



Final assessment of the PhD thesis entitled:

Understanding carbon lock-in of energy and information systems through power/ignorance.

Theorizing two case studies of potential energy system flexibility from a new economics perspective with an afterword on power/ignorance in the coronavirus recession

Submitted by Kirsten Sophie Hasberg, M.Sc. in economics.

The assessment committee consists of the following members as decided by the Dean of the Faculty of Engineering and Science by 5 Dec. 2019:

- Professor Dominic Boyer, Rice University, dcb2@rice.edu
- Professor Catherine Mitchell, University of Exeter, Catherine.Mitchell@exeter.ac.uk
- Professor Inge Røpke (chair), Aalborg University, ir@plan.aau.dk

Supervisor for the thesis has been Professor Frede Hvelplund, Aalborg University.

Description of the thesis

The thesis consists of three papers combined with a long cover essay, which is close to a monograph in itself. In total, the thesis is 412 pages long.

All three papers are single-authored by Kirsten Sophie Hasberg:

From Foucauldian Biopower to Infopower and Energopower: A Review of Colin Koopman's and Dominic Boyer's Novel Conceptualizations of Power. *Le foucauldien* 5, no. 1 (2019): 7, 1–16. DOI: <https://doi.org/10.16995/lefou.70>. Published: 27 November 2019

Power struggles on the blockchain and the sociotechnical veil of ignorance: From de- to recentralization. In Morten Knudsen, Tore Bakken, & Justine Grønbaek Pors (eds.), *Organized ignorance: The practices and politics of the organisation of ignorance [special issue]. ephemera - theory & politics in organization*. 2020, In preparation.

Constructing the interconnector Viking Link: How calculative devices and thought collectives constitute and reinforce energopower. In Guido Erreygers, Marion Gaspard, & Antoine Missemer (eds.), *Facts in Environmental and Energy Economics: Models and Practices, Past and Present [special issue]. Oeconomia. History, Methodology, Philosophy*. 2020, revised for resubmission.

Assessment of the thesis

The main focus of the dissertation is to explore why the global use of fossil fuels continues to increase, when the urgency of a transformation to renewable energy is obvious: How can this carbon lock-in be understood? Responding to this question, the dissertation highlights the role of thought collectives in relation to the making of energy and information infrastructures, drawing on the concepts of energopower and infopower. In particular, the role of mainstream economic reasoning and the related calculative devices is explored, including the interaction with power. While thought collectives produce knowledge, they simultaneously overlook other aspects and perspectives. Hasberg argues that power interlocks with ignorance and becomes power/ignorance, when this is beneficial to powerful groups. Power/ignorance can serve as a sociotechnical veil that counteracts the transition processes towards low carbon energy and information systems. The dissertation includes two case studies that represent two different ways of creating flexibility in the energy system. Both case studies are based on a combination of literature studies and insider research. Finally, an extended afterword applies the theoretical framework to understand the current coronavirus recession.



We find that the dissertation is an impressive piece of work. First of all, it is based on a high level of theoretical reasoning. The case studies are interesting and well-chosen, but the main contributions of the thesis are theoretical. Hasberg elaborates on the concepts of infopower and energopower in a very productive way, and her combined insights in mainstream and new economics result in interesting analyses. Particularly impressive is Hasberg's treatment of Heidegger, where she offers compelling arguments for the significance of Heidegger's analytics and ontology within the field of energy humanities. It can be argued that Hasberg is on the cusp of launching a major re-examination of Heidegger's value to contemporary discussions of capitalism and energy transition. She might even frame this a bit more as the signature contribution of the thesis. Simultaneously, Hasberg's attempt to explain, in a very straightforward way, why poor decisions are made by decision-makers, is a key contribution.

Among other strengths of the thesis are the following:

- It is based on an wide combination of insights in a broad range of disciplines and fields of knowledge: philosophy, mainstream and heterodox economics, science and technology studies, energy systems, information technology, psychoanalysis, epidemiology, etc.
- Hasberg's knowledge of German supports a highly qualified integration of German traditions, which enables her to point out various misinterpretations in other literature.
- The methodological reflections regarding retrospective insider research are interesting and relevant.
- The thesis is well written and well prepared.
- Hasberg includes advanced meta-reflections in relation to her work and comments on all sorts of details related to the work processes. For instance, she discusses the format of a cover essay (kappen), gendered references, and the current challenges in relation to the publication of academic papers.
- Hasberg's interest in language and etymology provides interesting takes on many issues. So does her creative inclusion of fairy tale interpretations.
- Hasberg is courageous in putting forth her views, in a non-typical academic manner but with explanations of why she does it (as said in a couple of bullets above). However, it is her endeavor to think so big and to really question which is so impressive in this thesis (even if some of her analysis and some of her statements could have been better supported).
- The number of references is impressive and includes also very recent contributions.

Some of the strengths also involve weaknesses. The structure of the thesis as a combination of papers with a cover essay that is close to a monograph implies a number of repetitions, including self-citations, that make the text long and circumstantial. The length is also the result of the various side tracks and meta-reflections. In general, some tightening-up could have been useful from a reader's perspective. Indeed, if the thesis is developed into a book, a serious edit would probably be extremely advantageous to a more fully developed, but much easier to read, argument. It could be argued that the extended afterword on the corona virus recession is too much of a side track, but this application of the theoretical framework also strengthens the thesis.

