ECom4Future

FIWARE DRIVEN ENERGY COMMUNITIES FOR THE FUTURE

D7.1. Dissemination Plan

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Acronyms and Abbreviations

EC	European Commission
EP	Exploitation Plan
EU	European Union
GDPR	General Data Protection Regulation
HIL	Hardware-in-the-Loop
ICT	Information and Communication Technologies
SM	Synchronized Measurement
WEC	World Energy Council
WP	Work Package
WPL	Work Package Leader
WPMP	Work Package Management Plan

Executive Summary

This report represents the deliverable D7.1 Dissemination Plan and summarizes the consortium strategy and planned actions to disseminate, exploit and protect the foreground generated by the project and shall act as a guideline for the partners about the Dissemination activities to be carried out in the context of the Ecom4Future project.

This report is a comprehensive and living document which gives an introduction and outline of the achieved dissemination activities, and the ones proposed throughout the duration of the project, the tools, actions, and channels to be used in the dissemination and outreach of the products results. Another purpose of this deliverable is to provide a comprehensive description of the communication strategy of the project, the target segments groups of stakeholders mapping for selecting and including the most relevant target groups in the information, consultation, and debate activities within the ECom4Future project framework. Also, the deliverable will include

an indicative planning of the interactions with the categories from the identified target groups, following both the calendar of relevant events and the participation of ECom4Future consortium representatives in these events, as well as the organization of dedicated debates in events with a wide participation of the target segments or bilateral meetings, promotional tools created for the project and exploitable opportunities.

Because the document contains information related to dissemination and exploitation activities, this deliverable will be publicly available and made accessible through the ECom4Future project website and shall be used by anybody who wants to know the activities that have been and will be undertaken so Ecom4Future to become a reference in the education for digitalization of energy and make it effective in terms of utilization of results.

The communication and marketing concept of Ecom4Future project lies in actively interacting with the different target stakeholders and having them involved actively throughout the lifetime of the project. Different target audience groups will be engaged at different phases of the project through relevant dissemination tools, measures, and key messages.

For a consistent image and identity across platforms, an innovative visual identity comprising of the project logo, color scheme and templates has been developed for the project. This ensures a uniquely identifiable and easy to recall image of the project across all platforms.

Visual identity will be transversally applied to all the communication tools and channels that will be used in ECom4Future project. This includes a public website with project information, events and conferences, journals, publications and press, and audio-visual and print marketing material such as brochures, flyers, posters, videos, and interviews. These tools have been selected in line with the communication objectives and target audiences of the project.

The report also presents a set of indicators to track and measure the effectiveness of the communication activities of the project. Each key performance indicator has a goal measure to be achieved within the 36 months of the project.

The two key areas addressed by this deliverable are the dissemination and the exploitation actions, reported as Dissemination Plan and Exploitation Plan.

Dissemination Plan describes the dissemination measures and actions demonstrating the added value and positive impact of the project at European level.

Exploitation plan provides potential routes for the exploitable results that the partners have envisioned at the beginning of the project and which are being redefined as the project technically progresses.

1 Introduction

This deliverable is a major output of Work Package 7 (WP7), which focuses on maximizing the scientific, industrial, and societal impact of the ECom4Future project. WP7 supports the project's cross-domain vision by ensuring that the innovative physics-informed AI solutions developed for the optimized control of energy communities—integrating technical, social, policy, legal, and regulatory aspects—are widely disseminated and effectively exploited. This is accomplished through targeted dissemination and communication activities aimed at raising awareness about the novel approaches introduced in ECom4Future, particularly regarding the role of digitalization and cross-sector integration in the energy value chain. Emphasis is placed on the project's contribution to a forward-looking strategy for education and skills development in the evolving energy sector. Another key activity is the continuous collection and integration of feedback from relevant stakeholders, including citizens, industry, policymakers, and the academic community. This feedback loop informs the project's strategic orientation and ensures alignment with real-world needs and expectations. The purpose of this delivery is to provide a comprehensive overview of the project's marketing and dissemination strategy. It includes a description of the target groups, the promotional tools and materials developed, the dissemination activities conducted and planned, and the exploitation pathways designed to enhance uptake. It highlights how the project's delivery of high-resolution power profiles for various use cases will support informed decision-making for customers and investors, contributing to improved energy efficiency, market readiness, and broader societal impact.

1.1 ECom4Future in short. Motivation for this document

The European energy sector is undergoing a fundamental transformation towards a low carbon, integrated, and competitive economy. This transition is driven by the dual forces of climate neutrality targets and digitalization across all economic sectors. These developments include the widespread integration of renewable energy sources, the adoption of smart grid technologies, new energy services, and cross-sectoral electrification—such as the deployment of electric vehicles (EVs) and sustainable heating and cooling systems.

The ECom4Future project directly contributes to this transformation by advancing a physics-informed AI framework for the optimized control of energy communities. This framework considers not only technical feasibility, but also integrates social, legal, policy, and regulatory dimensions. A key ambition of the project is to enable high time-resolution monitoring and forecasting of energy consumption and production, supporting data-driven investment and market decisions by both consumers and investors. This deliverable outlines the activities designed to promote the ECom4Future strategy for digitalization and cross-domain optimization in the energy value chain, with a particular focus on supporting future-proof educational and policy frameworks. It is a living document that presents the suite of communication and marketing tools developed to raise awareness of the project's vision, objectives, and results. It also serves to inform key stakeholders—such as regulatory bodies, policymakers, industry representatives, prosumers, and educators—of the ongoing and planned dissemination efforts. Updated versions of this report will be released at key stages of the project's lifecycle to reflect new developments.

The dissemination and communication strategy aims to:

- Increase the visibility and reach of ECom4Future across European and international communities.
- Promote multi-stakeholder engagement, including educational institutions, research organizations, regulatory authorities, industry players, and civil society actors.
- Facilitate bi-directional communication that captures valuable feedback and ensures the alignment of project outputs with stakeholder needs and expectations.
- Bridge the gap between the emerging digital skill requirements of the energy transition and the current educational and professional training systems, contributing to the development of a blueprint for a future-oriented skills strategy.

The main objectives of this deliverable are:

- To identify and implement the necessary tools and platforms that enable constructive and continuous engagement with stakeholders throughout the project.
- To provide a detailed account of the dissemination and communication tools developed or planned for interaction with policymakers, advisors, industry, and the public.
- To define the content and timing of dissemination activities aligned with project milestones and to outline the corresponding target audiences.
- To create a plan for knowledge-sharing and feedback collection, ensuring results are disseminated efficiently and feedback loops contribute to project refinement and impact.
- To describe the exploitation plan, which outlines how the project's results will be translated into practical, sustainable outcomes beyond the project lifecycle—particularly in supporting educational innovation and investment decision-making in the digitalized energy sector.

2 Dissemination strategy – concept and approach

The objective of the dissemination strategy is to identify and organize activities to maximize the impact of the project and to promote the project results by creating interactive communication channels between the project and the target groups (e.g., universities and other educational institutions, utilities, energy sector stakeholders, professional workers association, policymakers, and the general public).

The dissemination strategy within the ECom4Future project is designed to structure and implement targeted actions that enhance the visibility and societal relevance of the project outcomes. The main goal is to maximize the project's impact by establishing dynamic and effective communication pathways between the project and key stakeholders, such as academic institutions, energy providers, technology developers, policymakers, industry representatives, and civil society.

The specific objectives of the dissemination activities are:

1. To increase visibility and awareness of the project's mission, progress, and outcomes among predefined target audiences through a set of tailored and engaging communication tools.

2. To facilitate knowledge exchange and synergies with related initiatives, avoiding redundancy and enabling complementarities that strengthen sectoral impact.
3. To disseminate core scientific, technical, and methodological advancements achieved during the project to relevant communities and stakeholders.
4. To lay the foundation for future exploitation—both commercial and non-commercial—of the project's deliverables and results.

Active participation of stakeholders is considered essential to create ownership and a sense of contribution toward the project's impact, going beyond basic awareness.

