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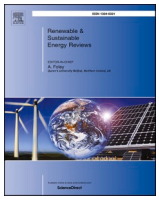
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# Managing stakeholder perception and engagement for marine energy transitions in a decarbonising world

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ABSTRACT

There is a growing body of scholarship on the enabling conditions for energy transitions in various energy contexts globally. Transition measures need to address the concerns of communities that will host renewable energy infrastructure. Despite this, the consequences of energy transitions at the community level and in coastal environments have not received adequate attention. The case of the Corrib Gas field development in Ireland provides valuable insights into stakeholder issues surrounding strategic infrastructure developments. Material from case study work with over 70 stakeholders in a rural coastal region in Ireland's West is used to identify the cause of disputes in energy governance.

The study shows that economic development is strongly linked to the cultural fabric, not just of the country, but of the locality. Here, a lack of trust of those in power had an influence on the conflict. The appointment of a mediator as an honest broker was a tipping point towards diffusion of tension and an adaptive response by all parties. The establishment of a body with a mandate to evaluate the application of ethical rules, based on good governance principles, is suggested as an option for a refined governance model.

The insights are relevant for the energy transition in jurisdictions around the world. Given the urgent need for decarbonisation and the potential for marine renewable energy, lessons from the past, as documented in this paper, can help to inform better governance of common pool marine resources. This is increasingly important for the industrialisation of marine renewable energy and the need to reconcile the interests of government, industry and civil society.

## 1. Introduction

Decision makers around the world are challenged to realise energy transitions to deal with climate change and to develop sustainable and secure forms of energy supply [1–3]. Transitions in general are seen as large-scale changes over a long period of time with often significant and revolutionary symptoms that fundamentally change a social subsystem [4–7]. Transitions depend on perceptions, values and cognition. Processes that shape them are deeply political, involve power struggles and value conflicts [8]. Transitions in current energy systems are seen in light of the challenges to decarbonize the economy, manage energy distribution, project design and development of infrastructure. Recently, oil majors are having to respond to dramatic falls in the price of oil as a result of over-supply, and pressure from shareholders to adapt business models, coupled with a fall in demand because of the slow-down of industrial activity during the COVID-19 pandemic crisis. As society takes

*Abbreviations:* ABP, An Bord Pleanála; CAO, Compulsory Acquisition Orders; CCS, Carbon Capture and Storage; CEO, Chief Executive Officer; DAFF, Department of Agriculture Fisheries and Food; DEHLG, Department of the Environment Heritage & Local Government; DCCAE, Department of Communications Climate Action and Environment; DCENR, Department of Communications Energy and Natural Resources; DECLG, Department of Housing Planning and Local Government; DMNR, Marine and Natural Resources; EIS, Environmental Impact Statement; EPA, Environmental Protection Agency; MLVC, Marine Licence Vetting Committee; ME, Marine Energy; MPDM, Marine Planning and Development Management Bill; MRE, Marine Renewable Energy; MSP, Marine Spatial Planning; NIMBY, 'not in my backyard'; NMPF, National Marine Planning Framework; SIPO, Standards in Public Office Commission.

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stock of the linkages between the pandemic and globalisation, an opportunity for accelerating the energy transition, following re-evaluation of value systems, may arise.

In terms of governance of large-scale energy projects non-state actors, such as multinational companies, and state actors, are challenged in three respects: The first challenge, as mentioned, is the vulnerability of the energy system towards volatile shifts. Due to the need to decarbonize the energy sector, the second is the need to diversify enterprise's exploration portfolios and to expand investments in renewable energy technology towards a greener future [9,10]. In light of the COVID-19 pandemic, governments are called upon to link reconstruction programmes to the promotion of new, low-emission technologies as it "will likely influence the global $CO_2$ emissions path for decades" [11]. The third challenge was formulated a few years back by the head of global Shell businesses who recognised that the "biggest challenge" multinational businesses are facing is to maintain public acceptance of the energy industry as the "oil and gas industry risks losing public support if progress is not made in the transition to cleaner energy" [12]. Therefore, civil society support for global energy transitions is a fundamental prerequisite for change.

A paradigm shift away from fossil fuels requires reliable, alternative sources of energy production. Marine Renewable Energy (MRE), such as energy from offshore wind, waves and tides, offers opportunities for sustainable development. The global offshore wind market has developed rapidly in the last decade, from an initial concentration in Europe, to development of offshore wind projects in jurisdictions in North and South America, Asia and elsewhere [13]. Rapid developments in floating foundation technology are opening markets, where floating offshore wind foundations can be deployed in deeper waters (>60 m). In contrast, wave and tidal energy is at a much earlier stage of development. While these are unlikely to make a significant contribution to climate and renewable energy targets in the short term [4,14], these energy types will play a part in the marine energy transition. The authors argue that experiences from the offshore hydrocarbon industry offer the opportunity to learn from established large-scale energy developments for better governance of activities in both the hydrocarbon and the MRE sectors (namely offshore wind, wave and tidal energy) in the future.

Offshore energy exploration and production can result in opposition from communities living close to the coast. Prominent examples are the on-going opposition towards oil exploration in the Gulf of Mexico, and anticipated oil drilling in locations such as the Arctic, West Africa and Brazil. Another example is the opposition towards negative environmental impacts of oil sand extractions in Alberta, Canada, and the issues surrounding the operation of the Trans Mountain Pipeline, and the transport of oil to communities at the Pacific Coast. However, large offshore wind projects also face widespread public and political objections, such as wind farms in the North Sea [15] and the large Cape Wind project off the U.S. East Coast [16]. By the end of 2017, the contentious Cape Wind project was cancelled after sixteen years of continued controversy and litigation. Opposition to such projects often reflects persistent flaws in the transparency of the regulatory system and the failure of developers to meet the expectations of local communities [17]. In order to develop innovative responses for a just and sustainable energy future, a broad view of the issues is needed.

Research into public perception and acceptance of Marine Energy (ME) infrastructures, both renewable and non-renewable, is becoming more of a concern in order to assess community responses to governance in an energy context [18]. Communities, such as agricultural- and fisheries-dependent communities, particularly in rural coastal regions, maintain unique cultural activities and traditions. They have often built resilience to cope with and adapt to developments and changes at the coast over generations [19]. Such communities and their people enable developments with their willingness to support large-scale facilities in their area, including piers, roads, pipelines, terminals, overhead transmission lines and cable routes [20]. Therefore, hosting communities for energy infrastructures are key entities that facilitate or hinder economic developments towards marine energy transitions.

Despite this, the consequences of energy transitions at the community level and in coastal environments in particular have not received adequate conceptual attention. A limited number of analytical frameworks are available first, for assessing place-specific and contextual considerations of people's perceptions and acceptance for energy transitions in a decarbonising world, and second, for building capacity to understand how the ME community can develop innovative models for engagement, to drive this emerging sector forward. There is a need to address the perceptions, expectations and concerns of coastal communities that host energy infrastructure; while at the same time considering the needs of policy and regulation designed to act in the national interest, industry development and path inter-dependencies, to deliver societal change towards transitions [21–23].

The lack of a conceptual model for assessing community responses to governance, limits our ability to work across scales, as identified by Lange et al. [24]. What can we learn about energy governance when stakeholder relations are contested at various levels, especially at the community level? How can decision makers be supported to better understand how to build the enabling conditions for the energy transition? This paper seeks to address this by yielding insights from extensive work with stakeholders in a rural coastal region in the West of Ireland. It adds to an early review of the dispute in 2008 [25], and considers the entire history of the conflict up to project completion. The novelty of the research lies in the in-depth analysis and its focus on place-specific considerations, like local values and culture, to understand system dynamics of larger energy transitions over a long period.

As the principles of governance play a pivotal role in the research, the paper begins by providing the research framework grounded in collective action theory (Section 2). Section 2 elaborates on governance and the enabling capacity of multiple actors from government, industry and civil society to support energy transitions. It then focusses on ideas about stakeholder participation, perception and acceptance, and regulatory design. The Section concludes a brief contextual overview of the key literature pertaining to the theoretical framework for this research. Section 3 presents the focus of the research, including the analytical framework used to assess community perception and acceptance in energy transition governance and the methods and material of the qualitative research. This Section also highlights a multiple and participatory stakeholder process based on collaboration with over 70 individuals using a mixed method approach. The approach was designed to assess statutory regime elements and to identify the cause of disputes in energy governance, gain an understanding of the interplay of multiple stakeholders and thereby addresses the interfaces between issues. Section 4 introduces the Corrib Gas project in County Mayo and the controversy that ensued. As part of the context setting, a descriptive multidimensional timeline is introduced. Results are highlighted in Section 5. They relate back to the ability of the statutory regime to deliver stakeholder participation, and to deal with dispute issues. Finally, the paper discusses the results in light of priorities for managing stakeholder interests (Section 6). The paper concludes with compelling findings and recommendations for the management of future energy developments (Section 7).

