SERENE

SUSTAINABLE AND INTEGRATED ENERGY SYSTEMS IN LOCAL COMMUNITIES

e-Newsletter 4/8, May 2023

In This Issue

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 957682. Any communication activities of this project reflect only this consortium’s view and CINEA and the Commission are not responsible for any use that may be made of the information it contains.

How smart energy technology lands in society?

Now we are halfway through both SERENE and SUSTENANCE. Here at the University of Twente we have finalised our assessment of the state of things for them both. We have been working on reports on the analytical and evaluation frameworks, looking into the local situations at the demonstrator sites in Denmark, the Netherlands, and Poland (in case of SERENE), and additionally in India (for SUSTENANCE). Furthermore, we investigated the initial understandings of the business model components that are present. Later, an overview of the social acceptance of the projects' innovations will be added.

Building on from these initial assessments, it is now time to prepare for the social-scientific accompaniment of the local developments, and to set up data collection methods that will help us understand the changes brought about by the local innovations. While we are planning to interview both project partners and local citizens in the demonstrator sites about the innovations, we have also prepared a survey to be published and shared widely among a large group of respondents. From a social-scientific perspective, it is always useful to have a group of respondents outside the actual participants to compare the results with.

With this survey, we intend to capture citizens' views and attitudes towards local, clean, and secure energy provision. The results of this survey will enable us to understand people's energy use and their attitude towards sustainable and green energy transitions. For the next step we can relate then these outcomes to the interventions at the local demonstrator sites to learn more about how attitudes towards energy transitions are linked to the willingness and effectiveness of using smart local energy technology.

We are therefore, also interested in your perspective, and invite you to take part in our survey. So, if you have some time to spare and are willing to fill out our questionnaire, just use the following link:

https://utwentebs.eu.qualtrics.com/jfe/form/SV_9tRiryVymXmXg90

It will take approximately 20 minutes of your time. Project survey is available in 4 languages!

Looking into our future work, we will assess the effect of the interventions in SERENE and SUSTENANCE on the local development of business models, social acceptance, local interactions with energy technology, and (new) forms of governance.

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DANISH DEMONSTRATOR: a guided tour with local SERENE leaders, Susanne Skårup and Morten Veis Donnerup, around the 4 demonstration sites in the Skanderborg Municipality.

The Consortium and General Assembly meetings of SERENE took place in the Municipality of Skanderborg between 12-13 April 2023. These were 2 intensive days, packed with presentations regarding the progress made so far in all 3 demonstrator sites. The meetings also discussed how to best tackle any challenges and plan the next steps, as SERENE has now entered a very important and demanding period of realisation of its action plan. One additional aspect of this project gathering was the opportunity for the partners to visit the Danish demo sites.

The 4 demo sites in Denmark are in Hylke and Låsby, which are both villages in the Skanderborg Municipality. The overall objective is to turn these villages into "energy islands" of CO□-neutral communities. In short, it is planned to carry out testing and demonstration activities, in close collaboration with local stakeholders, including (above all!) the citizens, to establish the transition of the existing residential heating supply from fossil fuels to "green" heating from heat pumps and increase the self-consumption of renewables.

The demo leaders are Susanne Skårup from the Municipality of Skanderborg and Morten Veis Donnerup from NEOGRID. Together, they showed the four demo sites to the partners and described the status quo as well as informed them about the plans for the future.

Fig. 1 Morten veis Donnerup (NEOGRID) showing the demo site in Hylke. [Sebastian Bykuć, IMP PAN]

The first location to be visited was Hylke (Fig.1), which consists of two different buildings. One building is currently heated by an oil burner and a central heating system. The other building was originally fitted with electrical radiators and have recently been retrofitted with individual air to air heat-pumps. Morten from NEOGRID reported that they *will fit PV panels on both buildings and replace the oil burner with a heat pump with a molten salt (PCM) thermal storage module, that will enable [Neogrid] to primarily operate the heat pump in the hours, when electricity is cheap, or self-produced. Further Morten added that the "air to air" heat pumps in the other building will be rewired to be supplied by the PV system, and a connected electrical battery. The individual heat pumps will be remotely controlled to enable an optimum load on the PC system.*

Next, partners visited Gl. Silkeborgvej in Laasby (Fig.2), where a completely new building has been fitted with SERENE technologies. Morten explained that *two 16kW heat pumps supply the heat for both space heating and domestic hot water. The space heating is buffered in an 800-liter PCM based storage system. The forward temperature to the micro heating grid is calculated and*

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Fig. 2. The apartments at Gl. Silkeborgvej in Laasby with the heatpumps and the PCM storage system in the black building in the front to the left. [Sebastian Bykuć, IMP PAN]

Fig. 3A SERENE Consortium in the Town Hall of the Skanderborg Municipality as of 12 April 2023. [Joanna Ptak, ENERGA-OPERATOR]

controlled every 15 minutes based on input from the sensors in each apartment.

