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Are energy decisions about energy?

Wendy Broers^{1,2*}, René Kemp², Veronique Vasseur², Nurhan Abujidi¹, Zeger Vroon¹

1: Lectoraat SURD, Faculty of Beta Sciences and Technology, Zuyd University of Applied Sciences, P.O. Box 550 6400 AN Heerlen, wendy.broers@zuyd.nl, nurhan.abujidi@zuyd.nl, zeger.vroon@zuyd.nl, www.zuyd.nl

2: ICIS, Faculty of Humanities and Sciences, Maastricht University, P.O. Box 616 6200 MD, Maastricht, r.kemp@maastrichtuniversity.nl, veronique.vasseur@maastrichtuniversity.nl, www.maastrichtuniversity.nl

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1. INTRODUCTION

Research shows that buildings should use 80% less energy in 2050 to counter climate change and to reduce dependence on fossil fuels [1, 2]. To achieve this in the Netherlands, 75% of the Dutch houses should be renovated [3] with a pace of 300,000 houses each year [2]. This can be achieved by one-off energy renovation measures such as insulation, efficient heating and ventilation systems or renewable energy production. Despite the technical potential and widespread policies for supporting energy renovations [4], the energy renovation pace is not on schedule to meet the emission targets [5].

From a techno-economic perspective, a significant amount of research has been conducted on energy renovations concerning private homeowners' willingness, interest and motivation. These studies have identified important factors and motivations which influence choices homeowners make about decisions concerning energy renovations. However, this research provides little insight into the context in which these choices are made, how they are experienced by the homeowners, and what their perceptions are on these experiences and choices. There is also little known about the role of advice from people in their social network or advice from professionals.

Regarding social science and psychology, research shows that individual behaviour towards pro-environmental behaviour depends on a large number of different factors such as norms and values, habits, experiences, knowledge, awareness and their context. Nevertheless, such studies are mainly focused on daily energy saving behaviour and not on high-impact one-off energy renovation measures.

A more comprehensive understanding is needed on how choices are made and what the rationale is behind them, one that goes beyond the economics of energy choices, awareness, attitudes and behavioural control. This understanding is required to make policy and market introduction of energy renovation products more effective [4]. Therefore, this research aims at developing an interdisciplinary socio-technical approach that goes beyond technology and individual behaviour but will also tackle the physical, economic and social context of homeowners.

2. RESEARCH METHOD

In this study, three Dutch initiatives for private homeowners from municipalities in the city region of Parkstad Limburg are used as case study to collect empirical data. This region is selected since it is one of the frontrunners on energy strategies in the Netherlands. This region locates 8 municipalities

and counts 125,885 households [6]. This study focuses on owner-occupied homes because this group forms the majority (67% in Parkstad [7]). Empirical data will be collected by at least 30 semi-structured face-to-face interviews with homeowners who have carried out recently energy renovation measures, and homeowners who have not done so. The interviews comprised mostly of open questions and were conducted in their homes. Questions covered details about their experiences with and perceptions towards energy renovations, how information was obtained, the implementation of measures, how they were financed and why, motivations, experienced changes and future plans. Interviews were digitally recorded and transcribed and qualitative analysis software (Atlas.ti 8) is used to systematically analyse the transcripts using Evers' "thick analysis" method [8].

3. RESEARCH FINDINGS AND CONCLUSIONS

The first findings of this study show a wide range of homeowners' motivations for energy renovations with most homeowners stating multiple motivations. The most common ones are: decreasing energy use and costs, improving thermal comfort, and environmental concerns. An important motivation for older homeowners (60+) is increasing the sales value of their home. Reported reasons for not opting for certain measures are high investment costs, uncertainty on energy savings and having too much inconvenience in the house.

Furthermore, homeowners express the need for professional, objective advice focused on their specific situation. Related to receiving advice, homeowners point out that they find it more trustworthy as a product or company is recommended by someone they know. They stated that people in their social network influenced their decisions by giving advice and sharing their experiences. Other findings show that homeowners who have implemented measures in their home, have experienced a positive change in their home afterwards, for example a lower energy-bill and improved thermal comfort. They also indicated that they have shared these positive changes with friends and family. Overall, sharing experiences with energy renovation measures in a social network seems to be an important influencer in homeowners' energy decisions.

The findings reveal new entry points for policy action such as ensuring homeowners receive credible advice on energy renovations focused on their specific situation and supporting the sharing of experiences with energy renovations in social networks. The results also show that energy renovation decisions are not about energy in a simple way but that energy renovation choices are being assessed by homeowners from various perceptions with an important role for persuasion.

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