SHORT TERM SCIENTIFIC MISSION (STSM)
SCIENTIFIC REPORT

This report is submitted for approval by the STSM applicant to the STSM coordinator

Action number: CA 16232
STSM title: The Scalar and Material Intersectionality between Energy Poverty and Solar Energy Transitions
STSM start and end date: 25/11/2018 to 06/12/2018
Grantee name: Amber Nordholm

PURPOSE OF THE STSM:

The purpose of this STSM was to better understand the relationship between solar energy uptake, energy policy, and energy poverty within the broader context of the global transition to renewable energy in the COST identified nation of Portugal. Additionally, the STSM was to lay the groundwork for a larger two year master's thesis study on the same topic.

The motivation for this theme started from the premise that, although there is now a fairly rich literature available on energy poverty and energy transitions, the coverage is uneven geographically and thematically when looking for the overlap between the two subjects (Bouzarovski 2018). Current energy transitions, historically coupled with broad social and economic change, present an opportunity to assess how these transitions, and associated policies, may better result in social and energy justice in addition to environmental progress (Bridge *et al.* 2013).

The STSM visit's results contribute to the scientific goals of this COST action through it's examination of solar energy transitions place within the current political framework and it's potential for energy poverty alleviation. Additionally, the visit held to the objectives of the action by producing a cross-cultural and interdisciplinary collaboration between Norway and Portugal.

DESCRIPTION OF WORK CARRIED OUT DURING THE STSMS

Portugal was chosen as the location to investigate this theme as solar is a big part of the country's energy transition plan and it has a high rate of energy poverty. The country is considered energy poor 'as about 24% of the population are unable to keep their house warm during the winter, the 5th highest percentage among the EU28' (Gouveia *et al.* 2017, p.43).

Prior to departure, I conducted a thorough literature review to improve understanding of the state of the art of energy poverty, energy transitions, and applicable policy. Additionally, I contacted sources of interest via email and then by phone to schedule interviews.

During the time of the 26th of November to the 6th of December, I conducted interviews with representatives from a variety of backgrounds and experience. This included small and large

scale renewable investment institutions, relevant researchers, leaders from non-profits involved in renewable energy uptake, a reporter with a focus on renewable energy transitions, and a former leader at EDP, Portugal's largest electric utility.

On the 4th of December, I attended the Road to Carbon Neutral 2050 event held in Lisbon. The event was attended by the Portuguese Secretary of Energy, the Minister of Environment and Energy Transitions and other leaders and researchers involved in energy transitions.
Finally, I was invited to present initial findings to the Environment, Territory, and Society research group located in the ICS (Institute of Social Sciences) at the University of Lisbon on the 6th of December. A 20 minute presentation was given and a 30 minute discussion followed. The discussion included feedback from some of the authors of papers cited in the STSM proposal and the larger thesis proposal. Speaking with this research group was very informative and directly relates to the goals of the STSM of facilitating scientific exchange between European countries. The researchers in the group were mostly Portuguese from a diverse range of social science subjects and offered feedback relating to Portuguese policy, energy transitions, and energy poverty.

DESCRIPTION OF THE MAIN RESULTS OBTAINED

Through the course of the STSM, the importance of scalar perspectives in energy policy and the intersecting nature of energy poverty issues within the built environment emerged.

During the interviews, the question 'What is the best way to address energy poverty?' revealed a pattern in which proposed solutions to energy poverty may be linked to the contributors' background and experience. This appeared to correlate to the conceptualized solution's spatial dimensions and spatial pattern of economic and social activity. For example, informants with a background in the supply side of energy distribution made suggestions that centered on scaling up the current built solar infrastructure such as addressing any geopolitical barriers to opening up energy infrastructure interconnections with Africa, specifically Morocco. Alternatively, those with professional experience and background in the demand side of solar uptake put forth suggestions centered on decentralized policy and infrastructure such as community-scaled micro grids.

The intersecting nature of energy poverty issues within the built environment unexpectedly came up in the conversations occuring before the interviews officially began. In the beginning, I did not think to ask informants about their personal thermal comfort when at home or work. This came up when I shared with them, as a means for warming up the conversation, that the first part of my field work has been, surprisingly, feeling cold while indoors during the entirety of my stay. Despite the relatively mild temperatures, a majority of the informants reported being, themselves, cold all winter. They report that being cold is 'just what you do' during the Portuguese winter. 'Ask any of my friends, we all just choose to be cold because it's too difficult or too expensive.' This was said by one informant with a long and successful career and it would probably be fair to say they and their friends do not categorize as in poverty. The repetition of these experiential anecdotes regarding the built environment suggest to me that thermal discomfort may not be limited to those in poverty. The state of building quality in Portugal makes lack of thermal comfort a problem that potentially scales beyond the poverty line.

An examination of the relationship between solar energy transitions, energy policy, and energy poverty reveal the importance of the built environment and scalar issues in establishing any such connection. It also suggests that solar transitions alone will likely not address the larger problem in the issue of energy poverty of housing quality and needed renovations. Much of the housing in Portugal is not conducive to retaining heating or cooling effects making an upgrade in energy source relatively ineffective.

The work conducted during this short stay in Lisbon should not be considered a representative sample to infer a generalization but the patterns suggests further investigation may yield interesting results. For example, if the observed scalar pattern appeared across a larger, more representative sample; it may be indicative of how policies and decisions that affect those dealing with energy poverty are made and that it matters who is making those decisions.

FUTURE COLLABORATIONS (if applicable)

Although short, this STSM resulted in a productive cross-cultural exchange between two European countries and positioned me well for the larger master's thesis study on the same theme. This collaboration will continue when I return to Lisbon to conduct field work on a larger scale in Spring 2019.

Bouzarovski, S. (2018) *Energy Poverty: (Dis)Assembling Europe's Infrastructural Divide*, Palgrave Macmillan.

Bridge, G., Bouzarovski, S., Bradshaw, M. and Eyre, N. (2013) 'Geographies of energy transition: Space, place and the low-carbon economy', *Energy Policy*, 53(C), 331-340, available: http://dx.doi.org/10.1016/j.enpol.2012.10.066.

Gouveia, J.P., Palma, P., Seixas, J. and Simoes, S. (2017) 'Mapping Residential Thermal Comfort Gap at Very High Resolution Spatial Scale: Implications for Energy Policy Design', *IAEE Energy Forum*, (Singapore Issue 2017), 43-45.