Further Morten emphasized that *the apartments are connected to the underfloor heating system, that allows [NEOGRID] to read and adjust the temperatures in each room. NEOGRID is also connected to the ventilation system and can monitor the airflow and temperatures of exhaust and inlet air. In addition, NEOGRID is also collecting data from the energy meters on heating and DHW* (Domestic Hot Water).

Finally, partners visited the installation site on Nørredalen in Låsby. On this location the construction phase is delayed due to issues with the building permit related to a line of sight to the local church that must not be obstructed.

Fig. 3B SERENE Consortium in the Town Hall of the Skanderborg Municipality as of 12 April 2023. [Joanna Ptak, ENERGA-OPERATOR]

Fig. 4A SERENE Consortium as of 13 April 2023. [Joanna Ptak, ENERGA-OPERATOR]

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Last but not least, a big "thank you" goes to Skanderborg Municipality, and all of the Danish Partners in SERENE, for the great organization of this important project gathering!

Pictures of the SERENE Consortium at the meeting venues during day 1 (Fig. 3A,B) and day 2 (Fig. 4A,B).

Text written by the Editorial Board

Fig. 4B Group picture of SERENE Partners at the Consortium Meeting in the Municipality of Skanderborg in April 2023.

DUTCH DEMONSTRATOR: organizing "the next level" towards a local energy system for the Aardehuizen community.

The Dutch demonstrator involves two demonstration sites, the Aardehuizen ("Earth houses") community with 23 houses and the neighbourhood of Vriendenerf ("Friends' Garden"), which consists of 12 houses, both in the village of Olst. The overall goal is to reduce carbon emissions by implementing solutions to enhance the energy flexibility of the local electrical grid. This is achieved by adding intelligent controls to time shiftable devices such as electric boilers, electric vehicles, battery storage (Aardehuizen), and heat pumps (Vriendenerf).

Find out about the progress and plans made by the Dutch partners in SERENE since the last update in December'22 and read how this team closely cooperates with the two communities in Olst. Finally, learn about the modern energy indicators developed by Saxion students.

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So far, most of the work done by the Dutch team of Saxion, the University of Twente and Loqio, has been on the system development and installation of the prototypes to test the systems functionality. As detailed in the previous newsletter, Loqio has developed a monitoring and edge computing system which has been installed in the electrical cabinet in 5 households, as shown in Fig. 1.

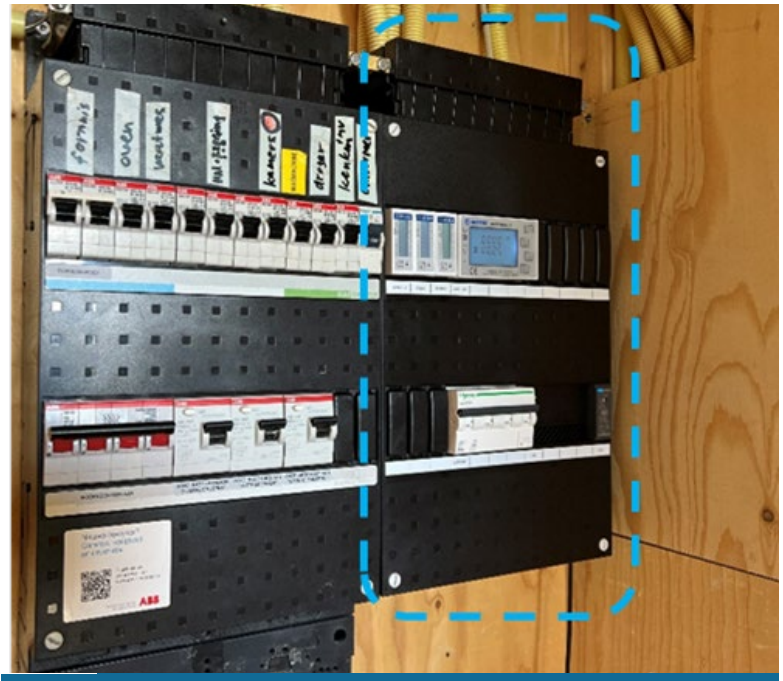

Fig. 1 Loqio monitoring system and energy management platforms. [Femme Taken, Loqio, 2022].