ECom4Future has mapped its role within the evolving landscape of digital energy communities and identified the primary stakeholder groups influenced by the project's findings and developments. Dissemination efforts are structured based on best practices applied in previous European-funded projects and aligned with the European Commission's recommendations for effective dissemination planning, including:

- Clear definition of the dissemination content, its audience, appropriate communication channels, and governance of dissemination actions.
- Ensuring internal review of project deliverables prior to external publication, involving key consortium members in quality assurance processes. Where applicable, outputs will be contextualized within the broader ecosystem of existing research and prior EU-funded initiatives.
- Integrating dissemination with the project's research activities, considering technological, regulatory, and market needs within the energy sector, especially focusing on energy communities and smart grid ecosystems.
- Communicating all final project results to consortium partners and relevant external stakeholders, ensuring clarity on their implications and future potential.
- Publishing all public deliverables and relevant outcomes on the ECom4Future website to ensure open access for interested third parties.

Dissemination activities will be structured according to the readiness and maturity of the project outcomes:

- Phase 1 (Months 1–18): Establishment of communication channels, message framing, and dissemination targeting early innovation adopters (Long-term impact).
- Phase 2 (Months 19–36): Engagement with policymakers and institutional stakeholders to stimulate alignment with energy community policies (Mid-term impact).
- Phase 3 (Months 37–48): Promotion of exploitable results and alignment with market needs for uptake and replication (Short-term impact).

This deliverable outlines the planned dissemination strategy and ensures alignment with the overarching objectives of Work Package 7 (WP7), supporting the progressive achievement of expected impacts.

3 Target audience – Stakeholders mapping

To maximize the communication and exploitation potential of ECom4Future consortium, the dissemination activities should be tailored in such a way to reach the target audiences most efficiently through appropriately selected dissemination channels and dissemination tools.

To ensure high-impact communication and maximize the potential for exploitation of ECom4Future results, dissemination efforts will be carefully tailored to address each stakeholder group through the most appropriate channels and with the most relevant content.

A fundamental element of the ECom4Future dissemination approach is the precise identification of relevant target audiences and their alignment with project outcomes. For effective engagement, each stakeholder segment must receive project messages that are timely, topic-specific, and delivered via suitable dissemination tools. Engaging all stakeholder tiers—local, regional, national, and European—is essential to achieve meaningful involvement and maximize project relevance.

The primary stakeholder groups identified for the dissemination of ECom4Future activities are listed in the table below:

Table Target audience – Stakeholders mapping-1. ECom4Future Stakeholders Target Group

Target group	Goal/Motivation	Measures/Channels

Local Energy Communities (LECs) and Prosumers (residential, commercial, cross-sector)	To test and validate the project's AI-based tools for optimized control and decision-making. These actors are central to demonstrating real-world feasibility and impact.	Community workshops, pilot site engagement, feedback sessions, participation in local forums, digital newsletters and interactive dashboards.
Distribution System Operators (DSOs) and Grid Operators	To ensure integration of smart grid functionalities and understand how LEC optimization interacts with grid stability, flexibility markets, and congestion management.	Technical meetings, joint simulations, bilateral collaboration for data exchange and interface testing, presence at grid/operator conferences.
Municipalities and Local Authorities	As enablers and regulators of urban energy planning, they are key to implementing energy community models at scale.	Participation in policy co-creation workshops, targeted briefings, integration of results into local energy/climate plans.
Policy Makers and Regulatory Bodies (national & EU)	To provide evidence-based insights and practical recommendations for updating regulatory frameworks that support the deployment of AI-enabled, multi-vector energy communities, while ensuring compliance with energy market rules, data protection, and consumer rights.	Contribution to consultations, policy briefs, white papers, meetings with DG ENERGY, and national regulatory authorities.
Academic and Research Institutions (energy systems, AI,	To ground the project in interdisciplinary expertise and support dissemination of validated methodologies.	Peer-reviewed publications, participation in academic conferences, joint research initiatives, seminars.

social sciences, legal studies)		
European and International Research Projects and Platforms	To align efforts, ensure interoperability, and support wider replication of ECom4Future outcomes.	Participation in platform meetings, knowledge exchange events, and EU clustering initiatives.

4 Dissemination Management

4.1 Distribution of responsibilities

Every possible opportunity will be embraced by individual partners or on a collective basis through single or joint appearance by the partners to make ECom4Future known among technicians and general public as well. The idea of this sub-chapter shall be to emphasize that all partners of the consortium must contribute to the dissemination according to their foreseen role and effort and using all available tools.

4.2 Dissemination policy and rules

Apart from the conventional and well accepted rules of disseminating true facts and contents, under the ethical non-discriminatory and any other applicable principles of the EU current policy, like the individual data protection, there is an important notice to repeat as the development of this project has been based in economic assistance of the European Union. This project is funded by one of the calls under the CET Partnership Initiative, Joint Call 2022. All communications activities related to the project will acknowledge the context of CET Partnership. Specifically, for events, invitations, press releases, presentations etc., the EU emblem will be displayed prominently together with the text "With the support of the CET Partnership and the National Agencies. When posting and communicating on LinkedIn and Twitter, one of the following will be used, as appropriate: #CETP #CETPartnership.

Figure Dissemination Management-1. European Union (EU) emblem

4.3 Evaluation of dissemination activities

Table Dissemination Management-2 KPIs associated to WP7 during the entire project duration

Types of activity	Expected level
Dissemination of Ecom4Future project results through events participation	At least once a year
Involvement in composing common papers with the project partners and in disseminating Ecom4Future results through publications in relevant journals	Several common papers throughout the project lifetime
Dedicated events with all the project partners	At least once a year
Dissemination of knowledge through	presentations of the research outcomes at international conferences and symposiums or for other research groups and interested parties in the field

5 Dissemination tools

5.1 Visual Identity

A set of graphical elements has been designed to give an identity to the ECom4Future project. Those elements are the ECom4Future logo and templates for reports, minutes, agenda, and acknowledgement, as well as private and public presentations, leaflets, roll-ups, brochure etc.

5.2 Project logo

An overall project design was created for the project to guarantee easy identification in all advertising material.

Figure Dissemination tools-2. Project logo

Several key design elements of the ECom4Future project—including multiple logo variations in different color schemes—are consistently applied across various platforms and templates. This approach ensures a coherent visual identity while allowing flexibility in adapting the branding to different communication contexts and backgrounds.

Figure Dissemination tools-3. Variations of the project logo

5.3 Typography

The Michroma Regular typeface is used for the ECom4Future logo, selected for its modern, distinctive, and easily recognizable appearance. Its strong geometric form conveys a sense of innovation and clarity, making it suitable for a forward-looking energy project.

While Michroma is reserved for branding and visual identity elements, POPPINS is used as the primary font for all formal documentation. It is chosen for its readability, simplicity, and wide compatibility across platforms. In project reports and text-based deliverables, POPPINS is consistently applied—with a font size of 14pt for headings and 11pt for body text—to ensure a clean, professional layout that supports clarity and consistency across all templates and document formats.

5.4 Project Colors

HTML code:	HTML code:	HTML code:	HTML code:	HTML code:
#EAD621	#3f88c1	#445362	#979584	#040707

5.5 Project website

The project website serves as one of the core communication instruments for ECom4Future, aligned with the standards and expectations of EU-funded initiatives under the Erasmus+ Programme. To ensure broad visibility and easy access to the project's vision, objectives, and results, a dedicated website has been launched using a clear and accessible domain name: www.ecom4future.eu .

Key features of the website include:

- Visual appeal: Clear layout, consistent colors, and relevant images for easy navigation.
- Simple language: Content is written in accessible, non-technical terms.
- High visibility: Optimized for search engines, with strong internal and external linking.
- Regular updates: Content is maintained based on partner input and project progress.
- Analytics tools: Includes visitor counters and usage statistics.

The website acts as the main entry point for all public project communication and dissemination.

