



## Action Plan for the city of Katowice





## Part I – General information

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Project:	Low carbon urban morphologies - MOLOC
Partner organisation(s) concerned :	Główny Instytut Górnictwa (GIG)
Country:	Poland
NUTS2 region:	Śląskie
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## Part II – Policy context

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- The Action Plan aims to impact:**
- ☐ Investment for Growth and Jobs programme
  - ☐ European Territorial Cooperation programme
  - X** **Other regional development policy instrument**

**Name of the policy instrument(s) addressed:**

**Low-carbon Economy Plan for the City of Katowice 2014-2020 (LCEP)**

### **Further details on the policy context and the way the action plan should contribute to improve the policy instrument**

#### **INTRODUCTION**

The transformation towards a low-carbon economy can take many forms and directions depending on the region in which it takes place. Katowice is located in an industrialized, highly urbanized region with a high population density, in a temperate climate. Historically, the strong development of the region was associated with the industrial revolution, extraction of natural resources such as hard coal, zinc ore, lead, development of heavy industry, iron, steel, zinc, lead, coal energy. Since the 90s of the last century, the region has undergone a significant economic transformation related to the reduction of heavy industry participation, the closure of many mines, employment reduction in industry, as well as negative social effects.

The quality of the environment in Upper Silesia has significantly improved as a result of the transformation. However, continuous work is currently underway in the region to implement further changes aimed at developing a low-carbon economy, including reduction of energy consumption, increasing energy efficiency, and reducing greenhouse gas emissions. The city of Katowice joined the MOLOC project to identify the weaknesses of the policy instrument - Low-carbon Economy Plan for the city of Katowice and take actions to overcome obstacles related to the implementation of the low carbon economy.

Low carbon economy plan is a strategic document, which specifies strategic objectives and detailed plans for reaching the low carbon economy on a local level. The following objectives were formulated in the Low Carbon Economy Plan for the City of Katowice:

- Low-carbon economic growth combined with meeting the needs of society.
- Vision of the city of Katowice as an area managed in a sustainable and ecological way.



- Limiting pollution emissions from installations used in the city, as well as from transport, aimed at meeting air quality standards.
- Increasing the use of energy from renewable sources.
- Increasing the efficiency of energy use / generation.
- Development of an innovative economy based on knowledge and modern technologies.
- Improvement of spatial order, development of sustainable public space, as well as revitalization of degraded areas.

Taking into account the current state of the city of Katowice, the objectives of the Low Carbon Economy Plan and the experience gained during the implementation of the MOLOC project, the Action Plan contains two activities:

- 1. Development of a comprehensive model to implement a system of energy consumptions monitoring (BMS) of public buildings**
- 2. Creation of an information point (Municipal Energy Center, MCE)**



## CONTEXT - PROBLEMS AND BARRIERS TO THE DEVELOPMENT OF A LOW CARBON ECONOMY IN THE CITY OF KATOWICE

During the implementation of the MOLOC project, with the help of Energy Cities, a local analysis of barriers constituting an obstacle to the development of low-carbon economy was carried out in all partner cities: Lille (France), Turin (Italy), Hamburg (Germany), Katowice (Poland) and Suceava (Romania).

Analysis of the context of the city of Katowice and Poland, including the analysis of the current state, law and procedures in the template developed by Energy Cities allowed to identify important factors that block or slow down the development of low-carbon economy and require change. During the analysis of barriers, numerous conversations were conducted, during which individual barriers, procedures in force at the City Hall, practices applied and actions taken were discussed. The barriers were discussed with employees of the City of Katowice's energy department, as well as with stakeholders, experts and representatives of the Local Energy Policy Committee during meetings of the MOLOC stakeholder group.

Due to the analysis and comparison with other partner cities, it was found that despite significant differences, all partner cities face similar problems and the barriers are interrelated. The most important conclusions for selected barriers and proposed ways to overcome them, which should be included in the Action plan for the city of Katowice, are summarized below.

### FOCUS ON ACTIONS WITH THE HIGHEST "LOW CARBON" POTENTIAL

*'Most often, action aims to the so-called low hanging fruits, while the major needed measures are ignored because they are hard to carry politically, are difficult to implement, or necessitate deep societal and economic changes.'*

*Obstacle analysis template, Energy Cities and MOLOC partners, 2017 (unpublished)*

The inventory results presented in LCEP showed that CO<sub>2</sub> emissions related to the energy consumption amounted to 2.5 million Mg of CO<sub>2</sub> in 2015. The energy consumption in Katowice are largely associated with heating of buildings (9 085 TJ per year). **The pursuit of a low-carbon economy requires, above all, intervention in the area of reducing energy consumption in buildings.** The activities related to the replacement of heating sources, thermo-modernization and energy management have the highest potential of carbon reduction and achieving energy savings. The housing sector's share in CO<sub>2</sub> emissions is 29% (728 193 MgCO<sub>2</sub> per year), and in final energy consumption 34%. The share of the trade, services and enterprises sector in CO<sub>2</sub> emissions is 34% (850 945 MgCO<sub>2</sub> per year), while in final energy consumption 21%. Emissions from public buildings account for only 1.7% in this breakdown. Activities in this area will not contribute effectively to the actual reduction of greenhouse gas emissions, such action should be perceived as a good practice to be followed by owners of private buildings for the housing sector and the trade, services and



enterprises sector. **The goal of activities in this sphere is not only to achieve energy saving and emission reduction, but also to demonstrate the attractiveness and cost-effectiveness of these activities, and thus increase their replication potential.**

The City Hall should focus on action in public buildings and facilities, but also try to impact other sectors through raising awareness, information and educational campaigns. The City Hall may also use incentives in the form of subsidies from the city budget directed to residents and entrepreneurs, or other privileges.