## 2. Theoretical framing: assessing community perception and acceptance in energy transition governance

This paper understands governance for managing energy transitions as the result of place-specific understanding of local values and culture and the enabling capacity of governance systems to support the decarbonisation of the energy sector. It acknowledges the local nature of self-organisation processes and the role individuals play in shaping collective and community-based decision-making. Here, the research builds on collective action theory drawn out by the seminal work by Elinor Ostrom on governing the commons [26]. The theory focuses first, on

cooperative processes that shape environmental outcomes, and second on institutional structures that shape actor's behaviour. It shows how communities of interest can manage common goods by adapting rules, applied by formal and informal institutions, policies and policy ideas to local needs, culture and conditions. Therefore, the paper delves into regulatory regimes of the energy subsectors of the selected case study to assess how regimes shape the nature of, and opportunities for, participation. It then focusses on the analysis of dispute issues.

Governance in its broadest sense describes how societies make decisions, share power, ensure accountability and take actions in response to diverse dynamics and complex challenges today [27,28]. It addresses multiple possible modes of decision-making, manifested in broader laws, regulations, policies and actions with which natural resources are managed [29,30]. This involves multiple possible actors from government, industry and civil society. Over the course of the underlying research, this governance triad was used to evaluate governance setups against all three domains and in each of the case studies applied. Domains were used to assess the factors that could hamper developments, such as failures in policy and planning or bad experiences with large-scale projects. Detailed elaborations on the governance domains and how those have been established can be found in Lange [24].

Various scholars highlight that the anchoring of principles of 'good governance' in participatory governance at the state level down to the municipality level can be a practical design element for improved governance outcomes. The understanding of good governance as a normative principle can be traced back to the work of the World Bank [31]. Osborne and Gaebler [32] view governance in light of failing governments. In their view, governance has to meet the expectations of those whom they govern. As a consequence failures such as weak, unstable and even collapsing systems are what constitute the rise of actors from markets and civil society: "Where the state is unable to govern effectively, other actors from market and civil society move in prominent governing positions" [33]. Biermann [29], Chang [34], Costanza et al. [35] and Rhodes [36] identified principles of 'good governance' in governance systems. The authors converge on the importance of "participation", "transparency", "equity and inclusiveness" and "adaptive management". They assume that adding structures and processes, by making sure that stakeholder interests are taken into account, improves institutional performance and can lead to better outcomes. The means to achieve good governance in a transition context are highlighted by Chilvers et al. [37]. The authors suggest that a shift away from simply requesting and obtaining views of the public, and determining transition pathways at a centrally located administration, is needed. Rather, it is necessary to implement decentralised types of transition strategies to strengthen the importance of different worldviews and forms of participation. Such considerations of diverse local meanings, values and actions are crucial to build "more socially sustainable, inclusive, responsible and just socio-technical energy transitions" [37].

The literature on participatory democracy suggests that stakeholder participation can be a central ingredient of 'good governance' and an effective tool for resource management. A key goal of participation and collaboration that has evolved in the socio-political discussion over the past decade is to foster acceptance [38]. In this context, a large body of research has been undertaken on community perception and social acceptance of energy infrastructure, community opposition to emerging renewable energy projects, and the role of community in development projects in the marine environment. Interdisciplinary scholars in the energy field focussed particularly on offshore wind farming activities around the world and the understanding of public responses [39–42]. Research on how to manage stakeholder interests in energy transitions in a decarbonising world has grown with the idea that community acceptance is a fundamental prerequisite for project implementation. Wüstenhagen et al. [43] highlighted the notion of social acceptance. Their work separated the concept into issues of first, socio-political acceptance, second market acceptance, and third community acceptance. In this context, the authors and Van der Horst [44] argue that proximity to energy infrastructure has a strong effect on public attitudes toward proposed projects. The strength and nature of the spatial scale of this can vary depending on the local context. Residents of communities having observed or experienced the negative effects of hydrocarbon projects are more likely to favour projects with lower environmental impacts. Burke at al. [45], for example, have elaborated that community energy projects have opened up potentials for a new form of community ownership, as they provide local economic benefits and thus potentially garnering stronger local support. In this context, the authors assume that renewable energy systems offer opportunities but not certainty towards a democratic energy future. The concept of 'not in my back yard' (NIMBY) has been applied in social science research to explore objections on the regional and local scale [46]. It uses assumptions excluding complex and dynamic social phenomena beyond attitudes among the population that is influenced by an array of factors, including perceptions of justice, voice and trust [43,47]. In this context Devine-Wright [48] focusses attention on the roles of support and how objections are embedded in local places and communities. Whether people with strong cultural ties, especially in rural areas, are more likely to reject or favour a possible development, whether renewable or fossil, must be subject of analyses of local attitudes. These analyses represent a clear knowledge gap in participatory governance research that stands in the way of improving site conflicts today.

All of the above can potentially be brought together through the process of Marine Spatial Planning (MSP). MSP is a valuable tool to bring together multiple users of the seas, with different vested interests, with the objective of sustainable development of marine resources. MSP is increasingly deployed to achieve ecological, economic and social objectives that have been specified through a political process. It is a form of governance, which facilitates decision-making in an inclusive and iterative fashion. However, the approach misses dimensions that are underrepresented, such as non-material values of coastal communities and perceptual dimensions related to the sea [49]. Given increasing demands on marine space, the advancement of pioneering new technologies, an appreciation of the ocean as a frontier for exploration and development, and a heightened awareness of the regulatory functions of the ocean atmosphere system in dealing with climate change, - the development of MSP in principle and in practice is both a challenge and opportunity. MSP provide a broad lens from which to view, not just the energy transition, but also the broader social-ecological imperatives as societies strives to achieve a more sustainable future.

## 3. Focus of the research, materials and methods

The objective of the research was to make recommendations for ME governance, with a focus on Ireland, but with practical implications for governance and transferability of lessons learned. The research was motivated by the need for good environmental governance as a cornerstone of the energy transition. The energy transition can include multiple new energy sectors, marine renewables, solar energy or bio fuels. In the context of Ireland, the development of marine renewables, especially offshore wind, will be a defining feature of the energy transition, requiring new governance of marine space. Thus, a deep review of the Corrib case study is relevant for anyone concerned with the governance of the energy transition. It is particularly relevant to marine renewables due to the challenges associated with managing resources in the coastal zone in Ireland and many countries with similar conditions around the world. A detailed single case-based approach, the focus of this paper, reveals an understanding of the decision-making process. Findings can be used to understand local perspectives and how to manage community perception and acceptance of strategic energy infrastructure projects. Findings can also help steer governance research that simultaneously support energy transitions in a decarbonising world.

The conceptual framework, as presented in Fig. 1, was designed to identify the cause of disputes in energy governance and to present an innovative solution for decision-making in the context of new ME