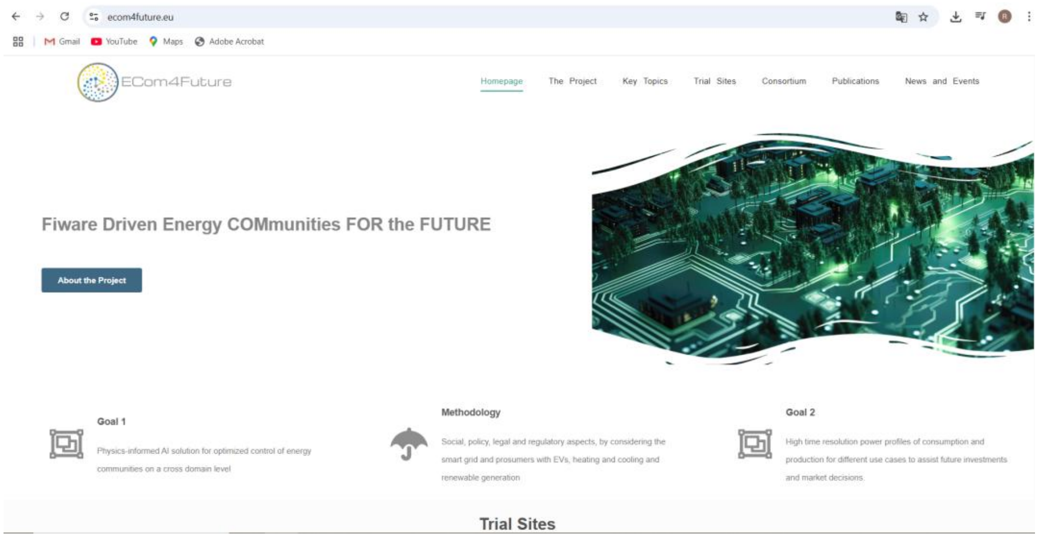


Figure Dissemination tools-4. ECom4Future project website

6 Dissemination Activities

6.1 Dissemination plan implementation

All ECom4Future partners are actively involved in dissemination and communication activities, ensuring the widest possible reach through both existing and project-specific channels. This includes:

- Sharing project news and results across professional platforms such as LinkedIn and X (formerly Twitter).
- Contributing to high-quality scientific publications that showcase the project's most relevant technical achievements.
- Delivering presentations, posters, and demos at key European and international conferences, symposia, and sectoral events.
- Industrial partners will play a central role in promoting the project's vision and technical solutions through fairs, workshops, and live demonstrations.
- A preliminary list of relevant dissemination events has been included in this report and will be continuously updated throughout the project lifecycle.

Table Dissemination Activities-3. Dissemination Tools and their corresponding Target Audience

Dissemination Tools	**Target Audience**			
	Scientific Community	Industry and SMEs	Policy Makers	General Public
Project Website	✓	✓	✓	✓
Newsletter (email and website-based)	–	✓	✓	✓
Scientific Publications	✓	✓	✓	✓
Participation in conferences, fairs, and events	✓	–	–	–
Articles for general media (blogs, news sites, magazines)	✓	✓	✓	–
Radio / TV coverage (local or national)	–	–	✓	✓
Press releases and press conferences	–	–	–	✓

6.2 Target publications

The industrial and academic partners of ECom4Future will actively contribute—both individually and collaboratively—to the dissemination of scientific and technical advances made during the project. These efforts will take the form of: peer-reviewed and non-peer-reviewed journal articles; conference papers, presentations, and posters; book chapters, technical reports, and white papers; contributions to industry magazines, media outlets, and public communication channels (e.g., video interviews, TV segments, press releases).

Scientific publications are a key instrument for sharing high-level knowledge generated within ECom4Future, aiming to inform, inspire, and engage a wide spectrum of stakeholders—from researchers and engineers to policy makers and innovation-driven businesses.

Publications in reputable journals and participation in relevant conferences will raise visibility, support credibility, and foster new collaborations, aligning with the project's cross-sector and interdisciplinary character.

To enhance reach, project-related publications will be, wherever possible: posted on the ECom4Future website; shared via social media platforms; included in newsletters and other communication outputs.

A curated list of targeted conferences, journals, and professional magazines relevant to the project's dissemination strategy is included below and will be updated throughout the project.

Table Dissemination Activities-4. Relevant journals and magazines for ECom4Future communication strategy

Kind of Publication	Details	Website (if applicable)
Scientific conferences and peer-reviewed journals	IEEE International Workshop on Applied Measurements for Power System	https://amps2025.ieee-ims.org/
	IEEE PES ISGT (Innovative Smart Grid Technologies)	https://ieee-isgt-europe.org/
	International Universities Power Engineering Conference Series	
	IEEE International Instrumentation & Measurement Technology Conference Series	
	CIGRE Events relevant for smart grid and energy communities	https://www.cigre.org/GB/events/next-events
	CIGRE Paris Session	https://session.cigre.org/
	IEEE Transactions on Smart Grids	
Selected Journalistic	VoltA Magazine – CIGRE Romania's technical magazine	https://cigre.org.ro/New/publicatia-volta/

Channels (magazines and online magazines)	Politico Pro (Belgium)	
	Dods EU monitoring (Belgium)	
	Euractive Magazine (Belgium)	
	EU Observer (Belgium)	
	International Energy Agency Website	https://www.iea.org/reports/digitalisation-and-energy
	Bizz-Energy Website magazine (Germany)	https://www.bizz-energy.com
	Entrepreneur website magazine (USA)	https://www.entrepreneur.com/topic/digitization
	Energy Global Website Magazine (UK)	https://www.energyglobal.com/
	Recharge News Website Magazine (Norway)	https://www.rechargenews.com/
	Bursa Magazine (Romania)	https://www.bursa.ro/
	Energyenomics Magazine (Romania)	https://www.energynomics.ro/
	Invest Energy online (Romania)	https://www.investenergy.ro/
	News Energy online (Romania)	https://newsenergy.ro/
TV Channels (for video content)	BFM Business TV (France)	
	NS Media Group	www.newstatesmanmedia.com
	News Energy & EM 360	https://www.em360.ro
	YouTube	https://www.youtube.com/

6.3 Publications for the first part of implementation of the project

The following publications were prepared by ECom4Future partners, posted on the website, and shared on social media. Below can be found a list with the most relevant ones.

Table Dissemination Activities-5 Publications in the first part of the implementation of the project

Publication	Journal / Conference
One-class Classification and Cluster ensembles for Anomaly Detection and Diagnosis in Multivariate Time Series Data	The 35th International Conference on Principles of Diagnosis and Resilient Systems (DX'24)
Load prediction for mixed use disctricts	Proceedings of 16th International Conference on Sustainable Energy & Environmental Protection – SEEP 2024, September 2024
Estimation of the LV power profiles variability	Proceedings of the 14th IEEE International Workshop on Applied Measurements for Power Systems - AMPS 2024
Leveraging the Rate of Change of Active Power for Enhanced Event Identification	Proceedings of the IEEE SGSMA – 2024 International Conference on Smart Grid Synchronized Measurements and Analytics
Measurement and Information Uncertainty for Highly Variable Power Profiles	Proceedings of the 2024 IEEE International Instrumentation and Measurement Technology Conference (I2MTC)
Embedded Application for Power Flow Variability Assessment	Proceedings of the 2024 International Conference on Applied and Theoretical Electricity
Voltage variability assessment in power systems	Revue roumaine des sciences techniques, Série Électrotecnique et Énergétique, vol 69

6.4 Target Conferences and Events

ECom4Future places a strong emphasis on presenting project outcomes at high-impact scientific and industry-focused events. Participation in such conferences ensures visibility among researchers, engineers, and innovation leaders from both academia and industry.

National and international conferences are key dissemination opportunities, enabling the sharing of project methodologies, use cases, and results with expert audiences. These events serve as a platform for knowledge exchange, network building, and potential collaborations, helping to maximize the outreach and relevance of the project.

