

Leading the way to climate neutrality



Report on the Review of the Experience
and the Legal Background of Bulgaria

SUMMARY

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1. Introduction

Context

By 2050, European cities should be carbon-neutral, sustainable and ensure a high quality of life. In order to achieve this goal, society as a whole must become more responsible and mutual accountability must be shared among all actors. To successfully achieve the energy transition, we need mechanisms to address the environmental, economic and social aspects of the process, analysing the policies of different sectors in partnership with civil society, taking into account how citizens design their future.

As the energy transition involves radical changes in the structure, culture and practices of energy production, consumption, storage and distribution, local governments cannot carry out this journey on their own. On the contrary, the energy transition requires the effective involvement of key structures and beneficiaries alongside the administration. Ambitious goals and political commitments must therefore be linked to the commitment of civil society to decision-making and their implementation. This interdependence reveals the challenge behind Municipal Energy Management.

The project MENERGERS - Energy Managers' Services in Municipalities is a EUKI - funded initiative to support local administrations to efficiently coordinate the energy transition toward low-emissions cities. The project's main objective is to enable and empower municipalities in Bulgaria and Romania to ensure the most useful and efficient context for the role of Municipal Energy Managers and thus contribute to the national Energy and Climate targets.

Coordinated by the [National Trust Ecofund](#), the Bulgarian Fund managing assets from the state budget, such as the Debt-for-Environment and the Debt-for-Nature swaps, benefitting from the experience offered by the German [Independent Institute For Environmental Issues](#), a scientific and officially recognized non-governmental organization acting in Energy Efficiency & Energy Transition, Climate Protection & Transformative Education, Environmental Law & Participation, Nature Protection & Environmental Communication, the consortium is also formed of [Sofia Energy Agency](#), a Bulgarian non-governmental non-profit organization established by Sofia Municipality together with the European Commission for local energy management, and of [Energy Cities Romania \(OER\)](#), a network formed of local authorities in energy transition, fighting to reach climate neutrality.



This project is part of the European Climate Initiative (EUKI) of the German Federal Ministry for Economic Affairs and Climate Action (BMWK). It is the overarching goal of the EUKI to foster climate cooperation within the European Union (EU) to mitigate greenhouse gas emissions. More information can be found at www.euki.de/en.

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Information for the project and the report

This report has been prepared according to the planned activities within the framework of project "MENERGERS", financed by the European Climate Initiative (EUKI) - a funding instrument of the Federal Ministry of Environment of the Federal Republic of Germany.

It includes three main sections, namely: an overview of Bulgarian legislation, a description of the experience of Bulgarian municipalities in the field of energy management and recommendations to municipalities for changes and improvement of energy management practices and their activities in the field of EE and RES .

In the first part, a review, analysis and evaluation of the Bulgarian legislation in the field of EE and RES is made.

The purpose of this review is to analyze the relevant normative documents in the field of EE and RES and to point out discrepancies, inaccuracies and gaps regarding their implementation by local authorities throughout the country.

The second part describes the practices regarding the organization and process of management and implementation of EM. For the purposes of this report, a survey was conducted among Bulgarian municipalities on the level of implementation of EM by their employees. In this part, several good practices regarding the application of EM in Bulgarian municipalities to date have been collected and summarized.

In the third part, recommendations for changes in Bulgarian laws, regulations, plans, programs and regulations are presented in order to overcome all discrepancies, inaccuracies and gaps, regarding their implementation by the Bulgarian municipalities, as well as specific recommendations to the municipalities for improvement of their activity in the field of EE and RES.

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2. Legislation overview

As it is a comprehensive field of EU Directives, Bulgarian laws, different levels of acts and normative documents, in this summary we are presented the backbone of the legislative structure including the most important normative documents.

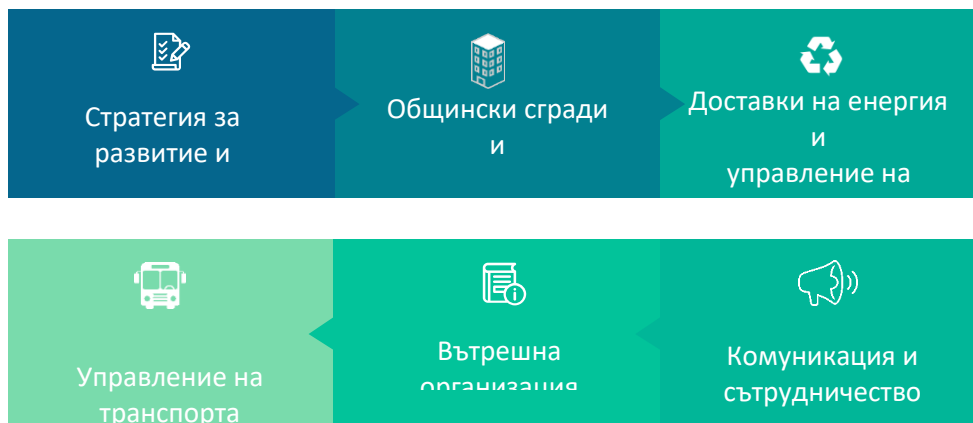
Local authorities have a multifaceted role - in their own operations they are energy consumers, service providers and purchasers of various energy-related products and services. They also influence other operators in their geographical areas to improve their energy efficiency. Municipalities act in multiple roles as planners, developers, regulators, advisors, motivators, producers and suppliers of energy.

Fulfilling EU requirements for the public sector requires a determined effort by local authorities to meet the challenges before them. Among the key prerequisites for this are the ability to form a long-term vision, specific goals and priorities; building sustainable financial models; system communication capabilities and much more. Reasoned and evidence-based decision-making process requires systematic energy planning.

The basic spheres for evaluation in municipal energy planning are as follows:

- A strategy for development and urban space planning
- Municipal buildings and infrastructure
- Energy supplies and waste management
- Transport management
- In-house organization
- Communication and cooperation

Basic fields for evaluation in municipal energy planning



Source: [European Energy Award](#) Source: *Basic elements in ISO 50001*

The basic elements of the municipal energy planning are laid in the International Standard ISO 500001. They are divided in four different levels as follows:

- Common requirements for a management of an energy team (including scope and framework; management responsibilities; energy policy);
- Energy planning (including legislative requirements; energy overview; energy baseline and energy efficiency indicators; aims and plans for action);

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- Implementation (competence, training and awareness raising; communication; documents and operational control; design and delivery);
- Evaluation and control (monitoring, measurement and analysis; internal audit; corrective and preventive actions; record control).

2.1. Obligations and opportunities of the municipalities under EE Law

According to EE Law, the state policy in the field of energy efficiency is implemented by all state and local authorities.

The following fields are especially important:

2.2. Municipal energy planning

The state and local authorities develop and adopt energy efficiency programs taking into account the strategic goals and priorities of the integrated territorial development strategies of the relevant planning regions of level 2 under Art. 4, para. 3 of the [Law on Regional Development](#) and their prospects for sustainable economic development. The municipal EE programs should be in line with the state policy in the field of energy efficiency and should be consistent with the national strategic goals. There are no specific requirements for the terms of the programs, as well as regarding their specific content. [Guidelines for the development of energy efficiency programs](#) are published on the website of the Agency for Sustainable Energy Development (ASED), which are not mandatory and are provided to facilitate the administrations in the preparation of municipal programs under EE.

