Canadian Planning and Policy
Aménagement et politique au Canada

Views from the shore: An analysis of public comments on an offshore wind energy future in Nova Scotia, Canada

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Volume 2025, numéro 1, 2025

URI : https://id.erudit.org/iderudit/1117891ar
DOI : https://doi.org/10.24908/cpp-apc.v2025i1.18292

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Éditeur(s)

Association of Canadian University Planning Programs
Canadian Institute of Planners

ISSN

2816-6256 (imprimé)
2562-122X (numérique)

Découvrir la revue

Citer cet article

Ahern, I., Walker, C., Roux, J.-P. & Chateau, Z. (2025). Views from the shore: An analysis of public comments on an offshore wind energy future in Nova Scotia, Canada. *Canadian Planning and Policy / Aménagement et politique au Canada*, *2025*(1), 126–151. https://doi.org/10.24908/cpp-apc.v2025i1.18292

Résumé de l'article

Pour répondre aux enjeux climatiques et de sécurité énergétique ainsi qu'à la nécessité de disposer d'une électricité propre à faible coût, de nombreuses régions côtières se lancent aujourd'hui dans l'éolien en mer. La province de Nouvelle-Ecosse au Canada, dotée d'un potentiel éolien en mer parmi les plus importants au monde, est l'une d'entre elles. Cependant, les gouvernements se doivent d'écouter, de comprendre et de répondre aux attentes et opinions du public avant tout développement de l'éolien en mer. Le but de cet article exploratoire est d'évaluer le niveau et le type d'acceptabilité de l'éolien en mer en Nouvelle-Ecosse lors des toutes premières étapes de la planification éolienne. L'article s'appuie sur l'analyse de commentaires déposés en ligne ou exprimés en personne au cours de journées portes ouvertes. Une analyse de contenu révèle d'abord que les personnes qui ont participé à ces consultations étaient initialement ambivalentes/peu claires (avec plus d'opposition que de soutien) en ce qui concerne l'énergie éolienne en mer. Les groupes les plus opposés étaient les peuples/représentants Autochtones, le grand public et les organisations non gouvernementales (ONG). Ensuite, une analyse thématique identifie six thèmes principaux autour desquels s'articulent les commentaires. Les plus référencés sont les impacts de l'éolien en mer sur la biodiversité ainsi que ses impacts environnementaux plus larges. L'article conclut par une discussion des implications plus générales de ces résultats pour la recherche, la planification et l'élaboration des politiques publiques autour de l'éolien en mer.

Canadian Planning and Policy Journal

Revue aménagement et politique au Canada

Volume 2025

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CANADIAN PLANNING AND POLICY JOURNAL

REVUE AMÉNAGEMENT ET POLITIQUE AU CANADA

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Views from the shore: An analysis of public comments on an offshore wind energy future in Nova Scotia, Canada

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Abstract

Centered around concerns of climate change, energy security, and the need for low-cost clean electricity, many jurisdictions that have access to maritime areas are developing offshore wind energy. The province of Nova Scotia, Canada – home to some of the strongest offshore wind resources in the world – is one such place. Yet before development, governments need to listen, understand, and respond to the views of a diverse set of stakeholders, and affected publics. Using online and in-person open house comments, this exploratory study was conducted to determine the level and type of socio-political acceptance during the initial planning stages of offshore wind energy in Nova Scotia. Content analysis revealed that many people who participated in these consultations were initially ambivalent/unclear (with more opposed than supportive) – with regard to offshore wind energy. Consultees most opposed were Indigenous peoples/representatives, members of the general public, and Non-Government Organizations (NGOs). Thematic analysis identified six main themes, with the most referenced being concerns around biodiversity impacts and general environmental concerns. We close the paper with a discussion of the broader implications of our work, including relevance to future research, planning, and policy.

