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Nuclear frames in the Irish media: Implications for conversations on nuclear power generation in the age of climate change

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ABSTRACT

Keeping within the temperature limits set by the Paris Agreement on climate action will be a significant challenge. Nuclear power generation may contribute to achieving these targets, however, there are significant environmental, economic and health risks attached. Using qualitative and quantitative methods, this paper explores how nuclear power generation is framed in the Irish print media, and discusses the implications of these frames for how nuclear power is perceived within the context of climate change mitigation in Ireland. Two Irish broadsheet papers, the *Irish Times* and the *Irish Independent* were selected for data collection, focusing on Chernobyl and Fukushima incidents. The prevalence of informational and balanced articles suggest that to some extent, an open debate on nuclear is already occurring. Nevertheless, significantly more articles take an anti-nuclear stance (34% in 1986 and 27.5% in 2011) than pro-nuclear (2.1% in 1986 and 3.3% in 2011), reflecting the lack of public appetite for nuclear power. This may limit the potential for a wider debate to occur within the context of reducing domestic emissions. Considering the urgency of addressing climate change, a full and balanced societal debate on how nuclear power, other energy alternatives (e.g. wind) and the energy sector more generally, can contribute to national climate policy targets may be necessary.

1. Introduction

There is mounting evidence to show that the timeframe for preventing dangerous climate change levels is quickly diminishing (IPCC, 2014). To keep within safe temperature limits, it will be necessary to reduce greenhouse gas emissions by at least 80–90 percent by 2050 (Jones and Glachant, 2010; Pfenninger and Keirstead, 2015). The landmark Paris Agreement on Climate Change agreed to hold "the increase in the global average temperature to well below 2 °C above preindustrial levels" and pursue efforts "to limit the temperate increase to 1.5 °C above preindustrial levels" (UNFCCC, 2015, p.2). However, doubt was cast on the effectiveness of pledges from individual countries on climate action in meeting the 2 °C threshold (Rogeli et al., 2016; Rockström et al., 2016) made even more salient in the context of the recently announced US withdrawal from the agreement in its current form.[1]

1.1. Nuclear power in the age of climate change

Due to the high levels of emissions produced, assessing energy inputs is essential for developing and implementing mitigation policies (Bibas et al., 2015). Global energy consumption is expected to increase significantly in the short to medium term, which has led to energy security becoming an important part of energy policy debates (Corner et al., 2011). While the concept of energy security has been described as 'slippery' in the international literature (Chester, 2010) we take the concept to refer to "unimpeded access or no planned interruptions to sources of energy" (Chester, 2010 p887). Some authors argue that nuclear power generation can contribute to improving energy efficiency and security, reducing pollution and emissions, and allow a diversification of electricity generation (Teräväinen et al., 2011; Paska and Surma, 2014; DeLlano-Paz et al., 2015).

As of 2015, electricity in thirty countries around the world was

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[1] While legally the US cannot withdraw until 2020, President Trump has suggested that the US may potentially re-enter a revised agreement, see https://www.whitehouse.gov/briefings-statements/statement-president-trump-paris-climate-accord/. Nevertheless, Italy, France and Germany have dismissed the prospect of revising the Paris Accord.

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generated using nuclear power, representing approximately 11 per cent of the world's electricity generation (Bruckner et al., 2014). Within the European Union, nuclear power provides 53 percent of the EU's carbon-free (at the point of production)[2] electricity (World Nuclear Association, 2015). In light of the goals established by the Paris Agreement, nuclear power generation has come under greater focus, albeit mostly among agencies in support of nuclear power generation (New Nuclear Watch, 2015; Cooper, 2016; Rose et al., 2017). Pro-nuclear organizations such as the International Atomic Energy Agency (2016) argue that in order to meet the 2 °C temperature target, a 41 percent reduction in total energy related CO_2 emissions and a 70 percent reduction in power sector emissions is required. They also contend that the contribution of nuclear energy to decarbonizing the electricity sector could result in annual CO_2 emission reductions of 13 percent of the global emissions reduction required in the power sector, and over 20 percent reduction in emissions in the energy sector by 2050 (NEA and IEA, 2015). However, others argue that to achieve even a slight reduction in CO_2 emissions by 2050, between 1500 and 2000 new reactors would be required (Smith, 2006; Makhijani, 2007).

A highly contentious issue, nuclear power remains part of the energy mix in the UK (Pfenninger and Keirstead, 2015), while other European countries, such as Italy and Switzerland are currently phasing out nuclear power (Helm, 2014). Although the likelihood of a nuclear accident is small (OECD, 2010), experience of nuclear incidents shows that the environmental, economic, health and general societal implications of a nuclear incident are hugely significant. Nuclear reactors require large amounts of water, and must be located in areas close to large water bodies, such as coastal regions. These same regions are typically where the highest population concentration exists; increasing economic and social risks should a nuclear accident occur. Coastal reactors are also particularly vulnerable to sea level rise, coastal erosion and flooding as well as changes in water temperature, quality, or availability (Kopytko and Perkins, 2011). A nuclear incident can alter the public and policy response on nuclear power generation. For example, the Fukushima Daiichi incident[3] in Japan was used to justify nuclear power generation and reaffirm policy positions (as in the UK), as well as alter the policy direction (which occurred in Germany) (Wittneben, 2012).

