PUBLEnEf
energy efficiency policy support

Supporting PUBLic Authorities
to Implement Energy Efficiency Policies

3 rd POLICY BRIEF - JANUARY 2019

POLICY BRIEF
- FOCUS ON MONITORING AND VERIFICATION

The European Union Horizon 2020 funded project Publenef – Supporting Public Authorities for Implementing Energy Efficiency Policies - assists EU Member States in implementing sustainable energy policies across different governance levels through the use of best practices and tools. PUBLENEF has carried out a comprehensive analysis of good cases and needs for energy efficiency policy implementation and also launched a series of roadmaps in several countries engaging national, regional, and local public bodies and relevant market stakeholders.

The main aim of each roadmap is to enhance public authorities' capacity to implement energy efficiency pathways towards sustainability. Starting from the regional and local objectives and plans, the emphasis is put on local and regional level authorities and actors materializing these policies into concrete actions (...). The roadmaps gear towards improving the design, implementation and/or functioning of elements of existing energy efficiency framework that require attention, as expressed from the policy makers' needs. The roadmaps will support the existing policy framework and strategic plans that require a "push" in the right direction.

To keep the energy efficiency policy on a right track in achieving the objectives set by policy makers it is necessary to monitor the effects of its implementation and to adjust the actions accordingly.

With examples of the actions taken by project partners in Croatia and Italy this policy brief answers the question what is the role of the monitoring and verification tools in improving of local, regional, and national energy efficiency policies.

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1 INTRODUCTION

According to the Energy Efficiency Directive (EED) all Member States are obliged to gather, monitor and report the data on their progress in achieving the national targets in energy efficiency.

The Article 24 of the EED requires from EU MS submission of National Energy Efficiency Action Plans (NEEAPs) where they report on what energy efficiency improvement measures and energy savings have been achieved and what further measures are planned to be undertaken to get closer to national energy efficiency targets in compliance with the rules of the EED.

The EED mobilises Member States to undertake energy efficiency activities and to calculate their impact on reaching the targets. The priorities and design of national energy efficiency policies adopted by EU Member States are required to include inherently a monitoring and verification system for calculating the energy savings and related impacts. Some of these national policies are commissioned to regional and local administration, depending on the capacity and mechanisms in place on regional and local level for implementing and monitoring these policies. In principle, all such energy efficiency policies should be consistent at the different levels of governance so that the market improvements and energy savings at the local and regional level can contribute to the achievement of the national energy efficiency targets. The role hence of the monitoring and reporting of energy efficiency actions on a multilevel governance is of utmost importance to calculating the overall national energy saving progress.

The needs assessment analysis undertaken within PUBLEnEf highlighted the shortfalls in the implementation of energy efficiency policies at the local, regional, and national levels. One of the most important gaps is the implementation of a monitoring process/system. More than 60 % of interviewees confirmed that a basic monitoring and reporting system is gradually being developed primarily at the national and much less at the regional or local levels to demonstrate progress towards energy efficiency targets. Nevertheless, there is a disincentive for such a system especially in the regional and local governance, as half of respondents indicated that there are no implications to the public sector where targets are not being met, while only30% of the interviewed public bodies declared that they have some insight of their progress towards energy efficiency targets. Given this requirement for support, there is thus a clear a need to identify or develop tools of monitoring and verification process at all levels of public administration. Some useful tools as well as good practices on monitoring and verification are present also on the PUBLEnEf toolbox and are used for energy efficiency roadmaps development.

These tools are models, online applications, methodologies, platforms, mainly based on bottom-up approach providing detailed calculation of energy savings after specific energy efficiency actions. Next to the monitoring aspects, they can in parallel raise awareness of energy efficiency improvements and support designing the local, regional, and national energy policies to achieve the targets, when embedded in the policies themselves.

The PUBLEnEf roadmaps presented in this policy brief address specific monitoring and verification gaps identified on multilevel governance.

2 MONITORING AND VERIFICATION - ENERGY EFFICIENCY POLICY ROADMAPS IN CROATIA AND ITALY

MONITORING OF ENERGY CONSUMPTION AND IDENTIFICATION OF ENERGY EFFICIENCY MEASURES IN PUBLIC BUILDINGS

Interviewees:

Pietro Falconi

Alessandro Federici

Your roadmap's main objective is to raise awareness and train municipality staff on energy consumption monitoring and evaluation of energy savings, CO2 reduction, and economic savings through the pilot case in public school of Castelbuono Municipality. What barriers have you encountered during implementation of your roadmap on monitoring of energy consumption in public buildings?