In order to develop an effective and feasible Energy Efficiency Program, it is recommended that it include at least the following elements:

1. Basis for development
2. Municipal policy on energy efficiency
3. Status of energy consumption
4. Purpose and scope
5. Selection of activities and measures
6. Expected effects of implementation
7. Stages of implementation
8. Sources of funding
9. Monitoring and control
10. Evaluation of the achieved results
11. Performance report

The responsibility for the quality of the programs and the reliability of the provided data lies with the administrations themselves, which have prepared them in accordance with the legal requirements.

In contrast to the relative flexibility in the development of municipal programs for energy efficiency in terms of specific content and terms, the reporting of their implementation has a clearly defined and mandatory nature. The reports on the implementation of the EE programs of the municipalities are submitted to ASED annually by December 15 of the reporting year. They are drawn up according to the [form](#) approved by ASED for the annual report on the implementation of the energy efficiency programs according to Art. 12 of the EEL and for the management of energy efficiency according to Art. 63 of the EEL (for state

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authorities and local self-government bodies), which contains: name of the sites, information on prescribed measures after an energy survey, description of the measures taken to increase energy efficiency, the investments made, as well as a quantitative assessment of the fuel saved, energies, carbon emissions and funds. Although formulas for calculating quantitative savings are laid down in the approved template, filling out the mandatory reporting form requires specific expertise on the part of the employees in the administrations. In many cases, the reporting of EE activities and measures is assigned to one employee, and the necessary information to fill out the reporting form is available to different units within an administration. This implies the need for joint action, data exchange and commitment of the administration as a whole.

2.3. Municipal building stock

The energy efficiency of the building stock in the country is subject to strict specialized legislation in accordance with the provisions of Directive 2010/31/EU, which regulates the obligations, procedures and technical parameters, both for the energy certification of buildings and for the energy efficiency check of heating installations, installations for combined heating and ventilation and air conditioning installations in buildings.

According to the provisions of the EEL, public service buildings in operation with a built-up area of more than 250 square meters, as well as all other buildings in operation, are subject to mandatory inspection and certification. In addition to the mandatory certification, the owners of public service buildings are obliged to implement the measures to reach the minimum required class of energy consumption prescribed by the first survey within three years from the date of acceptance of the survey results. The certificate for the energy characteristics of a building is updated when the building is remodeled, reconstructed, renovated or renovated.

The survey for energy efficiency, the certification of buildings, the preparation of the assessment of compliance of the investment projects and the preparation of assessments for energy savings are carried out by persons - energy auditors, entered in the public register on EE maintained by ASED. The scheme for qualification, accreditation, certification and control of energy auditors ensures the performance of a professional and legally compliant energy survey. Building owners, incl. those for public service, however, are the ones who commission and accept the work performed by the auditor. This also requires specific expertise to allow the building owner to assess the quality of the energy audit.

Heating installations, combined heating and ventilation installations and air conditioning installations in buildings are also subject to an energy efficiency check. Facilities with a nominal power over 70 kW (for heating or electricity, respectively) are subject to this inspection.

2.4. Municipal streets lightening

External artificial lighting systems located in a populated place with a population of more than 20,000 people are also subject to a mandatory energy efficiency survey. Again, the survey is commissioned and accepted by the municipality, and is carried out by qualified energy auditors registered in the public registers of ASED.

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2.5. Energy consumption management

Under the requirements of EEL are the obligations of the owners of buildings - public state or municipal property to carry out energy efficiency management. The most general guidelines that the law provides for energy consumption management are related to organizing the implementation of EE programs, other measures that lead to energy savings, and the annual preparation of energy consumption analyses. The law, as well as the by-laws, lacks greater specificity regarding the possibilities for building owners, in particular municipal administrations, to implement energy consumption management in practice, both in their separate objects and on the territory of the entire municipality.

2.6. Financing of EE measures

According to the provisions of the EEL, the funds for the implementation of the municipal programs for energy efficiency are provided within the budgets of the municipalities (Article 12, paragraph 4 of the EEL). Municipal administrations have no restrictions on the use of all available sources of funding - operational programs, the Financial Mechanism of the European Economic Area, the [Energy Efficiency and Renewable Sources Fund \(EERF\)](#), the ESCO mechanism, etc. During the previous financial periods of the European Structural and Investment Funds - from 2007 to 2021, municipal administrations were the beneficiaries of significant funds for free renovation of buildings and infrastructure. FEEVI, the [National Trust Eco fund](#) and other financing institutions also supported the municipalities with resources to implement projects to increase energy efficiency.

The financing of activities and measures for energy efficiency through the use of contracts with a guaranteed result (ESCO) is strictly regulated by the EEL and in Ordinance No. RD-16-347 of April 2, 2009 on the terms and conditions for determining the amount and disbursement of the planned funds under contracts with a guaranteed result, leading to energy savings in buildings - state and/or municipal ownership. The contract with a guaranteed result also falls within the scope of Art. 3, item 7 and art. 19 of the Municipal Debt Act and Art. 44, item 6 of the [Law on Local Self-Government and Local Administration](#).

While the mechanism has been optimized with the latest amendments to the EEL, Ordinance No. RD-16-347 is no longer in line with European and national legislation and rather creates obstacles for municipal authorities to use ESCO contracts. Apart from the existing legislative imperfections in regulating the relationship between the contracting authority (public administration) and the ESCO company some of the problems in the implementation of ESCO contracts are technical. Among them are the inclusion of commitments on repairs, which are not subject to the ESCO contract by its nature and do not lead to real energy savings, insufficient awareness regarding the normalization of energy consumption, etc.

In ESCO, contracts are supposed to include a mechanism for measuring and verifying the achieved energy savings. The main task of the ESCO contract is the correct combination of materials and technologies to reduce energy consumption and the quality active management of the building through energy management systems is a necessary condition for achieving real energy savings and return on investment.

The regulation of ESCO in Bulgaria should be optimized by introducing procedures for the selection of contractors based on concepts and innovative solutions. Also, in the implementation of projects through contracts with a guaranteed result, a proven optimal approach is the use of project groups - several technically compatible buildings are grouped in one project for renovation and implementation of energy management systems.

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The current program period of the European structural and investment funds require a gradual change in the approach of the municipalities, which must combine the role of consumers of energy and subsidies with the role of investors. For the increasingly serious penetration of market financing, it is imperative to track and prove the results of the implementation of EE projects, which can be ensured by the implementation of energy management systems.

The possibilities of municipal administrations for using and managing financial mechanisms are considered in the Long-Term National Strategy for Supporting the Renewal of the National Building Fund of Residential and Non-Residential Buildings until 2050.

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3.Strategic documents in the sphere of Energy Efficiency

3.1. A long-term national strategy for supporting the renovation of the national residential and non-residential building stock until 2050

The national long-term strategies for supporting the renovation of the national building stock are required by the member states in fulfillment of Art. 2a of Directive (EU) 2018/844 amending Directive 2010/31/EU on the energy performance of buildings. Robust strategies are expected to accelerate the cost-effective renovation of existing buildings, which currently have low renovation rates, and ensure an increase in major renovation. Strategies are not an end in themselves, but a starting point for activating actions. In their national strategies, countries should set out a roadmap with measures, measurable progress indicators and indicative milestones for 2030, 2040 and 2050 and facilitate access to smart finance mechanisms to help mobilize investment. The long-term national strategies are part of the integrated national energy and climate plans of the member countries.

