



Supporting PUBLIC Authorities for  
Implementing Energy Efficiency Policies

# First report on the results of matching assessment of roadmap specific needs with available tools

Specific focus: Technology for Heating and Cooling, Monitoring, Residential Buildings,  
Consumer Information and Capacity Building, Public Buildings

Work Package: 5

Work Package Leader: JIN

Team Leader: IEECP

Authors: JIN, CEI, IEECP

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## Preface

This booklet has been generated following the completion of tasks:

- from work package 2 *Good practice and needs assessments for Energy Efficiency policies at national, regional and local level*, task 2.2 *Assessment of national, regional and local needs for EE policy implementation and improvement*;
- from work package 3 *Development and implementation of energy efficiency roadmaps* task 3.1 *Matching good practices with national, regional, local needs*;
- and from work package 5 partial completion of tasks 5.1 *Gathering and modification of digital tools, protocols and guidelines* and 5.2 *Adapting tools and materials for energy efficiency policymaking*.

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## Organisation Name Abbreviations

**JIN** (Coordinator) – Stichting Joint Implementation Network, Groningen, Netherlands

**ABEA** – Association of Bulgarian Energy Agencies, Plovdiv, Bulgaria

**AEEPM** – Local Energy Agency Bucharest, Romania

**ARENE** – Île-de-France, Paris, France

**CEI** – Centre for Monitoring Business Activities in the Energy Sector and Investments, Zagreb, Croatia

**CIEMAT** – Research Centre for Energy, Environment and Technology, Madrid, Spain

**CRES** – Center for Renewable Energy Sources and Saving, Pikermi, Greece

**ENEA** – Italian National Agency for New Technologies, Energy, and Sustainable Economic Development, Rome, Italy

**Energy Cities** – Besançon, France

**ESV** – OÖ Energiesparverband, Linz, Austria

**FEDARENE** – European Federation of Agencies and Regions for Energy and the Environment, Brussels, Belgium

**IEECP** – Institute of European Energy and Climate Policy, Amsterdam, Netherlands

**ISNOVA** – Institute for the promotion of innovation technologies, Rome, Italy

**KAPE** – Polish National Energy Conservation Agency, Warsaw, Poland

**TEA** – Tipperary Energy Agency, Cahir, Ireland

# 1 Introduction

The purpose of the PUBLnEf project (Supporting Public Authorities for Implementing Energy Efficiency Policies) is to help EU member states to implement useful sustainable energy policies, by highlighting examples of effective practices from other member states. The objective of Work Package 5 is to provide PUBLnEf partners, as well as policymakers and stakeholders with the necessary resources that cover their specific needs, both during the development of the roadmap, various events and assist in promoting general energy efficiency awareness as well as capacity building. This Work Package was led by JIN Climate and Sustainability (JIN) with the Centre for Monitoring Business Activities in the Energy Sector and Investments (CEI) as Task 5.2 leader. In summer 2018, CEI tasks were taken over by IEECP. The task 5.2 activities relied greatly on the ongoing work from the Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA), i.e. Task 5.1. PUBLnEf Work Package 5, Task 5.2 *Adapting tools and materials for energy efficiency policymaking*, was completed following the finalisation of tasks from previous work packages, primarily WP2 and WP3 and partly WP5 i.e. Deliverable 5.2.

All WP5 Tasks were interconnected and activities included modifying and matching data available from the previous work packages and tasks in order to come up with comparative results that address a whole set of different needs and potential risk arising during the implementation of the roadmaps by each project partner. In order to improve the practical use of this report, the details related to the individual activities of previous work packages and tasks are not described. All previously issued public deliverables, as well as details on specific roadmaps, are available online at the Public deliverables section: <http://publnef-project.eu/>

The main objective of this booklet is to make the best use of all findings related to the tools gathered by the project partners and by adapting the information help partners in addressing specific needs of their roadmaps.

## 2 Task Management

In order to produce this booklet, findings from several previous project Tasks were merged and analysed. Key findings used for determining main needs in different roadmap implementations were: needs assessment findings from **D2.2 The compilation of needs assessment reports** completed by TEA and ARENE; public deliverables from **EE roadmap library** available online at PUBLENEF website as well as the needs assessment from the internal monitoring data gathered during WP3 activities by CIEMAT and JIN.

For the matching assessment of roadmap specific needs with available tools, ENEA's findings on tools from the Task 5.1 were crucial. Due to the complexity of the Task 5.1 *Gathering and modification of digital tools, protocols and guidelines* there was a delay in producing outputs of Task 5.2 *Adapting tools and materials for energy efficiency policymaking*, both the Deliverable Report **D5.2 Summary of materials for good practices and tools for addressing specific needs** and **Reports on the results of matching assessment of roadmap specific needs with available tools**. In order to facilitate the practical use of the materials, this is the first part of the report on the results of matching assessment of several roadmaps developed in the PUBLENEF project.

