PUBLEnEf
energy efficiency policy support

Supporting PUBLic Authorities for Implementing Energy Efficiency Policies

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

Specific focus: Public lighting, Financial Programs, Consumer Information and Capacity Building, Public Buildings

Work Package: 5

Work Package Leader: JIN

Team Leader: 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 PUBLENEF 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 PUBLENEF 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. PUBLENEF 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://publenef-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 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 second 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 PUBLENEF 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 main specific categories **Public lighting** and **Financial Programs,** and **Consumer Information and Capacity Building** and **Public Buildings** 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 step in a project implementation where aforementioned **D5.2 Summary of materials for good practices and tools for addressing specific needs** might 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**
Public lighting	
Financial Programs	
Consumer Information and Capacity Building	
Public Buildings	

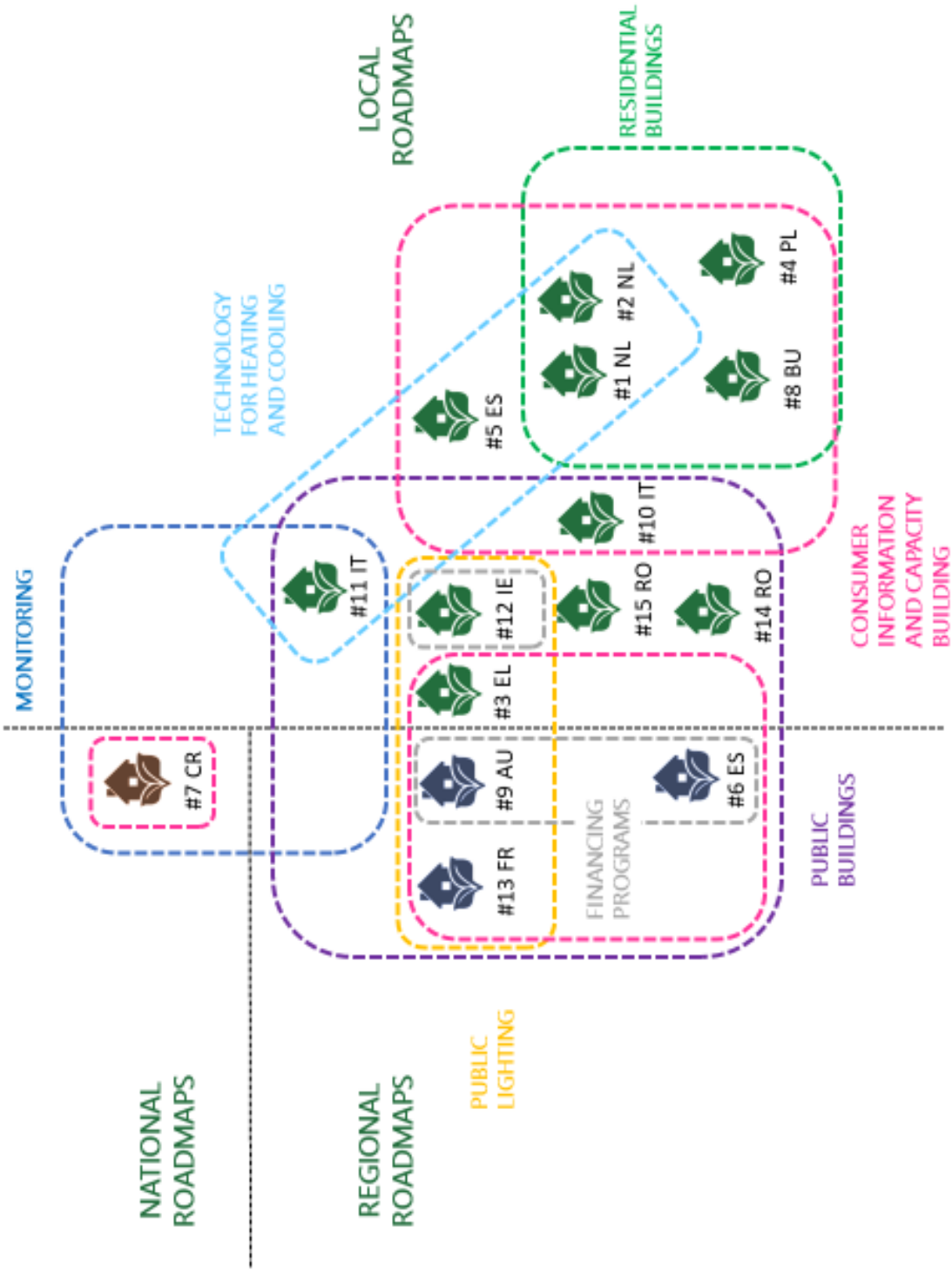


Figure 1 *PUBLENEF Roadmaps cluster map*

Roadmap #10 Municipality of Catania (IT): Identification of the regulatory and financial framework for EPC contracts for buildings, aimed at their valorisation, dissemination and market development in Italy

