



Original research article

“We could have been leaders”: The rise and fall of offshore wind energy on the political agenda in Ireland

Jean-Pierre Roux^{a,*}, Oscar Fitch-Roy^b, Patrick Devine-Wright^a, Geraint Ellis^c^a Department of Geography & Global Systems Institute, University of Exeter, Streatham Campus, Amory Building, Rennes Dr, Exeter EX4 4RJ, United Kingdom^b Faculty of Environment, Science and Economy, University of Exeter, Penryn Campus, Penryn, Cornwall TR10 9FE, United Kingdom^c Queens University Belfast, David Keir Building, Belfast BT7 1NN, United Kingdom

ARTICLE INFO

Keywords:

Offshore wind energy
Ireland
Multiple Streams Framework
Energy policy
REFIT
Marine spatial planning

ABSTRACT

Many countries have ambitious plans for increasing the generation of electricity from offshore wind energy in the coming decades. Realising these ambitions requires concerted, often innovative, political action across several policy domains. To understand the unique political challenges facing offshore wind deployment, this article presents a case study of the Republic of Ireland, where decades of sporadic political ambition to support offshore wind energy has not yet translated into commercial deployment. We use the Multiple Streams Framework to guide data collection, 29 elite interviews and extensive documentary analysis, and offer an historical explanation for why political actors did not meet long-standing market ambition. We analyse the battle of ideas between alternative policy approaches that emerge through distinct policy networks and institutions spanning marine planning, grid development, and energy price support. In Ireland, two key drivers restrained political support for offshore wind for over a decade: competition with onshore wind for limited grid connection capacity and resilience, and calibration of policy instruments to attain decadal renewable energy target at least cost. The study shows the value of a deviant case to demonstrate the political complexities of developing and adopting technology-specific policy instruments to support offshore wind energy in the context of long-term climate change targets, grid development, and grid system services plans.

“There was no point in doing three [onshore] wind turbines here and five over there. ... Go big. We had the resource. It was in line with EU climate policy. We could have had wind farms up and down the east coast of Ireland supplying Britain. We were ahead of Britain. We could have been leaders in Europe... All that was required was support from government” (Interview 05idi, developer of the first offshore wind farm in Ireland reflecting on the period 1999–2007).

1. Introduction

Many countries now hold ambitious plans for increasing the production of electricity from offshore wind turbines in the coming decades. The installation rate in the UK and several EU member states has been accelerating for many years [1]. In 2021, the expiration of the Chinese government's offshore wind feed-in tariff triggered more installed capacity in a single year than all other markets combined over the previous

five years [2]. The superior quality and availability of the wind resource found offshore, and declining energy production costs mean that offshore wind mega-projects are on-course to dominate some countries' low-carbon energy supply. Realising these ambitions requires concerted, often innovative, political action across several policy domains including price support, grid connection and development, and marine planning [3].

In recent years, there has been growing recognition of the fundamental importance of policy innovation for energy system transformation [4–11]. The ‘entanglement’ of ideas, policy instruments, institutions, and specific energy technologies is an area of particular interest [12–15]. Yet there are notably few detailed empirical studies that trace the changing political conditions that have enabled some countries to accelerate offshore wind energy from a technological novelty to a dominant source of electricity [16,17]. This involves examining the interplay of the conditions that elevate offshore wind energy on the

* Corresponding author.

E-mail addresses: J.Roux@exeter.ac.uk (J.-P. Roux), O.Fitch-Roy@exeter.ac.uk (O. Fitch-Roy), P.G.Devine-Wright@exeter.ac.uk (P. Devine-Wright), G.Ellis@qub.ac.uk (G. Ellis).<https://doi.org/10.1016/j.erss.2022.102762>

Received 26 January 2022; Received in revised form 1 August 2022; Accepted 3 August 2022

Available online 1 September 2022

2214-6296/© 2022 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC license (<http://creativecommons.org/licenses/by-nc/4.0/>).

political agenda and the development and adoption of the policy instruments necessary for its deployment. This paper contributes a close examination of an instance where a relatively high agenda status and significant attempts at policy innovation failed to deliver on market ambition for offshore wind energy. We thereby also contribute to understanding the challenges of designing, legitimating, and implementing technology-specific policy instruments to progress national energy transitions. The Republic of Ireland, a small EU member state, provides our example.

In 2020 the Irish government set a target of delivering 5 GW of offshore wind energy by 2030, contributing to Ireland's legally binding commitment to generate 70 % of its electricity from renewables by 2030 [18]. This is not the first time an Irish government has set such targets. In 2008, offshore wind was expected to contribute 500 MW to fulfilment of the overall target of 40 % of electricity consumption from renewable sources by 2020 [19]. However, no offshore wind farms have been constructed in Irish waters since the first 25 MW Arklow Bank demonstration project in 2005. Significant efforts to adopt an offshore wind feed-in tariff, reform marine planning legislation, and build political momentum behind an offshore electricity grid in the Irish Sea failed over the course of a decade.

This article has two objectives. Firstly, we explain why certain policy instruments were not developed and/or adopted to support the deployment of offshore wind energy in the Republic of Ireland during a 'policy window' (2007–2011) when several favourable conditions elevated the issue on the political agenda. Secondly, we discuss potentially generalizable insights from the Irish case study.

The remainder of this article proceeds as follows. Section 2 introduces and outlines the Multiple Streams Framework (MSF) used to guide and structure the analysis. Section 3 presents the methods employed for discovering and collecting empirical material. Section 4 provides an account of offshore wind energy's rise and fall on the policy agenda in Ireland. Section 5 discusses and interprets the findings. Section 6 concludes by highlighting the policy implications of the study and suggests avenues for further research.

2. Analytical framework

Our analysis utilises the Multiple Streams Framework (MSF) to guide data collection, provide observational categories and a general hypothesis for agenda and policy change. There is an extensive empirical literature utilising MSF to explain agenda status and policy change for a wide variety of policy domains [20], including a small but growing set focused on energy policy sub-domains [17,21–23]. We draw on this empirical literature to operationalise MSF to explain changes (or lack thereof) of the political agenda status of offshore wind and the development and adoption of related policy instruments.

MSF conceives of the policy process comprising three largely independent streams of activity: the problem stream, policy stream, and politics stream. The central explanatory claim of MSF is that agenda or policy change "becomes more likely if (a) a 'policy window' opens, (b) the streams are ready for coupling, and (c) a policy entrepreneur promotes the agenda change" [24].

The *problem stream* concerns those processes through which certain conditions in society are framed as problems requiring attention from policymakers. Focusing events, indicators and feedback are three mechanisms through which policymakers' attention are drawn. *Focusing events* are sudden, relatively rare events with obvious actual or potential harms concentrated at a time and location for specific people. Some focus events will simply "bowl over" other items on political agendas [25], while the influences of others will be mediated through policy communities [26,27]. *Indicators*, published cyclically or for specific occasions, offer policymakers information about phenomena of interest. Dramatic deterioration of indicators may trigger problem framing. *Feedback* from the implementation of existing programmes, particularly failures, may also trigger problem framing. The priority of a problem to

policymakers is determined in relation to the set of problems contending for agenda status at a point in time and may be determined by their perceived relevance for (re)election [28].

The *policy stream* includes those processes through which a policy community develops solutions. General criteria that determine the 'survival' of some alternatives include: technical feasibility, value acceptability, anticipated public acceptance, and financial viability [25,29]. For EU member states, these broad criteria also accommodate compliance with EU law, which may significantly limit viable alternatives [30]. The structure of a national policy community shapes the process of 'softening up' policy alternatives [31], whilst international networks of experts may cluster around specific policy instruments where rapid technological innovations are occurring, and interface with national policy communities [32,33]. Importantly, our analysis considers a technology-specific set of policies for offshore wind energy around which a European convergence has emerged [3,33]. These include price support mechanisms, grid connection policies, and marine spatial planning policies.

The *politics stream* concerns the overarching political system, including election cycles, the composition of governing parties or coalitions in parliament, government perception of public opinion, and interest groups. In parliamentary democracies it is rare that a policy will be adopted without the support of the governing party or coalition [24]. The ideology and programme of work of the ruling party or coalition along with the interest of relevant ministers can be central in setting the agenda, whilst the ability of party leaders and key ministers to build coalitions for policy adoption is important as a proposal moves through the legislature. The role of senior civil servants and bureaucratic turf battles may also be influential. Within this stream the structure of state institutions can be taken into account by distinguishing explicitly between agenda setting and decision making policy windows with different institutional dynamics in each [24], as well as endogenous and exogenous 'spillovers' [34]. Exogenous spillovers occurs when a powerful new precedent, such as landmark legislation, introduces a new logic or category and a political coalition that guides future decision making in a policy area. An endogenous spillover occurs when an issue spans multiple policy domains and institutions, and change in one policy domain or institution necessitates or limits change in another policy area [7,34].

A *policy window* is "an opportunity for advocates of proposals to push their pet solutions, or to push attention to their special problems" [25]. More recent work distinguish between opportunities to get an issue on the agenda, an 'agenda window', and opportunities to get policy adopted, a 'decision window' because of the distinguishably different stream dynamics of each [28]. Windows can open due to changes in the politics or problem stream. Agenda windows can be predictable, such as election cycles that introduce new governments or legislatures, eager to embark on new programmes and promised reforms. Unpredictably, it can open in the problem stream when a widely regarded indicator deteriorates, unfavourable feedback on past policy implementation emerges, or a focusing event occurs. When a window opens in the problem stream, a solution often needs to be found at short notice that addresses the problem on the agenda. If a window opens in the politics stream it is likely that actors already have 'pet solutions' and are focused on framing problems to fit their preferred solutions [35].

Agency is exerted through fulfilment of three key roles. The central role is that of *policy entrepreneurs*, originally defined as "advocates who are willing to invest their resources – time, energy, reputation, money – to promote a position in return for anticipated future gain" [25]. Policy entrepreneurs may hold a wide range of institutional positions inside or outside government. The distinguishing factors are that entrepreneurship happens in the policy stream and involves 'coupling' of the streams when a window of opportunity opens. Linking a solution to a problem when the political context is favourable, requires commissioning the development of solutions and/or advocating for solutions in anticipation of a window, and brokering compromises when a window is open

Table 1
Multiple Streams Framework drawing on [24] and adapted for interrogating offshore wind energy deployment in a parliamentary democracy and EU member state.