Résumé

Pour répondre aux enjeux climatiques et de sécurité énergétique ainsi qu'à la nécessité de disposer d'une électricité propre à faible coût, de nombreuses régions côtières se lancent aujourd'hui dans l'éolien en mer. La province de Nouvelle-Ecosse au Canada, dotée d'un potentiel éolien en mer parmi les plus importants au monde, est l'une d'entre elles. Cependant, les gouvernements se doivent d'écouter, de comprendre et de répondre aux attentes et opinions du public avant tout développement de l'éolien en mer. Le but de cet article exploratoire est d'évaluer le niveau et le type d'acceptabilité de l'éolien en mer en Nouvelle-Ecosse lors des toutes premières étapes de la planification éolienne. L'article s'appuie sur l'analyse de commentaires déposés en ligne ou exprimés en personne au cours de journées portes ouvertes. Une analyse de contenu révèle d'abord que les personnes qui ont participé à ces consultations étaient initialement ambivalentes/ peu claires (avec plus d'opposition que de soutien) en ce qui concerne l'énergie éolienne en mer. Les groupes les plus opposés étaient les peuples/représentants Autochtones, le grand public et les organisations non gouvernementales (ONG). Ensuite, une analyse thématique identifie six thèmes principaux autour desquels s'articulent les commentaires. Les plus référencés sont les impacts de l'éolien en mer sur la biodiversité ainsi que ses impacts environnementaux plus larges. L'article conclut par une discussion des implications plus générales de ces résultats pour la recherche, la planification et l'élaboration des politiques publiques autour de l'éolien en mer.

Keywords:

offshore wind energy; planning; social acceptance; Canada

Mots-clés:

énergie éolienne en mer; planification; acceptabilité sociale; Canada

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Canadian Planning and Policy / Aménagement et politique au Canada, Volume 2025, pages 126-151.

ISSN 2562-122X
DOI 10.24908/cpp-apc.v2025i1.18292

Introduction

The climate emergency is pushing governments around the world to search for innovative ways to transition to renewable energy. In places that have access to the coast and sufficient wind resources, offshore wind energy has been both proposed and demonstrated as a solution (Nagababu et al., 2023; Long et al., 2023). Such projects require years of broadly defined *planning*, including public consultation with impacted communities (Bacchiocchi et al., 2022). Extensive public consultation and planning in offshore wind energy development is used for many reasons, including to inform the public, shape development, discover potentially contentious issues, and identify places where turbines are likely to be [un]desirable (Mekonnen & Gorsevski, 2015). This potential for opposition recognizes that offshore wind energy can and will impact people and their livelihoods (Wiersma & Devine-Wright, 2014). For these reasons, it is crucial that people's voices are heard and considered when implementing such projects to ensure the most successful outcomes. Here we conceptualize success as including whether a project was built, and whether high levels of local and socio-political acceptance is achieved (Dwyer & Bidwell., 2019; Jobert et al., 2007).

One jurisdiction that has ambitious plans to build offshore wind energy is the small Canadian province of Nova Scotia, a place which has some of the world's strongest winds (NS DNRR, 2023). Still, the province has made it clear that before proceeding with advanced decisions regarding the future of offshore wind projects, the needs and expectations of the general public and other stakeholders must also be considered (NS DNRR, 2023). In this study we analyze publicly available online and open house comments from the Government of Canada and Nova Scotia's joint Regional Assessment (RA) of Offshore Wind Development in Nova Scotia. Our primary goal is to gain an initial understanding of consultees' views toward this energy transition during the early planning phase. We must understand that despite their potential to lower emissions, and improve energy security via more domestic energy supply, offshore wind projects can lead to a host of local and non-local negative impacts and can be met with local and non-local opposition, with some originating from a lack of, or poor, public consultation. In Nova Scotia, we can find no published research that has advanced an understanding of the socio-political acceptance of offshore wind energy.

In the rest of this paper, we briefly introduce the reader to the context of Nova Scotia (Section 1.1), then review the relevant literature that helped us frame this study (Section 2). We then outline our Research Questions and Methods (Section 3) before turning to the Results (Section 4), which center around a content and thematic analysis of public comments. Finally, we close with a Discussion (Section 5) and Conclusion (Section 6) that summarizes and situates our work, including its relevance to future academic research and public policy.

Offshore wind energy and the opportunity for Nova Scotia

Stamped on the license plates of its residents' vehicles, Nova Scotia is known as 'Canada's ocean playground' and is home to approximately 7,500 km of Atlantic coastline. This brings with it many areas of high winds and a significant potential for offshore wind energy capacity (Finck, 2006; See Figure 1)[1]. It is this potential that could play a large role in reducing the province's current reliance of coal-fired power stations which supply 43% of the province's electricity (GoC, 2023) and becoming Canada's first province to build such innovative, clean energy

[1] Figure 1 shows an example of an offshore wind farm in the North Sea.

projects (Dong et al., 2021). The development of offshore wind energy in Nova Scotia may also play an important role in provincial ambitions to become a global leader in the production of green hydrogen. The Government of Nova Scotia has proposed five gigawatts (GW) of offshore wind energy capacity, which is a significant increase from the province's total generating capacity of 2.84 GW as of 2021 (CER, 2024). In March 2024, the government announced six potential future areas for offshore wind energy: Sydney Bight, Canso Bank, Middle Bank, Sable Island Bank, Emerald Bank, and Eastern Shore Bank (see Figure 2). It is noteworthy that all proposed areas are outside of the 25km 'buffer zone'[2]. At this distance, turbines may still be seen from the shores of Nova Scotia (Sullivan et al., 2013).

