

## **MAJOR BARRIERS TO IMPLEMENTATION OF ENERGY EFFICIENCY PROJECTS IN BULGARIAN MUNICIPALITIES**

The Municipal Network for Energy Efficiency seeks to improve the ability of cities to improve their infrastructure, reduce unnecessary energy waste and save scarce financial resources. One of the problems cities face is that national policies make it difficult and sometimes impossible for cities to improve energy management in public buildings, streetlighting, district heating and water supply.

The Center for Energy Efficiency in Sofia, Bulgaria (EnEffect) has catalogued all of the major policy, technical and knowledge barriers that cities face. This is the first step in a year-long effort to overcome these barriers through policy reform, training and education – the goal of which is to increase the flow of investment into improving municipal infrastructure in Bulgaria. Because the countries of Eastern Europe and the Former Soviet Union operated under the same system for so long, the information gathered here might be useful to others, which is why this paper is posted on the MUNEE website. We invite feedback from people who read this regarding policy suggestions or how other countries handle some of these issues. Comments can be sent to [pmanchev@eneffect.bg](mailto:pmanchev@eneffect.bg) or [smeyer@ase.org](mailto:smeyer@ase.org).

### **Part One**

<p><b>BARRIERS TO ENERGY EFFICIENCY: NATIONAL ECONOMIC AND ENERGY POLICIES STATE OF THE NATIONAL ECONOMY</b></p>
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#### **1. NATIONAL ENERGY STRATEGY**

Bulgaria's National Energy Strategy does not create incentives for the reduction of energy-intensity, underestimates the potential for demand-side energy savings, and diminishes the role of municipalities in achieving national energy goals.

#### **2. INVESTMENT CLIMATE**

The unfavorable investment climate in Bulgaria limits investments in energy efficiency by financing institutions, even though energy efficiency initiatives are cost-effective and, hence, more attractive than some other public sector investments. A number of factors contribute to this problem. Artificially low energy prices eliminate incentives to explore energy efficiency options. Bulgarian banks have little knowledge on the aspects of energy efficiency financing. Perhaps most important, municipalities cannot retain the savings from their efficiency initiatives.

#### **3. NATIONAL & LOCAL INSTITUTIONS**

The institutional framework for energy efficiency at the national, regional and local level, and the interaction among these institutions, is not sufficiently developed. The creation of a State Energy Efficiency Agency is a positive step. Energy efficiency units are needed in the branch ministries and in district and municipal administrations.

Local authorities, with assistance from international agencies, founded the Municipal Energy Efficiency Network, EcoEnergy, but it receives no support from the Government. There is no clear state policy for work with NGOs in this field.

#### **4. TECHNICAL STATE OF THE SITES**

The poor technical conditions of the major energy end-users, primarily schools, hospitals, and street-lighting facilities, indicates potential for significant energy savings, however, a low number of energy efficiency projects exist in Bulgaria because of the hurdles that block project implementation. Such hurdles lead to further deterioration of site conditions and to a greater need for technical improvements. The increase of energy prices compounds the problem of establishing baselines and determining “normal” energy demand within municipalities.

#### **5. HUMAN CAPACITY AND SOCIO-PSYCHOLOGICAL CLIMATE**

Municipalities suffer from a shortage of adequately trained personnel in the field of energy efficiency (energy audits and end-user maintenance) at all levels of management and administration. Municipal leaders and key stakeholders do not recognize the potential of energy efficiency projects to create jobs and improve living standards. The broader public maintains the perception that energy efficiency is affordable only for highly developed nations.

## **Part Two**

### **BARRIERS TO ENERGY EFFICIENCY: IN LOCAL SELF-GOVERNMENT**

#### **1. LEGAL BARRIERS**

New legislation in Bulgaria does not adequately ensure financial decentralization of municipalities. The Law on Local Self-Government and Local Administration (1991) contains neither legal provisions on sources of revenue nor the structure of expenditures for the self-governing administrative units. In a 1998 study comparing Bulgarian municipalities with counterparts throughout the region, the US Triangle Research Institute found that Bulgarian municipalities have less control of their own revenue, rely to a greater extent on subsidies allocated by the state, and do not put aside any revenues for investments and construction. For the majority of small and medium-size municipalities in Bulgaria, transfers from the state budget are the predominant source of funding for municipal projects. In 2001, only 12 municipalities, or 4.7% of the 255 total, will finance their budgets with equity funds alone (locally raised money through taxes, etc.). For the vast majority of municipalities that rely on the state, net transfers cover approximately 40% of the municipal expenditures. This situation indicates serious deficiencies in the mechanism of subsidy allocation.

