

Sustainable energy system for achieving novel carbon neutral energy communities



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101022587, and the Department of Science and Technology (DST), Government of India under the SUSTENANCE project. Any results of this project reflect only this consortium's view and the funding agencies and the European Commission are not responsible for any use that may be made of the information it contains.



The end of the year, which is traditionally a time for reviewing every single aspect of our lives, has also coincided with the first Reporting Period for the SUSTENANCE project. This culminated with a Review Meeting held in the Netherlands at the end of November. Hence, we allowed ourselves to make this edition with a different format. We hope you will enjoy it!

It is the energy transition, and how to drive change towards its achievement in local communities that remains the main focus of the SUSTENANCE project. This focus could not be more relevant considering the ongoing changes in the European energy market and energy system during 2022.

The current geopolitical situation also influences the delivery of the SUSTENANCE project. Partners face different political, market and regulatory challenges, which on the other hand can sometimes appear as opportunities since the circumstances being tackled by the partners actually make the SUSTENANCE demonstrations even more relevant and important. The "energy island" concept speaks for itself in these uncertain times.

Denmark for instance has since the start of the Russian aggression accelerated its climate plans by introducing a new one called "Green power and heat" formed on 25th of June 2022. This includes quadrupling the use and production of renewable energy on land (solar and wind energy) and expansion of offshore wind with 4GW by 2030, (extended to 8,5 GW in agreement from end of August 2022), the ability to supply power to X (P2X), more green heat so that no homes will be heated with gas from 2035, a price ceiling on district heating and advancing the production of biogas. All this influences the SUSTENANCE project especially in relation to green heat, but also relates to the ability to provide flexibility for balancing the overall system, when integrating huge amounts of renewable energy.

On the top of all of these challenges and turbulent times, I would first like to thank everyone who has contributed to the so far success and achievements of the SUSTENANCE project. Further, I would like to take this opportunity to wish all of you the best for the Christmas Season and hope that we enter the New Year with a lot of positive energy to continue our cooperation and make all the necessary changes towards a sustainable, safe and bright future.

Birgitte Bak-Jensen, Professor,

SUSTENANCE project coordinator, AAU Energy

"An important measure to combat sudden disruptive changes, such as the energy crisis and effects of climate change, is by adaptation and implementing resilience in a timely manner."

Gerwin Hoogsteen, Lead Researcher,
Dept. of EEMCS, University of Twente

"Postponing change is not an option, the gap between monetary value and added value will put societies in turbulent times where consuming less, circularity, societal equity and renewable resources will find their true importance in society."

Richard van Leeuwen, Professor,
Sustainable Energy Integration,
Saxion University of Applied sciences

"The crisis has made it easy to get consumers on board, but harder to get equipment."

Susanne Skårup, Skanderborg Municipality

"The current geopolitical situation has an enormous impact on the energy market. There is a huge change in roadmaps and changed demand for technologies as Europe is reassessing the basic assumptions regarding the current and future energy situation."

Paweł Grabowski,
President and CEO,
STAY-ON Energy Management

SUSTENANCE Joint Project Review & Consortium/General Assembly Meeting was held in the Netherlands in November'22

SUSTENANCE project partners met to present and discuss progress and/or the challenges related to the realisation of the work packages on 23rd & 24th of Nov 2022 in Enschede, NL. The majority participated in person, while some were online – especially our project partners from India. These were two intensive days packed with the Consortium Meeting, a Lab Tour, the General Assembly, and importantly the Review Meeting. This covered the first 14 months of the project and partners provided their reports to the representative from CINEA - European Climate, Infrastructure and Environment Executive Agency.

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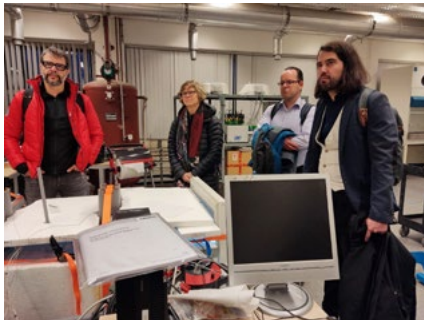
Follow-up on project progress

SUSTENANCE Joint Project Review & Consortium/General Assembly Meeting was held in the Netherlands in November'22



SUSTENANCE Partners during the Review Meeting in the Netherlands, 23 Nov 2022.

