NL Agency
Ministry of Economic Affairs, Agriculture and Innovation

Modular intelligent network for business park

Experimenting with Intelligent Networks

Aim
An intelligent, local medium voltage network and a thermal network with a modular structure on a new business park in Deventer. This area is going to be energy-neutral and is being set up with intelligent ring networks.

Issues
- How do we build an intelligent medium voltage network in a modular form which matches the development of the business park?
- How do we link the renewable electricity generated in a decentralised way to thermal energy supplies which are mainly process-related?
- How do we manage and combine (fluctuating) energy streams, buffers and prices in a smart way?
- How do we involve end-users in the use of intelligent applications for energy supply and use?
- We will explore the legal (im)possibilities of this dynamic interaction between network operator, the energy producers and end-users.

Running time
3 years from 1 July 2012

Project partners
- Cofely Smart Grid Solutions - This business unit of GDF Suez is the applicant for the project and will be responsible for the system integrator activities and the energy management.
- Alliander - The network operator will design the network, construct it and manage it. Liiander is developing the innovative concept with the partners.
- Deventer municipal council - Commissioning authority for the trial and active supporter which wants to make the network smart as soon as possible.
- Laborelec - This technical scientific knowledge centre will develop and test the new product and will carry out audits at the industrial end-users.
- TU/e, Electrical Engineering faculty - This department will collect and assess results and advise on an appropriate upscaling.
- DHV - Consulting engineers will carry out the process management, prepare the conceptual design, provide engineering and take account of environment and procedures.

During the construction of the new A1 Business Park in Deventer a consortium led by Cofely Smart Grid Solutions will be creating an intelligent sustainable energy supply. All electrical and thermal energy will be generated locally in due course using wind turbines, solar PV, biomass boilers or a bio combined heat and power station. A thermal energy network with heat pump/thermal energy storage will also be used. Smart systems will match energy supply and demand, and intelligent networks with a modular structure will make it possible to upscale the business park in the future.

Smart grid for a greenfield business park

Offices, businesses, cold stores and possibly electric cars and various decentralised generators on the business park in Deventer will be connected to intelligent networks. The intelligence makes it possible to exchange energy and the combination of thermal and electrical energy. “It will be the world’s first smart grid for a greenfield business park: we are creating an intelligent network during the construction on an undeveloped site where there is currently no infrastructure at all,” explains Leon Straathof, project leader at Cofely. “With the experiments that we are doing here we can develop new activities around intelligent networks. On this project we are also examining the legal possibilities and the correct financial model for the interaction between network operator, energy producers, end-users and service providers.”

Favourable conditions

The business park offers particularly favourable conditions for the flexible management of the intelligent networks. “For example by linking the power supply with the largely process-related thermal energy supply and through a smart combination of energy streams and buffers, such as heat exchange,” explains Straathof. Hence offices will be using thermal energy storage system combined with heat pumps. The larger businesses will make use of a collective biomass concept in the form of wood burners. Combined with wind turbines and solar panels this will allow all the annual supply of electricity (20,000 MWh) and thermal energy (62,500 GJ of heat and 34,500 GJ of cold) to be generated sustainably on the business park. “In due course every decentralised producer and end-user will be provided with an ICT facility, a kind of smart meter, to match supply and demand. This will allow us to manage flexibly in order to optimise use of the medium voltage network and avoid the need for a separate high voltage connection.”

Modular network allows upscaling

In choosing the scale of items such as wood burners, account is being taken of the development of the business park. “That was one of the pre-conditions stipulated by Deventer municipal council. That is why we are constructing the intelligent networks in modular form,” says Straathof. “By utilising the supply and demand management of the potential as effectively as possible, we want to create an attractive environment with selling opportunities for investors in renewable energy. This will save the end-users and network operators energy and money. And this also makes it appealing for decentralised energy producers to base themselves in the business park.”

More information

If you would like to know more about the use of intelligent networks in Deventer or about the latest developments on this new-build project, please contact Leon Straathof of Cofely via leon.straathof@cofely-gdfsuez.nl or call +31 (0)6 51 08 28 16.

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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