficiency of heat supply in buildings is the poor technical state of the building internal piping system, with poor or even lacking insulation and affected by corrosion resulting in high water losses. Repair of these installations is complicated by the fact that in practice the consent of all building owners is required. Therefore, even when such a repair measure is highly viable, usually it will not be undertaken.
- Finally, particularly in the smaller cities and rural areas, the use of simple ovens and boilers fired with various mostly solid fuels (including biomass) is widespread. Typically the efficiency is low and the emission of harmful flue gases is high. LPG is of course a relatively clean fuel (like natural gas), but usually too expensive to be used for heating.

Institutional Capacities / EE in Buildings

Ministry of Construction

Academy of Science/Power Institute

Technical University of Moldova

Municipalities

“Gestionarul” Republican Union of HOAs www.gestionarul.md

NGOs (new Association of Municipalities underway to address EE and RES)

NO AGENCY FOR ENERGY EFFICIENCY

Regulatory Framework
EE in Buildings

State program to reduce the heat losses in buildings targeted to:

- improvement of the regulatory framework addressing the heat losses in buildings
- Improvement of the urban and architecture solutions
- use of energy saving technologies and materials
- Improvement of the efficiency of engineering communications

Intergovernmental construction norms NCM E 04.01-2006 (MCH 2.04-02.2004) – "Heat protection of buildings":

- new EE indicators of buildings
- classification of buildings and rules for evaluation of the EE indicators
- requirements for ventilation and heat condensations
- energy passport, which should reflect the design/standard heat indicators of the building

Regulatory (2)

Intergovernmental Pool of Rules for design of thermal protection of buildings:

- methodology of design
- calculation of thermal protection of walls
- guidelines and recommendations for building materials

Technical Rules for external thermal protection (CP E 04.02-2003):

- requirements for external walls, roofs, terraces insulation, etc.

Norms for design and thermal insulation of pipelines and equipments

Regulatory/Old Stock

Mansarda Design and Construction Rules were recently adopted in addition to the existing СНиП 2.08.01-89 “Residential Buildings and Design Rules”.

- Municipality of Chisinau adopted a decision for 5 floors buildings/20 projects underway
- HOAs/Condos (approx. 7 projects implemented)

EE Needs

Institutional Reforms and Capacity-Building

- Energy Efficiency Agency: Creation of the Agency for Energy Regulation under the Ministry of Industry and Infrastructure, financed from the national budget and in charge of recommending, developing, promoting, implementing and monitoring the national EE and RES undertakings.

- District heating: Transfer of heat tariff under the authority of ANRE and improve the capacity thereof for this purpose.

- District heating: Approving the Heat Law and preparing secondary legislation.

- Involvement of the private sector: Create the conditions for ESCO development by introducing appropriate economic and legislative incentives.

EE Needs

- Energy Audits: Create the conditions for development of energy auditors by undertaking the following key activities by (i) creation and stimulation thereof in the legislation; (ii) Introduce special courses in the universities curriculum to train energy auditors; certifying and licensing the energy auditors; create an Energy Auditors' Registry to keep record of the certified auditors; create an Energy Audits Registry to keep record of the periodical audits performed.
- Labeling: Put a labeling system in place for domestic electrical appliances and lighting: set the rules for supplies and conduct an awareness campaign for the consumers.
- The Government in cooperation with the Academy of Science and the Technical University of Moldova shall develop a set of educational programs for energy auditors, energy managers, energy inspectors, and other stakeholders.

EE Needs

- The government in cooperation with the academic environment and the NGOs shall develop a public awareness strategy and conduct a public awareness campaign on how to improve the energy efficiency with help of no-, low-, and high-cost measures and what are the financial and the environmental benefits.
- The Energy Efficiency Agency shall implement a comprehensive statistical database of all consumption, supply, energy imports, distribution, transportation, generation capacities, etc. and shall monitor the dynamics of energy efficiency of the country; revise and adjust the benchmarks as to reach the 2020 energy improvement target.
- The academic environment shall assist the local public authorities research into energy opportunities and develop local energy development programs, which shall be annual and mandatory.

Further Actions (1)

Energy Saving Programs

Multi-Apartment Building Modernization Program targeted towards:

- Increase the efficiency of used energy;
- Reduce the heating expenses;
- Ensure favorable conditions for owners of flats and low-income population. About 10% of the multi-apartment buildings constructed before 1993 should be subject to modernization. The thermal energy and fuel consumption in the housing sector shall decrease by 30% in the modernized buildings.
- Municipal EE Residential Programs that shall seek funds for renovation of public buildings.
- Reduction of VAT down to 10% for the supplies of services related to renovation and insulation of residential houses financed from the state or municipal budget recourses, as well as soft loans granted by the state from the special funds.
- Tax exemptions in the Environmental Law for the natural persons and legal entities implementing EE measures that reduce the emissions of CO2 into atmosphere

Further Actions (2)

- Law on Energy Efficiency that shall create the institutional framework, rules, requirements, financial mechanisms, stimulations, etc;
- Government Decision to create the Agency for Energy Efficiency and approve the Regulation of the Agency for Energy Efficiency;
- Draft Law on Amending to Budget Law for 2008 to include financing for the Energy Efficiency Agency;
- Draft Law on Amending the Budget Law for 2008 to provide for Government contribution in the amount of 10% (approx. € 4 M) for launching the Energy Efficiency Fund provided in the Law on Renewable No. 156 passed on July 12, 2007;
- Government Decision to Approve the Regulation on Energy Audit;
- Energy Efficiency Indicators per sector set in regulations, rules, standards, etc.

Further Actions (3)

- Law on Energy Performance of the Buildings to secure the promotion of improvements of building energy performance, taking into consideration the relevant impact factor, such as climate zone, requirements for indoor temperature and the economic benefit;
- Energy Performance Certificate (EPC). To be valid for a period not shorter than 10 years, shall be issued based on an energy audit carried out by a licensed independent energy auditor and accompanied by the recommendations on how to improve the energy performance of the building;
- The Construction and Territory Development Agency in cooperation with Energy Efficiency Agency shall draft and approve the methodology for energy performance of the building. The methodology shall set the minimum requirements for building's energy performance for both the newly built buildings and the existing ones subject to renovation per categories of buildings: one-family house, multi-level buildings, office buildings, education buildings, hospitals, hotels, restaurants, sport buildings, commercial buildings, other types. The minimum energy performance requirements shall be established taken into consideration the general climate conditions, destination (zoning) of the building as per design documents and the age of the building. The requirements shall be revised periodically, as many times as needed, but not later than each 5 years, as to reflect the technical progress in the construction sector;