General MSF explanation for agenda/policy change [24]		Examples of possible observable implications
Agenda or policy change becomes more likely if		
A) A policy window opens,		
in the problem stream when:	a relevant indicator deteriorates OR	1. % renewable and/or indigenous energy in mix deteriorates / 2. CO ₂ e emissions increase / 3. Insufficient progress on liberalising electricity sector;
	feedback points to mismatch between policy goals and effects of policy OR	Failure to meet: 1. National renewable energy target / 2. National CO ₂ e emission target / 3. National energy security targets/ 4. Compliance with other EU energy directives
	a focusing event occurs	Controversial energy projects, electricity blackouts, extreme weather events, spike in electricity prices, 2008-2011 banking and fiscal crises,
	AND policymakers deem the issue relevant to re-election	Public statements by members of Parliament ¹ , Prime Minister ² or relevant ministers on offshore wind energy and related policy instruments
in the politics stream when:	composition of government or parliament changes OR	General elections, turnover of ministerial positions in relevant ministries, change in government
	national mood shifts	National opinion polls on climate change and energy, major controversial energy projects
B) AND the streams are ready for coupling,		
problem stream ready when:	policy-maker(s) (re)frames conditions as problem requiring policy solution	Policy-maker uses indicator(s), feedback and/or focusing event to frame lack of offshore wind as problematic and requiring policy solution.
politics stream ready when:	ideology of government or commitments in election manifesto aligns with action on particular issue	Stance of ruling party / coalition on climate change, energy security, EU, fiscal policy (subsidies and liberalisation), and commitments in election manifestos and Programme for Government ³
	AND interest groups do not object to issue	Activities of wind energy industry associations, opposition groups to wind energy, environmental non-government organizations (NGOs) and energy and economic research institutes
	AND/OR public mood is perceived as supportive of action on issue	National opinion polls
policy stream ready when:	the policy community has softened up a technically feasible and normatively acceptable policy solution	Policy solution for: 1. Price support (e.g. auctions, REFITs) / 2. Marine spatial planning, consenting, & seabed leasing / 3. Grid connection and development policy / 4. Interconnection
C) AND a policy entrepreneur promotes agenda change		
when:	an actor persistently invests time, reputation, and/or money to promote a policy	Actions of Prime Minister, relevant ministers, members of Parliament, and senior civil servants within relevant departments (e.g. Principle Officers),

¹ In Ireland, the official title for an elected Member of Parliament is a ‘Teachta Dála’, abbreviated as ‘TD’.

² The official title of the Prime Minister of the Republic of Ireland is ‘Taoiseach’.

³ In Ireland, all parties competing in elections prepare manifestos of their priorities. Once a government is formed (following elections), a ‘Programme for Government’ sets out its priorities for the term.

[25,34]. *Political entrepreneurs* are elected leaders who work within the politics stream to build the necessary majority around a worked out policy proposal for enactment when a decision window is open [24]. *Problem brokers* “frame conditions as public problems and persuade policymakers accept these frames” [36]. A single actor can play one or more of these roles.

Table 1 presents a summary of our operationalisation of MSF to interrogate offshore wind energy in a European parliamentary democracy. It consists of a set of possible observable implications we expected to find in our case study data (drawing on the empirical and conceptual literature referenced above and our knowledge of the Irish context, elaborated in Section 3). These are classified according to the higher-level MSF theoretical concepts, and linked back to the general MSF hypothesis developed by Herweg et al. [24].

3. Method

This study takes an interpretative-historical case study approach to develop a ‘thick’ narrative of a deviant case [37,38].¹ This requires contextual knowledge and triangulating several, diverse sources of primary and secondary data.

¹ Ireland deviated from the other early movers on offshore wind power. From the late 1990s, some Irish industrialists and politicians called for the Irish government to emulate and surpass the first movers (Denmark and the United Kingdom), and there was noteworthy actions on this (refer to Section 4 of this article). However, although Ireland shared some relevant socio-economic characteristics with the first movers (particularly Denmark), it none the less deviated from their political course of action to support offshore wind energy.

Case study context

The Republic of Ireland is a relatively small country on a relatively isolated island on the periphery of Europe. It has a population of 5 million, a very high Human Development Index and GDP per capita [39,40]. Lacking significant fossil fuel resources, its energy import dependency varied between 85 and 90 % for the duration of our case study period [41]. Gas provides the biggest share of its electricity, followed by wind. Electricity interconnection to its closest neighbour, the United Kingdom, has grown slowly following the cessation of political unrest on the island in 1998. As an EU member state it embarked on significant electricity sector reforms from the late 1990s onwards to liberalise its electricity market in compliance with EU Directive 96/92/EC, and subsequent EU ‘energy packages’. It has an exceptional wind resource (onshore and offshore) and onshore wind energy’s contribution to the electricity mix has grown substantially since the early 2000s. In 2020, 36 % of its electricity came from onshore wind capacity [41]. Fig. 1 presents an overview of key historical electricity trends.

In order to establish the case study context, we conducted an initial mapping of policies, institutions and actors, along with searches of academic and gray literature to construct a timeline of key events. Early exploratory interviews contributed to an update of the mapping, timeline, and source materials. Fig. 2 presents a summary of the timeline that structured the case study enquiry. Data from this exploratory work anchored the beginning and end dates for our case study. The first mention of offshore wind energy in the Irish House of Representatives was in 1999. However, the critical period when a policy window opened and closed for offshore wind includes the term of government under the Fianna Fail-led coalition with the Irish Green Party (June 2007 to March

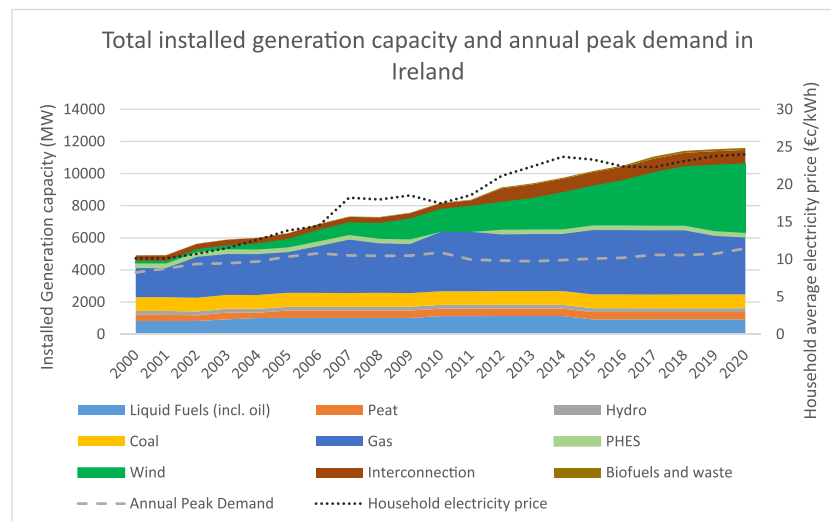


Fig. 1. Total installed generation capacity, annual peak demand, and average household electricity prices in Ireland, 2000–2020. Source: Sustainable Energy Authority of Ireland.

2011).² We also cover related events following this period to demonstrate the closure of the policy window.

Document analysis

We analysed 86 documents, consisting of relevant policies and legislation ($n = 20$), the evidence base that informed the policy alternatives considered ($n = 18$), and news media, press releases and annual reports ($n = 48$). Policy documents include party manifestos and Programmes for Government; energy, climate and marine policies published by government departments; legislative acts; and grid connection policies from the electricity regulator. The evidence base for policy alternatives consisted of technical reports commissioned by the electricity system operators, government departments, subsidiary agencies and working groups, and independent policy research institutes. Supplemental sources include coverage in newspapers of record, public statements and press releases from government departments, offshore wind developers, industry associations, and Annual Reports of the regulator and system operators. Finally, we analysed transcripts of all debates from the Irish Parliament³ that contained the key word “offshore wind” ($n = 519$). This included parliamentary debates in the House of Representatives, the Senate, and parliamentary working committees.

Key informant interviews

We interviewed 28 key informants (29 interviews) who are/were directly involved in developing, advocating for, analysing or implementing key policies and legislation spanning the domains of renewable energy price support mechanisms, grid planning and development, and marine planning consent in Ireland. Table 2 presents a breakdown of the key informants. We used publicly available information (including the source materials noted in Section 3.3) to identify a preliminary list of key informants and extended this list through chain referrals. All interviews were with individuals variously identified as ‘experts’ or ‘elites’ and interview protocols developed accordingly [42–45]. We employed Table 1 to generate a generic interview guide, which we tailored to specific informants. Interviews were conducted via video or telephone,

² Fianna Fáil, meaning ‘Soldiers of Destiny’, is also known as the Republican Party, generally classified as a conservative Christian democratic party.

³ The Irish Parliament, referred to as the Oireachtas, consists of two Houses: Dáil Éireann (House of Representatives) and Seanad Éireann (the Senate).

digitally recorded and transcribed verbatim.

Synthesis of data

We coded all documents and interview transcripts with Nvivo 12 to capture chronology, administrative domain, contemporaneous proximal explanation, and the structural elements of MSF from Table 1. We deductively employed thematic content analysis [46] and inductive coding for data that did not fit the form of our framework explanation, especially where there were explicit mentions of explanatory conditions [47].

4. Offshore wind policy in Ireland, 1999–2016

In this section, we address the first objective of the paper, providing an account of how several favourable conditions elevated offshore wind on the Irish political agenda and why certain policy instruments were not developed and/or adopted to support its deployment during this window of opportunity. We present our findings as four chronological sections centred on the opening and closing of a policy window.

4.1. Prologue: 1999–2007

Two events in 1999 necessitated the first parliamentary discussions on offshore wind policy by Irish lawmakers. Firstly, private-sector developers had submitted the first licence and lease applications to the Minister for Marine and Natural Resources to conduct surveys and construct offshore wind farms in Irish waters. The department processed these applications under the Foreshore Act of 1933. This raised concerns from several members of Parliament (from opposition parties) over the lack of legislation to secure the state’s interest (as owner of the seabed) and safeguard environmental and social concerns over the new technology. Secondly, a report, jointly commissioned by the governments of the Republic of Ireland and Northern Ireland, established an atlas of a vast offshore wind energy resource. Eddie O’Connor, founder and CEO of Airtricity (one of the early wind developers and private energy suppliers in Ireland), advocated for Ireland to be a leader in “ending the carbon economy era” by exporting its abundant offshore wind resource to the EU region [48,49]. O’Connor and a few other early project developers advocated for the government to support the deployment of offshore wind.

