



World Sustainable Energy Days

27 February – 1 March 2019, Wels/Austria



MOEEBIUS

European Energy Efficiency Conference 2019

Energy Efficiency Lab: Tomorrow's solutions

Higher energy efficiency and lower business risks

Modelling Optimization of Energy Efficiency in Buildings for Urban Sustainability

Project duration: November 2015 – April 2019

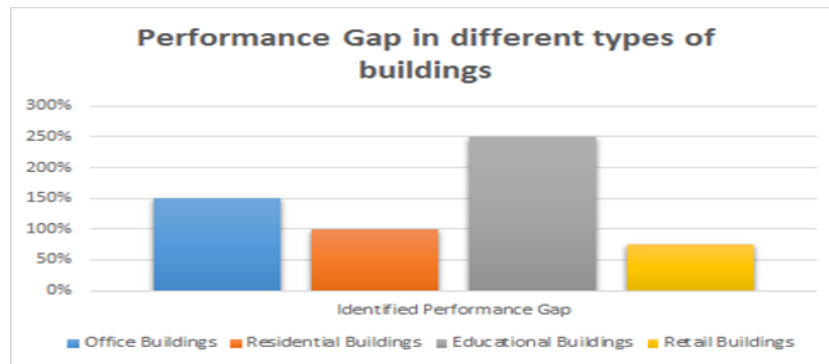
Ander Romero Amorrtortu
Building Technologies Division
TECNALIA  Inspiring
Business

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Motivation

Huge gaps between predicted and actual energy consumption prohibit the scaled deployment of energy efficiency projects



Objectives

Advance the capabilities of current BDEPST to enable accurate predictions through addressing current modelling and measurement & verification inefficiencies

Further optimise the performance gap through human-centric fine grained control, predictive maintenance and retrofitting at building and district level

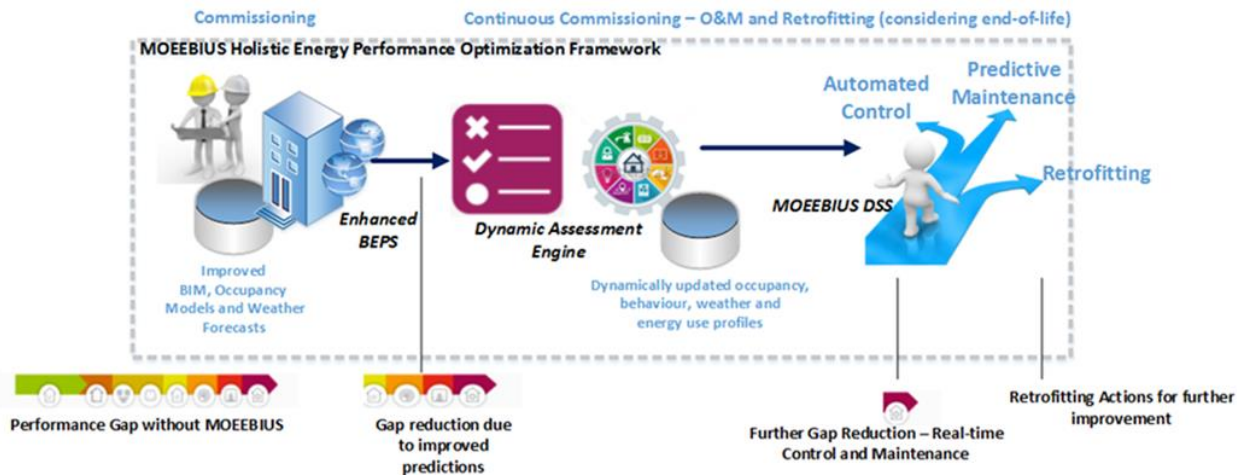
Enable the efficient integration of distributed and intermittent energy resources into the Smart Grid and enhancing reliability and security of energy supply

Facilitate Energy Performance Contracting penetration in EU Energy Services Markets through the provision of a replicable and easily transferable framework

Introduce Novel ESCO Business Models and New Energy Market Roles enabling the transition to demand-driven Smart Grid Services through Demand Side Aggregators

Holistic energy performance optimization framework is required

Holistic solution



- Improved Building Energy Performance Assessment
 - Precise allocation of detailed performance contributions of critical building components
 - Real-time building performance optimization including advanced simulation-based control and real-time self-diagnosis features
 - Optimized retrofitting decision making on the basis of improved and accurate LCA/ LCC-based performance predictions
 - Real-time peak-load management optimization at the district level

MOEEBIUS Components

Integrated Sensor/ Actuator Device

Ambient User Interfaces

User Behaviour Profiling Mechanism

Middleware Systems

District and Building Energy Performance Simulation System

Dynamic Assessment Engine

DER Forecasting, Aggregation and Flexibility Analysis Module

Predictive Maintenance Module

Retrofitting Advisor Module

Validation framework

Location	No of Buildings	Types of Buildings	Total Surface of Buildings	Total Annual Consumption	No of Occupants	Shared Infrastructure
UK - London	4	Residential, Hotels, Retail	22.500 m ²	3.100 MWh (EL) 80 MWh (NG)	1.200	RES (PV), Back-up Generators
Portugal – Mafra	5	Educational, Sports, Office	8.100 m ²	535 MWh (EL) 760 MWh (NG)	800	HVAC (Natural Gas Boilers)
Serbia - Belgrade	48	Educational, Office, Residential, Retail	434.000m ²	12.400 MWh (EL)	11.700	District Heating



