

The European Union's programme Covenant of Mayors Going East –
Supporting the Participation of Eastern Partnership and Central Asian Cities in the Covenant of Mayors

WHAT MUST A CITY DO TO BECOME A SUCCESSFUL PARTICIPANT OF THE COVENANT OF MAYORS



GUIDELINES
for local authorities



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WHAT MUST A CITY DO TO BECOME A SUCCESSFUL PARTICIPANT OF THE COVENANT OF MAYORS

GUIDELINES FOR LOCAL AUTHORITIES

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FOREWORD

The Covenant of Mayors, launched on February 10, 2009 in Brussels, is gaining more and more momentum. As of January 1, 2013, 4641 participants from 48 countries have joined this movement. In particular, Ukraine is represented by 37 cities. Twenty-four of them, according to the commitments, have had to develop and submit to the Covenant of Mayors Office in Brussels their Sustainable Energy Action Plans (SEAP). However, only 6 Ukrainian have submitted their SEAP. Why is this?

It turns out that mere enthusiasm and sincere intentions to make an effort (along with the rest of Europe) to mitigate climate change through a radical restructuring of energy economy based on sustainable growth, is not enough. To be able to fulfil all of the Covenant of Mayors obligations, the city must be well prepared, and preferably in advance. In most European cities, municipal energy management systems have operated for a long time (since the early 1990s), while most of their Ukrainian colleagues are just beginning. Many Ukrainian cities – signatories of the Covenant of Mayors – now have to do this job urgently and, at the same time, to prepare SEAP, so to say, simultaneously with establishing their municipal energy management system.

This reference guide is designed to help local governments, both in the Covenant signatory cities and in the cities, which are just considering joining the Covenant, to start to develop their own municipal energy management system – the cornerstone of successful participation in the Covenant of Mayors. This Guide is based on ISO 50001:2011 “Energy Management System” – a voluntary international standard developed by the International Organization for Standardization (ISO). This standard enables an organization of any level, regardless of its geographical, cultural and social conditions, to:

- draw up a policy for more efficient energy use,
- define the goals and objectives consistent with this policy,
- take advantage of the data for better understanding and decision making concerning energy consumption,
- draw up a clear and feasible energy plan (in particular, SEAP),

- bring everything planned to reality, in a high-quality manner,
- quantify the results obtained,
- review policy effectiveness,
- continuously improve energy management.

The basis of ISO 50001 is the so called Deming cycle (“Plan-Do-Check-Act” approach), so this standard can be easily combined with other ISO standards for management systems that also use this approach (ISO 9001:2000 “Quality Management System” and ISO 14001:1996 “Environmental Management System”).

In terms of energy management, the Deming cycle looks as follows (Fig.1):

- **“Plan”**: development of energy policy and, based on the policy development of a corresponding action plan;
- **“Do”**: implementing the action plan for modernization of the municipal energy sector;
- **“Check”**:
 - monitoring of implementation of the action plan. To do this, the monitoring data and measurements are analysed. If there are discrepancies, those discrepancies are corrected and measures are taken to prevent their re-occurrence;
 - examining the functioning of the energy management system itself. To do this, an audit is conducted;
- **“Act” (“Correct”)**: introducing crucial modifications to the energy management system (after analysis), and continued update of the energy policy.

However, in reality formation of the municipal energy management system does not begin with development of the energy policy, – it begins much earlier, by creating favourable premises for this endeavor at different levels: from local authorities and to local communities. First and foremost, the following factors keep Ukrainian cities from rapid introduction of energy management:

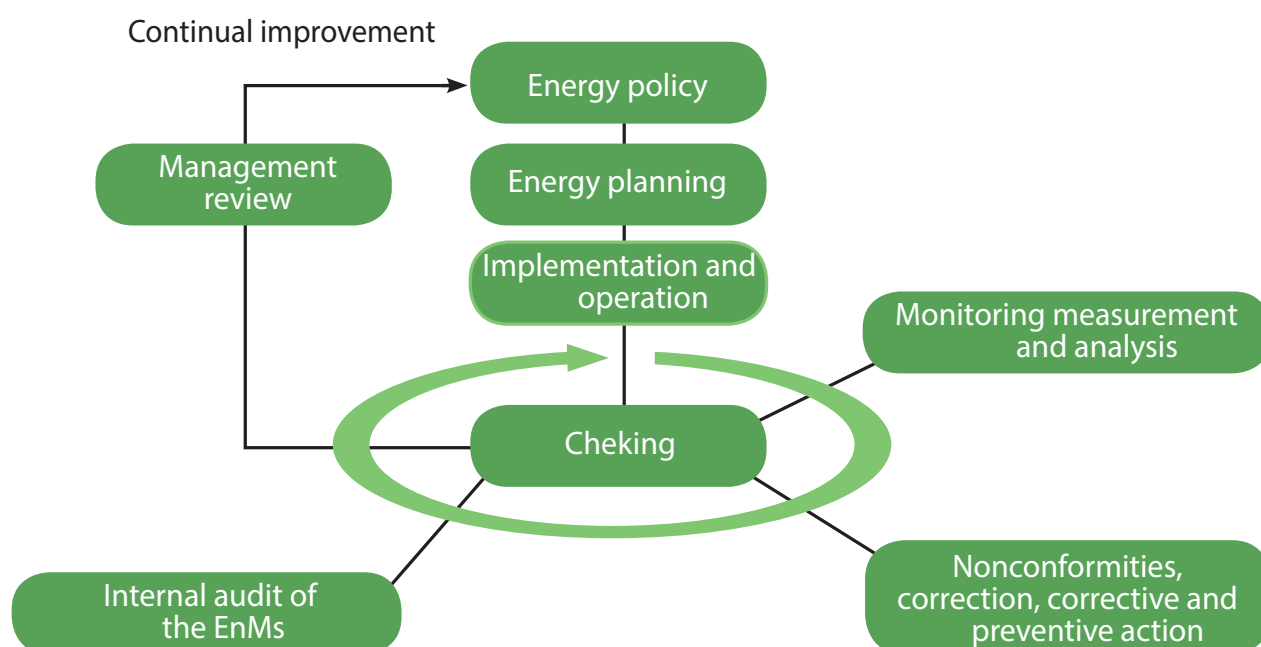


Fig. 1. ISO 50001 Implementation Strategy
Source: www.iso.org

- lack of understanding of the situation in the municipal energy sector by senior management, lack of political will,
- lack of detailed and reliable data concerning energy consumption by municipal facilities, adequate metering and monitoring system and unified software for this purpose,
- lack of a separate energy manager position/energy management department and good communication between all participants of the city energy performance,

- overall low energy consumption culture and awareness of citizens on energy issues,

and only after that lack of formal energy policy, etc.

How can we overcome these obstacles? This Guide gives an answer to the question. Besides, the CoM-grant project participants felt it appropriate to include the internal audit of energy management system in the list of issues covered in this Guide.

INVOLVEMENT OF LOCAL AUTHORITIES

To achieve lasting success, modernization of the municipal energy sector should become a subject of interest of every employee of the local government. That is why, a strong, constant and evident support from senior management – first of all, from the mayor – is extremely important, especially in the early stages of introduction of a modern energy management system in the city. Officials at the city hall will make every effort to create the local energy management system only when they see that their superiors themselves demonstrate unanimity, enthusiasm and a deep belief in the benefits of such initiatives. The deputies, whose competence lies in approval of the city's energy policy, should be familiar with the peculiarities of local production, transportation, distribution and consumption of energy, and they should be aware of the benefits and advantages that energy management offers for the city. Otherwise, any attempts to implement energy management system are doomed to failure.

Increasing energy efficiency and introducing renewable energy sources would:

- reduce energy demand and thus reduce fuel consumption (mainly fossil) and respectively reduce the cost of energy from the local budget;
- enable the use of the savings for other needs, such as measures for energy efficient modernization of public sector buildings and utility companies that provide energy services. Taxpayers' money continues «working» in the local economy, instead of leaving the country, as happens when imported energy is purchased;
- enhance the local economic development, contributing to the development of entrepreneurship associated with the provision of an energy-related component of the residents' everyday lives, and create new jobs in the community (for engineers, architects, planners, consultants, suppliers, contractors, etc.);
- attract external investments, including from abroad. Clearly defined attitude of interest in energy efficiency and renewable energy issues from the city management will certainly attract the attention of business in the area of innovative energy looking for cost-efficient options for investment. More and



more often, the strategies of economic development of local communities are based on methods that can attract exactly these economic players;

- significantly improve productivity of work in offices, at educational institutions and on the factory floor, by creating more comfortable working conditions. Proper lighting, ventilation, and temperature control reduce the disease incidence and absenteeism for health reasons. In addition, a well-planned energy management programme in an organization can become a centre of cooperation between its management and the staff as well as between the management and the trade union;
- reduce the environmental pollution caused by the use of fossil fuels and, subsequently reduce the cost of measures aimed at improving the ecological state of the affected area.

This means that there is a direct relationship between energy efficiency and renewable energy, on the one hand, and economic and social development of the community, on the other hand, which in turn, affects the local environment and global climate change.

According to the Trias Energenica, a strategy developed by the Delft University of Technology in order to achieve a maximum sustainable energy supply, the optimal sequence of actions for modernization of the city's energy sector (Fig. 2) is to:

- reduce energy demand by avoiding waste and implementing energy saving measures,
- use renewable energy sources instead of fossil fuels of which stocks are limited,
- and only then, finally, the most efficient production and consumption of energy from fossil fuels.

Each subsequent step should be made only after the previous one is thoroughly performed.

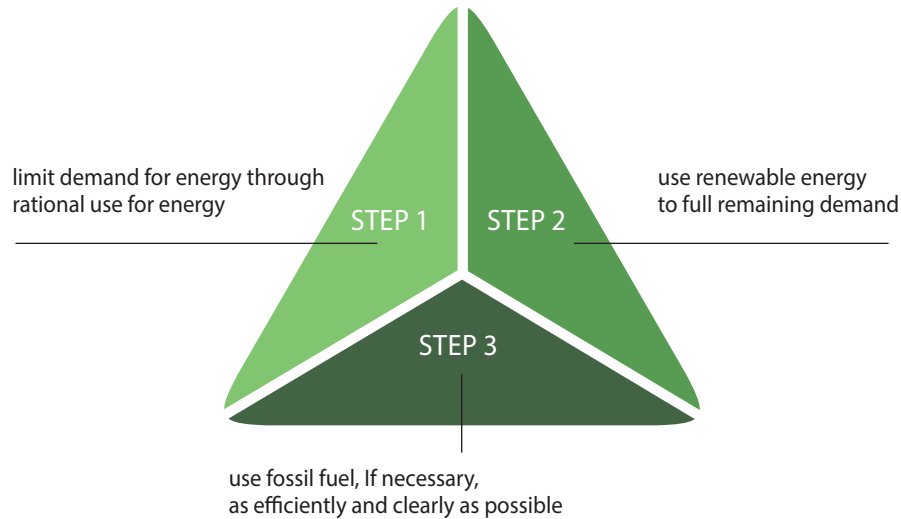


Fig.2 Trias Energetica Implementation Strategy
Source: www.triasenergetica.com

In general, the funds required for creation of the municipal energy management system in Ukraine are about 1-2% of all energy expenditures from the city budget. This is a tiny amount, which, besides, has an extremely short payoff period (usually, much less than a year), after which the city receives benefits, i.e. net income. Thus, while belonging formally to soft measures, creation of the energy management system in the city outputs in a stunning hard result that can be measured and evaluated in every

detail. This is the result, to which there is still a long way to go for many hard projects related to technical re-equipment of the municipal energy sector and thermo-modernization of city buildings. Moreover, implementation of the municipal energy management system enables transition from uncoordinated and quite often occasional technical projects to systemic and systematic restructuring of the municipal energy sector on the principles of sustainable energy development.

DEVELOPMENT OF ENERGY POLICY, SETTING GOALS

Development of the municipal energy policy begins with a strong political statement of the mayor before the deputies of the city council, supplemented by a presentation that explains the benefits of effective use of energy and renewable sources of energy. The statement has to declare publicly the goal of the endeavor (the basic challenge to be solved by energy management) and identify how it is connected with state policy and local priorities.

After that, in order to develop the municipal energy policy, a task force is created, which usually includes both representatives of local authorities, external experts and local stakeholders (citizens and representatives from NGOs).

Policy development is a cyclic process, which consists of the following stages:

1. Preparation of the previous document which defines the scope of the policy (identification of challenges and rough policy description),
2. Clarification of policy goals and the best options to solve them,
3. Preparation of a formal document for discussion,
4. Developing the final document,
5. Policy implementation,
6. Policy evaluation and revision.

In practice, this ideal scheme could be modifiable given the scale and complexity of the problems, new circumstances and priorities, as well as feedback received during the consultations. Sometimes there is a need to repeat certain stages of the process.

Though the purpose of the municipal energy policy – improving energy performance of the city – is quite clear, it is too general to become a basis for planning specific actions. These are the goals, which determine the real results expected from the energy policy implementation. They should be:



- specific – clear formulation of goals prevents their misunderstanding,
- measurable – progress is assessed using quantitative indicators,
- achievable – success is impossible without taking into account real opportunities,
- relevant – achieving the goals must be indispensable for implementation of the assigned purpose,
- time-bound – deadlines for their achievement must be defined.

In order to define the goals in a realistic way, the city must first determine their scope and assess the potential for increasing energy efficiency and using renewable energy sources. The scope of the city goals generally depends on the volume of problems to be solved at lower organizational levels (a specific sector – a specific organization or enterprise – a specific building – a specific process or type of equipment), and timeline (short- and long-term objectives). The potential is defined at each organizational level, based on the energy audit results. Only after that can the city begin to formulate its energy policy goals.

While formulating the goals of energy policy, the following approaches are applied:

- **Reducing consumption.** The goal is set both as a number and percentage, by which energy consumption should be reduced (e.g.: by year X, energy consumption must be reduced by Y kW / h or %);
- **Increasing efficiency.** The goal is to reduce the energy intensity of a selected indicator of energy performance (e.g.: by year X, to reduce the energy consumption to Y kW/h per unit of internal area of the buildings, without compromising hitherto comfort level);

- **Improving the state of the environment.** In this case, the goal, related to energy savings and use of renewable energy sources, is formulated through pollution prevention or reduction (e.g., by year X, to reduce the greenhouse gas (GHG) emissions, associated with energy consumption of the city, by Y %);
- **Improving financial and economic situation.** From the standpoint of the municipal government, improvement of the financial and economic situation is the foundations of its activities, but it is in the energy sector, where the precisely worded goal will have the most far-reaching positive effect, and it will have the highest impacts in the mobilization of the local renewable energy potential in the context of a permanent increase in prices for traditional energy resources. For example, by year X, to stop the growth of expenditures for purchasing energy resources for own needs. Furthermore, this political far-sightedness will also help create a positive image of the city to potential investors in the local renewable energy economy.

In addition to the primary goals, energy policy may also have supplementary goals not directly related to energy, such as: increasing the value of property as a result of modernization of engineering systems in public buildings, or job creation due to the expansion of large-scale energy efficient modernization works on city buildings and construction of renewable energy facilities.

The following rules should be followed during the policy writing process:

- The language of the document should be plain and at the same time legally accurate, in order to enable the target audience to read, understand and interpret the text correctly. A transparent policy evokes less unnecessary discussions and is easier to implement. This could be achieved through inclusion of specific paragraphs concerning the goal and objectives of the policy, main concepts and definitions used as well as relevant explanations and examples;
- The content of the policy should be concise, to the point and action-oriented (with special emphasis on its future benefits), and should have a logical and consecutive structure. In order to examine the consistency of the policy, it is enough to try to identify each raised issue and to find the transitions from one issue to another: how easy is it to do that? A well-structured political document should contain

all relevant information, at the beginning the most significant ideas and only then the less important ones (for example, description of atypical situations and procedural details);

- The language and the content of the policy should promote effective communication amongst all stakeholders. Therefore, it is advisable to use active vocabulary – the everyday words and expressions;
- It should be clearly pointed out which of the prescribed in the policy actions are mandatory for implementation and which are left to discretion of the executors (using the words “should” and “necessary” and “may” and “advisable”);
- The simple present tense should be used in the policy writing process, for example: “The City Council believes that...”, “Therefore, the City Council obliges...”;
- The layout of the policy should make getting familiar with it as easy as possible. The titles and subtitles, the table of contents, the headers and footers, the blanks, free spaces and corresponding fonts serve for that;
- The divisions and subdivisions should be enumerated in the following sequence:

I, II, III, IV, V ...

A, B, C, D, E ...

1, 2, 3, 4, 5 ...

a, b, c, d, e

Phase 1. Identification of problems and rough description of the policy (scoping paper)

The working group on energy policy plays a key role in the identification of problematic issues of municipal energy and ensures an appropriate level of the developed policy. The working group prepares a policy development plan, identifies the main problems to be solved, and considers the proposed policy initiatives.

Before starting to design the policy, the working group should make sure that the problematic issue could not be solved without the new policy. Only after that, the working group prepares the policy draft identifying the following:

- The need for the special municipal energy policy, the problems that should be solved by means of the new policy and the policy goals;
- The benefits of policy implementation, the required investments and the related risks;
- How the proposed policy fits within the national energy policy related to municipal and other related spheres;
- The policy's major stakeholder groups;
- Who initiates the process of municipal energy policy development and approval;
- The schedule for development of the policy (including preparation of documents and other results);
- Who is responsible for management of the policy development, and whom to engage in the working group;
- The issues that should be consulted on different stages of the policy development, as well as the experts and stakeholders that should be engaged in consultations;
- The resources necessary for the policy analysis and for the consultations;
- Problematic issues related to policy implementation to consider.

Phase 2. Clarification of the policy tasks and the best path to implementation

This phase is crucial for successful policy development. During this phase the working group clarifies the main problems and goals, develops viable strategies and evaluates selected options. The focus should be put on the following issues:

- **Consultations.** In order to get a high-quality final document, the energy policy development process should be transparent. For this reason the working group organizes and holds (as approved in Phase 1) consultations with experts and all interested parties. The relevant external representatives can either be included in the working group or a separate group of consultants can be formed especially for the purpose of advising the working group during the policy development process. In order to make the consultations more efficient, draft documents should be prepared and shared with the interested

parties in advance. Adequate time should be allocated to the consultations for meaningful feedback;

- **Qualitative and quantitative analysis.** An analysis is required to determine the basic level or benchmark for evaluating the implementation process and the efficiency of the final policy, to estimate the scope and effect of problematic issues, and to verify the feasibility of potential options to problems solution. The analysis is conducted on the basis of available data on city energy production and consumption, relevant expenses, trends of energy demands and proposals on energy market, etc.;
- **Implementation.** The structure and strategy of the energy policy implementation (in particular, financial and staffing consequences) should be determined in advance. The implementation should be considered in conjunction with the budget cycle and take municipal energy legislative requirements into consideration.

Phase 3. Preparation of a formal discussion paper

In this phase, prior to the development of the final policy option, the working group prepares a document for discussion. The working group uses this document to initiate wider consultation with interested parties and residents. This document outlines the problematic issues to be solved by the policy, formulates policy principles and requests feedback from the policy recipients on mentioned problems and potential solutions.

Discussion paper should be concise and consist of the following parts:

- **Historical background**
 - historical context,
 - the need for the policy and its purpose,
 - summary of the proposed consultations and policy development process
- **Political context and perspectives**
 - summary of municipal government's primary obligations and procedures defining parameters and imposing restrictions on the policy development,
 - request for comments on goals and objectives,
 - request for comments on the policy principles;

- **Analysis of problematic issues and strategies**

- description of the current status of regulation,
- discussion of problematic issues that require political responses,
- summary of preferred and achievable solutions and their value for society and target groups,
- calculation of financing and staffing required for implementation of proposed solutions,
- request for comments on the issues raised and potential solutions;

- **Implementation**

- summary of performance indicators,
- request for comments on policy implementation, monitoring and revision.

Phase 4. Development of the final policy paper

The working group analyses all comments received on the discussion paper. Taking into consideration the most significant comments, the group develops the final document with a detailed summary of the energy policy and submits it to the city council for approval. The group may also recommend returning the document to the previous phase for follow-up revision if priorities and strategies are not clearly determined.

The final policy paper should contain adequate information and guidelines for those who make the ultimate decision about the energy policy. The document structure should be as following:

- **Introduction/Summary**

- historical context,
- the need for municipal energy policy and its purpose,
- description of the policy development (including the consultations conducted);

- **Political context and perspectives**

- goals and objectives,
- principles of the energy policy,

- coherence with the national energy policy in municipal and other related spheres;

- **Analysis of problematic issues and preferred solutions**

- description of the current status of municipal energy services and policy,
- discussion of problematic issues that require political responses,
- preferred solutions for each of the problematic issue strategies (what? when? where? who?),
- staffing and services sourcing;

- **Implementation plan**

- qualification of performance indicators, schedule and main achievements,
- allocation of responsibility for implementation,
- the policy monitoring and revision scheme.

In addition, and as a part of the communication strategy which includes press-releases, letters to main stakeholders, briefing materials, etc., a separate concise communication document may be developed. It should explain the expected effects of the municipal energy policy to the general public and should include the following parts:

- **Historical background**

- historical context,
- the need for municipal energy policy and its purpose,
- description of the energy policy development process (including the consultations conducted);

- **Political context and perspectives**

- goals and objectives,
- discussion of problematic issues that require political responses,
- coherence with the national energy policy in municipal and other related spheres;

- **Summary of the strategies**

- description of current strategies,
- proposed strategies (what? when? where? who? how much will it cost?),
- impact on service quality for general public and target groups;

- **Implementation**

- the energy policy implementation, monitoring and revision,
- where additional information can be received.

