



AALBORG UNIVERSITY
DENMARK

Aalborg Universitet

Towards a fossil-free future for Greenland

Summary of workshop and debate in Sisimiut

Hansen, Anne Merrild; Møller, Regine-Ellen Dora

Publication date:
2023

Document Version
Publisher's PDF, also known as Version of record

[Link to publication from Aalborg University](#)

Citation for published version (APA):

Hansen, A. M., & Møller, R.-E. D. (2023). *Towards a fossil-free future for Greenland: Summary of workshop and debate in Sisimiut*. Det Danske Center for Miljøvurdering, Aalborg Universitet.

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 -

Take down policy

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

Towards a fossil-free future for Greenland

Summary of workshop and debate in Sisimiut



November 2021



Title: Towards a fossil-free future for Greenland

Authors: Anne Merrild Hansen and Regine Møller

Institution: The Danish Centre for Environmental Assessment,
Department of Planning, Aalborg University

Published: January 2023

Financial support: This report was produced with the financial assistance of the EU's Horizon 2020 research and innovation programme [grant no. 884565].

Please quote: Hansen, A. M., & Møller, R. (2021). Towards a fossil-free future for Greenland: Appendix report – Summary of stakeholder workshop. Department of Planning, Aalborg University.

1. Introduction

This appendix report presents the results of a workshop and a public lecture followed by a debate held in Sisimiut in connection with the Greenland Science Week research festival in November 2021. Both the workshop and the public lecture were conducted as part of an international research project entitled: Enabling Positive Tipping Points towards clean-energy transitions in Coal and Carbon Intensive Regions (Tipping+). The project focuses on these issues:

- What factors are driving the green transition locally, regionally and internationally?
- What will it take to get coal- and carbon-intensive regions to convert their production, utilities and consumption?
- What key conditions must be in place to foster a green transition?
- What roles do the various stakeholders play, and how can the green transition be promoted?

Tipping+ comprises a systematic, comparative analysis of 20 case studies examining the past decade of trends and dynamics in the shift away from dependence on carbon-based energy systems. The main purpose is to identify why and how a given tipping point in relation to exploitation occurred or is likely to occur. The project aims to identify the multiplicity of factors that can promote a green transition and the interplay between them. Two of the project's case studies concern the use of energy resources in Greenland.

The workshop, lecture and subsequent debate were thus intended to uncover local perspectives to supplement the findings and answer questions like:

- How can we successfully implement the green transition in practice in Greenland?
- What (new) energy- and resource-efficient solutions can be found, using the needs of Greenland's towns and settlements as a starting point?
- What is key to a successful green transition?
- What is required to ensure this goal can and will be reached?
- What roles do the various stakeholders play?

1.1. Reading guide

The report describes two events, both held in Sisimiut in connection with the Tipping+ project. The report begins with an account of the workshop purpose, participants, programme and results, followed by a description of the lecture and debate. The report concludes with a summary of the recommendations offered for supporting further green developments in Greenland's energy sector.

2. Workshop

The 'Towards a fossil-free future for Greenland' workshop was held on Thursday, 4 November 2022 from 12:30-4:00pm in Taseralik Kulturhus, Sisimiut.

2.1 Purpose

The workshop was aimed to gather input and viewpoints on how to make Greenland's entire heat supply more sustainable.

2.2 Participants

The workshop target group comprised central institutional stakeholders from the heating sector. A total of 12 people had registered for the workshop, of which three had to withdraw because of coastal flight cancellations. The participants represented national and local politicians as well as heat supply planners in Greenland. The following attended the workshop (names published with their consent):

- Jørn A. Thomsen, project manager, construction department of the Greenland Ministry of Housing and Infrastructure
- Jan Zachariassen, district manager, Nukissiorfiit A/S
- Knud Dalager, team leader, Nukissiorfiit A/S
- Jan Lange, technician, INI A/S
- Nivi Heilmann Efraimssen, chairman of the committee for Technical and Environmental Services of Qeqqata municipality and teacher at Nalunnguarmiut Atuarfia
- Niels Mønsted, construction manager for Technical and Environmental Services, Qeqqata municipality
- Seth-Ole Skifte, Minngortuunnguup Atuarfia
- Torben Hartmann Olsen, contract manager, Permagreen A/S
- Krister Støvlbæk, self-employed energy specialist

Apologies from: Kalistat Lund, Greenland Ministry of Agriculture, Self-sufficiency, Energy and the Environment; Naaja Nathanielsen, Greenland Ministry of Housing, Infrastructure, Raw Materials, Justice and Equality.

2.3 Programme

Introduction and presentations by participants

The workshop opened with a welcome speech and introduction by Anne Merrild Hansen, professor at the University of Greenland and Aalborg University and team leader of Tipping+. In her introduction, Anne outlined the workshop focus and purpose and its relation to the Tipping+ project. She also described how the workshop results would be used.

In advance of the workshop, four participants had prepared presentations about their institutions' roles in driving Greenland's green transition and their visions for making the energy system more sustainable in towns and settlements. The four presentations given formed the basis for further discussions.