ROADMAP SUMMARY

Catania, the capital city of the Province of Catania, is characterized by a significant number of public and private buildings to be renovated in order to achieve more efficiency in terms of energy performance. The adoption of the EPC scheme could be very useful for the public administrations to improve EE in public buildings. The main roadmap objective is the rollout as first applications in Italy of the new national EPC guidelines, consistent with the energy efficiency directive, showing the role of the Energy Performance Contract as an effective implementation tool for the energy renovation of (public) buildings and, more in general, to facilitate the governance of a quick application of EPC in public sector. The roadmap falls into a Memorandum of Understanding signed between ENEA and the Municipality of Catania in April 2015.

In order to better understand the main obstacles to be overcome and to find possible solutions for a quick application of the EPC model, from the legal point of view ENEA and the University of Catania have identified the barriers and the regulatory framework needed for an effective adoption of EPC in Italy. A particular attention is focalized on the study of the minimum elements to be included in contracts in public sector: the rationale of EPC application as well as their applicability, indicating the differences of their applicability between public and private sectors.

ROADMAP LEVEL: regional

NEEDS ASSESSMENT

- lack of human resources i.e. lack of staff with required knowledge of legal, administrative and technical aspects of EPC
- 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

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

Roadmap #14 Municipality of Bucharest (RO): Supporting The Improvement Of The Energy Action Plan in Bucharest Sector 1

ROADMAP SUMMARY

Bucharest Sector 1 is a community with 250 000 inhabitants, part of Bucharest Romania Capital with the administrative role of the community shared with the Capital administration. Bucharest Sector 1 is a founding member of AEEPM Bucharest Local Energy Agency. Bucharest Sector 1 joined the Covenant of Mayors European initiative in January 2009 and approved their SEAP in 2011 September. Targets of SEAP approved in 2011 is to reduce the energy consumption by 26% by 2020. The area of action in Bucharest Sector 1 SEAP are public and private building i.e. integration of renewable energy sources in buildings and public lighting.

Thousands of Bucharest's residents have benefitted from a programme to improve the energy efficiency of apartments and public buildings in the Romanian capital. The scheme is expected to cut the energy consumption of buildings by about half, help families and local authorities to reduce their energy costs and in doing so make a valuable contribution towards Romania's environmental commitments.

The renovation work has also improved the overall appearance of buildings and inspired ongoing urban regeneration efforts in the capital. But the more ambitious targets will be assumed by Bucharest Sector 1 by 2030 SEAP 2.0 so they require AEEPM's support (through PUBLENEF project) in order to identify a new sector of actions to reach those targets. The AEEPM energy agency is supporting the authority in the planning, development, and monitoring of the energy-saving plan. AEEPM works closely with the local authority, acting as a facilitator-interlocutor with all municipalities' staff and local stakeholders in the delivery of the updated energy plan.

ROADMAP LEVEL: regional

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

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

Roadmap #15 Municipality of Bucharest (RO): Supporting The Improvement Of The Energy Action Plan in Bucharest Sector 4

ROADMAP SUMMARY

Bucharest Sector 4 is 320 000 inhabitants' community, part of Bucharest Romania Capital with the administrative role of the community shared with the Capital administration. Bucharest Sector 4 expressed their interest to join the European Covenant of Mayors. Inspired by successful actions of the SEAP of Bucharest Sector 1 the political establishment of Bucharest Sector 4 expressed the interest to replicate this initiative.

