POCITYF

POCITYF Replication Strategy

Elena Conte - Energy@Work 02/02/2024



This project has received funding from the European Union's Horizon 2020 research and Innovation programme under grant agreement N $^{\circ}$ 864400.

What is POCITYF?

POCITY is an Innovation Project funded under H2020 SCC-1 call aimed to create Positive Energy Blocks & Districts

EU's Strategic Energy Technology Plan (SET-Plan) aims to support the creation of 100 Positive Energy Districts in Europe until 2025





Focusing on Replication

Objectives of the Replication on Fellow Cities:

- ✓ Setup of a closer collaboration among Lighthouse Cities and Fellow Cities to instantiate the Replication Plans,
- Technology watch process to inspire the decision makers in taking into consideration POCITYF solutions and best practices for the Replication Plan,
- Exploitation of a set of learning methods such as webinars, study tours, capacity-building workshops and a self-service platform,
- ✓ Design of replication plan for each Fellow city based on POCITYF solutions and best practices,
- ✓ Replication Plan will trigger the creation of a city vision for 2050, in which each Fellow city will define concrete and reasonable plan for scaling up the selected solutions at city level.



Lighthouse Cities

Fellow Cities



The Replication Roadmap



Knowledge Transfer Workshops

Physical or Remote Events, organized with LHs and other partners of the consortium, aimed to transfer procedural and methodological knowledge, lessons learned and deepen regulatory framework and feasibility studies on the ISs,



Factsheets

Technical documents realized for each solution, containing quantitative indicators, requirements, details on demonstration, impact on community and eventual compliancy to Cultural Heritage Buildings



Factsheets

HTT2 - FLEGRIE AND SISTAMABLE ELECTRICITY ORD NETWORKS WITH INNOVATIVE STOKARE SOLUTIONS NIMH (NICKEL METAL HYBRIDE) BATTERY



DESCRIPTION

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Whence, with the help of Induced, will demonstrate a Nize bartaxy at her Centre of Expertise. This interiorary ricket metal hydrade (MMH) battery will, store the overproduced electricity from the various solar panels imagilar photoetistic, photoetists: thermais and building integrated photoevolus; panels during times of peak production (or low electricity) dominad) and discharges the energy during peak electricity dominad for low production). With the dimonstructure of this 13 whereas a start of the star

FIDICATORS. Alway demonstrated in the destroy was a 80% Collignal Includes compliant of Mg. 9 PERFORMANCE COST + Theorytical sturage capacity: 5 x 34.5 = 172.5 kWh (estimated) investment cost: € 151,508.00 Practical storage capacity is 80% (= 138 8Wh) Cost per metric: £ £78.00/kWh Ferroamp capacity: 64 KW (estimated) installation cost: € 10,000.00 DIMENSION Trad. P-Size: 701 x 3320 ± 635 mm (w x h x d) por cableet. Installation time, 1 month Weight: 950 kg per cabinet Startup time: 1 hour · SAFETY No dendrite formation His toxic heavy metals tip risk of spontaneous fire and explication Electrodes can be fully recycled Water based electrolyte Recycled materials have an end-of-tile value

INCOME HAR DECIDE HETAL HYDRIDE BATTERY ETT IS

EVAILAGED DEMONSTRATION IN FOOTYF

WWESTA

If applicable, here you can describe one or more real world use cases of your solution.

LOCATION

investo's Centre of Expertise will be located at the Dismantives in the Sockelemene industrial area of Alemaan. The battery will be installed inside the building.

TWELINE

DETAILS

The construction of leVesta's Centre of Expertise, including HiWH bottery, is expected to be finalized in June 2022.

abreak

As depicted in the schematic overview, the battery system is directly coupled to the solar passes and to the EV charges. Monther innovative appect is that the entire system operates on direct current (C) which evoids energy conversion losses (DC/ZC and AC/DC).

TARGETED OUTPUT

The application of a battery reduces the usage of (grey) electricity from the electricity grid (40% of the total electricity consumption). The place would be significantly higher without a battery due to the intermittent name of splan energy production.

INPACT ON COMMERSITY

Note than the energy storage of INVersa's Canob of Expertise, the total storage capacity also office the potential for other esteptions at the Bolekersee industrial eres to store and doublage energy. By doing so, the demonstration of this innovative element creates a new standards and self-sufficient energy system at the Bolekerseer camanity.