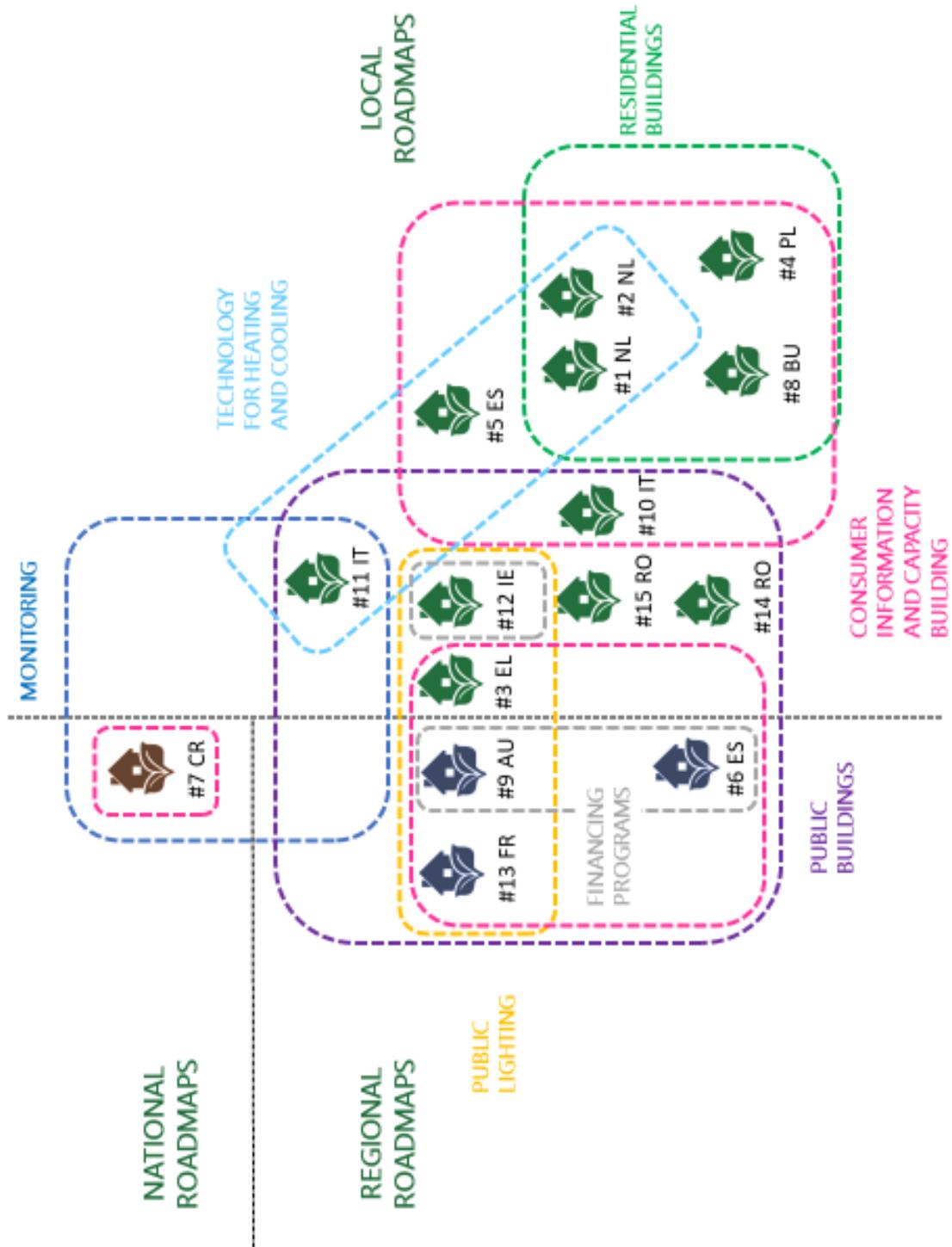
### 3 Matching assessment of roadmap specific needs with available tools

Roadmap reports compiled in chapter 3 present the results of matching assessments of the needs of several roadmaps developed in the PUBLnEf project. Roadmaps are listed by numbers according to their development in the WP3 structure. To facilitate practical use every roadmap is presented with a brief description outlining its goals and objectives. A short summary is followed by a list of potential risks for the roadmap implementation and key needs associated with a particular roadmap. The needs assessment was done based on the monitoring data gathered during WP3 activities.

All WP3 roadmaps were grouped according to their relevant focus, as seen in Figure 1, with the main specific categories **Technology for Heating and Cooling**, **Monitoring**, and **Residential Buildings**. **Consumer Information and Capacity Building** and **Public Buildings** act as two main overlapping categories. Color coding was used throughout roadmap summaries to facilitate the booklet use.

This booklet aims to identify critical risks that each roadmap might face and address those main issues by suggesting available tools suited for specific needs. All applicable tools are listed in relation to each need identified, but due to the format of this report tool details are not mentioned. The booklet is intended to be used as a manual outlining crucial steps in a project implementation where aforementioned **D5.2 Summary of materials for good practices and tools for addressing specific needs** can serve as catalogue providing detailed information (a D5.2 page reference) on all the tools mentioned here (e.g. replicability and transferability potential, language, etc.).

Roadmap categories	color indicator
Technology for Heating and Cooling	
Monitoring	
Residential Buildings	
Consumer Information and Capacity Building	
Public Buildings	



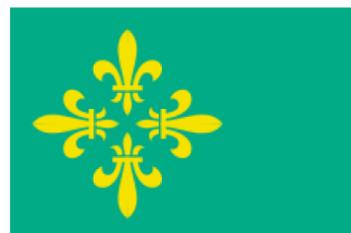
**Figure 1** PUBLNEF Roadmaps cluster map

## Roadmap #1 Municipality of Midden Drenthe (NL): Target energy - neutral: focus on heat

### ROADMAP SUMMARY

The municipality of Midden-Drenthe (Central Drenthe) has a population of about 33,300 and a surface area of about 342 km<sup>2</sup>. The main towns and villages in the municipality include Beilen, Westerbork, Smilde, and Bovensmilde. In July 2017, the local council adopted a motion including the ambition to become energy neutral and reduce the emissions of greenhouse gases, and asking the local government to prepare an action plan for the next 10 to 15 years. It is the ambition of the local government to develop this action plan in close collaboration with relevant (local) stakeholder groups (e.g.

GEMEENTE  
MIDDEN-DRENTHE



citizens, house owners, SME's and other relevant stakeholder groups. One of the key challenges that (local) governments face today in relation to the energy transition is to effectively mobilise and engage with relevant stakeholders in order to trigger them to initiate actions (e.g. to implement energy-saving measures, to invest in renewable energy, to take collective action in a specific region/area).

The PUBLNEF roadmap aims to support the municipality of Midden-Drenthe in the transition from natural gas use for heating in households to other heat sources, combined with substantial energy savings through among others insulation. The key objective of this Roadmap is to help the municipality of Midden-Drenthe to develop a pragmatic modus operandi for the municipality in their ambition to become energy neutral.