[The long-term national strategy for supporting the renovation of the national building stock of residential and non-residential buildings until 2050 in Bulgaria](#) has been prepared in accordance with Commission Recommendation (EU) 2019/786 of May 8, 2019 on the renovation of buildings. It contains an overview of the national building stock, defines cost-effective approaches to improve the energy performance of buildings and defines indicators for measuring the results achieved for the periods 2021-2030, 2031-2040 and 2041-2050, which reflect milestone targets values of the renovation process of Bulgaria's building stock. The document is also a systematized target tool through which the vision for renewing the country's building stock until 2050 is outlined, the strategic goals for achieving the desired vision, the priorities within the scope of each strategic goal, the planned measures and policies according to the identified priorities and indicators to measure the results achieved for the period 2021-2030.



Figure.1: Components of the Long-Term National Strategy to Support the Renewal of the National Building Stock of Residential and Non-Residential Buildings by 2050

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The components are as follows:

- Overview of the national building stock;
- Determining cost-effective approaches to renovation;
- Package of measures;
- Roadmap 2021-2050;
- Strategic aims, priorities and policies;
- Financing schemes.

An overview of the country's national building stock shows:

- A large percentage of the buildings were built in the period 1959 to 1987, when there were no high requirements for energy efficiency.
- After accounting for renovated buildings until 2020, the share of non-renovated residential buildings is 65%, and non-residential buildings 35% of the country's building stock.
- Single-family buildings account for 90% of the number of residential buildings, but the FRP of single-family and multi-family buildings is approximately the same.
- 96.6% of residential buildings and dwellings are owned by individuals.
- 56.62% of non-residential buildings are privately owned, and state and municipal are only 29%.

In the long-term strategy, an analysis of the possibilities for new sources, tools and mechanisms for financing building renovation has been made.



Figure. 2: National funds, financial mechanisms and instruments for renovation of the building stock.

Source: The Long-term national strategy to support the renovation of the national building stock of residential and non-residential buildings until 2050

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3.2. National Recovery and Resilience Plan

The National Recovery and Resilience Plan was prepared within the framework of the "[Next Generation EU](#)" mechanism. The main objectives of the Plan are to facilitate the economic and social recovery from the crisis caused by the COVID-19 pandemic and to create a more sustainable, fair and successful economy. A set of measures and reforms are provided for in the NPVU, which will not only restore the growth potential of the economy, but also develop and increase it. The plan lays the foundations for a green and digital transformation of the economy in the context of the ambitious goals of the [European Green Deal](#). The NAP provides for a complex of reforms and investments that ensure the necessary level of coherence with the parallel planned measures within the framework of the EU Cohesion Policy - both in line with the additional funding for the 2014-2020 program period (REACT EU) and in the package of strategic documents for the next program period.

The plan consists of 4 pillars as follows:

1. Innovative Bulgaria - aimed at increasing the competitiveness of the economy and transforming it into an economy based on knowledge and intelligent growth;
2. Green Bulgaria - with a focus on the sustainable management of natural resources, allowing the current needs of the economy and society to be met, while preserving ecological sustainability, so that these needs can continue to be met in a long-term period;
3. Connected Bulgaria - emphasizing the provision of prerequisites for increasing the competitiveness and sustainable development of the country's regions, such as the improvement of transport and digital connectivity, as well as the promotion of local development, stepping on the specific local potential;
4. Fair Bulgaria - with a special focus on disadvantaged groups and individuals to achieve more inclusive and sustainable growth and shared prosperity for all, as well as with an emphasis on building effective and accountable public institutions sensitive to business needs and the needs of citizens.

3.3. Renewable Energy Act and regulations under it

Public relations related to the production and consumption of electrical energy, thermal energy and energy for cooling from renewable sources, gas from renewable sources and biofuels and energy from renewable sources in transport are regulated by the Act on Renewable Energy Sources. ARES introduces the requirements of Directive (EU) 2018/2001 of the European Parliament and of the Council of December 11, 2018 to promote the use of energy from renewable sources.

Some basic aims of this Act are as follows:

1. promoting the production and consumption of energy produced from renewable sources;
2. promoting the production and consumption of biofuels and energy from renewable sources in transport (REV);
3. creation of conditions for the inclusion of gas from renewable sources in the natural gas transmission and distribution networks;
4. creation of conditions for the inclusion of heat energy and cooling energy from renewable sources in heat transmission networks;
5. provision of information on support schemes, benefits and practical features of the development and use of energy from renewable sources to all interested parties involved in the process of production and consumption of electricity, heat and cooling energy from

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- renewable sources, of production and consumption of gas from renewable sources, as well as production and consumption of biofuels and energy from renewable sources in transport;
6. creating conditions for achieving a sustainable and competitive energy policy and economic growth through innovation, implementation of new products and technologies;
 7. creation of conditions for achieving sustainable development at the regional and local level;
 8. creating conditions for increasing the competitiveness of small and medium-sized enterprises through the production and consumption of electrical energy, thermal energy and energy for cooling from renewable sources;
 9. security of energy supply, procurement and technical safety;
 10. environmental protection and limiting climate change;
 11. raising the standard of living of the population through economically efficient use of energy from renewable sources.

The Act regulates the rights and obligations of the bodies of the executive power and of local self-government in the implementation of the policy in the field of promoting the production and consumption of electricity, thermal energy and energy for cooling from renewable sources, the production and consumption of gas from renewable sources, as well as the production and consumption of biofuels and energy from renewable sources in transport.

Ares introduces schemes to support the production and consumption of RES, incl. for own consumption, as well as those related to the development of the transmission and distribution electric networks, including intersystem connections, of smart networks, as well as the construction of regulating and cumulating facilities related to the safe functioning of the electric power system during the development of the production of energy from renewable sources.



Figure 4 Content of ARES

The Promotion of energy production from renewable sources is carried out through:

1. 1. developing schemes to support the production and consumption of energy from renewable sources, gas from renewable sources, biofuels and energy from renewable sources in transport and liquid fuels from biomass;
2. development of schemes to support the production and consumption of energy from biomass, in cases where technologies with a high degree of environmental protection are used and energy is produced in a highly efficient manner;

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3. development of joint support schemes with other member states of the European Union, to support the production and consumption of energy from renewable sources;
4. financing of activities and projects for the production of energy from renewable sources, as well as for the use of energy from renewable sources in the final consumption of energy from the "Energy Efficiency and Renewable Sources" fund and from other financial institutions;
5. contracts with a guaranteed result according to the Law on Energy Efficiency, related to the use of energy from renewable sources;
6. provision of guaranteed access of electrical energy produced from renewable sources to the transmission and distribution electrical networks in compliance with the security criteria determined by the rules under Art. 83, para. 1, items 4 and 5 of the Energy Act;
7. guaranteeing the transmission and distribution of electrical energy produced from renewable sources, subject to compliance with security criteria;
8. ensuring the construction of the necessary infrastructure and power capacities for regulating the power system;
9. determining a preferential price for the purchase of electricity produced from renewable sources and biomass;
10. support and implementation of projects for the construction of heat transmission networks in populated areas;
11. support and implementation of projects for the construction of small decentralized systems for heat energy and/or energy for cooling, etc.

