

In Partial Fulfillment of the Requirements for the Degree of

Doctor of Philosophy
Auriane Magdalena Koster

Will defend her dissertation

An Institutional Approach to Understanding Energy Transitions

Abstract

Energy is a basic human need. It is also a central concern of sustainability because how we produce and consume energy affects society, economy, and the environment. Sustainability scientists are interested in energy transitions away from fossil fuels because fossil fuels are nonrenewable, increasingly expensive, have adverse health effects and, perhaps most importantly, may be the main driver of climate change. They see an opportunity for developing countries to avoid the negative consequences fossil-fuel-based energy systems, and also to increase resilience, by leap-frogging-over the centralized energy grid systems that dominate the developed world.

What is an "energy transition?" A transition represents the process of change from one thing to the next. "If these new configurations gain dominance in a sector, we may call it a socio-technical transition. If the new system shows a substantially higher performance with regard to sustainability indicators, these are termed 'sustainability transitions'" (Truffer et al., 2010, p. 26). Today, fossil fuels provide about 78 percent of the total global energy consumed, nuclear provides 3 percent, and renewable sources provide the remaining 19 percent (Renewable Energy Policy Network for the 21st Century).

This dissertation includes: 1) an analysis of the world's current energy portfolio; 2) case study analysis of the top five renewable-energy users; 3) a description of the institutional factors likely to promote a transition to renewable-energy use; and 4) an in-depth case study of Thailand's progress in replacing nonrenewable energy sources with renewable energy sources. My research will contribute to our understanding of how energy transitions at different scales can be accomplished in developing countries. It will also help us better understand what it takes for innovation and renewable-energy implementation to spread in a society.

Friday, April 5, 2013
10:00 a.m.
Wrigley Hall, Room 401

Faculty, students, and the general public are invited.

Supervisory Committee:
Dr. John (Marty) Anderies, Chair
Dr. Rimjhim Aggarwal, Member
Dean Sander Van Der Leeuw, Member