### **ROADMAP LEVEL: local**

#### NEEDS ASSESSMENT

- lack of human resources i.e. only 1-2 staff work on sustainability and energy
- lack of practical means of implementation of energy use reduction in several sectors including households
- need for improvement of stakeholder engagement and consumer awareness

#### CRITICAL IMPLEMENTATION RISK

- limited knowledge on possible solutions for the heating transition in the municipality
- inability to mobilize stakeholders and/or to raise consumer awareness
- inability to increase the number of staff working on the project

## Roadmap #2 Municipality of Midden Drenthe (NL): Energy savings communication via real estate agents

### ROADMAP SUMMARY

In July 2017, the local council of the municipality of Midden-Drenthe (the Netherlands) adopted a motion including the ambition to become energy neutral and reduce the emissions of greenhouse gases. Through the 'Woon Bewust' programme, the municipality aims to increase awareness among homeowners what they can do by themselves to make their home more energy-efficient. As part of the programme, the municipality offers a free 'energy scan'. In exchange, the citizens are requested to 'spread the word' and share their experiences with others.

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MIDDEN-DRENTHE 



A key challenge is to implement effective direct communication towards citizens, as this is time-consuming and costly. It also requires a continuous effort to keep the issue of energy savings in the built environment 'alive' within people's minds. In order to reach out to citizens, an alternative more indirect communication approach is considered. Through the roadmap, it is aimed to focus on real estate agents and mortgage advisors as communication intermediaries, as they are a key link to contact homeowners during so-called "natural moments" that are ideal for promoting energy-saving actions. These natural moments are for example the buying of a new house or a large-scale renovation, when the homeowners may also consider energy efficiency measures. The key objective of the roadmap is to organise and test a process in which real estate agents and mortgage advisors are key actors in informing homeowners on the opportunities of energy savings, and accelerate the reduction of energy use within the municipality.

### **ROADMAP LEVEL: local**

### NEEDS ASSESSMENT

- lack of human resources i.e. only 1-2 staff work on sustainability and energy
- lack of knowledge among municipality staff as well as citizens in choosing alternatives to natural gas

### CRITICAL IMPLEMENTATION RISK

- insufficient resources to implement practical solutions
- inability to increase the number of staff working on the project
- inability to mobilize stakeholders and/or to raise consumer awareness

## Roadmap #5 City of Valladolid (ES): Supporting the implementation of SEAP in the city of Valladolid

### ROADMAP SUMMARY

Valladolid is a city in Spain in the Autonomous Community of Castilla and León. It has a population of 309,714 people making it Spain's 13th most populous municipality and northwestern Spain's biggest city. The main objective of this roadmap is to support the implementation of SEAP in the city of Valladolid. The city has made good progress on the delivery of energy savings for the council activities, but some measures proposed in the SEAP have not yet been accomplished as some sectors and stakeholders are difficult to reach by the municipality.



CIEMAT is currently working on the implementation plan of this roadmap. CIEMAT is working on an “Energy Efficiency Help Desk” web page to be hosted on the Valladolid Energy Agency (AEMVA) web site. The web page will include information on energy efficiency solutions specially tailored for the commercial and small industry sector and will provide on-line support from the AEMVA staff. Furthermore, we are engaging and consulting with public and private stakeholders. On the one side, work is done in close cooperation with the municipal Energy Agency (AEMVA). On the other side, the local association of entrepreneurs (AEV) is also being contacted to participate in this plan.

### **ROADMAP LEVEL: local**

#### NEEDS ASSESSMENT

- difficulties in reaching and convincing many different stakeholders, especially commercial and industrial stakeholders
- lack of human resources i.e. only two persons working on the implementation of SEAP

#### CRITICAL IMPLEMENTATION RISK

- inability to increase the number of staff working on the project
- inability to engage and mobilize stakeholders

## Roadmap #11 Municipality of Castelbuono (IT): Monitoring of energy consumption and identification of energy efficiency measures in public buildings

### ROADMAP SUMMARY

Since December 2009, Castelbuono town took part in the European initiative 'Covenant of Mayors', and has developed its own Sustainable Energy Action Plans (SEAP) with the identification of a number of medium and long-term measures to achieve the goals of energy policy by 2020. For the public sector, the main actions include the implementation of the energy renovation of public buildings through geothermal, photovoltaic solar thermal systems also and the implementation of a biomass boiler at the slaughterhouse. The main roadmap objective is promoting energy efficiency in heating and cooling, through the involvement and the training of the technical office personnel and the main stakeholders about the monitoring of the energy consumption of heating and cooling systems installed in local public buildings, in order to verify their energy efficiency and their appropriate application, in particular for the Ground Source Heat Pump (geothermal systems). The roadmap aims to identify, inform, involve, train the interested stakeholders and professional profiles, with the final strategic goal to make them able to autonomously govern all the process, from the identification of the most suitable energy efficiency solutions and the management of the related call for tender for the assignment of the public funds, to the monitoring and evaluation of energy savings achieved.



### **ROADMAP LEVEL: local**

#### NEEDS ASSESSMENT

- lack of human resources
- lack of expertise to monitor installed heating and cooling technologies in public buildings
- difficulties in engaging stakeholders related to lack of financial resources
- lack of awareness and training of the technical office personnel of the municipality

#### CRITICAL IMPLEMENTATION RISK

- inability to increase the number of staff working on the project
- insufficient resources to implement practical solutions
- inability to engage stakeholders and/or to raise consumer awareness

## TOOLS APPLICABLE IN ADDRESSING ASSESSED NEEDS

To address assessed needs and tackle possible risks in the roadmap implementation, the following tools were selected. Since there are different issues, which sometimes overlap, tools were listed according to the areas of focus that require improvement.