Thus, the municipal energy policy formalizes government support and formulates the commitment of local government to local community and stakeholders:

- to treat the work in the municipal energy sector on a par with activities in other areas within their authority,

- to provide the necessary financial support and other resources,
- to report regularly about accomplishments.

While combining energy-related objectives of the city with financial and environmental ones, the energy policy provides a balanced context for further development of the energy action plan and enables municipal energy management to become in the future an integral part of the revised activity programme of local authorities.

The energy policy enters into force after getting approved through the relevant decision of the city council. After that the mayor commits one of the departments of the city executive committee (usually, this is a department of local economic development) to write a corresponding action plan based on the energy policy in order to ensure its implementation. Then, the action plan enters into force after being examined and approved by the decision of the city executive committee or the city council.

The Sustainable Energy Action Plan stipulated by the Covenant of Mayors should be approved by the city council only.

ADAPTING THE MUNICIPAL ADMINISTRATIVE STRUCTURE TO THE NEEDS OF THE MUNICIPAL ENERGY MANAGEMENT SYSTEM



Creation and development of the municipal energy management system, as a tool for implementing the municipal energy policy and one of the key elements of modern city management system in general, requires an appropriate level of organizational support. This may mean, among other things, modifications to the recent structure of executive departments, as well as qualifying requirements, and scope of authority and accountability of their employees. A crucial is the introduction of a separate position of a municipal energy manager in the city. The energy manager takes personal responsibility for achieving the objectives envisaged in the city's energy policy. When the city is medium- or large-sized, with many public sector buildings and public utility companies, it is advisable to create a separate unit of energy management with several employees. However, in small towns, there is usually no separate position of energy manager, and his/her function is simply added to the duties of an officer responsible for another job. In any case, when necessary, the energy manager needs to have easy access to senior management of the city.

Generally, for this position, a person's specification should include an engineering education, although it should be noted that the energy manager may not necessarily have to be an expert in the field of energy and technical systems. It is much more important for the energy manager to know how energy management could help the city achieve its energy-related, financial and environmental goals. In addition, more and more attention has been paid recently to the importance of the business and communication skills of a candidate, because the success of the energy manager depends heavily on his/her relationship with co-workers (building maintenance specialists, unit managers, administration of the organization) and external partners (suppliers, contractors, local public utilities, etc.). Practical skills in motivation, support, negotiation, mediation are vitally important, as well as personal engagement, persistence, and the ability to get the job done.

The key responsibilities of the energy manager include:

- study of the city energy sector;
- identification of key stakeholders and collaboration with them while preparing and implementing the energy policy and action plan on sustainable energy development of the city;
- development of the municipal energy policy;
- preparation of a long-term plan of action for sustainable energy development of the city;
- preparation of medium-term and yearly energy plans;
- daily coordination of energy management activity;
- monitoring and enforcement of operating standards of energy source consumption (limits) by the objects (facilities) of city property;
- benchmarking of the facilities located on city-owned property;
- providing energy audits of the facilities located on city-owned property;
- reporting on the implementation of the annual energy procurement plan and of energy management actions as well as on the success achieved;
- organizing internal audits of the energy management system and making necessary improvements;
- promoting awareness about energy use and creating incentives for the personnel;
- providing staff training on energy-saving and energy-efficient activities;
- coordination, identification and evaluation of new opportunities for implementing energy efficiency measures and renewable energy sources;

- preparing investment programs aimed at improving the functioning of the municipal energy sector;
- monitoring the implementation of these investment programs;
- Providing recognition for achievements.

Usually, the municipal energy manager should not and cannot be the sole executor of all of the above tasks. For this purpose, a hierarchical organizational and functional framework (**energy team**) is formed, in which the municipal energy manager relies on those responsible for energy management in specific industry divisions (education, health care, culture and sports), and they in turn rely on those responsible for collecting information on energy consumption (meter reading) in certain buildings. It is very important, especially during the initial development of the energy management system to form the municipal energy management system structure and to make it operate under the personal supervision of at least a Deputy Mayor, who controls the budget and administrative apparatus of the city council and, therefore, is responsible for financial and staff assistance of this process.

The energy teams may also consist of representatives of the units (within the municipal executive committee), which are responsible for finance, construction, legal support, information, etc., as well as representa-

tives of external partners – suppliers, public utilities, contractors.

The energy team would assist the energy manager in elaborating the energy policy and action plan on sustainable energy development of the city, to implement specific tasks of the plan, to prepare reports and more.

At the stages of adjusting and then operating the energy management system, it is very useful to involve people who, for various reasons, are willing to support this initiative. They can be both from the organization and from outside it, for instance:

- **Officials responsible for occupational safety and health.** Energy efficiency and provision of energy services are closely linked together, so it is quite natural to get those responsible for occupational safety and health involved in the energy management process;
- **Representatives of trade unions.** Concern for improving working conditions for their members is one of the main tasks of trade unions. Therefore, their representatives have a strong motivation to assist in encouraging staff to act;
- **“Green” staff.** Any organization always has staunch supporters of action to protect the environment. Such people may become useful assistants, by providing support to energy efficiency initiatives.

CREATING A DATABASE ON ENERGY CONSUMPTION IN THE CITY, MONITORING AND MEASUREMENT OF ENERGY PERFORMANCE, BENCHMARKING



Energy management involves the creation of a reliable metering system to ensure that those responsible for making policy and administrative decisions concerning the municipal energy, have access to high-quality information about where, when and how energy is used. The most appropriate and the easiest way is to start creating such a database in the city beginning with the public sector buildings, as they are more likely to be well equipped with metering devices for energy sources – gas, electricity, heat and water. This reliable measurement makes it possible to accomplish further steps of evaluating the energy performance of these buildings and their energy saving potential (defining the baseline, benchmarking and energy audit).

The metering system is based on **measurement**. However, the measurement, which is occasional or irregular, makes no effect. Only **monitoring** (regular measurement during a long period of time) makes metering informative. And monitoring with subsequent analysis of received data provides:

- an understanding of what is happening to energy consumption,
- proof that as a result of these measures the energy performance of the building has really improved.

By focusing on these two functions, wasting of time and money as a result of collecting too much information can be easily avoided. Moreover, excessive monitoring often makes it difficult to distinguish between what is important and what is not. So, first of all, the data consistent with the key indicators of energy performance and which will clearly demonstrate achievements should be collected.

Among the wide range of key indicators, the most suitable ones for describing the energy performance of buildings are:

- **annual energy consumption per unit of area**, which is measured in kWh or UAH per m² a year. This index is used both for the whole building and for individual energy supply systems, such as heat, light, or air conditioning);
- **annual energy consumption per person equivalent** (it is measured in kWh or UAH per person a year) is used for office equipment, lighting and power supply of employee's workplace.

Thus, monitoring should cover, at least:

- total monthly energy consumption in each building,
- the main factors that influence the energy consumption (e.g., different number of employees, visitors, or reconstruction of the building).

However, there are many other useful variables, such as: sub-meter reading, data on energy consumption at night, local weather conditions etc. The ability to monitor them is envisaged at the stage of preparing an action plan on energy-efficient building operation.

Monitoring of the overall energy consumption and variables that describe the building operation is a must; preferably, other variables should be monitored as well, as additional monitoring allows a deeper level of interpreting the data on total energy consumption (Fig. 3):

The best way to collect, store and analyze the collected information is in electronic databases. This information can be stored in either ordinary spreadsheets in Excell format, or complex multi-functional database that require special premium computer programs (e.g., Energyplan (Ukraine), DEXCell Energy Manager (Spain), PULSE (Canada), EnSMART (United Kingdom),

Variable	Measurement frequency	Comment
Total energy consumption for each type of fuel supply and related costs (required)	At least once a month. However, if there is access to a meter, it is better to read the meter weekly or even daily – this provides better understanding what is happening.	Monthly energy bills should contain this information. If they are sent less often, then the amounts shown on the meter should be written down independently.
Energy consumption, according to sub-meter readings	as above	If the organization does not occupy the entire building and uses centralized services, it should be monitored separately through the use of submetering.
Power consumption at night	At least once a month. During the campaign of turning off equipment and lights after work, in order to track progress, it is desirable to monitor at least once a week.	Sometimes this information can be obtained from energy bills if they also contain a separate “peak” consumption figure. Otherwise, the amounts shown on the meter should be written down independently – at the beginning and at the end of each day. If there is no such possibility, it is a good idea just to take a walk around the building at night and count lamps and computers, which are not off.
Weather variables	Monthly	Data for the heating and air-conditioning seasons of a building, presented in degree-days, is enough.
Variables of use (required)	Monthly	It is necessary to keep a record of the major changes in the use of the building (such as empty space (rooms), fluctuations in the number of personnel, introduction of work in two shifts, etc.).

Fig. 3. Variables, which should be monitored to evaluate energy performance of buildings

Source: Working Energy Program for Local Government, Australian Greenhouse Office, Dept. of the Environment and Heritage, 2007

EnergyCAP (USA), etc.). Such software programs automatically perform monitoring and analysis, quickly warn about dangerous deviation from the norm and prepare reports, they are compatible with all types of meters (for electricity, heat, gas and water).

In order to start collecting the data the following steps should be taken:

- determine the appropriate level of detail – the level and amount of data collected in various organizations is different. Some may take into account meter reading, others – utility bills;
- consider all available sources of energy – an inventory of all energy (electricity, heat, natural gas, coal, heating oil, etc.), both purchased and produced on-site, is conducted in physical units and in cash equivalent;
- document the use of all energy – energy bills, meter reading etc. should be monthly (if possible, even more often) and at least for two years. It is advisable to use the latest information. Data on energy consumption can be in accounting department; it can be stored centrally or in separate buildings. It can also be obtained from the respective public utilities and energy providers.

It should be noted that the amount of coal, heating oil and liquefied gas is usually measured during shipment to the buyer. And as the delivery time of these types of fuel often does not meet the time of its consumption (for some time it is kept in storage), the analysis conducted for smaller buildings with infrequent deliveries might be distorted significantly. Therefore, it is recommended to have at least 12 deliveries during the selected year. If the fuel is supplied less frequently, the data for two full years (or even more, if necessary) should be searched, and on its basis, the average annual consumption calculated. Information on energy value of the aforementioned energy sources (in case of coal, it depends on the place of production a lot) is contained in the delivery description. If there is no description available, it means that those records should be obtained from the supplier.

It is extremely important that the metering system energy consumption takes into account only the energy for which the consumer is responsible. Here are some useful tips for this:

- It should be ensured that the data is collected from all meters, which cover the entire building. If there are several tenants in the building, – in order to avoid difficulties related to the partition of current utility bills, – the energy consumption by each of

the individual units in the building should be specified. To do this, additional sub-meters are required, they not only provide real-time information about local energy use, but also detect faulty equipment, poor equipment usage, and errors in billing. In addition, sub-meters help maintenance personnel to manage energy consumption; A common challenge for the organizations that occupy several buildings is insufficient number of meters, which makes it complicated to trace a connection between energy consumed and a specific building. In this situation, installing sub-meters can also be helpful, though they do not have to be highly-precise. Less accurate meters are quite suitable for the purposes of monitoring, plus they are cheaper;

- In complex cases, where the relationship between the scope of a meter and the building or a part of it is not obvious, it is necessary to trace the meter's coverage using route-process cable or pipe map. Energy suppliers can provide some assistance here.

Very often smaller buildings may have only the simplest equipment for measurement. This, however, should not be an insurmountable obstacle for carrying out energy-efficiency upgrades. The number of meters, sensors etc. can be increased to the necessary level later on, when the energy management system provides the first real savings. Early success in the process of its creation serves as the best argument in favour of purchasing new measurement equipment.

Energy savings in a building cannot be proved until these savings are quantitatively assessed. In order to demonstrate the resulting savings, it is necessary to know a primary point of reference, i.e. the value of energy consumption during a specific period of time (e.g., a year or a month) before the introduction of the energy modernization program for the building – the so-called **baseline**, or **benchmark**.

Baseline – is a control value (reference), against which the goals are formulated and further efforts to improve energy performance are evaluated. Depending on the requirements, the baseline is defined either for the entire building, for a part of the building, or for the entire organization (if it occupies several buildings).

In general, besides the equipment used and the weather-tightness of the building itself, the energy consumption in a building is significantly affected by:

- climatic zone,

- weather conditions,
- dimensions of the building,
- type of energy source,
- price/cost of energy,
- hours of work,
- intensity of the facility use.

There are two basic methods for determining the baseline:

- using energy consumption data obtained through the existing metering system, carefully considering any abnormal changes that may affect the intensity of energy use by the building and associated costs;
- simulating energy consumption (so-called calibrated simulation) using special computer programs, in the event that reliable data is lacking.

The first method is used more often, since the second one is expensive and time consuming. In this case, based on statistical analysis of historical data, a base year is chosen (standardized in terms of the weather, or average for a number of calendar years) along with parameters, that appropriately reflect the energy performance of a particular building (e.g., amount of energy consumed or its cost, per area unit).

The baseline may be of two types:

- **internal**, which allows comparing a building to itself (for example, average energy consumption of the building for the previous year). It is used mainly when comparing energy performance before and after implementation of energy efficiency measures, in order to assess their effect;
- **external**, which makes it possible to compare a building with the best in its class (for example, the average monthly energy consumption in a similar building with high energy efficiency). It is applied to find out how well one's building is functioning, and to identify its potential to improve energy use.

In order to assess the energy performance of the building objectively, it is necessary to use both baseline types. Unfortunately, for the moment Ukraine does not have its own system of external baselines for energy performance of buildings of various categories, such as the Australian Building Greenhouse Rating

Scheme, or the program ENERGY STAR's Portfolio Manager, which operates in the U.S.

The internal baseline can be determined with different degrees of accuracy. Initially, any option would be suitable, but the more accurate the real situation is reflected, the better. To describe the energy performance of a building in an unbiased manner, as much standardization as possible should be carried out and this standardization should be based on the factors, which (although unrelated to energy efficiency) affect the intensity of energy consumption. These include the weather and certain features of the organization's activities. The options of internal baseline, starting with the simplest, are as follows:

- **Annual energy consumption.** It is based on energy consumption of the building during the previous year, which, however, must be typical;
- **Average annual energy consumption.** To improve the accuracy of the baseline the average energy consumption of the building over the past years can be calculated. The best variant is to use data from the past three years (older energy consumption data is often not comparable to current data). Despite its greater accuracy, this option does not reflect the peculiarities of energy performance during the year;
- **Average seasonal or monthly consumption.** When data for several years is used, it can be defined by the average consumption per quarter or month. The advantage of this option is that it takes into account natural fluctuations in the load on the heating and cooling systems, depending on the season. However, in the case of extremely cold or hot season, energy performance of the building can look badly in comparison with such baseline;
- **Seasonal or monthly consumption, adjusted for climate.** In order to define seasonal or monthly consumption adjusted for climate information about the weather during the heating season and the season when air conditioning system is on, presented in degree-days must be included in addition to the data on energy consumption over the last two or three years. This information can be obtained for a small fee at the Ukrainian Meteorological

Office. This is the best variant among the baselines for common use, and it eliminates the impact of possible sharp weather deviations from the norm;

- **Seasonal or monthly consumption, adjusted for climate and activity.** In those cases where the organization is characterized by significant periodic changes in its activity (e.g., seasonal fluctuations in the number of employees) seasonal or monthly consumption, adjusted for climate and activities is applied. Using special computer programs, the correlation is calculated, which, in turn, allows anticipating energy consumption depending on the climate and different variable performance indicators. This version of the baseline is very accurate; however it requires a high level of mathematical skills and appropriate software.

Benchmarking (benchmark analysis) compares the current indicators of energy performance of the building (its part or the whole organization) with the baseline. Depending on the type of the baselines used, we distinguish **internal** and **external** benchmarking.

In considering internal benchmarking, current energy performance is compared with past performance, while for the external benchmarking, it is compared with the current performance of generally accepted leaders in this class of buildings (i.e., of similar size, method of use, climatic zone and age). Thus, benchmarking enables the process of improving the energy performance of the building to be historically traced and current position of the building among the similar ones to be determined.

Benchmarking itself cannot determine the energy saving potential (this is the function of energy audit), but it can suggest when the need for energy and its cost go beyond the optimal range. For example, it should be expected that a new building, which was built in accordance with modern requirements, will function just as well as, if not better than, a similar older building. In this case, a low ranking is a signal that the energy manager should conduct an energy audit in order to identify the areas of concern that require intervention. Conversely, a high ranking would indicate that the building is truly energy efficient and belongs to the best in its class.

ESTABLISHING AN EFFECTIVE INFORMATION EXCHANGE BETWEEN ENERGY MANAGER AND STAKEHOLDERS



Communication, or exchange of information, is one of the most important permanent components of work of the municipal energy manager. He (or she) is studying, coordinating, motivating. This requires the ability to accurately formulate questions, clearly lay out what you know, encourage others to act. Requests for obtaining necessary information, learning problems, discussing ideas and reporting take much time, especially to officials; and the future of the municipal energy sector depends on their solutions.

Effective communication does not occur spontaneously. It requires careful planning and consistent and firm implementation on the part of a municipal energy manager and his team. In order to make the exchange of information of strategic importance, shifting from sporadic events to a robust program, an energy manager should:

- feel at home with the necessary information,
- know the audience,
- choose a communication method, which is the most appropriate for the situation,
- express supportive arguments clearly and effectively.

In general, every opportunity should be used in order to show that energy management and investments in energy efficiency are a promising and long-term source of revenue for the city, industry, organization or individual family, which, in turn will reduce the potential risks due to unstable energy supply and sudden increase in prices.

Feeling at home with the necessary information:

In order to gather information effectively, it is necessary to know what exactly is required, what questions and to whom to address. Before having meetings the municipal energy manager should make sure that all available data has been studied. During these meet-

ings all questions that arise should be posed. There are no «stupid» questions. Information obtained in conversations might be the solution to a complex problem.

The municipal energy manager has to speak in front of both the general public with diverse interests, and small professional audiences interested in more specific issues. In speaking in front of the general public, the speech should include interesting photographs, anecdotes, descriptive graphs and tables. This will compel the attention of the audience. In speaking in front of small professional audiences (i.e. the Budget Committee) the presentation should be confined to spreadsheets and several curves. In both cases the presenter should be prepared for questions that are not directly related to the speech, such as the source of data used or assumptions that formed the basis for the proposed action programme. Good preparation will save time and add persuasiveness to the energy manager's words.

Knowledge of the audience:

No matter who stands in front of the municipal energy manager, his (her) speech should be tailored to the needs, opportunities and area of responsibility of the audience. The municipal energy manager has three main categories of audience:

- **management,**
- **technical staff,**
- **residents (users of residential and public buildings).**

However, the contribution of **ordinary employees** (in particular, key personnel during working hours as well as cleaners and guards during non-working hours) should not be underestimated and can be quite tangible. Good awareness of all the employees of any organization (from part-time employees to senior management) on the financial and environmental benefits of intelligent use of energy resources can significantly

enhance the effectiveness of specific events (activities). This is especially noticeable when almost free events, such as better organization of administrative and economic activities are delivered. At the same time, employees may also learn how they can reduce their energy bills at home. Nevertheless, the senior management's attitude toward energy management is clearly the decisive factor.

Senior management itself is responsible for policy and finance. It can be either an individual (the city mayor or director of an institution), or a group of people (such as school parents' council or city council). Of course, the priority for a municipal energy manager is to establish and maintain constructive relations with the city mayor, deputies of the city council, and heads of departments of the municipal executive committee. This audience is interested in more general information. In order to make a decision concerning the general policy or to amend the budget, city authorities must know the reason why a decision should be made, and what consequences and benefits can be expected as a result. They may also be interested in publicizing information about their decision through the media, so appropriate proposals should be prepared.

Technical staff includes mainly custodians and operating personnel of power equipment in buildings and boilers and less often system administrators and officials responsible for the purchase of new equipment. This audience should be informed about the power efficiency of their buildings, about the current use of energy resources there, compared to the same period in previous years or with other buildings of similar size and purpose. Such information helps to track achievements and shortcomings and provide more efficient use of equipment and energy.

Speech before the residents should be focused not only on technical issues but on the impact of everyday human habits. This audience category should know how, by changing behaviour (their own and of their family members), they can reduce their energy costs, and at the same time be involved in the implementation of tasks faced by the city in the energy sector. This work with residents requires special attention because it is much more difficult to irreversibly change rooted habits than, for example, to replace old household electrical appliances with more energy efficient ones or to winterize apartments (though, of course, this requires money). Regular information on the progress made, reminders, recognition of achievements and encouragement have to become an integral part of communication of the municipal energy manager with tenants.

Choosing the most appropriate communication method:

In general, there are formal and informal communication methods. Their choice depends largely on the target audience characteristics.

Quite effective formal methods of communication of the municipal energy manager with the city authorities include his/her **regular monthly and annual reports** during the city council sessions, meetings of the deputies' committees, and operational meetings with the city mayor. It is advisable, from time to time, to make **special general meetings** at institutions and organizations at which their administrations and the energy manager inform the employees about the energy management program implementation, new recommendations aimed at achieving greater savings etc. It is also very useful when **operational guidance materials** for new employees contain information on energy use in the organization as well as internal commitments in this area and their implementation.

When choosing a communication method for a specific target group, it is important that it fits the situation as well. Thus, sending an **official note** to school boiler operators, with a reminder of the need to switch boilers into economical mode during public holidays, is more appropriate than calling of a special meeting.