With the latest amendments of ARES from 2022, relief was introduced for the construction of sites for the production of electricity from renewable sources only for own consumption with a total installed capacity of no more than 5 MW. The end customer who builds such an installation does not go through a permit regime, but only notifies the operator of the electricity transmission network or the relevant operator of an electricity distribution or closed electricity distribution network.

3.4. Obligations and possibilities for the municipalities according to the ARES

ARES defines the state management in the field of energy from renewable sources and the roles of institutions in the implementation of policies to promote the production and consumption of RES.

According to the provisions of ZEVI, mayors of municipalities develop and submit for adoption by the municipal council municipal long-term and short-term programs to promote the use of energy from renewable sources and biofuels. Long-term programs are developed for a period of 10 years, and short-term programs for 3 years. Only projects related to the measures under the municipal programs can participate in municipal support schemes.

Similar to the obligations for energy planning under EEL, in the planning of activities and measures under ARES, Guidelines have been prepared for the preparation of long-term and short-term municipal programs to promote the use of RES, which are not of a mandatory nature. The guidelines suggest the structure, approach, framework, phases and steps for preparing the programs without limiting the content and scope of the documents themselves. The programs are dynamic and open documents that can be periodically supplemented, according to the changes in the priorities of the municipality, in the national legislation and in other documents of strategic importance.

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In addition, municipal administrations are obliged to publish on their Internet pages their long-term and short-term municipal programs to promote the use of RES.

Again, similar to the requirements in the EEL, the municipalities are obliged to report annually to the SEDA on the implementation of the programs to promote the use of RES. The reporting is carried out every year by March 31 according to an established model - [Form for providing information by the mayors of municipalities on the implementation of municipal programs to promote the use of energy from renewable sources and biofuels](#). The form provides annual information on the implemented technical measures for renewable energy production, indicating the type of renewable source, the type of energy produced, the power of the installations and the amount of energy production, as well as the realized effect - energy savings, emissions savings and funds etc. In the same form, the planned/implemented activities and measures to promote the production and consumption of renewable energy and biofuels undertaken by the municipality, the assessments of the available and estimated potential of local resources for the production of energy from a renewable source and the consumption of biofuels in public transport. In many cases, the reporting of activities and measures to promote the use of RES is assigned to one employee, and the necessary information to fill out the reporting form is available to different units within an administration. This implies the need for joint action, data exchange and commitment of the administration as a whole.

Annual [analyses of the implementation of municipal programs](#) for the promotion of the use of energy from renewable sources and biofuels are published on the SEDA's website.

In addition to the requirements for municipal planning and reporting, the mayors of municipalities have the obligation to organize for the territory of the municipality the updating of data and the maintenance of the National Information System by making assessments of the available and estimated potential of local resources for the production of energy from a renewable source. It is expected to have an estimation for the potential of:

- construction of energy sites for the production of energy from renewable energy or of installations for the production of biofuels in transport and liquid fuels from biomass on waste lands of public municipal and private municipal property and appropriate measures for the utilization of these lands
- cultivation of plant species from which the raw materials are produced, as well as for the utilization of residues and waste from them, for the production of biofuels and liquid fuels from biomass, on waste lands and appropriate measures for the utilization of these lands.
- cultivation of plant and forest species from which the raw materials are produced, as well as for the utilization of residues and waste from them, for the production of thermal and/or electrical energy, on waste lands and appropriate measures for the utilization of these lands.
- use of thermal energy from renewable energy, related to the issuance of a license for the construction of a plant for the production of thermal energy from renewable energy and for the construction of a heat transmission network on the territory of the municipality.
- construction of energy facilities for the production of renewable energy on the roof structures of municipally owned buildings or buildings with a mixed regime of ownership - state and municipal.

An assessment of the forecast potential is necessary for each individualization of land and/or properties for the construction of sites for the production of energy from renewable energy sources, when developing urban plans for the territory, when evaluating the

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compliance of investment projects for the possibilities of introducing renewable energy sources .

The evaluation of the available and estimated potential of the resource for the production of energy from renewable energy is an integral part of the investment studies carried out in accordance with Ordinance No. 14 of 2005 on technical rules and regulations for the design, construction and use of the sites and facilities for production, conversion, transmission and distribution of electrical energy. The assessment includes the activities under [Art. 6 of Ordinance No. 16-27 of 22.01.2008](#) on the conditions and procedure for carrying out an assessment of the available and estimated potential of the resource for energy production from renewable and/or alternative energy sources, as well as all other activities related to determining of the potential.

Municipal administrations encounter serious difficulties in preparing comprehensive assessments of the potential (at the municipal level, not at the investment project level, according to Ordinance No. 16-27 of 22.01.2008) due to a lack of sufficient information at the local level, as well as of capacity for its collection and analysis. The planning of measures related to the use of renewable energy in buildings for public use, municipal property, prevails, which shows a significant connection with municipal programs for energy efficiency. Planning the determination of the potential, of the types of local resources directly depends on the planned measures for absorption of energy from RE and expectedly the most measures are planned for absorption of solar energy from installations on roof structures.

According to ARES, local self-government bodies take measures to ensure that new public service buildings, as well as existing public service buildings undergoing reconstruction, major renovation, major repair or remodeling, serve as a model for achieving the goals of ARES. This obligation can be fulfilled by complying with standards for zero-energy residential buildings or by ensuring the use of the roofs of such buildings or mixed-use buildings, including for public services, by third parties for installations for the production of energy from renewable sources . The definition of a building with close to zero energy consumption is specified in the Energy Efficiency Act:

”A building with close to zero energy consumption” is a building that simultaneously meets the following conditions:

- a) the energy consumption of the building, defined as primary energy, corresponds to class A of the scale of energy consumption classes for the relevant type of buildings;
- b) not less than 55 percent of the consumed (supplied) energy for heating, cooling, ventilation, domestic hot water and lighting is energy from renewable sources located on site at the building level or near the building.

Directive 2010/31/EU sets requirements that after 31.12.2018 new buildings occupied or owned by public bodies should have close to zero energy consumption, and after 21.12.2020 all new buildings should have close to zero energy consumption energy. At present, this requirement is not specified in the national regulatory framework.

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4. Strategic documents in the sphere of RES

4.1. Integrated plan in the field of energy and climate of the Republic of Bulgaria 2021-2030 - "De-carbonization" field

The integrated energy and climate plan of the Republic of Bulgaria 2021-2030 (INPEC) has been prepared in accordance with the requirements of Regulation (EU) 2018/1999 and Directive 2012/27/EU (for a detailed description, see 1.3.2 вж. 1.3.2).

The country's national goals in the field of RES and measures to promote the use of energy from RES are indicated in the "Decarbonization" dimension of INPEC. Bulgaria aims to achieve at least a 27.09% share of renewable energy in the gross final energy consumption by 2030. The national target thus determined should be achieved by increasing the consumption of renewable energy in all three sectors: electricity, heating and cooling, and transport.

The forecast for the energy balance of the country envisages an increase in the share of renewable energy in the gross final energy consumption by 11.09 percentage points in 2030, compared to the national target for 2020 set for Bulgaria in Annex I of Directive 2009/28/EC5. increase takes into account Bulgaria's early efforts since the expected over-achievement in 2020 of the national mandatory target of 16% share of energy from RE in gross final energy consumption and exceeds the reference values for increasing the share of energy from RE for 2022, 2025 .and 2027

Bulgaria has suitable climatic conditions for the development of the renewable energy sector, but there are some objective restrictions related to certain localities in which facilities for the production of renewable energy cannot be built. These are the localities from the "Natura 2000" network together with the protected areas, which cover 41,053.2 km² of the country's territory. The development of renewable energy should comply with all requirements arising from environmental legislation, including in relation to protected areas and Natura 2000.