### TOOLS RELATED TO TECHNOLOGY FOR HEATING AND COOLING

- ❖ **Pellets energy calculator, Hungary** – an energy calculator intended to provide information about the cost difference between conventional fuels and the use of pellet firing (p. 80 of D5.2)
- ❖ **Guia basica de redes de calor y frio, Spain** – a guide for promotion and dissemination of the technology of district heating and/or cooling networks (p. 108 of D5.2)
- ❖ **Biomass Decision Support Tool, Ireland** – a tool that helps in assessing the most cost-effective size and integration approach for a biomass heating system (p. 137 of D5.2)
- ❖ **progRESsHEAT, EU** – examples of national heating and cooling plans in different Member States (p. 158 of D5.2)
- ❖ **PLANHEAT, EU** – a platform planning tool for visualization of scenarios, heating demand and mapping of results (p. 161 of D5.2)

### TOOLS RELATED TO RESIDENTIAL BUILDINGS SECTOR (for roadmaps #1 and #2)

- ❖ **Verduurzamingsmaatregelen bestaande scholen, Netherlands** – a publication containing a list of potential measures to increase the sustainability of school buildings (p. 65 of D5.2)
- ❖ **Duurzaamheidsmeter Wijken (DZM Wijken), Belgium** – a tool created to support the planning, design, and implementation of a new sustainable residential neighbourhood (p. 68 of D5.2)
- ❖ **Project office for building renovation, Slovenia** – best practice example for establishing a national Office for energy renovation of buildings (p. 99 of D5.2)
- ❖ **Green rating, Spain** – a tool aimed at estimating in a simplified way the energy consumption in the households (p. 101 of D5.2)
- ❖ **Pre estudio rehabilitacion energetica de viviendas, Spain** – an excel tool that estimates the costs and savings of the interventions in buildings to reduce energy consumption (p. 102 of D5.2)
- ❖ **Aislamiento en edificación 1: Guía práctica de la energía para la rehabilitación de edificios. El aislamiento, la mejor solución, Spain** – a guide directed to communities of neighbors and house owners on the thermal refurbishment of buildings (p. 104 of D5.2)
- ❖ **EnergyHUB for ALL, Greece** – a web platform which represents an interface between different stakeholders in the building sector (p. 112 of D5.2)
- ❖ **Energy efficiency and carbon saving advice for local government, Ireland** – The Carbon Trust provides simple, effective advice to help organisations take action to cut emissions (p. 138 of D5.2)
- ❖ **RenoWiki, EU** – is an information tool supporting the national renovation strategy dialogue across a region (p. 147 of D5.2)

- ❖ **TABULA WebTool, EU** – a web tool whose objective is to disseminate the general idea of national residential building typologies to building experts from European countries (p. 148 of D5.2)
- ❖ **CERTuS, EU** – a web portal which integrates all the knowledge gained from the CERTus project in an easy-to-use tool that aims to facilitate the planning and preparation of nearly Zero Energy Building renovation projects for municipal buildings (p. 149 of D5.2)
- ❖ **Retrofit Action Hub (Request2Action), EU** – a pilot project focused on the areas of monitoring the uptake of EPC recommendations; enhancing self-assessment advice for householders, providing effective data from EPCs to different organisations and companies, etc. (p. 152 of D5.2)
- ❖ **TRUST EPC South, EU** – aims to scale up investments on Energy Efficiency (EE) and Sustainable Energy technologies with particular focus on EPC projects (p. 153 of D5.2)
- ❖ **CITYnvest, EU** – a toolkit explaining how to start an energy retrofitting project and identifies the main challenges and success factors (p. 159 of D5.2)
- ❖ **Business models for EPC in buildings, EU** – a project study outlining three business models for EPC in buildings (p. 182 of D5.2)
- ❖ **Green Cloud tool, EU** – a digital tool that interacts with residents' homes and, using laser tracking, projects a green cloud into the sky (p. 186 of D5.2)
- ❖ **INSMART City Energy System Model, EU** – a methodology whose objective is to use a scientifically sound approach in developing Sustainable Energy Action plans a city level (p. 201 of D5.2)
- ❖ **Sustainco Tool Kit, Ireland** – a project aiming to increase the visibility and understanding of the Near Zero Energy Building (NZEB) philosophy, with special emphasis on rural areas (p. 208 of D5.2)

#### **TOOLS RELATED TO PUBLIC BUILDINGS SECTOR (for roadmap #11)**

- ❖ **Long-range Energy Alternatives Planning System (LEAP), Bulgaria** – a software tool for energy policy analysis and climate change mitigation assessment (p. 70 of D5.2)
- ❖ **Regional Climate, Air and Energy Plan (SRCAE), France** – the reference document for local authorities wishing to act on their territory (p. 82 of D5.2)
- ❖ **Energy management Information system (EMIS), Croatia** – a web application for monitoring and analysis of energy and water consumption data in public sector buildings (p. 97 of D5.2)
- ❖ **Handbook addressed to public sector entities, Poland** – in order to implement energy efficiency improvement measures, the Ministry of Energy has issued a manual with recommendations for public sector entities (p. 128 of D5.2)
- ❖ **Improving Energy Efficiency in Buildings: Resources Guide for Local Authorities, Ireland** – a resource for local authority personnel who are involved in climate change mitigation in the built environment to support the planning and delivery of projects (p. 139 of D5.2)
- ❖ **Energy Management In Public Sector Buildings Guide, Ireland** – an overview of some of the key EU Energy Directive changes and practical steps that can be taken to improve energy efficiency in public sector buildings (p. 141 of D5.2)
- ❖ **CITYnvest, EU** – a toolkit explaining how to start an energy retrofitting project and identifies the main challenges and success factors (p. 159 of D5.2)