#### **1a. PRIORITIES FOR EXPENDITURES**

A step towards financial independence of municipal budgets was the abolishment of mandatory priorities in spending available funds. Until the current year, cities had to spend money based on priorities set by the state. The first level of mandatory priority included salaries, social insurance contributions, and medicines. The second level included funds for food supplies, heating, lighting and operating costs of social, health care, and educational establishments. The third level included capital expenditures for sites explicitly listed in the Medium-term Program for Public Investments (1998–2000). The lowest mandatory priority included all other expenditures, such as payment of bank loans. In case of a temporary shortage of funds, the municipality faced risk of default or violation of the law if it continued with the payment of its due installments.

The 1993 Law on the State Budget required that cities adhere to the priorities for municipal budgets. The 2000 Law on the State Budget (the law is passed every year like an annual appropriation) set severe sanctions for the violators of this provision. The Minister of Finance had the right to reduce monthly transfers to municipalities by up to 20%, except for target subsidies used for social benefits. The 2001 Law on the State Budget changed that and allowed municipal councils to set their own priorities for spending of allocations from the state budget with the exception of target subsidies. But only a small percentage of the municipalities took advantage of their right to change the priorities imposed by the Ministry of Finance.

#### **1b. LEGISLATIVE BARRIERS**

The Law on the State Budget defines public investments and investments made by the municipalities on behalf of the state (target subsidies). The 3-year National Investment Program, approved by the Council of Ministers in 1999, clearly indicated that the limitations to investments in the public sector have had a negative impact on the accrual of GDP. The Law on Municipal Budgets currently imposes limits on the relative share of borrowed money in the municipal budgets and on loan pay-back

periods. These provisions need to be reviewed and re-interpreted in the spirit of broader self-governance at the local level.

### **1c. RESTRICTION IN INVESTMENTS WITH EQUITY (LOCALLY RAISED AND CONTROLLED) ASSETS**

Municipalities may finance capital expenditures from equity funds and bank loans up to 5 percent of their equity revenue. City managers are expected to plan capital costs at the time they create the municipal budgets, and these plans are subject to endorsement by the Minister of Finance.

The Law on Municipal Budgets does not contain clear provisions on the municipalities' rights and obligations with respect to loan pay-backs on investment projects and therefore cannot ensure unequivocal interpretations by the National Audit Office. As a result, banks are hesitant to loan money. The Law on Municipal Budgets determines that the budget deficit, calculated at the time of drafting the municipal budget, may be up to 10 percent of its revenue (equity revenue and subsidies from the state budget).

The National Audit Office insists that bank loans for long-term investment projects should be paid off within the budgetary year or by the end of the term of office of the mayor (which is 4 years) in the worst case. This provision limits the long-term nature of investment loans and in practice impedes implementation of many projects for which bank financing may be found.

### **1d. MODE OF OWNERSHIP ON STREET LIGHTING**

The latest amendments to the regulatory framework on the ownership rights on street lighting (Energy and Energy Efficiency Act of 1999) are aimed at better operation and maintenance of the equipment. Currently, however, there is a vacuum between some of the abolished norms and the newly introduced ones – creating obstacles to the improvement of street lighting systems, which provide some of the best savings for cities.