## INVOLVEMENT OF STAKEHOLDERS AND CITIZENS

*“Lack of stakeholder involvement in low-carbon activities results in failure to achieve climate policy goals. Lack of expertise and practice when it comes to working with the civil society in a low carbon strategy instead of just providing top-down information”*

*Obstacle analysis template, Energy Cities and MOLOC partners, 2017 (unpublished)*

In Katowice, communication with citizens and stakeholders is one of the strategic objectives of the LCEP. The city has a mining tradition and their inhabitants are accustomed to coal as a (cheap and commonly available) source of energy. The barriers are mainly related to financial aspects and also to insufficient knowledge about the health and environmental effects of coal combustion in inefficient heating installation, new RES-based technologies, and about the possibilities of co-financing activities related to the increase of energy efficiency, replacement of heat sources and the use of RES, as well as technical conditions for the modernization of existing heating installations. The housing sector is the largest energy consumer in the city, thus campaigns which promote low-carbon investments and pro-ecological behaviour of city residents are of key importance to achieving the goals of the LCEP.

Stakeholders play different roles in the low-carbon policy. Energy companies are responsible for the implementation of certain tasks: connection to heating networks, construction of heating nodes, provision of data in the field of energy and fuel consumption in particular sectors, and also cooperation with the municipality in the field of environmental education. Property managers and housing cooperatives are units responsible for tasks related to thermal modernization and replacement of heat sources. They provide data regarding buildings for the commune. Municipal enterprises implement tasks related to thermal modernization and replacement of heat sources. In this group, actions aimed at obtaining funds for financing projects are important. Residents of the city benefit from co-financing and carry out thermo-modernization of buildings and exchange of heat sources.

Realization of the low-carbon economy plan in the city depends on the active involvement of all participants in the energy market.



## PROBLEM OF FUNDING

“The needed investments for thermal retrofitting of buildings, local renewables, public mobility infrastructures, etc. are considerable and available business models are not appropriate.”

*Obstacle analysis template, Energy Cities and MOLOC partners, 2017 (unpublished)*

Activities related to low-carbon policies require huge public funding – which can become an important obstacle to the implementation of a low-carbon strategy. European funds are an important source of financing low-carbon policy, but still considerable own resources from the city, stakeholders and citizens have to be allocated to low-carbon activities. New business models should be identified and implemented to accelerate activities related to energy transformation. Currently the capital-intensive activities in the LCEP are focused on replacement on heating systems based on coal and thermomodernization of buildings.

Energy Cities identified innovative financing systems and presented them in the study "Financing systems to increase energy efficiency and the use of renewable energy in public and private buildings" as part of the Infinite Solutions project<sup>1 2</sup>. One option is public-private partnership. However, this mechanism is still not popular in Poland. As a result of the local analysis of obstacles in the MOLOC project, involving private capital is considered as a potential source of co-financing the action aiming at increasing energy efficiency in public buildings.

The creditworthiness of local budgets of cities is diminishing due to the current development, the implementation of numerous tasks and growing debt. To overcome this problem, there are possible nonbudgetary financing mechanisms involving a private capital (public-private partnership, for example, ESCO).

The problem of financing energy efficiency in housing sector is primarily related to the energy poverty of a large part of society. A citizen who wants to acquire a subsidy from the city budget for replacement of an old and ineffective heat source or from national funds for a thermo-modernization of his house has to prepare an application and then wait for its consideration and financing. The application process is not always easy and the inhabitants often require an expert support, an information campaign and training to benefit from these programs. Furthermore, the residents do not have sufficient knowledge about costs, technical options and quantitative financial benefits of using renewable energy. Despite the subsidies, residents must have own funds to co-finance the project. Therefore, it is necessary to convince citizens to engage private funds in such investments. The promotion of results of actions of the city, for example energy savings, money savings and carbon reduction would be helpful and motivating for citizens.

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<sup>1</sup> <https://energy-cities.eu/publication/infinite-solutions-guidebook/>

<sup>2</sup> <https://energy-cities.eu/publication/infinite-solutions-guidebook-2/>



As a part of the financial strategy, long term incentives of renewable energy sources for users should be identified and assessed. Information concerning such benefits, as well as funding options, legal and technical requirements, and regulations should be easily available.