Other weaknesses of the thesis are:

- The empirical work in relation to the blockchain case could have been reported in more detail. In this way, the claims could have been better substantiated. The paper on blockchain is announced as an empirical paper, and the methodological part of the thesis makes much of retrospective insider research, but the reported results do not fully match up to the expectations. Maybe the paper had been better framed as a literature survey combined with some empirical observations.
- The empirical research and analysis of the Viking Link appears rather shallow and too dependent on Danish sources. The attempt to link this decision-making to power/ignorance is less successful than with the blockchain attempt.
- Regarding the handling of "ignorance", Hasberg might have provided a a more direct discussion of the various forms of "ignorance" (especially as contrasted with "knowledge"). There is a small but interesting literature on "agnogenesis" that could help her to specify and nuance her analytics.



- As regards energy transition, the focus on ignorance may miss out on the importance of “perversity”. Analysts may have to confront the issue that we are also dealing with perverse subjects, who, in classic psychoanalytic terms, know what they are doing is wrong but do it anyway because it yields them a surplus of pleasure. High carbon lifestyle is pleasurable for many and there are deep grooves of desire organized around it that we ignore at our peril. Much of our commitment to carbon modernity is thus more irrational than rational and the knowledge/ignorance dyad does not always grasp that irrationality very effectively.

Specific comments on the papers:

From Foucauldian Biopower to Infopower and Energopower: A Review of Colin Koopman’s and Dominic Boyer’s Novel Conceptualizations of Power. *Le foucauldien* 5, no. 1 (2019): 7, 1–16. DOI: <https://doi.org/10.16995/lefou.70>. Published: 27 November 2019

Hasberg’s article “From Foucauldian Biopower to Infopower and Energopower” is a comparative review essay that explores recent applications and augmentations of Michel Foucault’s analytics of power in the fields of information studies and energy studies. Since energy and information are critical and dynamic domains of modern society the comparative mission of the essay is not only very interesting in its details but also quite timely as a theoretical intervention in its own right that seeks to highlight the contemporary entanglement of energy, information and power. The quality of Hasberg’s comparative investigation into Koopman and Boyer’s efforts to extend the “pluralism of power” is outstanding. She notes an important complementarity between the two perspectives, e.g., “Thus, the two books are more closely related than the authors might think: inside the calculative devices of the energy transitions resides an infopower of formatting that enables the continuous enactment of energopower. In other words, every physical energy infrastructure today is information before it becomes material, so infopower lingers underneath or inside energopower.” At the same time, Hasberg stresses the different analytical practices and arguments of the two authors. Koopman treats “infopower” as a more unitary and translocal phenomenon whereas Boyer insists that “energopower” is both multiple and analytically limited given that power is also highly context-dependent and therefore local.

Power struggles on the blockchain and the sociotechnical veil of ignorance: From de- to recentralization. In Morten Knudsen, Tore Bakken, & Justine Grønbæk Pors (eds.), *Organized ignorance: The practices and politics of the organisation of ignorance [special issue]. ephemera - theory & politics in organization*. 2020, In preparation.

As with the extended cover essay, the paper is a courageous attempt to illuminate the ‘hype’ of blockchain and explain why the idea of what blockchain could evolve to become took hold in the way it did.

Within the paper Hasberg makes some simple but profound statements such as ‘socio-technical imaginaries are performative; through ignorance they help power structures to persist’ (p. 357). From a practical point of view, she is arguing that the concept of power/ignorance explains why decision-makers make decisions seemingly against logic, including their own policies. It has been argued above that this thesis takes theory of Heidegger forward. But her arguments also have the potential to explain why the practical applied policy making is as poor as it is in respect of climate in Denmark and Germany – which was the original goal of the thesis. Here, it would be a useful extension if Hasberg were to elaborate on the decision-making structures and how they may need to change.

The paper also has weaknesses – as the extended cover essay. It is argued that blockchain becomes part of the incumbent system but does not really set out how. As with the extended cover essay, it really needs a good edit. But again, it is a good attempt to try and link practice and theory.

Constructing the interconnector Viking Link: How calculative devices and thought collectives constitute and reinforce energopower. In Guido Erreygers, Marion Gaspard, & Antoine Missemer



(eds.), *Facts in Environmental and Energy Economics: Models and Practices, Past and Present* [special issue]. *OEconomia. History, Methodology, Philosophy*. 2020, revised for resubmission.

This paper is intended to shed light on the performativity of economics in the decision-making process behind Viking Link, a Danish-British interconnector under construction. It argues how energopower, that is, the political power inherent to energy infrastructures, is reinforced through the workings of cost-benefit analysis as prescribed by the Danish Ministry of Finance.

The paper essentially shows how the value in a system is related to its governance, and ability of actors to capture that value. CBA, and its rules, will effect outcomes. Within a very large set of disciplines, this is an entirely acceptable view to take which has been around for a long time. This paper has some weaknesses. The issue of whether interconnectors are all good and all bad is rather simplistic. The discussion about the Viking Interconnector is heavily orientated to a Danish view. The attempt at linking the theory of power/ignorance to the Viking outcome is less convincing than with blockchain. On the other hand, the paper also shows all those other good qualities which have come in other parts of the thesis.

Oral presentation and discussion

Date and place of the oral defence: 10 June 2020, Defence taking place online.

The lecture was very clear and thorough. It answered well the questions raised in the preliminary assessment.

The discussion demonstrated a rare breadth, maturity and depth of Hasberg's expertise. Hasberg's combination of experiences leads her to be very balanced in her reasoning.

Conclusions

The committee finds that the thesis is an impressive piece of work. It is based on a high level of theoretical reasoning, and the case studies are interesting and well-chosen. We expect a series of high quality publications to emerge from her work.

The committee unanimously recommends that Kirsten Sophie Hasberg is awarded the PhD degree.

10 June 2020

Dominic Boyer

Catherine Mitchell

Inge Røpke