Thousands of Bucharest's Sector 4 residents will benefit from this programme to improve the energy efficiency of apartments and public buildings in the Romanian capital. The objectives of the Bucharest Sector 4 energy efficiency action plan are:

- To reduce energy consumption up to 20% until the year 2030;
- To stand out the local energy potentials, especially by promoting the use of solar thermal and photovoltaic energy;
- To improve energy efficiency in public buildings and municipal facilities;
- To increase the citizens' information level regarding energy-saving practices, as well as of the national and European regulations on the rational use of energy;
- To disseminate its advantages, help to implement renewable energy installations and apply actions to improve energy efficiency in buildings;
- To establish systems of experience transfer through the collaboration with other Bucharest Sectors and Energy Agencies, at the local, national and international scope.

ROADMAP LEVEL: regional

NEEDS ASSESSMENT

- lack of human resources i.e. only 3 persons working in sustainability and energy
- lack of expertise and knowledge among municipality staff regarding the planning and management of local energy efficiency policies
- lack of communication campaigns i.e. there is a need for improvement of stakeholder engagement and consumer awareness

CRITICAL IMPLEMENTATION RISK

- inability to increase the number of staff working on the roadmap project
- insufficient resources to implement practical solutions due to the lack of necessary training and capacity building actions
- inability to mobilize 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 PUBLIC 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)
- **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)
- **Project office for building renovation, Slovenia** – best practice example for establishing a national Office for energy renovation of buildings (p. 99 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 (for roadmap #10)

- **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)
- **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 (for roadmap #10)

- **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 (for roadmap #10)

- **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)
- **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. 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)
- **Facilitators Guideline for Energy Performance, EU** – a guideline to enable energy agencies or consultants to understand the typical tasks and responsibilities of an EPC project facilitator (p. 173 of D5.2)

TOOL LIMITATIONS

Since the public sector is the main target group of these roadmaps, the tool related to the public buildings sector are listed first. These tools have been selected out of the complete tool inventory and cover different needs of the public sector. Tools aimed at consumer information, capacity building, and energy services are supporting the needs recognized in the public building sector for the roadmap #10. These tools almost always overlap, but in order to avoid repeating them, they are listed according to these categories, in this case, aiming at facilitating the implementation of different measures in the public sector. 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 #3 Municipality of Corinth (EL): Implementation plan for communication actions and energy efficiency measures supporting the SEAP of the Municipality of Corinth

ROADMAP SUMMARY

The municipality of Corinth is a Greek Municipality located in the Peloponnese region established on 1 January 2011 under the Kallikratis Plan for local government reform. The municipality is made up of five previous municipalities: Assos-Lechaio, Corinth, Saronikos, Tenea, and Solygeia. The area of the new municipality is 611.29 square kilometers and it has a population of 58,192, based on the 2011 census. The Municipality has joined the Covenant of Mayor's initiative and has submitted the SEAP in 2012. It was approved on 19/3/2014 committing for overall CO2 emission reduction target of 29%.

The objective of this roadmap is to support Municipality to adapt the SEAP to the present situation and implement the actions foreseen there according to the present priorities and financing opportunities. The final deliverable will be an implementation plan for communication actions and energy efficiency measures supporting the SEAP. The roadmap, includes mainly capacity building actions to regional stakeholders on energy effiecient measures implementation, especially street lighting and ecodriving and to the municipal staff for energy management and energy review. Through these activities, PUBLEnEf is making a great contribution to the implementation of concrete actions during project's lifetime and beyond

ROADMAP LEVEL: regional

NEEDS ASSESSMENT

- lack of in-house expertise in the municipalities i.e. need for training activities in energy efficiency measures & green procurement
- stakeholders' lack of available time
- need for implementation of communication and capacity building actions and dissemination activities

CRITICAL IMPLEMENTATION RISK

- limited knowledge on possible solutions for the heating transition in the municipality
- inability to mobilize stakeholders
- inability to implement practical solutions due to insufficient expertise in crucial energy efficiency aspects

Roadmap #9 Region of Upper Austria (AT): The regional "Gemeinde-Energie-Programm" for municipalities

ROADMAP SUMMARY

Since the mid-90s, the regional government of Upper Austria is committed to the clean energy transition and has prioritised energy efficiency and renewable energy with significant results: Renewable energy already supplies 32% of the total energy demand in the region and greenhouse gases from buildings were reduced by 43% in 10 years. Municipalities play a crucial role in furthering the regional energy transition. 180 municipalities in Upper Austria have adopted energy action plans with clear targets, many of which require investments. There is a range of funding and financing instruments for these investments, both on regional and national levels. However, there is a "gap" which needs to be closed: many municipalities require support for the detailed planning of these investments.

