ENTRANCE
CENTRE OF EXPERTISE ENERGY

Electricity subscriptions – a blessing or a threat for end users?

Client	Lectoraat economische vraagstukken binnen energietransitie
Related project	MODES
Start date	Flexible
Suitable for training course	Masters SESyM and E4S, bachelor courses with economics and/or energy as main themes
Bachelor or Master	Both (we can modify the assignment to make it fit for the level)

The Netherlands government has a vision for a net-zero emission society by mid-century. For realizing that, the energy system must undergo a transition towards utilization of energy options that do not emit greenhouse gas emission. Examples of such options are wind and solar power, as well green hydrogen and batteries for carrying and storing energy. In addition, it is likely that consumers will have to switch to flexible energy end use. After all, with an energy system that relies on renewable energy sources, peaks in supply and demand happen at different hours of the day. In order to manage these peaks consumers could use more energy during supply peak hours. However, consumer behaviour is often seen as inelastic, as changing behaviour can be difficult when not being at home or if it requires investment in technology that is relatively expensive, such as a battery or smart home energy system. The assignment is about viable ways to enable consumers to flexible use energy in support of energy market stability, while meeting social and economic priorities of consumers.

Assignment

The assignment focusses on ‘electricity subscriptions’ for households. Similar to mobile phone and internet subscriptions, consumers subscribe to a certain ‘bandwidth’ of electricity to be consumed at maximum during a certain time. With the bandwidths, consumption is limited to reduce peak demand for more stable energy markets. The objective of the assignment is to:

- explore options for defining the bandwidth by learning from other products such as health care, mobile telecommunication and internet and how these can be applied to electricity markets (SWOT analysis),
- analyse how electricity bandwidth subscriptions can be organized; who determines the bandwidth (energy companies, consumers themselves, grid operators, etc.)
- analyse how low-income households could be threatened by this system and
- Identify viable ways to make this system affordable for low-income households too and avoid energy poverty risks for them.

Problem definition

Energy markets traditionally follow the rule of 'energy only', i.e. producers earn money only when they deliver energy to end users and consumers only pay for electricity when they consume. With a bandwidth subscription, consumers pay for the right to consume a certain amount of electricity during a certain time frame and pay for the electricity consumed. This similar to other markets such as mobile phones and cable internet. However, introducing bandwidth subscriptions for electricity consumption can potentially harm vulnerable households, e.g., families that cannot purchase a battery are forced to take a relatively large bandwidth subscription if they want to cook, wash the dishes, watch tv and charge their phones between 18.00 and 20.00. Higher income families, instead, could invest in a battery, load extra power during the afternoon when their solar panels produce extra electricity for use during the evening. Higher income families could then save money by taking a smaller, cheaper bandwidth contract. The problem, therefore, is that while economically optimal, bandwidth subscriptions for electricity could increase low-income households' economic vulnerability.

General information

Final Product	Report
Location	Groningen, Entrance
Stakeholders (researchers & companies)	Onderzoekers Entrance, energiebedrijven, netbeheerders, consumentenbond, Autoriteit Consument en Markt.
Contact person	Wytze van der Gaast w.p.van.der.gaast@pl.hanze
Supervision	Wytze van der Gaast
Details	

What are we and where can you find us?

Entrance is a learning knowledge community, in which students and teacher researchers from various programs work together with researchers, companies, governments and civil society organizations to accelerate the energy transition.

Entrance is the place where, as a student, you work together with lecturers, researchers, businesses, governments and/or civil society organizations on complex issues. We do this at the following locations:

- Location Proeftuin, Zernikelaan 17

- Location Energy Academy Europe, Nijenborgh 6.

What do we offer?

Entrance offers you a multidisciplinary, inspiring learning, working and research environment in which you can develop the competencies needed to shape and accelerate the energy transition. There is room for collaboration with professors, researchers, lecturers, and the professional field. In addition, you will be supervised by professionals who are part of the Entrance Learning Communities (ELC).

Contact us

Are you interested in vacancy? Do you have questions or would you like to apply directly?

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