

SECURE

Exploring opportunities for renewable energy production and energy savings potential supported by an integrated decision support platform



INSPIRATION

While almost 75% of the European population is living in cities and is responsible for nearly the same proportion of the total energy consumption, urban areas are playing a key role in carbon mitigation and energy transition. Estimating energy consumption and potential for energy savings as well as renewable production potentials is of strategic importance for all urban areas. Due to the complexity of transitions to more carbon neutral cities and regions, public authorities are often facing the lack of integrated knowledge and effective assessment tools to take robust and sustainable decisions for the future.

The SECURE project will focus on the implementation of a decision platform to support sustainable energy efficiency plans for municipalities in Luxembourg and the Greater Region. To achieve this ambition, LIST will build on the results of two influential (inter-)national projects, MUSIC and DAEDALUS, which resulted in the Smart City Energy Platform and an approach to energy analysis for the residential sector in urban areas.

INNOVATION

The SECURE project will focus on the implementation of a GIS-based interoperable Smart Energy Cities and Regions decision support platform for Luxembourg to explore renewable energy production potentials (solar and biomass) as well as energy saving potentials for buildings. The platform will integrate base data, simulation, analysis and visualization tools relying on novel approaches in high performance computing.

The main objective is to provide smart and evidence-based decision support tools to e.g. accelerate the penetration of solar photovoltaic (PV) production, or to increase energy efficiency measures for buildings, and to promote the use of agriculturally produced biomass for renewable heat production. The web-based platform should stimulate the creation of new businesses around renewable energy technologies and energy services by providing integrated information easily accessible on the web.

LIST will focus its research on energy demand and savings, on solar photovoltaic electricity and on heat production. The platform will therefore evolve towards a web-based Smart Energy Cities and Regions platform with refined user access for the different stakeholders of urban areas to allow for enhanced joint planning. A case study is envisaged for the City of Esch-sur-Alzette. During the project more municipalities will be approached through workshops.

IMPACT

At the end of the project, municipalities, energy service providers, software companies, investors and even citizens can compute or explore renewable energy potentials through a dedicated web platform. SECURE will provide a solar PV potential calculation module, a biomass plant planning tool, an energy consumption and savings tool, and a mapping and visualization tool. Furthermore, stakeholders will be able to improve urban energy planning, provide customized energy services, develop new applications and map opportunities to make cities and regions smarter in their energy production and usage.

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