As of March 2025, there were zero offshore wind energy projects in Canada. Still, given the ambitious plans of Nova Scotia, it is important to outline some fundamental context related to offshore wind energy planning in the province and country more broadly. First, as noted by Gordon (2023), the governments of Canada and Nova Scotia have announced their intention to rename the Canada-Nova Scotia Offshore Petroleum Board to the Canada-Nova Scotia Offshore Energy Board. In October 2024, the government of Canada also passed Bill C-49[3], which is said to "[enable] Atlantic Canada to seize the generational economic opportunity presented by offshore renewable energy" (GoC, 2024). Together these moves will help in creating consistent planning processes, especially given that renewable offshore projects within federal waters are regulated by Natural Resources Canada (extending from 12 nautical miles from the shore to the limit of the territorial sea), and projects within provincial waters (within 12 nautical miles from the shore) by the Nova Scotia Department of Natural Resources and Renewables (Gordon, 2023). Also of note is the role of the federal government's Department of Fisheries and Oceans, who are said to support the RA, develop scientific knowledge, inform future marine spatial planning, support environmental/impact assessments, and conduct regulatory reviews (Nagel, 2024).

Figure 1. Offshore wind turbines off the coast of Belgium in the North Sea (Source: Unsplash)

Adding to this complexity is the possible role of local municipal governments. While there is no clear and direct role for municipalities in an offshore wind energy future in Nova Scotia, this is subject to change. As things stand, municipal governments may play the most significant role via land use and zoning decisions of onshore components. Still the literature from around the world, including more established offshore wind energy jurisdictions in the US and Europe, has shown that municipal governments may be more heavily relied upon for permitting support, community engagement/consultation, and policy development to help balance local, regional, and national interests (McNatt, 2018; Thellbro et al., 2022; Weber, 2023).

[2] In a Spring 2024 'What We Heard Summary' report, the RA team wrote that "Fishers are generally happy with the 25 km buffer from the shore recommended in the Interim Report" (IAAC, 2024b).

[3] The full name of Bill C-49 is *An Act to amend the Canada-Newfoundland and Labrador Atlantic Accord Implementation Act and the Canada-Nova Scotia Offshore Petroleum Resources Accord Implementation Act.*