Two successive governments remained largely disinterested. Offshore wind project developers managed to convince the Minister of

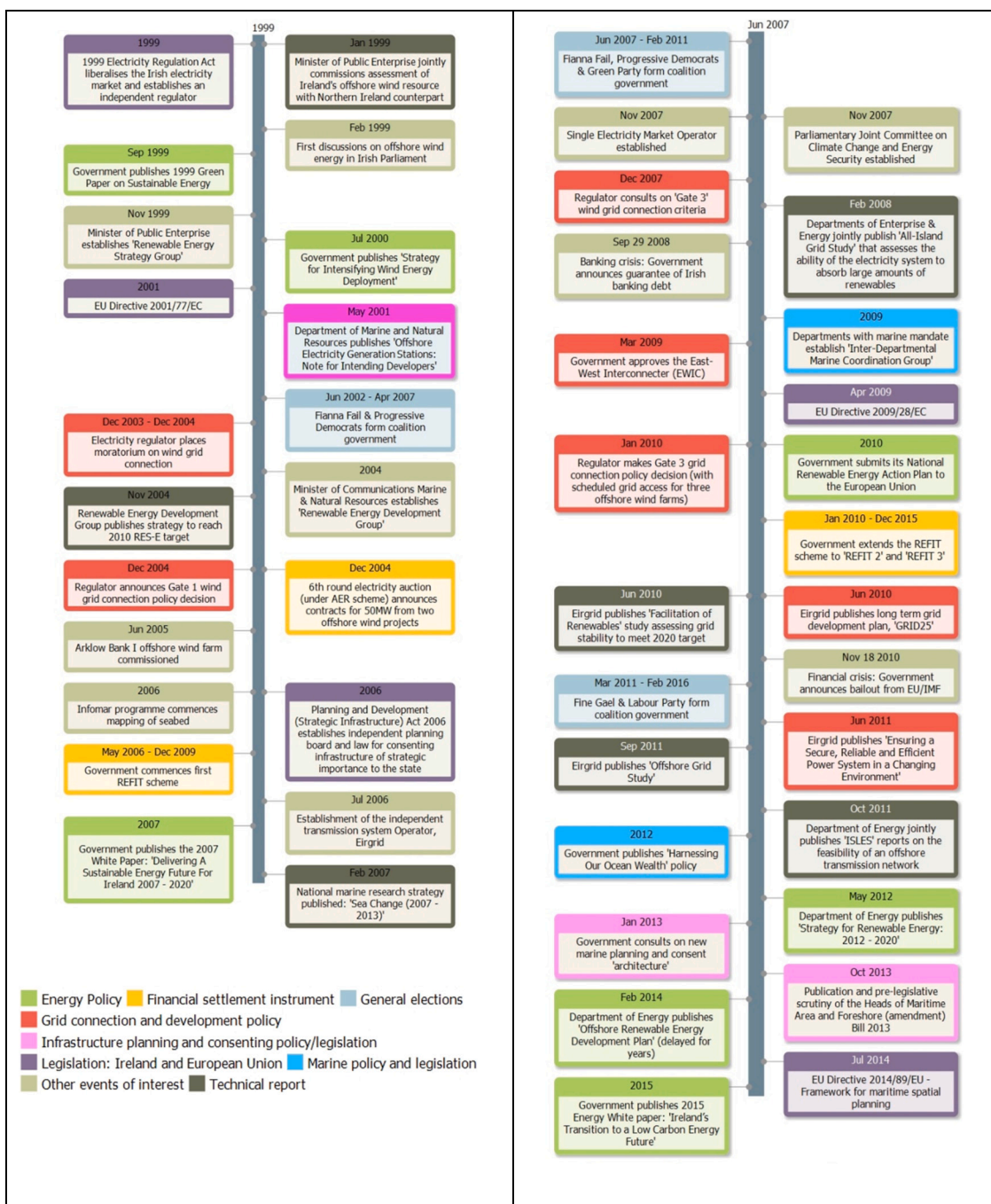


Fig. 2. Timeline of key events, 1999–2015, structuring case study research.

Marine and Natural Resources against a legislative overhaul of the Foreshore Act of 1933 (which may have taken years to pass through parliament), in favour of a sector-specific guidance note issued by the Department of Marine to intending offshore wind energy developers [50]. With the exception of this early victory for the nascent industry, the reason for the sustained lack of political interest is summarised by the Minister for Public Enterprise, Mary O'Rourke, in 2002:

“This policy [of promoting electricity from renewable energy technologies] is grounded on issues of security of energy supply, fuel import substitution and reduction of emissions from fossil fuel electricity generation. To date, these efforts have been focused on developing the renewable energy industry onshore. In that respect progress has been very satisfactory ... It is in the context of

developments onshore that I am currently considering the appropriate policy response to offshore wind” [51].

At a cabinet⁴ level, energy security was at the apex of energy-related problem framing in the early 2000s, due to Ireland's energy import dependence, and the development of offshore gas reserves of paramount importance.

The cabinet's disinterest in offshore wind energy reflected the disinterest from the Irish policy community concerned with electricity and renewable energy. It was on a steep learning curve softening up

⁴ The cabinet exercises executive authority in Ireland and consists of a maximum of 15 ministers, all of whom are elected members of parliament.

Table 2
Key informant interviews by participant profile, date and duration.

	Participant profile	Date	Duration	Code
1	Elected Official	19/04/2021	00h49m	24pmi
2	Environmental NGO	21/02/2021	00h50m	11eni
3	Industry association (energy)	18/01/2021	00h36m	10iai
4	Industry association (energy)	29/01/2021	00h46m	14iai
6	Industry association (energy)	14/04/2021	00h48m	23idi
5	Industry association (energy)	29/04/2021	00h38m	25iai
7	Policy maker (energy)	14/01/2021	01h02m	09pmi
8	Policy maker (energy)	08/02/2021	00h37m	15pmi
9	Policy maker (energy) ^a	20/01/2021	01h07m	09pmi
10	Policy maker (marine & terrestrial planning)	25/06/2021	01h14m	29pmi
11	Policy maker (marine planning)	12/03/2021	00h40m	18pmi
12	Policy maker (North-South cooperation)	21/05/2021	00h59m	28pmi
13	Policy research (academic, economic)	17/05/2021	00h54m	27pri
14	Policy research (academic, electricity)	22/07/2020	00h32m	01pri
15	Policy research (academic, marine governance)	01/03/2021	01h03m	16pri
16	Policy research (government agency, energy)	18/08/2020	01h00m	02pri
17	Policy research (government agency, energy)	04/11/2020	00h55m	04rpi
18	Policy research (government agency, energy)	16/11/2020	00h58m	07rpi
19	Policy research (government agency, marine)	26/03/2021	01h03m	20rpi
20	Regulator (electricity)	10/11/2020	01h08m	06eri
21	Regulator (electricity)	01/04/2021	00h45m	19eri
22	Regulator (electricity)	24/03/2021	00h50m	21eri
23	Transmission System Operator	22/09/2020	01h06m	03soi
24	Transmission System Operator	10/03/2021	00h50m	17soi
25	Transmission System Operator	26/04/2021	00h55m	26soi
26	Wind farm developer and operator	11/11/2020	00h43m	05idi
27	Wind farm developer and operator	18/11/2020	00h56m	08idi
28	Wind farm developer and operator	29/01/2021	01h08m	12idi
29	Wind farm developer and operator	08/04/2021	00h53m	22rpi
	TOTAL DURATION OF INTERVIEWS		25h45m	

^a We interviewed key informant “09pmi” twice (Interviews 9 and 11).

solutions to *other* pressing policy and regulatory problems. Establishing and implementing the rules for a liberalised all-island electricity market proved a formidable challenge for the fledgling regulators and system operators. EU Directive 2001/77/EC further calibrated the Irish energy policy community's work towards reaching a national decadal renewable energy target, the 2010 RES-E target. Civil servants and state agencies commissioned a series of expert groups and studies that set out solutions for revenue support and grid connection of onshore wind [52–54]. The poor performance of the Irish Alternative Energy Requirement (AER) auctions showed the instrument was not capable of delivering the 2010 RES-E target and prompted the policy community to

look to other EU member states to benchmark a Renewable Energy Feed-In Tariff (REFIT) that would be feasible and acceptable for the Irish context [53]. From 2006, electricity consumers would fund the cost of the REFIT through the Public Service Obligation levy. Prime Minister Bertie Ahern's comments exemplified the shift in political intent, and the position of offshore wind vis-à-vis its onshore counterpart, in pursuit of an energy target: Whilst wind energy could contribute to national energy security, Ireland had to balance meeting “challenging” EU energy targets with Irish consumers' interests [55].

With the partial liberalisation of the Irish electricity market, 2003 saw a sharp rise in the grid connection applications from new market entrants, especially for onshore wind capacity. The Transmission System Operator (TSO), ESB National Grid, argued for a moratorium on all grid connections for wind, citing concerns over system security and stability with the committed connection offers [56,57]. The controversial, year-long moratorium in 2004 prompted intervention from the regulator in connection policy [58–60] which set a legal precedent that would endure to the current day. However, by 2007, the newly established *independent* TSO, Eirgrid, had made significant progress in developing a grid connection policy for wind, processing connection applications in batches called ‘Gates’. This enabled more efficient network development and attainment of renewable targets, but did not address the peculiarities of connecting offshore wind, especially not the high connection costs (borne by developers). Cooperation between the Republic of Ireland and the devolved government of Northern Ireland (within the UK) provided a further political agenda for a fully integrated all-island energy system (Interviews 06eri, 09pmi, 28pmi).⁵ This ambition provided another channel through which the respective governments and TSOs from the Republic of Ireland and Northern Ireland jointly commissioned analysis to determine how much variable renewables (mostly wind) the all-island grid could handle by 2020.

