

Interview Pier Nabuurs, president European Platform SmartGrids

‘Network companies are reluctant to develop smart grids’

The network companies are scarcely investing in the modernization of the European electricity grids. This is threatening to interfere with the transition to a sustainable society, Pier Nabuurs, president of the European Technology Platform SmartGrids warns: ‘There have been a few ideas and proposals, but no one is really working on it.’

| by Monique Smits

There is a strong wind blowing on the British south coast. Wind turbines, which supply power to Bournemouth, are operating at full capacity. There is plenty of energy, so the local energy grid is not taking any power from a large national electricity generating station. Elsewhere, in the county of Wiltshire, it is overcast, there are no wind turbines around and the solar panels on the roofs are useless. A computer system is figuring out what would be more economical for this village: taking the required energy from the wind turbines near Bournemouth, or from one of the large power stations.

It is only one example of what energy supply could look like in the future: no longer managed exclusively in a central way and dictated by large power stations, but through a smart, interactive network, which enables users to choose for themselves which provider they want to get their energy from, and also to contribute to the production of energy themselves, if that is economical. But for this dream for the future to become a reality, Nabuurs, who is also the ceo of the respected Dutch energy consultant Kema, states the European electricity grid needs a complete overhaul. ‘Most of that grid was installed in the late fifties of the last century. It was designed neither for trading purposes, nor for two-way traffic by increasingly durable, decentralized generation, nor for intense cross-border transports. Furthermore, electronics have been applied in a very limited way, which leaves very little opportunity for control.’

The fact that Europe is still using an outdated electricity grid, while the energy market is on the threshold of an enormous turn-about, also worries the European Commission. It has therefore requested the Technology Platform to develop a vision for how the European transmission and distribution system of electricity can meet the requirements of the free market and a sustainable society. ‘The Platform wrote that vision before Al Gore came out with his Inconvenient Truth,’ Nabuurs says. ‘It emphasizes the same thing that Gore also argues: sustainable energy, local generation and energy conservation.’

According to the Platform, which represents energy companies, educational institutions, network owners and operators, manufacturers, regulators, government authorities and consultants, it is high time to implement technical innovations. Innovations which, aside from increasing efficiency, will also improve the security of supply. All of this is summarized under the term “smart grids”. Without smart grids, the Platform says, transition from a centrally controlled energy supply to one that is more decentralized and energy-friendly, will not be possible.

And those smart grids must be created soon, Nabuurs says. ‘If smart decisions are not made right now, and smart inventions are not implemented, the transition to sustainable energy management cannot be made. If the grids are created in a smart way, generation of energy will take place more and more locally,



Pier Nabuurs, president of the European Technology Platform SmartGrids: 'It is up to the network companies to apply the modernization. Photo: Bart Willemsen

aside from the large-scale sustainable generation through, for example, wind and sun energy. Households will use more solar panels, wind turbines and micro-CHPs and drain off surplus energy to the grid. But the current system is not sufficiently set up for that.'

Electrified |

No matter which way you look at it, Nabuurs says, energy supply will be much more electrified in the future. 'For example, just think about how many cars will be electric in a matter of fifteen years. They will have to be charged, both at home and at work. That energy will have to come from a grid that does not exist now. Yet, we are not doing anything about that. At the same time, they could be creating a tremendous supply capacity for sustainable energy during times of lack of wind or sun. We have been building more interconnections, because we want to stay active in trade, but it is being done in the same way as fifty years ago.'