All projects for the construction of energy facilities for the production of energy from renewable energy sources are implemented in compliance with the provisions of the [Environmental Protection Act](#), the [Biodiversity Act](#), etc. normative acts in the field of environmental legislation.

In order to achieve the national goal for the share of renewable energy in the gross final energy consumption by 2030 (27.09%), the following distribution by sector is predicted:

- 30.33% share of renewable energy in the electricity sector;
- 42.60% share of renewable energy in the heating and cooling energy sector;
- 14.2% share of renewable energy in the transport sector.

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4.2. Role of the municipal administrations in the field of "Decarbonization" dimension of INPEC

The contribution of local authorities to the wider spread of renewable energy, to the creation of conditions for self-consumption of renewable energy and consumption of renewable energy by dedicated "renewable energy communities" at the local level is essential for economically efficient development of renewable energy in the country. Directive 2009/28/EC, as well as Directive (EU) 2018/2001, require the possibilities of using renewable energy to be taken into account in the planning, design, construction and modernization of urban infrastructure, including industrial, commercial and residential areas and energy infrastructure, with special attention being paid to the use of heat energy and cooling energy from RES.

The role of municipal administrations in the implementation of policies and measures to promote the use of renewable energy is clearly indicated in the ARES (see item II.2 . 1. II.2)

INPEC additionally formulated intentions to regulate responsibilities to local authorities within their short-term and long-term programs to introduce their own specific measures in their territory to increase the attractiveness of the use of electric transport. These programs should also include measures to promote the development and use by the population of urban and rail electric transport.

4.3. National recovery and resilience plan - measures to stimulate RES

Reforms and investments in NRRP are detailed in point 3.2. National Recovery and Resilience Plan. Measures to stimulate RES are also included in the Low Carbon Economy component (for a detailed description).

Investments directly aimed at stimulating the use of renewable energy are:

- Program for financing single measures for energy from renewable sources in single-family buildings and multi-family buildings;
- National infrastructure for storing electrical energy from RES (RESTORE);
- Scheme to support pilot projects for the production of green hydrogen and biogas;
- Scheme to support the construction of a minimum of 1.4GW RES and batteries;
- Research activities and development of a pilot project for combined production of heat and electricity from geothermal sources.
- The envisaged reforms that are expected to directly contribute to promoting the use of renewable energy in the country are:
 - Stimulating the production of electricity from RES;
 - Preparation and adoption of a National Road Map for improving the conditions for deploying the potential for the development of hydrogen technologies and mechanisms for the production and supply of hydrogen;
 - Decarbonization of the energy sector;
 - Financing mechanism for energy efficiency and renewables projects alongside energy bills.

The program for financing single measures for energy from renewable sources in single-family buildings and multi-family buildings provides for the provision of grant funds for the purchase and installation of domestic hot water systems and photovoltaic systems. It is expected that at least 10 thousand households will be supported throughout the country.



The aim of the RESTORE project is to contribute significantly to solving the problems of the inability of renewable energy sources to fully participate in balancing the electricity system, covering peak loads and providing market-based flexibility and ancillary services through the purchase, installation and introduction of operation of a national infrastructure of electrical energy storage facilities with a total charging energy capacity of 6,000 MWh.

The goals of the reforms in the NRRP are primarily to reduce the administrative burden for investments from renewable sources in terms of the installation, connection and operation of the capacities, as well as to create key prerequisites for the implementation of the objectives of the Green Deal and the decarbonization of the economy.

The second section of the current report is focused on the experience of the Bulgarian municipalities in the field of EE and RES.

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5. Municipal experience in EE and RES

5.1. Organizational and management process

The theoretical model followed by the Bulgarian municipalities is very similar to that laid down in the international standard for energy management ISO 50001:2011.

Out of 264 municipalities in Bulgaria according to the statistical data for 2017, the standard was implemented in only six - the municipalities of Banya, Bratsigovo, Nedelino, Zlatograd, Chepelare and Rudozem, and these municipalities also received a certificate.

There are currently 265 municipalities in Bulgaria (acc. to the statistics for 2021), but unfortunately the number of certified ones remains the same.

However, the municipalities in Bulgaria fulfill a large part of what is laid down in the standard in terms of the organization and process of energy management in their territory.

The ISO 50001 standard implements an energy management system that includes a set of interrelated or interacting elements of an organization, in this case a municipality, such as: policy; common goals; specific energy targets; energy baselines; energy performance indicators; internal audits; addressed discrepancies; purchasing processes; design.

It allows municipalities to define the systems and processes necessary to continuously improve the energy performance of facilities on their territory, including energy efficiency, energy use and consumption.

In their activity, municipalities are guided by the principle of EE in activities such as design and purchase of facilities, equipment, systems or processes using energy, etc.

In terms of resources, each municipality has human resources, specialized skills, data collection infrastructure and financial resources. What is still missing in over 90% of Bulgarian municipalities are the technologies and the somewhat specialized skills of the employees.

The requirements for competence, which affects energy characteristics and energy management on the territory of Bulgarian municipalities, must be consistent with the functions, level and role of employees (including senior management). Competency requirements are set out in various laws, including the Civil Servants Act.

Training is a fundamental method of achieving competence, therefore energy management employees should be encouraged to continuously develop, maintain and improve their knowledge, skills and experience. Where relevant national or local qualification schemes (or equivalent) are available, certification may also be considered.

The exchange of information is also of key importance, but is currently at an unsatisfactory level, as in most municipalities this happens on a monthly basis or upon request and is not always sufficient to ensure good results in terms of implementation and implementation of EE measures .

The data that is collected can range from a simple number/digit to a complete monitoring and measurement system linked to a software application capable of consolidating the data and providing automated analysis.

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Energy Management Software (EMS) encompasses a variety of software applications that enable tracking of electricity bills, real-time metering, building HVAC and lighting control systems, forecasting building energy use, carbon accounting, management of IT equipment, consumption control and conducting energy audits. EMS solutions provide tools to reduce energy costs by collecting consumption data and using it for three main purposes: reporting, monitoring and engagement.