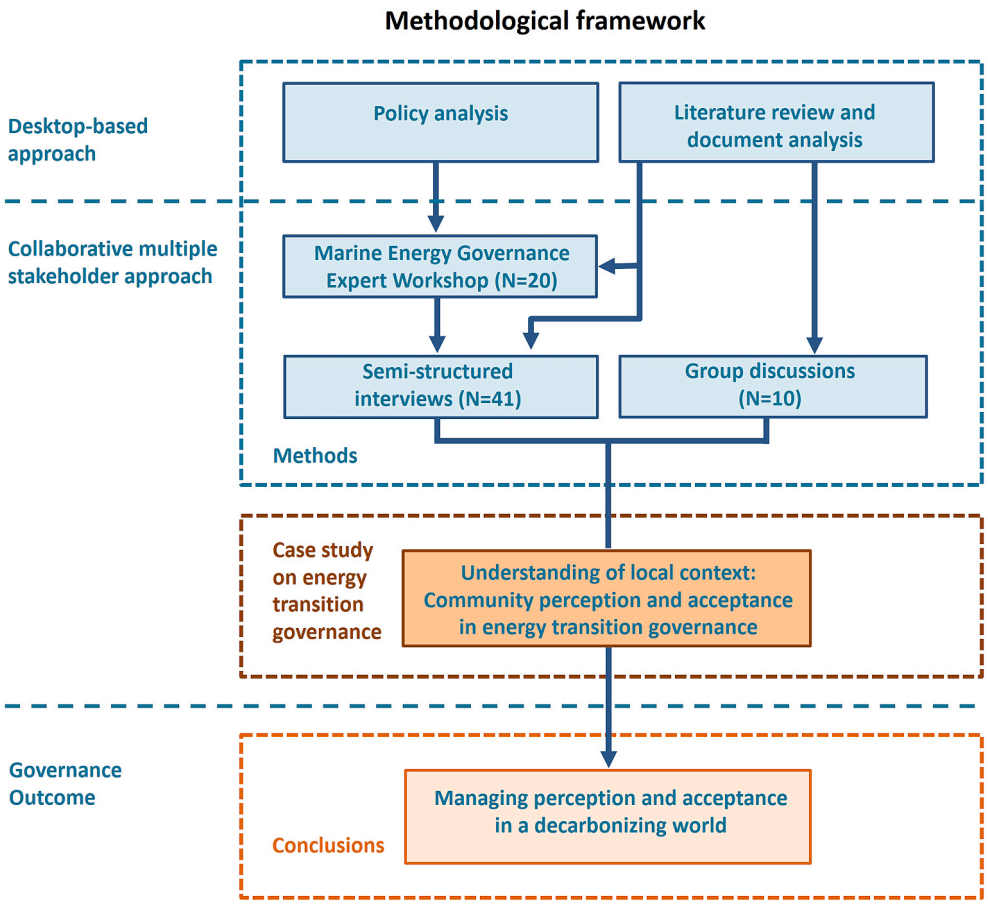



**Fig. 1.** Methodological framework of the research and number (N = ) of interview partners engaged within semi-structured interviews, group discussions and workshop.

developments. Further details of the relevant research design, methodology, other comparative case studies and analysis can be found in the work from Lange [50] and Lange et al. [51]. The framework was designed to provide for a multiple and participatory stakeholder approach based on engagement with diverse stakeholders using a mixed method. It was based on the analysis of governance domains of government, industry and civil society established in Lange et al. [24]. A form of sequencing was applied, whereby the results of one method informed the subsequent application of the next method. This allowed the use of methods for focusing particularly on emerging and dynamic issues. The first step included a desktop piece, which helped to analyse literature on collective action, governance and management and review ideas about stakeholder participation, perception and acceptance. This step also included document and policy analysis for studying legislative design, with a focus on the measure allowing for stakeholder participation.

The second step formed part of a multiple and participatory stakeholder approach using collaboration with diverse stakeholders. Methods included an expert workshop ("Marine Energy Governance Workshop", referred to as the governance workshop in the following), semi-structured interviews and group discussions. The approach included formal types of interactions, such as planned interviews, discussions, and the workshop; but also informal interactions within unstructured conversations, e.g. in the cultural centre and rural areas of the study region. This enabled the author to gain an appreciation of peoples' general attitudes and beliefs, their specific perceptions of the issues and their general approaches. A unique benefit was the opportunity to meet people in their locality. The governance workshop was informed by a policy analysis, whilst a literature review and document analysis informed the entire study. Fig. 1 highlights the methodological approach of the research and material used for analysis.

In total 71 (N = 71) stakeholders were engaged in the research between January 2015 and March 2017 (Table 1).

The multiple stakeholder approach served to gather qualitative data. A form of abductive research [52] was used to assemble the data and discover surprises arising from them. This allowed the authors to identify new explanations and interpretations of the stakeholder feedback. The interviews were non-standardised and questions deliberately broad and partly open-ended. The questions centred on eight themes highlighted below:

- Impact of the project on individuals.
- Project issues that affected the quality of life, positively and negatively.
- Levels of trust in decision-makers.
- Measures required regaining trust.
- Examples of significant disputes and measures taken to address them.
- Role of leadership in regaining trust and taking action to address disputes.
- Preferred economic development in the locality and anticipated (personal/public) benefits.
- Future investments in offshore renewables and their contribution to local economic welfare.

In order to distil and structurally assess key issues from a vast amount of qualitative data, a limited semi-quantitative approach was applied, where quantification helped to understand emerging trends from the stakeholder feedback, or helped to convey key points. The authors

**Table 1**
Profiles and community cohort of interviewees and participants of group discussions and their role in industry development, government and civil society in Ireland.

| Governance Domain | Profile/community cohort of interviewees and participants of group discussions | Number of interviewees/ participants[a] | Number of interviews[a] | Number of group discussions |
|---|---|---|---|---|
| **Civil society** | Moderate opposition, general public | 5 | 5 | – |
| | Advocacy | 4 | 3 | – |
| | Extreme opposition, activists, lawyers | 15 | 9 | 1 |
| | Subtotal | 24 | 17 | 1 |
| **Industry Development** | Industry leaders in the energy sector, developers, CEOs in the offshore gas and oil and MRE sector, lawyers | 17 | 8 | 1 |
| | Subtotal | 17 | 8 | 1 |
| **Government** | Senior officials from local government, semi-state and connected agencies | 3 | 3 | – |
| | Central government officials, departmental staff, civil servants | 7 | 6 | – |
| | Subtotal | 10 | 9 | – |
| **National "Marine Energy Governance Workshop"** | Industry leaders in the energy sector (chief executive officers offshore gas and oil and marine renewable energy), senior officials from semi-state, department, government, civil service), governance, coastal and ocean experts | 20 | – | 1 |
| Total number | | 71 | 34 | 3 |

[a] Including seven interviewees (State government officials (N = 4); industry leaders (N = 3)) interviewed in preparation of the governance workshop.

decided against using an automated analytical software such as NVivo. Rather, transcribed data were analysed using Excel to identify themes, systematically coded and qualitatively grouped. By analysing key issues according to the three governance domains, in order to conceptualise causal relationships, the authors took a thematic approach.

The governance workshop helped to understand the perspectives of those responsible for industry development and the current policy framework for ME in Ireland. It brought together twenty (N = 20) experienced leaders from across industry (chief executive officers (CEO) from both the offshore gas and oil and MRE sectors) and government (semi-state, department, government, civil service) with governance, coastal and ocean experts. It was held in May 2015 in Newbridge, County Kildare, Ireland. Attendance of the event was by invitation only and it was held under Chatham House Rules. Facilitators interviewed seven participants ahead of the event to gain insights on the governance landscape and expectations from the workshop. Participants were selected as part of a stakeholder analysis. As the aim was to limit the group of participants to roughly twenty participants, facilitators ultimately selected stakeholders given their expertise, their stake in marine economic developments, their broad perspective and their power to influence the transition towards ME in Ireland.

As a central ingredient of the workshop, a timeline development process was used to look back in Irish governance history and to identify eras of governance and patterns of human activity, ecosystem conditions and management responses. This approach was adopted and a timeline was created as part of the study on the Corrib Gas project. The timeline was processed based on stakeholder feedback from the interviews, document analysis and literature review. It will be highlighted in Section 4.2.

## 4. Background to the case study: Corrib Gas project, Ireland

### 4.1. Context of the place

Ireland's recent history provides a unique opportunity to learn from conflict in the gas extractive industry, namely, the development of the Corrib Gas [25,53–56]. The Corrib Gas project entails the extraction of a small-to-medium-sized natural gas reservoir 83 km off the West Coast of Ireland. Fig. 2 shows the location of the study area in County Mayo and the Corrib Gas field and terminal.

The project location in the barony of Erris is rural in nature. Population density is significantly low in comparison to the country average. The population census from 2016 indicated a population density of 23 people per km$^2$ in County Mayo in comparison to 68 people per km$^2$ in the Republic of Ireland, which is far beyond the country's average. 71 % are living in rural areas. Migration is a major demographic feature of the place. Whilst the population increased from 2006 to 2011 by 5.4 %, it decreased in the years after (from 2011 to 2016) by 0.1 %. A population share of 8.5 % was working in agriculture, forestry and fishing, 20.5 % in industry and construction and 67 % in services, such as tourism and the

