

Strategies for Energy Reconfigurations

Citation for published version (APA):

van der Schoor, C. (2020). *Strategies for Energy Reconfigurations: Obduracy, values and scripts*. [Doctoral Thesis, Maastricht University]. Maastricht University. <https://doi.org/10.26481/dis.20200528ts>

Document status and date:

Published: 01/01/2020

DOI:

[10.26481/dis.20200528ts](https://doi.org/10.26481/dis.20200528ts)

Document Version:

Publisher's PDF, also known as Version of record

Please check the document version of this publication:

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Addendum

Research Impact

In this addendum on valorisation of the research undertaken for this thesis I want to draw your attention to three main things. First, the impact that the undertaking of this PhD-trajectory had for the development of research culture and research facilities in my home institution, the Hanze University of Applied Sciences. Secondly, the contribution of the research process and results on the field of community energy, and thirdly, the value this research has for practitioners in the field of energy restoration.

The history of research at Universities of Applied Sciences is relatively young compared to the academic research tradition. Pursuing a Ph.D. trajectory at a University of Applied Sciences (UAS) therefore constitutes impact by itself, because it is expected to further develop the nascent research culture at such institutions. At the start of my work at the Hanze University of Applied Sciences (HUAS), it was not even possible to access online academic journals. Inquiring and making suggestions about this matter resulted in the formalization of a 'guest agreement' with University of Groningen; a clear example of valorisation. Another example of the lack of research culture was that access to scientific software, such as reference managers, software for qualitative analysis, were completely missing in the IT-architecture of the HUAS. Therefore, I actively lobbied to include software for reference management and for qualitative analysis. As the number of PhD students at the institution steadily rose, so more and more colleagues experienced similar needs. Today, the IT situation has improved in this regard, but there still is a long way to go. Also, the notion of what constitutes research is far from settled at HUAS, as it even includes the work of bachelor students.

As such, the concept of research threatens to become rather inflated. Over the years, the work on this thesis has also been instrumental to encourage visiting international academic conferences to present research, to stimulate the publication of results in academic journals, to develop new research avenues, and to promote the use of academic research methods.

However, the reader should keep in mind that the ratio between education and research at UAS-institutions is 93/7, while for non-applied universities this is 50/50. So, research remains only a minor part of the daily work at any UAS. While in public communication engagement with research is highlighted, there is a considerable discrepancy between the ambition and the allocated resources for research.

On the positive side, research at Universities of Applied Sciences is closely

connected to economic and social stakeholders. It is principally meant to be practice-oriented, therefore, research questions and research projects are usually developed in close cooperation with partners such as small and medium enterprises (SMEs), public institutions, local or provincial governments, NGO's and other stakeholders. Societal relevance and valorisation of research thus guides its set-up and execution right from the start. Consequently, the research for this thesis has also been conducted in cooperation with the communities and professionals concerned. Thus, impact has been generated not only by the results, but also by the preparation and cooperative execution of research projects. Many research participants in our projects have expressed that taking part in focus groups, workshops or network meetings was not only a pleasure but also provided them with new insights in their own practice as well as strengthened their networks.

As explained in this thesis, the community energy movement challenges the governance of the energy system and aims to create a new cooperative, sustainable and democratic system. This system will be integrated in or added to the existing energy system. As such, the search is for new socio-technical arrangements, for which new technologies as well as new governance and entrepreneurial models are needed.

The thesis shows how community energy developed and what can be learned about effective ways of organizing the community energy movement, which can help energy initiatives to improve their ways of working.

Furthermore, it delivers insights in community energy developments in other countries, which can inspire local initiatives in the Netherlands as well as abroad. In chapter 4 I emphasize the importance of the formation of regional and national structures, to strengthen the community energy movement and to help with realisation of set goals. For the further development of community energy as a social movement, it becomes clear that national representation to lobby for the widening of opportunities for local energy initiatives also remains of paramount importance. The influence in the negotiations on the Climate Agreement in the Netherlands for example resulted in the inclusion of a target of 50% local ownership for energy production on land. For more specific recommendations on community energy the reader is referred to chapter 9.