The main barriers encountered during the roadmap implementation are, in general, a low awareness of citizens and politicians of the municipality of Castelbuono (a 8,000 people town in the South of Italy, in Sicily) about the relevant energy efficiency topics, such as good practices in terms of both behavioural change and opportunities of funding energy efficiency actions, as preliminary and necessary steps to meet the energy efficiency targets set in the SEAP. More specifically, the lack of expertise of the local public technicians concerning an appropriate use, monitoring and maintenance of the technologies installed in the public buildings of the municipality.

To this aim, several information & communication events have been delivered through PUBLEnEf project in Sicily, in synergy with the other roadmap in Catania also, during all the implementation period of the roadmap:

- *September 2016, in Messina, at the Energy Desk monthly meeting.*
- *April 2018, in Catania, at the international event exhibition "Progetto Comfort".*
- *April 2018, in Catania, with the local PUBLEnEf dissemination event.*
- *June 2018, in Castelbuono, with the local PUBLEnEf dissemination event.*

For the roadmap of Castelbuono, colleagues from the ENEA local office delivered several training on the job sessions in a selected public building (the secondary school "Minà Palumbo") to the local public technicians, to transfer knowledge and provide instruments for the monitoring and maintenance of the installed Ground Source Heat Pump (geothermal system)

More specifically, at an early stage of the roadmap, the heating systems of the secondary school was selected as case study by the local public technicians together with the ENEA colleagues of the Palermo local office, who had then "free access" to the building. Given the lack of public human resources, due to the size of the Castelbuono town, the few local public technicians carried out the monitoring activities together with the ENEA experts.

To what extent the actions implemented within the roadmap will support the implementation of tasks / objectives of the local strategy, e.g. SEAPs?

The Mayor provided immediately availability to the roadmap, allowing ENEA to interact with the (few) technical personnel of the municipality

thanks to the importance of this action for the implementation of the local strategy established in the SEAP of Castelbuono. The main actions established for the public sector include the energy renovation of public lighting, green public procurement, wastewater treatment plant, and last but not the least the promotion and implementation of the energy renovation of public buildings through geothermal, photovoltaic, solar thermal and biomass systems.

As within your roadmap it is planned to replicate the M&V procedure to other public buildings of the town, how are you going to finance it?

Training activities carried out in Castelbuono might be easily replicated both in the larger cities of Catania and Messina, there again with the support of ENEA local offices. Indeed, a module of training on energy audit will be necessary once the national EPC guidelines will be officially issued. Then, according to the implemented energy audit, the renovation and maintenance of public buildings may be carried out through EPCs between the municipalities and ESCOs, enhancing this way new markets and job creation at local level.

Which is the major lesson learned from the Castelbuono roadmap implementation?

The major lesson learned from this roadmap is related to the necessity of an adequate and accurate project plan in the adoption of a new technology, with the preliminary involvement of all the local (public) stakeholders, and then a formal and strong commitment of the public entities. More specifically, it could be very valuable to consider all the possible IMPACTS due to the new technology, not only in terms of expected energy savings, in order to adequately and autonomously manage and maximise all the foreseen multiple benefits, and leverage them to speed up the replicability of the project to other buildings of the town, and the adaptability in other regions of Italy and/or other European countries.

System for monitoring, measurement and verification of energy savings Approach & Tool (SMiV), Croatia

Interviewees:

Mia Dragović

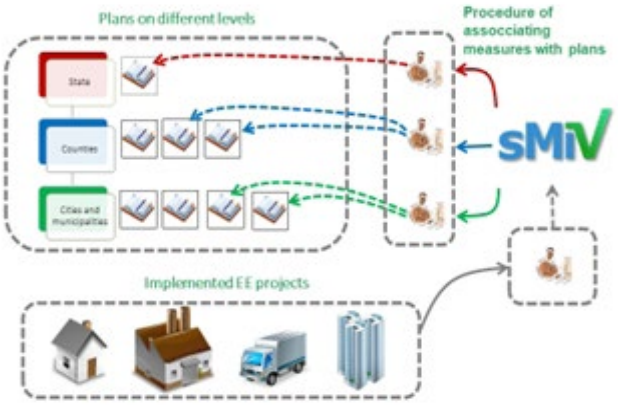
Ana Mostecak

Could you briefly describe the existing energy efficiency planning approach and also refer to the needs addressed by your roadmap?

The main objective of this roadmap was to improve the dialogue between national, regional and local levels and the quality and results of energy efficiency planning on all levels. In order to monitor the achieved savings, National Energy Efficiency Authority of Croatia, in cooperation with the German Society for International Cooperation - GIZ, developed a System for monitoring, measurement and verification of energy savings (SMiV) into which all Energy Efficiency Plans, as well as information about the implemented energy efficiency measures, are entered. Local Energy Efficiency Plans are made on a three-year and annual basis, following the National Energy Efficiency Action Plan. Such approach enables the systematic bottom-up feedback where local EE intentions can be considered in the national planning of EE policies, so local policies influence then national ones, and not only the other way around. In June 2014, the web application of SMiV was first put into operation.