The draft law for amendment and addendum of the Energy and Energy Efficiency Act contains text that explicitly defines municipalities as owners of the street lighting systems. By June 30, 2001, the power distribution company should transfer free-of-charge all public lighting to the municipalities, but this gives rise to some problems:

- Many municipal administrations do not possess technical experts with the required skills to perform the procedure and to operate the equipment.
- The Energy and Energy Efficiency Act states that operation and maintenance of the system shall be done by the power distribution companies with funds allocated by the municipality.
- Procurement of funds for maintenance and overhaul that have not been put in the municipal budgets for the current fiscal year.
- This law contradicts other laws which say the power companies have overall responsibility and it is not clear which law takes precedence.

### **1e. MODES OF OWNERSHIP ON HOSPITALS**

Changes in status of health care establishments and their re-registration have created considerable difficulties in the planning of municipal budgets. These changes were in accordance with the Law on Commerce and the Law on Co-operatives in compliance with the Law on Health Care Establishments.

Formally hospitals are independent commercial societies and made decision on their investment costs independently. Municipalities, on the other hand, own the capital of these health care establishments. This presents several questions, including:

- Who would act as a party on credit contracts?
- Will capital expenditure be subject to the restrictions under the Law on Municipal Budgets?
- What part of the current costs of medical establishments, of which the municipality is the sole proprietor or in which it is a shareholder, shall be covered by that municipality?

More changes are expected to emerge in health care expenditures in large municipalities. In large cities, public health care facilities have been transformed into joint-stock companies, with the state as a majority owner. These municipalities pay part of the expenditure of the health care establishment without having real influence on the manner in which the establishment is managed. The questions that arise include:

- What shall be the procedure for these buildings to get financing for capital expenditure?
- Who would endorse and guarantee possible bank credits?
- How would medical establishments-joint stock companies provide collateral on loans?

## **2. FINANCIAL BARRIERS**

### **2a. SHORTAGE OF LOCALLY-RAISED FUNDS AND OTHER ASSETS**

Over the past 3 years, municipalities' unpaid obligations have increased steadily. Much of this debt is owed to the state suppliers of fuel and energy - Elektrosnabdyavane (Electricity Supply), Bulgargas and Toplofikatsiya (District Heating). Reasons for the increased deficit in municipal budgets are as follows:

- structural changes in the national economy effecting changes in municipalities' structure of equity revenue;
- insufficient investments in municipal infrastructure over the past 10 years;
- energy price increases, while the household incomes decrease.

In 2000, the government covered a large portion of the municipal debt to the district heating companies. It is estimated, however, that the accumulation of debt will simply

start anew. The lack of sufficient freedom of municipalities to apply their own budgetary revenue policy, the limited investment initiative, and limited access to bank loans fail to provide grounds for optimism and expectations for a rapid change.

A recent analysis of local finances of Bulgarian municipalities from 1998 to 2000 revealed a dramatic drop in the relative share of capital expenditures. Two factors influenced this reduction: 1) the reduction of capital expenditure financed from the municipalities' general and target subsidies and 2) the twofold reduction of allowed capital expenditure financed by equity funds and bank loans. Municipalities would benefit from flexible-use bank loans that would guarantee payment of obligations by municipalities to the production sphere.

## **2b. EXPENSIVE BANK RESOURCE**

The Law on the Banks<sup>4</sup> sets strict guidelines for capital reserve requirements and conditions for lending. Through the Currency Board in July 1997, the Bulgarian National Bank set a higher percentage for reserves compared to other countries, aiming to guarantee the liquidity needed for the flawless functioning of payments between banks. Since July 2000, the minimum mandatory reserves to be kept by commercial banks were reduced from 11% to 8% of depository bank assets. Credit resources in Bulgaria are severely restricted by relatively high market interest rates and limitations on long-term lending. Under the prevailing conditions, credit with a maturity of 3-5 years is considered long-term credit in Bulgaria and medium-term credit in international banking practices.

## **2c. PROBLEMS WITH COLLATERAL ON LOANS**

According to the Law on the Banks, bank loans may be made only against types of collateral. At the banks' request, certain amendments have been introduced to the law that expand the possible sources of collateral. The banks still require sufficient collateral in terms of type, value, and liquidity. The safety margin depends on the amount of the loan and the term of its payoff. ***Generally the collateral covers 200% of the principal.*** Banks argue that such a large margin is necessary because of the underdeveloped real estate market, the probability of market fluctuations that may reduce the value of the collateral, and high interest rates.