Valorisation of community energy research has also been in the shape of new research projects, some of which have been finalized already, such as Ruimte voor Nieuwe Energie, where local cooperatives undertaking larger projects were studied. New themes have been developed, such as Buurtwarmte, a study of opportunities to develop cooperative district heating systems. The development of new themes in close cooperation with the community energy movement is a continuous process, for example

a recent theme (the seeds of which were already sown in chapter 4) is cooperative net management. A research proposal for a project on this theme has been recently drafted. Furthermore, a long term stay in the framework of a visiting scholarship at the NTNU in Trondheim was acquired with a view to compare the Dutch and Norwegian situation regarding community energy.

Since the start of this PhD-project, interest in the topic of energy efficient restoration has grown, and new experiences, methods and insights have been developed. Our research in the project *Energieke Restauratie* (2011-2013) was in the forefront of this development and contributed to setting the agenda.

For this thesis, sustainable valuation of heritage was examined together with heritage professionals, owners of historical buildings, municipalities and other stakeholders, a selection of case studies can be found in chapter 6. This generated a clear and coherent view about the potential and caveats of energy efficient restoration, enabling heritage professionals to reflect on practices of valuation, restoration and energy efficiency. It also resulted in my conclusion that the roles of experts and laypersons in heritage management are changing, following the increasing role that local stakeholders play in the conservation of historical buildings. A broader perspective on heritage is adopted, which includes social values, sustainability values, and laypersons' views. Furthermore, it is important to include the stories and memories that are connected to historic environments, as such stories are one of the important carriers of local identity.

In chapter 7 it is recommended that the training of energy advisers should include information about historical values; not with the view of becoming a heritage expert, but to instill basic knowledge of what are appropriate or more importantly inappropriate measures for use in historical buildings, in chapter 9 a list of specific recommendations is provided.

Chapter 7 also shows how the cooperation of two professional groups, architectural historians and energy advisors, can contribute to the reconciliation of sustainability values and heritage values. In this regard, I want to emphasize the importance of communication between professionals and other stakeholders, including laypersons. This insight led to a separate research project, which resulted in an article on the perspective of laypersons on the valuation of medieval churches (van der Schoor, Colmenero-Acevedo, & Vieveen, 2019)

Furthermore, valuation of heritage is core to a budding project focused on the impact of gas-induced earthquakes on cultural heritage and the landscape in the area of the Slochteren field in Groningen.

Valuation instruments; such as *DUMO*, as described in chapter 7, act as

bridge to reconcile values of different professional backgrounds. Therefore, I recommended to further develop easy to use instruments to use by heritage and sustainability experts. These insights on the role of local stakeholders in heritage valuation and the perceived need of easy-to-use instruments have been instrumental in the development of two new research projects, to which I contributed. The first is Erfgoed Geeft Ameland Energie, focused on the Waddensea island Ameland; and the second is Living Lab Heritage and Energy, which will employ the 'Kolonien van Weldadigheid' in Drenthe as a case study. Here, the perspective of laypersons on energy restorations will be one of the main themes.

Lastly, I want to mention that the method introduced in chapter 8 can be useful to examine patterns of energy use embedded in the built environment. As argued in chapter 8, the built environment has been designed with the availability of cheap and abundant energy in mind. Therefore, in many cases, energy efficiency is not stimulated by building design, even stronger, it is often hampered by existing layouts and structures. In light of sustainability and climate goals, large scale retrofits are considered necessary, which provides new chances to stimulate low carbon living by integrating energy efficiency in retrofit designs. I argue that retrofit policies and strategies should take account of the influence of layout on energy demand. This not only means that sustainable heating, cooling and mobility patterns should be high on the list of requirements for retrofit of the built environment, but that the use-patterns embedded in buildings should be critically analysed for effects on energy use as well.

Activities to share the insights based on my research took the form of presentations, network meetings, or articles. Recently, I started to blog about my research results, with a view to reach out to a broader audience that would not usually read academic articles. Furthermore, results are shared in teaching, such as the module on community building in the Master program Energy for Society at HUAS.

Looking back, I conclude that the original PhD-project gave rise to a considerable number of new research projects and ideas, without exception rooted in societal needs and practices. However, this fruitfulness also caused delays in the finalization of my PhD, as it was not always easy to reserve enough time to concentrate on writing this thesis. Nevertheless, doing these projects in the framework of a PhD-trajectory stimulated the academic quality of my research, was an incentive for publication of results and guaranteed regular valuable feedback. For this, I sincerely thank my supervisors for their patience and continuing interest in my work.

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