## LOW REPLICATION POTENTIAL

‘Implement a low carbon strategy at local level request to follow a step by step approach. Conduct a pilot low carbon project could help the local authority and stakeholders to experiment together and demonstrate the relevance of action.’

*Obstacle analysis template, Energy Cities and MOLOC partners, 2017 (unpublished)*

Barriers which significantly hinder the use of results of pilot projects and their dissemination include:

- Lack of strategy for the dissemination and implementation of the results of pilot projects,
- Lack of effective cooperation between public and private sectors (local government - business-science) and information flow on the results of pilot projects,
- Financial barriers: lack of appropriate financial and legal incentives for implementation.

The barriers and problems that significantly hinder the implementation of these technologies and solutions in building construction include:

- low level of awareness about the benefits of construction of energy-efficient buildings,
- conviction of investors about high costs of construction of energy-efficient buildings,
- lack of own funds for investments,
- lack of knowledge and experience of investors and contractors necessary for the implementation of this type of projects,
- lack of appropriate financial and legal incentives,
- lack of reliable and objective information on energy-saving technologies and operating results.

There is no procedure/instruction to assess the replication potential of pilot projects or follow-up activities in the City Hall.





The replication potential of pilot projects related to energy efficiency should be assessed on the basis of following information:

- effectiveness of the actions undertaken - to what extent the goals defined at the planning stage have been achieved,
- usefulness - to what extent the taken actions have met the real needs and improved energy efficiency,
- efficiency - what is the efficiency of the project in terms of energy (energy savings), economic (costs and savings) and environmental (reduction of CO2 emissions).

Sharing such information with stakeholders will demonstrate the relevance of the action and will contribute to the increase in the popularity of pro-ecological investments.

## LACK OF MONITORING AND DATA FOR PROGRESS EVALUATION

*“Relevant indicators for sustainability or low-carbon approach are difficult to find. Often indicators are not comparable, or data is missing. Most of the existing methodologies are discussed. However, it is important to measure and evaluate progress and local authorities are looking for methods to support this work.”*

*Obstacle analysis template, Energy Cities and MOLOC partners, 2017 (unpublished)*

Assessment of the progress of low-carbon policy implementation is not sufficient, mainly because low availability of environmental data. Evaluation of real effects of thermo-retrofitting of buildings and replacing of heating sources is impossible. Estimations of achieved reductions of emissions and energy consumption are based on aggregated data from invoices. Emission reduction and energy savings being results of these activities are calculated using different methodologies. It is necessary to use estimated data, numerous assumptions, balancing methods, therefore the measurement error and uncertainty are unknown. The effects of performed tasks are usually assessed on the basis of planned effects in the energy audit, because the real reduction achieved is not available.

The city collects aggregate information on public and city-owned buildings from invoices for electricity, heat and fuel consumption - coal and gas. These are aggregated data, e.g. there is no distinction between gas consumption for heating purposes and related to meal preparation (eg. in schools).

Installation of different measuring systems in buildings would be advantageous to gain real data from buildings. Preparation and implementation of the concept of introducing a coherent system of monitoring and control of buildings in the Katowice City Hall will be the first step to overcome the barrier related to the lack of monitoring and data for evaluation of the progress of implementation of low-carbon economy in the city. This action will result in the future in savings of energy and emission reduction, as well as in good monitoring of indicators in public buildings sector. On the basis of data from this action, replication potential can be calculated and presented.



Implementing measuring systems in public buildings can fulfill several tasks:

- it enables control and reduction of energy consumption and GHG emission in public buildings
- it provides data enabling monitoring
- it enables assessment of replication potential and demonstrates benefits of proefficient technologies to building users and stakeholders



# Part III – Details of the actions envisaged

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## Action 1

### Name of the action

### **Development of a comprehensive model to implement a system of energy consumptions monitoring of public buildings**

#### Relevance to the project

The goal of the first planned action is to reduce greenhouse gas emissions and increase the energy efficiency of public buildings. In the city of Katowice there are 246 public buildings representing a total area of 560 187 m<sup>2</sup> and a total cubature of 2 748 391 m<sup>3</sup>, with different purposes and age: these are the buildings of the City Hall as well as cultural, educational and health services. In 2015, these buildings consumed 100 154 MWh per year and emitted 41,913 Mg CO<sub>2</sub> per year. District heating (57%) was the main energy carrier used in public buildings.

City buildings are systematically subjected to thermal modernization, but during the MOLOC project due to local analysis and study visits, weaknesses were identified in the current approach:

- Data on the consumption of utilities, including electricity and heat, are not obtained systematically from suppliers;
- Data is also not collected, compared or analyzed up to date;
- The assessment of benefits in the form of achieved financial savings, reduction of energy consumption and emission reduction is made in an estimated manner, based on planned values, and not actually achieved.
- In buildings after thermal modernization, it is not possible to measure actual savings due to the lack of appropriate measures. As a result, it is not possible to assess the replication potential or to disseminate information on the benefits of the investment to building users and stakeholders.
- Lack of proper control and measuring equipment may result in suboptimal energy consumption despite the high thermal insulation of buildings and the high efficiency of installations and devices used in it, e.g. heating of rooms not used during holidays or at night.
- Lack of educational actions designed to raise awareness among building users hinder energy savings.