1.2. Ireland and climate change

The Climate Action and Low Carbon Development Act (2015), sets out the national objective to transition to a low carbon, climate resilient and environmentally sustainable economy by 2050. This objective aims to achieve an aggregate reduction in CO_2 emissions of at least 80 percent across electricity generation, buildings and the transport sector, and to achieve carbon neutrality in the agricultural and land use sector. The Act provides for the preparation of five-yearly National Mitigation Plans, which will determine how Ireland will reduce its greenhouse gas emissions in line with EU legislation and international commitments under the United Nations Framework Convention on Climate Change (UNFCCC). Ireland, which is a high per capita emitter of greenhouse gases, faces challenging decisions in determining the appropriate pathway to transitioning to a low carbon society. It has the highest dependency on imported fossil fuels for electricity generation in Europe, and currently imports approximately 85 percent of its energy sources (Sustainable Energy Authority of Ireland, 2016). Energy sector emissions – from power generation, oil refining, and peat burning – accounts for approximately 19 percent of total greenhouse gas emissions (Environmental Protection Agency, 2015; SEAI, 2016). Power generation itself accounts for the greatest percentage of emissions – over 95 percent– within the energy sector (EPA, 2015). Under current projections, Ireland will miss its 2020 climate and energy targets, and significant challenges will need to be overcome if it is to meet its projected 2030 targets and achieve a realizable pathway towards decarbonization (Climate Advisory Council, 2016; EPA, 2017).

1.3. Ireland's position on nuclear power generation

In the late 1960s, plans for a nuclear power plant at Carnsore Point, Co. Wexford (south-east Ireland) were proposed by the Nuclear Energy Board (an agency charged with the responsibility of pursuing policy on nuclear in Ireland) to meet the growing demand for power in Ireland (Leonard, 2006). These plans never materialized; public opposition has been cited as one reason (Fitzgerald, 2011). Other reasons cited include Ireland's relatively small power system; incorporating a large nuclear power plant into the system would be economically and practically challenging. However, developments in the size of reactors have been identified as possibly suiting the Irish system (SEAI, 2011). While currently, nuclear power generation is prohibited by Irish legislation (Department of Communications, Energy and Natural Resources, 2015), Ireland imports nuclear generated electricity from the Welsh Wylfa nuclear power station via an East-West interconnector under the Irish Sea since 2012. A small number of analysts contend that nuclear power needs to be considered as part of the energy mix in determining how best to respond to Ireland's energy needs (Grimes, 2015), and calls were made in 2008 by the then Minister for Communications, Energy and Natural Resources, for an open debate on nuclear (Irish Times, 2008).

Currently, the anti-nuclear debate in Ireland is driven by safety concerns over Ireland's close proximity to the Sellafield nuclear plant in Cumbria on the north-west coast of England. These concerns have resulted in the Irish government making formal complaints regarding the facility to the British government. In 2016, the Department of Communications, Climate Change and Environment published a report on impacts to the Irish economy should a nuclear incident take place close to Ireland (Curtis et al., 2016). This was followed by a study on the potential radiological impacts for Ireland based on a number of hypothetical accident scenarios (EPA, 2016). Although a Green Paper on energy policy acknowledged the countries anti-nuclear position, it also suggested the need to "consider in greater depth the potential economic and technical implications, or … to test public acceptance of nuclear generation located on the island of Ireland" (DCCAE, 2014, p.50). The subsequent White Paper on Ireland's transition to a low carbon energy future restated Ireland's prohibition on nuclear power generation; however, it gave no indication towards the need for public debate (DCCAE, 2015).

1.4. Aims and objectives

Considering the complexity of climate change, and the urgency to take climate action, an informed societal debate on climate policy is necessary and media coverage, among other variables, can play an important role in influencing how the public and governments respond through policy choices (Prati and Zani, 2012; Grossman, 2015). As Europe seeks to transition to a low carbon economy, the need for such a societal discussion on how this transition can take place and how the EU's energy and climate targets can be achieved will become increasingly important.

This paper seeks to explore how nuclear power, specifically the Fukushima and Chernobyl nuclear accidents, is reported on and framed in sections of the Irish print media, and drawing on this analysis the subsequent implications for wider debates on the potential role of nuclear power in climate change mitigation in Ireland. While there are arguments for (reducing conventional power station pollution and

[2] For example, in an Irish context the Moneypoint power station (the State's largest electricity generation station) is a coal fired station producing sulphur dioxide and CO2 emissions during electricity production (point of production). An electric vehicle powered by this electricity produces no additional emissions (non-point of production).

[3] Following a major earthquake, a 15-m tsunami disabled the power supply and cooling of three Fukushima Daiichi reactors, causing a nuclear accident on 11 March 2011: http://www.world-nuclear.org/information-library/safety-and-security/safety-of-plants/fukushima-accident.aspx.