

Submission: T-2020-204-51

Title Energy Security in the Remote Arctic

Last Name of PRESENTING Author de Witt

Middle Name or initials of PRESENTING Author Magnus

First Name of PRESENTING Author Magnus

Country of PRESENTING Author Iceland

Institution, organization or general address Reykjavik University
Theme

- -Theme 2: Observing in Support of Adaptation and Mitigation
- -Theme 3: Observing in Support of Indigenous Food Security and Related Needs

Author list (in order) de Witt, Magnus; Stefánsson, Hlynur; Valfells, Ágúst

Poster title (brief) Energy Security in the Remote Arctic

Abstract - text box

In Arctic areas two different structures of electricity distribution systems can be found, connected systems with an over-regional electricity grid or unconnected systems with electricity grids which are islanded form an over-regional electricity grid. Remote Arctic communities often have an islanded electricity grid which must be self-sufficient. 80% of the islanded grids depend on diesel as the primary energy source. Besides the negative climate impact, the use of diesel has a negative impact on the mid-term energy security in the remote Arctic areas. The mid-term energy security impact is due to the transportation of the fuel to the communities. Harsh Arctic weather conditions restrict the transportation period because within a relatively short time window the annual consumed fuel needs to be shipped to the communities.

An essential factor in Arctic areas is the affordability of energy, which is also a part of energy security. Currently electricity prices in the Arctic can be very high, up to 1.80 US\$/kWh. In some Arctic community's renewable energy sources have shown that they can generate electricity at an affordable price. Furthermore, renewables are locally harvested energy sources which can lower the impact of fossil fuel transportation.

This poster discusses the special implication of energy security for Arctic communities. It describes the main functions and the time horizon of energy security, which can be broken up into short term energy security, mid-term energy security – which is a special topic for remote places – and long-term energy security. Moreover, the aspect of affordability will be elaborated.