The weaknesses identified in the previously used model focusing on energy efficiency of buildings through their thermal modernization were improved in the proposed new model.

The action includes following experiences gained from the other partners within the regional learning phase in MOLOC:

- *The experience of other cities observed within the activities of the MOLOC project showed high potential of the monitoring system to reach final energy savings. However, the scale of the project raises technical problems, which is associated primarily with a huge amount of data, different data format from different sources, limited computing power of computers, limitations of programs dedicated to energy management in buildings. Thanks to cooperation with the other cities, these difficulties have been identified at an early stage of implementation and it is now possible to plan how to overcome them.*

Management and monitoring of heating systems in Lille (France) was entrusted to the energy company. The energy department of the city of Lille collects in real time the data sent by the gas company. Most buildings are subject to energy monitoring and several large school buildings to real-time telestering. In buildings with the highest consumption a team of technicians is employed for building management. The city of Lille continues and improves its energy policy based on monitoring energy consumption by including an IT system. From 2020 Lille plans to use a software to control energy consumption and regulate invoices of energy companies for 350 buildings. The goal will be to control consumption, alarms, anomalies, and unusual peaks.

Similar action was implemented in the city of Turin in Italy, where since 2014 the monitoring and energy management system in public resources has been implemented. The city of Turin has 800 public buildings with a cubature of about 7.5 million m<sup>3</sup> (which corresponds to about 8% of the city's construction). These are buildings for various purposes: schools, offices, sports buildings, cultures, and social buildings. Most of the assets come from 1970's, so they were built before the entry into force of energy efficiency regulations. City buildings account for 4% of the city's total CO<sub>2</sub> emissions (*Source: Antonio D'Arpa, The revision of the General Master Plan of the City of Torino as MOLOC policy instrument, in a perspective of energy efficiency and low carbon policies; materials presented during the meeting of MOLOC project partners; 23/05/2018 Torino, Italy*). In order to implement the BMS in public buildings in Turin, the following tasks were carried out:

- 1) Creating a database containing information about buildings: addresses, maps, occupancy, bills and purpose. The popular software was used – despite it was a widely used platform, adaptation was required to obtain one environment for energy management, analysis and processing of all data - from meters, electronic invoices and energy distributors.
- 2) Collecting long-term historical data (3-5 years) on consumption and developing a consumption model for each building. BMS was installed in 30 buildings. Energy audits were carried out for 160 buildings – the most energy-intensive buildings in the city were identified (schools, offices and sports centers).
- 3) Agreement with all energy distribution companies to obtain files in a format compatible with the database containing energy consumption in real time (or periodically).



- 4) Obtaining electronic bills in a format adapted to the database from energy supply companies.
- 5) Analysis of the market of smart meters with ability to send a data file in a format suitable for the database or cloud for data collection. A cloud has been created in Turin to store data to avoid overloading the local database.
- 6) Starting the tender procedure.
- 7) Identifying the software responsible for analyzing energy consumption data, creating charts, reporting alarms, and then starting the procurement procedure.
- 8) Analysis of data on energy consumption from bills, files sent by distribution companies and directly from smart meters installed on existing meters to find anomalies and create an energy policy.

In the future, within 2 years, the city plans to implement the EN ISO 50001 standard - Energy management system aimed at reducing costs, reducing greenhouse gas emissions and energy consumption. Monitoring of energy consumption will be two-stage: detailed for complex, energy-consuming, expensive buildings and 'soft' for other buildings. An employee will be trained in each main building to improve energy management and raise awareness of building users. The most important problems identified in Turin are related to the lack of data, lack of funds, fragmentation of the structure, difficulties in dialogue and cooperation with external bodies (energy distributors and suppliers), as well as overcoming cultural barriers.

- *Raising awareness among building users through an 'energy janitor' function introduced by the city of Lille and the use of communication strategies of desired behaviors for users in the form of nudge which have been learned during a study visit to the Rizomm building.*

The city of Lille presented the effects of non-investment activities undertaken in 2004-2007 aimed at achieving energy and water savings. This action was based on the energy janitor function as presented during the online discussion on 5 December 2018 "Awareness Raising and Behavioural Change for Energy Efficiency in Buildings" organised by the Policy Platform on Low Carbon and presented by the City of Lille in the frame of MOLOC. It is a person responsible for monitoring one building through invoice control, analysis compared to previous years, paying attention to irregularities such as heating rooms with windows open, heating unused rooms.

High efficiency of these activities has been demonstrated, reaching 20% of reduction of total energy consumption including 14% of reduction of heat consumption (*Source: Véronique Falise, Damien Baleux, « Energy janitors » project; materials presented during the meeting of MOLOC project partners; 06/11/2018 Suceava, Romania*).