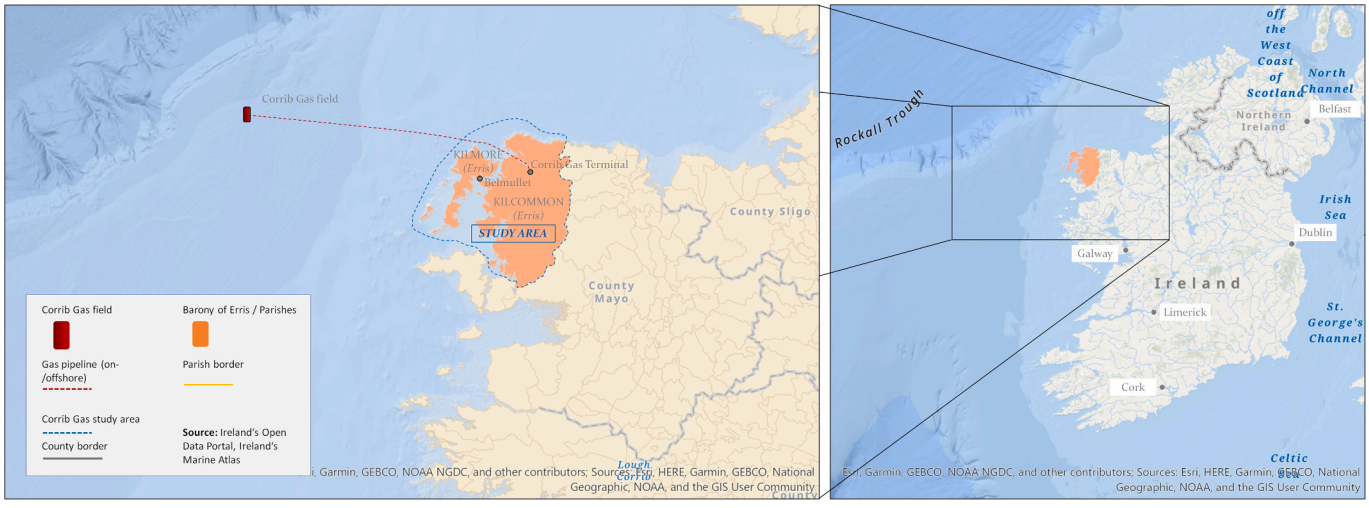



**Fig. 2.** Map of study area including the parishes of Kilcommon, Kilmore and Belmullet town in the barony of Erris, and the locations of the Corrib Gas field and terminal in operation (left); Map of the study area and its location at the West Coast of Ireland (Source: Ireland's Open Data Portal, Ireland's Marine Atlas, 2020).

health sector. The total labour force was 57.7 % (60,030 persons in total, a decline of 912 on 2011). In total, 8,591 people were unemployed in 2016, which translates into a 14.3 % unemployment rate [57].

The people of the three parishes living close to the technical components of the gas infrastructure were categorised as the 'community' for the purpose of the research. The authors acknowledge that at a particular time of the conflict, opponents from outside the community came to the area to protest, mainly against the multinational company. Although the author of a conflict study, Gilmartin [56], takes a biased-view of the role of industrial decision-makers during a particular period of the conflict, the work offers an approach to understand opposition dynamics to a certain extent. However, looking deeper into the perceptions and deeper insights into expectations of industrial decision makers was not a focus of this analysis.

At peak production, over a lifetime of 15–20 years, the Corrib Gas project is capable of meeting up to 60 % of Ireland's gas needs. The construction of the development included three major elements: A subsea facility and an offshore pipeline that connects the well with a landfall in County Mayo; an onshore pipeline from landfall to a terminal; a gas-processing terminal 9 km inland from the coast at Bellanaboy. At landfall, the pipeline is routed through a tunnel for approximately 4.9 km underneath Sruwaddacon Bay, which is the longest utility tunnel in Europe. From the terminal, the gas is distributed via a 150 km extension of the Irish gas transmission network to Galway City, an important regional hub on the Atlantic coast. Fig. 3 highlights components and the extent of the project at the West Coast of Ireland.

The project is an example of a community dispute that resulted in opposition. It provides valuable insights into issues surround the development of strategic energy infrastructure, as well as the measures that can help to de-escalate from heightened tensions and entrenched positions. At the height of the conflict, (which ran from 2001 to 2005) riots and blockades were instigated by members of the community, local farmers and fishermen against the project developers. Breakdown in relationships reverberated in the region. In the context of a study from the earlier years of the conflict, Garavan [25] focused on cultural and semantic and discursive aspects of the conflict. The conflict reached the national and international media and caught the attention and engagement of international human rights NGOs [58].

A gradual diffusion of tension was facilitated, in part, by the political decision to appoint an independent mediator, who recommended a series of resolutions. By the end of 2015, twelve years behind the initial schedule, the project went on-stream. To date, in terms of strategic importance, the Corrib project represents Ireland's largest ever energy investment. Corrib Gas Partners invested more than €3.6 billion before project's completion [59]. During construction, more than 6000 people worked on the project and up to 175 full time job equivalents continue during its operation [60]. However, the legacy of the project has been such that even relations within the community remain divided.

### 4.2. Multidimensional timeline

The multidimensional timeline (Fig. 4), co-designed by participants in the governance workshop, shed light on key milestones related to decisions associated with the development of the conflict. Analysis of the chronological sequence of decisions can be of immense value (as demonstrated by proponents of the field of Strategic Error Management [61]). However, this level of analysis was beyond the focus of this paper and may be the subject of future work.

Participants of the governance workshop in May 2015 provided information on key events that led to the exploration of offshore hydrocarbons in Ireland (top row, Fig. 4). Subsequent feedback from interviewees and document analysis were used to compile events that led to identification of the issues in the dispute across the governance domains of 'Policy and Planning', 'Industry Development' and 'Public Involvement' (rows 2–4, Fig. 4). Three eras were identified: The first was the "era of creeping realisation of project size" (from pre-field discovery to the planning permission for the terminal, 1970-/1996–2001); the second was the "era of severe conflict escalation" (from construction at terminal side to jailing of local citizens, 2001–2005) and the third was the "era from escalation to diffusion of tension" (from independent mediation to project commissioning, 2005–2016).

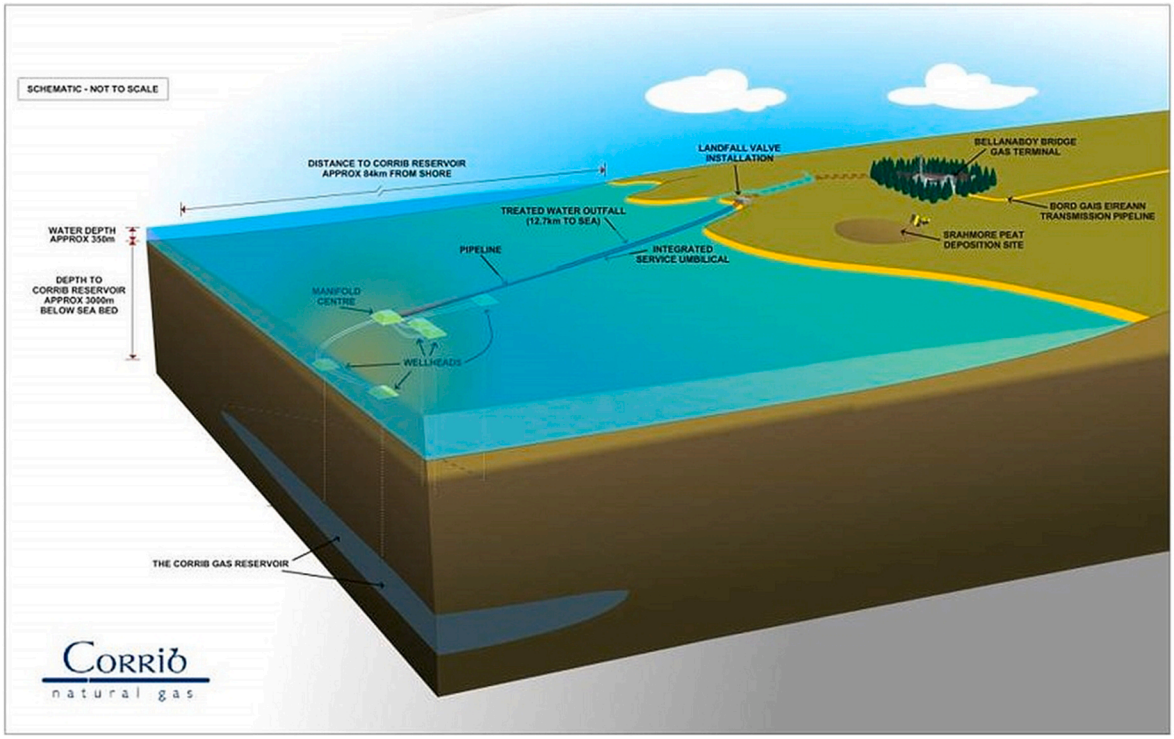



**Fig. 3.** Corrib Gas project and technical components from well to terminal and beyond in 2020 (Source: Corrib Gas Partners, 2020).

