



PowerMatching City II

Proeftuinen Intelligente Netten (Smart Grid Pilot Projects) - Progress July 2013

- Decentralised electricity grid on direct 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 five user groups
- Smart grid in sustainable Lochem
- Smart heat grid on TU Delft campus
- Your Energy Moment (Jouw Energie Moment)
- Couperus Smart Grid
- Cloud Power Texel
- **PowerMatching City II**

Goal

The follow-up to PowerMatching City I is focused on the larger scale application of a total package of smart energy services.

Issues

- How can we fit smart grids into energy company processes?
- How do we align energy services with user demands and requirements?
- How do we attain optimum capacity management in a smart grid?
- How do we validate business cases that were declared feasible in PowerMatching City I?

Duration

3 years, from January 2012

In 2009, Hoogkerk, a town in Groningen, started the first pilot project in the world involving a smart energy grid: PowerMatching City I. With 22 households, HRe boilers, hybrid water pumps, solar-PV installations, 'smart' appliances and 2 electric vehicles. The successful project is followed-up by PowerMatching City II, with 40 households, 10 electric vehicles and 2 smart distribution transformers. Hoogkerk gains practical experience with, amongst other things, new energy services and feeding in of renewable energy to the grid.

What is the actual situation?

On 17 July 2013, Minister Henk Kamp ushered in the second phase of PowerMatching City with an official opening. All 22 residents from the first phase participated, plus 18 new households. The first phase provided a system which worked technically, but the time has come for the next step, says Albert van den Noort, Project Leader at DNV KEMA. 'We are going to test new products and services in the pilot project, which were developed in co-creation with residents. Before, they were unable to distinguish between the different types of electricity that were available, or the senders. Soon, residents will be able to collectively use their energy in the most sustainable manner possible, or as cost-effectively as possible.' A measuring campaign will be started in September, to analyse the effects of the new services. Van den Noort: 'Since half of the households are participating in the new street, we can physically measure the drop in peaks. With the results we want to validate the cost-benefit models, and show that it really does work in practice.'

>> *Focus on sustainability,
innovation and international*



Project partners

- DNV KEMA - responsible for project leadership, management and expansion of the pilot project and the validation of cost-benefit models.
- ICT automation - design, realisation, management and maintenance of the ICT and database.
- TNO - supplies the PowerMatcher agents.
- Essent - focuses on the market processes involved in the economic traffic, smart charging of electric vehicles and the energy services to end users.
- Enexis - responsible for capacity management in the distribution grid.
- Gasunie - interested in the role and added value of natural gas in smart energy systems.
- TU/e, Faculty of Electrical Engineering - provides the models for capacity management and the integrity of the electricity supply.
- TU Delft, Faculty of Industrial Design Engineering - responsible for the study of community aspects.
- Hanze Honours College - contributes to the end user study.

Concerns

Instead of an additional 50 households, at most, only 18 participants were added in the second phase. Van den Noort: 'This was less than expected, but still enough to allow for the effects to be measured. It proved to be a real challenge to find a suitable street with a high percentage of participants. For this reason, we preferred to do it properly, with fewer households, than a little less to satisfaction, with more.' Sometimes it's difficult that the project partners are scattered throughout the country. 'Often times it is better to physically talk things over. We achieve this by getting together in smaller groups and in more intensive periods.' The project is more or less on schedule. 'Fewer problems are being encountered with the second installation, compared to the first. A more prominent role was assigned to the designs of new services.'

Van den Noort views this as an opportunity: 'It is now less technical and far more user-oriented. We hope that the results will portray this.'

Towards up-scaling

With up-scaling to a large number of households, the pilot project could play an advising role, according to Van den Noort. 'We have a working system in our hands. We are unable to implement the system in thousands of households, at this time, because the current form is rather complex. We can, however, be involved in thinking about the system for larger pilot projects.' In sharing sessions with colleagues, Van den Noort discusses the themes: user study and user approach, and new products and services. 'This is the core of our project: how do you ascertain whether your product or service is working properly? We hope to learn this from others.'

More information

Would you like to know more about PowerMatching City II's approach or current developments? Visit www.powermatchingcity.nl or contact Albert van den Noort, DNV KEMA: albert.vandennoot@dnvkema.com.

Proeftuinen Intelligente Netten (Smart Grid Pilot Projects): energy innovations

The goal of the Innovatieprogramma Intelligente Netten (IPIN) (Smart Grid Innovation Programme) is to accelerate the introduction of smart grids in the Netherlands. We gain learning experiences with new technologies, partnerships and approaches, in twelve pilot projects in residential areas, city centres, office complexes, industrial sites or agrarian areas. The results help to solve the five themes in connection with smart grids, together with the pilot projects: laws and regulations, user study and user approach, vision, standardisation and new products and services. We therefore work from an experimental basis towards large-scale implementation.

More information: www.agentschapnl.nl/intelligentenetten

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