To date, several software have been developed on the territory of the Republic of Bulgaria, some of which are listed below:

1. Innovative software for energy monitoring and management for the collection of data from electricity consumption, analysis and assessment of energy savings in real time through IoT sensors and artificial intelligence (AI), offered on the territory of the country by the company Energomonitor.
2. Another example of software is SCADA InfoSys, which is a software product for monitoring, controlling and managing the use of thermal energy in various objects, including industrial ones. The system is configured to manage specific heat processes in subscriber stations, providing collection, storage in a database, archiving of data, sending of control commands, identifying of alarm situations and visualization of the data in a form suitable and convenient for the needs of the operators. Using the system has the following advantages: Remote reading of commercial measuring devices, validation of reports; Improving the operation modes of subscriber stations; Reducing the time to detect emergency situations; Real-time monitoring of ongoing thermal processes in subscriber stations; Assisting in making decisions to optimize thermal processes; Reduction of subscriber station service costs and response time. Currently, there are municipal facilities that use this software on the territory of the Metropolitan Municipality and the municipalities of Plovdiv, Ruse and Pernik. These sites include municipal kindergartens, schools and administrative buildings.
3. Within the framework of the MEMs project under the EUKI program, a municipal energy management system has been created, which helps three municipalities to introduce this system on their territory. These are the municipalities of Burgas, Lyaskovets and Pavlikeni.
4. Schneider Electric Bulgaria EOOD also offers energy management software solutions, including software and digital services that enable building, facility and maintenance managers to optimize activities. Data from connected devices is used to help perform timely maintenance, manage building systems and workplaces, monitor power systems and optimize energy consumption. With the latest addition to the world's leading Integrated Workplace Management System (IWMS) platform, these software solutions contribute to better building and workplace productivity by simplifying business processes and reducing costs. The product is mainly used for industrial systems, industrial and building automation.
5. Siemens is another company providing software solutions for energy management, but it, like Schneider Electric Ltd., specializes in industrial and building automation.

Currently, the collection of data on energy consumption in the majority of municipalities in the Republic of Bulgaria does not include the use of specialized software, and the reasons for this are complex and include various aspects - from the lack of qualified personnel for their maintenance to the lack of financing for their purchase.

The very implementation of EE measures on the territory of each Bulgarian municipality includes the following cycle of actions: Planning-Implementation-Check-Action.

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5.2. Results from the survey done in the beginning of March 2023

The participants in the survey are 17 as they were representatives from:

Representatives of municipalities: 10 (Dobrich; Rila; Gabrovo; Burgas; Lyaskovets; Pavlikeni; Glavinitsa; Stolichna municipality)

- Representatives of NGOs working in the field of EE and RES: 2 pcs
- Representatives of private companies: 3 pcs
- Utility companies - EVN Bulgaria: 1
- Representatives of financial institutions: 1

The questions (8 in total) answered by the respondents are key to the implementation of energy management at the municipal level in the country.

What can be pointed as conclusions and findings are as follows:

- 1. Who is supposed to perform energy management activities in municipalities?**
 - 58.8% of respondents point that EM should be concentrated in 1 department (10 out of 17).
 - 47% of them indicate that it is the responsibility of only one or two people. (8 of 17)
 - And only 17.6% suggest that the administrative management of each building should perform these functions. (3 of 17)
 - The representatives of private companies prefer the option – 1 person.
 - 2. When asked about the type of department responsible for EE, respondents indicated:**
 - To be an independent department in the structure of the municipality and here are some of the proposals for its name: "Energy efficiency" (2 respondents); "Regional development or territorial planning and construction" (4 respondents); "Sustainable development" (1); "Construction control" (1); "Technical information for buildings and facilities"; "Climate and Energy" (1).
 - 3. Exchange of information between the energy manager and the municipality administration:**
 - Daily communication between EM and departments - (2 respondents).
 - Weekly communication between EM and departments - (4 respondents).
 - Monthly communication between EM and departments - (10 respondents).
 - Several times a month - (2 respondents).
 - There is a very good proposal about the need for software to provide analysis, conclusions and access to it 24 hours a day for all interested parties.
- We can conclude that 58.8% of respondents give an option for monthly communication, since energy consumption and energy bills in Bulgaria are calculated, recorded and prepared on a monthly basis for all types of buildings - administrative, residential, business.
- 4. The respondents' suggestions about what functions the municipal energy manager should perform are extremely interesting:**
 - 47% of respondents believe that EM should collect and analyze data on energy consumption;

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- 23.5% of the respondents recognize the functions of the OEM as: to monitor the changes and policies in the EE legislation and to implement them at the municipal level and to organize trainings for the users of municipal buildings;
- 35.2% of the respondents suggest that OEM collect good practices and implement them in the municipality; and prepare reports and proposals for improving municipal EE activities;
- 70.5% indicate all the above options as mandatory for MEM.

There are also several additional suggestions such as: to communicate with utility companies; to initiate and develop project proposals for the development of EE; to participate in EE training.

5. Regarding the required level of education and qualification of the municipal energy manager the result is absolutely expected:

- 58.8% indicate the engineer as the best option. There are variations between different engineering majors such as: HVAC; construction; electrical engineering, etc. Only 11.7% recognize EM as an ecologist, and 17.6% as an economist. Two respondents spoke of qualifications as more important than education. They indicate: ability to work with citizens, good understanding of Bulgarian legislation; desire to learn and improve; financial and management skills.

6. The daily work and activities of the municipal energy manager:

- depend on: the mayor or the director of a directorate or the governing body in the municipal structure according to 64.7% of the respondents. 11.7% point to the financial department of the municipality, and 17.6% believe that the users of municipal buildings with their behavior and energy consumption in daily activities determine the work of EM.

7. Part of the respondents find other opportunities for the OEM to also perform functions such as the "one-stop service" service, etc.

- 17.6% of respondents think it is unacceptable.
- 47% of respondents consider it absolutely acceptable, but indicate various functions such as: communication with citizens, households, participation in trainings, technical assistance to people; participation in information campaigns, etc.

8. 8. The field for additional comments and recommendations provides us with very important data, namely:

- Two of the municipalities actually already have people performing EE and EM functions such as collecting energy consumption data, analyzing it, drawing conclusions and making recommendations to the governing body.
- The first good example is from the municipality of Pavlikeni, where they have an engineer who is a senior expert in the "Regional Development and Energy Policy" department and performs all the functions listed in question 4 of our questionnaire.
- The other good example is from the municipality of Dobrich, where they have an alternative department for managing energy consumption in the municipality and also perform most of the listed functions.
- One municipality indicates that it has its own external experts for the implementation of these activities.

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5.3. Good practices

Among the municipalities in Bulgaria with good practices in the field of energy management, in addition to the already mentioned Pavlikeni and Dobrich, also Troyan, Svilengrad, Lom, Banya and the 5 municipalities of the Rhodope region stand out.

Troyan

The Municipality of Troyan works very actively in the field of energy efficiency, and in the last 10 years, more than 16 public buildings on its territory have been renovated. They include buildings of education, culture, state and municipal administration (Court, Prosecutor's Office, Registration Office, Municipal Agriculture Office, RS PBZN-Troyan, RU of the Ministry of Interior-Troyan). The benefits for the citizens of the renovated 38 multi-family residential buildings with 795 objects in them (780 residential and 15 - with commercial purpose) are indisputable. In this way, the municipal administration is gaining solid experience in improving the energy performance of buildings.

Svilengrad

Another good example is the municipality of Svilengrad, which currently has two PV installations built on municipal sites that have systems for monitoring energy production. The second installation was put into operation in 2023 and uses a Bulgarian software solution - GRID-ONE for monitoring the produced energy.

The Municipality of Svilengrad is in the process of implementing a system for monitoring the energy consumption of municipal buildings, as well as the production of energy from RES at municipal installations. The system envisages approximately 115 points (ITN) to be equipped with control panels to monitor the consumption of each of them. Data from all points will be fed into an integrated software system to monitor consumption/production for a given period in order to obtain specific data on the total electricity consumption and production of municipal buildings in the municipality.

The management of the Municipality of Svilengrad wishes to create a department or directorate to monitor the data from the system, through which to prioritize the next steps for the reduction of the energy consumption from solid fuels and the transition to green energy.