Despite the lack of coherent political interest, early developers of offshore wind sites did make some noteworthy progress. By 2003, several developers had obtained licences to investigate the suitability of sites [61] and one developer, Airtricity, had obtained a 99-year lease to construct 200 turbines (520 MW) on the Arklow sandbank. Grid connection cost was a key limitation that restricted the initial development of the Arklow Bank project to a much smaller demonstration project (Interview 03soi, 08idi, 12idi). In 2004, under the AER scheme there was an auction for 50 MW of offshore wind, but neither of the two winners progressed their projects.

Early progress in developing the offshore wind energy industry in Ireland demonstrated several challenges. Firstly, offshore wind was significantly more expensive than its onshore counterpart. If the sector were to develop beyond demonstration phase, offshore wind would require a technology-specific price support, technology-specific grid connection terms and offshore grid development policy, and potentially new legislation to govern marine licencing, leasing and planning permission [62]. However, Ireland also has a superb onshore wind resource and the liberalisation of the electricity market had triggered such frenzied activity in this sector that facilitating its expansion fully occupied the available bandwidth of the relatively small policy community (Interviews 01pri, 02pri, 09pmi, 15pmi). Early sporadic attempts in the policy community to advise on the expansion of the offshore wind sector, and opportunities for associated industrial

⁵ The island of Ireland was partitioned in two in 1923, when the southern part broke away from the United Kingdom (UK) to form the Republic of Ireland. Northern Ireland remained within the UK. Following the Belfast / Good Friday Agreement in 1998, formal and informal efforts to progress cooperation between the two parts of the island received support from the UK, the Republic of Ireland and the newly formed devolved government of Northern Ireland.

development, failed to find political interest [62]. Only a tiny network of privately owned project developers and a few parliamentarians in opposition parties, mostly from the Irish Green and Fine Gael⁶ parties, deemed the lack of any policy measures to support offshore wind energy a problem worth noting. By 2007, the government issued the first energy White Paper in Ireland that included a substantial vision for renewables, including a 2020 target of 33 % electricity consumption from renewables [63], but no clear signal of support for offshore wind.

4.2. A policy window for offshore wind energy: 2007–2011

The 2007 general election offered offshore wind an unexpected climb up the political agenda. The Irish Green Party's election manifesto committed to an offshore wind REFIT, and to "encourage investment" in a European offshore electricity transmission grid [64]. Winning only six of 166 seats in the House of Representatives proved sufficient for them to become the king maker in a new governing coalition with Fianna-Fail and the Progressive Democrats. In the coalition formation negotiations, the Greens secured tempered coalition support for "examining the possibility of appropriate support measures for offshore wind" [65]. Importantly, Eamon Ryan secured the Ministerial post at the Department of Communications Energy and Natural Resources (DCENR).

Coming into office Ryan immediately set about implementing plans to maximise renewables on the system by extending REFIT to ocean renewables and prioritising greater regional interconnection. For ideas, he drew from several advisors outside the established policy network associated with the department at the time, including industrialists like O'Connor (Interview 09pmi, 12idi). The DCENR commissioned a study to benchmark offshore wind, wave and tidal REFITs. Published in February 2008, the report set a price of €140/MWh for offshore wind; more than double the REFIT price for onshore wind.

Ryan also established a parliamentary Joint Committee on Climate Change and Energy Security⁷ with the objectives to consider medium and long term climate change targets and the measures needed to meet these, especially maximising the penetration of renewables on the Irish system [66]. This became a key forum for building wider cross-party awareness and support for certain measures. In January 2008, Ryan's department presented the findings of the All-island Grid Study to this forum. It confirmed that an electricity system with wind penetration up to 42 % of electricity demand could be feasible and only 7 % more costly than the lowest cost generation portfolio [67]. Importantly, the All-island grid study established a broad-based consensus between politicians and policymakers, including the system operators and regulator, that this was possible, even if many technical questions remained unresolved (Interview 02pri, 03soi, 09pmi, 17soi). Ryan used the widely endorsed findings of this study to increase Ireland's 2020 target to 40 % renewable electricity consumption. The DCENR estimated that offshore wind would contribute over 500 MW to that target, approximately 10 % of the estimated capacity required to meet it.

The more ambitious target placed extra pressure on the system operators to resolve the underlying engineering and market design barriers to achieving an unprecedented degree of variable renewable penetration on the grid (Interview 17soi). In response, the newly established independent TSO, Eirgrid, commissioned a series of studies to design a system services policy to meet the 40 % target, an ambitious project that would take several years to complete and several more years to gain regulatory approval [68,69]. A key commitment that emerged from this was that Eirgrid could, by 2020 and subject to receiving the requisite funds, operate the all-island grid with a Synchronous-Non-Synchronous Penetration (SNSP) ratio of 75 %, without significant curtailment of

wind energy. This threshold would be a technical requisite for meeting the new 2020 RES-E target. However, beyond 75 % SNSP, wind energy would face significant curtailment. This would become a key figure throughout the subsequent decade and anchor many debates about the implications of exceeding the 2020 target (Interviews 17soi, 27pri).

The regulator was also quick to respond to the increased 2020 target. A combination of a growing backlog of connection applications and the government's 2007 White Paper had triggered its decision to initiate public consultation on a new wind energy connection policy in 2007 [70]. When Ryan increased the 2020 target to 40 %, the regulator increased the Gate cap accordingly. This amounted to processing grid applications for 3900 MW of wind energy. It was technically feasible to calibrate the connection policy cap to the estimated capacity required by the 2020 target largely because Eirgrid had developed more sophisticated systems to process grid connection applications and align it with a grid development planning horizon out to 2025 [71]. The increased Gate cap included three offshore wind projects, totalling 800 MW in capacity. The Gate policy had set a strong precedent that non-discrimination entailed considering applications in accepted submission date order. The offshore wind projects qualified simply because of their place in the application queue, though the larger Gate cap may have brought forward their processing. The connection policy required Eirgrid to model the optimal connection order for the Gate, and issue a schedule of connection offers accordingly, a significant task that would take more than a year to complete [72]. The schedule of firm connection offers, issued in 2010, spanned almost a decade, with offshore wind projects securing offers to connect between 2013 and 2018.

In 2007, development of further interconnection with the UK and Europe, and an offshore grid in the Irish Sea, was at its infancy and required significant research and advocacy at a regional level. In 2008, the DCENR jointly commissioned an EU-funded study between Ireland, Northern Ireland, and Scotland to examine the feasibility of an offshore interconnected transmission network linking potential renewable energy sites off Western Scotland, Northern Ireland and Ireland [73]. Eirgrid also responded to the Department's ambitions by commissioning research on the feasibility of greater interconnection and offshore grid development options [74,75].

Following the 2007 general election, marine licencing and leasing functions under the Foreshore Act was transferred to the Department of Agriculture Fisheries and Food (DAFF) [76,77]. This immediately created an institutional silo that precluded the DCENR's prior discretionary practices in assessing foreshore licence and lease applications (Interview 09pmi). The DAFF had little capacity or interest in energy matters with its agenda heavily skewed to terrestrial agricultural issues (Interview 09pmi, 20rpi, 22rpi). However, Ryan's announcement of a forthcoming offshore wind REFIT in February 2008 coincided with Airtricity's announced sale to Southern and Scottish Electric for approximately €1.1 billion. This caused a flurry of interest from prospective offshore wind developers (Interview 12idi, 29pmi). Senior civil servants anticipated that this offshore 'wind rush' would have potentially significant legal and political ramifications, elevating the issue to the cabinet. Cabinet briefly considered two alternative legislative approaches to deal with marine planning consent and leasing of the seabed (Interview 29pmi). Standalone legislation governing the permitting of ocean renewables, analogous to existing oil and gas acts, with significant power allocated to the minister of energy. Alternatively, a complete overhaul of marine planning legislation that would govern all marine activities in a 'plan-led' approach, based on the Ireland's terrestrial Planning and Development (Strategic Infrastructure) Act 2006. A senior civil servant that contributed to the development of the 2006 Act, advocated for the latter (Interview 29pmi), prompting a cabinet decision in 2009 to transfer functions under the Foreshore Act, excluding sea-fish and aquaculture, to the Department of Environment, Heritage and Local Government (DEHLG) where terrestrial planning policy expertise resided [78]. The promise of this approach was that comprehensive reform would streamline and simplify the consenting process for

⁶ Fine Gael, meaning 'Tribe of the Irish', is a liberal-conservative and Christian-democratic party, generally considered more of a proponent of market liberalism than Fianna Fáil.

⁷ Joint Committees consist of Senators and Parliamentarians.

government and offshore wind developers, decreasing uncertainty and increasing efficiency (Interview 29pmi). However, it effectively placed a moratorium on licences, necessary to progress surveying, until the enactment of such legislation.

In January 2010, Ireland submitted its National Renewable Energy Action Plan (NREAP) to the EU, committing to a legally binding target of 16 % of all energy consumption from renewable sources by 2020 with an implicit target of 40 % of electricity consumption from renewable sources. In the NREAP's forecasts, offshore wind would provide approximately 10 % of the needed capacity by 2020. It listed several ongoing measures to achieve this. These included technical studies on the facilitation of the requisite amount of wind energy on the Irish grid and offshore network and interconnection feasibility research, implementing a new 'streamlined and modern' consenting process for offshore renewable infrastructure, and offering an offshore wind REFIT. However, officially at least, energy policy did not yet take account of the implications of the unfolding financial crisis.

4.3. Closing of the policy window: 2011–2012

Much of the above policy development coincided with the unfolding of the Irish fiscal and banking crises that eventually culminated in the Irish financial crisis in 2011 [79]. The political and economic fallout from the financial crisis affected policy support for the deployment of offshore wind energy in four ways.

Firstly and most significantly, the recession caused a significant decrease in the national demand for electricity and downward revisions of future demand forecasts for the decade ahead. In 2007 the system operators forecasted that annual electricity requirement would be between 34.8 TWh and 37.2 TWh by 2014 [80]. By 2011, this was revised to 31.3–31.4 TWh by 2020 [81].

