



Decentralizing Finland's energy regime: The triggers and dynamics of transition (DEFEND)

All around Europe countries are changing their energy systems. The changes are triggered by climate change, other environmental problems, economic crises and concerns about self-sufficiency. While key European nations have chosen to focus on sustainable decentralized solutions, Finland has so far opted for traditional large-scale centralized solutions. The long-term socio-economic and environmental viability of the Finnish strategy has been challenged by calls for a growth and climate oriented energy transition. Serious concerns have been expressed about a centralized energy regime's resilience against the uncertainties of climate change and energy markets, while maintaining the capacity to adapt to new social-ecological circumstances. These tensions make Finland an ideal case study for analysis and experimentation with sustainable energy transitions. We rely on the broad analytical framework of socio-technical sustainability transitions but enrich the framework with new knowledge on the socio-cognitive processes that trigger transitions within specific niches.

Twilight for fossils, photo: Janne I. Hukkinen

The objectives of DEFEND are

(1) To analyze the institutional, behavioral, economic, political and technological dynamics that drive the centralization of the Finnish energy regime. We synthesize lessons from Europe and the United States with successful decentralization policies. We complement these with experiences from ongoing projects in Finland that would require regulatory support.

(2) To develop behaviorally grounded policy tools that enable changing the institutional framework and transitioning into a locally-oriented, more self-sufficient and decentralized energy system. We conduct experiments with science-policy interventions to nudge the energy regime toward resilience and adaptation. We synthesize the results into energy policy tools with which to trigger and facilitate energy transition in Finland from a centralized and vulnerable energy regime based on non-renewable resources toward a locally oriented and resilient regime based on renewable resources.



We tackle the research challenge with a multidisciplinary consortium. The Environmental Policy Research Group at the University of Helsinki brings expertise in the cognitive, institutional and policy aspects of sustainable energy systems. The New Energy Technologies Group at Aalto University contributes with expertise in the technical, economic and managerial aspects of energy transitions and disruptive technologies. The Energy Engineering and Environmental Protection Group at Aalto University provides expertise in industrial energy systems, and the development of innovative energy technologies and their links to institutions.

Researchers working in your group + their titles or tasks

Environmental Policy Research Group, University of Helsinki:

- Janne I. Hukkinen, PhD, professor, consortium PI
- Nina Janasik-Honkela, PhD, post-doctoral researcher
- Arho Toikka, PhD, post-doctoral researcher
- Karoliina Isoaho, MSc, doctoral researcher

New Energy Technologies Group, Aalto University:

- Peter D. Lund, D.Sc. (Tech.), professor, subproject PI
- Sannamari Pilpola, MTech, doctoral researcher

Energy Engineering and Environmental Protection Group, Aalto University:

- Mika Järvinen, D.Sc. (Tech.), professor, subproject PI
- Sanni Eloneva, DSc (Tech), post-doctoral researcher
- Laura Kainiemi, MSc, doctoral researcher

Contact information

Janne I. Hukkinen <http://blogs.helsinki.fi/jahukkin/>

Environmental Policy Research Group
Department of Social Research
University of Helsinki
PO Box 16 (Snellmaninkatu 10)
FI-00014 University of Helsinki
Finland
+358 50 367 1375
janne.i.hukkinen@helsinki.fi

Peter Lund <http://tfy.tkk.fi/personnel/official.php?id=444>

Department of Applied Physics
Aalto University School of Science
PO Box 14100
FI-00076 AALTO
Finland
+358 40 5150144
peter.lund@aalto.fi

Mika Järvinen https://people.aalto.fi/index.html?profilepage=isfor#!mika_jarvinen

Department of Energy Technology
Aalto University School of Engineering
PO Box 14400
FI-00076 Aalto
Finland
mika.jarvinen@aalto.fi