

**Sustainable Urban Energy Systems Conference
8-9 November 2018 – TU Delft**

Panel session entitled '*Energy & Behaviour*'

Presentation 1

Title: Guide to green: Developing a message-framing tool for pro-environmental consumer behaviour change

Keywords: Barriers, Influence mechanisms, framing, consumer change

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Abstract: This research resulted in a tool that supports the design of messages that stimulate sustainable consumer behaviour change, taking behavioural barriers as a cause of consumer behavioural inaction. The research question that was addressed was as follows: 'How can behaviour change models, environmental behaviour barriers, and influence mechanisms be integrated into a tool that offers start-ups insights into message framing for sustainability?' To answer this question, the study used a combined research methodology stimulating an interactive process by continuously switching between theory (literature) and practice (expert and target group input). The methodologies used were Design Based Research and the communication Double Diamond. The steps taken included an analysis of the problem through an extensive literature review, a multiple model analysis and expert interviews. From here a theoretical framework appeared, and by interviewing the target group and more experts, a tool was ultimately developed and tested again with the target group. The resulting tool included a step approach for product developing in considering how to frame their message: three behaviour constructs, behavioural barriers, influence mechanisms that can overcome these barriers, and suggested practical design steps for actual message framing design. Tool tests showed clear interest from the target group and a gain in knowledge on the barriers and influence mechanisms. However, further research is needed to (1) validate the tool, (2) explore the relationship between the barriers and the influence mechanisms, (3) find stronger links with the practical design tool, and (4) improve the tool's workability. Simultaneously, new studies can add value to the integration between the research fields of human behaviour, environmental barriers and message framing for behaviour change.

Presentation 2

Title: Schools in a role of energy embassies in their neighbourhood

Keywords: social innovation, energy transition, education, energy embassy, schools

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Abstract: Action research project in 2018-2019 about the roles of 8 schools as energy embassies in their neighbourhood. Actors in the energy transition in the small area around the schools are interviewed, analysed and brought together in focus groups. These groups create actions in which students of the school support and accelerate the local energy transition. The actions are designed such that they support the sustainable technology curriculum of the schools and the energy transition ecosystem, without over-asking the organization possibilities of the school professionals. These actions are then supported by the research team until their co-creators can continue them by themselves. The interventions in the schools and in the local energy ecosystems are investigated systematically in order to gain insight in mechanisms and effective measures for social innovation in climate action. Quantitative research through questionnaires is performed in order to validate the results. A learning community of entrepreneurs and other stakeholders supports the local initiatives. An advisory group supports the researchers. The project consists of two iterations. In the first round of 3 schools, a well working method for the action research programme has been developed and so far 5 small local energy initiatives around two of the schools are the growing results of the project. The 8 schools which participate in the research project are located in Utrecht and Amsterdam. The project is coordinated and to a large extent performed by Technotrend Foundation, a Dutch non-profit organization which works on sustainable development through technology education. The research program is guided by a public administration and a behaviour psychology researcher from the Delft Energy Initiative at Delft University. The energy cooperation Energie-U in Utrecht and the metropolitan research institute AMS in Amsterdam support the local research and initiatives. RVO (mvi-e programme), AMS and TenneT have financed the project.

Presentation 3

Title: More sustainable houses? No hassle!

Keywords: hassle-free, sustainable homes, persuasion, home-owners

Abstract: To achieve national and international climate goals on energy savings, the energy transition and climate adaptation, home owners need to adopt measures in and surrounding their homes. Notwithstanding the efforts of public and private institutions, incentives to increase green investments in households have not taken flight. One of the reasons is the persistent focus on financial and technical incentives, which do not tackle the psychological obstacles. An important example of these psychological objections considers the 'hassle' that people experience or associate with sustainable investments around the home. The Groen & Gemak project identifies and tackles this 'hassle-factor'. We develop and test

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propositions for green investments with a factor of ‘hassle-reduction’ For instance: attic isolation in combination with a service to clean the attic. We do this in close corporation with homeowners, local governments and private organizations. The goal of this project is to persuade more home-owners to install sustainable measures around the home by introducing market ready, hassle free solutions to sustainable homes.

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Presentation 4

Title: Emotional responses to an (un)equal distribution of a new energy project’s risks and annoyances: The case of an ultra-deep geothermal energy project

Keywords: emotions, distributive fairness, perceived risks, geothermal energy

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Abstract: Energy projects generally have an unequal distribution of negative outcomes (i.e. risks and annoyances) over citizens which has been associated with negative emotions. The question is whether a more equal and thus presumably more fairly perceived distribution of negative outcomes would simply reduce negative emotions and increase positive emotions. Perhaps people also perceive a more equal distribution to have a larger total amount of risk, as many more people will be affected, which in turn could affect emotions in an opposite direction. The question further arises whether these effects depend on whether one is personally affected by the negative outcomes.

We studied this with an experiment. Participants to the study were asked to imagine that an ultra-deep geothermal project was under consideration by a town council. Depending on the experimental condition, the respondents additionally learned that (1) the project would take place in their own or another municipality, and (2) that the drilling locations and thus the negative outcomes were either concentrated in one part of the town (unequal condition), or evenly spread out over the town (equal condition). The respondents were then asked to rate emotions they felt in response to this.

For both the own-town and other-town conditions, we found that: (1) The equal distribution was indeed perceived to be more fair than the unequal distribution, which in turn was related to weaker anger, fear, and sympathy-related emotions and stronger happiness-related emotions. (2) The distribution did not significantly influence perceived total risk. (3) A strong unexplained direct effect of distribution on emotions remained, opposite to the effect via perceived fairness. Although people thus respond more positively to an equal distribution because of more perceived fairness, a more equal distribution of negative outcomes appears to

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