Secondly, throughout and subsequent to the unfolding crises, growth in onshore wind energy installation continued. Government supported compliant projects under the REFIT on a first come first serve basis, subject to a scheme deadline for completing eligible projects. At the same time, the PSO levy that funded the REFIT was shielded from fiscal policy changes, and public opposition to it remained low for the period in question (Interview 15pmi). The high rate of early uptake of onshore grid connection offers for Gate 3 clearly signalled that developers would accept most offers. The success of onshore wind deployment alongside the substantial downward revision of economic growth forecasts made it clear by 2012 that Ireland's pipeline of onshore wind projects would suffice to meet the 2020 renewables target [82]. Although policy makers took sporadic notice of public opposition to isolated controversial onshore wind farm developments, they deemed the opposition too little to jeopardize the 2020 energy target (Interview 01pri, 15pmi).

Thirdly, the handling of the banking and fiscal crises precipitated the fall of the Fianna Fáil-led coalition government. The Green Party signalled its withdrawal from the coalition in September 2010 and called for an election in 2011. All coalition partners suffered large defeats and the Greens lost all their seats in the parliament. Fine Gael and the Labour party formed a new governing coalition with a programme for government driven by recovery from the financial crash [83]. This opened an opportunity for proponents of 'least cost', technology-neutral decarbonisation policy to push their preferred solutions (Interview 23idi, 27pri). Within the Irish energy policy community, there had already been notable opposition to a high penetration of wind on the Irish grid prior to establishing an export market [84] and explicit opposition to REFITs for offshore wind, wave, and tidal [85,86]. Economists at the Economic and Social Research Institute (ESRI) seized the window of opportunity in 2011 to review Irish energy policy and its alignment with EU policy. It recommended that continued policy support for renewables should abandon offshore, wave and tidal REFITs and focus exclusively on onshore wind, to minimize costs increases for consumers. It advised that any Irish investment in renewables to exceed the 2020 target could result in stranded assets, that further promotion of

renewables should be commensurate with greater interconnection, but interconnection costs should not be shifted on to the Irish consumers either [86]. ESRI's recommendations proved influential in the new government's Strategy for Renewable Energy 2012–2020 [87].

Finally, several rounds of fiscal cuts and the change in government triggered a period of high staff turnover in the DCENR, DAFF and DEHLG, including junior and senior civil servants, and ministerial posts (Interview 09pmi, 15pmi, 29pmi). This had a particularly pernicious effect on the development of marine planning legislation. A draft Maritime Area and Foreshore (Amendment) Bill was submitted to government for approval in 2012. However, despite significant ministerial support from the new Minister for DAFF, it struggled to maintain the agenda status its complexities required. Attempts by its main champion in DEHLG to reframe the reform as instrumental to post-crash administrative efficiency gains failed and turnover and reassignment of key civil servants left little capacity to address the issues raised by the Attorney General's review of the draft legislation (Interviews 29pmi). Further development of the bill stalled indefinitely.

4.4. Epilogue

With no reasonable prospect of an offshore wind REFIT, the offshore wind project developers holding grid connection offers had no viable route to the Irish market. A lucrative secondary market for connection offers was developing and two developers sold their connection offers to onshore projects. Eirgrid extended the grid connection offer for one offshore wind project, which is still standing at the time of writing (Interview 26soi).

From 2011 onwards, the DCENR and Eirgrid completed various reports (commissioned during the previous government's term) to assess the feasibility of offshore grid development and interconnection. For instance, the Interreg-funded ISLES study demonstrated the feasibility of greater interconnection and the Eirgrid study presented several options for offshore grid development. However, given the dramatic shift in the political agenda and renewable energy policy, the findings of these studies failed to find policy entrepreneurs to progress (Interview 04rpi, 09pmi, 15pmi).

A direct export opportunity to the UK briefly revived the prospects of offshore wind in Ireland. In 2012, the Prime Ministers of the UK and Ireland, David Cameron and Enda Kenny, signed a joint statement on British-Irish relations for the coming decade [88]. This led to a Memorandum of Understanding in January 2013 to "achieve closer integration of the UK and Irish electricity markets" and to analyse "how Irish renewable energy resources, onshore and offshore, might be developed to the mutual benefit of Ireland and the United Kingdom" [89]. A jointly funded feasibility study demonstrated that such an export scheme would be mutually beneficial, and at one point, it was "all systems go", but ultimately the UK and Irish negotiation teams could not reach agreement on a joint regulatory regime (Interview 29pmi).

By 2013, the energy policy community's attention focussed on meeting Ireland's EU renewable energy target for 2020. It was clear that Irish offshore wind energy, having been decoupled from this objective and any direct export scheme, had entered the proverbial 'doldrums' for the foreseeable future. The general post-financial crash economic environment and the abandonment of an offshore wind-specific price support mechanism, turned policy attention away from marine planning reform (Interview 18pmi, 22rpi, 23idi). By 2017, the DEHLG and DAFF had all but given up on a comprehensive marine planning bill, proposing instead to revert to piecemeal sectorial ocean renewables legislation. Despite advocacy from the National Offshore Wind Association of Ireland, it would be another two election cycles before technology-specific policy support for offshore wind energy made it back on to the political agenda.

5. Discussion

In this section, we address the second objective of the paper, namely providing more general theoretical insights on moving offshore wind energy up a political agenda and developing policy instruments in response to (or preparation for) a policy window. MSF provides a general explanation that even if a policy window opens for a particular issue, policy adoption becomes less probable if one or more of the streams are not ready for coupling, and/or specific policy entrepreneur (s) fail to push through reform for other reasons.

Our case study demonstrates the complications that arise when offshore wind energy transitions from an issue that enjoys some agenda status to policy development and adoption that implicates myriad institutions each with their own distinct policy communities and ideas. In the following sub-sections, we arrange our discussion of this around three MSF insights: a) the dynamics of policy window opening and closing affects policy development, b) institutions enable and limit the ‘spillover’ of particular actions to progress policy development, and c) a persistent and evolving battles of ideas informs different policy approaches.

5.1. The opening and closing of a policy window for offshore wind energy

MSF claims that policy windows (for particular issues) are relatively brief and sparse phenomena that only open in the problem or politics streams [24,25]. More recent work distinguish between an ‘agenda window’, as an opportunity to get an issue on the agenda, and a ‘decision window’, as an opportunity to get policy adopted [28]. Offshore wind energy rose on the Irish political agenda when the Green Party joined a coalition government in 2007, but the conditions that shut the agenda window, and kept it shut, emphasises the growing influence of the energy policy stream in forecasting technical limits at a decadal timescale.

Our case study demonstrates that it’s sufficient for a small opposition party with an explicit election manifesto commitment to supporting offshore wind energy to gain a few seats in parliament, if they can secure the role of king maker in a coalition government and the key ministerial position at the helm of the department with the energy mandate. In the Irish case, it was the Green Party with six out of 166 seats and a highly motivated entrepreneur in Eamon Ryan. Unsurprisingly, as long as offshore wind energy’s agenda status depends on a minority party and one political entrepreneur, it may be dropped very quickly with the next election cycle.

Furthermore, our case study demonstrates that in order to keep offshore wind on the political agenda and drive the issue towards a decision point amidst rapidly changing conditions, it had to tether on to other related issues and proliferate across several institutional agendas using different paths (some intended by entrepreneurs, others not). For instance, offshore wind’s window of opportunity coincided with the first broad consensus among Irish politicians and policy makers in the energy domain regarding the long-term ability and cost of the expanding Irish electricity grid to absorb a significant amount of variable wind power. Importantly, this consensus involved the TSO and regulator. Tethering offshore wind to a more ambitious climate change target, enabled by forecasted grid resilience a decade into the future was a key strategy. Secondly, escalating the agenda status of offshore wind from departmental level to cabinet level was necessary to overcome departmental silos between the department with the energy mandate and the department(s) with the marine planning mandate(s). The department of energy’s public announcement of an offshore wind price support mechanism (a REFIT) was sufficient to trigger an offshore ‘wind rush’ by developers, necessitating cabinet intervention. However, this had unintended consequences for the entrepreneurial instigator. Thirdly, offshore wind deployment can be tethered to a direct export opportunity to a neighbouring jurisdiction regardless of the state of the national grid, but dependent on a wholly different cast of characters and institutions. The lack of a substantial link between offshore wind deployment and

industrial development may also undermine its sustained agenda status.

Finally, our case study demonstrates the causal asymmetry between factors that obtain and maintain agenda status for offshore wind, and the factors that can keep it off the agenda. Decadal climate change target-setting and the calibration of system service policies, grid development, and price support instruments to meet these targets can heavily constrain problem framing in support of offshore wind energy deployment, and hence its political agenda status. The aforementioned policies rest on modelling of the future thresholds for grid resilience, a decade into the future, along with forecasts of national electricity supply and demand (centrally influenced by economic growth forecasts). In Ireland, from 2010 onwards, growing long-term modelling and forecasting placed relatively stable limits on the technical feasibility and political acceptability of pushing for technology-specific policies to support offshore wind deployment. Such forecasts can effectively shut the policy window for offshore wind energy until discussions on the next decadal energy target emerges among policy makers. As long as there was a consensus in the Irish energy policy community that offshore wind energy was not necessary to meet the 2020 target and that supporting it would lead to relatively expensive and curtailed generation capacity, policy action could only be justified by a certain export opportunity. As one of our key informants noted acerbically: a good practice example of “evidence-based policymaking” (Interview 27pri).

5.2. Institutional spillovers shaping instrument development

MSF employs the concept of ‘spillovers’ to account for the structure of state institutions in agenda setting and decision making policy windows [34]. Exogenous spillovers occur when a powerful new precedent, such as landmark legislation, introduces a new logic or category and a political coalition that guides future decision making in a policy area. An endogenous spillover occurs when an issue spans multiple policy areas and change in one policy area or institution necessitates or limits a decision on change in another policy area or institution implicated in the same issue [7,34]. Our case study illustrates the variable dynamics of different spillovers as offshore wind energy transitions from enjoying agenda status to the development of several policy instruments in distinct policy streams.

The pathway to developing a policy instrument for price support for offshore wind may prove the simplest for the set of instruments in question. A small but relatively capacitated department of energy with a supportive minister can commission an offshore REFIT within a few months. However, maintaining support for an offshore wind REFIT at the cabinet level amidst an economic downturn and cheaper functional equivalents may prove challenging.