The needs this roadmap helped address respond to

several articles of the Energy Efficiency Directive. The most important is to help set EE policy public sector's strategic goals with defined targets on a national level (Articles 3 and 7 of the EED); help monitor energy efficiency actions of public bodies' buildings (Article 5 of the EED) and upscale the implementation of EE measures through developing guidelines & handbooks as well as providing support to local administration and organisations, thus building their competencies for EE planning (Article 17 of the EED). Our roadmap's goal was to introduce, through a series of PUBLENEF focused training events, an improved and unified approach to energy efficiency planning on the local, regional and national levels, and to improve the number and quality of the generated Energy Efficiency Plans.



How is the data from SMIV tool used in designing energy efficiency strategies?

In the context of the Republic of Croatia, Energy Efficiency Plans present a systematic illustration of energy efficiency measures developed in accordance with the Energy Development Strategy of the Republic of Croatia, the National Energy Efficiency Action Plan, the Energy Efficiency Act and the Bylaw on Monitoring, Measurement, and Verification of Energy Savings. As mentioned earlier, SMiV is based on three-year and annual basis Energy Efficiency plans which are being submitted by the obligated parties. According to the Energy Efficiency Act (Official Gazette 127/14), EE planning is obligatory for all 20 Croatian counties and 17 cities (all cities with more than 35.000 inhabitants), but there are also parties included on a voluntary basis. In this manner, the local and regional government is encouraged to continuously manage their energy efficiency policies, monitor their implementation and provide feedback to the national level. The key aspect of this energy efficiency planning scheme is that bottom-up approach is used not only in the monitoring and verification of energy savings but also in designing energy efficiency policies and has enabled a continuous performance evaluation of energy efficiency policy regarding achievement of the set objectives. There is a possibility to redefine the measures on annual basis, in case it is determined that the planed savings targets are not being met.

What are some other applications of the data available from SMiV?

As the Energy Efficiency Plans are made on a three-year and annual basis, they relate to National Energy Efficiency Action Plans. Not only does the continuous monitoring of implementation allow for efficient verification of energy savings, but it also enables early notice of potential implementation issues, necessary improvements and possible obstacles on the way of achieving the set EE targets. Instead of producing policies only on the national level, the needs and implementation specifics of the local and regional levels are much more easily noticed and thus included in the future EE policymaking when there is a national tool like SMiV which all governance levels contribute to.

In the context of the quality of the energy savings data available in SMiV, Energy Efficiency Act (Official Gazette 127/14) also defines SMiV as the national tool for calculation and verification of energy savings on the national, regional and local level. Additionally, in Croatia SMiV is an official tool for reporting on the implementation targets from EED articles 3, 5 and 7.

What barriers have you encountered during the implementation of your roadmap?

The main challenges and potential barriers in the implementation of the roadmap mostly relate to the receptiveness of the public administration. A series of regional training events were a major part of the roadmap activities. The key efforts and resources were focused on using these events to build capacities of mainly the representatives of cities and counties who are obligated parties in the EE planning but also encouraging other municipalities to participate in the EE planning on the voluntary basis. As it takes time for the capacity building activities to take full effect, the overall roadmap impacts are observed through Annual

Energy Efficiency Plans which are being submitted by the obligated cities and counties i.e. expected an increased number and the quality of the EE Plans delivered and associated energy savings.

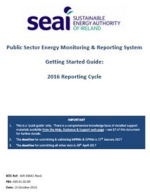
The policy lessons resulting from this roadmap show that besides the importance of adequate dialogue between national, regional and local levels in the context of energy efficiency planning, the cooperation across levels is also essential for a functional bottom-up monitoring of energy savings.

Is there a replicability potential of your roadmap and on which level?

The planning approach and method could be replicated widely in all EU member states. On the national level, System for monitoring, measuring, and verification of energy savings could be replicated with the necessary modifications of the language, "Bottom-up" methodology, and organisational hierarchy. There should be a national institution with technical capabilities for implementing and administrating the system, for example an Energy Efficiency agency. The rough estimation of the timeframe for replication would be up to two years.

In the context of Croatia, as currently there are only 37 obligated parties participating in the EE planning in Croatia, the EE approach and methodology used could be replicated with future energy savings impacts by other 428 non-obligated Croatian cities and municipalities. With the training events, capacity building and new Energy Efficiency planning manual developed through the roadmap activities, other cities and municipalities are encouraged to use the roadmap results and participate in further development and improvement of energy efficiency policy in Croatia.