The Loqio edge server system is the first step towards the implementation of the community energy management system. The system architecture, developed jointly by the Dutch partners, is shown in Fig. 2. Signals from the edge server will be transferred through the internet to a Saxion/UT server platform, which runs the energy management software, enabling devices to be controlled at the neighborhood and household level. Loqio will install more edge servers in the remaining households at Aardehuizen in April and May 2023.

Additionally, Saxion has worked on setting up the server infrastructure in order to receive and store the

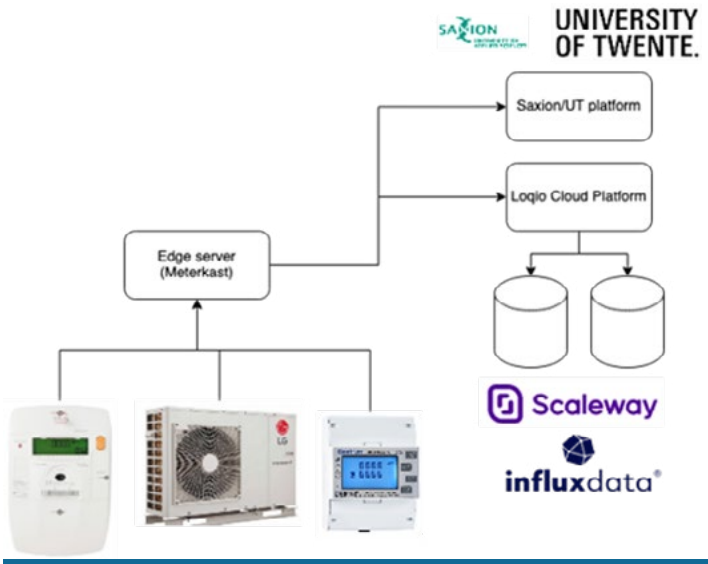

Fig. 2: Community energy management system architecture. [Saxion/UT/Loqio, 2022]

monitoring data from Loqio's local edge server systems and the different house locations. This collected data will be used for research purposes as well as for the development of dashboards for the inhabitants, user interfaces and mobile applications. Furthermore, Saxion has developed a mockup for the inhabitant dashboard app, shown in Fig. 3. Through iterative "user centered" and focused sessions, the app will be tested and validated together with the inhabitants in order to fine-tune and provide a personalized solution that could help the inhabitants to display the right information and maximize the sustainable energy usage at the level of the household and community.

Meanwhile, the University of Twente has worked on the further development of the optimization algorithms that will be incorporated when the system is fully functional in order to control the neighborhood battery, e-boilers and smart charger stations at Aardehuizen. Also, research was performed to develop a suitable business model for energy communities in cooperation with Saxion. Furthermore, an elaborate questionnaire was developed by the University of Twente to obtain valuable input from all three demonstrator sites in SERENE (refer to Editorial) and the broader municipalities in which the demonstrators

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are located. This questionnaire aims to obtain views, perspectives and attitudes of inhabitants towards sustainable and green energy transitions in the SERENE project.

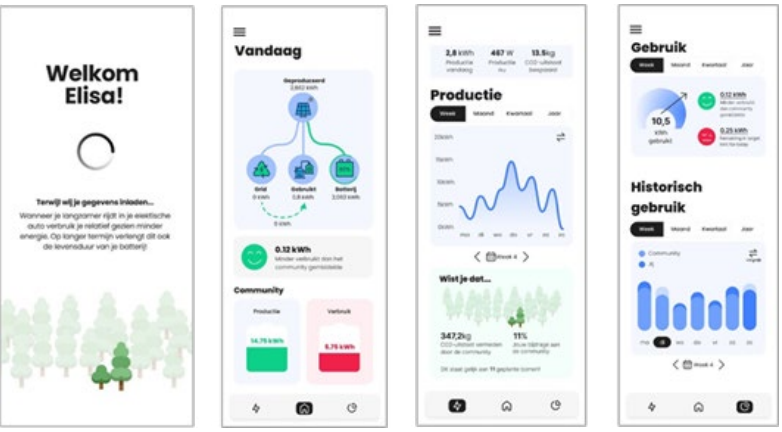

Fig. 3: Prototype user dashboard. [Saxion, 2023]

Fig. 4 Inhabitant meeting at Olst on March 17, 2023. [Saxion, 2023]

Aardehuizen has installed 3 smart vehicle charger stations as part of their solar carport. Investigations are being performed to purchase suitable inverters for the batteries and integration with the battery storage system. This work is expected to be finalized by the summer of 2023.

All in close cooperation with the communities

On the 17th of March 2023, the Dutch partners of SERENE organized a meeting with the residents of the Vereniging Aardehuis Oost Nederland district in Olst to present the project's next steps and – importantly - to receive feedback from the inhabitants. In total, 11 inhabitants took part in the meeting. Two were from Vriendenerf, and the rest from Aardehuizen, see Fig. 4.