Although a municipal energy manager reports regularly to his/her immediate superiors, he or she should not ignore other target groups (for example, managers of budgetary institutions, condominiums, energy supply companies etc.), as the implementation of planned activities depends largely upon them. The energy manager has periodically to meet with them, especially if he/she receives an invitation. This will increase his/her authority and influence in the city.

At the same time the energy efficiency programme can be significantly enhanced through informal means, such as establishment of **special awards and decorations**. Encouraging participation in **competitions**, including international ones (e.g., competition for the «Towards Class A» award established by the European Association «Energy Cities» to celebrate annually the most creative awareness campaigns), is a proven way to achieve significant effort on the part of the staff for supporting the energy management programme.

Another effective method of informal communication is **collecting critical comments and suggestions** from employees and visitors of organizations in a special box, or posting them on the bulletin board in the

lobby. Regular consideration of proposals received from employees and public celebration of authors of the best ideas encourage wide-scale search for new opportunities of how to save energy and money. Rewarding employees, who have contributed a lot to improving the energy performance of the city or organization, strengthens moral and corporate spirit of the personnel, and in turn, the administration gains additional credibility, useful for while adopting the next programme aimed at improving the working conditions and environment.

The following methods have also worked well in Ukrainian cities:

- **Poster campaigns.** Placing attractive and informative posters related to energy efficiency in lounges, on billboards and in other relevant areas promotes better memorizing of the main ideas;
- **Annual Sustainable Energy Days and Earth Day activities.** Celebrating the Sustainable Energy Days and Earth Day (April 22) is a good opportunity to raise awareness about the impact of energy consumption on the environment and about the ways to reduce it in the workplace and at home;
- **Use of Internet sites and local networks.** Fresh popular information on energy and energy management, posted on own website or disseminated through local computer network, helps employees better understand the declared goals and their role in achieving them.

Important: Do not underestimate the importance of **face-to-face communication**. Thus, a meeting of the energy manager with cleaners of the building, when they set to their evening work, gives an opportunity to hear how things look from their perspective. This potential contribution is often overlooked, while it may be extremely valuable. Such discussion with cleaners on their «territory» can often highlight the issues, which they would say nothing about at the meeting. This allows to get rid of misconceptions and avoid the wasting of time.

It is necessary to regularly promote achievements through the **mass media** (press releases, press conferences, interviews, publications and programs on radio and TV) and through various associations (in Ukraine, for example – through the Association «Energy Efficient Cities of Ukraine»). This is a chance to demonstrate to the public the city's leading role in the reduction of the country's energy dependence and in environmental protection.

Clear and effective reasoning:

The question of how to lead a conversation in each case is not less important than of what to talk about. The speech should be both informative and persuasive.

When speaking in front of any audience, the focus should be placed on the primary issue (a problem and ways to solve it) rather than to scatter the attention of listeners among secondary information and unfounded speculations. Language of the speech should be easily understandable. The old rule of public speakers said: «Tell them what you have to say and then repeat what you have said». It works in this case as well. Therefore, at the end of your presentation, expectations of the outcomes of the proposed activities, and how it will solve the existing problem should be reiterated. It's simple and yet very effective way of presenting new information.

While selecting the material for provision of the information, special attention should be paid to the specific facts and figures that illustrate the energy performance of the city, industry, organization, or a particular building. These facts and figures are compared with the current standard (for example, for a certain class of buildings) or with the best practices in this area, and the appropriate tables and graphs are then prepared. Senior management will be interested primarily in overall indicators: total energy consumption, total spending on it, on the operation and maintenance of equipment, the payback period of an investment or return on investments etc. It is also worthless to explain how the reduction of energy consumption will affect the cost per square meter of area. And an average employee will be more convinced by the information about how energy, which is used for the organization's needs, is produced, and what is a threat to the environment; how much energy is consumed during one business day by one's personal computer and other equipment that is used regularly; or how much the downtime of switched-on equipment costs for the organization.

After the important information events are over, they must be evaluated in order to determine their success and to adjust the next steps. To do this, various criteria are used, which are selected depending on the specific situation, such as cost saving, reduction of the number of complaints and increase of the number of positive feedback on the quality of services and working conditions, improved team spirit etc.

RAISING AWARENESS AMONG RESIDENTS

Most people have little idea of how their daily activities at work and at home affect energy consumption and the environment. Pursuing the objectives defined by the municipal energy policy depends on awareness, adherence and abilities of all residents, regardless of their age, profession and position. That is why, the tone in awareness-raising work in the city should be given by the city authorities (represented by the municipal energy manager), which enlist maximum support of energy agencies, companies – energy suppliers and related public utilities, NGOs and activists, condominiums, media etc.

There are 3 categories of awareness rising activities:

- preparatory activities (involve provision of information),
- follow-up activities (interactive, involve specific actions),
- activities with social impact.

Preparatory activities:

These activities can be divided into two categories: activities that do not provide feedback on consumer behaviour, and activities where a user gets feedback on how he/she consumes energy. However, in both cases the activities are not interactive and no resulting changes in energy consumption behaviour are monitored.

The first subgroup of preparatory activities include:

- Web-sites containing information about various aspects of energy saving,
- TV videos and cartoons on energy topics,
- educational materials for different target groups (e.g., schoolchildren),
- CDs with short movies about energy consumption,
- brochures and leaflets,
- posters and advertising in public places.



The second subgroup of preparatory activities is presented by **energy audits** and **consulting**. These measures provide personalized information or directly answer questions of a consumer. Thus, to some extent, energy audit, if it is based on real consumption, can inform consumers of their behaviour. However, unlike the periodic measurement, which makes it possible to judge about the dynamics of change, an audit only evaluates the facility's baseline at the time of the audit, and it does not reflect changes in behaviour. Similarly, counselling does not detect changes in consumption patterns. It is up to the consumer whether he or she will use the information obtained during the energy audit/consultations and change his/her behaviour according to the received recommendations or make an investment in the recommended set of energy improvements.

The preparatory activities are based on the assumption that provision of relevant information itself can reframe consumption stereotypes. Unfortunately, raising awareness does not always lead to the desired changes in behaviour. Therefore, despite the fact that the preparatory activities are relatively cheap and can be easily applied to large groups of people, they are the least effective. Rather than using them independently; they should be used in conjunction with other activities.

Follow-up activities:

Unlike preparatory actions, follow-up activities provide feedback to the consumer and may include rewards or an incentive system. Follow-up activities have a greater degree of interactivity and they are more effective as they allow assessing the immediate impact of consumer behaviour. Consumers are able to see the direct connection between the changes in their own behaviour and reduction of energy use and costs. Follow-up activities require an individual approach to each customer, and therefore, they take more time and are more expensive.

The most common follow-up activities include:

- competitions and contests,

- conducting individual metering of energy resource use (in a separate building or a part thereof (for example, in an apartment),
- public demonstration of one's own energy use and related costs (e.g., participation in the European programme for voluntary energy certification of buildings Display® or in a city-wide programme for monitoring the utility costs in each apartment).

Activities with social impact:

This category of activities best meets the needs of residents in increasing their awareness on energy saving, and it has the biggest impact on their behaviour. The activities with social influence are based on attracting smaller groups, and they involve the adoption of voluntary commitments, which combine self-interest with the interests of the community. This approach is extremely interactive and communication-based, and it is usually embedded in everyday environments.

The activities with social impact include:

- good role models (examples for imitation) of the city authorities (publication and free access to relevant information),
- «energy» neighbourhoods (eco-teams in a residential house, institution or organization, block, etc.),
- energy passports for public and residential buildings,
- reports of residents about the experience they have gained,

- energy-related blogs on the Internet (in particular, facilitated by a municipal energy manager).

In general, the trend in the development of tools for increasing public awareness on energy savings is gradually shifting from activities aimed at simple provision of information to large target groups with the activities of social impact, which target smaller audiences and form active and responsible attitudes to energy consumption.

While developing a strategy aimed at raising the awareness of citizens on energy-related issues, it is needed to remember that patterns of energy consumption are closely linked to habits. Overcoming those habits and replacing with new better ones, requires efforts and time in addition to reliable information. In order to make a community doubt the wisdom of their previous behaviour and strive for their mass support in reforming the municipal energy sector, it is necessary to:

- eliminate motivational incentives that support the old consumption patterns,
- help consumers comprehend the noxiousness of their old habits and the necessity to form new ones,
- give residents an opportunity to prevent and control possible negative consequences and provide them with positive alternatives.

However, a number of objective and subjective factors present an obstacle to the implementation of these tasks (Fig. 4). Fortunately, there are also solutions how to overcome them.

Obstacles that prevent from achieving the ultimate energy savings	Tips on how to overcome the obstacles
Lack of timely and understandable information that would attract attention, teach and encourage residents to treat energy in a saving manner.	<p>To inform residents of apartments about current energy use by household appliances individual gas, electricity and water meters, and in the case of central heating – house heat meters should be installed. The monthly energy use figures for each apartment should be posted up in residential buildings. For low-income families, assistance in establishing energy meters should be provided. This will encourage them to replace old equipment or to use energy in a more thoughtful way.</p> <p>To inform citizens regularly, during the annual municipal Sustainable Energy Days, of more efficient ways of energy use in everyday life, and of related benefits as well as of the experience of residents of typical apartments who have managed to reduce their consumption of energy and at the same time to ensure the high level of comfort.</p>
The increase of energy costs especially affects residents with very low income. After meeting essential domestic needs they have no funds for energy-efficient refurbishment of their apartments, which would allow them to significantly reduce their energy consumption and to ease the burden on the family budget.	<p>Municipalities, energy agencies, NGOs and others can participate in organizing free professional counselling on how to save energy at home and to raise funds for the purchase of energy-efficient equipment and materials. Energy consultants can also visit residents for free evaluation of energy performance of their apartments.</p> <p>It is also important to pay attention to offerings of special loan programs for energy efficient modernization of apartments and residential buildings for low-income persons, and of social housing construction with the highest energy performance indicators.</p>
Very often, employees of the companies engaged in installation of energy efficient equipment and equipment that uses renewable energy sources, immediately offer their technical solution to a client, instead of identifying all opportunities for energy savings first and then selecting the most appropriate set of measures.	To provide adequate qualification level of these professionals through the use of appropriate accreditation/certification schemes and the organization of training courses and professional training.
There is insufficient involvement of the public utilities in the development and implementation of measures aimed at improvement of energy saving and energy efficiency.	In the context of the relentless rise in world prices for traditional energy resources, public utilities have to care, first and foremost, about reducing energy demand rather than increasing the volume of energy supply. Thus, they could finance the replacement of household appliances with more energy efficient ones (such as conventional incandescent bulbs with energy saving bulbs) or heat distribution stations – with individual heating stations with weather control. Payback of investments can be arranged from the savings generated by users due to modernization.

Fig. 4. Obstacles preventing residents to optimize their energy use and how to overcome them

Source: Éva Csobod, Matthias Grätz, Péter Szuppinger, Overview and Analysis of Public Awareness Raising Strategies and Actions on Energy Savings, 2009

CONDUCTING MUNICIPAL AND NATIONAL SUSTAINABLE ENERGY DAYS



Conducting the municipal and national Sustainable Energy Days (Energy Efficiency Days, Energy Saving Days etc.) has become a tradition both in the European Union and Ukraine. After the 2009 launching of the “Covenant of Mayors”, Sustainable Energy Days have become one of its integral parts, it has become the means of «mobilization» of ordinary citizens, local authorities and business representatives towards joint reflection on the prospects of energy production and consumption in one’s home town and in the world. The primary goal of these Days is to raise awareness of the local community on modern methods of more efficient energy use, wider use of renewables and to create a countering action to the global climate change within mainstream general European policy.

The organization of various events, aimed at different audiences, is intended to facilitate and strengthen the mass consciousness belief that sustainable energy technologies and behaviour patterns are absolutely achievable, viable and effective, and, most importantly, that they are useful to human health and the environment. At the same time, it is an opportunity for local authorities to publicly demonstrate their own contribution as a leader in achieving the objectives of the European Union with regard to energy and climate.

Organization of Sustainable Energy Days in the city involves:

- creating an appropriate organizing committee within the executive committee of the city council,
- conducting meetings of the organizing committee with all stakeholders – potential participants of the Sustainable Energy Days (district/rayon administrations, enterprises – energy service providers, companies-manufacturers of energy-efficient equipment, educational institutions, NGOs, etc.) for their involvement in the Days and for considering potential sponsorships,
- selecting favourable dates (Sustainable Energy Days can be organized in parallel with other impor-

tant events in the city – the City Days, exhibitions, trade fairs, etc.),

- choosing an appropriate form (sometimes it is more appropriate to conduct the municipal Sustainable Energy Days in the framework of some other mass event, such as the Earth Day),
- preparing a schedule of meetings of the Sustainable Energy Days Organizing Committee,
- selecting appropriate events,
- preparing a detailed Sustainable Energy Days program,
- distributing program tasks amongst the Organizing Committee conveners and partners,
- performing tasks, periodic progress reporting, prompt resolution of current problems,
- distributing invitations (to the city residents and to residents of neighbouring towns), making hand-outs for visitors,
- distributing information and conducting promotional activities before, during and after the Sustainable Energy Days (posters, postcards, articles in press, reports on radio, television and through the Internet)
- monitoring and evaluating (preparing special evaluation forms for participants, visitors and members of the Organizing Committee), and, based on feedback received, elaborating recommendations on possible ways to improve the organization and realization of the Sustainable Energy Days next year.

The type of activities carried out during the Sustainable Energy Days may include:

Demonstration activities, such as:

- “Doors Open” (Welcome) Days in public utility companies and industrial enterprises, public buildings

and private houses where modern energy-efficient technologies, equipment and materials are used,

- exhibitions and trade fairs with participation of companies-manufacturers of energy-efficient equipment and materials, designers and constructors of houses with low energy consumption,
- film festival dedicated to environmental issues, energy and global climate change (such as «Unfavourable Truth», «Home», «Six Degrees», etc.),
- video demonstrations – non-stop, in crowded places, on a large screen outdoor (e.g., “The campaign of voluntary energy certification of buildings Display®”, «Energy. Let’s save it», «Better light with less energy» etc.),
- «Car Free Day» campaign to encourage residents to use more public transport, cycling or walking.

Educational events, such as:

- conferences, workshops, discussion forums and roundtables, educational games and trainings for various target groups – related to environmental degradation, climate change, sustainable development principles and their practical application in the field of energy production and consumption,
- presentation of school curricula/programs on energy saving and climate protection, and corresponding teaching materials and games,
- energy audits of school buildings, carried out by schoolchildren (collecting data on energy use, identifying places and ways of energy loss, and elaborating recommendations for their reduction and prevention of waste, and the practical implementation of recommendations),
- presentations made by schoolchildren on the results of their own research related to energy efficiency, use of renewables etc.

Cultural events, such as:

- concerts of popular singers, bands and orchestras under appropriate slogans, thematic press conferences with musicians and artists,
- theatrical performances on environmental issues at local theatres or schools,

- contests for best picture, photograph, literary work, hand-made product, dance, related to the topic of energy efficiency and climate protection, at schools and kindergartens,
- quizzes for children and adults on energy efficiency and climate protection.

Sports activities, such as:

- family sports competitions involving famous athletes in the role of judges and fans,
- «Clean Air» bicycle and roller-skate racings,
- running «For health» competition.

Formal events, such as:

- conducting a gala opening (and closing) of the Sustainable Energy Days,
- public meetings/sessions of the city council, related to the sustainable energy development plan of the city, with the participation of all stakeholders and citizens,
- public hearings on the planned activities and corresponding investment packages,
- award presentation ceremony for the winners of contests and competitions,
- business breakfast for officials and representatives of local business community in order to join efforts aimed at reduction of harmful effects of the energy sector on the environment,
- advance distribution of press releases containing the Days’ program, a press conference for mass media and interviews.

Taking into consideration the promotional mission of the Sustainable Energy Days, broad media coverage of the corresponding activities is critical for maximizing their effect. And thanks to radio, press and television, more and more active supporters and participants join the event every year. Typically, the Sustainable Energy Days start with a press conference where journalists from local, regional and national mass media are invited.

In general, in order to ensure an appropriate level of information coverage, it is necessary to:

- identify journalists interested in the problems of the environment, climate and energy,
- establish personal contact with the journalists,
- prepare and give reporters a short press-release highlighting the key moments of the Sustainable Energy Days,
- from time to time, remind journalists about the program by phone or e-mail (the first time – two weeks before the event, last time – a day before it),
- provide the journalists with some sort of an information «flavour» (special appeal),
- prepare a list of photogenic energy efficient objects in the city for journalists (for example, solar collectors for a kindergarten, a boiler running on waste of wood production or agricultural residues, a «zero energy» building, etc.),
- ensure participation of well-known personalities (politicians, businessmen, teachers) in the planned events,
- arrange an opportunity to interview direct participants of the events and famous personalities (celebrities),
- provide journalists with clear information about the impact of the Sustainable Energy Days on bet-

ter understanding in the society of the problems related to sustainable energy, climate change and depletion of natural resources on the planet.

So far as the church takes a proactive public stance on pressing social issues and has great moral authority in the community, it is advisable to establish cooperation with it in terms of energy efficiency of church buildings, introduction of energy management systems and renewables there. Involvement of the ability of the church to raise public awareness in this area through preaching and by personal example can significantly enhance the overall effect of the Sustainable Energy Days.

An efficient way to get the residents interested in the Sustainable Energy Days (especially children and young people) is a chance to get some souvenir as a memento of the event. Handing out t-shirts, mugs, sports caps, bags, key rings, pencils with corresponding slogans as a gift and as a reward for winning various competitions and contests would attract potential participants much better.

After the Sustainable Energy Days have finished, it is imperative to send formal thank-you notes (letters), signed by the Mayor, to active participants of the festival. This will show that the government appreciates the efforts exerted, and it will also add warmth to formal relations, contributing to further development of mutually beneficial and fruitful cooperation.

CONDUCTING INTERNAL AUDITS OF ENERGY MANAGEMENT SYSTEMS AND MAKING NECESSARY IMPROVEMENTS



Energy management is not limited to the implementation of all the activities envisaged in the action plan, or to the achievement of goals declared in the city's energy policy. If you do not properly maintain the energy management system, it will gradually decline. In addition, life also makes corrections – new knowledge is emerging, conditions are changing and new possibilities are opening up. This makes it very important to conduct periodically an internal audit of the municipal energy management system. This will not only allow timely response to the discrepancies between what was planned and what was later carried out, but will also provide for further improvement to the system.

It should be emphasized that this audit is not related to such issues as the analysis of energy/fund savings resulting from the introduction of new equipment, the evaluation of the energy rating of buildings, etc. It has an alternative purpose, which is to check:

- whether the energy management system meets the established requirements (ideally – the international standard ISO 50001, if it is implemented in the city),
- whether the system has been effectively implemented and adequately maintained,
- whether the planned objectives are carried out,
- whether it is realistic to expect that the goals defined by the energy policy will be achieved over time.

The internal audit of the municipal energy management system evaluates both the system itself and the energy functioning of the city. It also detects successful cases and identifies places that require improvement (Note: an audit does not cover the evaluation of work of employees involved in energy management or identification of those who are to blame for the possible faults). Based on the audit results, adjustments are made in the energy management system towards improving its functioning.

The internal audit is performed by a specially trained person and several auditors can be involved. Quite often, an employee of the energy management system conducts the audit. In this case, care should be taken that the unbiased and impartial employee is involved and that the employee does not audit his/her own work. Maximum independence and quality of the internal audit can be provided by engagement of an outside professional auditor.

The audit is executed according to a predefined schedule, which must be brought to the attention of all stakeholders, so that it does not come as a surprise to anyone. While drawing up the audit schedule, the status and importance of the processes and areas to be addressed must be taken into account. The audit begins with an examination of the processes and areas associated with significant energy consumption in the city, the goals and objectives of the energy policy, the operational management and maintenance, and the ongoing improvement of energy use. The entire energy management system or specified elements (parts of it) could be subject to the audit.

The internal audit of the energy management system includes: preparation, the audit itself, reporting of its results, and follow-up (monitoring of the implementation of recommendations).

While preparing for the audit, an auditor should:

- ascertain which elements (parts) of the energy management system/process must be audited;
- determine the sources of the information required for the audit (people, documents, database, records etc.);
- make sure that people, information, and other necessary resources will be available in carrying out the audit;

- review any findings developed, and corrective and preventive measures taken after the last audit of the energy management system/process;
- prepare a checklist of what must be verified during the audit, so that nothing is overlooked.

While carrying out the audit, an auditor should:

- have an initial meeting with a person responsible for the area/process to be audited to explain the purpose of the audit, type of information needed, and the audit timeframe;
- collect and verify the objective data;
- record the findings made during the audit;
- conduct a final meeting with the person responsible for the area/process that was audited, inform him/her of the findings and discuss the measures needed to eliminate shortcomings.

While reporting the audit results, an auditor should:

- prepare and distribute the audit report;
- prepare a report with a list of agreed corrective measures.

Later, the auditor may verify whether functioning of the energy management system has improved after the corrective and preventive measures were taken.

Information required by the auditor for carrying out the audit includes:

- goals and objectives of the energy policy and action plans,
- legislation, regulations, standards and corporate agreements concerning energy use,
- procedures, records and operational control, namely:
- location of places with high energy consumption,

- legal obligations and other requirements, compliance with them,
- training in order to raise awareness and competence,
- communication (exchange of information),
- control of documents,
- control of records,
- measures in order to correct inconsistencies and prevent their repetition,
- previously conducted internal audits,
- official reports/statements concerning energy performance,
- reports on management system revision and so on.