CITHER RELEVANT INFORMATION



 Right: Indutect supplied an energy container, with a capacity of 140 kWh, to Curios holiday result to balance the local electricity grid.

PORTOT MANY (MCKEL METAL INTRODE) BATTERT (2TT 4)

ICT tool

Replication aided tool, developed to give the FCs the possibility to simulate the positioning of the solutions on their city maps and foster discussion amongst citizens and technical stakeholders.



ICT tool



Other activities performed for capacity building, training and knowledge transfer

- Monthly or bi-monthly WP meetings, to better support the FCs and track their progress on the creation of their Replication plans,
- Work groups: all the FCs have been encouraged to group members from local industries, academia, government and citizens associations to understand the information shared by the LHs and study and select the solutions to include in the Replication Plans,
- Synergies with other SCC Eu projects: collaboration with simila projects such as IRIS, RESPONSE and SPARCS have been started to benefit from the mutual exchange of knowledge and lessons learned,
- Documents, presentations, deliverables, templates and reports shared with all the FCs on specific topics.

Lessons learned 1/2 - PROS

- The organization of in-depth workshops has been proven to allow an effective and proper Knowledge Transfer. Therefore, these were key activities to transfer knowledge to the FCs, particularly when referring to lessons learned and barriers encountered during the demonstration activities,
- The effective Knowledge Transfer has contributed to the establishment of a solid knowledge base and know-how on methodological, procedural and administrative aspects regarding the implementation of a smart city. Therefore, the knowledge transfer can be translated into an horizontal educational process, being this knowledge able to be applicable to the cites' contexts, even for projects and initiatives external of future to POCITYF itself.
- Close and timely coordination have supported the FCs in preventing any risk in advance,
- The continuous consultation with FCs i.e. asking their main topics of interests, needs and challenges to define the agendas for workshops and other initiatives have resulted in a general improvement and raised involvement of the FCs, ensuring that critical information is transferred to the FCs for an effective and concrete support,
- > The creation of simple and easy-to-fulfill documents and templates have facilitated timely completion and consultation processes to maximize the usefulness and the impact of the contents shared.

Lessons learned 2/2 - CONS

- **X** The creation of the technical documents (factsheets) has been a complex and long process. Moreover, a necessary technical competence is not always present to understand technology properly.
- × Too many tasks or documents to fulfill might overload the municipalities, being them working on other projects in parallel. Keep their timelines into consideration when planning activities and meetings in advance.
- **×** Due to the lack of budget, the FCs are struggling to involve local stakeholders and citizens. Moreover, if other bigger municipal projects are running, the perception and the engagement of the ecosystem on smaller-scale projects are less attractive when compared to structural and more important measures.

POCITYF

Thank you for attention!

Questions?



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Joint webinar STARDUST-POCITYF

Replication strategy of Follower Cities in STARDUST

02/02/2024



WP leader: Greenovate! Europe (G!E) on behalf of the Follower Cities Cluj-Napoca, Derry & Kozani

STARDUST Enlightening european cities

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 774094

What is STARDUST?

STARDUST is an EU Horizon 2020 Smart Cities project, which brings together advanced European cities, thus forming into a constellation of "innovation islands" – exemplary models of smart, highly efficient, intelligent and citizenoriented cities.

Technical green solutions and innovative non-technical solutions will be implemented and validated, enabling them to be bankable and replicable for other cities. Indeed, STARDUST will lighten up the path for cities to relish a more sustainable livelihood by interweaving innovation and imagination at your fingertips.



STARDUST

Replication strategy

... towards becoming Climate neutral Scalable City in 2030 / 2045



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STARDUST

The municipalities of Cluj-Napoca & Kozani climate neutral by 2030, Derry in 2045

This goal will be achieved through a series of actions that include:

- Energy saving measures in municipal buildings, in the street lighting of the municipality, in the residential and tertiary sector
- · Savings measures in the agricultural sector
- Energy saving measures in the **transportation sector**
- Increase in the percentage of electricity from Renewable Energy Sources
- Awareness raising and information actions for the citizens and especially for the young generation

+++

Inspired by Pamplona's new DH system, work has begun on a Feasibility Study into DH for **Derry** - with identification of a potential waste heat source, and anchor load/ customer