- *Experience in the field of communication of information about the benefits of the technologies used from the city of Suceava (Romania) – a board displaying the amount of*



*renewable energy produced to swimming pool users and the city of Hamburg (Germany) – information for schools, which school achieved the highest energy savings.*

- *The lack of financing sources for low-carbon projects as part of the local analysis carried out in the MOLOC project has been identified by the Energy Cities network as one of the barriers to the development of low-carbon economy. Financing mechanism of Action 1 with the participation of ESCO will be considered as one of the financing options for the task of implementing the BMS system in public buildings of the city of Katowice.*

## Conclusions for the Katowice city

Realization of the MOLOC project and analysis of experience gained during study visits, conducted workshops, interviews and as a result of local analysis allowed to identify conclusions for the Katowice city:

- Monitoring the energy consumption in buildings subjected to thermal modernization is an essential element to be included in future investments of this type in order to increase the effectiveness of investments in the context of achieved reduction of greenhouse gas emissions, as well as to avoid the risk of wasting energy and occurring anomalies.
- The implementation of the monitoring and energy management system and the introduction of an appropriate data collection system will allow demonstrating the benefits of the measures taken and the resulting savings, so that actions taken in public buildings are a benchmark followed by the housing sector.

As part of Action No. 1, based on the experience of the MOLOC project partners, the implementation of an interactive energy carrier monitoring and control system in public facilities, evaluation of the replication potential of this task after implementation, as well as dissemination of information about the benefits obtained among building users and stakeholders is envisaged. The approach used so far in the Low Carbon Economy Plan focused on comprehensive thermal modernization to achieve energy savings e.g. thermal insulation of buildings and/or an exchange of energy source implementing. The new approach, as a result of local analysis of barriers and experience from partner cities, combines the implementation of the building energy management solution with the assessment of replication potential and dissemination of results.

The scale of the project planned in Katowice raises technical problems related to the implementation of the task and the management of a large group of buildings, just like it did in Turin. It is associated primarily with a huge amount of data, different data format from different sources, limited computing power of computers, limitations of programs dedicated to energy management in buildings. Thanks to cooperation with the city of Turin, these difficulties were identified at an early stage of implementation and it is possible to overcome them.

The lack of financing sources for low-carbon projects has been identified by the Energy Cities network as one of the barriers to the development of low-carbon economy in the local analysis carried out in the MOLOC project. Financing mechanism of Action 1 by ESCO (energy service company) will be considered as one financing option. ESCO is a company which implements



investments in the field of energy services and energy-efficiency projects in exchange for monthly payments and participation in savings due to increased energy efficiency.

Based on the experience of the city of Lille and the city of Turin, the action taken in the city of Katowice will include raising awareness of users of modernized buildings.

Other barriers identified during the local analysis were related to insufficient involvement of citizens and users in low-carbon activities, lack of knowledge among residents about the results of projects already implemented in the city of Katowice, as well as a low level of awareness of costs and benefits of energy-saving technologies. The results of the Action 1 related to the implementation of the BMS system in public buildings, such as schools and kindergartens, sports halls, libraries, community centers, buildings of the fire service, outpatient clinics should be spread among citizens. Thus a dissemination strategy of the implemented project as well as costs and benefits will be adopted under Action 1 to reach the awareness of residents.

## Nature of the action

### **1. Mapping of energy consumption in the buildings of the city of Katowice**

- Identification of consumption patterns
- Estimation of costs and potential savings

### **2. Implementation of the BMS**

- Choice of implementation scope for individual facilities depending on the consumption pattern - monitoring and control system or solely monitoring in 25 buildings (Tab 1).
- Comparison of costs related to different financing mechanisms (city budget, ESCO or mix of both) - 3 scenarios (Tab 2).
- Securing funds in the city budget
- Description of the subject of the contract
- Commencement of the tender procedure
- Contractor selection
- Signing a contract
- Implementation of the system

### **3. Monitoring and promotional and educational activities among building users**

- Energy saving monitoring
- Assessment of financial and environmental effects
- Developing a promotion and education strategy
- Raising awareness among users and visitors of buildings



Tab 1. Costs breakdown of BMS implementation

Cost	Specification
<b>Investment outlays</b>	<ul style="list-style-type: none"> <li>• Connection to the monitoring and management system (telemetry, object configuration to the system, definition of alarm events, staff training)</li> <li>• Equipping facilities with devices enabling management (modernization of installations, additional regulators, temperature sensors, controllers and communication modules)</li> <li>• Office expansion</li> </ul>
<b>Periodic payments - subscriptions</b>	<ul style="list-style-type: none"> <li>• Personnel costs (full-time positions)</li> <li>• Office maintenance costs</li> <li>• Access to the system / platform</li> <li>• Recurring energy management fee (24/7 control)</li> <li>• Recurring energy monitoring fee (data transmission, server maintenance)</li> <li>• Commission calculated as a share of the profits (savings)</li> </ul>

Source: Urych Beata, Śliwińska Anna, Leśniak Agnieszka, Cwięczek Mariusz, System zarządzania energią w Mieście Katowice (Energy management system in the Katowice city, in Polish); materials presented during the Stakeholder Group Meeting, 18.12.2019 Katowice