The four presentations were:

- **Use of waste heat in Sisimiut, by Nukissiorfiit A/S:**
A presentation focusing on the energy system in Sisimiut. A hydroelectric plant supplies Sisimiut with electricity, but its limited capacity means oil is used to supplement the heat

supply. ESANI A/S is going to establish a waste incineration plant, which will meet almost all the town's heating needs.

- **The Greenland government's future housing strategy – focusing on sustainability and thus on reducing climate and environmental impact, by the Ministry of Housing and Infrastructure:**

A presentation about how dwellings can be built with an emphasis on optimising their energy consumption by such means as better insulation.

- **A fossil-free Qeqqata Municipality, by Qeqqata Municipality:**

A presentation about the municipality's objectives and initiatives for better utilising environmentally friendly energy. The presentation specified that the municipality is working with the government on preparing energy-specific policies.

- **The green transition, by Nalunnguarfiup Atuarfia:**

A presentation about how pupils learn about the UN Sustainable Development Goals (SDGs) and children's rights, particularly in relation to sustainable development and climate changes. The municipal authorities are urging local primary and lower secondary schools to include climate change as a subject on the syllabus.

Presentation about Greenland's heat supply

Regine Møller, a researcher with the Tipping+ project, gave a presentation about Greenland's heat supply as inspiration for the following group discussion. She reviewed the targets and initiatives set out in the government's energy and water supply sector plan (2017-2030), whose 35 objectives define the intended path up to 2030. Regine described the current heat supply situation, drawing on data from Statistics Greenland. Key figures about private and public energy consumption in Greenland show that fossil fuels are used more extensively than renewables. Fossil fuels account for 75.3% of total energy consumption, while the figures for hydroelectric power are 21%, waste heat 1.4% and residual heat 2.3%. Being largely oil-based, heat production accounts for the high fossil fuel percentage, with private oil-fired boilers and heaters being widely used for heating. As such, Greenland's heat supply became a central topic on which to hear local stakeholders' views concerning how to make the heat supply in towns and settlements more sustainable.

Group discussions and wrap-up

The participants were then divided into groups by language preference, so they could join in the discussions in their language of choice. Two groups were thus formed: one speaking Danish and one Kalaallisut. The groups discussed how Greenland's heat supply can be made more sustainable in towns and settlements.

A variety of viewpoints drove the group debates about how to make the heat supply in Greenland greener. The groups discussed technical and legal obstacles as well as possible solutions for making renewable energy sources more available to households. As such, the groups discussed how responsibility for achieving and implementing a green transition could be shared among individuals,

public institutions and private organisations. The group discussions revolved around four topics, each addressed in greater detail in the following sections: citizen involvement, technology, finance and legislation.



Photo 1: Group discussion during the workshop. From left to right: Nivi Heilmann Efraimssen, Seth-Ole Skifte, Krister Støvlbæk, Regine Møller and Jan Zachariassen.



Photo 2: Group discussion during the workshop. From left to right: Knud Dalager, Jan Lange, Torben Hartmann Olsen and Jørn A. Thomsen.

2.4 Workshop results

Citizen involvement

Among the topics workshop participants raised was the need to involve citizens more closely in local discussions about how to achieve a green transition. They pinpointed citizens' behaviour as being key to the success of energy solutions. The participants emphasised that, given Greenland's huge social, cultural, climate, environmental and infrastructure differences, the same solutions would not necessarily be relevant in all towns and settlements.

In this context, they also discussed the lack of equality and fairness as regards heating, not only between various Greenlandic towns and settlements but also between individuals. Socio-economically advantaged citizens who see an incentive in investing in renewable energy solutions such as solar cells not connected to the public power grid can realise personal savings, and, in principle, benefit the environment. However, this also raises the cost price of energy for those who do not own their own home or cannot afford to invest in new energy solutions. This is because the operating costs of production are the same, but there are fewer people to share them.

It was mentioned that people who implement individual solutions are not guaranteed a reliable supply and therefore still need to be connected to the common grid. Consequently, the public grid must still have the capacity to supply power to all homes – also at times of peak demand. This means the same amount of energy has to be produced whether or not individual solutions have been installed. The participants thus concluded that individual initiatives alone were unlikely to achieve a green transition. This reinforces the need for politicians and other institutional stakeholders to engage in closer dialogue with citizens when preparing energy plans – to ensure both that the plans consider specific, local needs and that citizens agree about how to achieve a greener energy supply that is also reliable.

Technology

The participants discussed the question of whether executing large-scale projects could realise unexploited potential for utilising renewable energy sources. Over the years, this potential has been a political focus because it can help secure a reliable local energy supply as well as underpin the development of new industries and/or offer export potential. Previously, the focus was also on exploiting Greenland's energy resources for the global production of such commodities as oil, gas and uranium. However, this view no longer enjoys political backing, and Greenland has several renewable energy options that also hold the potential for large-scale renewable energy production through new technologies like power-to-x. The development of alternative technologies to meet the energy needs in settlements may be another relevant consideration.