3 Energy Efficiency Tools related to Monitoring of implementation



Monitoring & Reporting Online Tool, Ireland; the key principles of the system include that individual public bodies report their energy consumption for all fuel types at an organisational level. Public bodies report baseline data on a once-off basis (default baseline is 2009, but public bodies can elect to use earlier baselines). Public bodies then report their energy consumption annually for the previous year. Each year, public bodies self-report their total consumption subtotals for all non-network connected energy sources directly to SEAI. Savings are calculated by comparing changes in each public body's energy consumption and activity metric each year.

DETAILED INFO:
www.seai.ie/Your_Business/Public_Sector/FAQ

11 energy-saving assessment methodologies, Bulgaria; 11 energy-saving assessment methodologies are used to assess the amount of energy saved as a result of the implementation of specific energy efficiency measures. They include a mechanism to allocate energy savings to each year of the lifetime of the measure concerned. The methodologies take a 'bottom up' approach. This enables the energy saved to be determined by measuring and/or calculating energy consumption before and after implementation of the measures concerned, having made standardised adjustments based on the impact of the specific climate conditions on energy use. The energy savings are calculated and measured in kgoe or kWh.

DETAILED INFO:
www.seea.government.bg/documents/Metodiki_02.2013.pdf

System for monitoring and verification (SMIV), Croatia; an online application that incorporates National Energy Efficiency Action Plans, Regional and Local Energy Efficiency Action Plans and planning instruments and allows users to generate reports, plans and calculations of their energy savings under the same unified methodology, defined by EU principles. SMIV is based on the bottom-up methodology and is used on a local and national level to calculate energy savings in three main sectors: Building, Industry, and Transport. Data contained in SMIV is used for energy savings calculations, analysis and continuous monitoring of achieved national energy efficiency targets.

DETAILED INFO:

www.enu.hr/komercijalni-sektor/smiv/

EnergyPLAN, Bulgaria; an input/output computer model for Energy Systems Analysis. It simulates the operation of national energy systems on an hourly basis, including the electricity, heating, cooling, industry and transport sectors. The main purpose is to assist the design of national energy planning strategies on the basis of technical and economic analyses. General inputs are demands, RES, energy plant capacities, costs and optional different regulation strategies emphasising import/export and excess electricity production. Outputs are energy balances and resulting annual productions, fuel consumption, import/exports and total costs including income from the exchange of electricity. The EnergyPLAN software is free to download, considers the three primary sectors of any national energy.

DETAILED INFO:

www.energyplan.eu/

MultEE, EU; an application that assists in measuring progress towards Energy Efficiency (EE) targets. The application is based on the collection of bottom-up (BU) data on a number of plans and measures, their implementation, energy savings, CO2 emissions, and implementation costs. This enhances the monitoring and verification process and provides support to make any necessary adjustments to the individual measures. The platform also encourages different policy levels, such as states, counties and municipalities, to exchange their experience, share data, and coordinate their actions.

DETAILED INFO:

www.multee.eu

ODYSSEE-MURE, EU; provides information on energy efficiency policies and measures that have been carried out in the Member States of the European Union. The information is accessible by a query in the database. The distribution of measure by type can be visualised through radar graph. Several facilities enable specific queries. The ODYSSEE indicators are accessible under different data tools: the full database, the key indicators facility, as well as five specific data facilities that focus on specific issues and provide some interpretation: market diffusion, decomposition, comparison, energy saving and indicator scoreboard. The access to the database is restricted, whereas all other data tools are in public access.

DETAILED INFO:

www.odyssee-mure.eu/data-tools/

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ABOUT PUBLENEF

PUBLENEF is a 3-year (2016-2019) project funded by European Union's Horizon 2020 programme, aiming to assist EU Member States in implementing effective and efficient sustainable energy policies (with the focus on energy efficiency). The project helps to empower policy-makers to make use of best practices and policy processes implemented in other Member States at national, regional and local levels.

Specific objectives of Publenef include:

- ✔ to **assess and learn** from existing energy efficiency policy implementation practices in EU countries, regions, and cities
- ✔ to **strengthen the networking opportunities** for relevant public agencies and
- ✔ to **develop and adjust tools** for public agencies to help them to implement energy efficiency policies.

The results of Publenef are:

- ✔ to **identify the needs** from national, regional and local authorities for the implementation of EE policies,
- ✔ to **collect the best practices and tools** for overcoming these needs and replicate them to various MS, regions and municipal authorities,
- ✔ to **develop roadmaps** and enhance the process of successful implementation of policies,
- ✔ to build and **strengthen existing networks of policy makers** enabling the **knowledge exchange** from national to regional to local level in EE policy.

Publenef video:

JIN coordinates the PUBLENEF project, and collaborates with 12 partner organisations: