

Assessing the Needs of Ireland's First Generation of Sustainable Energy Communities

Anitha Sampath*: PhD student, Galway Mayo Institute of Technology

Dr. John Lohan: Lecturer, Galway Mayo Institute of Technology

Dr. Gabriel J Costello: Lecturer, Galway Mayo Institute of Technology

*Corresponding author e-mail: anitha.sampath@research.gmit.ie

Abstract:

Ireland is undertaking a process of reducing carbon emissions and dependence on fossil fuels by transitioning to low carbon technologies. This is a challenging undertaking requiring a multi-pronged solution. However, the challenge of transitioning from fossil fuel to sustainable energy system is not merely a technological problem but a wider societal issue. Ireland's National Energy White paper (December, 2015) and the National Mitigation plan (June, 2017) emphasise the key role of citizens and communities in meeting energy targets and leading the nation into a low carbon future. The Sustainable Energy Authority of Ireland (SEAI) is Ireland's national energy authority with the mission of transforming Ireland into a society based on sustainable energy structures, technologies and practices. One of the main pillars of its thrust to meet this challenging objective is the Sustainable Energy Communities (SEC) Programme. Since 2015, SEAI has been very successful in motivating over 100 communities to participate in the SEC network. In this context, the main aim of this paper is to situate communities at the center of Ireland's energy transition. Energy transition for communities needs to include an economic and social perspectives while retaining the technical component. There is need for research that situates transitions in a regional and spatial context. In this context, this paper will look at analysing the energy transition in communities in Ireland from a sustainable energy community's perspective using Strategic Niche Management theory. This paper presents initial findings based on a 2018 survey of over 20 sustainable energy communities in Ireland. This survey sought to deepen understanding of the motivations, barriers and interactions experienced by communities that are pursuing Sustainable Energy Community (SEC) status. The survey polled the energy champions in each of the communities to understand the motivating factors and barriers for implementing sustainable/low-carbon energy projects. Apart from this, the survey also established the most beneficial support networks and how learning is shared between communities. The survey also identified the kind of support that would be required to make more impact. SECs can use the outcomes of this survey to enhance their interactions with various stakeholders, especially policy makers. The paper introduced Ireland's SEC programme as well as international literature on the various barriers to development of SECs. The paper further discusses how enablers and barriers identified by the survey be better addressed through a transition framework to accelerate the growth and contribution of Ireland's SECs. The survey findings reveal that the various barriers could be better addressed through policy support for community owned energy projects. The findings also stress the importance of networking and intermediary actors/organisations in providing support for community energy as well as helping diffuse learning and information between various community initiatives. This research also paves the way to a more detailed study of intermediary roles in SEC development in Ireland.

Keywords: Sustainable energy communities; Renewable energy; Energy transitions

1 Introduction

There is overwhelming scientific agreement that human activities are affecting climate and, in particular, greenhouse gas (GHG) emissions are causing global warming and climate change [citation]. Climate change is currently one of the biggest challenges facing the world. Addressing climate change requires coordinated co-operation at international, national as well as local levels.

Globally climate change has been recognised as a challenge to be addressed by the United Nations Conference on Environment and Development (UNCED) held at Rio de Janeiro in June 1992. The international environmental treaty, United Nations Framework Convention on Climate Change (UNFCCC), was produced at UNCED stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system [UNFCCC, 1992]. The main update to the UNFCCC was the Kyoto Protocol in adopted in December 1992 and entered into force on February 2005. The Kyoto Protocol implemented the objective of UNFCCC to fight global warming by reducing emission of GHG [citation]

The evidence of the impact of climate change in Ireland is emerging in the form of the increased frequency of extreme weather events. The Draft National Risk Assessment identified climate change and extreme weather as a risk that requires national mitigation. Ireland is a party to the United Nations Framework Convention on Climate Change (UNFCCC) and to the Kyoto Protocol as well as the international agreement as part of Conference of Parties (COP 21), which provide the international legal framework for addressing climate change at a global level. Various parties put forward their proposed mitigation commitments ahead of the Paris conference. Ireland's target is part of the pledged European Union (EU) target of at least 40% reduction in domestic GHG emissions by 2030 compared to 1990. This EU headline was agreed by the European Council in October 2014. The EU's internal negotiations on individual country targets will take place in 2016. Ireland has agreed to make a technically feasible, cost-effective and equitable contribution to this overall EU ambition. [citations]

Ireland's National Policy Position on climate action and low carbon development, published in 2014 and the Climate Action and Low Carbon Development Bill 2015, passed in 2015. The National Policy Position establishes a national objective of achieving transition to a competitive, low carbon, climate resilient and environmentally sustainable economy by 2050. It outlines a vision for the level of GHG mitigation ambition envisaged and sets out the context and the proposed process for achieving the overall objective. The National Mitigation Plan released by Ireland in June 2017.

Ireland will have a low carbon energy system by 2050. The white paper positions citizens and communities in Ireland as the centre of transition and the energy industry, Government and public authorities will all contribute to ensuring that citizens are involved in the transition, and benefit from it.

In this context, citizens and communities can play a significant role in transition into low carbon energy systems. The Sustainable Energy Authority of Ireland (SEAI) has a role to transform Ireland into a society based on sustainable energy structures, technologies and practices. The Sustainable Energy Communities (SEC) program has been established as one of the main pillars of its thrust to

meet this challenging objective. Such a policy instrument recognises that the move to a sustainable energy position is not merely a technological exercise but a wider societal issue.

SEAI defines a Sustainable Energy Community (SEC) as a community in which everyone works together to develop a sustainable energy system. To do so, they aim as far as possible to be energy efficient, to use renewable energy where feasible and to develop decentralised energy supplies. A Sustainable Energy Community can include all the different energy users in the community including homes, sports clubs, community centres, churches and businesses. SEC's are now being encouraged to join the new SEAI supported SEC Network to help build capacity and share skills across communities (SEAI, 2015). Countries like Denmark, Netherlands and Germany, among others have moved to a more sustainable society by encouraging sustainable energy communities. SECs can play a significant role in Ireland's transition to a low carbon economy as well.

With this background, the main aim of this paper is to understand the motivations and barriers that communities face in their transition to low carbon energy.

2. Literature Review

The definition of a community has been debated by academics and researchers for some time now. The definitions vary from a geographically bounded area to a sense or feeling of community and to a set of interactions among a group of people (Bell and Newby, 1979; McMillan and Chavis, 1986; Schuler, 1996; Post, 1997; Delanty, 2003; R. Byrne, 2017). There are also definitions that construe communities based on sharing the same environment, resources and/or values (Jiang et al., 2013). R. Byrne et.al. (2017) describe community as requiring a power of governance capable of making decisions and responsibilities. This kind of governance may operate at voluntary or at a professional level. This research uses SEAI's Sustainable Energy Communities (SEC) as a unit of analysis. SEAI defines SEC "as a community in which everyone works together to develop a sustainable energy system for the benefit of the community. This is achieved by aiming, as far as possible, to be energy efficient; using renewable energy where feasible; Adopting smart energy solutions"

Seyfang, et.al. (2013) conceptualise community energy and the related and sometimes overlapping grassroots-led innovation as a niche in a socio-technical system. Niches are protected spaces in a socio-technical system where new configurations and technologies can be assessed, experimented with and developed independent of larger system pressures (Geels, 2002; Smith and Raven, 2012; Seyfang, 2013). Niche analysis in the past has focussed on market contexts and business or corporate led technological innovations (Seyfang, 2013). However, grassroots-led innovations and their study is a growing area of academic research. Community based sustainability action is viewed by many researchers in other countries as a site for innovation for sustainability. UK (Seyfang, 2013), Denmark, Sweden, Netherlands (H- J Kooij, et. al., 2018) and Germany (Oteman M, et.al., 2014) are some of the path breaking countries in terms of community engagement, involvement and leadership in sustainability actions specially in the field of energy.

Ireland is late entrant into community energy. While the first modern involvement of community in energy sustainability was by Dundalk in 2002, the movement necessary to galvanise a larger network of communities into sustainable energy starts by the SEAI's SEC programme in 2016. Since 2016, over 140 communities across the country have expressed interest in installing various sustainable energy

3. Methodology

The research methodology involved designing a survey for SECs to understand the motivation, enablers and barriers that SECs face during the transition to sustainable energy.

3.1 Design of survey

The survey was designed to deepen the understanding of the motivations, enablers and barriers as experienced by the SECs. In each of the SECs, the champion/volunteer is considered as representing the needs of the community as a whole as she forms the conduit of information between the householder, the business owner or any other energy user in the community with the actors and networks outside of the community. The methodology is based on the work by G. Seyfang et. al. (2013), a web based survey of community energy groups was conducted. The survey was sent to over 160 community groups that are registered under SEAI's sustainable energy communities programme. The survey was dispatched via three methods. Firstly, the survey and brief description of objectives was included in the a monthly newsletter that is broadcasted via e-mail by SEAI to all communities that have shown interest and/or have signed up to the SEC programme. Secondly the regional mentors of all the 8 regions in Ireland were contacted and were requested to send the survey electronically to communities that fell within their purview. Thirdly, individual SECs were contacted via e-mail or phone and were requested to complete the web based survey. Despite our efforts to reach a wide number and range of communities, we were successful in getting only 27 responses. However, these 27 responses were both geographically well spread out and as well represented a diverse range of communities so as to capture a good breath of opinions and visions on community energy around Ireland.

The survey was designed to reflect the various research questions in its various parts. The survey is divided into 4 sections. Section 1 deals with basic details of the SEC and the survey responder. Important data include number of households and businesses covered by the SEC and approximate population. Section 2 asked the and addresses the motivations and barriers for SECs and the characteristics and technologies undertaken by the SECs. Section 3 corresponds to research question 2

4. Results

The survey was completed by 27 communities across Ireland.



5. Conclusion and Future Work