The Dutch Team discussed with the participants how to proceed further (i.e what is "the next level"?), and how to involve the inhabitants closely in the next phase of the project. A user group was formed, which will play a very important role in obtaining feedback on the desired direction of the technological developments to be implemented. This specifically concerns the energy dashboard as well as experiences with using the installed smart energy system.

An action plan was presented and discussed with the community at this meeting. In short, Loqio will complete the installation and testing of the monitoring systems until June 2023. Secondly, all partners will participate in several experiments to gain experience to create a well-functioning community with a smart energy system. The third step will be the actual realization of the community smart energy system, with the following goals: 1) to change behaviors (via shifting energy consumption to moments of surplus generation based on predictions as displayed on the interactive dashboard, 2) to benefit from the neighborhood battery system (to achieve power balance and increased self-consumption), and 3) to significantly increase the self-consumption of solar energy from local PVs, (and thereby to decrease CO2 emission in the neighborhood).

Also, an online poll was held during the meeting by Saxion to learn more about the motivation of inhabitants regarding the participation in the energy community, as well as about the do's and dont's for the required technical systems.

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A functional and eye-catching energy indicator

An interesting piece of spin-off research from students at Saxion, was presented to the inhabitants. An attractive and appealing energy indicator was developed for the inhabitants, which gives advice about the best moment for the coming day when to shift energy consumption, e.g., to start the washing machine, Fig. 5.
The indicator can be hung on a wall or placed on a shelf. It contains a small display and a LED strip which indicates the moment when energy prices are low, so that the inhabitant can take action e.g., start the washing machine. In Fig. 5 a green light indicates five o'clock as an example. We will keep you posted on the development of the indicator and all the other progress within the Dutch demonstrator!

Richard van Leeuwen and Edmund Schaefer (SAXION)
Gerwin Hoogsteen and Lisa Sanderink (University of Twente)
Ferdi Hummelink (Aardehuizen)

Fig. 5: Energy indicator developed by students. [Saxion, 2023]

POLISH DEMONSTRATOR: SERENE examines the possibilities for the operation of local energy cooperatives in the Polish legal and regulatory framework.

The work continues in the Polish demonstrator to establish the data gathering system for broadening the current state of knowledge regarding the energy balance of the municipal buildings. This knowledge would help to establish new forms of cooperation between citizens and the municipality, for example local energy communities.

Despite winter conditions, the work in Przywidz continued to progress in the beginning of 2023. The container, in which the fluid-flow energy storage with its management system computer will be installed, has arrived and is now positioned in its final location (Fig. 1). The municipality of Przywidz prepared the area and constructed the access road.
In addition, the necessary upgrade of the electrical infrastructure, which enables the connection of the energy storage to the vehicle chargers, was finalized in March 2023 (Fig. 2). This was a crucial preparatory step to connect the equipment, which is expected to arrive later this year. At the same time, the communication infrastructure is being prepared: the municipality installed fiber cables between the STAY-ON container, the school and Arena Przywidz, so they can all be connected to a server installed in the Arena Przywidz. This server will gather the data

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from the whole use case, store it then it to the energy management systems. Those systems aim at improving energy effectiveness, and to enable increased levels of local consumption of renewable energy produced from the photovoltaics.

Fig. 1 The container of STAY-ON where the flow battery and the EMS system will be located.
[Krzysztof Rafał, Stay-On, 2022]

Thanks to Energa-Operator a local DSO and partner in SERENE, the project consortium has access to a part of the data from the energy meters, which allowed for a coarse analysis of the possibility of creating some form of energy community that would be beneficial for the municipality and the citizens of Przywidz.

The concept of 'energy cooperatives' emerges in the recently changed Polish Energy Law

The Polish legal framework is slowly changing to implement the EU Directive to promote the bottom-up approaches regarding organizing energy communities. New changes have defined energy cooperatives as organizations operating in rural municipalities, acting within cooperative law, and they are obliged to produce over 70% of their own energy for themselves. In exchange, the cooperatives are exempt from part of the energy fees and can obtain discounts. Whilst this new definition is technically possible to implement in municipalities such as Przywidz, due to the dynamic nature of the energy market situation, the concept actually offers very small financial revenue when compared to the current situation (Fig. 3).