Tab 2. Comparison of costs related to different financing mechanisms

Option	The City Hall	External service
<b>The City Hall</b> (Investment + Energy management)	Personnel costs Investment outlays + depreciation, service, insurance Energy management, supervision, monitoring IT system fee All savings	Providing access to an IT system
<b>ESCO service</b> (Investment + Energy management)	Personnel costs Cyclical availability fee (energy modernization + management) No or partial savings No debt in the budget	Providing access to an IT system Investment outlays, depreciation costs, service, insurance Energy management service Savings guarantee
<b>ESCO</b> (Energy management) + <b>The City Hall</b> (Investment)	Personnel costs Investment outlays + depreciation, service, insurance Recurring management fee All savings	Providing access to an IT system Energy management service Savings guarantee

Source: Urych Beata, Śliwińska Anna, Leśniak Agnieszka, Cwięczek Mariusz, System zarządzania energią w mieście Katowice (Energy management system in the Katowice city, in Polish); materials presented during the Stakeholder Group Meeting, 18.12.2019 Katowice





In order to implement the first stage, an inventory will be carried out, the purpose of which is to assess the technical feasibility of the task and to estimate energy consumption, emissions, and operating costs for public buildings. Consumption patterns will also be identified at this stage. The planned scope of the investment depends on consumption patterns - Option 1 refers to the monitoring of energy and media consumption, Option 2 refers to the management of heat consumption by telecontrol and monitoring of energy and media consumption by telemetry.

Three options for funding are considered – financing of investment from the city budget; financing of investment by ESCO company and periodical payment from the city budget and mixed option, in which an ESCO company would be responsible for energy management and guaranteed energy savings.

### **Expected Impacts**

- Reduction of greenhouse gas emissions, kg CO<sub>2</sub>
- Thermal energy savings, GJ
- Cost savings, PLN
- Number of buildings with increased energy efficiency, pcs
- Number and nature of organized events disseminating the results, pcs

### **Stakeholders involved**

Urząd Miasta Katowice - realisation of activity.

Główny Instytut Górnictwa - consulting and dissemination of the results of the implemented action.

Silesian Union of Municipalities and Districts – dissemination of the results of the implemented action among other cities and municipalities in the region.

### **Timeframe**

2019-2022

### **Indicative costs**

Costs related to access to the monitoring system in 25 buildings - 23 000 € per year

### **Funding sources**

Three financing options are considered, including funding from the city of Katowice budget, involvement of ESCO or mix of both.



## Action 2

### **Name of the action: Creation of an information point: Municipal Energy Center, MCE**

#### **1. Relevance to the project**

According to the inventory results, which were presented in LCEP, energy consumption and carbon dioxide emissions in Katowice are mainly related to the housing sector and the trade, services and enterprises sector. Achieving reduction of energy consumption and emissions in these sectors is crucial for climate protection, but at the same time difficult. As it is not possible to conduct direct activities of the City Hall in these sectors, such promotional, educational and information activities should be used to effectively reach users and to convince them to change their behavior and to decide for pro-efficiency investments.

Therefore, one of the specific objectives of the Low Carbon Economy Plan is to increase energy efficiency and fuel usage in buildings owned by citizens. Other goals of the LCEP are: increasing awareness among residents regarding their impact on the energy economy, promotion of residents-friendly fuel and energy supply systems, promotion of energy-efficient construction among the city's residents and the SME sector.

The city's previous activities in this area have been not effective enough - information on available technologies and forms of financing often doesn't reach the target groups. It requires residents' and entrepreneurs' initiatives, contact with many departments and initial knowledge of what they are looking for. The objectives of Action 2 are promotional, educational and information activities that reach target groups and are effectively encouraging behavior change and investment in pro-efficiency technologies.

Participation in the project provided inspiration to open an information point in Katowice and to define the scope of this point's operation. The task was commenced using the following experience gained during the implementation of the MOLOC project:

- visit to the information point in Lille MHD (La Maison de l'Habitat Durable)
- experience of partner cities in contacts with citizens
- Interreg webinar on One-Stop-Shops information points in the Netherlands and France

The action includes following experiences gained from the other partners within the regional learning phase in MOLOC:

### Sustainable Housing Centre ("*Maison de l'Habitat Durable - MHD*"), Lille (France)<sup>3</sup>

The visit to MHD during MOLOC kick-off meeting in March 2017 became an inspiration to create a similar consultation point in Katowice (Fig. 1). The MHD is an established information point opened in October 2013 by the City of Lille and Metropole Européenne de Lille (MEL). It is a public resource center (document exhibition, events) where one may meet all of the housing professionals including architects, energy engineers, technology or financial specialists, jurists, and social mediators. The Centre provides a whole range of services: free tailored advice with professionals, professional guidance for energy renovation projects, support to apply for public subsidies and access to activities such as workshops, conferences, trainings, study visit (Source: *The Lille Metropolis « Maison de l'Habitat Durable » (Sustainable Housing Centre)*, 13 September 2019).