Based on an assessment of needs carried out by the ESV in the course of PUBLEnEf, the "Gemeinde-Energie-Programm" (GEP) was adopted by the regional government and launched. This energy programme for municipalities serves to close this gap. It motivates and supports municipalities in preparing concrete investments. It funds the technical and financial planning of energy efficiency and renewable energy investments, information activities supporting project implementation and the optimisation of installations. The GEP programme is based on the principles of activation, motivation & provision of technical advice. Through these activities, PUBLEnEf is making a great contribution to the local energy transition in Upper Austria and beyond.

ROADMAP LEVEL: regional

NEEDS ASSESSMENT

- need for improvement of expertise and knowledge among municipality staff i.e. necessary support for the detailed planning of investment activities
- lack of information activities supporting project implementation

CRITICAL IMPLEMENTATION RISK

- insufficient resources to implement practical solutions
- inability to mobilize stakeholders and/or to raise consumer awareness

Roadmap #12 Region of Tipperary (IE): Public Lighting Energy Efficiency Policy Roadmap

ROADMAP SUMMARY

Tipperary Energy Agency is working on a Public Lighting Energy Efficiency Policy Roadmap to develop local and national lighting strategies, address the barriers to implementation, improve knowledge and information and implement demonstrated solutions in Ireland. There are 5 key needs which this roadmap aims to address i.e. National Public Lighting Strategy, Local Public Lighting Strategy, provide solutions to the current barriers identified to lack of implementation at local and national levels, improve knowledge and information, and implement demonstrated solutions.

The objective of this Roadmap is to facilitate progress on the national public lighting strategy through: engagement with key stakeholders, preparation of national strategy position papers, expansion of knowledge on both technical and financial instruments to assist national strategy, bringing together the full community of stakeholders at national level to communicate strategic requirements and identifying key action points to be addressed. Alongside overcoming the local barriers to implementation this roadmap will also actively engaging with the local authority to make step change progress towards implementation, presenting technical and financial solutions to the identified barriers, engage with best practice experts in this field from across EU to replicate existing good practices, facilitate specific trial retrofitting projects within the local authority as a demonstration of opportunities and prepare a strategy to address the Public Lighting solutions for Tipperary County Council to 2020 and beyond.

ROADMAP LEVEL: regional

NEEDS ASSESSMENT

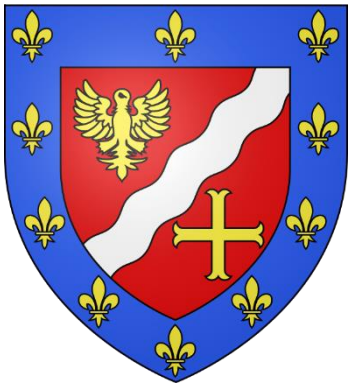
- lack of local level action plan and strategy regarding public lighting retrofitting
- need for capacity building to demonstrate how identified barriers can be overcome
- need for improvement of communication between national and local levels in order to facilitate action delivery

CRITICAL IMPLEMENTATION RISK

- inability to pass the necessary action plan and/or strategy
- insufficient resources to implement practical solutions
- inability to engage and mobilize stakeholders from different levels

Roadmap #13 Region of Val-d'Oise (FR): Local Pilot Energy Projects

ROADMAP SUMMARY



In August 2015 France has voted the energy transition for green growth Act. Local authorities have a new leadership role in energy issues: the territorial public action modernization act (MAPTAM law) promulgated in January 2014 attributes responsibilities: for regions in transport, biodiversity, energy transition, and Agenda21 issues and for cities in sustainable mobility and air quality issues.

The objective of the roadmap is to improve the implementation of the European energy efficiency directive in the Ile-de-France Region. The roadmap is targeted to local authorities and focuses on the renovation of public buildings and lighting. The roadmap will provide support in project management, in finding new funding opportunities, in mobilisation and communication issues and on technical matters. The main actions for roadmap implementation include training and information on the new technical and financial solutions; active participation to the regional energy efficiency action plan elaborated by Regional Council; supporting the implementation of pilot energy projects and clusters in order to replicate to all the municipalities of the region and lifting the barriers and increase the levers.