- ❖ **A Guide to Multi-level Governance for Local and Regional Public Authorities, EU** – a guide aiming to help regional and local public authorities develop their sustainable energy activities by using Multi-Level Governance (MLG) agreements (p. 169 of D5.2)
- ❖ **Green Public Procurement (GPP) technical database, EU** – a technical database with a template of technical terms for the purchase of green products/services (p. 191 of D5.2)
- ❖ **Training tool for persons dealing with SEAP development, EU** – the primary goal of this tool is capacity building of local government to take action regarding climate change and energy sources from planning and action monitoring (p. 194 of D5.2)

### TOOLS RELATED TO CONSUMER INFORMATION AND EMPOWERING PROGRAMME

- ❖ **Display, France** – a communication tool complementary to the national certificate for public buildings (p. 84 of D5.2)
- ❖ **Sustainability Puzzle Tool, EU** – a unique tool that helps to consider sustainability in all dimensions of a project, a work area, a plan, a campaign or a business (p. 184 of D5.2)
- ❖ **ENGAGE tool, EU** – a tool assisting cities to launch a campaign that commits all citizens and stakeholders to play their part in building a sustainable energy future (p. 187 of D5.2)
- ❖ **Climate-Active Families tool, EU** – an initiative to curb the ever-increasing rise in domestic energy and water use and household waste (p. 188 of D5.2)

### INFORMATION, TRAINING AND CAPACITY BUILDING TOOLS

- ❖ **Energiebenchmark gemeentelijk vastgoed, Netherlands** – sustainability improvement tool which provides insight into the energy use of a municipality (p. 64 of D5.2)
- ❖ **Handleiding / Tool Ondersteuning burgemeestersconvenant: inventory, Belgium** – a tool that supports municipalities in establishing their “baseline emission inventory” (BEI) (p. 67 of D5.2)
- ❖ **CO2 calculator, Bulgaria** – a software tool to support local authorities in keeping track of their CO2 emissions (p. 72 of D5.2)
- ❖ **EnergyPLAN, Bulgaria** – an input/output computer model to assist in the design energy planning strategies on the basis of technical and economic analyses (p. 73 of D5.2)
- ❖ **Green rating, Spain** – a tool aimed at estimating in a simplified way the energy consumption in the households (p. 101 of D5.2)
- ❖ **Regional Energy Information System (SIER), Italy** – a program to estimate annual energy demand and supply for regions and provinces for all fuels covered (p. 120 of D5.2)
- ❖ **"A low emission economy starts with municipalities" – Handbook for Polish Municipalities, Poland** - a handbook that offers a number of model solutions and good practices for the implementation of low-emission strategies (p. 129 of D5.2)
- ❖ **Local Authority Energy Index, Ireland** – provides a measure of Local Authorities’ work on energy efficiency, uses a combination of quantitative and qualitative measures to produce an overall index of performance in energy efficiency (p. 140 of D5.2)

- ❖ **EEFIG Underwriting Toolkit, EU** – a toolkit designed to assist financial institutions to scale up their deployment of capital into energy efficiency (p. 144 of D5.2)
- ❖ **A Guide to Multi-level Governance for Local and Regional Public Authorities, EU** – a guide aiming to help regional and local public authorities develop their sustainable energy activities by using Multi-Level Governance (MLG) agreements (p. 169 of D5.2)
- ❖ **RETscreen, Canada** – a universal tool developed to assist in technical assessment and financial feasibility of projects, and Greenhouse Gas Emission Reduction Analysis (p. 206 of D5.2)

## TOOLS RELATED TO ENERGY SERVICES

- ❖ **Information brochure on energy contracting, Austria** – offers detailed information on energy contracting, including: what is energy contracting, its advantages, steps to implementing an energy contracting project, etc. (p. 121 of D5.2)
- ❖ **EPC Plus - Energy performance contracting plus, EU** – an international ‘market place’ where, according to commonly agreed rules, members of different member states can efficiently and safely exchange valuable know-how (p. 154 of D5.2)
- ❖ **Methodology for the EPC project evaluation, EU** – a methodology for evaluation of running and completed projects (p. 172 of D5.2)
- ❖ **Facilitators Guideline for Energy Performance, EU** – a guideline to enable energy agencies to understand the typical tasks and responsibilities of an EPC project facilitator (p. 173 of D5.2)
- ❖ **Model processes for combining Energy Performance Contracting (EPC) with other energy-related actions, EU** – examples of innovative business and financing models for performance-based ESCO projects (p. 174 of D5.2)
- ❖ **Triple-Win-Solutions for the Split-Incentive-Dilemma, EU** – experienced partners present innovative business and financing models for performance-based ESCO projects (p. 175 of D5.2)
- ❖ **Standard EPC documents, EU** – a document presenting the main principles of contracts and main articles / heading from available model contracts (p. 193 of D5.2)
- ❖ **EnPC-INTRANS training material-model contracts, EU** – materials aiming at developing local capacities of the public sector to set up and use EnPC models (p. 200 of D5.2)
- ❖ **Code of Conduct for Energy Performance Contracting (EPC), EU** – defines the fundamental values and principles for successful EPC projects preparation and implementation (p. 207 of D5.2)

### TOOL LIMITATIONS

Since Heating and Cooling Technology aspect is crucial for the implementation of these four roadmaps, the key focus should be put on tools targeting this particular need. Tools targeting Residential building sector and Public buildings often overlap, but residential oriented tools are generally considered wider in scope. Due to the versatility of the tools, it would be useful to go through both lists in order to get a complete overview. Tools aimed at consumer information, capacity building, and energy services almost always overlap but in order to avoid repeating them, they are listed according to these categories, in this case, aiming at facilitating implementation of H&C technologies. Unfortunately, the tool collection currently has no tools that might help in addressing needs related to the lack of staff and difficulties related to the stakeholder engagement.