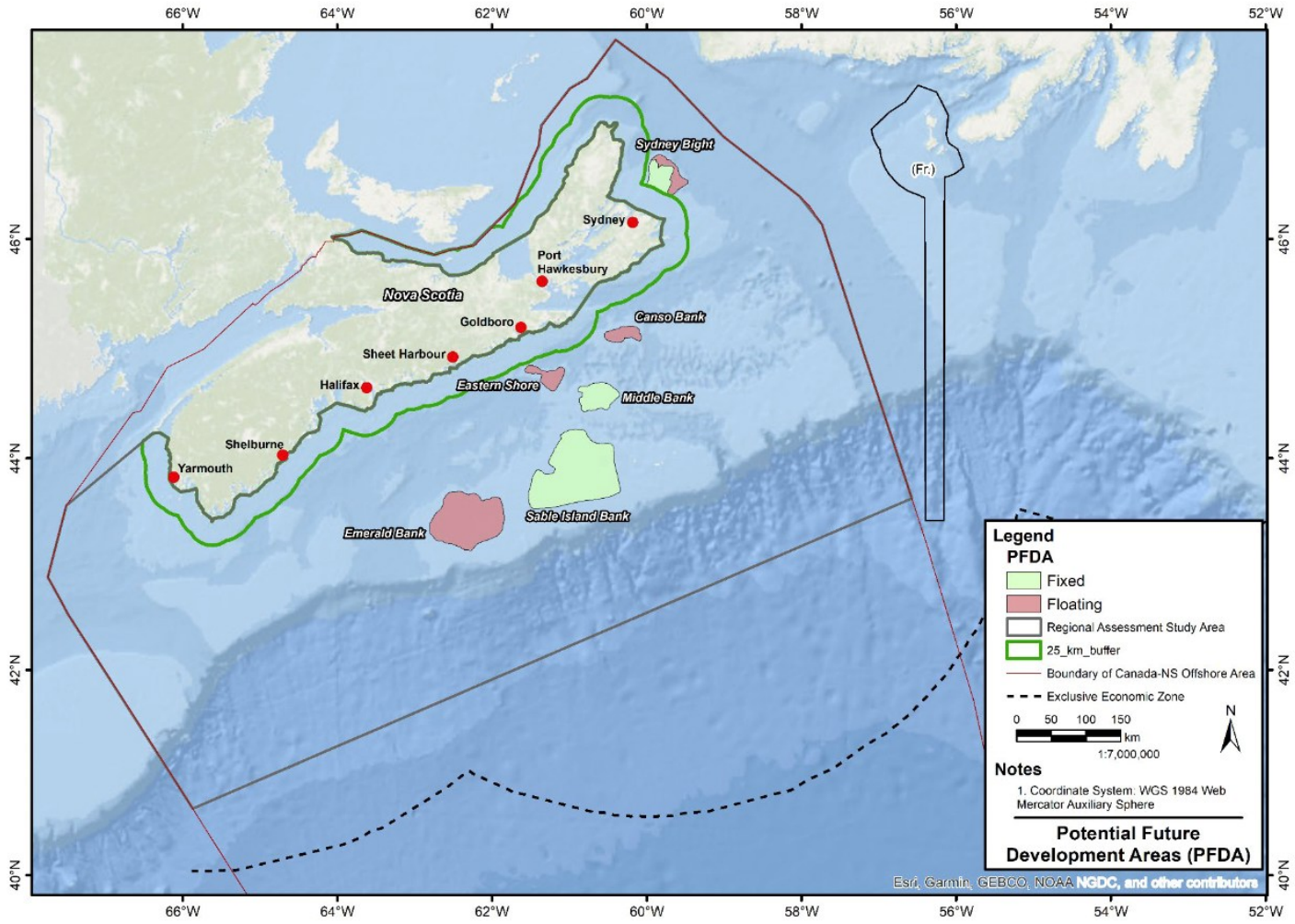

Figure 2. Six potential future areas for offshore wind energy in Nova Scotia (Source: IAAC, 2024a).

This lack of clarity regarding the role of municipalities, and the general fragmentation of jurisdiction in Nova Scotia, especially when combined with Indigenous communities and their claims to ownership and management of the ocean, creates the need for effective and inclusive marine spatial planning (MSP) (Chircop & O'Leary, 2011; McNatt, 2018). Without it, Gordon (2023) claims that "new ocean activities can result in conflicting spatial overlap" (p. 8). Effective MSP can help better understand and mitigate these conflicts via public engagement (King et al., 2021) and move forward with development that balances environmental conservation and socioeconomic goals (Serdynska et al., 2021). The Regional Assessment, which is at the center of our analysis, is the first step by both the governments of Canada and Nova Scotia, to "inform and improve future planning" (IAAC, 2024a; p. 1).

Literature Review

In this section, and with the understanding that effective spatial (Jay, 2010; Möller, 2011) and energy (Calvert & Jahns, 2021; Walter et al., 2021) planning needs to – and often does – center issues of support and opposition, we summarize the known factors that influence the socio-political acceptance of offshore wind energy. Not to be conflated with community (i.e., local stakeholders) or market acceptance (the

other two dimensions of social acceptance), we use Wüstenhagen and colleagues' (2007) notion of 'socio-political acceptance', which they define as "social acceptance on the broadest, most general level". The concept is concerned with the acceptance of technologies and policies by the public, key stakeholders, and policymakers (see also Sonnberger and Ruddat, 2017). Understanding common factors that affect socio-political acceptance helps us to recognize what needs to be prioritized by policymakers. Without this prioritization (and more general respect for socio-political acceptance), research has shown that – despite the technical and economic advantages of clean energy – long-term political viability may be threatened (Millar et al., 2021; Walker et al., 2018). Still, and while our research is set within a normative assumption that offshore wind energy will help us to mitigate climate change, we recognize and apply the criticisms of social acceptance research approaches – namely that opposition is *not* born out of misinformation, and that the purpose of social acceptance research is *not* to find ways to overcome opposition (Aitken, 2010).