In addition to conferences, the consortium will actively participate in: workshops; technical meetings; sectoral exhibitions; trade fairs and technology showcases.

These venues provide opportunities not only to present the strategic direction, tools, and assessments developed within the project, but also to gather early feedback on preliminary results from targeted stakeholder groups.

A preliminary list of relevant events is presented in Table 6-3 below. This list will be reviewed and expanded as the project progresses.

Table Dissemination Activities-6. Relevant events for ECom4Future communication strategy

Organizer	Conference or Event name	Country	Date
Eurelectric	Power Summit 2025 - Electric Decade	Belgium	03 – 04 June 2025
CIGRE	CIRED 28th International Conference	Geneva, Switzerland	16-19 June 2025
Council of European Energy Regulators (CEER)	Regulatory Strategies for Consumer Empowerment, System Integration and Market Efficiency	Belgium	25 June 2025
SPE (Solutions, People, Energy)	Europe Energy Conference	Austria	10 – 12 June 2025
	Enlit Europe	Spain	18 – 20 November 2025
REScoop.eu	European Energy Communities Forum	Poland	20 – 22 May 2025

	and General Assembly		
	Gastech – AI Energym Climatetech, Hydrogen	Italy	9-12 Sept 2025

6.5 Conferences and events for the first part of the implementation of the project

The first part of the ECom4Future project implementation summarize participation in the following conferences and events. Below can be found a list with the ones where the consortium was either an active participant or the organizer.

Name: SGSMA 2024 – *„The 4th International Conference on Smart Grid Synchronized Measurements and Analytics”*

Organizers: George Washington University, Washington DC, USA

Date: May 20 – 23, 2024

Action: Participation, organization and paper presentation

Website: https://blogs.gwu.edu/seas-sgsma2024/

Name: I2MTC 2024 – „2024 IEEE International Instrumentation and Measurement Technology Conference (I2MTC)”

Organizers: University of Strathclyde, Glasgow, Scotland

Date: May 20 – 23, 2024

Action: Participation, and paper presentation

Website: https://i2mtc2024.ieee-ims.org/

Name: AMPS 2024 – *„14th IEEE International Workshop on Applied Measurements for Power Systems”*

Organizers: University of Campania “Luigi Vanvitelli”, Caserta, Italy

Date: September 18 – 20, 2024

Action: Participation, organization and paper presentation

Website: https://amps2024.ieee-ims.org/

Name: ICATE 2024 – *„2024 International Conference on Applied and Theoretical Electricity”*

Organizers: University of Craiova, Craiova, Romania

Date: October 24 - 26, 2024

Action: Participation, and paper presentation

Website: https://elth.ucv.ro/icate/icate2024/2024/02/02/about/

Name: TyphoonHIL TechDay 2024

Organizers: Typhoon HIL, Novi Sad, Serbia

Date: June 27 - 28, 2024

Action: Participation

Website:https://www.typhoon-hil.com/wp-content/uploads/2024/04/Travel-Information-TechDay-2024.pdf

Name: ASMES 2024 - „Measurements and Models for Emerging Power Grids”

Organizers: ICPE-CA (National Intitute for Research and Development in Electrical Engineering, Tulcea, Romania

Date: May 9 - 12, 2024

Action: Participation, and paper presentation

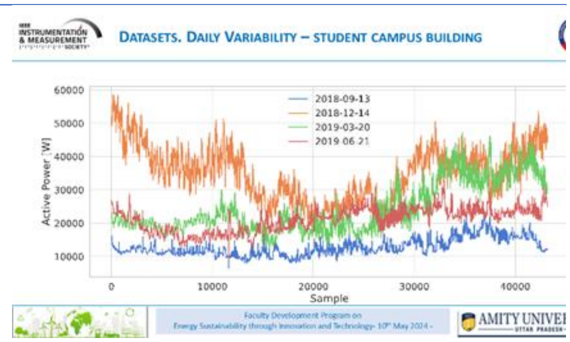
Website: https://www.icpe-ca.ro/asmes2024/

Name: NOIDA 2024 - „Energy Sustainability through Innovation and Technology"

Organizers: Amity University, Noida, India

Date: June 10 - 14, 2024

Action: Participation, and paper presentation

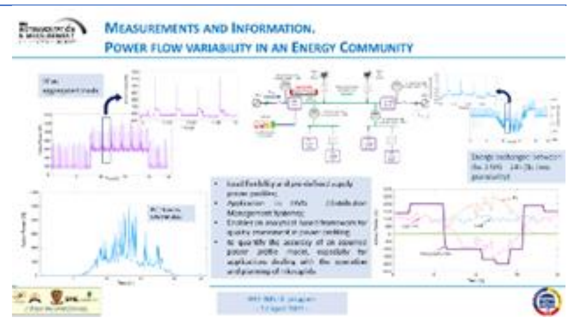


Name: „4th Sceince International Conference – Recent advances in Photonics and Physics Sciences *2024*"

Organizers: College for Women University Lahore, India

Date: April 16 - 16, 2024

Action: Participation, and paper presentation



Name: 12. Smart Home User Event

Organizers: ELV, Smart Home Group Austria

Date: April 14.09.2024

Action: Participation, networking, project presentation

6.6 Target Networking opportunities

This section presents a list of other CET Partnership-funded projects that are relevant for benchmarking, knowledge exchange, and identifying potential synergies with ECom4Future. These projects are analyzed in terms of their targeted educational levels, required skills, enabling technologies, and the educational or dissemination tools they employed to achieve their objectives. The purpose of this dissemination activity is to identify and extract valuable best practices, methodologies, and tools that could inform and enhance the implementation of ECom4Future, particularly across its research activities and work packages. By studying these related initiatives, the project aims to ensure alignment with European-level efforts, maximize reuse of proven approaches, and strengthen the strategic orientation of ECom4Future in addressing cross-domain digitalization, energy community empowerment, and skills development in the energy transition.

7 Exploitation activities of the partners

The Exploitation Plan (EP) presented in this document, as part of the overall dissemination and exploitation strategy, is designed to maximize the long-term impact of the physics-informed AI approach and cross-sectoral innovation developed within the ECom4Future project. A key objective of the EP is to facilitate the transition of project outcomes into academic, training, and industrial contexts, thereby supporting broader uptake and enabling sustained benefits beyond the project's duration.

7.1 POLITEHNICA Bucharest

The Exploitation Plan (EP) presented in this section, as part of the broader dissemination and exploitation strategy, is designed to ensure that the innovations developed within ECom4Future lead to long-term value creation across academic, industrial, and energy community contexts. One of the main exploitation pathways is the demonstration and validation of innovative control strategies in real-world scenarios, such as the GreenMogo energy prosumer site.

The GreenMogo demonstrator, part of the ECom4Future use-case ecosystem, is a restricted-operation prosumer system (no energy injection into the public grid), optimized for self-consumption and storage-based flexibility. The goal is to optimize internal energy flows using both electrical and thermal flexibility, enabled by advanced monitoring and AI-based control systems that operate across both ICT platforms and edge-computing layers. The schematic diagram illustrating the principle of energy transfer within a prosumer system (with potential for extension to an energy community) at GreenMogo is shown in the figure below.

