Group 1: A business model for operators and communities

Based on the exchange of ideas, we concluded that although operators may probably oppose to new smart grid solutions (as they probably will loose some control), there might be ways to persuade them to collaborate with communities.

One of those ways it is to define a TO-BE business model in which operators get revenue approximately equal (or a bit lower) to the AS-IS situation. In this way, the *economic value* of the TO-BE solution will be perceived as beneficial for both operators and communities. To achieve this, communities could offer two types of fee: 1) Right to be connected to the grid, and 2) Rent for using the grid infrastructure.

The TO-BE business model will provide freedom to communities to not only experiment and explore different ways to locally exchange their energy but also install and share storage capacity. By exploring with these types of solutions, communities will become more sustainable, which ultimately contribute to creating more *social value*.

Although this could be achieved within Dutch communities as current regulations allow them to experiment for a period of ten years, we foresee possible resistance to apply solutions at a national level. Such resistance may come not only from operators but also from the government itself. The latter due to legislations and (possible) hidden interests.

Summarizing, communities become one of the main innovators to design new solutions for the smart grid while being sustainable and working in close collaboration to co-create economic as well as social value.

Group 2: New Incentives and Technologies

Current incentive mechanisms for renewable energy are flawed, improper and insufficient to promote confidence in renewable investment. This is one of the main factors contributing to the low use of renewable energy in the Netherlands, but also abroad.

New incentive mechanisms are needed that look not only at isolated prosumers, but at the interaction between prosumers and consumers and what the impact is of injected energy on the low-voltage grid.

One potential candidate for an alternative incentive mechanism is NRGcoin, presented earlier at the workshop. However, this mechanism requires a paradigm shift and hence meets natural resistance from established institutions. Nevertheless, established institutions, such as utilities and grid operators, need to start accepting novel solutions in order to remain competitive. Novel technologies, such as Blockchain, are disrupting the current state of affairs in numerous sectors, among which are the energy and smart grid sectors. Unless the traditional smart grid actors embrace emerging technologies, their growth will be threatened by new movers on the market. Clearly, new business models are needed.

Besides acceptance from established organizations, the novel technologies and business models need to be accepted by the community as well. The typical assumption "too good to be true" stifles growth and hinders innovation. Use case: "When Nuon offered NL residents free solar panels in exchange of participating in a pilot and switching to Nuon as provider, no single participant joined the program, as it was perceived as too good to be true". Better communication and dialog with end users is needed.

Legislation (of novel technologies) is often lacking behind, which prevents wider acceptance of new solutions. Use case: "Herman de Zonnestroomverdeler is a company that installs PV panels on apartment building blocks, where occupants benefit from the green energy according to their investment and demand". However, such a system is not allowed in Portugal, as it conflicts with laws regarding the use of common spaces in residential buildings. Legislation needs to catch up with innovation.

Community cooperatives, such as in the example above, are needed to push for changes. While cooperation promotes advancement, competition is also beneficial to promote diversity and growth. Nevertheless, a good balance is needed between competition and cooperation.