Microgrid control amsterdam

Microgrid control amsterdam

Republica provides an amazing test case for us to build an extensive microgrid and optimize it. The software we’ve built manages diverse assets, such as a community battery, PV panels, an aquifer thermal energy storage system (ATES), heat pumps, above-ground thermal energy buffers, E.V. charging points, and building HVAC systems.

Our goal in managing those assets is to ensure maximum energy efficiency and to deliver multiple stacked energy services. Those energy services work on both the local (e.g. peak shaving, maximizing solar self-consumption) and national level (frequency regulation services to unburden the grid). Besides managing the microgrid and the assets, we also empower the Republica Energy Cooperative: a collective that consists of residents (both homeowners and tenants) and businesses (like the hotel owner and the ATES system operator). The collective will fulfill the roles of energy supplier and local grid operator, including all the complex administrative processes that come with that.

We have created a positive business case, proving the concept and making sure we can bring this solution to market so that we can create the most impact possible. Our end goal is to demonstrate how renewable-based microgrids can provide a cost-effective, scalable alternative to the status quo of public grid networks.

This is a STELLAR project. We were fortunate enough to be involved in the Republica project from the beginning. This means we can make sure the whole electricity system will be set up for the most success possible. Our basic approach has been to try to make everything smart, flexible, and interconnected. The collaboration between the parties responsible for the project ensures that our common goal will be achieved. Marc Koehler Architects opted for high-quality insulation, which helped bring down electricity usage, for example. We were consulted on the design of the battery room, but also on the choice of the exact battery to be used. We have been the key driver in getting an extra community solar plant. The same was true for other assets like the heat pump used.

The next step is to integrate all of those assets into STELLAR, our energy management software solution, based on our previous experience. Integrating the assets and making them communicate with each other enables us to finetune the settings based on the data. Using that, we can control the assets. Since the owners of Republica generate their own energy and their neighbors use that energy, our platform automatically bills members, making sure financial settlements between members are as easy as possible. The platform has made it possible for Republica to be its own energy supplier and grid operator. The various Republica members will also be able to see their own energy consumption, the source of their energy, the efficiency of their assets, and its actual production.

The whole community (which consists of 74 apartments, office space, a large hotel, leisure facilities, a parking structure, and a restaurant space) shares just one grid connection. Republica has become its own private grid

operator, ensuring extremely local energy use, lower tariffs, and lower energy costs. Because the installations are used more efficiently, they save energy daily and are expected to have a longer operating life.

By implementing STELLAR, we have successfully integrated all of the smart energy systems on the site into one central system, allowing those systems to be controllable. We control them to be as efficient (and thus sustainable) as possible. This has made Republica into an energy-positive community, sharing just one limited grid connection, instead of a grid connection per household or business. That is good news for the congested neighborhood in which Republica is located. STELLAR Grid Management doesn’t only optimize the control of energy assets, it also enables energy trading and the delivery of balancing services, optimizing the business case for the community even further.

Every project builds on the successes of the previous ones allowing us to radically scale our positive impact on the environment and prove the renewable energy business model to the world.

Spectral is: ISO/IEC 27001:2022 certified.

Schoonschip is a residential community of 46 households, located in the north of Amsterdam, which has been built on the water following a holistic approach to sustainable urban development. One of the most impressive features of the project is its smart micro-grid, which has enabled the community to act as their own energy supplier and grid operator thanks to a special experimental exemption provided by the Dutch Ministry of Economic Affairs. The Schoonschip smart grid has only one shared connection to the public electricity network, and the infrastructure behind the meter is privately owned by the community themselves. This is a STELLAR project.

Schoonschip"s emphasis on sustainability is highlighted by its goals of minimizing environmental effect, cutting carbon emissions, and boosting energy efficiency. In order to maximize sustainability and rely solely on a single grid connection shared by all users, the project needs creative solutions and careful thought. The floating community must successfully balance energy demand and supply while also maximizing resource allocation, maintaining grid resilience, encouraging collaborative management, and ensuring scalability and future development.

The project seeked to create a robust and sustainable energy system that enabled participants to meet their energy demands while reducing their environmental impact by tackling these complex issues.

Contact us for free full report

Web: https://kary.com.pl/contact-us/
Email: energystorage2000@gmail.com
WhatsApp: 8613816583346