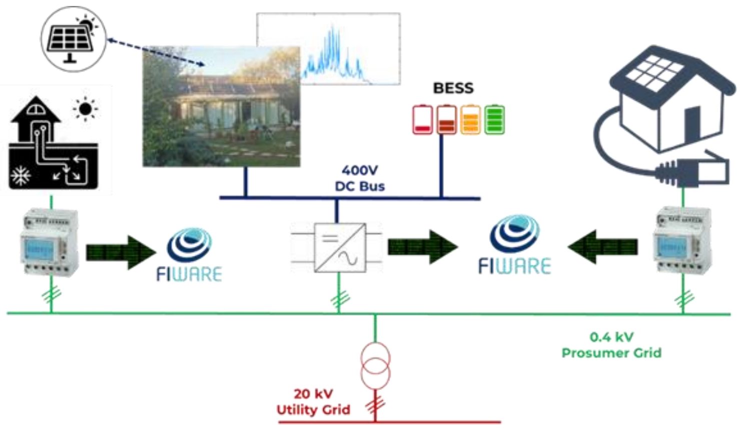


Figure Exploitation activities of the partners-5 Schematic diagram used for GreenMogo energy community

The GreenMogo energy community architecture includes: a 7 kW photovoltaic system (PV), a 14 kW and 148 Ah Li-Ion battery energy storage system (BESS), a 5 kW Victron Quattro inverter which connects the PV system and the BESS to the public A.C. grid. This setup is intended as a scalable blueprint for future energy communities, providing a replicable configuration for prosumer systems with local generation, storage, and consumption.

A critical aspect of exploitation in ECom4Future is the integration of high-resolution measurement data to feed into AI-driven control logic. At GreenMogo, the measurement layer is based on the Unbundled Smart Meter (USM) concept. The USM involves accessing the meter's instrumentation data using a Smart Meter Extansion (SMX), which enable data extraction with high reporting rates.

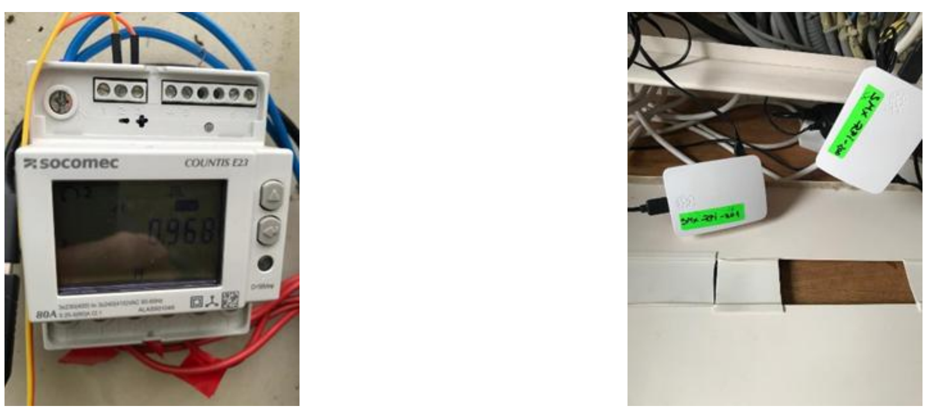


Figure Exploitation activities of the partners-6 Measurement infrastructure for energy consumption at GreenMogo

The measurement infrastructure for energy consumption is composed of: SOCOMEC three-phase energy meters with class 1 for active energy and class 2 for reactive energy; The SMX is implemented using Raspberry Pi (RPI) processing units directly connected to SOCOMEC meters, which extract instrumentation values with high temporal resolution (1-second resolution). The monitoring system for energy consumption at GreenMogo is presented in Figure 7-2.

The measurement infrastructure for energy generation is embeded into a 5 kW Victron Quattro inverter, which is interconnected with a Color Control GX (CCGX) control unit. High reporting rate measurements (1 frame/s) is obtained by connecting a Raspberry Pi (RPI) module to the CCGX via TCP/IP protocol, using a dedicated Python-based software configuration with additional software calibration. The data is stored locally in a CSV file, which includes the timestamp and parameters characterizing the energy transfer provided by the CCGX. The measurement and control infrastructure for the generation layer is presented in Figure 7-3.

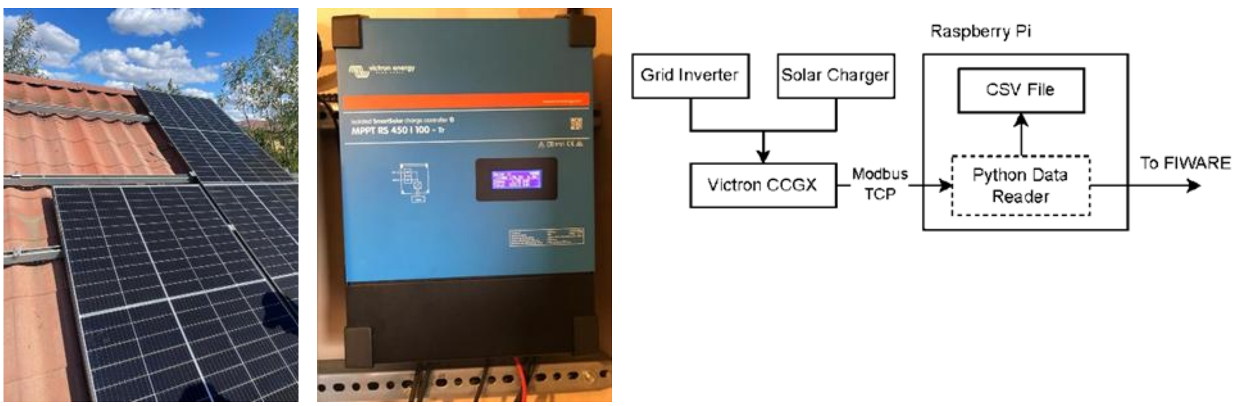


Figure Exploitation activities of the partners-7 Measurement and control infrastructure for the generation layer

Therefore, the GreenMogo use case exemplifies how ECom4Future innovations can be directly exploited to transition from theoretical models and AI frameworks to actionable solutions integrated into daily energy system operations.

7.2 Rheinisch-Westfaelische Technische Hochschule Aachen

At RWTH we use a trial site to demonstrate and evaluate flexibility concepts developed in the project. The trial site, a test hall at the Chair of Building and Room Climate Control, is a versatile space that is divided into three thermal zones, each supplied with energy differently. Within an office area, multiple offices, meeting rooms, a kitchen, and restrooms are accommodated, providing a realistic setting for various tests. A variety of different test benches are housed in the structurally separated hall sections 1 and 2.

The hall is connected to a district heating and cooling network, ensuring a reliable energy supply. A central ventilation system (AHU) supplies fresh air to Hall 1 and the office area. In both areas, decentralized units (jet nozzles (JN) and ceiling injection diffusers (CID)) can adjust the supply air temperature and volume flow rate, providing a comfortable environment for testing. In addition to the central AHU, Hall 1 is equipped with a concrete core activation (CCA), further enhancing the energy efficiency of the system. Hall 2 is supplied with heat from the district heating via ceiling radiant panels (CLG).

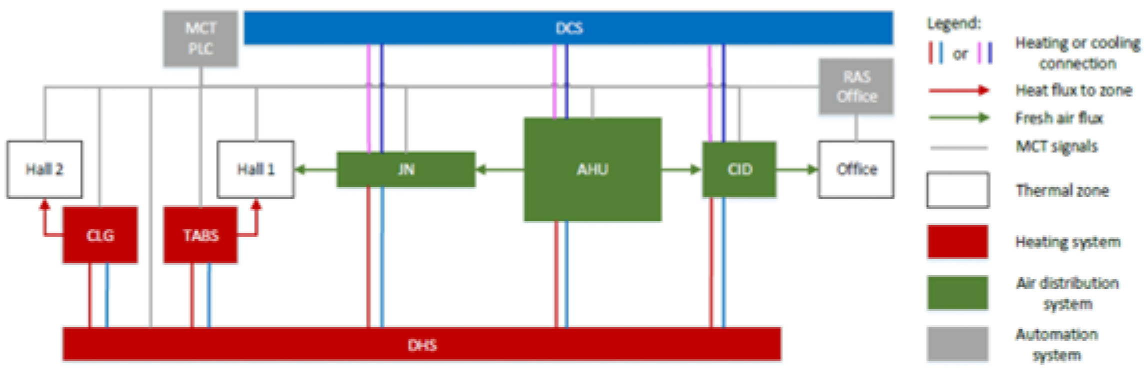


Figure 8: Test hall at the Chair of Building and Room Climate Control

To evaluate control strategies under realistic and repeatable conditions, we use the following approach:
The hardware-in-the-loop (HiL) approach for building energy systems combines real hardware with real-time dynamic simulation models. The boundary between hardware and simulation is freely selectable. However, complex components of the energy conversion system, for example, a heat pump or a PV inverter, are usually installed as real hardware in the laboratory. Components that are not part of the technical supply system, such as the building envelope, can be represented by a dynamic simulation. After coupling the existing hardware with the modeled software, the states of the components are interdependent. For example, if the heat pump is in a faulty state, the rooms in the building cool down over time. Thus, highly dynamic tests are feasible under broad boundary conditions and high repeatability.