Fig. 2 The electrical distribution board for the installations realised near Arena Przywidz.
[AtSystems, 2023]

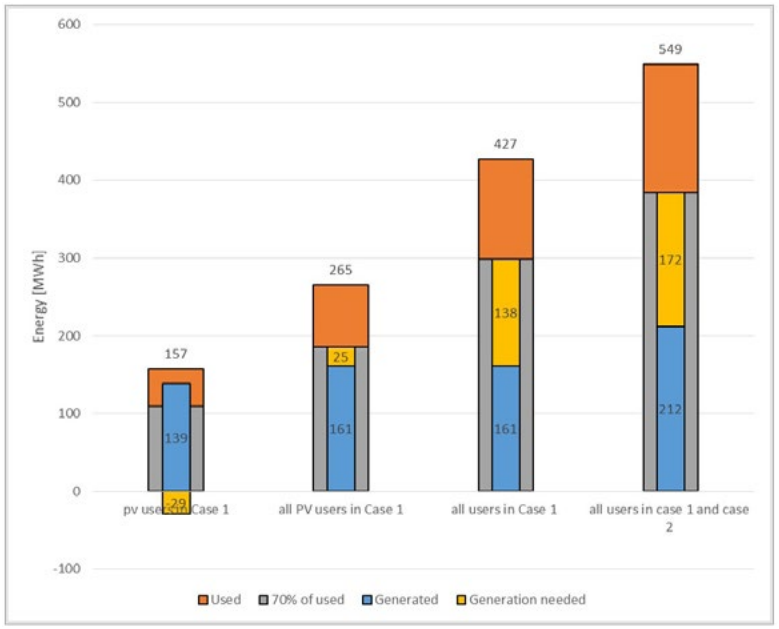

Fig. 3 The analysis of energy cooperative in the area of Polish demonstrator.
[Paweł Zawadzki, KEZO Research Centre, 2023]

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Since some aspects of the 'energy cooperatives' are not yet well defined (e.g. the flow of internal finances) and since the current offer is not financially beneficial, the SERENE project will help prepare the ground for allowing these 'energy cooperatives' to become a reality by researching and proposing the most promising solutions to the citizens. This will be especially important if, or more likely, when the financial circumstances change in the near future.

Two meetings with the citizens to promote the new, potential concepts for the local energy management system, were organized. The first was held in May 2022 as "Safe land of Energa-Operator" and you can read about it in our previous newsletter, whereas the recent one was held in February 2023 (Fig. 4A, B), and you are welcome to find out more about this event under our "PROJECT NEWS" section in this edition.

Weronika Radziszewska, PhD, a co-leader of the Polish demonstration site,
KEZO Research Centre/Institute of Fluid-Flow Machinery
Polish Academy of Sciences

Fig. 4A,B Mr Marek Zimakowski, Mayor of the Municipality of Przywidz and Mr Tomasz Herbasz, SERENE project manager in the Municipality of Przywidz, opening the meeting with citizens in February 2023.
[W. Radziszewska, KEZO Research Centre, 2023]

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PROJECT NEWS

SERENE generates changes on the Polish energy market to enable the energy transition.

It is thanks to the works carried out in the Polish demonstrator of SERENE, in the Municipality of Przywidz, that Energa-Operator SA (one of the largest Polish electricity distributors and a SERENE Partner) has introduced a new procedure enabling the connection of a two-way charging station to the power grid (so-called "Vehicle-to-Grid (V2G)" charger) in the end of 2022.

The existing procedure has been supplemented to determine whether the charger has V2G capabilities or not. As a result, the new application form (available in Polish only) can be downloaded (since 2023) from Energa-Operator SA's website here:
(The application form's name is: WNIOSEK O OKREŚLENIE WARUNKÓW PRZYŁĄCZENIA: OGÓLNODOSTĘPNEJ STACJI ŁADOWANIA , STACJI ŁADOWANIA ORAZ INFRASTRUKTURY ŁADOWANIA DROGOWEGO TRANSPORTU PUBLICZNEGO, DO SIECI ELEKTROENERGETYCZNEJ/(APPLICATION FOR CONNECTION CONDITIONS: A PUBLIC CHARGING STATION, CHARGING STATION AND CHARGING INFRASTRUCTURE FOR PUBLIC ROAD TRANSPORT, TO THE ELECTRIC POWER NETWORK).

Fig. 1 Bidirectional charger in the Minucipaity of Przywidz in Poland [IMP, 2022]

The SERENE Team is truly excited to witness this new step enabling the energy system transformation in Polish circumstances!

Researchers from the University of Twente met with teams from IMPPAN and STAY-ON in KEZO Research Centre, Poland

Gerwin Hoogsteen and Bahman Ahmadi from University of Twente (UT) in the Netherlands visited the KEZO Research Centre in Jabłonna on 27th of January 2023. Researchers from UT met with the Polish teams of SERENE from the Institute of Fluid-Flow Machinery Polish Academy of Sciences (IMP PAN) and STAY-ON. Participants mainly discussed their current modelling tasks especially the possible analysis of the management of the charging of the electric bus in Przywidz. The controlling algorithms for HVAC systems and heat pumps were also discussed together with plans for further cooperation regarding publications in the upcoming years.

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Fig. 1 UT's, STAY-ON's and IMP PAN's teams meeting in KEZO Research Centre on 27th of January 2023. [IMPPAN, 2023]

SERENE aims to be ready for the effective exploitation of its results with the help from the EC's Horizon Results Booster service

There is no doubt that every project's results needs to be disseminated, and exploited efficiently to reach the target audience and make it useful. This requires an effective Exploitation Strategy. To ensure that the exploitation of SERENE's results is done in the best possible manner, members of the SERENE Dissemination and Exploitation Board decided to apply for a selection of EU services under the Horizon Results Booster. The latter provides free of charge support services to FP7, H2020 and Horizon Europe projects helping them to learn how to boost the exploitation potential of their research results, disseminate them effectively, and help them "get to market".

SERENE has already participated in the dedicated „Exploitation Strategy Seminar (ESS)", which was lead by Mr Giovanni Bendistinto, the Horizon Results Booster's Expert, as a closing part of the PDES - Module C service: „Portfolio Dissemination & Exploitation Strategy: Improving existing exploitation strategy (module C)". Thanks to the discussions and advice given during the sessions held on 6th and 7th of March 2023, it was possible for SERENE Partners to focus on the 3 „Key Exploitable Results" defined so far for the SERENE project. It was a very constructive and inspirational exercise.

We are already looking forward to the next service, from the Horizon Results Booster, namely „Business Plan Development (BPD)". The kick-off meeting for this exercise is planned for mid May 2023.

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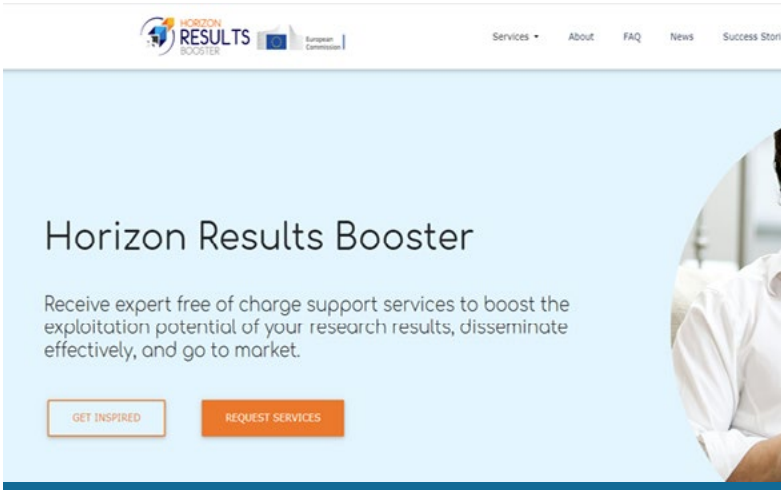
The SERENE project wishes to highly recommend the services of the Horizon Results Booster to all EU projects seeking to boost their exploitation!

Katarzyna Bogucka-Bykuć,
Co-Leader of the Communication,
Dissemination and Exploitation WP in SERENE
Institute of Fluid-Flow Machinery
Polish Academy of Sciences



Source: https://www.horizonresultsbooster.eu/

The SERENE project is getting in touch with citizens of the Municipality of Przywidz!

The Polish Teams of SERENE and ONE-Net projects jointly organized a meeting (on 16/02/23), which was dedicated to local citizens of the Municipality of Przywidz (Fig. 1). The inhabitants of a household district, where the high number of photovoltaic installations influence the local low voltage grid, were invited personally as one of the key stakeholders. Note that this household district is one of the 3 use cases of the Polish demonstrator in the SERENE project.

After the welcome and introduction from Tomasz Herbasz, SERENE project manager in Przywidz and Mr Marek Zimakowski, Mayor of Municipality of Przywidz, Weronika Radziszewska from KEZO Research Centre/IMP PAN presented the progress of SERENE, the plans to distribute the survey and to organize further meetings focusing on the aspects of the local energy communities (Fig. 2)

Next, Energa Operator and Enspirion SA presented issues related to energy balancing, discussed how this is affected by renewable energy sources, and how domestic photovoltaics can actually be controlled more efficiently. This meeting also served as an important opportunity for both projects to ask local citizens to give their written permission regarding usage of the data from their energy meters to both projects. This information is crucial for further research, analysis and optimization of the energy system to be performed in both those EU projects from different perspectives.

We are very grateful to several citizens who have already signed the forms and given us their permissions! Thank you!

Fig. 1 Citizens of the Municipality of Przywidz at the local joint SERENE and ONE-Net projects' meeting. [J. Verstraete, 2023].

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Fig. 2 Tomasz Herbasz, SERENE project manager in the Municipality of Przywidz and Weronika Radziszewska from KEZO Research Centre/IMP PAN giving the introductory speech during a meeting with citizens in February 2023. [J. Verstraete, 2023]

SERENE at the „SCIENCE: POLISH PERSPECTIVES Meetup Brussels" event in Belgium

Weronika Radziszewska from KEZO Research Centre PAS|Institute of Fluid-Flow Machinery Polish Academy of Sciences (IMP PAN) participated in the „SCIENCE: POLISH PERSPECTIVES Meetup Brussels" event, which was held on the 9th-10th of March 2023 in Brussels, Belgium.

Dr Radziszewska took this splendid opportunity to present SERENE during this exceptional networking event. „SCIENCE: POLISH PERSPECTIVES Meetup Brussels" is a joint initiative of the Polonium Foundation, Polish Science Contact Agency „PolSCA" of the Polish Academy of Sciences in Brussels, the Office of Centre of Research and Development in Brussels – Business & Science Poland and the Embassy of Poland in Brussels.

More about #SPPMeetupBrussels2023:
https://poloniumfoundation.org/meetupbrussels2023

Fig. 1 - Description

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SERENE at the Polish Climate Congress 2023 in Warsaw

Weronika Radziszewska from the Institute of Fluid-Flow Machinery Polish Academy of Sciences (IMP PAN)|KEZO Research Centre PAS was among the panelists of a session entitled: „Green public transport. Creating infrastructure for electromobility and RES in transport" at the Polish Climate Congress 2023|Polski Kongres Klimatyczny|Central Northern European Climate Summit (CNE Climate Summit) held on 16-17 March 2023 in Warsaw (Fig. 1A,B).

Weronika Radziszewska talked about the impact of the SERENE H2020 project in terms of the promotion of electromobility, which constitutes an important part of the project and particularly the case of the Polish demonstration site in the Municipality of Przywidz.

Polski Kongres Klimatyczny is a recurring event, and 2023 edition focused on the challenges of the new climate goals in the context of the current geopolitical situation. The event hosted 20 discussion panels and over a 100 experts from business, local administration, public institutions, foundations and associations.

It is worth adding that this year's Central European Northern Climate Summit has awarded CINEA - European Climate, Infrastructure and Environment Executive Agency as "Leader of the Energy Transition"! The reward was received by Mrs Beatrice Coda, Head of Unit at DG Energy, who was among the speakers.

More about this event:
• Polski Kongres Klimatyczny: https://www.polskikongresklimatyczny.pl/
• CNE Climate Summit: https://www.cneclimate.com/

(The live event was attended by over 300 participants, while the agenda was downloaded over 1,000 times, and the expected number of panel views on event's podcast channel Poland Neutral Climate is expected to amount to at least 4,000 unique users until the next edition!)

Fig. 1A, 1B Participants of the panel entitled: „Green public transport. Creating infrastructure for electromobility and RES in transport". [Polski Kongres Klimatyczny, 2023]

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SERENE at the 1st Polish-Ukrainian Local Administration Forum during the site visit in the KEZO Research Centre in Jabłonna, Poland

Representatives of 21 local self-governors from Ukraine visited Poland to participate in the 1st Polish-Ukrainian Local Administration Forum held on 21-24 of March 2023. On Friday, 24th of March, the Ukrainian representatives visited the KEZO Research Centre PAS of the Institute of Fluid-Flow Machinery Polish Academy of Sciences (IMP PAN), which is located in Jabłonna.

First of all, Paweł Zawadzki gave participants a tour around the KEZO Research Center and presented the current research realised in the Centre (Fig. 1).

Fig. 1 Field visit in the KEZO Research Centre. [J. Verstraete, 2023]

Secondly, Weronika Radziszewska talked about the undergoing european and international projects, in which IMP PAN and its KEZO Research Centre PAS are actively participating, including (among others) SERENE H2020 project [Fig.2].

Fig. 2 Weronika Radziszewska presenting KEZO Reseach Centre and its projects to the Ukrainian delegates. [J. Verstraete, 2023]

The 1st Polish-Ukrainian Local Administration Forum was organised by the city and municipality of Serock, the Association of the Social Committee for Assistance to the City and Municipality of Serock, the organisation „Serockie Inwestycje Samorządowe", the Center for Development of local administration and the Polish-Ukrainian Agrarian Association.

The Ukrainian delegation was interested in the potential to use the presented technologies and solutions in their municipalities as a part of rebuilding of their infrastructure.

More about this Forum:
https://www.serock.pl/4715,2023-rok?tresc=29370

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SERENE at the #bridgeEU General Assembly in Brussels, March 2023

SERENE has participated in the #bridge EU initiative from the start of the project in summer 2021. Project representatives have already participated two times in the Bridge General Assembly, with the latter, held in March 2023, both online and onsite.

Ewa Domke from the Institute of Fluid-Flow Machinery Polish Academy of Sciences, who is a SERENE represenatative with respect to the Consumer and Citizen Engagement Work Group, participated in the onsite meetings in Brussels. Other Partners joined thematic sessions online.

The Bridge initiative stimulates cooperation between H2020 project's working on Smart Grids, Energy Storage, Islands and digitalisation. The idea is to identify synergies between these different projects by fostering continuous knowledge sharing to make conclusions and recommendations about the future exploitation of project results. A high focus is placed on enabling the future energy system to gain flexibility in sector coupled systems and the future digitalization and application of energy storage in different forms – i.e. power to X, thermal storage and electrical storage.

Fig. 1 The #bridgeEU initiative General Assembly in Brussels, March 2023. [CINEA, 2023]

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PARTNERS IN THE SPOTLIGHT

https://loqio.nl/

Loqio is a startup working in energy management systems for commercial applications and energy communities. Our mission is to increase energy efficiency and the adoption of distributed renewable energy resources through exceptionally detailed insights in energy usage and automatic optimisation of flexible energy resources. Most of our recent development efforts have been around smart charging. Unlocking the energy flexibility of electrical vehicles opens up a huge potential to increase levels of self consumption and to optimize for dynamic energy prices and other market signals. We are also supplying the home energy management systems and battery control system for the Dutch demonstrator.

SAXION UNIVERSITY OF APPLIED SCIENCES

https://www.saxion.nl/

Saxion educates approx. 28.000 students yearly and offers a broad variety of courses and provides knowledge that can be applied in society - both locally and globally. We encourage international and Dutch students to find each other and learn from each other. At Saxion you will learn how innovations affect your discipline and how you can apply technology and circularity in the development of your future profession and to contribute to a more sustainable world. The slogan of Saxion is „Get Ready for a Smart World!" which relates to our vision that technology and digitisation have a major impact on our daily lives and are also changing the way we work. In a few years' time, the professions that we now practice will either no longer exist, or they will have taken on a different character. We see this as an opportunity and we encourage and support all of our students to anticipate to those opportunities. The research groups of Saxion share a joined research agenda „Living Technology". Technology is being developed with increasing speed and the impact of technology on society is large. Technology is integrated into our thinking, daily life and work. The research agenda expresses the interaction between technology and society and in many of the research projects of which Serene is a good example, this interaction is embraced and worked out into our tasks and involvement of students, researchers, companies and inhabitants in order to realise the necessary societal impact.

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vereniging Aardehuis

https://www.aardehuis.nl/index.php/en/

VAON is an association of inhabitants that are the owners of 24 houses (Aardenhuizen) in the village of Olst in the Netherlands. The Aardenhuizen-neighbourhood, together with the proximate neighbourhood Vriendenerf, forms the local demonstrator-sites in the Netherlands as part of the SERENE project.

Aardenhuizen is a unique community in which occupants built their own houses with help from volunteers from all over the world, according to circular and bio-based principles (the so called 'earth ship concept'). Solar PV systems, wood boilers using local wood supplies, decentral water sanitation, their own drinking water supply and plans to grow local crops for their own food supply. The community received active support from the village council and successfully applied to become a pilot for electricity sharing according to the Dutch experimental electricity exemption regulation. This makes it possible e.g. to trade electricity within the neighbourhood against self defined, dynamic price levels.

Aardenhuizen and Vriendenerf can be seen as "frontrunners" in the municipal energy transition The participation of acceptance level for the demonstrator is 100%.

Fig. 1 Aardenhuizen neighbourhood. [www.aardehuis.nl]

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SERENE

SUSTAINABLE AND INTEGRATED ENERGY SYSTEMS IN LOCAL COMMUNITIES

PROJECT FACTSHEET

SERENE H2020 project
#H2020SERENE

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Total budget: €5,1m of EU contribution
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Project Coordinator: Birgitte Bak-Jensen, AAU, Denmark
13 PROJECT PARTNERS FROM 3 EUROPEAN COUNTRIES
3 DEMO SITES in Denmark, the Netherlands & Poland

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