GENTE

Distributed Governance for green ENergy communiTiEs

> *GENTE's overarching mission is to create a distributed governance toolkit for local energy communities (LECs) that will advance the green energy transition, support community sustainability and coherence.*

GENTE aims to develop a distributed governance toolbox for local energy communities (LECs). The toolbox exploits advanced digital technologies including the internet of things (IoT), distributed ledger technology (DLT), edge processing and artificial intelligence (AI) for autonomous energy resource management within and across LECs and for flexibility provisions to energy networks. GENTE brings intelligence to distributed energy assets considering users' behaviours, data privacy and interoperability.

The toolbox empowers LECs with a decision support tool and innovative services, that will enhance the economic viability of LECs and promote engagements of end-users and self-governance. Need-owners, including technology providers, building owners and system operators will evaluate performances of GENTE's solutions in 6 demos in 3 countries. GENTE accelerates adoptions of new LECs capable of managing high share of renewables with improved energy efficiency and environmental performance.

Project Duration

01.06.2022 - 31.05.2024

Project Budget

Total Budget: € 1,811,912.-

Funding: € 1,222,945.-

Project Coordinator

Fachhochschule Zentralschweiz – Hochschule Luzern (Switzerland)

Project Partners

- Fachhochschule Zentralschweiz – Hochschule Luzern (Switzerland)
- CHALMERS TEKNISKA HOEGSKOLA AB (Sweden)
- Prosume SL (Spain)
- R2M Solution Spain SL (Spain)
- Troya Yenilenebilir Enerji Kooperatifi (Turkey)
- Reengen (Turkey)
- SmartHelio (Switzerland)
- Alingsås Energi Nät AB (Sweden)
- ES Systems AB (Sweden)

Project Website

https://genteproject.com/

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ERA-Net Smart Energy Systems Joint Call 2020 (MICall20)

This project has been awarded funding within the ERA-Net SES Joint Call 2020 for transnational research, development and demonstration projects. 22 Mio EUR of funding have been granted to 21 projects active in 17 regions and countries.

ERA-Net Smart Energy Systems

This project has been funded by partners of the ERA-Net Smart Energy Systems (www.eranet-smartenergysystems.eu) and Mission Innovation (mission-innovation.net) through the Joint Call 2020. As such, this project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 883973.

Main Objectives

Technical objectives (TOs) and non-technical objectives (NTOs):

- TO1 - Develop and demonstrate scalable technology for autonomous orchestration of electricity, heat and eMobility assets within and across communities (based on IoT, edge) bringing intelligence to distributed physical assets, considering data security, interoperability, and privacy.
- TO2 - Develop and integrate modules for forecasting using edge-based processing, including developing/providing optimisation algorithms for distributed control as well as reduced models to inform model predictive control.
- TO3 - Build the intelligent assets and forecasting into a DLT-based framework for identification and traceability of community energy resources, as well as digital identity management of the community members and the other stakeholders.
- TO4 - Develop and demonstrate a community platform for decision making and resource control that will support secure and resilient energy systems.
- NTO1 - Accelerate the economic viability of Local Energy Communities (LECs) through Community Federations and business models based on energy resource optimisation
- NTO2 - Accelerate the creation of LECs by proving the framework in Living Labs across Europe. Maximize energy efficiency and balance and increase the interactions with the energy market
- NTO3 - Promote engagement in LECs, and support the non-economic benefits of community energy, including self-governance, through innovative products and services.
- NTO4 - Define and incorporate need owner requirements in platform design and replication toolkit

Main Results

GENTE will create a toolbox for communities and community managers for resource optimisation and community federation, and to promote the creation of new communities through new business models and services. The toolbox uses IoT, DLT, edge processing and AI for optimal multi-vector energy resource integration within and across communities. It stimulates the creation of new energy communities, provides them with the appropriate governing tools/structure, and encourages the participation of new actors.

Joint Programming for Flourishing Innovation – from Local and Regional Trials towards a Transnational Knowledge Community

www.eranet-smartenergysystems.eu

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