Main MOEEBIUS Impact

Performance Gap Reduction

Additional MOEEBIUS Quantified Impacts

Peak demand reduction
Energy demand reduction
GHG emissions reduction

Targeted Value

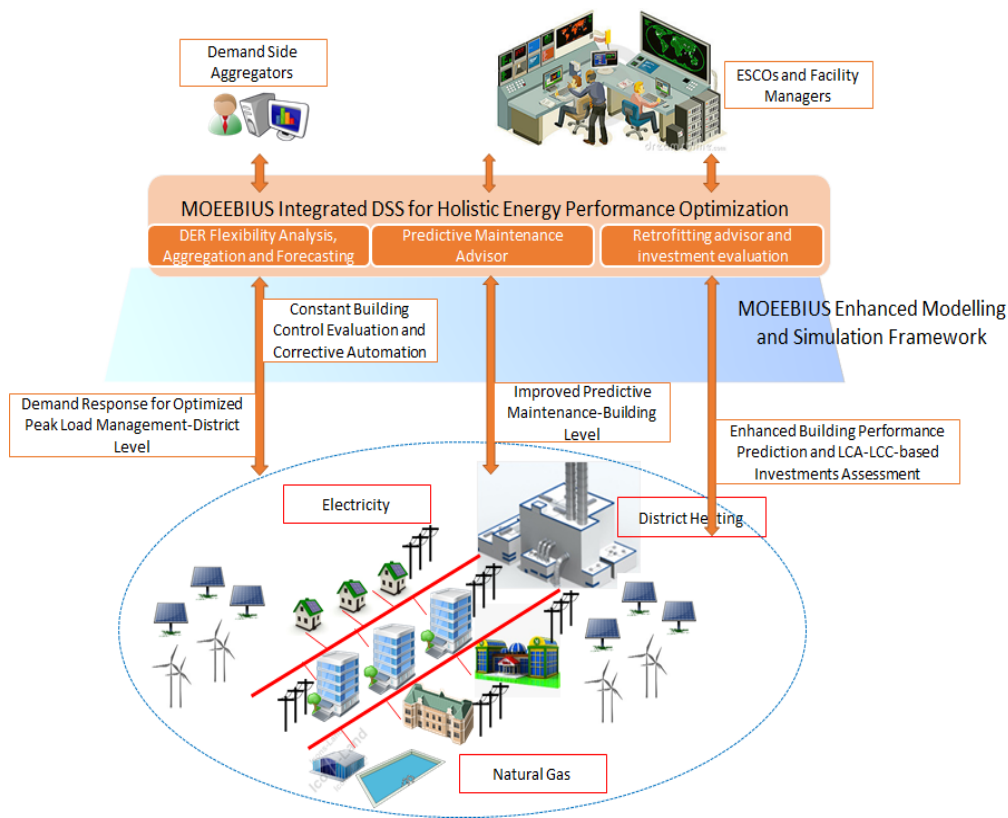
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Annual Values

50%
35%
180.000 Tn CO₂

20 Months in real-life conditions, in different buildings within districts characterized by increased heterogeneity and interaction features and under different environmental, social and cultural contexts in three dispersed geographical areas.

Business opportunities



Through the provision of a robust technological framework MOEEBIUS enables the creation of attractive business opportunities for ESCOs, Aggregators, Maintenance Companies and Facility Managers in evolving and highly competitive energy services markets

Eager to know more?



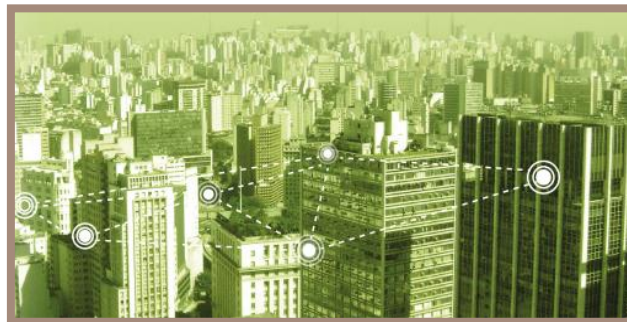
Join us in *shaping the future of modelling energy in buildings* and take part in **MOEEBIUS workshop** organised during WSED Innovation Workshops Energy and Buildings!

Together we can achieve more!



Thursday, 28 February 2019

14:00 Higher energy efficiency and lower business risks – Reducing the energy performance gap in buildings (MOEEBIUS)



MOEEBIUS Partners



Project coordinator

Ander Romero Amorrortu
TECNALIA
Parque Tecnológico de Bizkaia
ander.romero@tecnalia.com

www.moeebius.eu