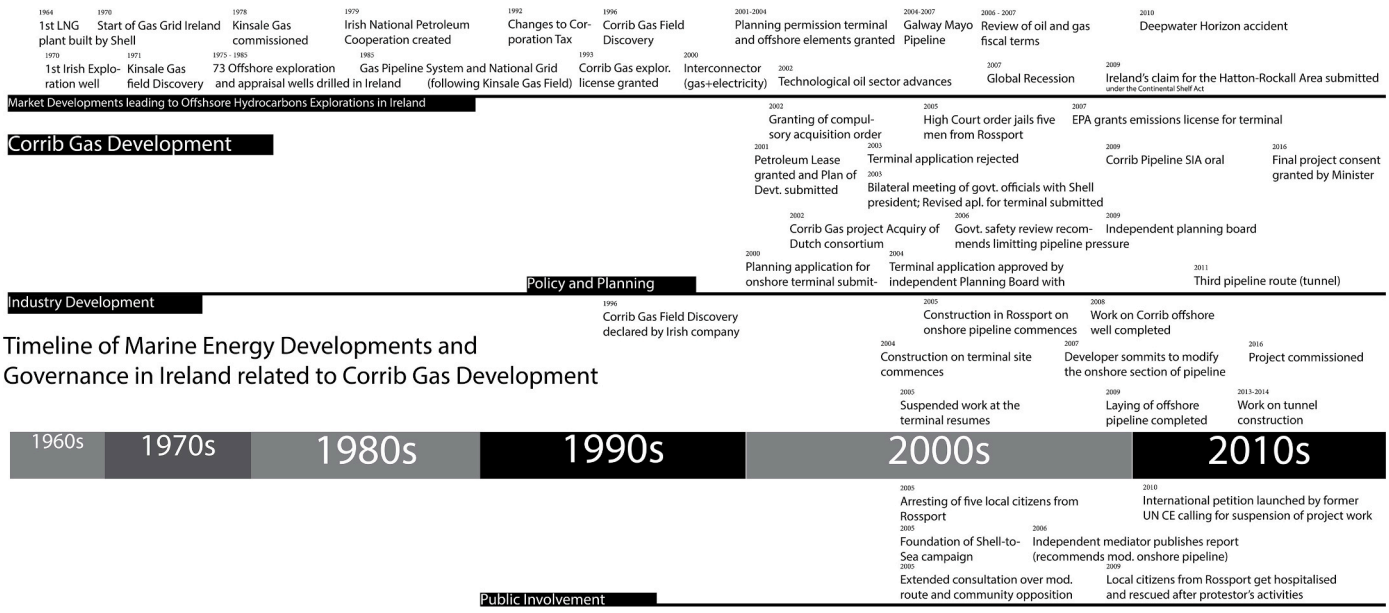



**Fig. 4.** Timeline of key events leading to Corrib controversy distinguishing eras and key events across established governance domains and highlight events that are relevant to understand the context for marine governance in Ireland (upper section, first row).

## 5. Results

In the following, key results of the analysis are presented, namely an analysis of the statutory regimes relevant for granting permission of certain elements of the project and their capacity to support public participation (Section 5.1). Section 5.2 deals with stakeholder perception of conflict issues. Section 5.3 summarises key governance issues.

### 5.1. Statutory regimes and implications for public participation

A number of different Government departments, often with overlapping jurisdictions, dealt with approvals for different parts of the development. The gas pipeline alone, according to technical components (Fig. 3, Table 2), fell under three different statutory approvals, which exemplified the complex management of the construction. In addition, the onshore section was overlapping with approvals relevant to other technical components. Further and detailed elaborations on the statutory approvals for the process can be found in Lange [50].

Table 2 summarises the different statutory regimes, responsibilities for parts of the development and the year of granting application. It also incorporates existing measures and possible measures and types of intervention for the public and public participation, but not implemented in this case. The different licensing steps highlight two points: firstly, the large number of authorities and procedural steps of the legal regimes towards the final implementation of the overall project, and secondly, the lack of procedural steps that explicitly considered public concerns. Relevant statutory regimes rather addressed comprehensive assessments of resource supply, the security of energy for the overall project, the export pipeline and the offshore well (Section 13 application for a Petroleum Lease, Section 8 application of the Gas Act, Section 5 application of the Continental Shelf Act), a general review of environmental issues, such as measures to prevent water and soil pollution (Environmental Impact Statements, Integrated Pollution Prevention and Control Licence), or compliance with technological standards and operational safety (Section 5 application of the Continental Shelf Act, Independent safety review).

The approach to consultation focused on the regulatory regime and related processes, such as the EIS. Formats for engagement in the approval process (see Table 2) were not very participatory. Large forums provided little room for all voices to be heard. The use of overly technical language was also an issue. The consultation on a modified route of the onshore pipeline towards the end of the consenting process facilitated a more meaningful dialogue with the public. However, the general consensus from interviewees was that the statutory regime was poorly designed to accommodate feedback.

The list in Table 2 shows the multitude of administrative authorities that made decisions on the approval of the terminal in particular. On the one hand, there were no representatives elected by the people [25] and on the other hand, there was little trust in political and administrative decision-makers. Thus, the conflict could not be solved within the framework of a politically discursive process, but was settled within the framework of a centrally located administrative process. This and the fact that decisions were not made by locally elected representatives can be seen as one of the important foundations for the emergence of the conflict.

In the following Section, findings are presented according to critical issues to emerge from the three main governance domains, namely industry, government and civil society perspectives. What was the biggest concern for government? What was the biggest issue for industry? How did the community feel? The questions supported the structured analysis that teased out perspectives of those managing, and being affected by affairs.

Key issues found in the material to follow were:

- Lack of fit for purpose permitting framework
- Expressions of low trust and political dissatisfaction
- Fundamental misunderstanding of the local perspective
- Lack of communication, transparency and information
- Management of conflict not meeting local expectations
- Project splitting and disjointed decision-making.

### 5.2. Stakeholder perception and acceptance

#### 5.2.1. Critical issues identified by industry developers

The industry interviewees tended to agree that the process to bring the project on-stream was convoluted and that there was a need for improvements in the planning system to deal with large marine infrastructure projects. One interviewee reflected that "In Ireland, […] you have an environment where the legislation is completely fractured. You are dealing with a number of different departments, some of which are

**Table 2**
Relevant statutory regimes, responsible authorities and measures for public participation for different parts of the development and date of application (Source [62–64]) (Abbreviations: ABP = An Bord Pleanála; DEHLG = Department of the Environment, Heritage & Local Government; DCENR = Department of Communications, Energy and Natural Resources; DAFF = Department of Agriculture, Fisheries and Food; DECLG = Department of Housing, Planning and Local Government; DMNR = Marine and Natural Resources; EIS = Environmental Impact Statement; EPA = Environmental Protection Agency; MLVC = Marine Licence Vetting Committee).

| Year/ month of granting | Part of development | Relevant statutory regime | Responsible authority | Measures for public participation |
|---|---|---|---|---|
| Nov-2001 | **Basis for the entire project** | Section 13 application for a Petroleum Lease under the Petroleum and Other Minerals Development Act, 1960 | DMNR | Limited measures, right of audience on hearing before the Board. |
| Apr-2001 | **Onshore terminal** | Planning application to local authority | Mayo County Council | Public meeting, two oral hearings. |
| Nov-2001 | **Corrib Gas field** | Plan for Development; accompanied by EIS | DMNR | Public dependent on inspector's assessments. |
| 2001 | **Entire project** | MLVC to examine all environmental aspects | DMNR | Public consultation to seek local information (mainly human impacts amongst others such as socio-economic issues). |
| Feb-2002 | **Export pipeline** | Section 8 application of the Gas Act, 1976 for Mayo-Galway pipeline | DMNR | Bye-law made to be open for public inspection. |
| April 2002 | **Offshore well** | Section 5 application of the Continental Shelf Act, 1968 | DMNR | No measures for intervention. |
| Apr-2002 | **Pipeline from subsea installation to terminal** | Section 40 application of the Gas Act, 1976 for pipeline construction; accompanied by EIS | DMNR | Ministerial decision, no measures for intervention. |
| May-2002 | **Part of offshore pipeline, umbilical, discharge pipeline and landfall** | Foreshore Licence under the Foreshore Acts (1933–2012) | DMNR | Public consultation; Submission measures available to the public during public consultation period. |
| Oct-2004 | **Onshore terminal** | Planning Permission for terminal; associated peat deposition site | ABP | Public dependent on ABP officials' decisions; right for making a submission by any person. |
| | | | DMNR | |
| May-2005 | **Onshore and upstream section** | Independent safety review | | Assessment limited to technical safety issues (carried out by consulting company) |
| Nov-2007 | **Entire project** | Integrated Pollution Prevention and Control Licence | EPA | Public consultation to seek local information (mainly human impacts amongst others such as socio-economic issues). |
| Feb-2009 | **Onshore section of pipeline,** including section between land fall of the pipeline to the tunnel and beyond to the terminal | EIS for the oral hearing in 2010 under the Planning and Development (Strategic Infrastructure) Act, 2006 | ABP, DAFF | Additional information made available for public inspection and right for making a submission by any person. |
| Jun-2010 | **Tunnel route underneath Sruwaddacon Bay** (modified route) | New Foreshore Licence application under the Foreshore Acts (1933–2012), after ABP oral hearing in 2009 | Foreshore Unit, DAFF | Setup of consultation process led to proposal for modified route, oral hearing. |
| Jun-2010 | **Tunnel route underneath Sruwaddacon Bay** (site investigations) | Foreshore Licence under the Foreshore Acts 1933–2012 | Foreshore Unit, DEHLG | |

better equipped than others to deal with this. However, fundamentally you don't have a legislative framework that is fit for purpose. And you are trying to shoehorn what is a major infrastructure project into, in some cases, planning laws that are designed for developments of shopping centres or housing developments and you try to put a major industrial development within that." Another issue highlighted by industry concerned the role of political representatives versus higher officials, permanently in office, such as civil servants. . One interviewee expressed frustration with the balance of power as follows: "There is no consistency, for example, you can ask someone, say a Minister, he has worked for a couple of years but then, all of a sudden, he is looking for an exit strategy. So, my problem all along is which I would like to find out: Who actually makes the decision? Is it the civil servants that are based in each Government Department?"