On the contrary, reform of national marine planning legislation to accommodate offshore wind licencing and leasing can prove to be the most recalcitrant policy instrument to spillovers from climate change and renewable energy policy domains. In the case of Ireland, once the issuing of planning consent for offshore wind farms was successfully reframed as a strategic infrastructure planning issue (as oppose to an energy issue) cabinet assigned it to the policy community with experience in terrestrial planning legislation to work out new legislation. The overriding concern for a ‘plan-led’ marine spatial planning policy and mitigation of ‘legitimate expectation’ risks placed a practical moratorium on developing offshore wind projects. Furthermore, when it becomes clear that a government will not implement an offshore wind price support instrument, there may be no other agenda item to drive the complex work of drafting marine planning legislation. In the case of Ireland, new economic policy to grow the marine economy and address the backlog of aquaculture licences also failed to spillover to marine planning reform. Furthermore, institutional fragmentation of marine planning, and fisheries and aquaculture mandates across multiple departments can further undermine policy innovation. Progress on policy development may prove even more susceptible to changes in political agendas of multiple departments along with staff turnover (compared to

energy policies delegated to the TSO and the regulator). Therefore, although terrestrial planning legislation may prove a sufficient analogy to marine planning to trigger an exogenous spillover, offshore wind energy and aquaculture licencing controversies may be insufficient to trigger an endogenous spillover to complete legislation in the planning policy domain. In the case of Ireland, it took three years to announce a draft heads of bill for comprehensive marine area planning legislation, and a further four years to abandon sporadic work on this solution.

Our case study framework identified grid development and grid connection policies as another potentially necessary area for policy innovation to accommodate the deployment of offshore wind energy. In addition, our case study data highlighted the underlying importance of system services policies to develop grid resilience with growing penetration of variable renewables. In the Irish case, all of the aforementioned fell under the remit of the TSO and regulator to develop and approve. Our case study demonstrates that an independent TSO and regulator, with statutory obligations oriented towards a liberalising energy market and support for renewables, can enable spillovers from the climate change policy domain. A regulatory environment that enables a system operator to grow its capacity to develop system services policies to enable higher penetration of variable renewables, and grid development and connection policies for connection of wind energy (in general) will indirectly support offshore wind deployment. Such an environment enables certain endogenous spillovers from national climate change target setting to electricity system services, grid development and connection policies. These innovations, particularly those relating to system services, are technically complicated and may require several years to develop, and a decade to implement. Whilst it sets a broader enabling environment, it may not make exceptions for technology-specific demands in all cases. For instance, in the case of Ireland and the period in question, the regulator refused to alter its generic connection terms or create a separate policy pathway for offshore wind projects that faced particular challenges with the Gate 3 connection policy. Its statutory obligation to balance several principles, the most important of which were non-discrimination between market participants, due regard for the interest of consumers, and promotion of renewables, informed its decision against a technology-specific connection policy for offshore wind.

5.3. Ideas driving alternative policy approaches for offshore wind energy

MSF often characterises the battle of ideas as a 'primordial soup' where policy alternatives compete for survival in terms of their technical feasibility, value acceptability, anticipated public acceptance, and financial viability [25,29]. Our case study suggests that the soup mix for offshore wind policy has ingredients that are not peculiar to the Irish context and may characterise policy innovation in other countries too.

In Ireland, two overarching ideas framed the competition over the policy response to offshore wind energy for almost 20 years. The first idea, advanced at least from the early 2000s, was that the government should proactively support the establishment of the offshore wind industry along with greater regional interconnection, not merely to meet an arbitrary national renewables target, but with the goal of European decarbonisation. In the long-term, Ireland would benefit economically from offshore wind exports and greater energy security but in the medium-term, Irish electricity consumers would subsidize the establishment of this sector. This argument came up against prior, more established ideas from the economic policy domain that Ireland should employ technology-neutral market mechanisms as far as possible to allocate scarce resources to decarbonisation, meeting (but not exceeding) national targets under EU Directives, whilst minimizing costs to the Irish consumer. The latter argument may accommodate the development of a general REFIT as long as it is demonstrably cost-neutral, or incurs negligible costs to consumers, and proves a technically feasible solution to target attainment. In such a case, the sustained success of a cheaper renewable technology, such as onshore wind, can

undermine the arguments for price support for offshore wind. In such a context, ratcheting up ambition on the national decadal renewables target can be one promising strategy for bringing forward technology-specific support for offshore wind energy. However, this strategy is highly susceptible to economic growth and energy demand forecasts.

Related to competing ideas over the acceptability of price support for offshore wind energy and target attainment, is evolving expectations over the resilience of an electricity system with increasing penetration of renewables. Once the TSO adopts a system services policy to attain a certain level of variable renewable penetration, this will anchor related debates about a future electricity mix, up to a decade in advance. In the case of Ireland, it was established by 2012 that the pipeline of (onshore) wind projects would provide sufficient capacity to exceed the 75 % SNSP threshold by 2020, and that additional variable capacity would be severely curtailed. In such a context, agenda status and policy support for offshore wind could be tethered to the possibility of greater interconnection and/or direct export opportunities.

The domain of marine planning may present the largest gap between overarching policy ideas and worked out policy alternatives for offshore wind expansion. Outdated legislation may be narrowly concerned with securing the interests of the state as owner of the seabed (through favourable leasing terms) whilst lacking terms to take account of the technological peculiarities of offshore wind mega-projects (including their onshore grid connections). If the department of energy happens to hold the mandate for marine planning, and application for offshore wind licences and leases are few, and the wider political risks not apparent, then the minister of energy and civil servants within the department may enjoy significant discretion in applying outdated marine planning legislation to serve the objectives of energy security and promotion of renewables. They may choose to move forward incrementally by developing piecemeal consenting legislation for ocean renewables, in some ways analogous to existing oil and gas legislation. Here the market may have a leading role in designating sites and building a pipeline of projects. Contrary to this approach, policymakers in the terrestrial planning policy domain may argue for assimilating marine renewables into a comprehensive 'plan-led' infrastructure-planning framework. The state would take a substantive role in setting the terms for sectorial expansion, such as determining development zones, in an attempt to mitigate political and legal risks associated with a 'land grab' by speculative offshore wind developers. However, working out appropriate legislation to this end may prove far more complex than the original policy entrepreneurs anticipate.

6. Conclusion and policy implications

The case study had two objectives. Firstly, explaining why successive Irish governments decided against developing and/or adopting a set of policy instruments to support the deployment of offshore wind energy. Secondly, discussing insights from the Irish case study that may assist efforts in other jurisdictions to prioritize policy development for offshore wind energy.

We can identify complex conditions that enable or inhibit development of a set of policy instruments aimed at supporting offshore wind energy. The main challenges are socially acceptable and technically feasible policies for a cheaper renewable alternative to meet an intermediary national climate change target, coupled with a lack of export opportunities to a neighbouring or regional market. The key policy debate may centre on justifying whether and when the taxpayer or electricity consumer should pay for anything more than the cheapest option to serve an interim national decarbonisation target. Increasing the ambition on a decadal renewable energy target may be a viable route to bring forward support for offshore wind energy; the Irish case demonstrates that decadal climate change targets can be resilient to extreme economic and political crises. A capacitated TSO and regulator are key actors in ensuring effective system services, grid connection and development policies. Dedicated political and policy entrepreneurs can

use an ambitious target to drive actions by the system operator and regulator to be more ambitious than they may otherwise be. However, our case also demonstrates that decadal targets may have a rationing effect, displacing other more complex policy alternatives (potentially by multiple election cycles) aimed at more ambitious decarbonisation in the longer term.

The formation of an offshore wind energy sector may require significant reforms of marine planning legislation. A ‘holistic’ approach that integrates all marine activities into a comprehensive and coherent legislative regime may be seductive to some policy makers but is extremely complex. Furthermore, the civil servants and policy communities historically associated with the terrestrial planning and/or marine policy domains may not have sufficient interest or capacity to put such reforms on the agenda and work out an acceptable legislative solution for the parliamentary decision-making process. Institutional ‘silos’ can thwart or significantly delay efforts by the energy policy community to bend such legislation to serve energy objectives.

For governments, policy entrepreneurs and advocacy groups interested in supporting the deployment of offshore wind energy, there is clearly a need to think about developing several diverse policy instruments in anticipation of future policy windows, rather than focusing on a single policy (like a price support mechanism) or waiting until a policy window opens. Whilst international learning on price support instruments such as auctions or feed-in tariffs mean that national solutions can be developed relatively quickly, comprehensive overhauls of dated marine planning legislation may take much longer than any policy or decision window is likely to remain open. The importance of developing several policy instruments in preparation for policy windows is underscored by the observation that the expectation that some policies will be implemented (like ambitious climate change targets or a price support mechanism) can drive reform of other policies that take much longer to develop (like grid system services, offshore grid development, and marine planning legislation).

This contribution makes it clear that developing a set of policy instruments for offshore wind expansion is highly complex with numerous policy fields simultaneously involved and therefore likely to vary widely between national jurisdictions and institutional arrangements. Developing detailed case studies in a broader range of countries offers an avenue for fruitful research. In particular, looking to understand the challenges faced in countries outside of the ‘usual suspects’ of leading offshore wind nations around the North Sea may be particularly valuable, including emerging and future markets in Latin America, Africa and Asia. Returning to the Irish case in the future will also prove fruitful, as there has been a notable increase in policy activity from 2019 onwards to support offshore wind energy deployment. Following several years in the doldrums, it appears that offshore wind started creeping up the agenda in Irish energy policy circles as policy makers started grappling with how Ireland could meet ambitious 2030 EU climate change targets. At the time of writing, the target of supporting 5GW of offshore wind by 2030 is driving calibration of an offshore wind price support mechanism [90], offshore wind connection policy [91], marine planning framework [92] and consenting legislation [93]. Revisiting the Irish case once these policy instruments are adopted (or fail), will offer a stimulating comparison to our case.

Finally, our research design is limited in a few respects. MSF prompted us to ask certain types of questions, gather certain types of data, and look for the presence of certain types of evidence. Our narrative focuses heavily on the coincidence of factors in the ‘cut and thrust’ of political decision-making, triangulating and sequencing data from a limited set of publicly available written records and key informant interviews. As an interpretive framework, MSF is often criticized for relying on ambiguous metaphors in advancing explanations and only engaging superficially with broader political theory [20,94]. However, given the lack of empirical work on this topic, the case should serve to open constructive discussion rather than close down alternative explanations.