Municipalities have problems identifying appropriate collateral for the banks. The accelerated privatization that has taken place in the past 10 years deprived the municipalities in the first place of the facilities which have high market value and attractiveness. The remaining building stock is either declared for privatization or is not envisaged for privatization because of its public nature. There are several examples of loans by Bulgarian banks against collateral of mobilities (urban transport vehicles) or through the application of the Law on Specific Pledge against future revenue to the municipal budget, however this is still far from being current practice, and is made only upon the explicit permit of the Ministry of Finance.

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<sup>1</sup> promulgated in SG Issue 52 of 1 July 1997.

## **2d. INSUFFICIENT NUMBER OF INSTITUTIONS AND MECHANISMS FOR FINANCING MUNICIPAL PROJECTS**

The Energy and Energy Efficiency Act does not define the sources of financing for energy efficiency programs and actions. This policy is implemented in consultation with the State Energy Efficiency Agency (SEEA). There are no funds for such programs in the state budget, nor in the municipal budgets, so their implementation will depend on the capacity of any individual municipality to procure funding.

A PHARE Program of 1997 helped create the structure and mechanisms for an Energy Efficiency Fund, but in 1999, the Fund was dismantled. With this act, the sole specialized source of financing for such projects has been abolished. Currently, some sort of financing for energy efficiency projects may be obtained only from the National Environmental Protection Fund with the Ministry of the Environment and Water and the National Trust Ecofund, which is financed through a "Nature Against Debt" swap transaction, an agreement between the Government of the Republic of Bulgaria and the Swiss Confederation.

The Fund for Regional Initiatives is a program financed by the World Bank and is administered by UNDP which makes loans for rehabilitation of buildings, facilities, and infrastructure sites in regions in which unemployment is above the national average. The retrofit projects may be combined with measures for energy efficiency improvement as well.

Energy services companies (ESCOs) are an independent source of financing for municipal energy efficiency projects. Few ESCOs operate in Bulgaria because municipalities have not been able to meet liabilities to ESCOs – due to heavy curtailing of municipal budgets from the Ministry of Finance.

## **2e. RETENTION OF SAVINGS**

The capacity of municipalities to retain energy savings is severely limited by frequent changes in the methodology of determining the relations between municipal and state budgets. Since its introduction in 1994 until present this methodology continues to be an element of Law of the State Budget for the respective year, i.e. it is subject to annual updating. In its present form, the methodology does not take into account energy costs and savings. It makes ample use of certain indicators related to population size, the area and the quantity of services provided by the municipality to the local community. ***A reduction of costs may result in a lower amount being allocated for the next year,*** since the expenditure during the previous year is used as the base for determining next year's allocation. There is no technical opportunity to analyze what local activities have contributed to the cost reduction. Provided any savings are made, these are considered to be savings of the budget as a whole. ***The Ministry of Finance will curtail subsidies to a municipality which has shown budget savings, and the municipality will find it difficult to make payments on energy services.***

Aiming to help overcome this problem, the State Energy Efficiency Agency proposed at the beginning of last year an amendment to the Energy and Energy Efficiency Act

so that municipalities may retain unchanged the amount of their budgetary expenditure for energy costs in the next years provided there is a signed contract with an energy services company.

## **2f. SUBSIDIES AND TARIFFS**

State regulation -- in the form of fixed prices for energy carriers and state subsidies on these prices -- has social value for the transition economies, but limits both energy conservation and lending from commercial banks for financing energy efficiency projects.

Through 2001, the Bulgarian Government will continue to act as energy price regulator. As of January 2002, electricity prices will be approved by the State Commission on Energy Regulation, an independent regulator.

On the heat side, prices are defined on the basis of the full production and sales costs -- except for households. The basis for calculation of the full production costs for district heating are the actual accounted operation costs for the preceding one-year period and the planned operation costs for the next calendar year plus the set profit margin. Heating energy for households is sold at a fixed price, set by the Council of Ministers. Its production is subsidized depending on the ability of the state budget to cover part of the production and sales costs.