## Roadmap #4 Municipality of Gierałtowiec (PL): Coal-mining municipality Energy Cluster

### ROADMAP SUMMARY

Energy Clusters are civil law agreements between different entities including local governments, which aim at becoming energy efficient regions through a more effective use of local renewable energy sources. The Ministry of Energy in Poland introduced the concept of Energy Clusters according to the RES Amendment Act. The formation of energy clusters provides the opportunity to group local entities acting in a common interest in order to improve local energy safety and quality as well as reduce energy costs for the region. As the concept is of interest to numerous Polish municipalities and the regulations outlined in the RES Act do not include a clear description of the cluster formation process a pilot project defining the steps of such a process is necessary. In order to create such an opportunity within the Publenef project, KAPE contacted the Gierałtowiec municipality, offering support in becoming the first successful energy cluster in Poland. Gierałtowiec is a municipality of the Silesia Voivodeship, with a large mining area (4 mines). The municipality's main objectives at the local level are to become energy self-sufficient (based on mines and agricultural resources) as well as to transform from the mining municipality into a "green" municipality.



As the concept of energy clusters is not very clear for local public bodies, KAPE decided to support the municipality in the creation of the energy cluster. After undersigning the cooperation agreement between the public authorities of Gierałtowiec and KAPE, the identification of potential energy cluster members has been conducted through meetings with representatives of local companies, citizens, other local entities.

### **ROADMAP LEVEL: local**

#### NEEDS ASSESSMENT

- insufficient information and lack of expertise in the topic of energy clusters
- lack of human resources
- difficulties in reaching stakeholders from different levels of public administration

#### CRITICAL IMPLEMENTATION RISK

- inability to implement practical solutions due to insufficient expertise
- inability to engage and mobilize stakeholders
- inability to increase the number of staff working on the project

## Roadmap #8 Municipality of Burgas (BU): Reduction of energy consumption in residential buildings

### ROADMAP SUMMARY

The city of Burgas is a regional and municipal center, an important industrial, commercial, transport and tourist center. Burgas has largest port in the country with the only oil terminal south of the Balkans range, with a well-developed railway and road network. Burgas participates in the Covenant of Mayors, Mayors Adapt and Green Digital Charter initiatives, and is a member of Eurocities. In 2008 municipality of Burgas signed the Covenant of Mayors. The main objective of the roadmap is to figure how the municipality of Burgas can reach the Covenant's targets.



Energy efficiency in public and residential buildings is a major national priority supported through national funding to the municipal authorities. The National Programme for Energy Efficiency supports multi-family apartment building renovations with 100 % grant and envisages measures that will bring them to C-level of energy efficiency. In Burgas municipality, the residential sector accounts for 47% of the final energy consumption. So far data shows that only 5% of the 21% target is achieved. Still, in-depth analyses show that after renovation one household can save 4 MWh/y and the targets of SEAP can be reached. The Municipality of Burgas needs to enhance its efforts in the residential sector so that it takes advantage of the eligible EE and RES measures within the National programme and use them to achieve its SEAP targets. The key objectives of the roadmap will be focused on the residential sector in Burgas and achieving the 21% energy target.

### **ROADMAP LEVEL: local**

#### NEEDS ASSESSMENT

- lack of human resources
- insufficient information and lack of expertise in the municipality on the topic of planning and management of the local EE policies
- difficulties in reaching stakeholders i.e. lack of communication through public campaigns in order to increase information dissemination and capacity building

#### CRITICAL IMPLEMENTATION RISK

- inability to increase the number of staff working on the project
- inability to implement practical solutions due to insufficient expertise
- inability to engage and influence public stakeholders

## TOOLS RELATED TO RESIDENTIAL BUILDINGS SECTOR

- ❖ **Verduurzamingsmaatregelen bestaande scholen, Netherlands** – a publication containing a list of potential measures to increase the sustainability of school buildings (p. 65 of D5.2)
- ❖ **Duurzaamheidsmeter Wijken (DZM Wijken), Belgium** – a tool created to support the planning, design, and implementation of a new sustainable residential neighbourhood (p. 68 of D5.2)
- ❖ **Project office for building renovation, Slovenia** – best practice example for establishing a national Office for energy renovation of buildings (p. 99 of D5.2)
- ❖ **Green rating, Spain** – a tool aimed at estimating in a simplified way the energy consumption in the households (p. 101 of D5.2)
- ❖ **Pre estudio rehabilitacion energetica de viviendas, Spain** – an excel tool that estimates the costs and savings of the interventions in buildings to reduce energy consumption (p. 102 of D5.2)
- ❖ **Aislamiento en edificación 1: Guía práctica de la energía para la rehabilitación de edificios. El aislamiento, la mejor solución, Spain** – a guide directed to communities of neighbors and house owners on the thermal refurbishment of buildings (p. 104 of D5.2)
- ❖ **EnergyHUB for ALL, Greece** – a web – platform which represents an interface between different stakeholders in the building sector (p. 112 of D5.2)
- ❖ **Handbook addressed to public sector entities, Poland**– in order to implement energy efficiency improvement measures, the Ministry of Energy has issued a manual with recommendations for public sector entities (p. 128 of D5.2)
- ❖ **Energy efficiency and carbon saving advice for local government, Ireland** – The Carbon Trust provides simple, effective advice to help organisations take action to cut emissions (p. 138 of D5.2)
- ❖ **RenoWiki, EU** – is an information tool supporting the national renovation strategy dialogue across a region (p. 147 of D5.2)
- ❖ **TABULA WebTool, EU** – a webtool whose objective is to disseminate the general idea of national residential building typologies to building experts from European countries (p. 148 of D5.2)
- ❖ **CERTuS, EU** – a web portal which integrates all the knowledge gained from the CERTus project in an easy-to-use tool that aims to facilitate the planning and preparation of nearly Zero Energy Building renovation projects for municipal buildings (p. 149 of D5.2)
- ❖ **Retrofit Action Hub (Request2Action), EU** – a pilot project focused on the areas of monitoring the uptake of EPC recommendations; enhancing self-assessment advice for householders, providing effective data from EPCs to different organisations and companies, etc. (p. 152 of D5.2)
- ❖ **TRUST EPC South, EU** – aims to scale up investments on Energy Efficiency (EE) and Sustainable Energy technologies with particular focus on EPC projects (p. 153 of D5.2)
- ❖ **CITYnvest, EU** – a toolkit explaining how to start an energy retrofitting project and identifies the main challenges and success factors (p. 159 of D5.2)
- ❖ **Business models for EPC in buildings, EU** – a project study outlining three business models for EPC in buildings (p. 182 of D5.2)
- ❖ **Green Cloud tool, EU** – a digital tool that interacts with residents' homes and, using laser tracking, projects a green cloud into the sky (p. 186 of D5.2)
- ❖ **INSMART City Energy System Model, EU** – a methodology whose objective is to use a scientifically sound approach in developing Sustainable Energy Action plans a city level (p. 201 of D5.2)