ROADMAP LEVEL: regional

NEEDS ASSESSMENT

- inadequate budgets and difficulties in identifying and/or accessing funding opportunities
- lack of time available to be dedicated to the project associated with the administrative or socio-cultural issues and obstacles
- difficulties in engaging stakeholders related to the lack of awareness of the elected officials, weak participation, and support of technical and financial partners

CRITICAL IMPLEMENTATION RISK

- insufficient resources to implement practical solutions
- inability to increase the number of available staff working on the project
- inability to engage relevant stakeholders

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 PUBLIC LIGHTING

- **Iluminación eficiente en edificios, Spain** – a set of technical guidelines on Energy efficiency in lighting in the different type of buildings: offices, educational centers and hospitals (p. 107 of D5.2)
- **Implementation Actions to improve EE in street lighting, Greece** – an initiative for the purchase and installation of energy-efficient equipment in street lighting in municipalities (p. 110 of D5.2)
- **City Public Lighting Profiler, Italy** – a tool aimed at municipality technicians and administrators in order to have a state of the art photograph of their Public Lighting Plants as well as a provisional financial evaluation (p. 115 of D5.2)
- **PELL - Public Energy Living Lab, Italy** – a data collecting and monitoring platform focused on public lighting systems data (p. 116 of D5.2)
- **Lumière Management Model, Italy** – a project aimed at promoting the renovation in the management process of the public lighting service (p. 117 of D5.2)
- **Public Lighting Standard Inventory List, Ireland** – a guide to assist individuals within local authorities in completing their public lighting inventories (p. 133 of D5.2)
- **Financial Model for Street Lighting Toolkit, Ireland** – a toolkit calculating what the reduced electricity usage would be in case of energy-efficient LED lighting being used (p. 142 of D5.2)
- **Premium Light Pro, EU** – a project focused on the implementation of next-level energy efficient LED lighting systems in the private and public service sector (p. 156 of D5.2)
- **Checklist for Streetlight Refurbishment with Energy Performance Contracting, EU** – a project with the objective of triggering the market uptake of EPC through street lighting refurbishment projects (p. 164 of D5.2)
- **Streetlight Refurbishment with Energy Performance Contracting - Guide, EU** – a manual with best practice example of using EPC in financing streetlighting refurbishment (p. 165 of D5.2)
- **Quick-check lighting refurbishment - Halls & Outdoor Parking, EU –** a manual aiming to support companies and institutions in refurbishing lighting systems in halls (p. 169 of D5.2)
- **Examples of implemented lighting refurbishment projects, EU –** a collection of 50 descriptions of street lighting and indoor lighting refurbishment projects implemented in 8 countries in the context of the Streetlight-EPC project (p. 203 of D5.2)
- **Streetlight-EPC project publication: EPC, facilitation, lessons learnt, implemented projects, EU –** a brochure that offers an overview of the outcomes of the Streetlight-EPC project and conveys key lessons learned for developing successful regional EPC facilitation services (p. 204 of D5.2)
- **FAQs on LED streetlight refurbishment and EPC, EU** – a compilation of frequently asked questions and answers on streetlight refurbishment with EPC (p. 205 of D5.2)

TOOLS RELATED TO PUBLIC 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)
- **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)
- **Project office for building renovation, Slovenia** – best practice example for establishing a national Office for energy renovation of buildings (p. 99 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)
- **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)
- **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)
- **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)
- **Energy Performance Contracting in the Czech Republic** – a document aiming at supporting EPC in the public sector (p. 126 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)

- **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. 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)
- **Facilitators Guideline for Energy Performance, EU** – a guideline to enable energy agencies or consultants to understand the typical tasks and responsibilities of an EPC project facilitator (p. 173 of D5.2)

TOOLS RELATED TO FINANCIAL PROGRAMMES (for roadmaps #9 and #12)

- **National programmes, Czech Republic** – a best practice example in establishing The State Environmental Fund (p. 125 of D5.2)
- **Investor Confidence Project (ICP) Protocols, EU** – unlocks access to financing for the building renovation market by standardising how energy efficiency projects are developed, documented and measured (p. 176 of D5.2)
- **Investor Confidence Project (ICP) Energy Performance Protocol Project Development Specification, EU** – a unified approach to project development ensuring that projects are compliant with the ICP Protocols and consistent in their approach, methodology, and financial returns (p. 177 of D5.2)
- **De-Risking Energy Efficiency Platform (DEEP), EU** – an open-source initiative to up-scale energy efficiency investments in Europe through the improved sharing and transparent analysis of existing projects in Buildings and Industry (p. 178 of D5.2)
- **Internal Contracting (Intracting), EU** – presenting municipal internal performance contracting scheme (p. 180 of D5.2)
- **ENERFUND, EU** – a tool that will rate and score deep renovation opportunities (p. 199 of D5.2)

