



NL Agency
Ministry of Economic Affairs, Agriculture and
Innovation

Intelligent network in sustainable Lochem

Experimenting with Intelligent Networks

Aim

To gain practical experience with the incorporation of renewable energy which is generated in a decentralised way into an existing network.

Issues

- How can decentralised energy production be incorporated into an existing network?
- How can residents be engaged and encouraged to use less energy and renewable energy, so that supply and demand are better matched?
- Are changes to laws and regulations needed in order to make an intelligent network a success?
- Explore possibilities for Open Platform Network Management and an open data system.
- Can we validate network models and simulations and use them to predict energy production and consumption?

Running time

3 years from 1 January 2012

Lochem is going to experiment with intelligent networks in an existing built environment. The project group, which has resulted from an initiative by citizens, is encouraging residents to consume less energy, to generate their own energy locally using solar panels, and to exchange that energy between themselves. This should then reveal what this means for the load, availability and manageability of the network. In order to prevent any problems, the project group will seek appropriate solutions so that the network remains fault-free, secure and efficient.

Combining and encouraging sustainable initiatives

The project in Lochem is the result of the LochemEnergie citizens' initiative. This initiative consists of over 1,000 households that actively want to contribute to a sustainable Lochem. "One of the households' most important activities is that they are supporting solar panels on their own roofs and those of municipal buildings,"

Project partners

- LochemEnergie - Initiator with over 1,000 members, will be focusing in partnership with Twente University particularly on the direct feedback with prosumers, and on the households' energy consumption behaviour.
- Locamation - Innovation and development company will be manufacturing and supplying the measurement, control and security equipment which will play a central role in this project and is the project leader.
- Twente University - The university will be testing various models which have been developed which assist with the construction and design of intelligent networks. The university will be researching the behavioural side of the project in collaboration with LochemEnergie.
- Eaton Industries - This company will be providing systems and components for the management and distribution of electric power, UPS systems and products for industrial automation.
- Trianel Energie - Supplier of green energy.
- Alliander - This network operator will connect the participating households to the intelligent network and will be developing a Home System for communications within the network.

explains Bas Mooijman of Locamation. "There are also a large number of other initiatives taking place, such as the municipal council exploring the use of heat pumps and drawing up a policy with regard to wind turbines." The Lochem trial combines these initiatives and is encouraging the development of renewable energy production. Mooijman says: "In the current infrastructure it is still the case that the maximum production capacity of renewable sources may not exceed the minimum electrical demand. This means that we can only meet a small proportion of the total demand from renewable sources. The trial is investigating solutions to this."

Matching supply and demand

Some 250 households in Lochem will be connected to an intelligent network. “The unusual aspect is that we are setting up this trial in an existing built environment. We are researching exactly how we can work with the facilities which are already present in a neighbourhood.” Around fifty houses and a few municipal buildings will get solar panels and will use these to generate renewable energy for some two hundred households. The energy production and demand will be matched as closely as possible. That means that households can exchange energy between themselves, can sell surplus energy to Trianel Energie, or can buy in extra energy if demand exceeds production. “That exchange between households and with the energy supplier requires communication between them,” says Mooijman. “That is why Alliander is installing an intelligent energy management system in all households. This system will provide them with up-to-date information about energy production, tariffs and consumption.”

Testing models in practice

Twente University has developed various models for the construction and design of smart networks. In Lochem they will

have the chance to test the theory in practice. “The university can use data from the trial to test models, run simulations and produce predictions,” explains Mooijman. “Such as about the consequences for the network if we add more renewable sources in the future.” Locamation has developed the innovative SASensor technology for this which will be linked to the users’ energy management system. Mooijman says: “The university’s findings and the technical adjustments that we make with SASensor will enable us to optimise intelligent networks and keep the network maintenance-friendly and manageable in the future.”

More information

If you would like to know more about the application of intelligent networks in Lochem, please contact Bas Mooijman of Locamation via bas.mooijman@locamation.nl or call +31 (0)74 255 21 90.

Intelligent Network Trials

Innovating with energy

The aim of the Intelligent Networks innovation programme (IPIN) is to accelerate the introduction of intelligent networks in the Netherlands. In twelve trials we are gaining experience with new technologies, partnerships and forms of collaboration. The results of the trials are helping to resolve important issues relating to intelligent networks, such as the needs of consumers, new business cases and new laws and regulations. We are thus working cost-efficiently towards the large scale application of these networks.

For more information see:
www.agentschapnl.nl/intelligentenetten

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