Data availability

This paper is the first output from an on-going study. Pseudonymised interview transcripts and Nvivo coding of all documents will be made publicly available once the full study is complete.

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

Jean-Pierre Roux reports financial support was provided by EU Framework Programme for Research and Innovation Marie Skłodowska-Curie Actions. Patrick Devine-Wright reports his position on the Eirgrid National Advisory Group. Geraint Ellis reports his position as Irish National Expert on the International Energy Agency Task 28. Oscar Fitch-Roy reports his position as an independent paid advisor to public and private clients in the offshore wind sector (but not in Ireland).

Data availability

Data will be made available on request.

Acknowledgements

This work was supported by the MISTRAL ITN project under the Marie Skłodowska-Curie Actions [Grant agreement No. 813837] and by the UK Economic and Social Research Council (ESRC) [Grant No. ES/T000600/1]. The authors would like to thank Daniel Petrovics for his review of the original manuscript and discussion at the ECPR General Conference 2021, and the two anonymous reviewers of the submitted draft, who helped to improve the final version of the study.

References

- [1] Wind Europe, *Offshore Wind in Europe: Key Trends and Statistics 2019, 2020*.
- [2] S. Evans, Simon Evans on Twitter: “Wow – China just built more offshore wind capacity, in 2021 alone, than the rest of the world had managed in the last 5yrs...”. <https://bit.ly/3LGQY6w>, 2022 (accessed April 29, 2022).
- [3] O. Fitch-Roy, An offshore wind union? Diversity and convergence in European offshore wind governance, *Clim. Policy* 16 (2016) 586–605, <https://doi.org/10.1080/14693062.2015.1117958>.
- [4] R. Wüstenhagen, M. Wolsink, M.J. Bürer, Social acceptance of renewable energy innovation: an introduction to the concept, *Energy Policy* 35 (2007) 2683–2691, <https://doi.org/10.1016/j.enpol.2006.12.001>.
- [5] D. Toke, S. Breukers, M. Wolsink, Wind power deployment outcomes: how can we account for the differences? *Renew. Sust. Energy. Rev.* 12 (2008) 1129–1147, <https://doi.org/10.1016/j.rser.2006.10.021>.
- [6] M. Wolsink, Social acceptance revisited: gaps, questionable trends, and an auspicious perspective, *Energy Res.Soc. Sci.* 46 (2018) 287–295, <https://doi.org/10.1016/j.erss.2018.07.034>.
- [7] O. Fitch-Roy, D. Benson, C. Mitchell, Wipeout? Entrepreneurship, policy interaction and the EU’s 2030 renewable energy target, *J. Eur. Integr.* 41 (2018) 87–103, <https://doi.org/10.1080/07036337.2018.1487961>.
- [8] N. Herweg, Against all odds: the liberalisation of the European natural gas market – a multiple streams perspective, in: *Energy Policy Mak. EU*, 2015, pp. 87–105, <https://doi.org/10.1007/978-1-4471-6645-0>.
- [9] C. Roberts, F.W. Geels, Conditions for politically accelerated transitions: historical institutionalism, the multi-level perspective, and two historical case studies in transport and agriculture, *Technol. Forecast. Soc. Chang.* 140 (2019) 221–240, <https://doi.org/10.1016/j.techfore.2018.11.019>.
- [10] V. Smil, Examining energy transitions: a dozen insights based on performance, *Energy Res. Soc. Sci.* (2016), <https://doi.org/10.1016/j.erss.2016.08.017>.
- [11] F. Kern, K.S. Rogge, Harnessing theories of the policy process for analysing the politics of sustainability transitions: a critical survey, *Environ. Innov. Soc. Transit.* (2018) 102–117, <https://doi.org/10.1016/j.eist.2017.11.001>.
- [12] B.K. Sovacool, D.J. Hess, S. Amir, F.W. Geels, R. Hirsh, L. Rodriguez Medina, C. Miller, C. Alvia Palavicino, R. Phadke, M. Ryghaug, J. Schot, A. Silvast, J. Stephens, A. Stirling, B. Turnheim, E. van der Vleuten, H. van Lente, S. Yearley, Sociotechnical agendas: reviewing future directions for energy and climate research, *Energy Res.Soc. Sci.* 70 (2020), 101617, <https://doi.org/10.1016/j.erss.2020.101617>.
- [13] C. Roberts, F.W. Geels, M. Lockwood, P. Newell, H. Schmitz, B. Turnheim, A. Jordan, The politics of accelerating low-carbon transitions: towards a new research agenda, *Energy Res. Soc. Sci.* 44 (2018), <https://doi.org/10.1016/j.erss.2018.06.001>.