The presentations on the three demonstration sites were initiated by the recently finalised videos. The latter provided informative overviews of the particular goals behind each of the demonstrators in the three EU countries. All the four demo presentations were finalised with constructive discussions on how to best move forward.



Lab tour at Saxion University of Applied Sciences in Enschede, the Netherlands.

**THANK YOU SUSTENANCE DUTCH PARTNERS
FOR SUCH A SPLENDID ORGANISATION OF THIS
IMPORTANT PROJECT GATHERING!**

TO WATCH THE SUSTENANCE DEMONSTRATION VIDEOS PLEASE VISIT THE PROJECT WEBSITE

www.h2020sustenance.eu/demo-videos



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SUSTENANCE GENERAL INTRODUCTION VIDEO



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SUSTENANCE DANISH DEMO (EN)



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SUSTENANCE DANISH DEMO (DK)



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SUSTENANCE DUTCH DEMO (EN)



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SUSTENANCE POLISH VIDEO (EN)



Zrównoważony system energetyczny kluczem do społeczności energetycznych neutralnych pod względem emisji dwutlenku węgla



Ten projekt otrzymał dofinansowanie z programu badawczo-rozwojowego Unii Europejskiej (H2020) w ramach grantu nr 101019720, oraz z Ministerstwa Nauki i Szkolnictwa Wyższego (MNSW) w ramach projektu H2020-INDIA. Wyniki tego projektu nie należy uważać za wiarygodne i nie należy opierać na nich żadnych wniosków. Europejska Komisja Europejska i Komisja Europejska nie są odpowiedzialne za jakikolwiek sposób wykorzystania informacji zawartych w tym dokumencie.

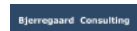


SUSTENANCE POLISH VIDEO (PL)

Specific objectives of the Danish local energy system demonstrator

The demonstrator in Denmark has been changed from the village community of Stjær to the villages of Voerlagedgaard and Doerup, both of which are still located in the Skanderborg Municipality. The demonstration activities aim to realise the integration between renewable based electricity in the local power grid and heating systems in 20 households in the community to replace the existing heating systems supplied by gas boilers. Also, a solar PV-battery

storage based electric vehicle charging station is to be installed and tested in the neighbourhood. These activities are demonstrated with close cooperation and active participation of the local citizens, municipality, energy stakeholders and local industries, and use of smart control and ICT technologies to smarten the energy networks to increase the self-consumption of solar PV and wind power supplied from external grid. ■



Specific objectives of the local energy system demonstrator in the Netherlands



The Dutch demonstrator involves a small living lab demonstration community in Olst with 12 houses equipped with various types flexible appliances, storage options, PV generation and an electric vehicle charging pole. The ultimate goal is to operate the living lab (almost) autarkic from the main utility

grids. Furthermore, an energy cooperative in the region, which strives for energy autarky, will be involved. Next to this, the solar carport test site at the University of Twente will be used to research new ways of sustainable EV charging under different quality of service circumstances. ■

Specific objectives of local energy system demonstrator in Poland

The Polish demonstrator involves activities in five residential and one commercial building in Sopot housing estate. The general objective of both demonstrators is to establish a self-sufficient energy community and services through the installation of smart, cost-effective and renewable based multi-vector energy systems. It focusses on increasing the share

of RES (solar PV), optimise the operation of local low-carbon energy systems and electricity grids through smart energy monitoring and management, eliminate (where possible) the use of natural gas for heating and cooking by replacing it with heat pumps, test energy storage systems in a real environment, and integrate with e-transportation. ■



Specific objectives of local energy system demonstrators in India

THE INDIAN DEMONSTRATION ACTIVITIES INVOLVE 3 SITES:

- I. THE REMOTE VILLAGE OF BARUBEDA, RANCHI IN THE STATE OF JHARKHAND,
- II. BORAKHAI VILLAGE, SILCHAR IN THE STATE OF ASSAM AND
- III. A SMART BUILDING SYSTEM AT THE CAMPUS OF IIT BOMBAY, MUMBAI.