This setup allows precise representation of various building types and environmental factors:
Buildings can be displayed in room resolution at the lowest level of detail. External boundary conditions such as temperature and solar radiation are precisely considered. Models are available for the heat transfer system for radiator systems, underfloor heating systems, and concrete core activation. Each heating circuit can be controlled by a controller integrated into the model or by other software. Other

components that can be simulatively integrated are thermal storage units, photovoltaic and solar thermal systems, battery systems, and geothermal probes.

As part of Ecom4Future, we utilize the HiL test bench for participation in local flexibility markets. By simulating a residential building in the HiL test bench and incorporating the trial site test hall, both non-residential and residential buildings can be analyzed in flexibility markets. For this trial site, the focus is on the heat pump and, thus, on the coupling of heat and electricity, which effectively complements the thermal investigations of the experimental hall.

Figure 9 Hardware in the Loop (HiL) test bench

7.3 FH JOANNEUM Gesellschaft mbH

FH Joanneum operates a laboratory for renewable energies at the Kapfenberg site together with FH Campus 02 in Graz. The two laboratories are coupled with a VPN line so that devices can be controlled bidirectionally and data can be read. As part of this project, energy communities are a focus that is also implemented in the laboratory. Generation data from the PV systems and consumption data from defined loads as well as data from the battery storage systems can be processed in order to optimize the overall system with various goals: highest possible self-consumption, lowest electricity procurement costs, maximum yield for all participants in the energy community.

In the previous project (I-Greta), the latency time with which devices can be controlled from one location to the other was already demonstrated, this is less than 1 second depending on the response time of the selected device. Since the measurement intervals of the smart meters from the public grid operator are 15-minute values, they can be switched intelligently with the electricity meters (smart meters) of the grid operators. In any case, switching operations with the self-installed meters can be implemented in the range of seconds. Intelligent hot water preparation and room cooling, primarily with PV electricity, have already been tested.

Several other tests are executed during the whole project duration. Figure 10 shows the IT connection between the two laboratories.

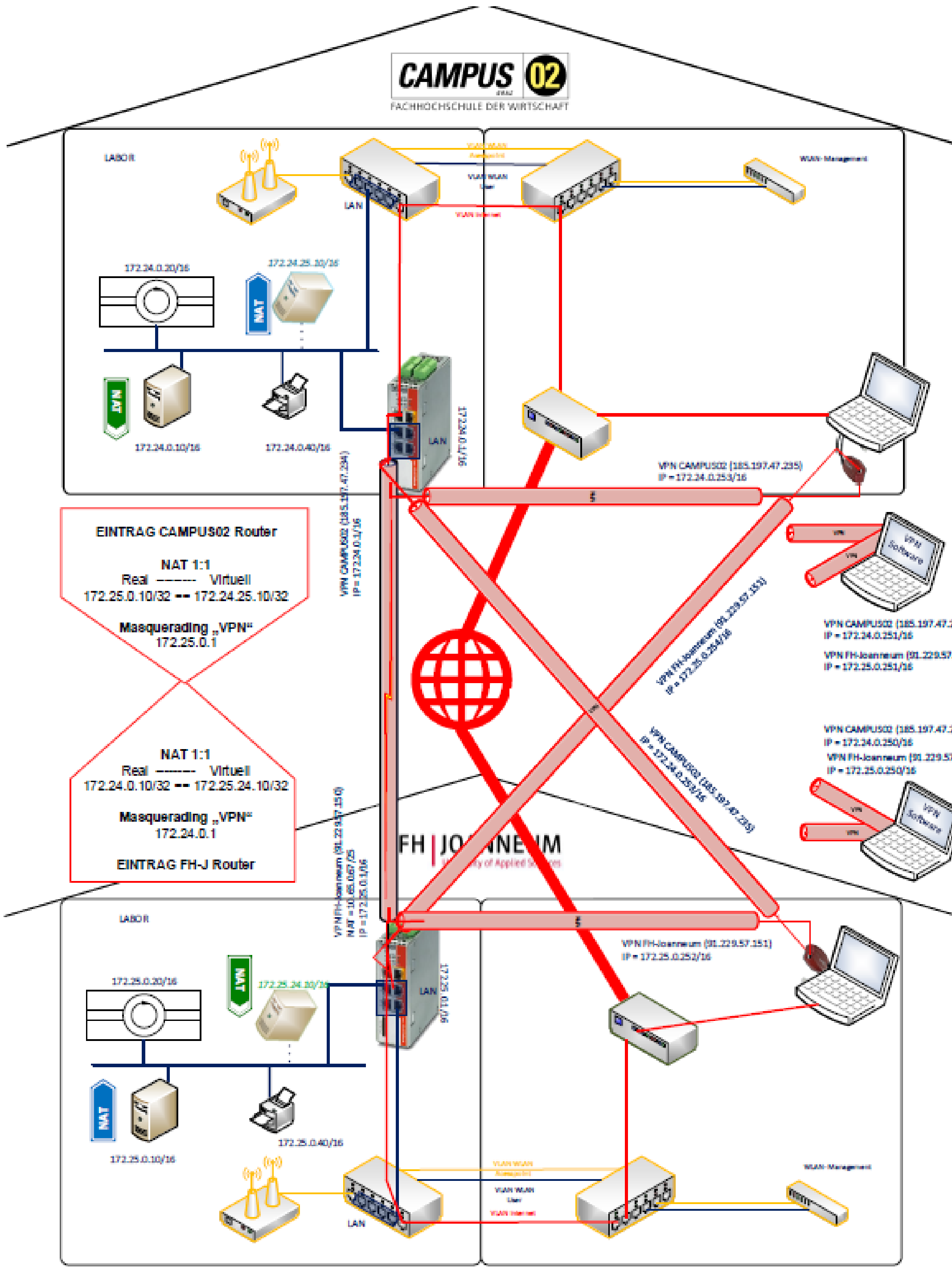


Figure 10: IT-Structure of EAS-Lab connection between Kapfenberg and Graz

7.4 TU Wien Univ

TU Wien team primarily focuses on the development of machine learning and data-driven based fault detection and diagnosis (FDD) techniques for energy systems employed in energy communities. In general, the plan is to innovate FDD techniques to improve energy efficiency and retrofit cost. In parallel, TU Wien contributes to this project by developing and modeling energy demand for the prosumers and consumers members of the energy community, enabling self-sustainability through intra-community energy sharing. We will develop and test these methods using either simulated data or real data, depending on each task's goals. For instance, for energy demand analysis, we plan to use data from Austrian energy communities like Mariatrost and Niedergrail, provided by our project partners. TU Wien will also hold technical workshops on using machine learning and AI for energy community use cases, such as forecasting, fault detection, and diagnosis.

7.5 CAMPUS 02 Fachhochschule der Wirtschaft GmbH

As described in detail in section 7.2, FH CAMPUS 02 is integrated as a key partner in the decentralized renewable energy laboratory network, known as the EAS-Lab. Both institutions (FH Joanneum, FH CAMPUS 02) are actively contributing their laboratory infrastructure as trial sites for the implementation and testing of various innovative energy concepts within the scope of the project. The main focus of the previously defined use cases lies in improving the overall energy efficiency within both laboratories. This includes, for example, optimizing energy consumption through intelligent monitoring systems, sensor-based control, and adaptive load management strategies. Another use case is dedicated to the development and testing of smart heating and cooling solutions, which integrate real-time weather forecasts, predictive algorithms, and simulation models to adjust building climate systems in an energy-efficient and user-oriented way.The results generated from these activities will not only be presented at local stakeholder events and workshops but will also be directly incorporated into the academic teaching. This ensures that students can benefit from hands-on experience with state-of-the-art technologies and gain insights into real-world applications of sustainable energy systems. Furthermore, there are concrete plans to publish the outcomes in the form of a scientific paper or poster presentation at a national academic conference, such as the FFH (Forschungsforum der österreichischen Hochschulen), by next year.