Finance

The workshop participants also pointed to the importance of financial incentives for reducing fossil fuel consumption. First, they suggested that in settlements, home-owners currently experiencing challenges getting bank loans for renovations, for example, could be offered more flexible loan options. A flexible bank loan option was therefore suggested for investments aimed at bringing down oil consumption for heat production – for example, to re-insulate private homes. It was also suggested that people currently renting accommodation in settlements could be offered the opportunity to raise cheap loans for both house purchases and energy efficiency improvements.

The participants also stressed that the incentive to upgrade the energy performance of homes would also increase if heating costs were made cost-equivalent and not subsidised, as they are today, or even if energy surcharges were added. In continuation of these discussions, it was also suggested that efforts be made to present figures and prices to consumers in ways that enable them to understand the challenge and help identify solutions. As an alternative to surcharges, energy optimisation grants were suggested as being preferable to oil subsidies – in other words, a redistribution of funds. It was suggested that a summary of the energy transformation options and the related costs be prepared for all towns and settlements in Greenland so that an investment plan can be drawn up and/or transparent priorities set.

Legislation

The possibility of introducing a legislative amendment in the energy sector was also addressed. The participants felt that, in towns whose power comes from a hydroelectric plant, the current legislation prevents households from selling the residual heat from private production to Nukissiorfiit. The hydroelectric plant in Sisimiut has, for example, insufficient capacity to supply the entire town with power. For this reason, purchasing surplus heat produced by others and passing it on might be a relevant solution that could result in no households needing need oil-fired heating. Households can install renewable energy-based technologies, for example, using solar cells, to bring down imports of fossil fuels. However, current legislation means they cannot sell to Nukissiorfiit residual heat that could otherwise be used to reduce the town's fossil fuel consumption. This is permitted in areas with no hydroelectric plants, though.

3. Lecture followed by public debate

As an extension of the workshop, a public lecture on the same theme was given, followed by a debate on Friday, 5 November from 7:00pm to 9:00pm in Taseralik Kulturhus, Sisimiut. The aim of this event was to present the Tipping+ project and the challenges of achieving a green transition in Greenland, as well as to hear local points of view and input on the subject. A total of 19 citizens attended the lecture and debate.

The debate sparked by the lecture featured some of the same themes discussed during the workshop. Accordingly, several audience participants pointed to the need to involve not only the local population but also industries and institutions in the planning of energy solutions in individual towns and settlements. Attention was drawn to examples of mini waste incineration plants established in some settlements but standing unused because of insufficient local understanding of, support for and expertise to use and maintain them. In the citizens' opinion, this situation stemmed from a lack of understanding of local needs and options, a situation that could have been avoided had local residents been involved in the planning process.

The intensive, rapid development of technologies within renewable energy and heat production was also mentioned. One person said: 'New technologies are on the way, and developments are moving really fast.' Like the workshop participants, those taking part in the debate expressed concern that individual heat supply solutions might be the wrong way to go, because they put pressure on the grid. Some suggested focusing on large-scale plants and investing in hybrid, combined heat and power plants or other combination solutions. However, there was also agreement that the energy company and politicians should not be the only parties responsible. Greenland residents should also scrutinise their own habits and consumption. Home insulation – and thus lower energy consumption – is also an advantage. In addition to this, people also requested more information, for instance, about how energy is actually used today. For example: 'How much energy do we use, and who uses it? What is the breakdown, and where does the black energy go?'



Photo 3: Anne Merrild Hansen giving the lecture followed by public debate in Taseralik Kulturhus in Sisimiut.

4. Summary of recommendations from the workshop and debate

The workshop and debate in Sisimiut led to a number of suggested initiatives for supporting further green development in Greenland's energy sector, which are summed up in the following.

Further investigations

- National-level mapping to identify the main sources of energy waste today and the greatest potential for energy gains (input-output analysis).
- Investigations into how to provide an energy supply that is fair and equal.
- Investigation into and testing of new technologies to meet needs in areas where hydroelectric power plants are not an option.

New, improved strategy for developing the energy sector

- Involvement of industries, institutions and the local community when a new strategy is developed with specific targets for reducing the carbon-based heat supply in Greenland. The strategy should be based on a mapping of the main sources of energy waste today and the greatest potential for energy gains.

Information campaign

- Information about the energy situation, including how much energy various target groups use, and a breakdown of the country's energy consumption by private individuals and institutions.
- Recommendations to citizens about how they can improve the energy efficiency of their homes, which renewable energy solutions are relevant for whom, and which solutions are the most sustainable for society and the environment.

Political priorities/policies

- Transfer more public housing units in settlements to tenants – or sell them cheaply to encourage energy performance upgrading.
- Develop loan options or energy optimisation grants (discontinuing oil subsidisation could possibly release funds).
- Open up the option to sell surplus energy from individual renewable energy solutions back to the grid – also in towns with hydroelectric power plants.

Export requirement for energy producers

- If permission is granted for energy to be produced as an export commodity, producers may simultaneously be required to support a reliable local energy supply.
- If the EU wants access to Greenland's green energy resources, the EU should also be prompted to support a reliable local energy supply.