- [14] J.P. Voß, A. Simons, Instrument constituencies and the supply side of policy innovation: the social life of emissions trading, *Env. Polit.* 23 (2014) 735–754, <https://doi.org/10.1080/09644016.2014.923625>.
- [15] J.P. Voß, Innovation processes in governance: the development of 'emissions trading' as a new policy instrument, *Soc. Public Policy* 34 (2007) 329–343, <https://doi.org/10.3152/030234207X228584>.
- [16] F. Kern, A. Smith, C. Shaw, R. Raven, B. Verhees, From laggard to leader: explaining offshore wind developments in the UK, *Energy Policy* (2014), <https://doi.org/10.1016/j.enpol.2014.02.031>.
- [17] H.E. Normann, The role of politics in sustainable transitions: the rise and decline of offshore wind in Norway, *Environ. Innov. Soc. Transit.* (2015), <https://doi.org/10.1016/j.eist.2014.11.002>.
- [18] Programme for Government - Our Shared Future, 2020.
- [19] Government of Ireland, National Renewable Energy Action Plan IRELAND, 2010 (accessed April 29, 2022).
- [20] P. Cairney, M.D. Jones, Kingdon's multiple streams approach: what is the empirical impact of this universal theory? *Policy Stud. J.* 44 (2016) 37–58, <https://doi.org/10.1111/psj.12111>.
- [21] C. Llamas, P. Upham, G. Blanco, Multiple streams, resistance and energy policy change in Paraguay (2004–2014), *Energy Res. Soc. Sci.* (2018), <https://doi.org/10.1016/j.erss.2018.03.011>.
- [22] D. Gray, D. Bernell, Tree-hugging utilities? The politics of phasing out coal and the unusual alliance that passed Oregon's clean energy transition law, *Energy Res. Soc. Sci.* (2020), <https://doi.org/10.1016/j.erss.2019.101288>.
- [23] N. Herweg, Explaining European agenda-setting using the multiple streams framework: the case of European natural gas regulation, *Policy Sci.* 49 (2015), <https://doi.org/10.1007/s11077-015-9231-z>.
- [24] N. Herweg, N. Zahariadis, R. Zohlnhöfer, The multiple streams framework: foundations, refinements, and empirical applications, in: *Theor. Policy Process*, 4th ed., 2017, pp. 17–54.
- [25] J. Kingdon, *Agendas, Alternatives, and Public Policies*, 2nd ed., HarperCollins, New York, 1995.
- [26] T.A. Birkland, S.E. DeYoung, Focusing events and policy windows, in: *Routledge Handb. Public Policy*, 2012, pp. 175–188, <https://doi.org/10.4324/9780203097571.ch14>.
- [27] G.J. Busenberg, in: *Innovation, Learning, and Policy Evolution in Hazardous Systems* 44, 2000, pp. 679–691, <https://doi.org/10.1177/00027640021956323>.
- [28] N. Herweg, C. Huß, R. Zohlnhöfer, Straightening the three streams: theorising extensions of the multiple streams framework, *Eur J Polit Res* 54 (2015) 435–449, <https://doi.org/10.1111/1475-6765.12089>.
- [29] F. Spohr, Explaining path dependency and deviation by combining multiple streams framework and historical institutionalism: a comparative analysis of German and Swedish labor market policies, *J. Comp. Policy Anal. Res. Pract.* 18 (2016) 257–272, <https://doi.org/10.1080/13876988.2015.1122210>.
- [30] R. Zohlnhöfer, F.W. Rüb, Decision-Making Under Ambiguity and Time Constraints Assessing the Multiple-Streams Framework, 2016. www.ecpr.eu/ecprpress. (Accessed 1 December 2020).
- [31] R.F. Durant P.F. Diehl *Agendas, Alternatives, and Public Policy: Lessons from the U.S. Foreign Policy Arena*, *Source J. Public Policy*. 9 (n.d.) 179–205. <https://about.jstor.org/terms> (accessed July 21, 2021).
- [32] H. Lovell, The role of international policy transfer within the multiple streams approach: the CASE of SMART electricity metering in Australia, *Public Adm.* (2016), <https://doi.org/10.1111/padm.12259>.
- [33] O. Fitch-Roy, D. Benson, B. Woodman, Policy instrument supply and demand: how the renewable electricity auction took over the world, *Polit. Gov.* (2019), <https://doi.org/10.17645/pag.v7i1.1581>.
- [34] R. Ackrill, A. Kay, Multiple Streams in EU Policy-making: The Case of the 2005 Sugar Reform, 2010, <https://doi.org/10.1080/13501763.2011.520879> (accessed April 29, 2022).
- [35] N. Zahariadis, *Ambiguity and Choice in Public Policy: Political Decision Making in Modern Democracies*, Georgetown University Press, 2003.
- [36] Å. Knaggård, The multiple streams framework and the problem broker, *Eur. J. Polit. Res.* 54 (2015) 450–465, <https://doi.org/10.1111/1475-6765.12097>.
- [37] A. Lijphart, Comparative politics and the comparative method, *Am. Polit. Sci. Rev.* 65 (1971) 682–693, <https://doi.org/10.4324/9780203934685>.
- [38] B. Flyvbjerg, Five Misunderstandings About Case-Study Research, 2006, <https://doi.org/10.1177/1077800405284363>.
- [39] OECD, Country statistical profile: Ireland 2022/1, (n.d.). https://www.oecd-ilibrary.org/economics/country-statistical-profile-ireland-2022-1_8418544c-en (accessed April 28, 2022).
- [40] United Nations Development Programme, 2020 Human Development Index Ranking, (n.d.). <https://hdr.undp.org/en/content/latest-human-development-index-ranking> (accessed April 28, 2022).
- [41] Sustainable Energy Authority of Ireland, ENERGY IN IRELAND 2021 Report, 2021. https://www.seai.ie/publications/Energy-in-Ireland-2021_Final.pdf. (Accessed 21 April 2022).
- [42] L.A. Dexter, *Elite and Specialized Interviewing*, Northwestern University Press, Evanston, 1970.
- [43] D. Richards, *Elite interviewing: approaches and pitfalls*, *Politics* 16 (1996) 199–204.
- [44] B. Littig, Interviewing the elite — interviewing experts: is there a difference?, in: *Interviewing Expert*, 2009, pp. 98–113, https://doi.org/10.1057/9780230244276_5.
- [45] A. Bogner, W. Menz, in: *The Theory-Generating Expert Interview: Epistemological Interest, Forms of Knowledge, Interaction*, 2020, pp. 43–80.
- [46] R. Boyatzis, *Transforming Qualitative Information: Thematic Analysis and Code Development*, 1998.
- [47] A. Strauss, J. Corbin, Open coding, in: *Basics Qual. Res. Tech. Proced. Dev. Grounded Theory*, 1998, pp. 101–121.
- [48] E. O'Connor, *Common E.U. Wide Policies for Offshore Wind Energy*, 2001.
- [49] Ahern hails off-shore wind farm milestone, *The Irish Times*, 2005. <https://www.irishtimes.com/news/ahern-hails-off-shore-wind-farm-milestone-1.1177882>.
- [50] Department of Marine and Natural Resources, *Offshore Electricity Generating Stations - Note for Intending Developers*, 2001. <https://drive.google.com/file/d/14Ji5niE44mA-k25bxgi6w56iQ9AJzRmZ/view>. (Accessed 14 July 2022).
- [51] M. O'Rourke, *Dáil Deb 20 March 2002*, 550. <https://www.oireachtas.ie/en/debates/debate/dail/2002-03-20/129/>, 2021.
- [52] Renewable Energy Strategy Group, *Strategy for Intensifying Wind Energy Deployment*, Dublin. <https://www.esri.ie/system/files?file=media/file-uploads/2012-09/OPEA7.pdf>, 2000. (Accessed 14 September 2020).
- [53] DCMNR, *2nd Draft Report for the Renewable Energy Development Group Review*, 2004.
- [54] Government of Ireland, *Renewable Energy: A Strategy for the Future*, 1996.
- [55] Ahern hails off-shore wind farm milestone, *Irish Exam*, 2005. <https://www.irishe Examiner.com/news/arid-30204399.html>.
- [56] ESB National Grid, *Interim Policy on Wind Connections*, 2003.
- [57] ESB National Grid, *Impact of Wind Power Generation in Ireland on the Operation of Conventional Plants and the Economic Implications*, 2004. <https://docs.wind-watch.org/EirGrid-WindImpact-Main.pdf>. (Accessed 14 September 2020).
- [58] CER, *Group Processing Approach for Renewable Generator Connection Applications Connection and Pricing Rules*, 2005. <https://www.cru.ie/wp-content/uploads/2005/07/cer05049.pdf>. (Accessed 15 February 2021).
- [59] CER, *Criteria for Gate 2 Renewable Generator Connection Offers - CER/05/225*, 2005 (accessed May 25, 2021).
- [60] CER, *Background Paper to Direction on Resuming Connection Offers to Wind Generators*, 2004.
- [61] L.W.M. Beurskens, M.De Noord, *Offshore wind power developments An overview of realisations and planned projects CONTENTS LIST OF TABLES 4 LIST OF FIGURES 4 SUMMARY 5*, 2003.
- [62] N.-E. Clausen, E. Bjerregaard, P.Erik Morthorst, B.T. Madsen, P. Sørensen, *Offshore Wind Energy and Industrial Development in the Republic of Ireland*, 2004.
- [63] Department of Communications Marine and Natural Resources, *White Paper - Delivering a Sustainable Energy Future for Ireland: The Energy Policy Framework 2007 - 2020*. <https://www.ifa.ie/wp-content/uploads/2013/11/EnergyWhitePaper-2007.pdf>, 2007. (Accessed 20 July 2020).
- [64] Green Party, *Manifesto 2007 - Green Party*. http://michaelpidgeon.com/manifestos/docs/green/Green_Party_GE_2007.pdf, 2007. (Accessed 24 May 2021).
- [65] Government of Ireland, *Programme for Government 2007-2012*. <http://michaelpidgeon.com/manifestos/docs/pfgs/PfG2007-2009-FF-Green-PD.pdf>, 2007. (Accessed 24 May 2021).
- [66] Seanad Éireann, *Order Paper*. https://data.oireachtas.ie/ie/oireachtas/parliamentaryBusiness/orderPaper/seanad/2007/2007-11-14_order-paper_en.pdf, 2007. (Accessed 24 May 2021).
- [67] Government of Ireland, *ALL ISLAND GRID STUDY: STUDY OVERVIEW*, 2008.
- [68] Eirgrid, *All Island TSO Facilitation of Renewables Studies*, 2010.
- [69] Eirgrid, *SONI, Ensuring a Secure, Reliable and Efficient Power System in a Changing Environment*, 2011.
- [70] CER, *Criteria for Gate 3 Renewable Generator Connection Offers: Consultation Paper*. <https://www.cru.ie/wp-content/uploads/2007/07/cer07223.pdf>, 2007. (Accessed 12 February 2021).
- [71] Eirgrid, *Grid25*, n.d. <http://www.eirgridgroup.com/site-files/library/EirGrid/EirGrid-Grid25.pdf> (accessed April 23, 2021).
- [72] Eirgrid, *Gate 3 Scheduled Firm Access Quantities (FAQ)*. http://www.eirgridgroup.com/site-files/library/EirGrid/Gate_3_successful_applicants_for_publication.pdf, 2013. (Accessed 23 April 2021).
- [73] J. Gannon, *ISLES Study and Main Findings*, 2012.
- [74] Eirgrid, *EirGrid Offshore Grid Study - Analysis of the Appropriate Architecture of an Irish Offshore Network*. http://www.eirgridgroup.com/site-files/library/EirGrid/2257_Offshore_Grid_Study_FA.pdf, 2011. (Accessed 23 April 2021).
- [75] Eirgrid, *Interconnection Economic Feasibility Report*. http://www.eirgridgroup.com/site-files/library/EirGrid/Interconnection_Economic_Feasibility_Report.pdf, 2009. (Accessed 14 September 2020).
- [76] Government of Ireland, *S.I. No 705 of 2007 AGRICULTURE AND FOOD (ALTERATION OF NAME OF DEPARTMENT AND TITLE OF MINISTER) ORDER 2007*, 2007.
- [77] Government of Ireland, *S.I. No. 707 Of 2007 - SEA FISHERIES, FORESHORE AND DUMPING AT SEA (TRANSFER OF DEPARTMENTAL ADMINISTRATION AND MINISTERIAL FUNCTIONS) ORDER 2007*, 2007.
- [78] Government of Ireland, *Foreshore and dumping at sea (amendment) act 2009*, 2009.
- [79] D. Donovan, A.E. Murphy, *The Guarantee Decision of 29 September 2008*, in: *Fall Celt. Tiger Irel. Euro Debt Cris.* 2013, pp. 583–605, <https://doi.org/10.1093/acprof>.
- [80] Eirgrid, *Generation Adequacy Report 2008-2014*, 2007. www.eirgrid.com.
- [81] Eirgrid, *SONI, All-Island Generation Capacity Statement 2013-2022*. http://www.eirgridgroup.com/site-files/library/EirGrid/All-Island_GCS_2013-2022.pdf, 2012. (Accessed 12 May 2021).
- [82] P. Rabitte, *Keynote address: IWEA Conference 2013*. <https://www.offshorewind.biz/2013/10/03/ireland-minister-rabitte-addresses-iwea-conference/>, 2013 (accessed May 25, 2021).
- [83] Programme for Government 2011, n.d.

- [84] S. Diffney, J.Fitz Gerald, S. Lyons, L.M. Valeri, Investment in electricity infrastructure in a small isolated market: the case of Ireland, *Oxford Rev. Econ. Policy* 25 (2009) 469–487, <https://doi.org/10.1093/oxrep/grp022>.
- [85] C. Devitt, L.Malaguzzi Valeri, The Effect of REFIT on Irish Electricity Prices. www.esri.ie, 2011. (Accessed 15 April 2021).
- [86] J.Fitz Gerald, A Review of Irish Energy Policy, 2011. www.esri.ie. (Accessed 15 April 2021).
- [87] Government of Ireland, Strategy for Renewable Energy: 2012-2020, 2012. www.dcenr.gov.ie. (Accessed 20 July 2020).
- [88] D. Cameron, E. Kenny, British Irish relations: the next decade. <https://merrionstreet.ie/en/category-index/international/united-kingdom/british-irish-relationships-the-next-decade.html>, 2012. (Accessed 7 July 2021).
- [89] UK Department of Energy and Climate Change, Press release: energy trading creates opportunities for Ireland & UK - Davey & Rabbitt. <https://www.gov.uk/government/news/energy-trading-creates-opportunities-for-ireland-uk-davey-rabbitt>, 2013. (Accessed 25 May 2021).
- [90] Government of Ireland, Renewable Electricity Support Scheme: High Level Design, Ireland. https://www.dccae.gov.ie/documents/RESS_Design_Paper.pdf, 2019.
- [91] J. Gannon, Letter “Re: offshore wind grid connection” CRU Ref D/20/2760. <https://www.cru.ie/wp-content/uploads/2020/02/CRU20020-Offshore-Wind-Grid-Delivery.pdf>, 2020. (Accessed 24 March 2021).
- [92] Government of Ireland, National Marine Planning Framework, 2021. <https://npf.ie/>.
- [93] Government of Ireland, Report on Pre-legislative Scrutiny of the General Scheme of the Marine Planning and Development Management Bill, 2021.
- [94] M.D. Jones, H.L. Peterson, J.J. Pierce, N. Herweg, A. Bernal, H. Lamberta Raney, N. Zahariadis, A river runs through it: a multiple streams meta-review, *Policy Stud. J.* 44 (2016) 13–36, <https://doi.org/10.1111/psj.12115>.