



EPC4SES

Digital Building Twins

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EPC based Digital Building Twins for Smart Energy Systems SES

"Data from the energy labelling process of buildings benefits creation and operation of smart energy systems"

Data acquired as input data for calculating energy performance of buildings in the mandatory Energy Performance Certificate EPC-schemes according to 2010/31/EU Energy Performance of Buildings Directive is a valuable source - both for model-based and sector spanning planning of future SES and for model predictive grid/network control on a local/regional level. EPC4SES is a project taking the diverging landscape of EPC in Europe, adding utility to EPC and thus introducing a new way for convergence and improvement of EPC quality. The project will co-develop applications with stakeholders, whilst securing privacy by design, pairing building data. The best-ranked model-based prediction applications will be implemented as research prototypes using real data from the three pilot regions Andalucía, Berlin and Salzburg/Vienna, to quantify impacts and effort when erecting virtual (digital) twins of building pairs or quarters. All results and new ideas for supporting decarbonisation via virtual storage and interoperable smart energy systems will be fed back into the ERANET scientific community.

Project Duration 09/2019 - 04/2022

Project Budget 1,278,020 €

Project Coordinator

effiziente.st Energie- und Umweltconsulting e.U. (Austria)

Project Partners

- Salzburg University of Applied Sciences (Austria)
- SEnerCon GmbH (Germany)
- WNRI Western Norway Research Institute (Norway)
- AICO Software GmbH (Austria)
- Cleopa GmbH (Germany)
- Wellness Telecom Group (Spain)

Associated Partner

- ENOVA (Norway)

Project Website

www.smartenergy.nu

Contact

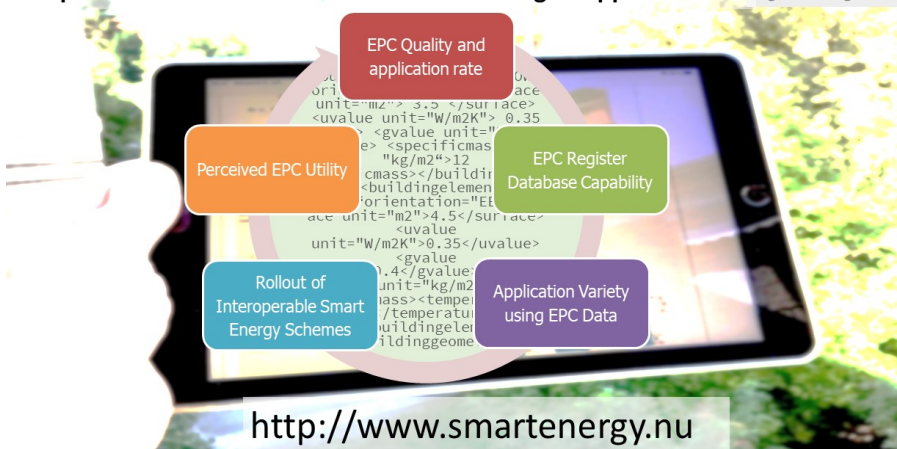
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Using data from the energy labelling exercise profits the whole EPC process – valuable data will boost meaningful applications.



ERA-Net Smart Energy Systems



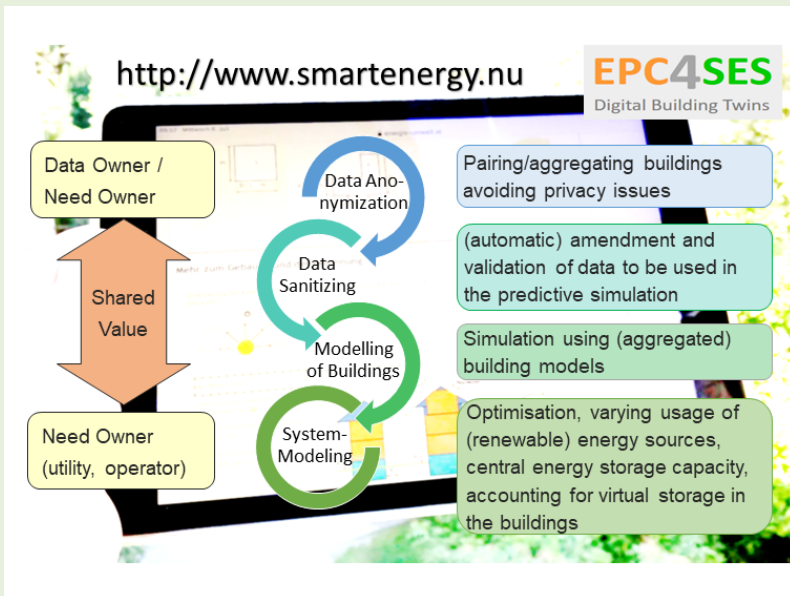
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ERA-Net Smart Energy Systems Joint Call 2018

This project has been awarded funding within the ERA-Net SES Joint Call 2018 for transnational research, development and demonstration projects. EUR 33.4 Mio of funding have been granted to 23 projects from 16 regions and countries.

Main Objectives

EPC4SES aims at exploiting data previously acquired as input data for calculating energy performance of buildings for optimizing design and operation of smart network/smart grids. By improving planning tools - pushing their quality - fundamental transformation of the energy system shall be eased. Three systems shall be specified and validated via test implementations targeting conventional and innovative thermal networks (4GDH, cold district heating etc.) and smart grids with load managements of heat pumps.



Data from the EPC procedure for the building shall be amended with 3D GIS and BIM data if necessary. Open data approaches and interoperability of data sinks and sources shall allow harvesting the energy savings and elevated infusion of renewable energy. Stakeholders for regional energy plans, operators of thermal networks etc. shall be addressed in order to adapt dynamic 1D simulation (RC-models) in the context and evaluate the acceptance and the impact.

Expected Main Results

The resulting implementation of experimental pilots (Salzburg/ Vienna Austria, Berlin Germany, Andalusia Spain) will allow insight into the most suitable technological approaches, acceptance and impact for:

- Smart building control with thermal activation and sector coupling
- Smart power grid with demand responsive control of decentral heat pumps and charging of battery electric vehicles
- Smart district heating system, with thermal activation of network/central storage
- Smart district cooling system, using distributed energy conversion modules with thermal activation of buildings

The project will open usage for data, which was acquired during the energy performance certification by semantic processing and interoperability provisions, refinement of accuracy and suitability of models and definition of best suited fields of application.

The results will be disseminated widely, so a data driven decarbonisation may be started, also coupling sectors where EPC-data and appliances in the buildings makes this possible.

Joint Programming for Flourishing Innovation from Local and Regional Trials towards a Transnational Knowledge Community

www.eranet-smartenergysystems.eu



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Klimaneutrales Unternehmen

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