In the two villages, the overall goal of the demonstrator is to develop a community-based integrated renewable energy system (RES) enabling smart energy solutions

for supplying 24x7 reliable, low-carbon, efficient and quality energy supply for meeting the daily and sustainable needs of the rural population. Around 50 households in the Barubeda village, and 80 households (8 clusters of 10 houses each, 6 clusters with weak grid connection and other two clusters without direct grid supply) of Borakhai village are used for implementing the demonstration activities. For the campus of IIT Bombay the generic aim is to establish a transition towards a carbon neutral system through a futuristic smart building and EV system at a specific section of the campus. ■



Case 1: BARUBEDA VILLAGE, which aims at becoming a carbon neutral "islanded" energy community



Case 2: BORAKHAI VILLAGE, which aims at delivering smart clusters based on local energy systems powered by renewables



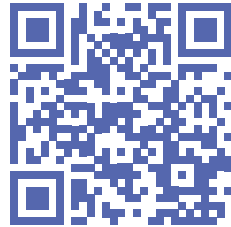
Case 3: IIT BOMBAY CAMPUS in MUMBAI acts to achieve intelligent, green, sustainable transportation and smart building system



52 unique events

During the first reporting period, which consists of 14 months, the partners have reported a total of 52 unique “events”, in which they actively participated and communicated or disseminated information about the SUSTENANCE project. This included participation in 11 conferences, 3 of which were international as well as 4 international workshops. In addition, this included 27 other events, 14 of which were also international and 2 events were organised jointly with other EU projects (such as BRIDGE events).

Visit the project website and SUSTENANCE H2020 project profile on LinkedIn to find out more details! ■



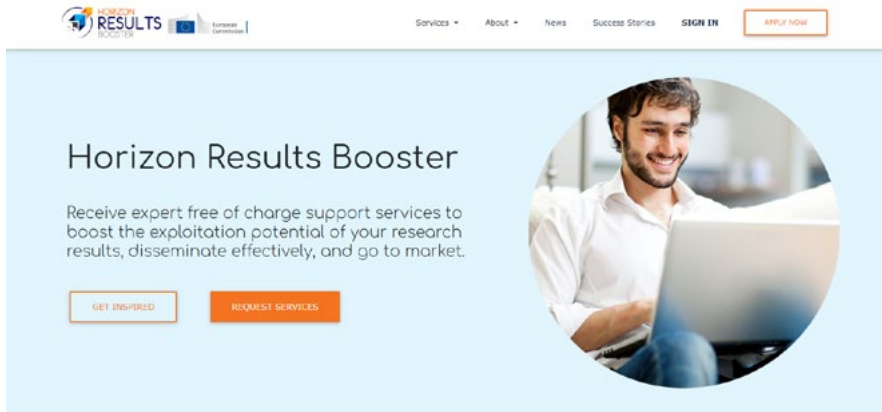
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It is with pleasure that we can report SUSTENANCE has applied for and was granted support of 3 services provided by the Horizon Results Platform (HRB). The SUSTENANCE Dissemination and Exploitation Board wishes to be well prepared, when the SUSTENANCE results are finalised and ready for exploitation, hence the following services were chosen:

- **PORTFOLIO DISSEMINATION & EXPLOITATION STRATEGY (PDES) MODULE C: ASSISTING PROJECTS TO IMPROVE THEIR EXISTING EXPLOITATION STRATEGY**

We are excited to kick-off the participation in Module C: Assisting projects to improve their existing exploitation strategy, by

participating in the Introductory Call (6th of Dec'22) with assigned Experts. This service provides guidance and training to improve the existing project strategies towards effective exploitation of **Key Exploitable Results**.

- **PORTFOLIO DISSEMINATION & EXPLOITATION STRATEGY (PDES) MODULE A: IDENTIFYING AND CREATING THE PORTFOLIO OF R&I PROJECT RESULTS**
- **BUSINESS PLAN DEVELOPMENT (BPD)**

To find out more about those services please visit www.horizonresultsbooster.eu

Project Factsheet



More info:
www.h2020Sustenance.eu
SUSTENANCE H2020 project

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€3.8m of EU funds
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