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Innovating Beyond Borders: Lessons from SUSTENANCE

After three and a half years of research, innovation, and international collaboration, the SUSTENANCE project has officially concluded. Funded by the EU's Horizon 2020 programme and India's Department for Science and Technology (DST), the project brought together 21 partners from three European countries and India. It was coordinated by Aalborg University in Denmark and the Indian Institute of Technology Bombay (IITB), in India.

SUSTENANCE developed solutions for the decarbonisation of local energy systems through the optimal, smart integration of renewable energy technologies, including photovoltaics, heat pumps, e-vehicles, energy storage, as well as water pumping and wind turbines in India. Solutions were verified in 6 demonstration sites - 3 in the European Union and 3 at different locations in India. These demonstrator sites in Denmark, the Netherlands, Poland, and India provided real-world cases to showcase how communities with diverse economic, societal, and political contexts could adopt these solutions effectively.

Key Achievements

The project delivered solutions for energy system integration and contributed to capacity building and skills development through global knowledge exchange. The main highlights were:

- **Technological Integration**: Successful deployment of electric vehicles (EVs), heat pumps, and photovoltaic (PV) systems at various sites, overcoming challenges to demonstrate the feasibility of autarkic energy solutions.
- **Global Collaboration**: Meetings held across Europe and India facilitated knowledge sharing and strengthened global partnerships.
- **Community Empowerment**: Acknowledging the differences in starting points and goals for each community is fundamental for exploring the diverse paths available that lead to more autarkic energy systems. For instance, a striking contrast exists between some Indian demonstration sites, which lacked reliable access to electricity before the SUSTENANCE project, and their European counterparts. The Indian demonstrators prioritised alleviating energy poverty and improving the socio-economic status of rural communities, particularly women and children via the microgrid solutions for water pumping, cooking, and school transportation.
- **Policy and Market Insights**: The project identified critical gaps in regulations and market structures, providing actionable recommendations to bridge these divides and accelerate the energy transition.

Six Lessons Learned

The SUSTENANCE partners identified 6 key insights that will shape future energy transition efforts:

1. Integrating EVs, heat pumps, and PVs is challenging but effective.
2. Paths to community energy independence vary widely based on local contexts.
3. Heating solutions are highly context-dependent and pose unique grid challenges.
4. Regulations often lag behind technological advances.
5. Transferring business ideas across regions requires overcoming contextual barriers.
6. Public support for energy transition exists, but awareness of individual roles remains limited.

For more details click here: https://h2020sustenance.eu/wp-content/uploads/2024/12/SUSTENANCE_NEWSLETTER_07_ENG_web.pdf

Recommendations for the Future

In collaboration with other Horizon 2020 projects SERENE and LocalRES, SUSTENANCE developed a policy brief with eight actionable recommendations:

1. Capacity building through training tools and workshops for local communities.
2. Better alignment between EU and national/local regulations.
3. Development of plug-and-play, scalable solutions for citizens.
4. National and EU funds to support companies and startups.
5. Simplification of administrative procedures for energy projects.
6. Support for interoperability and standardisation.
7. Facilitation of energy sharing and regulatory flexibility.
8. Combatting misinformation and raising awareness.

For more details (in 7 language versions) click here: https://h2020sustenance.eu/results/policy-brief/

A Lasting Impact

Professor Birgitte Bak-Jensen, SUSTENANCE's coordinator, highlighted the project's holistic approach: "By integrating technological solutions with social, regulatory, and environmental considerations, we've created a replicable framework for sustainable energy systems that enhance quality of life globally."

Although the SUSTENANCE project has ended, its legacy lives on through its recommendations, tools, and insights, paving the way for continued progress in the energy transition.

For more information, visit the SUSTENANCE **project website** at
https://h2020sustenance.eu/

SUSTENANCE LinkedIn: @SUSTENANCE H2020 project
https://www.linkedin.com/company/sustenance-h2020-project/

Media Contact:
prof. Birgitte Bak-Jensen
SUSTENANCE project coordinator
bbj@energy.aau.dk
+4599409274

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