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Low carbon municipalities. The impact of energy management on climate mitigation at local scale

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Abstract

Energy planning in municipalities in some EU countries was introduced some two to three decades ago. In 2008 a wide European initiative – Covenant of Mayors – for local governments was launched to initiate their commitment towards energy and climate targets. Municipalities are considered among the main stakeholders to foster and implement energy saving and climate measures through their local Sustainability Energy Action Plan (SEAP). More than 6000 municipalities have developed and approved their SEAPs, however only part of them are successfully implemented. The article proposes and describes integrated approach to motivate municipalities to engage and apply a systematic approach towards energy reduction. Through implementation and continuous improvement of energy management systems in public buildings and infrastructure, municipalities are able to tackle further challenges across different fields of interest in the whole territory of the municipality. Article provides the most important motivators, challenges and advantages of the approach based on the assessment of 41 municipalities around Europe.

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Keywords: SEAP; municipality; energy planning; ISO 50001; energy management systems

1. Introduction

Sustainable urban development is one of the key elements to achieve the EU sustainability goals regarding energy efficiency measure implementation and greenhouse gas emission reduction. One of the first EU wide initiatives, which

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initially was introduced as an instrument to reach sustainability goals, was EU Covenant of Mayors (CoM), which was introduced in the 2008. The CoM initiative is the EU movement which encourage local authorities to take voluntary actions to meet and exceed the 20 % GHG emission reduction target by 2020 [1]. The focus on GHG emission reduction in the CoM initiative is supported by the necessity to improve energy efficiency and to implement renewable energy resources. While CoM initiative motivates municipalities to implement energy saving measures to reduce energy consumption and GHG emissions, several studies suggest, that SEAPs should be supplemented with additional instruments to support SEAP deeper integration with other planning documents in municipality. Latest Monitoring indicator evaluation carried out by European Commission (EC) Joint Research Centre (JRC) of submitted SEAPs show that only 11 % of municipalities, which should have submitted their monitoring reports, have submitted them [2]. The reports showed, that absolute reduction of GHG emissions from baseline to monitoring emission inventories was 23 %, whereas absolute reduction of final energy consumption from baseline to monitoring inventories was 14 %. Although the monitored emission and energy consumption reduction is well on trend to reach the objectives set out in the EU 2020 climate and energy package [3, 4], additional mechanisms are necessary to ensure progress towards EU mid-term energy goals for 2030. The latest report by European Environment Agency [5] suggests, that the current efforts need to be stepped up in order to achieve long term goals. Although the report represent the total GHG emission trends across all sectors, the municipalities remain as potentially powerful entities to lead the path towards more rapid uptake of energy efficiency measures and triggering public behavioural change.

2. The challenge in the municipalities

A report by Climate Alliance [6] summarized main obstacles encountered when implementing the CoM initiative and SEAPs into municipalities. One of the main hindering factors for implementation of SEAPs is the lack of experienced technical staff and availability of relevant data for Baseline emissions inventory (BEI) elaboration, also there is the lack of tools and support to facilitate the development of SEAPs. Ever changing national and regional political context has also been mentioned as one of the implementation barriers. The necessity to meet more stringed long-term goals and to overcome barriers associated with regional policy changes, lack in experienced staff and the necessity to strengthen systematic approach to energy efficiency measure implementation calls for additional mechanisms have to be developed.

In 2011 an international standard ISO 50001 for Energy Management Systems (EnMS) was designed to motivate organisations to improve their energy performance. The core systematic approach of the EnMS can be seen in Fig. 1.

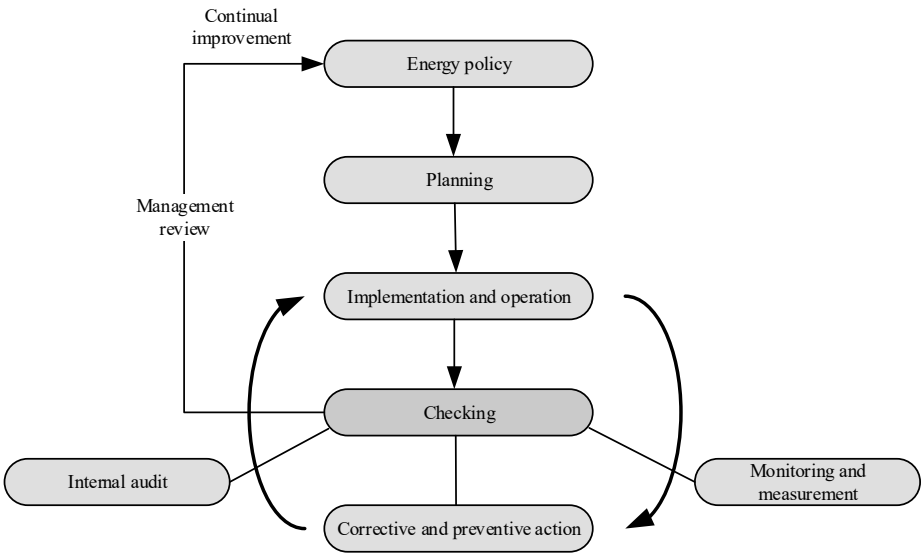

Fig. 1. The systematic approach of ISO 50001.