The auditor should also verify the systems and records related to the measurement and monitoring of energy performance of municipal facilities, particularly with higher energy consumption, the relationship between energy use and factors that influence it, should compare the actual energy performance with defined goals and objectives using energy performance indicators (annual energy consumption per area unit) and key performance indicators (ratio between results achieved and resources expended).

Additionally, the auditor might verify equipment calibration records for measuring and monitoring, as well as maintenance records and records of the technical state of equipment that consumes a lot of energy.

Usually, the frequency of internal audits is once a year, but it may be different, depending on local conditions and needs. For example, if the audit is conducted in order to revise the energy policy and to adjust it to new circumstances, then it is carried out every few years. On the other hand, it might happen that there is a need for an extraordinary audit due to new management initiatives, organizational changes or changes in the respective processes.

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ANNEXES

LVIV CITY COUNCIL DOCUMENTS



UKRAINE
LVIV CITY COUNCIL
3rd session 5th calling
DECISION
Lviv

Dated December 14, 2006.

No 450

About Concept of energy management system implementation in Lviv

In order to determine the strategy of development of energy consumption professional management instruments the city council decided:

1. To approve the Concept of energy management system implementation in Lviv (attached).
2. Based on the Concept of energy management system implementation in Lviv the Economics administration should develop and submit Energy saving program in Lviv to the city council.

Deadline: January 1, 2007

Responsible: Head of Economics administration.

3. Control over decision implementation will be executed by deputy mayor for economy and social policy.

/Round seal of organizational division of executive committee of Lviv city council/

City mayor

A. Sadovyy

/Square seal of a head of organizational division "True copy of the original". Signature/

CONCEPT of energy management system implementation in Lviv

Expenses on energy sources in budget structure of Lviv are increasing due to national and worldwide trends of rising of prices for energy and energy sources. Today these expenses are second after salary as expenses of Lviv humanitarian sector and tend to further. Most of energy bought by the city is consumed in buildings used by budget organizations. Significant part of these sources is used irrationally due to old technologies and as well due to the lack of qualified management over energy sources generation and supply, as well as converting it into useful products and services.

Implementation of innovative strategy of development of local infrastructure, social sphere of the city, and local finances faces challenges on energy sources use in the city on the basis of professional management and sustainable development principles. This means that in the system of city administration there should appear a special management unit - system of energy management.

The system of energy management is a part of general management system of humanitarian and communal sectors of the city that provides rational energy sources consumption in the process of meeting the city needs in necessary energy services. Such type of management activity is supported by the city council special policy on energy sources consumptions, and also has own goals and tasks, relevant organizational structure, staff assistance, informational and financial support, special procedures in planning, implementation, and evaluation in energy use.

Goal and main tasks of the Concept

1. The goal of the Concept is to determine strategy of professional management instruments development in the field of energy sources consumption that will be provided for Lviv in the long term:

- 1.1 rational use of budget funds on energy sources;
- 1.2 optimization of energy sources consumption structure;
- 1.3 improvement of efficient use of all types of energy sources;
- 1.4 substitution of fossil fuels by renewable energy sources;
- 1.5 improvement of quality of energy services and possibilities to regulate them;
- 1.6 involvement of investments into the processes of technological upgrading and energy efficient modernization of the city infrastructure;
- 1.7 establishment of energy efficient operations of buildings, dwelling houses, central heating systems and energy generating equipment;
- 1.8 formation of economical behaviour of energy services consumer.

2. Main tasks of the Concept are choice of organizational, managerial and technological approaches for determination of long-term political priorities of the city in these issues and development of energy management system model for budget sector of Lviv.

II. Current conditions of energy sources management in Lviv

1. Energy-consuming technological approaches dominate in the field of energy use by budget institutions in Lviv today. Modern technological possibilities of buildings and systems energy efficient improvement, in particular regulation of energy consumption depending on the tasks and functions, are used in a minor way. Level of buildings, systems and equipment service is still very low. Activity on development and implementation of energy efficiency actions is of spontaneous nature. The city budget is almost the only source for energy efficiency projects implementation in the town infrastructure. There is lack of integrated energy consumption management system. The city council runs short for specialists familiar with theory and practice of energy management in public buildings. Monitoring of energy consumption is implemented on a very low level. The analysis of efficient use of energy sources is conducted, but not in rational way. All these lead not only to unnecessarily high energy losses due to outdated technologies and non-technological modes of buildings, systems and equipment operations, but also to a catastrophic decline in the energy services quality while trying to arrange energy source save.

2. In the absence of clear policy, professional specialists on energy management, information on energy consumption and factors of influence on energy consumption - it is impossible to evaluate efficiency of energy use in particular object. That is why in the period of prices raising for energy in Ukraine the only possibility to stabilize energy market through governance decisions was limitation of energy consumption. That approach, on one hand, allowed to decrease energy consumption (in particular, due to elimination of prodigality), however, on other hand, it led to quality degradation of main energy services (heating, lighting, water supply). Hence, the limitation can be considered only as a timely action on the way

to solving the problems of energy consumption management.

3. Lack of specialists in budget organizations, updated data on energy use in budget, and informational and financial instruments cause problems in energy efficient activity planning, investments into energy saving projects and further exploitation of modernized objects. In particular that leads to unreasonably high budget expenses on the stage of energy examination of budget institutions aimed to choose energy efficient actions, during tender documents preparation, organizing of technical inspection over actions implementation, admitting of executed work.

4. Implementation of several energy efficiency projects in budget institutions and housing sector of Lviv showed that modern high-tech solutions allows to save huge volume of energy (for example, heating energy consumption at Lviv residential school No 1 decreased by 40% by means of two fast-payback actions - windows weatherstripping and establishment of general building system of heating automated regulation). However, new organizational, management and technical problems appeared, because determination of problematic objects, development of technical requirements for holding of energy analysis and projecting, admitting of executed work and organization of further exploitation of high-tech equipment demand quite different level of knowledge and professional experience than we possess in budget institutions at present day. All those problems are solved by energy management.

III. Experience of European municipalities and innovative projects on energy use management at budget institutions in Ukraine

1. Today well-developed systems of energy consumption management are in Stuttgart and Frankfurt in Germany, Linz and Salzburg in Austria, Paris and Lyon in France, Verona and Modena in Italy, Barcelona in Spain, Thessaloniki in Greece, and Stockholm in Sweden. Management of energy consumption in cities is considered not only as instrument for decrease of energy consumption by budget institutions, but also as means to improvement of regional ecology parameters and municipal services quality. Some of European cities possess more than 20-year experience in energy management and have reached significant results in this field. For example, for 25 years of energy management system in Stuttgart the heating energy consumption was decreased by more than 40% in 1500 municipal buildings and 200 mln euro of budget funds were saved. Important aspect in organization of energy consumption management is continuity of the process. Three-year experiment held with a group of 65 buildings in Stuttgart showed that termination of management activity in a part of organization of rational energy consumption led to increase of energy consumption on those objects by 7,3% in relevance of base year index. Economic calculations in Stuttgart shows that investments into development of municipal energy management system have returns of about 500%, that is why development of such systems should be considered as one of the most priority tasks of municipal policy.

2. First attempts to find suitable forms of energy use management at budget institutions in Ukraine were engaged in 2003-2004 during preparation of program of energy consumption monitoring for educational institutions in Lvivska region developed with support of Alliance to Save Energy (USA). Unfortunately, the activity was not finished.

3. First real steps to complex solve of energy consumption management problems in municipal budget sphere were done just in 2005 when European Association of Municipalities "Energie Cités" in cooperation with two Ukrainian computer companies "IT-Management" and "Ivoya" started implementation of demonstrative projects on introduction of computerized monitoring systems for energy use in budget buildings in the eight pilot cities of Ukraine. The activity was performed in a frame of "Energy monitoring in local authorities of Ukraine and their equipment" Project. The project participants were the cities of Ivano-Frankivsk, Chernihiv, Lutsk, Uzhorod, Dubno, Berdyansk, Chuhuyiv (Kharkivska region), and Mykolayiv (Lvivska region). Ukrainian computer companies "IT-Management" and "Ivoya" that participated in the project on their own will and free of charge executed the most difficult technical task - development of specialized software "Energoplan". They provided holding of technical trainings on the product use. Other tasks were performed by support of "Energie- Cités" experts.

4. During implementation of monitoring system the participants of pilot cities had a wide spectrum of problems to solve:

4.1. Develop technical, informational and administrative potential of cities executive authorities, that allows organizing energy consumption monitoring in budget buildings and reasonably establish performance benchmarks for energy sources use in particular budget objects.

4.2. Accumulate necessary human, financial, technical and informational sources for task performance.

4.3. Allocate tasks and responsibilities in energy sources management system, taking into the consideration chosen technological approach for gathering and consideration of information.

4.4. Develop specialized software for effective accumulation of information on places during monitoring of energy consumption process, energy services quality and factors of influence on services providing in city budget institutions.

4.5. Teach municipal officials to use the software and with its help to prepare informational materials for decision making in effective consumption of budget sources.

5. During the project implementation in each of the pilot city a management model was developed first, then on its basis three-level administrative structure was formed ("institution - branch subdivision -

executive committee”) to execute functions of monitoring, planning and control of energy consumption in budget institutions by means of specialized software. The key person in a new administrative structure became city energy manager, an expert whose main tasks were as following:

- 5.1 coordination of management efforts of participants of a new structure;
- 5.2 optimization of city expenses on energy sources purchasing;
- 5.3 control over energy services quality.

6. Huge amount of parameters during energy processes analysis in budget building and significant number of buildings for monitoring necessitated use of new informational technologies and development of special program “Energoplan”. By means of specialized program “Energoplan” it was solved the most important task on accumulation of primary data during monitoring of energy use on a level of each budget institution and development of city joint data base in virtue of individual informational flow.

7. Use of modern informational technologies in implementation of monitoring system of energy consumption in budget institutions of pilot cities demanded intensive consultation and training assistance for program executers in the cities. Correct and timely collection of energy consumption monitoring indexes in tested budget objects and transfer of the indexes into electronic format by means of software “Energoplan” were the most difficult stages in the project implementation.

IV. Conceptual model of development of energy management system for budget institutions in Lviv

1. The city of Lviv is offered to use experience of the cities with well-developed system of energy consumption management, and Ukrainian pilot cities where demonstrational projects on establishment of computerized system of energy use management in budget area. In addition three-level system model (“institution - branch subdivision - executive committee”) appears as auxiliary component of current three-level branch scheme of budget institutions management (education, health, culture, etc.). Proposed innovations in management system will ensure integrity of energy sources consumption management and combine them with traditional management activity such as: financial management, personnel management, etc.

2. Energy consumption management system in Lviv will combine full range of tasks related to control of energy consumption and comfort conditions, planning of expenditures for energy sources, award and performance of contracts for energy supply, rational exploitation of buildings, dwelling houses, energy efficient designing, objects construction and reconstruction, investments involvement.

3. Implementation of proposed concept should become a base for development of modern energy consumption management system for budget institutions and public enterprises in Lviv, in particular it should:

3.1. Create integral city policy in relation to energy use management on the basis of sustainable development.

3.2. Form specialized energy management branch in city management system, which will be able to develop and implement the similar policy.

3.3. Involve specialists familiar with theory and practice of energy management into activity in city infrastructure.

3.4. Develop electronic database of energy facilities, tools for operational data collection and analysis of energy consumption for each facility and the factors that significantly affect energy consumption.

3.5. Develop systems to control and report on energy efficiency.

3.6. Develop instruments for motivation for energy efficient behavior of personnel and consumers.

Secretary of city council

V. Kvurt

Visa:

Acting Head of economics administration

I. Tsvilynyuk



UKRAINE
LVIV CITY MAYOR
REGULATION
city of Lviv

Dated December 21, 2006

No 1271

About development of monitoring system for energy sources consumption in institutions of education, health, and culture

For execution of executive committee decision of December 01, 2006 No 1395 "About implementation of energy management system in Lviv" and with an aim to collect information on energy consumption at institutions of education, health, and culture for analyzing factors of influence, and for control and reporting over energy sources use efficiency:

1. To appoint:

1.1 Heads of departments of education, health, and culture being responsible for implementation of energy efficiency actions at the institutions subordinated to the departments;

1.2 Heads of institutions of education, health, and culture being responsible for implementation of energy efficiency actions at appropriate institutions.

2. Until December 25, 2006 heads of department of education, department of health, and department of culture should:

2.1. According to the order appoint departments employees responsible for collecting and timely submitting of information on energy sources consumption at subordinated institutions, and include such functions into their official duties.

2.2. Send orders copies to the department of economy, including contact details of department employees responsible for collecting and submitting information on energy sources consumption.

2.3. Provide working space with computer and electronic mail for employees responsible for collecting and submitting information on energy sources consumption.

2.4. Identify places for initial information collection from institutions without computerized working space.

3. Until December 30, 2006 heads of institutions of education, health, and culture should:

3.1. According to the orders appoint employees responsible for collection and timely submitting of information on energy source consumption, and include such function into their official duties.

3.2. If possible provide working space with computer and electronic mail for employees responsible for collecting and submitting information on energy sources consumption. If there is lack of computerized working space, provide submitting of information into places determined by appropriate departments.

4. Department of economy should develop reporting form and define a term for submitting information on energy sources consumption.

Deadline: December 25, 2006

Responsible: Head of department of economy

5. Organizational and information department should:

5.1. Assure implementation of software „Energoplan” at computerized working spaces in institutions of education, health, and culture determined by departments of education, health, and culture.

Deadline: December 25, 2006

5.2. Together with departments of education, health, and culture develop schedules and organize training seminars for employees responsible for collection and submitting of information on energy sources consumption at the institutions.

Deadline: December 25, 2006

Responsible: head of organizational and information department

6. Deputy mayor on economy and social policy shall be charged by regulation implementation.

A. Sadovyy



LVIV CITY MAYOR

REGULATION
The city of Lviv

Dated JANUARY 26, 2007

No 13

About approval of plan of actions on
development of energy sources
consumption monitoring system at
institutions of education, health, and culture

For efficient implementation of energy sources consumption monitoring system at institutions of education, health, and culture, and taking into the consideration the decision of executive committee of December 1, 2006 No 1395 "About implementation of energy management system in Lviv":

1. Approve the action plan on development of energy sources consumption monitoring system at institutions of education, health, and culture (attached).
2. Department of economic policy should monitor execution of actions mentioned in paragraph 1.
3. Director of department of economic policy shall be charged by the regulation execution.

A. Sadovyy

PLAN
of actions on development of energy sources consumption monitoring system at institutions of education,
health, and culture

No	Action heading	Responsible employee	Execution period
1. Establishment of regulatory and personnel base of informational and management system			
1.1	Development of city mayor draft regulation "About development of working group on energy sources consumption monitoring system at institutions of education, health, and culture"	Department of economy	January 2007
1.2	Determination of goals and tasks dividing between working group members concerning implementation of energy sources consumption monitoring system	Department of economy	January 2007
1.3	Motivation and proposals on energy manager positions in branch departments	Department of economy, department of education, department of culture and tourism, department of health	January 2007
1.4	Appointment of employees responsible for energy use at institutions	Budget institutions (of education, culture and tourism, health)	January 2007
1.5	Development and adaptation of software and analytical instruments for initial data collection and analysis	Department of economy, department of education, department of culture and tourism, department of health	January 2007
1.6	Development of algorithms and methods for analysis of energy sources use initial data collected	Department of economy	January 2007
2. Development of electronic data bases. Energy efficient exploitation of objects through standard indicators			
2.1	Holding of electronic energy certification of budget institutions, energy systems and energy consuming equipment	Department of economy, department of education, department of culture and tourism, department of health, budget institutions	January-February 2007
2.2	Organization of data collection on compliance with sanitary and hygienic conditions in budget institutions, considering of conditions while development of electronic data bases	Department of economy, department of education, department of culture and tourism, department of health, budget institutions	Every month
2.3	Rating of buildings according to sanitary and hygienic conditions. Formulation of proposals and approval of recommended rate of thermal regime in budget institutions at non-working hours, taking into consideration specification of any object	Department of economy, department of education, department of culture and tourism, department of health, budget institutions	Every month
2.4	Organization of data collection on energy sources rates and payments for consumed energy for each building. Development of electronic data bases, buildings rating according to specific indicators of energy costs.	Department of economy, department of education, department of culture and tourism, department of health, budget institutions	Every month

2.5	Rating of buildings according to specific indicators of energy costs. Calculation of consumption standards costs for each building (taking into the consideration its role, sanitary and hygienic conditions, weather conditions and modes of use)	Department of economy, department of education, department of culture and tourism, department of health, budget institutions	Every month
2.6	Data collection on all types of energy sources consumption, development of electronic data bases	Department of economy, department of education, department of culture and tourism, department of health, budget institutions	Every month
2.7	Rating of buildings according to specific indicators of energy sources general consumption (in units of fuel). Formulation of proposals and approval of limits for energy sources consumption for each building depending on nature conditions and patterns of use	Department of economy, department of education, department of culture and tourism, department of health, budget institutions	Every month
2.8	Data collection on energy efficient actions implementation and calculation of financial efficiency actual data	Department of economy, department of education, department of culture and tourism, department of health, budget institutions	Every month
2.9	Preparation of instructions for energy efficient exploitation for each building	Department of economy, department of education, department of culture and tourism, department of health, budget institutions	April 2007
<p style="text-align: center;">3. Improvement of budget process.</p> <p>Preparation and implementation of actions on energy efficient modernization of budget objects</p>			
3.1	Formulation of proposals for technical equipment, reconstructions, repairs of fencing structures, internal engineering systems and equipment aimed to improve energy efficiency use for each building	Department of economy, department of education, department of culture and tourism, department of health, budget institutions	August 2007
3.2	Development of criteria for financial and economic evaluation of proposed jobs and actions. Choice of projects for budget buildings energy efficient modernization, and: 1) include the projects into the Program of economic and social development of Lviv for 2008; 2) develop investments projects and look for investors for the projects	Department of finances, department of economy, department of education, department of culture and tourism, department of health, budget institutions	September 2007
3.3	Performing of direct calculation of budget institutions energy needs based on forecast estimates of energy consumption in each building and each energy type rates raising in new financial year	Department of economy, department of education, department of culture and tourism, department of health, budget institutions	October 2007

Executive committee secretary

M. Lytvyniuk

Visa:

Acting head of the department
of economy

V.Tsyunyk



REGULATION

Lviv

Dated JANUARY 23, 2008

No 12

About city council executive authorities
joining to energy sources monitoring
system

For execution of executive committee decision of December 01, 2006 No 1395 "About implementation of energy management system in Lviv" and with an aim to collect information on energy consumption, for analyzing factors of influence, and for control and reporting over energy sources use efficiency:

1. To appoint the following employees to be responsible for implementation of energy efficiency actions at city council executive authorities:

- executive secretary
- director of department of housing and infrastructure
- head of financial administration of the department of financial policy
- head of "License Office"
- head of department of emergency situations and civil protection
- head of department of state registration
- head of department of historical environment protection
- head of communal property administration of department of economic policy
- head of social protection administration of department of humanitarian policy
- head of regional landscape park "Znesinnya".

2. Until January 28, 2008 heads of the city council executive authorities engaged into energy sources monitoring system should:

2.1. According to the orders appoint employees responsible for collection and timely submitting of information on energy source consumption, and include such function into their official duties.

2.2. Submit orders copies to economics division of departments of economic policy, including contact details of department employees responsible for collecting and submitting information on energy sources consumption.

2.3. Provide working space with computer and electronic mail for employees responsible for collecting and submitting information on energy sources consumption.

2.4. Together with economics division of departments of economic policy assure implementation of energy sources computerized monitoring and organize training seminars for employees responsible for collection and submitting of information on energy sources consumption.

3. Control over implementation of the regulation will be executed by first deputy mayor.

City mayor

A. Sadovyy.

"Approved"
Acting director of department
of economic policy
Lviv city council
 /signature/ M. Balash
"28" 08 2007

REGULATION
on energy management division
of economics administration of department of economic policy
in Lviv city council

1. General regulations

1.1. According to Regulations on economics administration of the department of economic policy in Lviv city council, approved by executive committee decision of October 27, 2006 No 1204 "About approval of Regulations on department of economy of Lviv city council and its structure: with changes and amendments, this Regulation defines the powers, organization and operational activity of energy management division of the department of economic policy in Lviv city council.

1.2. Energy management division (hereafter – the Division) is a structural subdivision of the economics administration (hereafter – the Administration) and the department of economic policy (hereafter – the Department).

1.3. The Division, as a structural subdivision of the Administration, is not endowed with legal personality, may not own its property, have an independent balance, acquire property and moral rights and duties, as well as act as a plaintiff or defendant in court, commercial court, and arbitration court on its behalf.

1.4. The Division is accountable to and regulated by the director of the department of economic policy, head of department of economy and deputy head of the Administration.

1.5. The Division acts in accordance to the Constitution of Ukraine, Ukrainian laws, decisions of Supreme Council, acts and regulations of the President, provisions and regulations of the Cabinet of Ministers of Ukraine, decisions of regional and city councils, regulations of Head of Lviv regional state administration and regulations of the city mayor, decisions of city council executive committee, orders of head of the Administration and director of the Department, other regulatory legal acts of state authority and local government bodies, and this regulation.

2. Competence of division

The duties of the Division include:

- 2.1. preparation of regulatory acts of city council relating to the powers of the Division;
- 2.2. support for committees and working groups activity, within the authority of energy management division, established by regulatory and administrative acts of the executive council;
- 2.3. participation in the formation of professional management arrangements in the area of energy sources consumption;
- 2.4. participation in the development of energy efficiency programs and energy efficiency for budget institutions in Lviv;
- 2.5. monitoring of energy sources consumption and control over energy efficiency in institutions subordinated to structural subdivisions of Lviv city council;
- 2.6. calculation rules (limits) for energy sources consumption in physical units and control over compliance in terms of buildings of budget institutions;
- 2.7. preparation of instructions and holding of trainings for personnel on energy efficient building exploitation and energy system in buildings;
- 2.8. data collection for preparation of projects on energy efficient building

reconstruction;

2.9. providing recommendations on special equipment and techniques purchasing in order to maintain energy efficiency at the objects.

2.10. calculation of energy consumption economy due to implementation of energy efficiency projects;

2.11. development of pre-project proposal concerning energy efficient actions on energy sources use.

3. Structure and organization of the division

3.1. The Division is governed by a head appointed and dismissed by director of the Department upon the recommendation of Administration head in the manner determined by law (according to Regulations on economics administration of the department of economic policy in Lviv city council, approved by executive committee decision of October 27, 2006 No 1204).

3.2. The Division includes energy saving sector and energy supervision sector.

3.3. Other employees of the Division are appointed and dismissed by director of the Department upon the recommendation of Administration head in the manner determined by law.

3.4. Qualification requirements for head of the Division are:

- university master or specialist degree in relevant professional direction;
- more than three-year professional experience in local government or state authority bodies on a position of specialist or more than five-year professional experience on management positions in other branches;
- postgraduate degree in management: master of public administration under relevant specialization.

3.5. Head of the Division:

- governs the Division, allocates responsibilities among employees, determines the extent of responsibility, controls the activity and bears personal responsibility for division's powers execution;
- develops projects drafts on division, duty regulations for employees, submits them for approval according to established procedure;
- ensures duties implementation and compliance with work rules by the division employees;
- cooperates with executive authorities, local self-government bodies, institutions and organizations in the performance of his/her duties;
- organizes correspondence with executive authorities, enterprises, institutions and organizations within delegated powers. According to established procedure prepares requests for free of charge statistical and operational data, reports on matters concerning the Division activity from executive authority bodies, enterprises, institutions, organizations, public associations;
- initiates development of Lviv city council regulations relating to the Division's powers;
- informs heads of departments and other executive authority bodies on issues within the powers of the Division;
- initiates holding of sessions, meetings of working groups, training courses if there is a subject for such activities;
- organizes, regulates and controls timely and of high quality consideration of request from authority bodies, public associations, enterprises, institutions and organizations, citizens on matters relating to the Division activity;
- uses all reasonable efforts to improve organization of the Division activity, submits proposals on staff appointment, dismissal and transfer, promotions and impositions of sanctions to department management, and promotes employees professional development;
- ensures compliance with Ukrainian legislation on local self-government service and

- fighting corruption, work rules, organizes document management, controls labor and operational discipline;
- submits offers on improvement of department, division and executive authorities activity;
 - engages according to established procedure scientific, consultative, public and other organizations, institutions for solving issues relating to the Division's powers.

4. Responsibilities of the Division's officials

4.1. Officials should conscientiously perform their duties, be respectful of citizens, managers and employees, comply with high communicational culture, and prevent any actions that may damage service interests or have negative effect on the reputation of city council, executive bodies and employees.

4.2. Officials bear responsibilities under applicable law. Material damage caused by illegal actions or omissions of officials during exercise of their powers, recovered in accordance with the law.

5. Financial assurance of the Division

5.1. Expenditures for the Division activity are financed through the Department of economic policy in accordance of budget.

6. Final provisions

6.1. Liquidation or reorganization of the Division is implemented under the applicable laws.

Acting head of energy management division

/Signature/

M. Bokhonko

KAMYANETS-PODILSKYI COUNCIL DOCUMENTS

Record
of consultations on theoretical and practical preparation of responsible
persons for data gathering and accumulation due to the program
“Improvement of energy sources consumption efficiency in town budget
institutions (energy management)”

No _____ of April 17, 2008

Kamyanets-Podilsky

Venue - school No17

Address: the town of Kamyanets-Podilsky

Present:

Kyrychenko B.V. -	head of department of housing and communal sector development
and energy saving.	
Mrachkovsky D.Ye.-	energy saving main specialist of the department of education and
science	
Disa Yu.Z. -	main engineer of the health department
Andrukhovych Ye.H. -	energy saving main specialist of the culture department
Komarnitska Yu.V.-	Kindergarten No21
Pablichko O.H.-	Kindergarten No21
Arkhipova S.P. -	Kindergarten No23
Popkova I.A. -	Kindergarten No15
Nazaruk N.I. -	Kindergarten No18
Havrynyova S.S. -	Kindergarten No30
Chubenko S.V. -	Kindergarten No20
Ostroushko I.V. -	Kindergarten No2
Savytska S.V. -	children polyclinic
Burzachok R.V. -	children polyclinic
Vaszylyshzna O.O. -	polyclinic No1
Nikulyak A.V. -	polyclinic No1
Smolin S.M. -	town hospital No1
Verstyuk A.V. -	town hospital No1
Sazenko A.I. -	health department
Torok O.D. -	dental care polyclinic
Romanovych V.M. -	central library
Rybchak N.M. -	museum
Ilchyk N.A. -	Educational complex No17

The training was held by PE “IT-Management” specialists - Kopets T.A.

Kopets A.A.

Time: 14.00- 17.00

Training program:

1. Consultations on primary filling of electronic data bases of budget objects with general information, implementation of program software “Energoplan”.
2. Consultations on filling of electronic data base with information on energy sources consumption over past years (2006, 2007) .
3. Index filling of energy sources consumption records in 2008.

_____	Kyrychenko B.V.
_____	Disa Yu.Z.
_____	Mrachkovsky D.Ye.
_____	Andrukhovych Ye.H.
_____	Kopets T.A.
_____	Kopets A.A.



UKRAINE
KAMYANETS-PODILSKY CITY COUNCIL
EXECUTIVE COMMITTEE



DECISION

December 2007 No 2897

About implementation
of energy management
system in Kamyanets-
Podilsky

According to the paragraph 5, article 30 of the Law of Ukraine “About local self-government”, with an aim to provide system analysis of current condition of energy sources consumption, development and implementation of energy efficiency actions and after consideration of the Concept of energy management system implementation in Kamyanets-Podilsky:

1. To approve project of the Concept of energy management system implementation in Kamyanets-Podilsky (attached).

2. To the head of the department of housing and communal services and energy saving:

2.1. To establish working group on development and implementation of energy management system program in budget institutions.

Deadline: December 28,
2007

2.2. On the basis of the Concept to develop and submit the program “Implementation of energy management system in budget institution” for consideration of the city council session.

Deadline: January 08,
2008

3. The decision to be controlled and executed by deputy city mayor Dybash V.V.

FIRST DEPUTY CITY MAYOR
ACTING EXECUTIVE COMMITTEE SECRETARY

S.BABIY
O.DEMCHUK

In pursuance of

Head of organizational and controlling department
V.KLYMENKO

/Signature/

/Stamp of Kamyanets-Podilsky city council/

CONCEPT of energy management system implementation in budget sphere of Kamyanets-Podilsky

Expenses on energy sources in budget structure of Kamyanets-Podilsky are increasing due to national and worldwide trends of rising of prices for energy and energy sources. Today these expenses are second after salary as expenses of Kamyanets-Podilsky humanitarian sector and tend to further.

Most of energy bought by the town is consumed in buildings used by budget organizations. Significant part of these sources is used irrationally due to old technologies and as well due to the lack of qualified management.

Implementation of innovative strategy of development of local infrastructure, social sphere of the town, and local finances faces challenges on energy sources use in the town on the basis of professional management and sustainable development principles. This means that in the system of town administration there should appear a special management unit – system of energy management.

The system of energy management is a part of general management system of humanitarian and communal sectors of the town that provides rational energy sources consumption in the process of meeting the town needs in necessary energy services. Such type of management activity is supported by the city council special policy on energy sources consumptions issues, and also has own goals and tasks, relevant organizational structure, staff assistance, informational and financial support, special procedures in planning, implementation, and evaluation in energy use.

Main goal and tasks of the Concept

The goal of the Concept is to determine strategy of professional management instruments development in the field of energy sources consumption that will be provided for Kamyanets-Podilsky in the long term:

- rational use of budget funds on energy sources;
- optimization of energy sources consumption structure;
- improvement of efficient use of all types of energy sources;
- substitution of fossil fuels by renewable energy sources;
- improvement of quality of energy services and possibilities to regulate them;
- involvement of investments into the processes of technological upgrading and energy efficient modernization of the town infrastructure;
- establishment of energy efficient operations of buildings, dwelling houses, central heating systems and energy generating equipment;
- formation of economical behaviour of energy services consumer.

Main tasks of the concept are choice of organizational, managerial and technological approaches for determination of long-term political priorities of the town in these issues and development of energy management system model for budget sector of Kamyanets-Podilsky.

Current conditions of energy sources management in Kamyanets-Podilsky

Energy-consuming technological approaches dominate in the field of energy use by budget institutions in Kamyanets-Podilsky today. Modern technological possibilities of energy efficient improvement of buildings and systems, in particular regulation of energy consumption depending on the tasks and functions, are used in a minor way. Level of buildings, systems and equipment service is still very low. Activity on development and

implementation of energy efficiency actions is of spontaneous nature. The town budget is almost the only source for energy efficiency projects implementation in the town infrastructure. There is lack of integrated energy consumption management system. The city council runs short for specialists familiar with theory and practice of energy management in public buildings. Monitoring of energy consumption is implemented on a very low level. The analysis of efficient use of energy sources is conducted, but not in rational way. All these lead not only to unnecessarily high energy losses due to outdated technologies and non-technological modes of buildings, systems and equipment operations, but also to a catastrophic decline in the energy services quality while trying to arrange energy source save.

In the absence of clear policy, professional specialists on energy management, information on energy consumption and factors of influence on energy consumption – it is impossible to evaluate efficiency of energy use in particular object. That is why in the period of prices raising for energy in Ukraine the only possibility to stabilize energy market through governance decisions was limitation of energy consumption. That approach, on one hand, allowed to decrease energy consumption (in particular, due to elimination of prodigality), however, on other hand, it led to quality degradation of main energy services (heating, lighting, water supply). Hence, the limitation can be considered only as a timely action on the way to solving the problems of energy consumption management.

Lack of specialists in budget organizations, updated data on energy use in budget, and informational and financial instruments cause problems in energy efficient activity planning, investments into energy saving projects and further exploitation of modernized objects. In particular that leads to unreasonably high budget expenses on the stage of energy examination of budget institutions aimed to choose energy efficient actions, during tender documents preparation, organizing of technical inspection over actions implementation, admitting of executed work.

Implementation of several energy efficiency projects in budget institutions and housing sector of Kamyanets-Podilsky: the department of education and science (establishment of autonomous module boiler in secondary school No 1, secondary school No 10, secondary school No 11, science and education complex No 13; the health department: (replacement of window blocks into metal-plastic windows in Polyclinic No 1 and children's polyclinic, establishment of metering devices of heat-carrying medium (heat meters). Those energy saving actions showed that implementation of modern high-tech solutions allowed to save significant energy sources. However, new organizational, management and technical problems appeared, because determination of problematic objects, development of technical requirements for holding of energy analysis and projecting, admitting of executed work and organization of further exploitation of high-tech equipment demand quite different level of knowledge and professional experience than we possess in budget institutions at present day. All those problems are solved by energy management.

Experience of European municipalities and innovative projects on energy use management in budget institutions in Ukraine

Today well-developed systems of energy consumption management are in Stuttgart and Frankfurt in Germany, Linz and Salzburg in Austria, Paris and Lyon in France, Verona and Modena in Italy, Barcelona in Spain, Thessaloniki in Greece, and Stockholm in Sweden. Management of energy consumption in cities is considered not only as instrument for decrease of energy consumption by budget institutions, but also as means to improvement of regional ecology parameters and municipal services quality. Some of European cities possess more than 20-year experience in energy management and have reached significant results in this field. For example, for 25 years of energy management system in Stuttgart the heating energy consumption was decreased by more than 40% in 1500 municipal buildings and

200 mln euro of budget funds were saved. Important aspect in organization of energy consumption management is continuity of the process. Three-year experiment held with a group of 65 buildings in Stuttgart showed that termination of management activity in a part of organization of rational energy consumption led to increase of energy consumption on those objects by 7,3% in relevance of base year index. Economic calculations in Stuttgart shows that investments into development of municipal energy management system have returns of about 500%, that is why development of such systems should be considered as one of the most priority tasks of municipal policy.

First attempts to find suitable forms of energy use management in budget institutions in Ukraine were engaged in 2003-2004 during preparation of program of energy consumption monitoring for educational institutions in Lvivska region developed with support of Alliance to Save Energy (USA). Unfortunately, the activity was not finished. First real steps to complex solve of energy consumption management problems in municipal budget sphere were done just in 2005 when European Association of Municipalities "Energie Cités" in cooperation with two Ukrainian computer companies "IT-Management" and "Ivoya" started implementation of demonstrative projects on introduction of computerized monitoring systems for energy use in budget buildings in the eight pilot cities of Ukraine. The activity was performed in a frame of "Energy monitoring in local authorities of Ukraine and their equipment" Project. The project participants were the cities of Ivano-Frankivsk, Chernihiv, Lutsk, Uzhhorod, Dubno, Berdyansk, Chuhuyiv (Kharkivska region), and Mykolayiv (Lvivska region). Ukrainian computer companies "IT-Management" and "Ivoya" that participated in the project on their own will and free of charge executed the most difficult technical task – development of specialized software "Energoplan". They provided holding of technical trainings on the product use. Other tasks were performed by support of "Energie- Cités" experts.

During implementation of monitoring system the participants of pilot cities had a wide spectrum of problems to solve:

- 1) develop technical, informational and administrative potential of cities executive authorities, that allows to organize energy consumption monitoring in budget buildings and reasonably establish performance benchmarks for energy sources use in particular budget objects;

- 2) accumulate necessary human, financial, technical and informational sources for task performance;

- 3) allocate tasks and responsibilities in energy sources management system, taking into the consideration chosen technological approach for gathering and consideration of information;

- 4) develop specialized software for effective accumulation of information on places during monitoring of energy consumption process, energy services quality and factors of influence on services providing in city budget institutions;

- 5) teach municipal officials to use the software and with its help to prepare informational materials for decision making in effective consumption of budget sources.

During the project implementation in each of the pilot city a management model was developed first, then on its basis three-level administrative structure was formed ("institution - branch subdivision - executive committee") to execute functions of monitoring, planning and control of energy consumption in budget institutions by means of specialized software. The key person in a new administrative structure became city energy manager, an expert whose main tasks were as following:

- 1) coordination of management efforts of a new structure participants;
- 2) optimization of city expenses on energy sources purchasing;
- 3) control over energy services quality.

Huge amount of parameters during energy processes analysis in budget building and significant number of buildings for monitoring necessitated use of new informational technologies and development of special program “Energoplan”. By means of specialized program “Energoplan” it was solved the most important task on accumulation of primary data during monitoring of energy use on a level of each budget institution and development of city joint data base in virtue of individual informational flow.

Use of modern informational technologies in implementation of monitoring system of energy consumption in budget institutions of pilot cities demanded intensive consultation and training assistance for program executers in the cities. Correct and timely collection of energy consumption monitoring indexes in tested budget objects and transfer of the indexes into electronic format by means of software “Energoplan” were the most difficult stages in the project implementation.

Conceptual model of development of energy management system for budget institutions in Kamyanyets-Podilsky

The town of Kamyanyets-Podilsky is offered to use experience of the cities with well-developed system of energy consumption management, and Ukrainian pilot cities where demonstrational projects on establishment of computerized system of energy use management in budget area. In addition three-level system model (“institution - branch subdivision - executive committee”) appears as auxiliary component of current three-level branch scheme of budget institutions management (education, health, culture, etc.). Proposed innovations in management system will ensure integrity of energy sources consumption management and combine them with traditional management activity such as: financial management, personnel management, etc.

Energy consumption management system in Kamyanyets-Podilsky will combine four directions:

1. Decrease in energy consumption at budget institutions;
2. Observance of standards of budget institutions comfort;
3. Increase of investments into budget institutions;
4. Reduction of CO₂ emissions.

“APPROVED”

Deputy city mayor

_____ **S. Babi**

« ____ » _____ **2011**

**Energy saving division
Department of housing policy, roads and infrastructure
Kamyanets-Podilsky city council**

DUTY REGULATIONS

**of head of Energy saving division
Department of housing policy, roads and infrastructure
Kamyanets-Podilsky city council**

1. General regulations

1.1. Duty regulations of a head of Energy saving division of Department of housing policy, roads and infrastructure establishes a common concepts of activity, scope of duties and main demands on their execution, rights and responsibilities of a person to hold a position of a head of Energy saving division (hereafter – head of division).

1.2. Head of division reports to director of the Department of housing policy, roads and infrastructure, specialized deputy mayor and city mayor.

1.3. Head of division is assigned to a position and dismissed with the city mayor order as required by the Law of Ukraine “About service in local self-government authorities”, other legislative instruments on local self-government service in compliance with Labor Code of Ukraine.

1.4. This position demands professional with higher education of specialist or master degree, with professional experience in state service or local self-government authorities not less than **three** years or professional experience on management positions in financial or other institutions not less than **five** years.

1.5. Head of division in his activity is governed by the Constitution of Ukraine, Laws of Ukraine, decision of the Supreme Council of Ukraine, decisions and regulations of the Cabinet of Ministers of Ukraine, Decrees and orders of the President of Ukraine, other legislative instruments of state authorities, regulations of Kamyanets-Podilsky executive authorities and decisions of the city council and its executive committee, regulations of the city mayor, duty regulations, and regulation on division.

1.6. Head of division should know and be able to apply provisions of the Constitution of Ukraine, the Laws of Ukraine “About local self-government of Ukraine”, “About public appeals”, “About information”, “About service in local government authorities”, instructions on document and paperwork management, Regulations of **executive authorities of Kamyanets-Podilsky** city council, practical application of active legislation, basis of state administration, economic, finances and law, other legislative instruments and instructive and methodological documents relevant to the division competence, principles of business etiquette, rules and standards on work safety in a proper way while exercising his/her powers.

1.7. Head of division should be fluent in the state language, able to work on computer and office equipment;

1.8. Head of division is responsible for violation of duty regulations, and work safety regulations;

1.9. Head of division should know and execute his/her official duties, know his/her rights and procedure of implementation.

2. Tasks and responsibilities

Head of division:

2.1. Has overall charge of division, organizes and provides execution of imposed tasks in accordance to Regulation on energy saving division, in a timely manner and at appropriate skill level.

2.3. Develops draft decisions of executive committee of the city council and orders of the city mayor come within the jurisdiction of the division.

2.4. Organizes collection, generalization and analysis of data on energy sources consumption and control over rational and efficient use at budget institutions and dwelling houses.

2.5. Organizes preparation of requests and appeals necessary for execution of imposed obligations for getting appropriate data from enterprises, institutions irrespective of their form of ownership, statistical authorities.

2.6. Organizes development and implementation of city energy saving programs and submits offers for development of Program of social and economic city development.

2.7. Organizes activity aimed to implement tasks and actions on state programs implementation within the jurisdiction of the division.

2.8. Uses reasonable efforts to improve division activity, submits proposals on appointments to and dismissals from offices, relocations of employees, timely career substitutions, supports employees skills development.

2.9. Observes internal labor regulations, manages document database, and observes labor and administrative discipline in good faith.

2.10. Allocates duties between division employees, assures improvement of their skill qualifications and professional growth.

2.11. On the instructions of managerial authorities performs his/her services on weekends, holidays and days-off for execution of urgent and unforeseen tasks, as well for this reason he/she can be recalled from annual or extra leave. Job on those days is paid according to acting labor legislation.

2.12. Complies with the requirements of labor safety regulations when operated at personal computer and other office equipment.

2.13. Observes household appliances and firefighting regulations.

2.14. Organizes preparation of responses on requests of state executive authorities, local state administrations, and enterprises, institutions, organizations and citizen within the jurisdiction of the division.

3. Rights

Head of division has a right to:

3.1. Enjoy rights and freedoms provided under the Constitution of Ukraine, Laws of Ukraine “About local self-government in Ukraine” and other instruments of legislation.

3.2. Social and legal protection according to his/her status.

3.3. On the instructions of managerial authorities within the limits of his/her competences represent the interests of division in other executive authorities, enterprises, institutions, organizations within the jurisdiction of the division.

3.4. Claim for financial and logistical support to execute imposed obligations and tasks.

3.5. In accordance with the applicable procedure receive information, documents and materials, necessary for fulfillment of imposed tasks, from directors of enterprises, organizations and institutions of the town.

3.6. In accordance with the applicable procedure be present at meetings and other events in the city council executive committee, state authorities, enterprises, institutions and organizations, local government authorities within the division terms of reference, and participate in issue consideration and take decisions within the limits of his/her powers.

3.7. Agree upon a leave schedule of division staff.

3.8. Remuneration of labor due to held position and conferred rank, professional experience, quality of duties discharged, and public and local government service periods.

3.9. Improve professional level under applicable laws.

3.10. Advance in rank with the regard to qualification, skills, experience, and performance of obligations through contest or other procedure required by applicable laws.

3.11. Respect to personal dignity, fair treatment and respect from a part of management, co-workers, citizens.

3.12. Free review with materials concerning him/her personally, make personal statements where necessary.

3.13. Claim official investigation in order to withdraw unreasonable on his/her opinion charge or suspect.

3.14. Healthy, safe labor conditions appropriate for high productive activity, assurance of premises, furniture, office appliances and other equipment in the limits of financing.

3.15. Submit proposals to annual labor safety agreement (collective agreement).

4. Responsibilities

4.1. In accordance of Labor code of Ukraine, Law of Ukraine “About service in local self-government authorities” head of division bears responsibilities for:

- violation of labor discipline;
- non-fulfillment or improper fulfillment (untimely, low grade, etc.) of obligations and tasks;
- nonperformance or dishonest use of provided rights;
- state official ethics rules breaking and state service limits violation.

5. Relationships

5.1. Cooperates with other structural subunits of Kamyanets-Podilsky city council executive committee, public enterprises and organizations, budget institutions and enterprises within the jurisdiction of the division.

5.2. Head of division in fixed terms gets information, prepares draft documents, and submits them in a timely manner.

Director of Department of housing policy,
roads and infrastructure

Seredyuk S.M.

Read and understood

Lyahutko Yu.A.

«____» _____ 2011

“APPROVED”

Deputy city mayor

_____ **S. Babiy**

« ____ » _____ **2011**

**Energy saving division
Department of housing policy, roads and infrastructure
Kamyanets-Podilsky city council**

DUTY REGULATIONS

**of main specialist of Energy saving division
Department of housing policy, roads and infrastructure
Kamyanets-Podilsky city council**

1. General regulations

1.1. Duty regulations of a main specialist of Energy saving division of Department of housing policy, roads and infrastructure establishes a common concepts of activity, scope of duties and main demands on their execution, rights and responsibilities of a person to hold a position of a main specialist of Energy saving division (hereafter – main specialist of division).

1.2. Main specialist of division reports to head of division, director of the Department of housing policy, roads and infrastructure, specialized deputy mayor and city mayor.

1.3. Main specialist of division is assigned to a position and fired with city mayor order as required by Law of Ukraine “About service in local self-government authorities”, other legislative instruments on local self-government service in compliance with Labor Code of Ukraine.

1.4. This position demands professional with higher education of specialist or master degree, with professional experience in state service or local self-government authorities not less than one year or professional experience on management positions in financial or other institutions not less than three years.

1.5. Main specialist of division in his activity is governed by the Constitution of Ukraine, Laws of Ukraine, decision of the Supreme Council of Ukraine, decisions and regulations of the Cabinet of Ministers of Ukraine, Decrees and orders of the President of Ukraine, other legislative instruments of state authorities, Regulations of Kamyanets-Podilsky executive authorities and decisions of the city council and its executive committee, regulations of the city mayor, duty regulations, and regulation on division.

1.6. Main specialist of division should know and be able to apply provisions of the Constitution of Ukraine, the Laws of Ukraine “About local self-government of Ukraine”, “About public appeals”, “About information”, “About service in local government authorities”, instructions on document and paperwork management, Regulations of executive authorities of Kamyanets-Podilsky city council, practical application of active legislation, basis of state administration, economic, finances and law, other legislative instruments and instructive and methodological documents relevant to the division competence, principles of business etiquette, rules and standards on work safety in a proper way while exercising his/her powers.

1.7. Main specialist of division should be fluent in the state language, able to work on computer and office equipment.

2. Tasks and responsibilities

Main specialist of division:

2.1. Provides execution of imposed tasks in accordance to Regulation on energy saving division, in a timely manner and at appropriate skill level.

2.2. Participates in development of draft decisions of executive committee come within the jurisdiction of the division.

2.3. Organizes collection, generalization and analysis of data on energy sources consumption and control over rational and efficient use in budget institutions and dwelling houses.

2.4. Participates in preparation of requests and appeals necessary for execution of imposed duties for getting appropriate data from enterprises, institutions irrespective of their form of ownership, statistical authorities.

2.5. Participates in organizing, development and implementation of city energy saving programs and submitting of offers for development of Program of social and economic city development.

2.6. Holds activity aimed to implement tasks and actions on state energy efficiency programs implementation.

2.7. Participates in preparation of energy saving and natural sources rational use recommendation to the city council and its executive committee.

2.8. Cooperates with other executive committee structural subunits, public enterprises and organizations, budget institutions and enterprises within the jurisdiction of the division.

2.9. Observes internal labor regulations, manages document database, and observes labor and administrative discipline in good faith.

2.10. Приймає участь у розроблені енергозберігаючих заходів на будівлі.

2.11. On the instructions of head of the division performs his/her services on weekends, holidays and days-off for execution of urgent and unforeseen tasks, as well for this reason he/she can be recalled from annual or extra leave. Job on those days is paid according to acting labor legislation.

2.13. Performs other instructions of head of division within the jurisdiction of the division.

2.14. Complies with the requirements of labor safety regulations when operated at personal computer and other office equipment.

2.15. Observes household appliances and firefighting regulations.

2.16. Participates in preparation of responses on requests of state executive authorities, local state administrations, and enterprises, institutions, organizations and citizen within the jurisdiction of the division.

3. Rights

Main specialist of division has a right to:

3.1. Enjoys rights and freedoms provided under the Constitution of Ukraine, Laws of Ukraine “About local self-government in Ukraine” and other instruments of legislative.

3.2. Social and legal protection according to his/her status.

3.3. On the instructions of managerial authorities within the limits of his/her competence represent the interests of division in other executive authorities, enterprises, institutions, organizations within the jurisdiction of the division.

3.4. Receive financial and logistical support to execute imposed obligations and tasks.

3.5. In accordance with the applicable procedure receive information, documents and materials, necessary for fulfillment of imposed tasks, from directors of enterprises, organizations and institutions of the city.

3.6. In accordance with the applicable procedure be present at meetings and other events in the city council executive committee, state authorities, enterprises, institutions and organizations, local government authorities within the division terms of reference, and participate in issue consideration and take decisions within the limits of his/her powers.

3.7. Remuneration of labor due to held position and conferred rank, professional experience, quality of duties discharged, and public and local government service periods.

3.8. Improve professional level under applicable laws.

3.9. Advance in rank with the regard to qualification, skills, experience, performance of obligations through contest or other procedure required by applicable laws.

3.10. Respect to personal dignity, fair treatment and respect from a part of management, co-workers, citizens.

3.11. Free review with materials concerning him/her personally; make personal statements where necessary.

3.12. Claim official investigation in order to withdraw unreasonable on his/her opinion charge or suspect.

3.13. Healthy, safe labor conditions appropriate for high productive activity, assurance of premises, furniture, office appliances and other equipment in the limits of financing.

3.14. Submit proposals to annual labor safety agreement (collective agreement).

4. Responsibilities

4.1. In accordance of Labor code of Ukraine, Law of Ukraine “About service in local self-government authorities” main specialist of division bears responsibilities for:

- violation of labor discipline;
- non-fulfillment or improper fulfillment (untimely, low grade, etc.) of obligations and tasks;
- nonperformance or dishonest use of provided rights;
- state official ethics rules breaking and state service limits violation.

5. Relationships

5.1. Main specialist of division reports directly to and gets instructions from head of energy saving division, director of Department of housing policy, roads and infrastructure, and deputy mayor on housing and public sector.

5.2. Main specialist of division in fixed terms gets information, prepares draft documents, and submits them in a timely manner.

Head of energy saving division

Lyahutko Yu.A.

Read and understood
main specialist of energy saving division

Ivachev A.Yu.

« ____ » _____ 2011

DOLYNA CITY COUNCIL DOCUMENTS



UKRAINE
DOLYNA CITY COUNCIL
IVANO-FRANKIVSKA REGION
sixth council
(fifth session)

DECISION

Dated March 04, 2011. № 108-5/2011
the town of Dolyna

**About Regulation on department
of energy efficiency, investments
and municipal development**

By reference to the decision of the city council of January 18, 2011. No 87-4/2011 “About structure and staff schedule of the city council” and based on part 4 art. 54 of the Law of Ukraine “About local self-government in Ukraine”, the city council

D E C I D E D:

To confirm regulation on department of energy efficiency, investment and municipal development of the city council (attached).

City Council Secretary

Viktor Hoshylyk

APPROVED:
by the city council decision
of March 4, 2011. No 108-5/2011

REGULATION
on department of energy efficiency, investment and municipal development of the
city council

I. General Regulations

1.1. Department of energy efficiency, investment and municipal development of the city council (hereafter – the department) is a structural subdivision of the city council developed with its decision. The department is accountable to and regulated by the city council, executive committee and the city mayor.

1.2. The department acts in accordance to the Constitution of Ukraine, Ukrainian laws, acts of the President and the Cabinet of Ministers of Ukraine, regulatory legal acts of ministries and agencies, decisions of the city council and its executive committee, regulations of the city mayor, Policy of quality, demands of quality management system ISO 9001:2008, and in accordance to these Regulations.

II. Structure

2.1. Department of energy efficiency, investment and municipal development is governed by a head appointed on a competitive basis and fired by the city mayor.

2.2. Structure and number of the department personnel is confirmed by the city council on the suggestion of the city mayor.

2.3. The department personnel are appointed on a competitive basis and fired by the city mayor.

2.4. Department of energy efficiency, investments, and municipal development personnel have standard staff passes.

III. Main functions and tasks of the Department

3.1. The aim of the department activity is to promote stable development of the town through involvement of additional financial resources into social and economic development, to improve its investment and tourist attractiveness, to implement energy efficiency principles and to establish cooperation with foreign partners.

3.2. The main tasks of the department of energy efficiency, investments, and municipal development are as following:

- development and promotion of local investment projects and programs implementation;
- improvement of the town investment attractiveness, development and promotion of investment products;
- promotion of extra-budgetary resources involvement into strategic projects implementation aimed to develop social and economic development of the town;

- support for long-term implementation of Sustainable Development Strategy in the area of energy consumption and promotion of energy efficiency and energy saving principles in the town;
- establishment of cooperation with national and foreign partners in the field of municipal development with the aim of common implementation of development projects.

3.3. According to imposed tasks the department:

- presents proposals for the city mayor, city council session and executive committee concerning possibilities for involvement of extra-budgetary and investment resources for the town social and economic development;
- determines and conducts an assessment of potential external resources (international donors and projects, governments, etc.) and conditions to the receipt of funds for implementation of municipal investment projects;
- informs interested legal and private persons about priority directions of investments activity in the town, administers informational services for potential investors;
- provides studying, generalization and implementation of leading foreign and national experience in investment activity;
- conducts permanent monitoring of available resources for involvement of international technical assistance grants and funds;
- in cooperation with non-government organizations, executive authorities, other agencies and organizations and by agreement with the city mayor prepares application forms for receiving international technical assistance grants for implementation of the town social and economic development projects;
- provides the town participation in resources disposition of state special purpose funds and programs, prepares relevant projects, requests, conceptions;
- coordinates cooperation between the city council, non-government organizations, executive authorities, other private and legal persons with the aim of implementation of investment programs and projects in the town;
- provides short- and long-term planning and implementation of actions aimed to achieve long-term goals of the Sustainable Development Strategy in the area of energy consumption;
- conducts planning, monitoring and analysis of energy consumption at budget institutions that are financed from the town budget;
- develops preliminary technical and economic grounds for certain actions or projects aimed to reduce the consumption of traditional energy sources and promote alternative energy sources use;
- develops and submits requests, investment projects and applications to international technical assistant funds, all-Ukrainian and regional target programs for energy efficiency actions implementation in the town;
- holds informative campaign in the town on necessity of rational energy consumption and environment protection;
- coordinates the cooperation between the town and foreign and national agencies in the terms of sustainable energy efficient development, ensures common projects implementation;
- provides the development of promotional materials (as well in foreign languages), investment projects presentations, public disclosure through mass media;
- develops and implements unified style of promotional material of the town;

- within its power coordinates and controls international and interregional relations of the city council;
- provides quality representation of the town, its investment, tourist and business possibilities at various regional, all-Ukrainian and international events;
- within its power cooperates with state executive authorities, local self-government authorities, donor organizations and diplomatic missions of foreign countries;
- prepares draft decisions of the city council, its executive committee, regulations of the city mayor;
- develops and submits to the city council annual programs in terms of the Department competence, ensures actions implementations, and reports on the results;
- ensures timely consideration of appeals, letters and proposals of private and legal persons;
- the Department may execute other tasks imposed by the city council governance.

IV. Rights of the Department

4.1. The Department has a right:

- to involve specialists from other structural subunits, enterprises, agencies and organizations, public communities (by agreement with their management) for questions consideration;
- according to established procedure to receive information, documents and other materials necessary for tasks implementation from other structural subunits, enterprises, agencies and organizations;
- to carry out control over enterprises, agencies and organizations compliance with the requirements of legislation and normative acts competent to the Department;
- according to established procedure to call sessions on issues competent to the Department.

V. Responsibilities of the Department

5.1. The Department is absolutely responsible for execution of liabilities mentioned in unit 3 of the present Regulations.

VI. Management of the Department

6.1. The Department is governed by a head appointed and fired by the city mayor in accordance with active legislation.

The Department head governs the Department activity, bears personal responsibility for execution of its tasks, determines functions and responsibility level of the Department personnel, organizes and control tasks implementation.

VII. Cooperation with other authorities

7.1. During execution of the tasks imposed to the Department it cooperates with other structural subunits, local ministries organizations and other central executive authorities, as well as with enterprises, agencies, organizations and civic communities.

Executive Committee Secretary

Svitlana Sapetna



**UKRAINE
DOLYNA CITY COUNCIL
IVANO-FRANKIVSKA REGION**

REGULATION

Dated October 12, 2009. № 86
the town of Dolyna

**About establishing of the Council on energy efficiency
under the Dolyna city mayor**

Based on items 2, 19, 20 part IV of Article 42 of the Law of Ukraine “About local self-government in Ukraine”, Law of Ukraine “On energy saving”, complex state energy saving program accepted by the resolution of Cabinet of Ministers of Ukraine of February 05, 1997 No 148 and Strategy of sustainable development in the terms of energy consumption in Dolyna for 2009-2020:

1. To establish the Council on energy efficiency under the Mayor of Dolyna.
2. To appoint the Council on energy efficiency (Annex 1).
3. To confirm Regulation “On the Council on energy efficiency under Dolyna city mayor” (Annex 2).
4. The Council on energy efficiency to gather for the first constitutive meeting on September, 9, 2009.
5. Volodymyr Smoliy shall be charged with supervising of execution of this regulation.

City mayor

/Signature/

Volodymyr Harazd

/Round seal of executive committee of Dolyna city council/

Annex 1
to the Regulation of the City Mayor
of October 12, 2009, No 86

COMPOSITION
of the council on energy efficiency under Dolyna city mayor

Harazd Volodymyr Stepanovych	- City Mayor, President of the Council;
Novoselskyy Maksym Mykhaylovych	- Deputy City Mayor, Deputy President of the Council;
Smoliy Volodymyr Vasylyovych	- Category I Specialist of Economic Department of the City Council, City Council Secretary;
Kizyma Oleksandr Romanovych	- Director of Association “Dolyna Business Centre”;
Spodar Volodymyr Stepanovych	- Head of Educational Department of Dolyna District State Administration;
Nastavna Halyna Vasylivna	- Head of Economic Group of Educational Department of Dolyna District State Administration;
Hanush Valentyna Petrivna	- Methodist of Educational Department of Dolyna District State Administration;
Kotsan Halyna Ivanivna	- Methodist of Educational Department of Dolyna District State Administration;
Harazd Myroslav Stepanovych	- the City Council member;
Cherpak Volodymyr Leonovych	- Director of building company LLC “Vlad-Plus”;
Romanets Oksana Romanivna	- Head of housing cooperative “Zatyshna oselya na Nezalezhnosti 2”.

City mayor

/Signature/

Volodymyr Harazd

/Round seal of executive committee of Dolyna city council/

PROVISION
about the Council on energy efficiency under the Dolyna city mayor

1. General terms

1.1. The Council on energy efficiency under the Dolyna city mayor (hereafter – the Council) is a permanent agency under the city council.

1.2. It is established with the aim to develop policy framework for energy efficiency improvement in all aspects of economic management in Dolyna through common discussion of challenges and prospects in this field, search of new ways to solve them and making recommendations for the town governance, and management of enterprises and agencies of all forms of ownerships and submission.

1.3. For achieving the aim the Council cooperates with businesses located in the town (budget institutions, communal enterprises, suppliers of energy services, civic and housing communities, funds, businesses, and initiative citizens).

1.4. Representatives of the city council and its executive agencies, educational and industrial spheres, businesses, non-government organizations and housing communities form the Council.

1.5. The Council activity is governed by existing law and current Provision.

2. Goals of the Council activity

2.1. The main goals to be implemented by the Council are:

- to promote project implementation aimed to improve efficiency of energy sources consumption in the town, to decrease general level of traditional energy consumption and to use widely alternative and renewable energy sources;
- to establish close cooperation with international technical assistance funds through preparation and discussion of project proposals aimed to implement the Strategy of sustainable development in terms of energy consumption in Dolyna for 2009-2020;
- to create conditions for implementation of sustainable development principles in the town through active engagement of all segments of citizens, representatives of educational institutions, non-government organizations and businesses in a dialog with local government agencies;
- to develop effective mechanism of town citizens participating in energy efficiency issues.

3. Competence of the Council

3.1. Advisory competence of the Council includes:

- identifying and comprehensive discussion of challenges and possibilities for implementation of energy efficiency improvement actions in the town;
- comprehensive discussion and choice of optimum policy options for support and development of integral and effective promoting system for energy efficiency sustainable development of all social and economic spheres of the

town life;

- drawing up recommendations concerning additional approaches, goals and tasks for current program documents in the terms of energy efficiency and sustainable development of the town;
- development and approval of short- and middle-term Action Plans for effective implementation of the Strategy of sustainable development in the terms of energy consumption in the town;
- support for maximum implementation of annual energy efficiency Action Plans through relevant organizational decisions of advisory nature;
- consideration, addition and approval of investment proposals and project applications for technical funds assistance, credit and other donor funds related to implementation of energy efficiency improvement actions in the town.

4. *Powers of the Council*

4.1. The Council in the course of its activity:

- represents interests of town community concerning energy efficiency issues;
- develops proposals for improvement of conditions for common project implementation on energy efficiency issues;
- according to established procedure contributes suggestions to project applications related to energy efficiency actions in the town, and approves them in whole;
- draws up recommendations for improvement of energy efficiency projects implementation.

5. *The Council activity arrangement*

5.1. The main form of the Council activity are the meetings called on a quarterly basis or as required by the city mayor.

5.2. The Council meeting is led by the chairman, in his absence – by the deputy.

5.3. The Council meeting is legitimate if not less than half of the Council members are present.

5.4. Admitting of new members of the Council and exclusion of present ones is hold in a form of open vote for relevant candidature.

5.5. Number of the council member staff has no limits.

5.6. The Council Decision is approved by a simple majority vote of present Council members and is documented by a protocol.

City mayor

Volodymyr Harazd



UKRAINE
DOLYNA CITY COUNCIL
IVANO-FRANKIVSKA REGION
fifth council
(thirty fourth session)

DECISION

Dated May 08, 2009. No 1313-34/2009
the town of Dolyna

**About Strategy of sustainable development
in the terms of energy consumption
in Dolyna for 2009-2020**

After hearing and consideration of the Strategy of sustainable development in the terms of energy consumption in Dolyna for 2009-2020 and based on the Law of Ukraine “About local government in Ukraine”, the city council

D E C I D E D:

To approve the Strategy of sustainable development in the terms of energy consumption in Dolyna for 2009-2020 (attached).

City mayor

Volodymyr Harazd

*Approved:
with the decision of the city council
of May 8, 2009. No 1313-34/2009*

Strategy of sustainable development in the terms of energy consumption in Dolyna for 2009-2020

Taking into consideration the following facts:

- the town of Dolyna represented by city mayor, city council members and territorial community realize lack of systemic approach for use and control of energy consumption, what leads to increase of its consumption and correspondingly expenses for it;
- integration of Ukraine into European community, in particular, provides for energy efficiency and energy savings EU standards;
- today about 70% of all energy sources are consumed in Ukrainian towns; and towns are the foundation of energy security in region in particular and in the state all in all;
- with present-day conditions energy efficiency development actions should be initiated not by central state executive authority, but by local government in towns that are direct representatives of interest of territorial communities;
- necessity for reduction of man-caused impact on nature, in particular, greenhouse gas emission by industrial infrastructure, housing, communal and budget sector is one of the principles for effective implementation of the town strategic development – to save and develop recreation potential

the Strategy of sustainable development in the terms of energy efficiency is developed; the Strategy is main document that identifies aim, goals and means to achieve town sustainable energy efficiency in fixed period.

The aim of the Strategy is to achieve sustainable development in the terms of energy consumption in Dolyna.

For achievement the aim the following tasks should be completed:

1. Development of integral and effective town organizational system for energy sources consumption management based on sustainable development.
2. Implementation of energy saving and energy efficiency improvement principles in all fields of economic management.
3. Arrangement of pre-conditions for legal and private persons interested in implementation of modern technologies for energy sources use.
4. Building of energy saving awareness among citizens.
5. Revision of current energy consumption systems, renovation and implementation of innovative technologic decisions and approaches in the terms of traditional energy consumption.
6. Implementation of newest technologic decisions and approaches based on use of non-traditional and renewable sources in energy consumption structure.

Implementation of settled tasks will make possible for the town to reach the following goals:

Until 2020:

- to reduce energy consumption in housing, communal and budget spheres by 20%;
- to increase the share of non-traditional and renewable energy sources to 20% in the town consumption structure;
- to reduce greenhouse gas emission by 20% by the whole town infrastructure (including transport).

1. Current state of energy saving and pre-conditions for implementation of the Strategy of sustainable development in the terms of energy consumption in Dolyna for 2009-2020

Today the town of Dolyna belongs to the category of towns that prevail in Ukraine – towns where energy saving potential is not in use or is used in the least.

In the terms of energy consumption most buildings in Dolyna use energy expense technologic approaches. Modern methods, in particular regulation of energy consumption in relation to volume and kinds of executed activity, are used rarely. Activities on energy expense optimization are of non-systemic and spontaneous character. Buildings service, system and equipment maintenance are still at a low level. Awareness of heads of institutions and organizations and inhabitants is less oriented to consumption reduce. There is lack of integral system of monitoring, analysis and motivation of actual energy volume consumption by town institutions and organizations. All these lead to unreasonably high consumption due to the depreciation of buildings, systems and equipment, and to reduction of energy services quality due to administrative attempts to decrease the consumption.

The main barriers, that prevent supply of balanced sustainable development of energy efficiency in the town, are:

- energy consumption approaches in all spheres of economic management are generally based on old stereotypes that absolutely serve no purpose of new time;
- law awareness in modern energy saving technologies in industrial, household and civic sectors;
- absence of energy use management system in the town infrastructure;
- lack of available funds for energy saving actions implementation;
- absence of local regulatory regime in the terms of current energy use and stimulation to save traditional energy and use of alternative energy.

Today the town possesses a variety of preconditions for the Strategy implementation. First of all, that is unanimous recognition by municipal authority of all energy saving challenges and prospects. In regulation there are program instruments for automatization of activity of collection and analysis of information about energy consumption in controlled facilities. Finally, the town declared its commitment to energy efficiency improvement with its joining the Association of Energy Efficiency Cities of Ukraine. The town can benefit from consultative support of the Association, and European Association of Municipalities “Energie-Cites”.

2. Main approaches to sustainable development achievement in the terms of energy consumption in Dolyna.

Taking into the consideration the principles of assigned tasks, existing pre-conditions and barriers, the Strategy should be implemented on the following approaches in-parallel:

Approach 1 – Energy management implementation on administrative level.

Approach 2 – Raising public awareness and competence of civil servants responsible for energy use.

Approach 3 – Decrease general level of traditional energy consumption in housing, budget and communal spheres in the town.

Approach 4 – Increase the share of traditional and renewable energy sources use.

The coordination of authority, community and businesses efforts plays an important role. Each of the four approaches contains a range of actions, successful implementation of which leads to the achievement of the Strategy main aim. This will allow reaching the level of European standards of energy consumption in the town in the nearest future.

3. List of actions for implementation of the Strategy of sustainable development in the terms of energy consumption according to the main approaches.

3.1 Energy management implementation on administrative level.

Systemic approach for use and control on energy consumption in the town should be formed through the following range of actions:

- development of specialized department or energy management experts group in the town governance infrastructure;
- development of enterprise for energy audit holding on a base of present communal enterprise or as separate facility;
- preparation of energy saving actions program for each calendar year, appropriate Regulations and other regulatory documents on energy expenses management in the town;
- development of monitoring system for energy consumption by budget and communal buildings in the town directly subordinated to the city council;
- establishment of cooperation with other state authority and local self-government bodies aimed to form a system of monitoring for energy consumption in buildings on the territory of the town, but not subordinated to the city council;
- involvement and use of automated program instruments for collection, systematization and analysis of information about energy consumption in the town buildings;
- account management of energy sources optimal consumption by budget and communal town institutions and approval of consumption limits;
- development of system of motivation for the town institutions staff and management to consume energy in rational and economic way;

- control and monitoring over compliance with limits, entering correctives if needed.

3.2 Raising public awareness and competence of civil servants responsible for energy use.

Informational and educational activity is the most important element in the structure of all actions aimed to increase energy efficiency. If the relation to energy consumption remains unchanged, all other technical actions cannot assure accomplishment of identified goals.

In this approach the activity includes the following actions:

- ensuring all town institution workers are informed about energy consumption level in their buildings and consumption efficiency level;
- encouragement of residents of condominiums and other buildings to reduce energy use in the residential sector in the form of material and moral incentives;
- educational and methodical work in educational institutions and early childhood education institutions (by means of optional classes, competitions with prizes from the city council, preparation of visual materials with a list of rules of energy efficient behaviour for children at home and at school). Selection of the best children's decisions and support their participation in national and international competitions;
- monitoring of the best and well-executed decisions that lead to energy saving and its promotion;
- raising of energy saving awareness by means of thematic sessions of presentations and movies showing;
- participation in all-Ukrainian and international thematic projects and programs;
- holding systematic educational actions among relevant target groups on following directions:
 - 1) ways to achieve energy efficiency in apartments housing sector;
 - 2) ways to decrease energy expenses in private housing sector;
 - 3) energy efficiency achievement in administrative and budget buildings;
 - 4) path of energy efficiency development in industry sector;
- maintenance of thematic column in local mass media dedicated to energy efficiency actions implementation.

3.3 Decrease general level of traditional energy consumption in housing, budget and communal spheres in the town.

3.3.1 Budget and communal sectors.

Top priority goal of the Strategy is to achieve high level of energy consumption efficiency in budget institutions. This sector is under direct management and control of local authority and should demonstrate energy efficiency example to other businesses.

Main energy efficiency actions in budget institutions and communal enterprises are:

- performance of an audit aimed to create energy passports of budget institutions buildings based on deep energy expertise, inventory of energy source equipment and identification of problem areas in the terms of energy consumption of particular buildings;
- starting using of electrical energy interval meters in communal and budget institutions in the town;
- promotion of rational energy sources use by means of integrated production of electrical and heating energy (cogeneration);
- development of project proposals aimed to decrease energy sources use;
- execution of planned activity, in particular: replacing of current old energy-consuming equipment to a new more energy efficient one; expense optimization by means of timers, temperature control sensors; replacing incandescent bulbs with low power demand and energy-efficient ones; replacing old sanitary ware, pipe insulation; minimizing energy loss by sealing window constructions, insulation of walls, floors, attics, floors of buildings;
- adjusting equipment service system;
- development of project proposals and submission of bids for other budget institutions on the territory of the town, but not subordinated to the city council;
- modernization of street and yard lightings, using of energy efficient lighting.

3.3.2. Apartments housing sector.

The town housing and communal sector consists mainly of buildings built industrially, where energy saving technologies are either not used at all or used insufficiently. Just such buildings are leaders of irrational consumption. Making them energy efficient is a main priority of the Strategy in this field.

The term energy sanitation is used for definition of set of activities aimed to improve energy efficiency of housing sector.

The list of actions of sanitation of apartments housing sector of the town:

- performance of scaling analysis (energy audit) aimed to identify desired degree of sanitation and modernization of dwelling houses of various types;
- development of matrix “action/expenses” for analyzed buildings, determination of value for particular actions and general value of sanitation of apartment. Matrix should become basis for decision taking concerning actions of support from local authority;
- implementation of capital works identified with matrix for every house:
 - thermal insulation of the whole house, new facade;
 - thermal insulation of roofs, basement and roofing premises;
 - modernization of heating system, new radiators in apartments, devices for heat regulation and monitoring;

- replacement of window constructions;
- new ventilation system;
- maintenance and renovation of stairs on inter-floor sites;
- modernization of lighting of public places.

3.3.3 Current industrial production.

Holding of energy saving actions generally is among desires and understanding of the management, the town cannot have influence directly on their implementation. In such situation other branches of the town where actions have been already held with concrete results can become a stimulating example for industry.

The town can have influence on energy saving of industrial institutions by means of development and implementation of energy sources consumption rate for manufactured goods unit and holding control over following the limits.

3.3.4 New industrial production and new residential construction.

The town may have small influence on already existing industrial institutions, however, it can efficiently regulate following of energy efficiency standards during building of new industrial institutions and new buildings of housing sector.

In such case among instruments of influence there can be development of package of demands for building new industrial facilities and other buildings on the territory of the town, implementation of motivation system for investors and developers to use energy efficient technologies in building.

3.3.5 Transport.

To hold the following actions in transport sector:

- making research and study of possibilities to transfer public transport to electric traction. If the research results are positive – to develop project and implement transferring of public transport to electric power;
- submitting proposals and take part in development of common project on transferring intercity transport to electrical power;
- decrease of use of private automobile transport in the town by means of projecting and construction of bicycle track network;

3.3.6 Local infrastructure development.

Construction of integrated local public electrical supply network.

3.4 Implementation and use of alternative energy sources.

Activity on implementation and use of energy sources in the town contains the following actions:

- Studying of methods and possibilities to use some of alternative energy sources in particular conditions of the town and relevant objects.
- Replacement of current boiler equipment designed for one traditional source into integrated that allows using both traditional and alternative energy sources.

- Promotion to establish small wind power-generating constructions in private housing sector by means of guaranteeing and partial repayment of loans.
- Making research and study of possibilities to use available capped oil wells in the town as heat source.
- Establishment (new construction or reconstruction of existing building) in the town of demonstrative and education and training Centre of energy efficiency technologies.
- Establishment of main or supplementary (in addition to existing) heating system that works by means of heat extraction from environment (heat pump) in budget institutions.
- Cooperation with international partners and technical assistance donors with aim to develop projects of “passive house” building on the territory of the town.

4. Financing of Strategy implementation.

Energy efficiency actions should be financed by:

- local budget, funds allowed for implementation of annual Program of actions;
- funds received by means of energy saving due to energy consumption level decrease;
- international and national funds that support energy efficiency initiatives;
- budgets of other levels (district, region, national);
- international technical assistance;
- sponsor support;
- condition of co-financing;
- national target programs.

Final Provisions.

The Strategy is developed and serves for identification of priority approaches of activity of the city council, enterprises, institutions and organizations, town community to achieve high level of energy efficiency of all facilities that consume energy sources in the town.

The Strategy is a ground for development of local strategies and plans of energy efficiency technologies and actions on particular objects, buildings, housing sectors, quarters, etc.

The Strategy is planned until 2020.

The Strategy actions implementation level should be estimated every year in a form of report on executed actions on energy efficiency in the town during relevant year. The report is been prepared by city council energy management experts during a month after reported year.

Changes and supplements to the Strategy can be submitted not more frequently than once a year with the city council decision.

The Strategy enters into force on the date of approval.

DOCUMENTS OF SUSTAINABLE ENERGY DAYS IN LVIV



Sustainable Energy Days Action Programme in Lviv (project)

Thursday, November 4

Time	Location	Action	Responsible person (city)	Consultant (EECU)
12p.m.- 1.40p.m	Secondary general education school № 72	Sykhivskyy district school conference	energy manager	O. Harasevych
10a.m.- 11.40a.m	Secondary general education school № 9	Halytskyi district school conference	energy manager	O. Harasevych
1p.m.- 2.40p.m.	Secondary general education school № 6	Lychakivskyy district school conference	energy manager	O. Harasevych
2p.m.- 3.40p.m.	Lviv specialized secondary school 'Nadiya'	Frankivskyy district school conference	energy manager	O. Harasevych
3p.m.- 4.40p.m.	Secondary general education school № 97	Shevchenkiivskyy district school conference	energy manager	O. Harasevych
11a.m.- 12.40p.m	Secondary general education school № 77	Zaliznychnyy district school conference	energy manager	O. Harasevych

Friday, November 5

Time	Location	Action	Responsible person (city)	Consultant (EECU)
9a.m.-3p.m.	Big session hall in Lviv city council (Rynok sq. 1)	International seminar 'Covenant of Mayors and its Implementation in Ukraine' (in a frame of the project 'Two Countries – One Program of Energy Saving')	N. Hudz, V. Horban	A. Kyrchiv
3p.m.-5p.m.	Komarova str.	Excursion to the school 'Arnika', performance of the school 'Nadiya'	V. Horban	O. Harasevych
9.30a.m.-6p.m.	Lviv city council (Rynok sq. 1)	Exhibition 'Good Energy' (in a frame of the project 'Two Countries – One Program of Energy Saving')	N. Hudz, V. Horban	A. Kyrchiv
9.30a.m.-6p.m.	Lviv city council (Rynok sq. 1)	Exhibition of GTZ Agency and projects in Lviv	N. Hudz, V. Horban	A. Schirru-Nowicka
9.30a.m.-6p.m.	Lviv city council (Rynok sq. 1)	Exhibition of passive houses projects by G.Hauser (Austria)	N. Hudz, V. Horban	A. Schirru-Nowicka
10a.m.-6p.m.	Inner yard of Lviv city council (Rynok sq. 1)	Exhibition of companies-manufacturers of energy efficient equipment	N. Hudz, V. Horban	O. Harasevych
10a.m.-6p.m.	CSTEI (V.Chornovola av.)	Permanent exhibition of energy efficient equipment	O. Mukha, CSTEI	A. Yaniv
12p.m.-3p.m.	Small hall at the Dovzhenko cinema (Sykhiv, Chervonoyi Kalyny av.)	Free of charge demonstration of movies 'Inconvenient Truth' and Home'	Sykhivska district administration	A. Kyrchiv
3.15p.m.-5.15p.m.	Chemical department of Ivan Franko LNU (Kyryla I Mefodiya str., Big chemical lecture hall)	Reports of speakers and demonstration of movie 'Inconvenient Truth' / 'Home' in Ivan Franko LNU Speakers: A.Kopets, EECU executive director; I.Vyshyvanyy, Lviv city council; representative of Ivan Franko LNU; representative of British Embassy in Ukraine	V. Horban, LNU rectorate	A. Kyrchiv
		Reports of speakers and demonstration of movie 'Home' in NU 'Lviv Polytechnic'	V. Horban, NU LP rectorate	O. Harasevych
		Speakers: A.Kopets, EECU executive director; I.Vyshyvanyy, Lviv city council; representative of NU 'Lviv Polytechnic'; Armin Wagner (GTZ, Germany); Gerhard Hauser, architect (Austria)		
		Reports of speakers and demonstration of movie 'Home' in Lviv National Forestry and Wood-Technology University Speakers: O.Harasevych, EECU; representative of Lviv city council; representative of FU; representative of British Embassy in Ukraine	V. Horban, FU rectorate	O. Harasevych
4.30p.m.-6.30p.m.	UCU administration building (17, Syventsitskoho str., 4 floor)	Reports of speakers and demonstration of movie 'Home' in UCU Speakers: Dr.A.Yaniv, EECU SIM; representative of UCU; Armin Wagner (GTZ, Germany)	V. Horban, UCU rectorate	A. Kyrchiv
7p.m.-10p.m.	Rynok sq. 1	Non-stop demonstration of video-clips on energy efficiency issues (clips from EC, 'Display' Campaign)	N. Hudz, V. Horban	A. Kyrchiv
7p.m.-10p.m.	Dovzhenko cinema (Sykhiv, Chervonoyi Kalyna av.), open air	Non-stop demonstration of video-clips on energy efficiency issues (clips from EC, 'Display' Campaign)	Sykhivska district administration	A. Kyrchiv
7p.m.-11p.m.	Halytska sq.	Monuments light-diode illumination	N. Hudz	O. Harasevych

Saturday, November 6

Time	Location	Action	Responsible person (city)	Consultant (EECU)
9a.m.- 3.30p.m.	Church of Nativity of the Blessed Virgin (Chervonoyi Kalyny av., Sykhiv)	Conference 'Sustainable Energy Development as a New Prospect for Society and Church'	Sykhivska district administration, LA UGCC	A. Yaniv
12p.m.- 4p.m.	Small hall at the Dovzhenko cinema (Sykhiv, Chervonoyi Kalyny av.)	Free of charge demonstration of movies 'Inconvenient Truth' and Home'	Sykhivska district administration	A. Kyrchiv
4p.m.- 5p.m.	Small hall at the Dovzhenko cinema (Sykhiv, Chervonoyi Kalyny av.)	Concert of Ukrainian singers O.Smyk and V.Samayda	Sykhivska district administration	A. Kyrchiv
12p.m.- 5p.m.	Lviv city council (Rynok sq. 1)	Exhibition 'Good Energy' (in a frame of the project 'Two Countries – One Program of Energy Saving')	N. Hudz, V. Horban	A. Kyrchiv
12p.m.- 5p.m.	Lviv city council (Rynok sq. 1)	Exhibition of GTZ Agency and projects in Lviv	N. Hudz, V. Horban	A. Schirru-Nowicka
12p.m.- 5p.m.	Lviv city council (Rynok sq. 1)	Exhibition of passive houses projects by G.Hauser (Austria)	N. Hudz, V. Horban	A. Schirru-Nowicka
10a.m.- 6p.m.	Inner yard of Lviv city council (Rynok sq. 1)	Exhibition of companies-manufacturers of energy efficient equipment	N. Hudz, V. Horban	O. Harasevych
12p.m.- 2p.m.	H.Khotkevych cinema (str.)	Children drawing contest and best energy manager awarding ceremony, concert of Ukrainian singers O.Smyk and V.Samayda	V. Horban	A. Kyrchiv
7p.m.- 10p.m.	Rynok sq. 1	Non-stop demonstration of video-clips on energy efficiency issues (clips from EC, 'Display' Campaign)	N. Hudz, V. Horban	A. Kyrchiv
7p.m.- 10p.m.	Dovzhenko cinema (Sykhiv, Chervonoyi Kalyny av.), open air	Non-stop demonstration of video-clips on energy efficiency issues (clips from EC, 'Display' Campaign)	Sykhivska district administration	A. Kyrchiv
7p.m.- 11p.m.	Halytska sq.	Monuments light-diode illumination	N. Hudz	O. Harasevych

<i>Time</i>	<i>Event form</i>	<i>Participants</i>	<i>Summary</i>
<i>November 2</i>	<i>Announcement on press-conference holding</i>		
	<i>News on Sustainable Energy Day in the city of Lviv</i>		
<i>November 3</i> <i>(first half of the day)</i>	<i>Press-conference</i>	<ul style="list-style-type: none"> <i>Representative of Association of Energy Efficient Cities of Ukraine</i> <i>Representative of Lviv City Council (I.Kulynych)</i> 	Introducing the Energy Day events program Information on Municipal energy plan development
<i>November 4</i>	<i>TV-plot</i>		Energy Days holding at city schools + children drawings contest awards
	<i>News</i>		Come-off as the first day-off
<i>November 5</i>	<i>TV-plot</i>	<i>Comment by O.Synyutka (I.Kulynych) + international expert</i>	Taking photos of the event + comments of the participants
	<i>News</i>		Come-off as the second day-off

*For the attention of mass media
For immediate release*

Press-announcement, November 2, 2010

Energy Days in Lviv

On November 4-6 various actions dedicated to Sustainable Energy Days in a frame of cooperation between Lviv city council and Association 'Energy Efficient Cities of Ukraine' will be held in Lviv. Organization of similar actions is a must for all European cities that signed the Covenant of Mayors and were obliged to reduce consumption of nonrenewable energy sources and carbon dioxide emissions by 20%, and increase the share of renewable energy sources use to 20% until 2020.

One of the main tasks of each Covenant signatory is the development and submission of a Sustainable Energy Action Plan (SEAP). The achievements of Lviv will be presented during one-day seminar 'Covenant of Mayors: Polish, Ukrainian and European Experience' **on November 5, 2010 at 10 a.m. in big session hall of Lviv city council**. The seminar will be held in a frame of Energy Days in Lviv and common Ukrainian-Polish project 'Two Countries – One Program of Energy Saving' being implemented by EECU in cooperation with Association of Municipalities 'Polish Network 'Energie Cités''. The project is being financing by 'Polish Aid' program of Ministry of Foreign Affairs of the Republic of Poland. The exhibition 'Good Energy', presentations of achievements and best practices of Ukrainian and Polish cities-signatories, the exhibition stands 'Energy Efficient Technologies / Passive House', 'Energy Efficient Restoration of Historical Windows', 'Transport Solutions' (German Agency for International Cooperation), 'Passive Building in Austria (architect Gerhard Hauser) will be presented in the program of seminar.

Besides this, in a frame of Energy Days there will be held district school conferences on energy efficiency challenges in every district of Lviv, students forums in Ivan Franko LNU, NU 'Lviv Polytechnic' and NFUU, conference 'Energy Efficiency as a New Prospect for Society and Church', free of charge demonstration of movie 'Home' and other actions. The detailed program is added.

On November 3 at 1.15 p.m. in Small session hall of Lviv city council the press conference on Sustainable Energy Days in Lviv will be held. Iryna Kulynych, the economy department director, and Anatoliy Kopets, the Association EECU director, will take part in the press conference.

