

Towards circular smart meters

A future-proof NextGen reference design in collaboration with Netbeheer Nederland - Preserving value through research on product and system level.

Netbeheer

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Project Information (EN)

Smart electricity meters

Almost everyone has one in their home: a smart electricity meter. These meters are installed in buildings to, as their name suggests, measure electricity usage. The smartness in these types of products come from the fact that they are able to forward data to grid operators, who can use this data to better accommodate for fluctuations in electricity supply and demand. Additionally, the meters can provide consumers with better insights in their electricity usage. This is currently very helpful due to the very high price of electricity and natural gas. These characteristics will play a crucial role in the future, when the Netherlands will have electrified parts of society as part of the energy transition. VanBerlo, together with Netbeheer Nederland, have researched what a next generation smart electricity meter could look like.

Project scope

In this project we created a NextGen reference smart meter design, ready for the energy transition, designed for 20 years of service and deployment in more than 8 million Dutch households. Sustainability has been taken into consideration throughout the whole project by doing analyses on product- and system level. Through our signature hands-on approach to research with stakeholders such as installers, warehouses and recyclers we were able to visualize a system map and identify good practices, as well as points of improvement. As it turns out, many smart meters are decommissioned before they have reached their technical end-of-life resulting in premature value loss. The identified opportunities were translated into design guidelines that could be implemented directly into the reference design.

Results

VanBerlo developed a product journey map through researching different stages in the product lifetime, for example installation, decommissioning and recycling. Green arrows visualize value retention, whereas red arrows visualize value losses. Sustainable design guidelines were extracted from the product journey map and implemented in the reference design. The product journey map and sustainable design guidelines enabled us to design a product that is in sync with its context and stakeholders. Among other qualities, the design features sensible modularity, a smaller footprint compared to similar products and durable electronics to stand the test of time.

Projectinformatie (NL)

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Image List

Filename	Caption	Credit
smart-meter-2-fit_1664809557.png	NextGen reference design	
img-0145_1663952324.png	Premature value loss	

The images above are included in the ZIP under /images.