7.6 Chalmers tekniska högskola AB

Chalmers is leading the Swedish use cases and will demonstrate them using the available demonstrations sites, including HSB Living Lab, Chalmers Campus, and Jättesten. The Key Exploitable results from the Swedish demonstrations includes a digital twin for visualizing energy flows within a LEC, advanced EMS for LEC, design of incentive mechanism that can boost the societal value of a LEC and a blueprint for how the solutions can be replicated in other LEC. In addition to academic research papers, Chalmers will collaborate closely with Chalmers Next lab to increase the exploitation of the research results from Ecom4Future. Chalmers Next Lab was founded in 2025 with the aim to increase the exploitation of research innovation from Chalmers university.

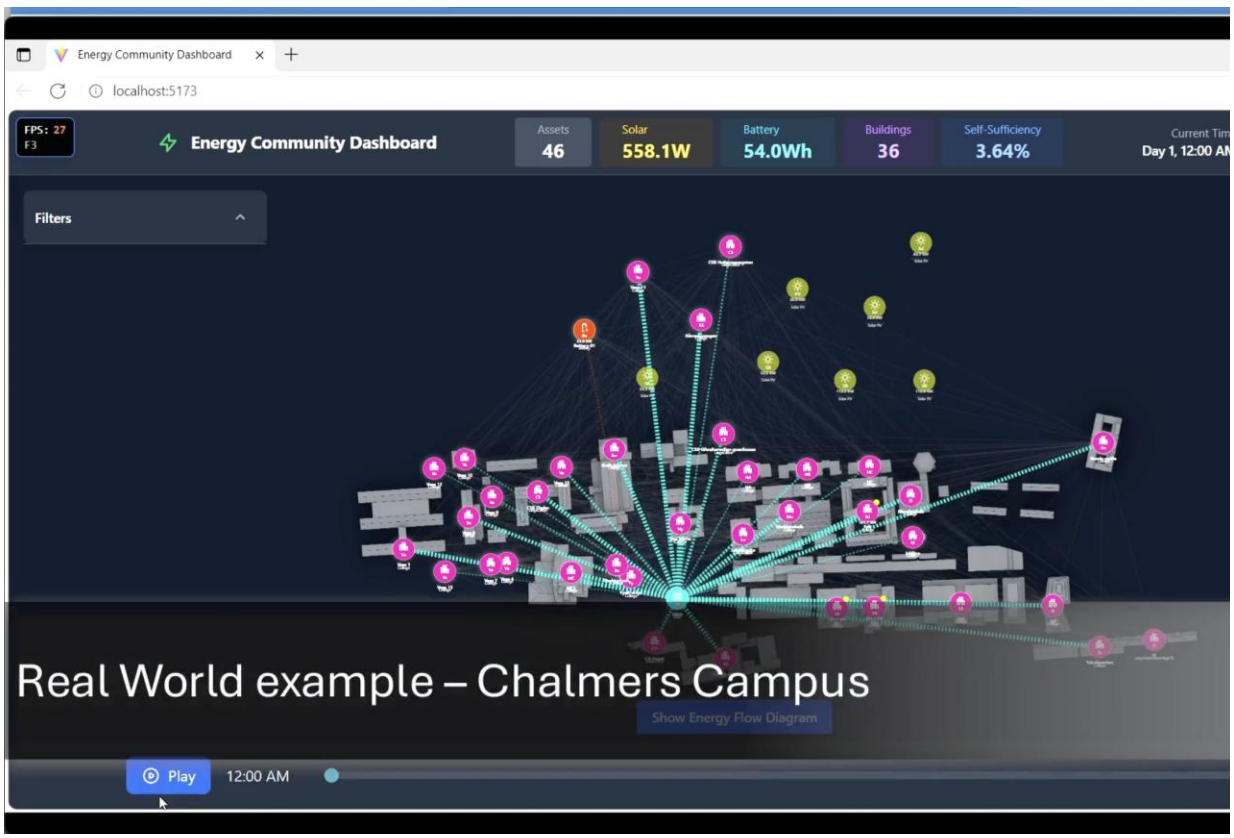


Figure 11: Chalmers Campus Energy Community Planner (ECOM Planner)

7.7 dwh GmbH

DWH GmbH contributes to ECom4Future by developing forecasting and optimization methodologies to improve energy management within Energy Communities. The focus lies on predicting both energy consumption and photovoltaic (PV) energy production using state-of-the-art machine learning techniques. In addition, a Reinforcement Learning (RL) algorithm is being implemented to optimize energy consumption and reduce operational costs for the energy community. To achieve this, the developed forecasting models are integrated as input parameters for the RL approach. The performance of the RL-based strategy will be compared with other optimization methods provided by project partners. By optimizing energy flows, this work aims to directly increase the efficiency and economic sustainability of Energy Communities, enabling more cost-effective operation and enhancing the value for community members. The outcomes, including forecasting models and optimization frameworks, will be disseminated through academic publications, project demonstrations and internal workshops. If the prediction accuracy as well as the estimated reduction of operational costs for energy communities by applying the developed methods proves adequate, the market entry strategy for a prototype SaaS platform integrating the developed methods will be refined.

7.8 DiLT Analytics FlexCo

DiLT Analytics FlexCo works closely with TU Vienna and dwh GmbH on the FDD and optimization strategy for energy communities and is leading the use case development and stakeholder communication for the Austrian trial sites “Campus Inffeldgasse”, “EC Niedergrail” and “EC Mariatrost”. In addition, DiLT brings it expertise in analysis of security and privacy aspects in smart grid and energy community ICT platform environment and will arrange stakeholder workshops/interviews about these topics. DiLT plans to communicate the project results at different events in Austria and on social media, webpages, etc.

7.9 SWW Wunsiedel GmbH

The municipal utility SWW Wunsiedel GmbH participates in ECom4Future by operationalizing the Energy Sharing Community (ESC) WUNergy as a living lab for innovative, citizen-centric energy models. Within this pilot, SWW takes on the central enabling role by supplying electricity, managing the balancing group, and handling all regulatory responsibilities. The ESC WUNergy is legally structured as a cooperative, while SWW provides technical infrastructure, market access via SEtrade, and billing services. Through the integration of dynamic tariffs and smart metering systems, SWW explores new flexibility mechanisms and data-driven optimisation of energy flows. The ESC allows SWW to test scalable business models that align with future regulatory frameworks and enhances its positioning as a digital and participatory energy service provider.

7.10 HSB GOTEBORG EK FOR

The HSB Living Lab functions as an advanced, instrumented microgrid testbed integrating diverse energy generation, storage, and consumption assets managed by a centralized Building Energy Management System (BEMS).

Energy Generation and Grid Interface

- Renewable Generation: The system incorporates Photovoltaic (PV) solar panels mounted on the façade, which generate direct current (DC) electricity.
- Grid Interface: A bidirectional Inverter converts the DC electricity from the PV array and the Battery Energy Storage System (BESS) into alternating current (AC) for building consumption or export to the external Grid. It also manages the import of power from the grid when local generation is insufficient.
- Thermal Input: The system interfaces with a conventional District Heating network, providing a primary source of thermal energy.

Energy Storage and Conversion

Battery Energy Storage System (BESS): A high-capacity Battery stores electrical energy, enabling services such as load-shifting, peak-shaving, and the utilization of locally generated solar power. This asset is connected to the DC link of the Inverter.