The fact that the Corrib Gas infrastructure was split into three major components for planning purposes (offshore, pipeline and onshore terminal infrastructure) exacerbated the challenges for industry. This condition arose from the lack of integrated coastal zone planning and foreshore consenting. Over-confidence on the part of industry that the lease for the offshore component of the development was an indicator that the entire project would surge ahead, was a major error. This was compounded by the misjudgement by the developer of the significance of the pipeline to the overall planning process. From an engineering mindset: "The onshore pipeline, joining the two [offshore and onshore

pipeline] really was viewed as easy standard business and that was part of the problem because no one tied the project together in its entirety. […] That wasn't thought about holistically." In fact, the pipeline became one of the most contested elements of the entire project. In 2002, the Minister at the time signed a Compulsory Acquisition Order (CAO) that allowed the consortium to access and use private land for onshore pipeline installations. Grave concerns around the safety of gas and high pressure in the pipeline in proximity to local homes ultimately led to the arrest of five men, known as the Rossport 5, for disregarding a court order and their ongoing protests against the pipeline route.

In 2002, the developer continued with the original development plan following a change in consortium. The developer treated community concerns as "above ground risks" and focussed project management on being compliant with the prevalent regulation. As a result, it discounted stakeholder engagement as routine work. It was explained as: "[Engineers] view issues with communities as another technical issue to be solved and actually it is much more complicated than that." "Generally companies are focusing on the technical aspects of these projects and not so much on the non-technical side and the challenges", and "The absence of a really thorough social impact assessment at the start of the project [was one consideration] … considering the local characteristics of a rural area, which had little experience with industrial development." The engineers leading the project on behalf of the developer also failed to communicate technical issues and uncertainties in a fashion that was understandable in lay persons terms. As a result, even at this early stage of development, the project lost acceptance in the community and the local population withdrew support for the project.

The Irish process had no equivalence with other Northern European countries, such as the Netherlands, Denmark and Northern Germany, where the planning system is better aligned to facilitate major infrastructure, and where communities are better adapted and prepared to dealing with the consequences. Industry professionals with previous experience of working in these jurisdictions experienced how things were quite different in Ireland, particularly as the Corrib Gas infrastructure was the largest energy infrastructure of its kind to date. It was also suggested that the developer's corporate business model was based on an approach, which made it difficult to see, understand and accept other worldviews. This cultural mismatch transcended the realms of the internal working environment of the developer and ultimately influenced its ability to connect with the local community, who were galvanised historically against "betraying your neighbour to outsiders". One industry respondent reflected that "If the company would have accepted the views of [both] local citizens and the own Irish staff in particular they would have learned that this project would become totally wrong".

The industry interviewees appreciated the designation of an independent mediator in 2006, as a tipping point that addressed some of these issues. The government appointed mediator, Mr. Peter Cassels, helped the developer to obtain feedback and to re-engage with the community. The recommendation in the Cassels report [65] to establish a liaison office staffed by locals, was valued by the industry respondents as it was deemed to help de-escalate the situation. Within the community, confidence in the measures taken grew and local advocates for the Corrib gas project increasingly determined the mood. For the most part, this cohort demonstrated a more nuanced perception of the conflict, but it was still critical of the way the local population were treated and the response to the conflict.

#### 5.2.2. Critical issues identified by government

In general, government officials tended to raise few concerns about issues relating to their own domain during the interviews. Their observations of the conflict tended to focus on the actions of the developer and the community. Government officials aligned with 'expressions of low trust and political dissatisfaction' and a 'fundamental misunderstanding of the local perspective' as key dispute issues. A number of officials shared the impression that the low level of trust in government related to the challenge for government in safeguarding the interest of the community, while at the same time, securing inward investment from a multinational enterprise. There was an impression among some interviewees that rural Irish society was not used to change and had a limited modern outlook. Officials gave the impression that they realised that, in order to deal with this, early communication and listening to the people of the place were crucial to allow local contextualisation; however, this clearly did not happen.

There was a sense in the comments that this was someone else's responsibility: "If you bypass the local context you are getting in trouble." Others self-critically acknowledged: "I felt for some reason that this project seemed to be lacking an Irish dimension." "For me the whole lesson is, don't ever allow yourself to get into this situation. Once the trust is gone like that, it takes you huge efforts to regain it. Once you lose that licence to operate, it takes an enormous effort to turn things around. […] In terms of lessons for the future and governance, how to avoid getting into such situations?" Only two government officials brought up the issue of 'suspicion towards government', which one interviewee linked to a deep-rooted consequence of colonial rule in Ireland. Another interviewee likewise emphasized cultural aspects as a root-cause for the dispute. The sentiment was that historically, Irish society suffered from famine and occupation, which was thought to have an impact on how trust in the institutions of the country have evolved over decades.

Ultimately, officialdom framed the actors in the dispute according to i). people totally opposing and would never accept the project as proposed and calling on others to actively resist, ii). people who had genuine safety concerns and would therefore strictly reject parts of the technical developments, and iii). those in favour and advocating the project. Interviewees agreed and appreciated that the government played a key role in appointing a mediator in the dispute in 2006.

In this context, the Cassels report [65] made recommendations to deal with the following issues:

- Ensuring that safety concerns regarding the operation of the pipeline are considered;
- Examining the route of the pipeline and its proximity to local houses;
- Considering issues referring to the gas terminal, its location and environmental concerns;
- Improving benefits for local people and the region;
- Reviewing of anomalies in financial compensation for landowners on the route of the pipeline;
- Carrying out monitoring of the project and consultations with the local community.

In terms of the provision of the local benefits, interviewees emphasized the need to manage developments in rural areas to deliver tangible benefits/community gains to obtain support for development.

Government interviewees were less likely to raise issues around the effectiveness of legislation or the impact of project splitting. However, one official was critical of how the initial licensing of the terminal was lacking an achievable separation of the decision-making power of the responsible department and the regulator (provided by the Ministerial Order). The same interviewee stated: "I think our regulatory structure is weak … where we have regulations we tend to overregulate and where we don't have regulation we have zero regulation. When we have weak regulation, we have weak implementation of the regulation." On the opposite, another interviewee promoted the effectiveness of the planning system with regards to the Strategic Infrastructure Development regime: "Ireland set up An Bord Pleanála, which was designed to really provide a black box, almost a mechanism for dealing with planning considerations on major projects, which could not be interfered with either through corruption or through government influence or through other sort of input. It was meant to stand alone to be absolutely impartial."

*5.2.3. Critical issues identified by the community*

The community respondents presented the most diverse array of insights into their perceptions of the issues in contrasted with industry and government stakeholders, who tended to have a more linear view of the conflict. In essence, the community-related issues boiled down to transparency and trust in the planning process, fairness of decision-making, erosion of sovereign rights, and speed of development.

The Irish planning system at the time of project development did not have capacity to facilitate public engagement as a streamlined element of an integrated process, which was seen as a prerequisite for building acceptance and trust from the community perspective. As one interviewee put it: "If there is a policy in place of consultation (engagement policy) before anything then I would have more trust." The planning system functioned in that consultations were opened as consents were issued, particularly at the early stage between 2001 and 2005, but none of these addressed the project as a whole, as a result of project splitting. Suspicion towards government was exacerbated by a lack of transparency around the Ministerial Order taken in 2002 by the then Minister for Communications, Energy and Natural Resources. The decision laid the foundation for granting the gas-processing terminal. Whilst the terminal was planned on a site owned by the state forestry company, the initial permission was granted without public engagement. Commenting on the role of government the majority of interviewees felt that it failed to adequately inform the public about the project and particularly the extend of it in a transparent way. As one interviewee stated: "The biggest issue in the project was the lack of information. Upfront the government is not very good at engaging in the community. Government decisions seem to be slow, government neither likes to change, nor is it very open."