Fig. 1. Maison de L'Habitat Durable (MHD) in Lille. (Source: *The Lille Metropolis « Maison de l'Habitat Durable » (Sustainable Housing Centre)*, 13 September 2019, Policy Learning Platform, MOLOC Interreg Europe)

Other consultation points created in the 'one-stop-shops' formula were presented during the webinar organized by Interreg on September 13, 2019: 'One-stop-shops for deep energetic refurbishment of private buildings'.<sup>4</sup>

<sup>3</sup> <https://www.interregeurope.eu/policylearning/good-practices/item/2914/sustainable-housing-centre/>



**Reimarkt OSS (Netherlands)** – a network of stationary consultation points created with government support, additionally offering online help (<http://www.reimarkt.nl/>). The network offers support using a simplified approach in the form of a set of products for different types of buildings instead of individual analysis for each building. To this end, an analysis of the existing building stock in the Netherlands was carried out, a building typology was developed and then a set of standardized products for various types of apartments and buildings was developed. Thanks to this approach, despite the growing number of modernized buildings, the operation of consultation points does not require an increase in costs.

**Oktave (France)** – a point created as part of a project financed from EU funds (“Intelligent Energy Europe”), which offers comprehensive consultancy services aimed at obtaining financing for the energy modernization of buildings. The services provided by this point are payable (<https://www.oktave.fr/>).

### Conclusions for the Katowice city

The idea of creating a stationary consultation point in the city of Katowice was the result of a study visit to MHD in Lille in 2017. As a result, steps were taken to create an information center based on the Lille model as an independent information point. In the end, the MCE was created in a space just steps away from city hall and market square in Katowice (Fig. 2.). Managed by members of the Energy Department in the city, the MCE opened in September 2018 to the public. To avoid administrative barriers, as in Lille, the center was located not inside the Town Hall, but in an independent premises accessible to residents.

In MHD in Lille, the exhibition and educational part plays a very important role. Therefore, an exhibition about the possibilities of changing the heating system, provisions of the anti-smog resolution, municipal fire control, the impact of pollution on human health, as well as the presentation of a free platform (<http://topten.info.pl/>) enabling the selection of the most energy-saving household appliances was designed for MCE.

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<sup>4</sup> [https://www.interregeurope.eu/policylearning/event/2772/one-stop-shops-for-deep-energetic-refurbishment-of-private-buildings/?no\\_cache=1&cHash=bda9b94596fa4b408a0f22e86b35e753](https://www.interregeurope.eu/policylearning/event/2772/one-stop-shops-for-deep-energetic-refurbishment-of-private-buildings/?no_cache=1&cHash=bda9b94596fa4b408a0f22e86b35e753)