Cluj-Napoca

STARDUST

STARDUST enlightens Cluj-Napoca on its way to Climate Neutrality in 2030

By referring to 2011 the municipality of Cluj- Napoca pursues seven key interventions:

- 1. Integrated **urban regeneration** of apartment building blocks (77% of resident homes)
- 2. Deep **renovation of** public and commercial **buildings** (responsible for half of GHG emissions of buildings) and brownfields' redevelopments
- 3. Improvement of public spaces quality
- 4. Extension of the infrastructure of **electric charging stations** and benefits for electric car users
- 5. Extension of the **Walkable City Program** & update of the parking area policy
- 6. Enriching the green transport infrastructure
- 7. Continuous expansion of green areas





Cluj-Napoca

Some pictures of implementation highlights



Michael Heidenreich– Greenovate! Europe / MH



Derry

'North-West Regional Energy' Decarbonisation plan with a target of achieving net zero carbon emission by 2045

A Whole Energy System implementation plan to deliver 5 key objectives:

1. Smart Energy Management: The smart control and coordination of regional energy assets to minimise energy bills and unlock new revenue streams.

2. Renewable Generation & Energy Storage: Maximising the potential for green renewable generation throughout the Region efficiently coupled with energy storage technologies.

3. Low Carbon Transport: Delivering a low carbon transport system to reduce carbon emissions and improve air quality.

4. Low Carbon Heating: Enabling the transition from fossil fuelled heating technologies to low carbon or emission free heating solutions.

5. Energy Efficiency: Increasing the efficiency of energy use within buildings across the Region to minimise consumption and reduce the associated carbon emissions.

NorthWest region: Derry City Strabane District Council & Donegal County Council



Michael Heidenreich- Greenovate! Europe / MH

Derry

STARDUST

Some implementation highlights

Capacity Building Workshop 29 June 2023 - 80 attendees



Feasibility into New DH System

- We have identified Derry as an ideal location to develop a district heating network
- The heat density is one of the highest in Ireland and there are potential sources of waste heat available to supply the network

90% of the city's heat demand suitable for district heating

Total potential to supply >500 GWh of heat from low-carbon district heating



Kozani

STARDUST

Kozani serves as municipal building manager, Energy system operator & Community.

By investigating and supervising the following:

- Monitoring yearly municipal energy & maintenance costs
- **Prioritising refurbishment**, construction & investment plans
- · Organising local Capacity Building / Brainstorming Workshops
- · Initiation, planning, design and implementation
- · Publishing tenders & contracting selected enterprises
- Performing socio-economic **surveys**
- Awareness raising and informing via municipal communication channels





Kozani

Some implementation highlights

Liapeio Indoor Swimming Pool



Accomplished: 2023

2nd Municipal Kindergarden in Kozani



Accomplished: 2023

8 kWp autonomous solar charging station





Accomplished: 2022



STARDUST

Supply and Installation of a Heating – Cooling Building Management System (BMS) for the Indoor Sports Hall of Lefkopigi

32 PV Stations in School Buildings of the Municipality of Kozani





After the installation of the BMS system in the building, it is expected to save 20% of the energy. Budget : 48.000,00 € Status : Completed



Installation of PV stations in 32 School Buildings of total power of (365kW total)

Budget : 500.000,00 €

Status : Completed



Laura Nieto – Greenovate! Europe,

Michael Heidenreich- Greenovate! Europe / MH

Future Outlook and conclusions

Identification and evaluation mainly of innovative replication for public buildings' deep renovation and de-carbonization of the mobility sector.

In close cooperation with dedicated key stakeholders the following conclusions have drawn:

- At the municipal level, enhancing the energy efficiency & augmenting building integrated renewable energy sources.
- Socio-cultural inclinations will play a pivotal role in shaping the future of the transport sector, influencing vehicle preferences and usage patterns.
- ICT is the glue of "smart" attributes of cities, encompassing sensor deployment, analyses of large datasets, and widespread internet utilization to enhance accessibility and userfriendliness of services.
- **Financial dimensions** are pivotal in ensuring the feasibility of replicating interventions, especially in the neighbourhood of the same city & its surrounding.

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THANK YOU

Any questions?

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