



Path creation in Nordic energy and road transport systems

Klitkou, Antje; Hansen, Teis; Wessberg, Nina; Borup, Mads

Publication date:
2014

[Link back to DTU Orbit](#)

Citation (APA):

Klitkou, A., Hansen, T., Wessberg, N., & Borup, M. (2014). *Path creation in Nordic energy and road transport systems*. Abstract from Renewable Energy Research Conference (RERC) 2014, Oslo, Norway.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Path creation in Nordic energy and road transport systems

Antje Klitkou¹, Teis Hansen², Nina Wessberg³, Mads Borup⁴

¹ *NIFU Nordic Institute for Studies in Innovation, Research and Education, Oslo, Norway,*
antje.klitkou@nifu.no

² *Centre for Innovation, Research and Competence in the Learning Economy (CIRCLE), Lund University, Lund, Sweden*

³ *VTT Technical Research Centre of Finland, Espoo, Finland*

⁴ *DTU Management Engineering, Technical University of Denmark, Lyngby, Denmark*

We compare path-creation processes in Nordic energy and transport processes and discuss how new paths can be created, sub-optimal solutions be avoided and existing barriers been tackled.

We address following research questions:

1. How do the Nordic countries develop new paths for sustainable road transport?
2. How do these countries address barriers to the new paths and strengthen the new paths?

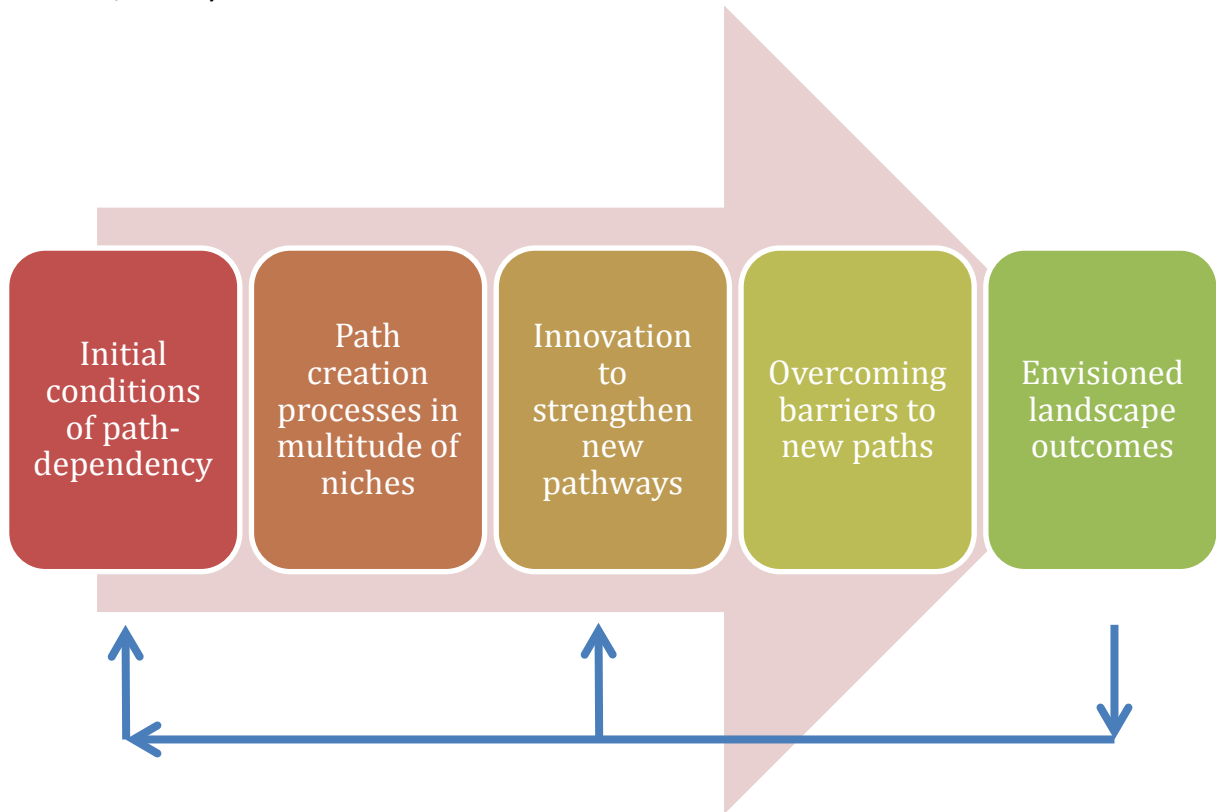
Simmie has proposed a hybrid socio-economic theory of new path creation, distinguishing between the initial conditions of path-dependency, path creation processes by different agents in a multitude of niches, new path establishment processes to achieve critical mass and to overcome barriers to new path creation, and landscape change outcomes (2012:760ff).

We apply Simmie's model of new path creation (see figure) and use the results of selected case studies as examples for path-creation processes. We present results on e-mobility in Denmark (Borup, 2013), advanced biofuels in Finland (Wessberg & Eerola, 2013), hydrogen and fuel cell electrical vehicles in Norway (Scordato & Klitkou, 2014), and advanced bioethanol in Sweden (Hansen & Coenen, 2013).

We ground this empirical paper in the multi-level perspective on transition processes. To overcome incumbent socio-technical regimes requires the establishment of new and innovative niches. Here the concept of path creation has gained special relevance (Kemp & Rip, 2001). However, is it possible to escape lock-ins and path-dependency for these new paths? Is it possible to gain from technological and institutional lock-in mechanisms in the development of new paths?

There are four issues which have to be addressed: (1) shift from existing path dependency in niches; (2) avoiding new, sub-optimal lock-ins; (3) path-creation has to be supported by system innovations; and (4) the concept of 'increasing returns' for analysing energy systems and road transport systems.

Figure: Hybrid socio-economic theory of new path creation (adapted from Simmie, 2012)



Keywords: Path creation, Nordic energy and transport system, advanced biofuels, e-mobility, hydrogen and fuel cell electrical vehicles