TOOL LIMITATIONS

Since Public Lighting aspect is crucial for the implementation of these four roadmaps, the key focus should be put on tools targeting this particular need. These tools have been selected out of the complete tool inventory and cover different needs. Tools targeting public buildings sector are supporting the roadmaps' particular needs. 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 efficient public lighting. Tools related to financial instruments address the need recognized in the roadmaps #9 and #12. 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 #6 Region of Alicante (ES): Supporting the implementation of the Regional Energy Action plan in Alicante

ROADMAP SUMMARY

The objective of this roadmap is to support the Energy Agency of the Alicante province to implement a plan for the exploitation of its coastal wind energy resource using small wind turbines. The actions will be oriented towards reducing the energy consumption of city council buildings by increasing the share of renewable energies. Specifically, a plan for small wind installations in the city council buildings of coastal municipalities will be developed. With a total of 20 coastal municipalities in the province with 224 km of coast, the average wind speed in the area is sufficient for a small wind turbine to work.

CIEMAT is currently working on the implementation plan of this idea by first quantifying the baseline energy consumption of the municipal buildings were the small wind turbines will be installed, quantifying the wind speed in these municipalities, determining the technical characteristics of the turbines, the legal and administrative requirements for the installation as well as the maintenance and monitoring requirements of the turbines in order to measure the energy production. Funding opportunities specifically tailored for this plan are to be included in the next call of the provincial Energy-Saving Plan. The final result of this roadmap will be a guideline for the agency with all the information required to launch this wind energy plan including information related to how to install, maintain and monitor the wind turbines.

ROADMAP LEVEL: regional

NEEDS ASSESSMENT

- lack of necessary in-house expertise on the topic of wind installations
- lack of existing experience in this type of projects in the area
- need to engage municipal stakeholders

CRITICAL IMPLEMENTATION RISK

- inability to implement practical solutions due to insufficient expertise
- inability to engage and mobilize stakeholders

TOOLS RELATED TO FINANCIAL PROGRAMMES

- **National programmes, Czech Republic** – a best practice example in establishing The State Environmental Fund (p. 125 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)
- **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)
- **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)
- **Investor Confidence Project (ICP) Protocols, EU** – unlocks access to financing for the building renovation market by standardising how energy efficiency projects are developed, documented and measured (p. 176 of D5.2)
- **Investor Confidence Project (ICP) Energy Performance Protocol Project Development Specification, EU** – a unified approach to project development ensuring that projects are compliant with the ICP Protocols and consistent in their approach, methodology, and financial returns (p. 177 of D5.2)
- **De-Risking Energy Efficiency Platform (DEEP), EU** – an open-source initiative to up-scale energy efficiency investments in Europe through the improved sharing and transparent analysis of existing projects in Buildings and Industry (p. 178 of D5.2)
- **Internal Contracting (Intracting), EU** – presenting municipal internal performance contracting scheme (p. 180 of D5.2)
- **ENERFUND, EU** – a tool that will rate and score deep renovation opportunities (p. 199 of D5.2)

TOOLS RELATED TO PUBLIC BUILDINGS SECTOR

- **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)
- **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)
- **"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)

- **"Low-emission reduction in municipalities", Poland** – the aim of the project is to support municipal energy coordinators in the implementation of actions aiming at reducing low-emission in the municipality (p. 131 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)
- **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)
- **EmBUILD, EU** – provides a series of training material and supports public authorities in Southeast European countries to prepare a long-term strategy for mobilising investment in the energy efficient renovation (p. 146 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)

INFORMATION, TRAINING AND CAPACITY BUILDING TOOLS

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- **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)
- **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)
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- **Facilitators Guideline for Energy Performance, EU** – a guideline to enable energy agencies or consultants to understand the typical tasks and responsibilities of an EPC project facilitator (p. 173 of D5.2)

TOOL LIMITATIONS

Since the financial instruments aspect is crucial for the implementation of this roadmap, the key focus should be put on tools targeting this particular need. These tools have been selected out of the complete tool inventor. Tools targeting public buildings sector are supporting this roadmaps' particular needs. 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 assisting the roadmap implementation. 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.


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