For further information, please address to Andriy Kyrchiv, the Association EECU deputy director:

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Energy Days in Lviv 4-6 November 2010

School district conferences 'Energy Efficiency of School Buildings and Educational Role in its Improvement', November 4, 2010

Objection:

- To inform heads of district educational departments and schools, and school parent committees on:
 - Lviv energy strategy until 2020 in a frame of Covenant of Mayors,
 - current status of energy supply for schools and efficient of energy consumption there, present challenges,
 - school educational potential to form conscious and active energy efficient behavior of pupils
- To identify own possibilities and reserves for improvement of energy conditions at schools
- To reach a decision on development of school energy teams represented by all interested parties (pupils, teachers, school administration, parents committee), and subordinated directly to district energy managers

Participants:

Heads of district educational departments
District energy managers
Directors of district schools
Deputy Directors of district schools
Members of parents committees of district schools
Representatives of Ecologic Club 'Eremurus' (international school educational project on Energy efficiency SPARE)
Representatives of energy management division of Lviv city council

Venue (the best district school depend on energy efficiency):

Halytskyy district (19 schools) – Secondary school № 9 (40 Kopernika str.)
Zaliznychnyy district (18 schools) – Secondary school № 77 (7a Vyhovskoho str.)
Sykhivskyy district (21 school) – Secondary school № 72 (1 Zubrivska str.)
Lychakivskyy district (21 schools) – Secondary school № 6 (22 Zelena str.)
Frankivskyy district (22 schools) – Specialized school 'Nadiya' (60 Naukova str.)
Shevchenkiivskyy district (25 schools) – Secondary school № 97 (18 Mykolaychuka str.)

Time:

10 a.m. – Halytskyy district
11 a.m. – Zaliznychnyy district
12 p.m. – Sykhivskyy district
1 p.m. – Lychakivskyy district
2 p.m. – Frankivskyy district
3 p.m. – Shevchenkiivskyy district

Moderators of the conferences – heads of educational departments of district administrations:

Harmatiy Yuriy Petrovych – Halytskyy district
Voronyak Roman Mykhaylovych – Zaliznychnyy district
Matkovskyy Andrian Anatoliyovych – Sykhivskyy district
Koziy Oksana Ivanivna – Lychakivskyy district
Danylenko Oksana Mykhaylivna – Frankivskyy district
Synytska Halyna Yaroslavivna – Shevchenkiivskyy district

Conference program (example)

- Lviv energy strategy until 2020. Current status of energy supply for schools and efficient of energy consumption there.
District energy manager (30 min)
- Proven experience of school-leader on energy efficient consumption in the district
Director of school holding the conference (15 min)
- International school educational project on Energy efficiency SPARE
Representatives of Ecologic Club 'Eremurus' (15 min)
- Discussion, making proposals concerning improvement of 'energy' consciousness and energy efficiency in schools
Those who wish (30 min)
- Decision making on coordinating of all interested parties – development of energy teams at schools, summarizing
District energy manager (10 min)

Attention!

Be sure to set Display posters from all schools of the district during 2008 and 2009 at the conference.



Energy Days in Lviv **4-6 November 2010**



Program of Students Forum 'Energy-City-Me' in National University 'Lviv Polytechnic'

**University assembly hall, 12 S.Bandery str.
2.20 p.m., November 5, 2010**

Welcome speeches

Save the Planet within the City

Anatoliy Kopets, the executive director of Association 'Energy Efficient Cities of Ukraine'

About energy strategy of Lviv until 2020

Andriy Muzychak, the teaching assistant at department of city industrial power supply and agriculture, National University 'Lviv Polytechnic'

Ihor Vyshyvanyy, the main specialist at energy management department, Lviv city council

Passive house – green alternative to traditional buildings

Gerhard Hauser, the architect, Austria

Green campuses as polygon for technical innovations and students creative input

Roman Zinchenko, Green Cubator, Kyiv

Renewable wind and solar energy for private buildings electricity supply

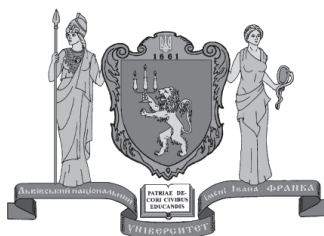
Oleksandr Turlenko, the teaching assistant at Institute of Power Engineering and Control Systems, department of electric drive and automation of industrial installations, National University 'Lviv Polytechnic'

At the end of the Forum – demonstration of Yann Arthus-Bertrand's movie 'Home'

EVERYBODY WHO CARES ABOUT FUTURE OF OUR CIVILIZATION AND PLANET IS WELCOME



Energy Days in Lviv 4-6 November 2010



Program of Students Forum 'Energy-City-Me' in Ivan Franko Lviv National University

Big chemical lecture hall of the university, 6 Kyryla I Mefodiya str.
3.20 p.m., November 5, 2010

Welcome speeches

Promoting energy efficiency in Ukraine: Why it matters?

Niall Cullens, the First Secretary on energy policy, head of trade section of the British Embassy in Ukraine

Save the Planet within the City

Anatoliy Kopets, the executive director of Association 'Energy Efficient Cities of Ukraine'

About energy strategy of Lviv until 2020

Andriy Muzychak, the teaching assistant at department of city industrial power supply and agriculture, National University "Lviv Polytechnic"

Ihor Vyshyvanyy, the main specialist at energy management department, Lviv city council

Metallides as the basis of new energy-saving materials

Professor Hladyshevskyy R.Ye., Doctor of Chemistry; Associated professor Zarembo V.I.; Professor Kalychak Ya.M., Doctor of Chemistry; Professor Kotur B.Ya., Doctor of Chemistry; Professor Pavlyuk V.V., Doctor of Chemistry; Lead research specialist Stadnyk Yu.V., Doctor of Chemistry – Ivan Franko LNU

Hydrogen as fuel of the future

Lead research specialist Zavaliy I.Yu., Doctor of Chemistry – Physico-Mechanical Institute NAS of Ukraine

Ecologically clean biofuel

Associated professor, candidate of physical and mathematical sciences Halazyuk V.A.; Professor Sulym H.T., candidate of physical and mathematical sciences Turchyn I.M. – Ivan Franko LNU

At the end of the Forum – demonstration of Yann Arthus-Bertrand's movie 'Home'

EVERYBODY WHO CARES ABOUT FUTURE OF OUR CIVILIZATION AND PLANET IS WELCOME



Energy Days in Lviv **4-6 November 2010**



Program of Students Forum 'Energy-City-Me' **in National Forestry and Wood-Technology University of Ukraine**

Lecture hall №30 in building №6, 114 Generala Chuprynky str.
3.30 p.m., November 5, 2010

Welcome speeches

Through cities to the world rescue

Oleh Harasevych, the expert, Association 'Energy Efficient Cities of Ukraine'

Passive house – green alternative to traditional buildings

Volodymyr Prusak, associated professor, head of design department, National Forestry and Wood-Technology University of Ukraine, Andriy Volvach, magister of design, Dmytro Hrynevych, magister of design

Promoting energy efficiency in Ukraine: Why it matters?

Niall Cullens, the First Secretary on energy policy, head of trade section of the British Embassy in Ukraine

At the forefront of education about energy efficiency and energy saving in Lviv: achievements of the National Forestry and Wood-Technology University of Ukraine

Viktoriya Oliferchuk, the associated professor of department of ecology, National Forestry and Wood-Technology University of Ukraine

Green campuses as polygon for technical innovations and students creative input

Roman Zinchenko, Green Cubator, Kyiv

About energy strategy of Lviv until 2020

Andriy Muzychak, the teaching assistant at department of city industrial power supply and agriculture, National University "Lviv Polytechnic"

Ihor Vyshyvanyy, the main specialist at energy management department, Lviv city council

At the end of the Forum – demonstration of Yann Arthus-Bertrand's movie '**Home**'

EVERYBODY WHO CARES ABOUT FUTURE OF OUR CIVILIZATION AND PLANET IS WELCOME



Program of the seminar
'Two Countries – One Program of Energy Saving'
Lviv, 05.11.2010

Time	Event
9:30	Registration of participants
10:00 – 10:20	Welcome speech from Anatoliy Kopets, the executive director of Association 'Energy Efficient Cities of Ukraine' (EEC) Welcome speech from Zbigniew Michniowski, the president of Association of Municipalities Polish Network 'Energie Cités' Welcome speech from Oleh Synyutka, the first deputy mayor of Lviv
10:20 – 10:30	'Covenant of Mayors: Ukrainian and Global Context' <i>Speaker: Anatoliy Kopets, the executive director of EEC</i>
10:30 – 10:50	'Covenant of Mayors: Implementation in Lviv. Presentation of MEP' <i>Speaker: V.Horban, acting Head of energy management department in Lviv city council</i>
10:50 – 11:00	'Covenant of Mayors: Implementation in Dolyna' <i>Speaker: V.Smoliy, the executive secretary of Dolyna city mayor</i>
11:00 – 11:10	'Covenant of Mayors: Implementation in Zhmerynka' <i>Speaker: V.Harvanko, the head of economic department of Zhmerynka city council</i>
11:10 – 11:20	'Covenant of Mayors: Implementation in Kovel' <i>Speaker: D.Leskiv, the advisor of Kovel city mayor</i>
11:20 – 11:30	'Covenant of Mayors: Plans for Implementation in Mohyliv-Podilskyy' <i>Speaker: V.Mostovyk, the energy manager in Mohyliv-Podilskyy city council</i>
11:30 – 11:40	'Covenant of Mayors: Implementation in Lutsk' <i>Speaker: Oleksandr Dey, the energy manager in Lutsk city council</i>
11:40 - 12:00	Coffee break
12:00 – 12:30	'Covenant of Mayors: Experience of Bielska-Biala, Presentation of SEAP' <i>Speaker: Zbigniew Michniowski, the vice-president of Bielsko-Biala city, president of PNEC</i>
12:30 – 12:45	'Covenant of Mayors: Experience of Dzierzoniow'

	<i>Speaker: Zygmunt Kuc, the head of Dzierzoniow city engineering department</i>
12:45 – 13:00	'Covenant of Mayors: Experience of Bielawa' <i>Speaker: Witold Runowicz, the head of Bielawa technical infrastructure office</i>
13:00 – 13:15	'Covenant of Mayors: Best Practices of Poland' <i>Speaker: Marcin Lojek, the director of PNEC project</i>
13:15 - 13:30	'Covenant of Mayors: Best European Practices' <i>Speaker: Anna Jaskula, the deputy director of PNEC project</i>
13:30 – 14:00	Discussion, final conclusions
14:00 – 14:45	Lunch (restaurant 'Zoloty Vepr')*

*for registered participants

After the lunch participants are invited to visit school 'Arnika', where solar energy collectors are set. Pupils of the school 'Nadiya' will play a performance. Other Energy Days actions in Lviv will be visited.



SUSTAINABLE ENERGY DEVELOPMENT AS NEW PROSPECT FOR SOCIETY AND CHURCH

Conference • Lviv • Saturday, November 6, 2010

Venue:

Hall in the Church of Nativity of the Blessed Virgin, UGCC

Lviv-Sykhiv, 1 Ivana Pavla II sq., (70 Chervonoyi Kalyny av.)

Moderator :

Andriy Yaniv, CIM-expert, Program and project manager of the Association 'Energy Efficient Cities of Ukraine'

9:30-10:00	Registration of participants
10:00-10:20	Welcome speeches Vasyl Kosiv, Deputy mayor of Lviv on humanitarian policy issues rev.Orest Fredyna, pastor of the Church of Nativity of the Blessed Virgin UGCC in Lviv Ivan Lozynskyy, Head of Sykhivska district state administration in Lviv
10:20-10:40	Sustainable energy development as guarantee of stable development of community Anatoliy Kopets, the executive director of Association 'Energy Efficient Cities of Ukraine'
10:40-11:10	Presentation of Action plan of sustainable energy development of Lviv Ihor Vyshyvanyy, the main specialist at energy management division, Lviv city council Andriy Muzychak, the associated professor in National University "Lviv Polytechnic"

11:10-11:30	Coffee break
11:30-11:50	Sustainable energy development from a perspective of Christianity Bohdan Pankevych, Honorary Consulate of the Kingdom of the Netherlands in Lviv
11:50-12:10	Energy management system as an instrument of efficient management of energy sources Ihor Bryhilevych, the expert of Center for the Study of Local Self-Government
12:10-13:40	Lunch
13:40-14:10	Successful implementation of energy efficient projects in church milieu 13:30-13:45 Experience gained in practical use of alternative energy sources in town living (through the example of parish of All the Saints of Ukrainian people) rev.Volodymyr Olshanetsky, administrator of All the Saints Church of Ukrainian people, 13:45-14:00 Implementation of energy saving projects by Redemptorists rev.Mykola Bychok, the provincial provisor of Order of Most Holy Redeemer UGCC
14:00-14:10	Christianity as world outlook basis for new approaches in energy problems solutions Marko Kalynyak, the head of academic community 'Obnova', scientist
14:10-15:00	Discussion – Development of energy management system in church structures Anatoliy Kopets, the executive director of Association 'Energy Efficient Cities of Ukraine' rev.Volodymyr Onyskiv, Lviv Archdiocese of UGCCi Ihor Bryhilevych, the expert of Center for the Study of Local Self-Government Vasylyna Horban, the head of energy management department of Lviv City Council rev. Volodymyr Olshanetsky, administrator of All the Saints Church of Ukrainian people



Press-release, November 9, 2010

Sustainable Energy Days Have Been Held in Lviv for the First Time

On November 4-6 the Sustainable Energy Days were held for the first time in Lviv within the framework of implementation of Covenant of Mayors, organized jointly by the Lviv city council and the Association 'Energy Efficient Cities of Ukraine'. The aim for the cities-participants of this voluntary agreement initiated by the European Commission is to reduce by 2020 in more than 20% of energy consumption and CO2 emissions, and exceed 20% share of energy derived from renewable sources. Today more than European cities have signed the Covenant of Mayors including 20 Ukrainian cities.

On November 4, Energy Days started with district school conferences on energy efficiency issues. This day heads of district departments of education, school directors or their representatives, members of parents committees and pupils self-government committees, and those wishing to participate gathered in each of six districts of Lviv in one of the selected schools (Secondary school №9 in Halytskyi district, Secondary school №6 – in Lychakivskyy, Secondary school №77 – in Zalichnyy, Specialized school 'Nadiya' – in Frankivskyy, Secondary school №72 – in Sykhivskyy, Secondary school №97 – in Shevchenkiivskyy). The building energy certification campaign "Display" posters of all district schools were set at the halls. The participants of conferences could compare the conditions of the buildings and places where educational process is conducted. During this day the energy manager of district departments of education, representatives of EECU, municipal authority, as well representatives of ecological club 'Eremurus' from Kyiv performed the presentation of international school educational project on Energy efficiency SPARE.

One of the main tasks of each Covenant signatory is the development and submission of a Sustainable Energy Action Plan (SEAP). The achievements of Lviv were presented during one-day seminar 'Covenant of Mayors: Polish, Ukrainian and European Experience' held on November 5, 2010 since 10 a.m. till 2 p.m. in big session hall of Lviv city council. The seminar was held in a frame of common Ukrainian-Polish project 'Two Countries – One Program of Energy Saving' being implemented by EECU in cooperation with Association of Municipalities 'Polish Network 'Energie Cités''. The project is being financing by 'Polish Aid' program of Ministry of Foreign Affairs of the Republic of Poland. The participants were welcomed by Iryna Kulynych, the economy department director; Anatoliy Kopets, the Association EECU director; Zbigniew Michniowski, the vice-president of European Association 'Energy Cities', vice-president of Bielsko-Biala city. The achievements in 'Covenant of Mayors' were presented by representatives of Lviv. Kovel and Zhmerynka. Other three cities – Mohyliv-Podilskyy, Lutsk and Dolyna – could not have been represented due to external circumstance. As well Polish guests addressed to the seminar participants – representatives of Polish cities Bielsko-Biala, Niepolomice, Dzierzoniow and Bielawa, and Anna Jaskula, the deputy director of PNEC project, and Marcin Lojek, the director of PNEC

project. After lunch the participants visited school 'Arnika', where energy efficient technologies are used, and could watch fixed equipment and performance 'Teplynka' presented by pupils of school 'Nadiya'.

During the seminar an exhibition 'Good Energy' (presentation on roll-up stands of the achievements of 20 Ukrainian and Polish cities-signatories of Covenant of Mayors) has been performed in Lviv City council hall. The exhibition after two week performance in the city council hall will be performed in Ukrainian cities-participants in mentioned above project. The same exhibition in Polish has been performed in Polish cities-signatories.

The organizers of Energy Days pass their special thanks to German Society for Technical Cooperation for providing the review of the exhibition stands projects 'Transport Solutions', 'Passive House' and 'Energy Efficient Restoration of Historic Windows'. The last mentioned project aroused great interest as participants were able not only to watch the stands, but as well on real objects – buildings in the central part of the city where the project is being implemented – to see how skilful combination of restoration techniques with modern materials can significantly improve the energy-saving potential of ancient building without distorting its original 'face'. Of great interest as well was a stand 'Passive Building in Tyrol' by Austrian architect Gerhard Hauser. The author of the stand had an opportunity to speak to students of NU 'Lviv Polytechnic'. Citizens were able to visit permanent exhibition of energy efficient equipment open to visitors in CSTEI on 63 Chornovola str.

The same day within the framework of Energy Days the students forums 'Energy-City-Me' took place in I.Franko LNU, NU 'Lviv Polytechnic' and NFWTU where MEP of Lviv was presented. At these forums representatives of EECU and Lviv city council, scientists from the corresponding universities, First Secretary of Embassy of Great Britain in Ukraine Nial Cullens with the presentation 'Promoting Energy Efficiency in Ukraine: Why it Matters?' took floor.

Three-day marathon was finished with the conference 'Energy Efficiency as New Prospect for Society and Church' hold in conference hall of Church of Nativity of the Blessed Virgin in Sykhiv on November 6. Church pastor rev.Orest Fredyna, head of Sykhiv district administration Ivan Lozynskyy, and Advisor to Lviv city mayor, honorary Consul of the Netherlands in Ukraine Bohdan Pankevych welcomed the participants. Executive director of EECY Anatoliy Kopets presented a report 'Save the Planet within the City', and main specialist at energy management department of Lviv city council Ihor Vyshyvanyy presented MEP of Lviv. After that the discussion was moderated by CIM-expert of EECU Andriy Yaniv.

During Energy Days all citizens of Sykhiv district could watch free of charge demonstration of Yann Arthus-Bertrand's movie 'Home' in O.Dovzhenko cinema. The movie in a very accessible and persuasive form tells about the past and future of our planet and the threats that humanity creates with thoughtless and careless attitude towards nature.

For further information, please, contact Andriy Kyrchiv, the deputy director of EECU:
Phone. +38 032 2455262, mobile. +38 050 3708891, e-mail: akyrchiv@enefcities.org.ua

Attention!: on Lviv City Council letterhead

Dear....

On behalf of Lviv city council let us express sincere appreciation for in a frame of the first Energy Days hold in our city in a partnership with Association of Energy Efficient Cities of Ukraine in November 4-6, 2010! With Your significant contribution into the preparation and holding of such an important action in context of our city commitments according to Mayors Agreement, the citizens of Lviv could have got acquainted with efficient use of energy sources, possibilities of renewable energy sources and environment and climate protection, have understood how important for the whole mankind it is to involve the newest scientific and technologic achievements for this purpose, as well as the need of change of their own attitude towards energy efficient consumption.

Along with words of appreciation let us express the hope for further fruitful cooperation in our common activity of energy effective and saving use and improve the living standards of citizens of Ukraine!

Best regards,

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**List of gratitude for participation in
Sustainable Energy Days preparation and holding in Lviv**

No	Recipient	Activity
1	School 'Nadiya'	Meeting of the First Secretary of the British Embassy, contest participants awards, performance of students for participants of international seminar 'Two Countries – One Program of Energy Saving'
2	School-organizers of district conferences	Organizing and holding of school district conferences
3	School 'Arnika'	Reception of participants of the international seminar 'Two Countries – One Program of Energy Saving'
4	National University 'Lviv Polytechnic', separately – Zenoviy Kohut, the lecturer at NU LP	Organizing and holding of Forum 'Energy-City-Me' Excursion for participants of international seminar 'Two Countries – One Program of Energy Saving'
5	National Forestry and Wood-Technology University of Ukraine	Organizing and holding of Forum 'Energy-City-Me'
6	Ivan Franko Lviv National University	Organizing and holding of Forum 'Energy-City-Me'
7	UGCC Archdiocese	Co-organizing and holding of the conference 'Sustainable Energy Development as New Prospect for Society and Church'
8	rev.Orest Fredyna, pastor of the Church of Nativity of the Blessed Virgin	Co-organizing and holding of the conference 'Sustainable Energy Development as New Prospect for Society and Church'
9	Roman Zinchenko, GreenCubator, Kyiv	Speech at three Forums 'Energy-City-Me'
10	Olena Melnikova, Eremurus, Kyiv	Presentation for participants of school conferences
11	Florian Lammeyer, GTZ, Kyiv	Providing stands for exhibition 'Energy Efficient Technologies/Passive House'
12	Iris Gleichmann, GTZ, Lviv	Exhibition stand and 'Open Door Day' in a frame of the project 'Energy Efficient Restoration of Historical Windows'
13	Svitlana Nazar, GTZ, Lviv	Project stand 'Systems of Sustainable Transport and Sustainable Mobility'
14	Gerhard Hauser, architect, Austria	Stand 'Passive House in Tyrol', speech at the Forum 'Energy-City-Me'
15	Niall Cullens, the First Secretary on energy policy, head of trade section of the British Embassy in Ukraine	Presentation of the report 'Energy Efficiency Promotion in Ukraine: Why is it important?' at the Forum 'Energy-City-Me'
16	Christine Durbak, Chair of World Information Transfer, USA	Giving the set of 6 last numbers of WIT magazine as gifts to all Lviv schools
17	Bohdan Pankevych, the Honorary Consulate of the Kingdom of the Netherlands in Lviv	Speech at the conference 'Sustainable Energy Development as New Prospect for Society and Church'