

**Boosting long-term-oriented thinking to promote home energy retrofit  
A choice experiment**

He, Shutong; Qian, Queena; de Vries, Gerdien

**Publication date**  
2023

**Document Version**  
Final published version

**Citation (APA)**  
He, S., Qian, Q., & de Vries, G. (2023). *Boosting long-term-oriented thinking to promote home energy retrofit: A choice experiment*. 69. Abstract from BEHAVE 2023: 7th European Conference on Behaviour Change for Energy Efficiency, Maastricht, Netherlands.

**Important note**  
To cite this publication, please use the final published version (if applicable).  
Please check the document version above.

**Copyright**  
Other than for strictly personal use, it is not permitted to download, forward or distribute the text or part of it, without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license such as Creative Commons.

**Takedown policy**  
Please contact us and provide details if you believe this document breaches copyrights.  
We will remove access to the work immediately and investigate your claim.



# Conference Proceedings

## **BEHAVE 2023**

*the 7th European Conference on  
Behaviour Change for Energy Efficiency*



**European Energy Network**  
A voluntary network of European energy agencies



Netherlands Enterprise Agency



# Boosting long-term-oriented thinking to promote home energy retrofit:

## A choice experiment

Shutong He<sup>1\*</sup>, Queena Qian<sup>1</sup> and Gerdien de Vries<sup>2</sup>

1: Faculty of Architecture and the Built Environment, Delft University of Technology,  
Jaffalaan 5, 2628 BX Delft, the Netherlands.  
e-mail: S.He-4@tudelft.nl, ORCID: [0000-0003-0172-1259](https://orcid.org/0000-0003-0172-1259)  
e-mail: K.Qian@tudelft.nl, ORCID: [0000-0001-7508-9140](https://orcid.org/0000-0001-7508-9140)

2: Faculty of Technology, Policy and Management, Delft University of Technology,  
Jaffalaan 5, 2628 BX Delft the Netherlands.  
e-mail: G.deVries-2@tudelft.nl, ORCID: [0000-0002-9486-7347](https://orcid.org/0000-0002-9486-7347)

**Keywords:** Energy efficiency, home energy retrofit, transaction costs, time preference, choice experiment.

### Abstract

*In the built environment sector, enhancing energy efficiency through energy retrofitting is a key strategy to mitigate climate change. Despite the efforts made by local municipalities to offer technical and financial support, the rate of home energy retrofit remains low. The decision to undertake home energy retrofit is complex for homeowners. It involves high upfront financial and nonfinancial costs, as well as various benefits over the long term. Substantial costs and ambiguous benefits may prevent homeowners from investing in retrofit measures. Moreover, existing research and policy interventions have rarely accounted for the nonfinancial costs of energy retrofitting. Therefore, this study aims to understand homeowners' evaluation of nonfinancial transaction costs against financial upfront investment costs. To this end, we design a discrete choice experiment, in which recruited homeowners are presented with a series of decision-making scenarios where they must choose their preferred investment option from two alternatives, alongside the option to maintain the current status quo (no investment). For each retrofit package, we provide information on five attributes: upfront investment cost, time investment, disruption during implementation, energy bill savings, and energy independence. Furthermore, we investigate whether scalable behavioural interventions can be designed to boost homeowners' long-term-oriented thinking, thereby increasing their tolerance to short-term costs. A treatment is designed to emphasise long-term financial and nonfinancial benefits of energy retrofitting. We expect that boosting long-term thinking will reduce the negative effects of upfront investment cost, time investment, and disruption on individual utilities, thus increasing homeowners' preferences for energy retrofit investments.*



# Conference Proceedings

## **BEHAVE 2023**

*the 7th European Conference on  
Behaviour Change for Energy Efficiency*



**European Energy Network**  
A voluntary network of European energy agencies



Netherlands Enterprise Agency