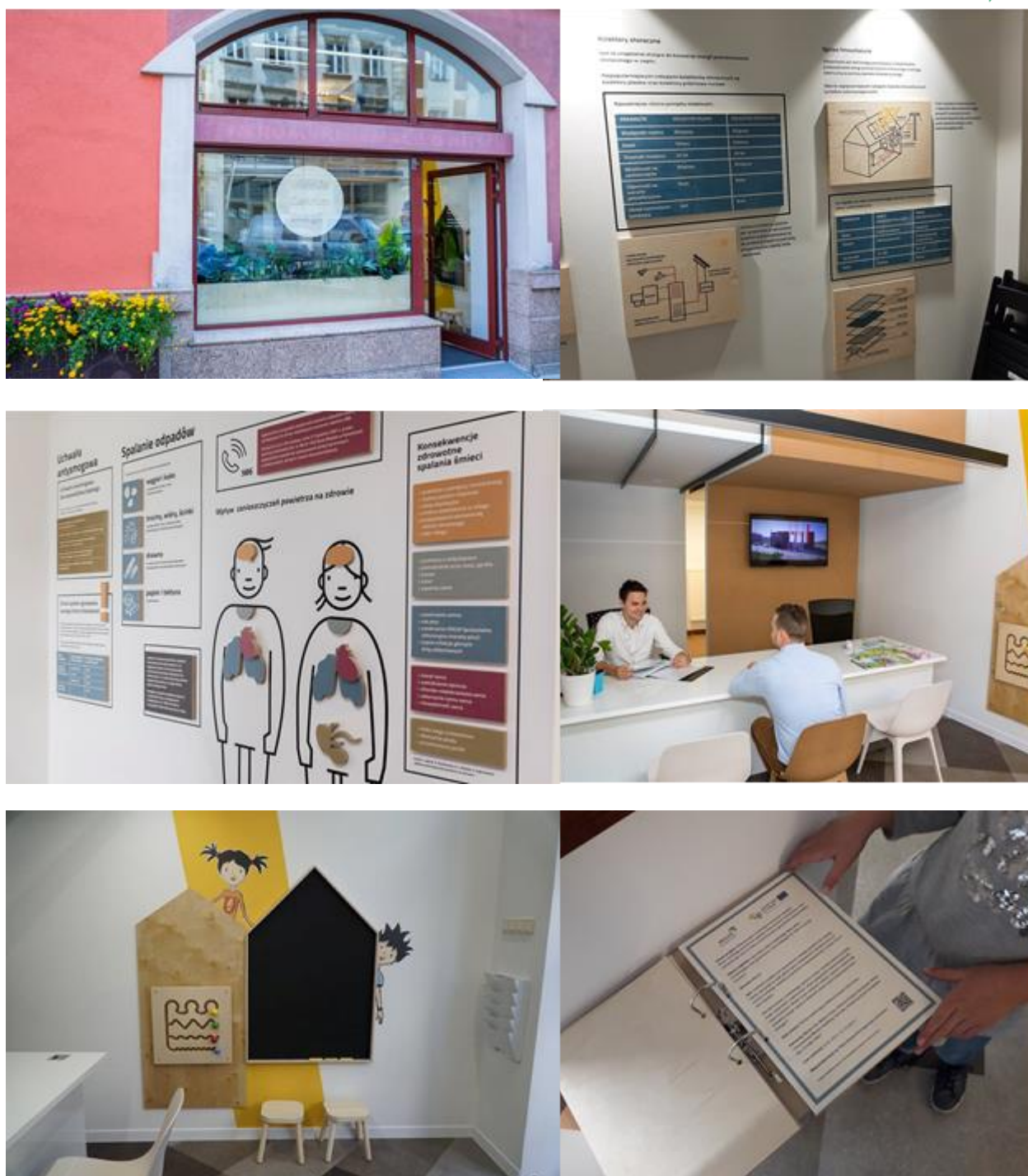


Fig. 2. MCE in Katowice (Source: MCE and GIG)

In the Municipal Energy Center, residents can find answers to their questions without visiting various departments of the City Hall. They can find, among others, advices as how to save energy on a daily basis, when the old coal-fired boiler should be replaced or what are the possibilities of obtaining funding for this aim. They can become acquainted with renewable energy installations or a regional anti-smog resolution (regional law imposing the obligation to replace inefficient heat sources). They can get to know what is green energy, which fuels can be used for heating apartments (are legal) or what is a difference between a passive house and a low energy house. At MCE, meetings are organized under the slogan 'Black or green tea' with representatives of various organizations dealing



with environmental protection and energy saving. The purpose of these meetings is to promote pro-ecological behavior and energy-saving technologies.

The MCE in Katowice has started cooperation with other institutions and experts, including the Provincial Fund for Environmental Protection and Water Management in Katowice to provide not only information about municipal support programs, but also about other projects at the voivodship and country level, including on the government's 'Clean Air' program.

## 2. Nature of the action

1. **Application for creation of an information point:** development of the project of the center and exhibition part, application for funding from the city budget
2. **Establishment of the Municipal Energy Center,** including employment of an employees for the needs of the center, implementation of the investment, opening of the center
3. **Operation of MCE:** consultation for visitors, assistance in completing applications for financing for replacement of heating systems, renewable energy installations or buildings thermo-insulation
4. **Promotional and educational activities:** launching the Facebook page for the center, organization of meetings with experts, meetings with residents

## Impacts indicators

Number of personal advices

Number of email advices

Number of telephone advices

Number of meetings

Number of meeting participants

Number of articles on the Facebook page

## 3 .Stakeholders involved

Realisation of activity - Urząd Miasta Katowice. Cooperation with various organizations regarding the participation of experts in meetings with residents – Główny Instytut Górnictwa, Provincial Fund for Environmental Protection and Water Management in Katowice, Korporacja Mistrzów Kominarskich Województwa Śląskiego (Corporation of Chimney Sweep Masters of the Śląskie Voivodeship), Foundation for Effective Energy Use, Marshal's Office of the Silesia Voivodship

## 4. Timeframe

2017, March - Kick off meeting, Lille, France - visit to Maison de l'Habitat Durable resulting in a change in the concept of the task envisaged in LCEP related to the creation of an Internet portal concerning energy efficiency information

2018, May - submission of a proposal to launch a stationary consultation point in the city center



2018, September - opening of the Municipal Energy Center in Katowice

2019 second visit to the MHD to exchange on first feedbacks and further development of the MCE activities programme

2019 – 2022 operation of MCE - consultations for residents, help in completing applications, promotional and educational activities, information meetings, meetings with experts

## 5. Indicative costs

Assumed costs includes: office and administration, staff cost, maintenance costs (rent and media consumption), external expertise and services, promotional and educational materials, diagnostic equipment, as well as organization of meetings with residents. Expected costs are higher in 2020 and 2021 due to preparation of promotional and educational materials and purchase of diagnostic equipment.

2018: 141 000,00 PLN (33 000,00 Euro)

2019: 95 500,00 PLN (22 000,00 Euro)

2020-2021: 364 000 PLN (85 000,00 Euro)

Euro exchange rate: 4.28

## 6. Funding sources

Katowice City Budget



**Date:** \_\_\_\_\_

**Name of the organisation(s) : :**

\_\_\_\_\_

\_\_\_\_\_

**Signatures of the relevant organisation(s):** \_\_\_\_\_