Nabuurs believes that twenty years from now there will be 50 gigawatts worth of wind parks on the North Sea and that 50 gigawatts of sun energy will be generated in southern Europe and distributed throughout Europe. 'And because it is not always windy and even in the South the sun doesn't always shine, the capacity to store those sustainable energy sources must exist. This will require large storage places in the retaining reservoirs of, for example Austria and Switzerland, in an energy island in

the ocean, or in the batteries of the electrical cars, when they are not being driven. On top of that, the European grid will have to be able to handle two-way traffic. And', he adds, 'we don't know yet whether those wind parks in the ocean will all have to be connected individually to the transmission grid on land or not. Wouldn't it make sense to create a sea grid? But there isn't even any research being doing done on this. Everyone is busy trying to solve their own problems. On the sea we are creating the same thing as in the past: private grids. It seems to me that that is not always very efficient. Before investing in the creation of a new energy grid, a lot of thought must be put into it.'

Nabuurs condemns the lack of initiative among the network companies. 'The Platform's initiation task is done. Now it is up to the network companies to decide to apply the modernization. And', he says, 'they are not showing a lot of enthusiasm to develop smart grids, even though there is an increasing demand for sustainable energy supplies and a changing, increasingly competitive energy market with users who are making conscious choices. The network companies don't have the drive to get ahead of the problems', the president of the Platform observes. 'They only react after the problems have already occurred. Why? Because there is no competition. Innovation is greatest where competition is fiercest. If that competition is not there, you will have to regulate, you will have to force the companies to modernize. But,' he adds, 'financial room to apply modernizations must be given as well.'



The fact that Europe is still using an outdated electricity grid, while the energy market is on the threshold of an enormous turn-about, worries the European Commission. Photo: image100/Corbis

Eurocontrol |

Although universities and suppliers of technology are doing research regarding smart grids, the monopolists are not quick in applying it. 'There have been a few ideas and proposals, but no one is really working on it.' If the application does not happen on a large scale, Nabuurs is afraid it will suffer the same fate as Eurocontrol. Setting up this pan-European air traffic control system took thirty years. 'And even now, it is working only in a limited way. No one is taking responsibility for the European transmission grid.' That is why he thinks awareness needs to be created before anything else. 'But, if the governments don't do anything about regulation and politicians don't get involved, it will not be successful. Economic, political and national interests are standing in the way of modernization. However, it is really a matter of choosing between smart grids that can make good use of sustainable energy sources on the one hand, or eventually having to deal with many power failures on the other.'

Aside from efficiency, safety and sustainability, a new transmission and distribution system will also offer Europe more opportunities on the economic level, according to Nabuurs. 'In China, western companies are delivering the technology to transport electricity from the hydropower central station in the province of Yunnan to the large cities. The world's largest suppliers of electricity grids are in Europe. But if Europe does not create this new technology, others will. The dilemma is: the one who can develop the technology is not the one who will be applying it, and the one who is applying it is a monopolist. He doesn't need it, because there is no competition.'

Comparing smart grids to the internet, as is sometimes done, can be misleading, according to Nabuurs. 'The internet was originally developed out of the military's need to create a communication network without telephone exchanges that could be bombed. The difference between internet and smart grids is that the internet

was a completely new technology. The internet was able to compete with an existing technology. The development of telephony got a boost because we got mobile telephony. The internet was developed because it provided services that were not available through the existing communication channels. We would never have got to the point of having television via the phone connection, if there had not been any competing technology. Because the electricity distribution networks are monopolies, I, as an individual, cannot start a network. I am not even allowed to.'

If it were up to him, during the next ten years, Nabuurs would set up European regulations and a European transmission network. 'Then the authorities must make the money available to pay for the research and design of smart grids. Once the system is set up, the energy industry will automatically get going. That's

'The European electricity grid needs a complete overhaul'

why you need the regulations and the transmission network. That's how it is decided where the storage will be - in lakes or in energy islands. After all, that's what your network depends on.' Nabuurs hopes that the first small-scale smart grids will be visible within ten years. 'It will depend on whether the development of the application can be put into motion. In all this we should consider that there is a very large lobby that does not want sustainable energy at all and that wants to keep on building coal-generated power plants. If we don't succeed in getting this off the ground, the large scale applications will take until 2030. Then we will not reach the goal of reducing greenhouse emissions by 20 percent in 2020.' ■

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