- ❖ **Sustainco Tool Kit, Ireland** – a project aiming to increase the visibility and understanding of the Near Zero Energy Building (NZEB) philosophy, with special emphasis on rural areas (p. 208 of D5.2)

#### TOOLS RELATED TO CONSUMER INFORMATION AND EMPOWERING PROGRAMME

- ❖ **Display, France** – a communication tool complementary to the national certificate for public buildings (p. 84 of D5.2)
- ❖ **Energy Performance Contracting in the Czech Republic** – a document aiming at supporting EPC in the public sector (p. 126 of D5.2)
- ❖ **Facilitators Guideline for Energy Performance, EU** – a guideline aiming to enable energy agencies or consultants to understand the typical tasks and responsibilities of an EPC project facilitator (p. 173 of D5.2)
- ❖ **Sustainability Puzzle Tool, EU** – a unique tool that helps to consider sustainability in all dimensions of a project, a work area, a plan, a campaign or a business (p. 184 of D5.2)
- ❖ **ENGAGE tool, EU** – a tool assisting cities to launch a campaign that commits all citizens and stakeholders to play their part in building a sustainable energy future (p. 187 of D5.2)
- ❖ **Climate-Active Families tool, EU** – an initiative to curb the ever-increasing rise in domestic energy and water use and household waste (p. 188 of D5.2)

#### INFORMATION, TRAINING AND CAPACITY BUILDING TOOLS

- ❖ **Energiebenchmark gemeentelijk vastgoed, Netherlands** – sustainability improvement tool which provides insight into the energy use of a municipality (p. 64 of D5.2)
- ❖ **Handleiding / Tool Ondersteuning burgemeestersconvenant: inventory, Belgium** – a tool that supports municipalities in establishing their “baseline emission inventory” (BEI) (p. 67 of D5.2)
- ❖ **Green rating, Spain** – a tool aimed at estimating in a simplified way the energy consumption in the households (p. 101 of D5.2)
- ❖ **"A low emission economy starts with municipalities" – Handbook for Polish Municipalities, Poland** - a handbook that offers a number of model solutions and good practices for the implementation of low-emission strategies (p. 129 of D5.2)
- ❖ **A Guide to Multi-level Governance for Local and Regional Public Authorities, EU** – a guide aiming to help regional and local public authorities develop their sustainable energy activities by using Multi-Level Governance (MLG) agreements (p. 169 of D5.2)
- ❖ **RETscreen, Canada** – a universal tool developed to assist in technical assessment and financial feasibility of projects, and Greenhouse Gas Emission Reduction Analysis (p. 206 of D5.2)

## TOOLS RELATED TO ENERGY SERVICES

- ❖ **Modelo de Contrato de Servicios Energéticos para Edificios Públicos, Spain** – a contract model for energy services and integral maintenance for buildings of public ownership (p. 109 of D5.2)
- ❖ **Information brochure on energy contracting, Austria** – offers detailed information on energy contracting, including: what is energy contracting, its advantages, steps to implementing an energy contracting project, etc. (p. 121 of D5.2)
- ❖ **TRUST EPC South, EU** – aims to scale up investments on Energy Efficiency (EE) and Sustainable Energy technologies with particular focus on EPC projects (p. 153 of D5.2)
- ❖ **EPC Plus - Energy performance contracting plus, EU** – an international ‘market place’ where, according to commonly agreed rules, members of different member states can efficiently and safely exchange valuable know-how (p. 154 of D5.2)
- ❖ **Methodology for the EPC project evaluation, EU** – a methodology for evaluation of running and completed projects (p. 172 of D5.2)
- ❖ **Model processes for combining Energy Performance Contracting (EPC) with other energy-related actions, EU** – examples of innovative business and financing models for performance-based ESCO projects (p. 174 of D5.2)
- ❖ **Triple-Win-Solutions for the Split-Incentive-Dilemma, EU** – experienced partners present innovative business and financing models for performance-based ESCO projects (p. 175 of D5.2)
- ❖ **Standard EPC documents, EU** – a document presenting the main principles of contracts and main articles / heading from available model contracts (p. 193 of D5.2)
- ❖ **EnPC-INTRANS training material-model contracts, EU** – materials aiming at developing local capacities of the public sector to set up and use EnPC models (p. 200 of D5.2)
- ❖ **Code of Conduct for Energy Performance Contracting (EPC), EU** – defines the fundamental values and principles for successful EPC projects preparation and implementation (p. 207 of D5.2)

### TOOL LIMITATIONS

Since tools targeting Residential building sector and Public buildings often overlap and each roadmap has its specific objectives, it is recommended to go through both tool lists in order to get a complete overview of different possibilities that various tool provide. Tools aimed at consumer information, capacity building and energy services almost always overlap, but are listed according to these categories. In order to facilitate their use in the context of the need of the residential sector, these particular tools have been selected out of complete and extensive tool inventory. Unfortunately, the tool collection currently has no tools that might help in addressing needs related to the lack of staff and difficulties related to the stakeholder engagement.