Subsidies are allocated to the district heating companies from Ministry of Finance on the grounds of their estimated losses from heat sales to households at a fixed price. In accordance with the new policy on redistribution of subsidies for the district heating sector, part of the subsidy is oriented directly to the low-income consumers via the regional social care centers. The social care centers have the obligation of defining the eligible low-income households to whom energy assistance benefits shall be granted. The energy assistance benefits are paid directly to the district heating distribution companies and not to the consumer.

## **3. INSTITUTIONAL BARRIERS**

### **3a. CONFLICT OF INTERESTS BETWEEN ENERGY PRODUCERS/DISTRIBUTORS AND THE MUNICIPALITIES**

In a number of municipalities, energy generation/distribution and the maintenance of the system is performed by one and the same company. This company is not interested in investing in energy efficient equipment, since it will diminish the revenue from the respective customer. Street lighting is a typical example. In this sense, as in the majority of cases, the power supply companies do not install energy efficient lights when performing routine or emergency replacement of bulbs and fixtures.

### **3b. CONFLICT BETWEEN THE RESPONSIBILITIES FOR THE OPERATION AND THE MANAGEMENT OF SCHOOLS, HOSPITALS, AND OTHER MUNICIPAL SITES**

Conflict results from the fact that schools and hospitals are managed by headmasters appointed by the Ministry of Education or the Ministry of Health Care respectively. The Education and Health Care ministries do not pay the costs for maintenance and repair of the buildings, nor their energy costs. These payments are made by the local authorities. The local authorities, however, do not have the power to force headmasters, the managers of schools and hospitals, to implement energy conservation measures and initiatives, since the headmasters are not the immediate subordinates of the local authorities.

#### **4. ORGANIZATIONAL AND TECHNICAL BARRIERS**

##### **4a. LACK OF TECHNICAL DOCUMENTATION**

A general problem throughout municipalities is the lack of technical documentation on buildings and their in-house systems and equipment. These buildings are major consumers of energy and are the focal point of municipal energy efficiency plans.

The ownership rights of the building stock have changed many times by means of disposition procedures (ownership transfer acts, orders etc.), however the design documentation has failed to accompany the changes in ownership rights (or operation). As with any other state property, municipal property has been poorly maintained and design and construction documentation has been lost. Municipalities had no policy or practice for keeping technical documentation (as-built documentation) on site. From time to time, municipal facilities have been subject to changes and reconstruction, but no technical documentation was kept by the city.

In the majority of space heating cases, there are no project designs. Perhaps as a result, major pieces of equipment in the boiler house - burners, pumps etc. - have been replaced with inappropriate equipment in the course of emergency or forced repairs. Repairs of heating boilers have often been conducted without technical supervision, which has gradually led to deterioration of their technical performance characteristics.

In order for a municipality to undertake action on any facility, it is first necessary to undertake beforehand a technical audit. This procedure means additional effort or financial costs to be borne by the owner. Municipal authorities, for reasons mentioned throughout this paper, are often unenthusiastic about this responsibility. For that reason, some otherwise good initiatives are postponed beyond reason or never implemented in the majority of cases. In addition to these impediments to project implementation, one must also consider such disincentives as the limited term of office of municipal authorities and the lack of succession with respect to ideas of merit.

##### **4b. LACK OF ENERGY CONSUMPTION RECORDS OF THE FACILITIES**

Every energy efficiency project needs a baseline to be able to measure and verify the savings. No accurate technical and economic justification of the project can be derived without a record of its previous energy costs for a representative and sufficiently long period of time. There are no modern metering devices to read the supplied and/or consumed energy and energy carriers. In addition to a shortage of metering devices,

energy data is limited due to poor maintenance of logbooks that track ordinary operations. Operating staff are often low-skilled and underpaid.

**4c. ABSENCE OF A WELL-DEVELOPED GAS SUPPLY NETWORK**

Predetermination of the energy sources in municipal facilities is a legacy from the centralized planning era. Fuel shifting is technically very difficult. The absence of a well-developed gas distribution network diminishes the opportunities for energy efficiency solutions.