Issues were also raised about poor communication and lack of transparency by the developer. Referring to this, some interviewees both moderately and extremely opposing the project expressed that they were not against the exploration of hydrocarbons *per se*. However, opponents objected to the way industry developers and government managed the conflict: "I am in favour [of hydrocarbons] yes but consultation between locals and government and company developers is very, very important from the beginning because people need to understand it. Otherwise those projects get stuck". Interviewees further believed that a decide-and-announce approach was predominant, which did not leave much space for interventions and changes to the initial plan. While the first phase of the key events of creeping realisation of project size was dominated by political and above all economic interests, the developer decisions and the way in which measures were implemented and conflicts were managed in the following years from 2002 onwards led to an escalation of the conflict.

Concerning the issue of trust, interviewees voiced two subordinated issues: claims of corruption within government-industry affairs (these were unsubstantiated) and general suspicions towards central government as opposed to local government. On the latter, perceived issues with corruption in central government weighed strongly. This related to political representatives who were accused of bias towards their own counties, and to the civil service, because of a major lack of accountability at the time. It was felt that: "The political system at that time was designed to circumvent issues in order to facilitate the plan of the enterprise consortium." Interviewees believed that decisions were essentially made under the guise of close linkages between economic and political interests and as if decisions were made consciously or unconsciously avoiding problems and exclusively facilitating the consortium's plan. In this context, other interviewees from the community stated that government decisions were often made within "old boys' networks".

A strong narrative that had taken hold in the community concerned the actions of the Minister for Energy going back to 1987. At the time, the Minister changed the fiscal terms for new oil and gas exploration and reduced the State's shareholding of any offshore oil and gas discovery in Irish waters from 50 % to 0 %. Later in his career, the same Minster was called to account by the Flood Tribunal on planning corruption [66], and the Dublin Circuit Criminal Court condemned him for tax evasion. Based on the tax framework, the then Minister of Finance and later Taoiseach (Prime Minister) (from 1998 to 2008), brought cooperation tax down from 50 % to 25 % in 1992. There was a strong perception at the community level, that this fiscal regime diluted the sovereign right to ownership of the seabed resource held by the Irish citizens. It appeared that some vocal activists, opposition members and the media shared supposed facts on hidden decisions made behind closed doors. In addition, stories of bribery gained momentum within the community.

Cultural and historical links to respect for authority also came up in community responses, with a perceived understanding of a relationship between colonialism and a legacy of a deep-rooted suspicion of those in power. Some interviewees made the point that this was stronger in the West of Ireland than elsewhere in the country, for example: "… central government and politicians and institutions are viewed with a tremendous suspicion and don't have a great deal of authority or unquestioning respect. And especially in some of the communities on the Western side of Ireland, which exemplifies that; and Mayo is probably the community or the county that exemplifies that to the greatest extend".

Many community interviewees stated that the developer always kept a clear focus on the initial plan and aimed at meeting project goals and deadlines without paying attention to local concerns referring to safety and environmental risks. A major concern was a sense of things being expedited by industry and government. This meant that, instead of feeling listened to the local community felt they were being 'railroaded' into a process over which they had no control. One interviewee stated that: "… engineering arrogance and obsession with timeline and project delivery can screw things up quite frankly".

The granted CAO to the project consortium (see Section 5.2.1) that indirectly led to the jailing of the Rossport 5, was mentioned repeatedly in the community interviews. It led to a collapse of the already severely damaged relationship. Ultimately, interviewees from the local community felt that policies were in place that steered outcomes towards central government's decisions and the mutual interest of the private investor. Finally, some respondents felt that government officials lacked sufficient expertise to deal with such complex development issues. At the same time, however, the event led to the appointment of a mediator, which heralded a phase of diffusion of tension.

*5.3. Summary of governance issues arising from the interviews*

In the following, the most salient governance issues to emerge from the analysis of dispute issues are described.

- Lack of fit for purpose permitting framework

The complex and convoluted decision-making process described in Section 5.1 highlighted the various roles and responsibilities in the statutory approval process. In case of the Corrib Gas project, those responsibilities were split amongst different Government departments, with often overlapping jurisdictions. The process lacked clear and practical criteria and left extensive room for interpretation. Stakeholders highlighted this issue as a major root-cause of the dispute.

- Expressions of low trust and political dissatisfaction

Low trust is a major feature of people's perception in the Corrib Gas case. In terms of the feedback from interviewees, two subordinated issues can be distinguished. The first are 'unsubstantiated claims of corruption' within government-industry affairs and the second are general 'suspicions towards central government'. This included dissatisfaction with political personal as well as the political system and processes. One interviewee explained that in Ireland, traditionally, there was little faith in the ability of central government, politicians and state institutions to represent the interests of the population, which has implications to this day for authority and respect. Both subordinated issues manifested political dissatisfaction.

- Fundamental misunderstanding of the local perspective

The project developer followed corporate principles, which were designed to meet international safety standards. However, members of the community had safety concerns, which fundamentally shaped their perception of the project. Those concerns were not fully taken into account from the outset. The company also tended to treat the project as if it were in Northern Germany, Denmark or the Netherlands, where societies are used to such developments. By way of an example, stakeholders had observed that only after intense external intervention and facilitation of an independent mediator in 2006, the industry developer constituted measures that stressed the provision of local economic benefits and enacted stronger engagement in the community. This included visibility of senior staff from central management of the enterprise in the area.

- Lack of communication, transparency and information

The community were concerned by the developer's seeming unwillingness to translate technical language into formats easily understandable by the citizens and to provide support for key challenges arising from project developments. Respondents highlighted that there was no meaningful and appropriate articulation of the facts and that the developer seemed to ignore local complaints. This perception arose due to a lack of information both in terms of missing information and of using technical language. Some interviewees believed that this lack of communication, transparency and information led directly to the protests.

- Management of conflict not meeting local expectations

In general, interviewees believed that the majority of the people were in favour of the project, however people tended to agree that the way the project has been handled was wrong. Some respondents, including opponents, stressed to be in favour of hydrocarbon exploration, if projects were developed properly with no short cuts, flaws in communication and with no safety concerns.

- Project splitting and disjointed decision-making

The fact that the Corrib Gas infrastructure was 'split into three major components' was often mentioned as a major issue by interviewees. In the years 2001 to 2005, approvals for these single components were granted. From a company's perspective, the project was technically viewed as three different projects. The first was the offshore element, the second the transmission from the sea to the land and the third was the terminal (see Fig. 1). Opponents argued that after having achieved a decision on one element that the entire project was indefinitely carved in stone in the mindsets of government and industry. Tying the elements together was viewed as easy standard business. Opponents agreed that alternatives were not considered adequately and proposals by an activist group to process the gas offshore, and to use an alternate location for the terminal, were neglected.

Other issues identified by the analysis were a lack of legal obligation to facilitate public engagement, reluctance to take decisions among government officials, lack of a thorough non-technical risk assessment and a lack of a fair distribution of compensation. In terms of the compensation issue, proponents from the Erris area, such as business leaders and citizens very much acknowledged the positive regional economic developments the project brought to the area. Some also voiced an opinion that an opportunity to bring benefits to the attention of citizens had been missed, and that there were related issues around long-term benefits and fair distribution of compensation. In this regard, general concerns on the role of media and one-sided reporting were also noted.

## 6. Discussion

The authors have suggested that experiences from the offshore hydrocarbon industry offer the opportunity to learn from established large-scale energy developments for better governance of activities in both the hydrocarbon and the MRE sectors (namely offshore wind, wave and tidal energy) going forward. This has been suggested earlier by Seigo et al. [67] in the context of carbon capture and storage (CCS), and Johnson et al. [68] in the context of the offshore oil industry. It has been shown that the issues surrounding the development of the Corrib Gas field, as revealed by this single case-study approach, is strongly linked to the cultural fabric, not just of Ireland, but of the West of Ireland, and to Mayo, a county in Ireland's West. Issues with authority and suspicion of those in power were suggested by all stakeholder groups as having an influence on the conflict as it unfolded. The rural nature of the community impacted by the development, also had implications on their ability to adapt to what was being proposed. While this local specificity is one of the key characteristics of the Corrib case, the overarching theme, of a breakdown of trust and a local community taking a stand against big industry and government, is not unique [69,70].

