Icelandic Energy Regimes

Fossil Fuels, Renewables and the Path to Sustainability, 1940–1990

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Doctoral Project in History
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Today, Iceland is known for its unique energy system, in which around 85% of primary energy are supplied by renewable resources. Nearly all houses are heated with geothermal hot water and all electricity is produced from hydropower and geothermal energy, while Iceland also maintains one of the highest rates of energy consumption per capita in the world. This has not always been the case. In 1940, around 85% of primary energy were provided by imported fossil fuels, as much of the renewable energy potential of the island was not yet harnessed. In the following decades, Iceland’s energy system changed fundamentally. While fossil fuels remained essential in the transport sector, the heating sector was decarbonized, as coal and oil were replaced by geothermal district heating. At the same time, the production of power from renewable resources multiplied. Hydroelectric capacities were expanded as energy-intensive industries became the main consumers of power, and the development of geothermal steam fields enabled the combined production of heat and electricity. How can the changes in Iceland’s energy system be explained? Who and what led Iceland on the “path to sustainability”? How did Iceland differ from other countries? What conclusions can be drawn for future transitions to renewable alternatives? In dealing with those questions, I seek to examine the historical changes as more than simple transitions from one energy carrier to another. Drawing from previous research in Environmental History, History of Technology and Sustainability Transition Research, I approach energy as an inextricable part of a system that connects society (users of energy), technology (the means to use energy) and natural environments (sources of energy). When such complex energy systems have become established, they assume regime character and remain relatively resistant to change. The key to understanding energy transitions is to examine not only the emergence of a new regime, but also the destabilisation of the existing regime(s). Making use of archival records, contemporary reports by energy experts and the extensive secondary literature, I analyse three kinds of transitions between energy regimes with a focus on the period of 1940–1990: (1) the change in fuels from coal to oil in various sectors, (2) the switch from fossil fuels to geothermal district heating, and (3) the shift from low to high levels of hydroelectric and geothermal power production.


European Society for Environmental History (ESEH): Archival Research Grant, 2017.

University of Innsbruck: Doctoral Scholarship, 2016.

Picture 1: The Reykjavík Coal Crane. Source: Alþýðublaðið 4 May 1933, 1. Available at: http://timarit.is/view_page_init.jsp?pageId=17910

Picture 4: The change in fuels from coal to oil in various sectors, (2) the switch from fossil fuels to geothermal district heating, and (3) the shift from low to high levels of hydroelectric and geothermal power production.
Talks & Conference Papers

“The Transition from Coal to Oil in the Mid-20th Century: Was it Inevitable?” at the Petrocultures Conference 2018: Transitions (University of Glasgow, 29 Aug.–1 Sept. 2018, co-authored by Irene Pallua).


Presentation of the doctoral project at the Institute of History’s “Monday Meeting,” University of Innsbruck, 24 April 2017.

Publications


Public Dissemination

Research Portrait in future (Wiener Zeitung), 13 December 2017, 18–19.


Interactive Workshop „Does Energy have History?” at the Young University Day, University of Innsbruck, 21 April 2017.

Poster Presentation in the Main Hall of the Austrian Academy of the Sciences, Vienna, June 2017.