## Roadmap #7 Country of Croatia: SMIV (System for monitoring, measuring and verification of energy savings) Approach & Tool

### ROADMAP SUMMARY

The topic of the roadmap is the improvement of the planning approach on the national level by introducing unified planning. Main objectives are to improve the dialogue between national, regional and local levels and the quality and results of the overall energy efficiency planning. The needs this roadmap will help in addressing refer to several articles of the EED. Most important objectives are to help

setting EE policy public sector's strategic goals with defined targets on a national level (Article 3 of the EED); help monitoring energy efficiency levels at national, regional and local level (Article 5 of the EED) and promoting software supporting EE measures development, developing guidelines & handbooks supporting EE measures development and supporting organisations that have insufficient competency and knowledge (Article 17 of the EED). Specific needs that need to be addressed are necessary changes on the regulatory level i.e. Croatian EE Act and the implementation of a unified approach to planning on the local, regional and national level.



Method of roadmap implementation includes organization of training events and workshops with relevant stakeholders in order to develop capacities and improve current planning methodology. Additionally, based on the feedback from the events, a new planning SMIV manual with new insight will be developed. The planning approach improvement is also being observed through Annual Energy Efficiency Plans (i.e. SEAPs) which are being submitted by the obligated cities and counties. The plans are in the process of being evaluated before approval. The results of the roadmap will be available once the plans are approved and/or entered in the SMIV and when the planning manual is released.

### **ROADMAP LEVEL: national**

### NEEDS ASSESSMENT

- necessary alignment of the energy efficiency policy public goals across all levels i.e. lack of a unified approach in the energy efficiency planning
- need for improvement of the energy efficiency monitoring across all levels
- required capacity building due to lack of guidelines & handbooks supporting unified energy efficiency measures development
- address the necessary changes on the regulatory level i.e. update of the Energy Efficiency Law (OG 127/2014)

### CRITICAL IMPLEMENTATION RISK

- insufficient feedback from stakeholders in order to improve the dialogue between different levels
- insufficient receptiveness of public officials towards the improvement of energy efficiency planning guidelines
- inability to update the Energy Efficiency Law (OG 127/2014)

### TOOLS APPLICABLE IN ADDRESSING ASSESSED NEEDS

To address assessed needs and tackle possible risks in the roadmap implementation, the following tools were selected. Since there are different issues, which sometimes overlap, tools were listed according to the areas of focus that require improvement.

### **TOOLS RELATED TO MONITORING AND VERIFICATION OF ENERGY SAVINGS**

- ❖ **EnergyPLAN, Bulgaria** – an input/output computer model to assist in the design energy planning strategies on the basis of technical and economic analyses (p. 73 of D5.2)
- ❖ **Monitoring & Reporting Online Tool, Ireland** – Public Sector Energy Monitoring and Reporting System (p. 132 of D5.2)

### **TOOLS RELATED TO ENERGY EFFICIENCY PLANNING**

- ❖ **Cit'ergie, France** – an operational device (label) addressed to local communities which want to improve their energy policy (sustainable energy actions plan) and its actions resulting from it (p. 81 of D5.2)
- ❖ **SEC-Suisse, France** – a web tool that precisely meets the needs of planners of urban energy systems (p. 85 of D5.2)
- ❖ **Data Access Guidebook For Sustainable Energy Action Plans, EU** – aimed at Public Authorities that are seeking better access to local, accurate energy data within their territory for use in sustainable energy planning (p. 170 of D5.2)
- ❖ **The Integrated MARKAL-EFOM System (TIMES), EU** – an economic model generator for local, national or multi-regional energy systems, which provides a technology-rich basis for estimating energy dynamics over a long-term (p. 189 of D5.2)
- ❖ **Ghidul de Acces la Date pentru SEAP, EU** – a guidebook developed for Public Authorities that are seeking better access to local, accurate energy data within their territory for use in sustainable energy planning (p. 196 of D5.2)
- ❖ **RE-SEETies energy forecasting tool, EU** – a tool based on a set of energy forecasting equations with an aim to estimate future energy needs (p. 202 of D5.2)

## INFORMATION, TRAINING AND CAPACITY BUILDING TOOLS

- ❖ **Cit'ergie, France** – an operational device (label) addressed to local communities which want to improve their energy policy (sustainable energy actions plan) and its actions resulting from it (p. 81 of D5.2)
- ❖ **Regional Climate, Air and Energy Plan (SRCAE), France** – the reference document for local authorities wishing to act on their territory (p. 82 of D5.2)
- ❖ **Gap Tap Target Model, Ireland** – a tool developed to ensure public bodies know exactly what the 33% savings requirement means for their organisation (p. 134 of D5.2)
- ❖ **Energy efficiency and carbon saving advice for local government, Ireland** – The Carbon Trust provides simple, effective advice to help organisations take action to cut emissions (p. 138 of D5.2)
- ❖ **Local Authority Energy Index, Ireland** – provides a measure of Local Authorities' work on energy efficiency, uses a combination of quantitative and qualitative measures to produce an overall index of performance in energy efficiency (p. 140 of D5.2)
- ❖ **A Guide to Multi-level Governance for Local and Regional Public Authorities, EU** – a guide aiming to help regional and local public authorities develop their sustainable energy activities by using Multi-Level Governance (MLG) agreements (p. 169 of D5.2)
- ❖ **Training tool for persons dealing with SEAP development, EU** – the primary goal of this tool is capacity building of local government to take action regarding climate change and energy sources from planning and action monitoring (p. 194 of D5.2)

### TOOL LIMITATIONS

Due to specific objective of this roadmap, key tools which have been selected are tools related to monitoring and verification of energy savings and tools related to energy efficiency planning. Both lists provide international best practice examples and aim to facilitate EE planning methodology and improve the EE policymaking. Since one of the needs recognized was capacity building, tools aimed at information, training capacity building in the context of EE planning have been selected out of complete and extensive tool inventory. Unfortunately, the tool collection currently has no tools that might help in addressing needs related to difficulties related to the stakeholder engagement.