Lom

The municipality of Lom has appointed a senior expert to the municipality in the position of "Energy Manager" since 2018. The energy manager leads and manages the entire process of production, distribution and consumption of energy on behalf of the municipality. It also ensures sustainable implementation and successful implementation in practice of the municipal energy planning process. Initiates, manages and maintains an information system for energy consumption on the territory of the municipality. Energy efficiency carries out its activity according to the regulations of EEL and ARES.

Banya

On June 27, 2013, Banite Municipality received Bulgaria's first certificate of compliance with the requirements of the new standard for Energy Management Systems ISO 50001:2011. The certificate was issued under the accreditation of the Swedish Accreditation Office /SWEDAC/, after a successfully passed certification audit by INTERTEK. The subsequent certification is from the company Tuf Nord.

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Association of the Rhodope region`s municipalities

In 2017, the municipalities of Bratsigovo, Zlatograd and Rudozem joined the European initiative "Convention of Mayors", committing to reduce carbon dioxide emissions on the territory of the respective municipality by at least 20 percent by 2020 at the initiative of the Association of Rhodope municipalities and within the project "Supporting local authorities in the development and integration of action plans for sustainable energy with energy management systems in accordance with ISO 50001". As participants in the project, the municipalities of Bratsigovo, Nedelino, Zlatograd, Chepelare and Rudozem have developed municipal action plans for sustainable energy until 2020 and implemented and certified energy management systems.

The municipalities of Burgas, Lyaskovets and Pavlikeni

One of the main obstacles to the sustainable financing of municipal energy management in Bulgaria is the lack of reliable and well-structured data on energy consumption and the energy characteristics of buildings. Therefore, the project has developed a set of energy management tools that allows Bulgarian municipalities to build their own energy management system that meets internationally recognized standards. The toolset provides reliable energy-related data, enabling high-quality energy analyses, project monitoring and improved planning processes.

This, in turn, improves opportunities to mobilize financing for investments in energy and climate projects. In support of this, an innovative tool was developed for financing energy efficiency projects in Bulgarian municipalities, which focuses on monitoring and verifying the results of energy efficiency projects.

Within the project, the energy management toolkit and financing tool were tested in three pilot municipalities (Burgas, Pavlikeni and Lyaskovets) and adapted according to feedback from the municipalities.

The three municipalities are pilots of the MEMs project under the EUKI program and in the period 2019-2022 they share their experience of managing energy consumption in municipal facilities, as well as their problems and ideas for the introduction of municipal energy management systems. The example of the municipality of Gabrovo regarding the first ESCO contract for street lighting, implemented through co-financing with a subsidy from NDEF, was used by the three municipalities when implementing their projects in the "Street lighting" sector.

Concrete results of the project are:

The final version of the online tool is actively used by 20 registered municipalities and for energy management needs in 25 schools and 4 kindergartens.

A "Manual for the creation and implementation of the Energy Management System in Municipalities" was also created on the territory of the country.

The financial instrument, as well as the Guidelines, were presented and discussed with representatives of Bulgarian municipalities and the National Association of Municipalities in the Republic of Bulgaria during public consultations, and the final version was presented at a national conference.

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6. Conclusions

Recommendations to us from the conducted conversations and research are: to look at the German experience; to use the 3 pilot municipalities to test the energy management model for a minimum of 2 years; every municipal building has at least one energy manager (the position of technical person in charge of building maintenance is also recognized as an energy manager); to include more municipalities in the project as pilots; to provide training for the employees of the participating municipalities; to organize visits to municipalities that already implement energy management; to prepare a manual for the implementation of energy management, etc. With regard to the last recommendation for the preparation of a Guide for the implementation of energy management, it has already been prepared in the framework of another project and the municipalities in Bulgaria can freely use it.

This is a very good picture of the municipalities in Bulgaria at the moment. The general conclusion is that about 10% of Bulgarian municipalities have started to organize an energy management structure within the municipal structure and this process needs to be accelerated in order to obtain better results in the implementation of EE and RES measures of municipal level.

This Report contributes to this, as based on the review of the legislative framework in the field of EE and RES, and OEM in particular, it gives specific recommendations that are current at the moment. These are detailed in the next section.

RECOMMENDATIONS ON MUNICIPAL PLANNING AND SETTING PROGRAMS ON EE AND RES

6.1. Consolidation of strategic documents with similar priorities

Legislation in the country in the field of energy efficiency, renewable energy sources, regional development, ecology and environmental protection defines obligations for planning, programming and performance reporting by municipal administrations. Each law and/or strategic document requires the preparation and implementation of plans, programs or strategies at the local level related to the relevant policy. Due to the existence of a direct or indirect link between policies and measures in the field of energy efficiency, RES and environmental topics, municipal strategic documents often have similar visions, priorities and strategic goals. At the same time, the legal requirements for planning in different policy areas are considerable, which also determines the development of a large number of plans and programs by local authorities. The development, monitoring and reporting of a significant number of strategic municipal documents leads to a significant administrative burden, as well as worsens the quality of their implementation, since related policies and measures are implemented and monitored separately. In this way, there is a lack of coherence of local policies and the achievement of sustainable results is put at risk.

A possible approach is the unification of municipal strategic documents that have similar priorities and whose intended measures have an impact on more than one policy. A good example is policies on energy efficiency and renewable energy sources. The unification of municipal plans in a general plan for sustainable development, for example, would allow achieving a broader view of local priorities and coherence of policies and measures to achieve the goals set before local administrations. There is no legal impediment to such programs being bundled, as long as the specific requirements of the relevant legislation regarding minimum scope of content, validity periods and other applicable are observed.

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6.1.1. Compliance with the "Energy Efficiency First" principle

Energy-efficient solutions should be considered as a first option in planning and investment decisions when formulating new rules on energy supply, as well as in other policy areas. The "energy efficiency first" principle is defined in Regulation (EU) 2018/1999 of the European Parliament and of the Council on the governance of the Energy Union and climate action. The principle means assessing, before making energy planning, policy and investment decisions, whether cost-effective, technically, economically and environmentally sound alternative energy efficiency measures could fully or partially replace the intended planning, policy and investment measures, while still achieving the objectives of the relevant decisions.

At the moment, the "energy efficiency first" principle is not explicitly introduced in national legislation, but this is forthcoming, especially given the upcoming amendments to Directive 2012/27/EU. However, the principle was introduced by regulation and it should be respected.

In the process of municipal planning, regardless of the type of policy and legislative sphere, the principle "energy efficiency first" should be considered and applied. Any planned investment measure must be assessed for compliance with the principle, even when it is not in the field of energy production and supply. If this is fully applicable and to a large extent a natural process when planning and programming measures for EE and RES, then for other measures directly or indirectly related to energy efficiency (in the field of environmental legislation, for example), it is necessary to respect the "energy efficiency first" principle for every planned policy measure.

6.1.2. Ensuring the coherence of policies at the local level

Ensuring the coherence of policies at the local level means, when developing a municipal plan or program for a given policy - energy or environmental, to study the relationship between goal setting in different spheres of legislation. It is striking, for example, that municipal environmental plans almost completely ignore measures for energy efficiency and the utilization of RES as applicable for the purposes of this particular planning. Energy and environmental local policies are developed and developed in parallel, without assessing the interrelationship between them.