- Thermal Storage: Multiple Hot Water Multi-functional Storage Tanks provide significant thermal inertia, storing heat supplied by the District Heating system and the Heat Pumps. These tanks are critical for decoupling heating and hot water demand from generation, enhancing system flexibility.
-
- Heat Pump System: A set of Heat Pumps with associated Heat Pump Indoor Units extracts thermal energy (potentially from ambient air or ground) and elevates its temperature for use in the building's heating systems and thermal storage tanks.

Consumption and Load Flexibility

- Smart Loads: The building's energy consumption includes various flexible loads, such as smart appliances (e.g., washing machines, dishwashers, and dryers) and the Heat Pumps themselves.
- Electric Vehicle (EV) Charging Infrastructure: The system features an EV charger connected to the microgrid, representing a significant, dispatchable load that can be managed by the BEMS to optimize charging schedules based on PV generation or grid price signals.

Control and Optimization

Building Energy Management System (BEMS): The BEMS is the core intelligence, utilizing a network of sensors and data inputs to issue Control Commands (represented by dashed lines) to all system components. The BEMS executes optimization algorithms to achieve goals such as minimizing operational costs, reducing peak power demand (peak-shaving), maximizing self-consumption of PV generation, and efficiently managing the state-of-charge of the BESS and the thermal storage levels. This control system facilitates the study of advanced demand-side management (DSM) strategies and local energy market integration.

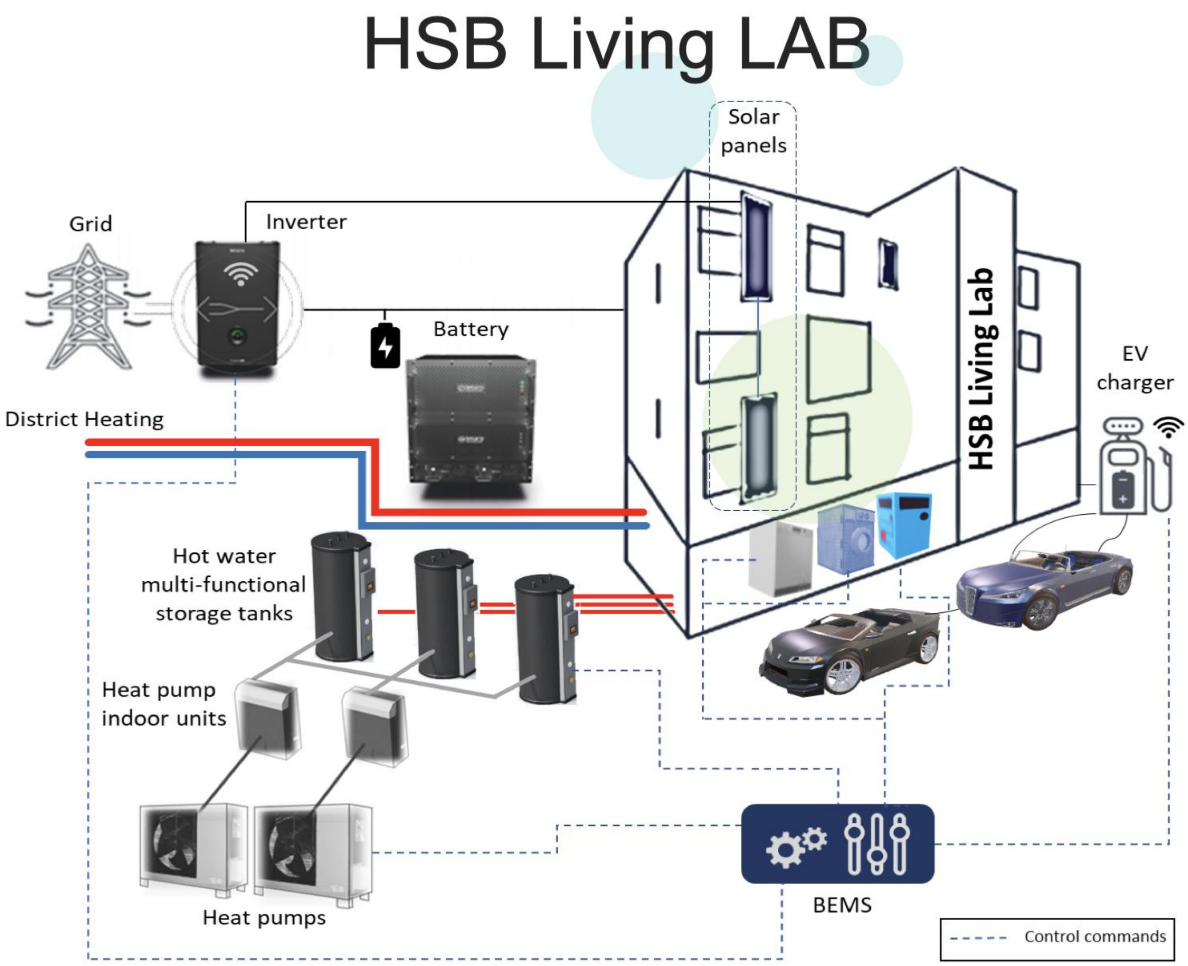


Figure 12: HSB Living Lab: Energy Management System Ecosystem

7.11 University of Graz

The psychological team of the University of Graz is conducting psychological studies to investigate people's willingness to participate in local energy communities under different technical, legal, and social setups. The Key Exploitable Results from this work include publications in peer-reviewed journals on how various features of energy communities relate to people's motivation and willingness to join, as well as the perceived attractiveness of different energy community features.

In addition to academic publications, the findings will contribute to a better understanding of the acceptance and psychological factors relevant to energy community design. These results can inform future interdisciplinary research and may be of interest to policymakers, municipalities, and other stakeholders aiming to support the development of socially acceptable and user-centered energy communities.

Complementing this psychological perspective, the legal team of the University of Graz is examining and analyzing legal norms and regulations that shape energy communities, with a particular focus on the grid, in order to address how existing norms and regulations can either restrict or facilitate the establishment and operation of energy communities, especially those with innovative grid topologies such as microgrids, as well as the active participation of citizens in the energy transition.

The findings of the legal analysis will be published as a policy report, which will provide an overview of the legal framework of energy communities in the project countries as well as its shortcomings and examine in detail the policy recommendations that contribute to a clear understanding of the opportunities and challenges arising from the legal and regulatory frameworks in the context of energy communities.

These results can support policymakers, municipalities, and other stakeholders in expanding energy communities and achieving greater social acceptance and more sustainable governance arrangements, while ensuring compliance with European and national regulations.

7.12 AKADEMISKA HUS AKTIEBOLAG

Akademiska Hus (AH) is one of the largest real estate owner in Sweden. They own and operate most of the buildings of the university campus in Sweden. Several of the solutions developed within the project will be demonstrated within the demonstration site of Chalmers Campus. AH have the possibility to exploit the solutions in other campus areas and will disseminate and share the results within the organization through internal workshops and seminars.

7.13 SC GREENOME Solutions SRL

SC Greenome Solutions SRL will build on the results of the GreenMogo demonstrator to position itself as a reference player in the development of small-scale prosumer systems and future energy communities. The GreenMogo site, developed within the ECom4Future ecosystem, already integrates PV generation, battery storage, and advanced monitoring and control functions. These components form a scalable model that can be replicated in residential or commercial environments.

Through ECom4Future, Greenome has gained access to advanced AI-based energy management and the Unbundled Smart Meter (USM) concept, which together enable high-time resolution monitoring and control of energy flows. The company plans to exploit these results by offering consulting and implementation services for local prosumer systems, developing advanced monitoring solutions, and supporting replication of the GreenMogo architecture in other contexts. The site itself will continue to operate as a demonstration and training facility, showcasing real-time flexibility management and data-driven control. In the medium term, SC Greenome SRL aims to leverage this experience to attract new partnerships in R&D and to contribute to the wider deployment of self-consumption and energy community models at national and European levels.