The present study is based on an intensive and trusting exchange between science and stakeholders of society, local people (at the community level), politicians and business representatives. Although the data generated from this exchange are only snapshots of the period from 2014 to 2017, findings look far back into the origins of the conflict and provide deep insights into the perceptions of the interviewees. Based on this, the value of the case study is in identifying how the situation deviated from the values, norms and principles of good environmental governance, so that lessons can be learned for the energy transition as it unfolds in jurisdictions around the world.

The case study of the Corrib Gas project reveals a fundamental lack of baseline provisions for effective governance. Governance in its broadest theoretical sense can serve as an approach that facilitates dialogue based on governance principles between diverse interest groups [29,34–36]. In order to tackle the grand challenges of today, such as leading the energy transition, good governance requires processes and structures to ensure fair balances of power and interests, and secondly, integrative processes of negotiation. This also includes fit for purpose legislative frameworks that incorporates meaningful stakeholder participation as an integral part of the decision-making process.

While the literature on participatory democracy suggests that stakeholder participation in the decision-making process can be an effective tool for resource management [71–73], the Corrib case study found that civil society was missing as an important ingredient of the negotiation process. The interview data presented showed that this approach produced a loss of trust and fostered dissatisfaction with political decision-makers. Previous research into coastal zone management showed a reluctance on behalf of the Irish government to embrace local stakeholder participation in the planning process, for fear of losing the ability to achieve the desired outcome [74]. One issue is that participation leads to representation of so many voices at the table, that consensus building becomes elusive. The role of participation is most valuable when it focuses on the process in its own right [73]. It is impractical to aspire to consensus building in situations where local concerns are traded against national strategic interest such as energy security. At the end of the day, public participation is not a panacea, but the benefits would appear to far outweigh the risk of excluding the public from strategic energy infrastructure projects and energy policy implementation [75]. There is no doubt that according to different estimations the 12–13 years delay and added cost of €2.7 billion – €3.2 billion of the Corrib project [59,76] could have been avoided if community stakeholders had the benefit of being more engaged in the planning process from an early stage and if place-based understanding had been considered more strongly.

Ensuring that transparency is central cornerstone of a stakeholder participation process would seem like an obvious choice for building

trust, however, the logic clearly did not prevail during the formative eras of the Corrib project, and it was largely absent, according to community accounts, during the era of severe conflict escalation (Figs. 4), 2001 to 2005. As it was, it was not a level playing field; it would appear that the balance of power resided originally with government and industry, until activists gained sufficient momentum to shift the dial in favour of community concerns.

The appointment of the mediator in 2006 deserves special attention. It was a tipping point towards diffusion of the tensions and towards an adaptive response by all parties. As a former head of the Trade Union, political representative and emeritus teaching scientist outside the narrow circle of decision-making process for the project, the mediator was highly trusted by the local community. He consulted with stakeholders at all levels and supported the negotiations between the community and the developer. His position outside the narrow circle enabled him to issue recommendations independently, transparently and unbiased. All parties involved agreed with his recommendations and the measures were implemented. One major outcome was a modification of the onshore pipeline route, however, tensions prevailed and the pipeline route was not finally approved by An Bord Pleanála, the planning authority, until 2011. Nevertheless, the Corrib case study highlights the potential impact of an honest broker. This not only created trust among the population in him and his actions, but also towards the political decision-makers who were responsible for the appointment.

The establishment of a body with a mandate to develop and evaluate the application of ethical rules based on principles of good governance is suggested as an option for a refined governance model going forward. This would go beyond the remit of the Standards in Public Office Commission (SIPO), a current framework in Ireland, and would address limitations in the planning system for large strategic infrastructure. The research has also shown that problems arise when there is a lack of reliable or accessible information. Stakeholders expressed a strong demand for factual information in order to determine the likelihood and potential impacts of technical challenges and risks. It is proposed that such an honest broker could facilitate transparent and effective communication.

A fundamental criticism from all parties related to the inadequacy of the regulatory system as an effective process for integrated planning and management. The considerable number of agencies and departments, policies and procedures, involved in the regulatory process was neither effective nor efficient, and it also gave rise to the detrimental consequences of project splitting. Six years since the first gas was pumped ashore in 2015, the landscape for the regulation of development in the marine environment has started to change. This is an imperative for new investments on the horizon for marine renewable energy, in particular for potential investors in Ireland's fast developing offshore wind market [77]. The evolved policy situation under the National Marine Planning Framework (NMPF) is an important signal to encourage investment [78]. However, it will become even more valuable as new projects come onstream, as a mechanism to help reconcile the interests of multiple stakeholders vying for contested marine space, as well as those communities that may be impacted by strategic development of ports or other infrastructure in the coastal zone. The NMPF is a first step towards marine spatial planning in Ireland. It also provides for the development of coastal partnerships, which could be an action arena for managing public participation, particularly with local and coastal communities, and perception in the future. The overhaul of the foreshore consenting legislation via the Marine Planning and Development Management Bill (MPDM) [79] also gives clarity on processes for future offshore energy projects. While the principle of public participation is enshrined in these processes, it would be prudent to learn from stakeholder engagement initiatives in other domains, such as the implementation of the Water Framework Directive and the Marine Strategy Framework Directive.

The situation unfolding in Ireland is not unique. Other European Member States are grappling with new measures to deal with increasing development offshore under the auspices of Blue Growth. The Integrated Marine Plan for Europe aims to grow the maritime economy of Europe based on existing and emerging sectors, including marine renewables. Member States are also working towards the implementation of the Maritime Spatial Planning Directive, which has set many coastal countries on the trajectory of designing processes for greater joined-up-thinking between government, industry and civil society [80]. At the international level, about 70 countries worldwide now practice MSP initiatives, following the lead of early movers from Belgium, the Netherlands, Norway China and Australia [30].

Traditionally MSP was associated with zoning areas for access to marine resources [81]. More recently, the focus is on planning and management of multiple uses of marine spaces [82]. While the Corrib case had a strong terrestrial dimension, as a result of the pipeline issue, it can be anticipated that future conflicts will arise from contested areas at sea, for example, between marine renewable developers and fishers. The question of access to sovereign rights over marine resources, (which manifested in Corrib through provisions for leasing of the seabed for gas production to private interests), is leading to increased maritime conflict on the international stage. The exploitation of ocean resources is central to the ecological, economic, energy and geo-strategic issues of the 21st century. As such, ongoing issues with the governance of common pool marine resources relate to options for state control versus privatisation. Ostrom's seminal work [26] on governing the commons shows how communities of interest can manage common goods by adapting rules to local needs, culture and conditions. In a way, this is the antithesis to what transpired in the Corrib conflict, but MSP will provide a middle ground for better engagement and relationship building between stakeholders with diverse vested interests.

## 7. Conclusions

The Corrib Gas conflict arose as a result of a convergence of factors including the unique aspects of a rural and coastal community where cultural activities and traditions built resilience to cope with changes at the coast over generations. Being prepared to understand the nature of the community and react to the claims of different interests is an imperative for decision makers going forward.

The energy transition is a significant opportunity to develop the marine economy of Ireland, as a location with some of the best wind and wave energy resources in the world. However, this will only be viable through fairness and transparency in the way that future decisions towards large infrastructure projects in the energy transition influencing public acceptance are made. This process becomes even more important, the more complex decisions get. This is particularly true in the case of energy transitions.

Coastal communities are at the frontline of decisions relating to energy developments in the marine environment as connecting elements offshore and onshore amalgamate in coastal areas. Therefore, communities should be at the heart of a new negotiation process. As part of this process, negotiation should consider perceptions and cultural values. The outcomes of this must set the rules for legitimate and deliberate decision-making. This should also allow for representation of diverse interests. This is because management has to be aware of the expectations and needs of every single governance domain.

Trust is a key principle of good governance to achieve successful project development. To make sure that local dimensions and someone who represents the interest of the local public are embedded into the decision-making processes, the management should commit to normative rules and an ethical code of conduct, that adequately addresses people's disagreements and concerns. This leads to one of the key practical lessons from this conflict, which demonstrates that an honest broker can play an important role by facilitating and undertaking stakeholder engagement, particularly in situations when people are reluctant to engage with developers.

Making changes to current governance systems in order to work

towards sustainable energy transitions opens up the potential for decentralised and just community energy systems, as suggested by Heldeweg [83]. Yet decisions in energy decision-making remain centralised within economic interests. The paper suggests that the case study data presented reflects the need to find new frameworks for communication and transparency. Therefore, bottom-up approaches, closer to communities accommodating large infrastructure developments are suggested.

## Credit author statement

**Marcus Lange**: Conceptualization, Methodology, Formal analysis, Investigation, Visualization, Writing- Original draft preparation. **Valerie Cummins**: Supervision, Overarching research project idea, Writing- Reviewing and Editing.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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