A good example in this regard is the explicit requirement specified in the guidelines for the development of municipal urban plans under the Law on Urban Territories that the Implementation Program, like all other parts of the municipal plans, to be developed on the basis of the application of an integrated approach. In order to achieve an integrated approach to the development of the municipal territory, the most appropriate combination of resources and measures (projects, investments, policies) should be identified to be used purposefully to achieve a specific goal or priority.

A similar integrated approach should be applied to all strategic documents developed at the local level.

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RECOMMENDATIONS REGARDING ENERGY MANAGEMENT PRACTICES IN MUNICIPALITIES

6.2. Energy Manager/Energy Management Unit

Given the specific role of the municipality as a consumer (sometimes also a producer) of energy, as a property manager, as a responsible institution for overall regional management at the local level and a number of others, a clear need for a coordinator of the specific processes related to energy management emerges. It ensures that the organization continuously goes through the cycle of policy making, action planning, action implementation and results verification, on the basis of which a new policy is drafted. Energy management includes data collection and analysis, budget planning and evaluation, monitoring, reporting, and others that require a variety of expertise. Often, the different policies at the local level are defined, coordinated and monitored by different structures within the administration, who have no way of knowing the specifics of the work in the other units. This results in insufficiently effective planning and monitoring of the implementation of activities and measures at the municipal level.

In order to achieve effective and coordinated activities for energy management, the structuring of a specialized unit in the municipal administration, which will perform the functions of the so-called, is of key importance. energy manager/coordinator, depending on the size of a given municipality. In the case of a small municipality, it is possible for this function to be performed by one person, who will be assisted in the performance of his activities by the administrative management. In the larger municipalities, it is recommended to create a separate "energy team", whose functions should include the definition of energy efficiency and RES policies, coordination with other policies at the local level, approval of plans and programs for their implementation, implementation of control and etc. The need for the involvement of personnel with different expertise is obvious, as energy management is not only a technical task requiring engineering solutions. Communication between individual units is a prerequisite for the success of any activity. A project supported by several departments or the entire administration has a greater chance of attracting resources as well as being more successfully implemented.

6.2.1. Information security and connectivity

In the processes of planning policies and measures and their monitoring, the availability of data necessary for the analyzes and the correct structuring of measures in every area of municipal planning is of key importance. It is noteworthy that in almost every sphere of politics there is a lack of public systematized and above all up-to-date information on the current state, available resources, their territorial distribution, etc. Even the few existing databases are not interconnected, do not allow automatic data transfer, or are unknown to users. Although the ideal solution is a centralized database at national level, this is more difficult to achieve. It is recommended that, at the municipal level, efforts be made and funds provided for the creation and maintenance of the necessary information arrays at the local level by types of policies, which will create conditions for significantly more accurate analyzes and, from there, for significantly more effective planning and monitoring of the implementation of policies and measures.

6.2.2. Energy management systems

In its essence, energy management is planning and control over the operation of energy-consuming facilities. It is carried out on the basis of complex automated systems for analysis, monitoring and implementation of measures aimed at increasing energy efficiency.

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Energy management systems can be built on the basis of existing measurement and communication devices and cover all energy consumers in the facility or only a part of them. Various technical solutions of energy management systems with a wide range of functionalities are offered on the modern market. They collect information on all energy installations and provide tools for monitoring, analysis and control, provide options for data archiving, analysis tools, alarm generation, etc.

Energy management systems can be referred both to the local level (building) and to the overall definition of requirements applicable to energy use and consumption, including measurement, documentation and reporting, design and purchase of equipment, systems, processes and personnel that contribute to energy management at the organization/administration level. This is also the application of the ISO 50001 standard, which applies to all variables that affect energy performance that can be monitored and influenced by the organization. The main objective of ISO 50001:2011 is to help end users of energy to develop and implement system and processes that ensure they monitor and continuously improve energy efficiency. The standard is voluntary, but the training of employees in administrations on its implementation will significantly increase the capacity of experts, as well as significantly support the administration in carrying out energy management activities.

RECOMMENDATIONS REGARDING CAPACITY AND AWARENESS IN MUNICIPALITIES

6.3. Building local capacity

The numerous legislative requirements for municipal administrations in terms of structuring, implementation and monitoring of local policies require broad expertise in various fields – administrative management, technical, analytical, legal and financial expertise, etc. The need for a prepared municipal administration, familiar with the legislative framework in the country, resource security at the local level, sources of financing, possible innovative solutions and many others is clear. For this purpose, sustainable capacity building in the municipality must be ensured, as well as systematic training of the municipal employees involved in the implementation of local energy and environmental policies. With the recent amendments to the European legislation, new concepts have entered, such as renewable energy communities, energy communities, the emphasis on the construction of the so-called one-stop service units. Practices in other member states show that these processes are carried out very often with the direct participation of the municipality. In Bulgaria, there are still no established practices, for example, regarding the creation of energy and RES communities, but expert capacity capable of participating and managing such structures must be built in the municipalities. In addition to training, experience in the municipalities is also gained during the implementation of pilot projects financed by European programs, which is a good opportunity to receive peer support and use foreign experience from other countries.

Also, the collection of good practices and the preparation of regular analyzes by the experts who prepare and manage projects in the municipalities is a suitable approach for carrying out monitoring and for acquiring additional experience and expertise.

Training for municipal administrations should be aimed both at the implementation of the legislative ordinance and at capacity building in terms of innovative solutions, digital platforms, analysis and assessment methods, communication, technical expertise, etc.

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6.3.1. Ensuring public awareness

Ensuring the awareness of the general public is key to the effective implementation of policies at the local level. In the process of implementing activities and measures for sustainable development in a municipality, the population and business are partners, and it is of particular importance that all groups are widely and correctly informed about the benefits of implementing local policies, as well as about the specific actions to realize these benefits. It is also important that the public is convinced of its important role in this process. For this purpose, a communication strategy is needed to ensure the widest possible dissemination of information. The communication strategy should be a comprehensive and not a project-based approach to stimulate the empathy and participation of citizens in the implementation of local policies. It is especially important to analyze the results and receive feedback during or after the implementation of a given communication campaign. This will allow an assessment of the effectiveness and the need to introduce changes in the approach, and this, in turn, improves the overall communication strategy of the municipality. Municipalities must take all possible measures to maintain the interest and motivation for participation of local communities in the determination and implementation of the goals and priorities of the municipal strategic document. The overall communication strategy includes activities for research and analysis of potential partners, for informing the local public, for forming a culture at the municipal level in the direction of local social and economic development.

6.3.2. Principle of partnership and cooperation

A number of parties participate in the processes of energy management in municipalities - local businesses, energy suppliers, energy producers, etc. It is important to create stakeholder partnership models that often mobilize private capital and resources to meet common goals. An example in this regard is the partnership with energy suppliers on the territory of the municipality. Energy suppliers are obliged under the Energy Efficiency Act to meet annual individual energy savings targets. Often, obligees have resources but have difficulty identifying opportunities to implement energy efficiency measures. The municipality, on the other hand, has considerable experience in implementing similar projects, as well as being responsible for strategic goals at the local level. The partnership between the municipal administration and the energy traders is an opportunity for both parties to ensure both mutual benefits in fulfilling legal obligations, as well as efficient and effective implementation of priorities at the local level. The possible relationships and partnerships are practically unlimited and are subject to analysis and evaluation by each municipality, according to its needs and capabilities.

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