Energy-neutral Heijplaat

Smart Grid Pilot Projects – Results as of September 2015

Innovation programme commissioned by the ministry of Economic Affairs

- Local electricity grid on DC voltage
- Electric transport and decentralised electricity generation
- Energy-neutral Heijplaat
- Modular smart grid for business parks
- Smart grid and energy transition in Zeewolde
- ProSECco examines four user groups
- Smart grid in sustainable Lochem
- Smart heat grid on TU Delft campus
- Your Energy Moment
- Couperus Smart Grid
- Cloud Power Texel
- PowerMatching City II

Goal

- Build an energy-neutral community by 2020 by implementing wind and solar energy, energy-efficient renovations and new homes and by involving the residents using a ‘smart living package’.

Issues

- How can we achieve an energy-neutral community with the help of ‘smart living packages’, renovation and newbuild projects, local generation of wind energy and small and large-scale solar energy generation?
- What are the effects of feedback and control systems?
- What are the effects of renovation and which packages will encourage the residents to participate?
- What will future residents expect of energy-neutral homes and what should be the standard?
- What is the best way to connect local generation of wind and solar energy in the community and make it available to the residents?
- What is the best energy grid for this situation?

Duration

- Three years, from January 2012.

Project partners


Heijplaat, a harbour district in Rotterdam, wants to become completely energy neutral by 2020 by using locally generated solar and wind energy, modernising old housing and building new energy-neutral homes and installing smart grids. The project parties also studied ways to encourage residents to become more energy efficient. The pilot project has revealed how important it is to take account of the residents’ priorities and local conditions.

Results

The district of Heijplaat in Rotterdam, really a village in itself, counts some 500 households and is nestled between docks and huge stacks of shipping containers. It was the subject of a 3-year pilot project to identify the opportunities and bottlenecks on the road to energy neutrality in 2020. The village has been going through turbulent times and this has strongly influenced the results of the pilot project, explains project manager Judith van Hooff of Eneco. “There is a lot of concern among the residents, particularly about the lack of progress of the newbuild and renovation projects and the pressure on their social facilities. So it is understandable that sustainability is getting less priority.” The project partner Woonbron had to postpone the construction of new energy-neutral housing because of a policy change, however they still intend to carry the plans out.

Some houses have been renovated and solar panels have been installed on various homes. “There is still insufficient local generation of energy to be able to effectively manage supply and demand, so we could not run this part of the trial,” says van Hooff.
We did develop a new proposition for housing corporations. Woonbron is investing in the solar panels and Eneco has guaranteed the returns for a period of twenty years. The concept is scalable and we are implementing a widespread roll-out."

Lessons
In the pilot project, 180 households were provided with a ‘smart living package’ including Eneco’s smart thermostat TOON, discounts on various products and a donation of € 50 to a local charity of their choice. "This financial trigger proved successful, but this method is not feasible for all the sustainable measures you may want to introduce. In the end, it is important that the residents are personally motivated to be more sustainable." In order to give the project an extra push, the pilot started with four homes to set an example. These homes were fitted with high performance double glazing and insulation, which bumped up their energy rating from class E to C. By adding solar panels they even achieved class B. "The idea was that these households would set an example to their neighbours and so stimulate them to take sustainable measures," explains Van Hooff. "Although this did have a positive effect, it did not last very long. This was partly because there was more demand for the establishment of social facilities and the construction of new houses. This taught us that a standard approach cannot work: you have to respond to the specific needs and developments in the area." And there were plenty in this case, such as the construction of a connecting road and a warehouse, major renovations, demolition and the postponement of the newbuild project. "These activities had all the attention, such that the sustainability theme was demoted to the second, third or fourth place," says van Hooff. "We also noticed that some parties were too focussed on individual actions; the lesson is that cooperation works better.”

Plans for the future
The project partners and residents are currently consulting on the follow-up to the Heijplaat pilot. The residents’ primary needs will be given priority: the completion of the social facilities and the implementation of the newbuild and renovation projects. “Once these projects have been completed, the village will be more receptive to sustainable solutions,” thinks Van Hooff. “The first precondition for an energy-neutral community is stability.” At the same time, Eneco will continue talks with the municipal council and the neighbouring districts on the development of a local wind park on Beneluxplein which is intended to generate 67% of the energy demand. “We have signed a covenant together with the municipal council and the other partners to continue to strive for this wind park even after the pilot phase has been completed. We are awaiting concrete residents’ initiatives before we take further action. If you want to make a community completely sustainable you need to have intrinsically motivated residents. We want to build a sustainable Heijplaat together with them.”

More information
Would you like to find out more about the Heijplaat project? Contact Judith van Hooff of Eneco at judith.vanhooff@eneco.com.