Factors that impact social acceptance

Given the number of offshore wind projects that have been proposed and developed around the world, a variety of factors have been shown to either increase or decrease social acceptance. To begin, once-popular explanations related to 'NIMBYism' (i.e. Not In My Backyard attitudes) are now often dismissed as simplistic at best – and based on faulty assumptions at worst – in onshore and offshore contexts (Batel, 2018; Bell et al., 2005). Instead, we recognize that more dynamic self-interest and qualified support explanations may be the source of local opposition (Bell et al., 2005; Phadke, 2010). The idea here is that the people may support a proposed project, or an energy source in general, until it becomes evident that the project will either impact their immediate environment, or create a set of negative impacts they had not considered or expected (Firestone et al., 2012).

Underlying these kinds of attitudes may be the anticipation or experience of the visual impacts of large industrial offshore wind infrastructure (Ioannidis & Koutsoyiannis, 2020). While often not placed nearly as close to other domestic or commercial infrastructure as onshore wind turbines, visual or aesthetic impacts are commonly reported in research looking at offshore wind implementation (Haggett, 2011). Yet the appraisal of visual impact is subjective and ranges widely from positive to negative. A recent study from Ireland illustrated such divided responses amongst coastal residents with visual descriptions ranging from "majestic", to "abominations" (Roux & le Maitre, 2022; p. 34). In addition, people's visual appraisal of turbines are shaped not merely by physical and visual characteristics, but by background beliefs, values, and material interests. For instance, some coastal homeowners may fear negative effects on property values from visible turbines (Bush & Hoagland, 2016). The fear that turbines visible from the shore would "industrialize" the seascape is often noted by opponents of projects prior to their construction (Phadke, 2010; p. 13).

The concept of place attachment (Devine-Wright & Howes, 2010) has also been shown to influence people's feelings towards offshore wind projects. Indeed, the literature shows that in some cases, a person's connection to the ocean or coastline can be the leading reason as to why they would oppose a project. In an interview performed by Kempton et al. (2005) during the Cape Wind controversy, a local homeowner stated "We taught ourselves to sail here, because it's a part of the heritage of Cape Cod... And so, I guess you could say that my objections are very personal because it's a place that I love..." (See also Firestone et al., 2012). Research from Russell and Firestone (2022) compared views towards an offshore wind project near Block Island, Rhode

Island, USA between those living on the island and the nearby mainland. Through survey data, it was shown that Block Island residents felt a higher sense of pride for their community and the wind farm as opposed to those living on the mainland.

Related to ideas around place attachment are public perceptions regarding the impact of offshore wind on tourism and recreation. Like place attachment, results are mixed in terms of positive and negative attitudes. In recent research focused on Block Island, Bidwell et al. (2023) found generally positive attitudes toward a nearshore wind energy project and that these attitudes were more positive during operation, whilst Smythe et al. (2020) found the wind farm functioned as an attractant, either as a novel sight or as a recreational fishing destination, though such findings may not be generalizable. When coastal recreationists in New Hampshire were asked about their attitudes toward potential offshore wind, they were mostly supportive and positive – stating that their activities and experiences would not likely be altered (Ferguson et al., 2021; see similar findings from Ireland in Roux et al., 2022). Still, in earlier quantitative research set in Catalonia, Spain, Voltaire et al. (2017) used a joint modelling approach (i.e. combining actual and hypothetical demands) and found significant potential welfare losses (of between 67 and 203 million Euros/season) associated with a decrease in coastal recreational demand.

Another set of factors that impact social acceptance relate to concepts of procedural and distributive justice. Procedural justice is associated with the experiences and perceptions of peoples' role in the planning and siting process. It is well-established in both onshore and offshore contexts that individuals are more likely to support a project if they see these processes as fair (Walker & Baxter, 2017a; Firestone et al., 2020). Klain et al. (2015) identified that the approach taken by the Martha's Vineyard Wind 1 offshore project in Massachusetts, USA, clearly demonstrated the positive influence that meaningful planning between the developer and the community can have on the acceptance of a project. In more recent research from Klain and colleagues (2017), also focused on Vineyard Wind 1, the positive impact of community involvement was highlighted. Through the input of thousands, local residents collaboratively "create[d] the future [they] want" (p. 30). In contrast, the Cape Wind project in Massachusetts had significant public pushback due to a lack of public engagement and procedural justice (Dennery, 2015). This lack of local public engagement resulted in residents feeling ignored and unsure of the effects of the project (Firestone et al., 2012). Focusing on the responses of Indigenous communities in the US, Bacchiocchi et al. (2022) identified that given centuries-long trends of marginalization, genuine consultation, and active participation with local populations are especially crucial for increasing acceptance. In the past, developers have failed to adequately communicate with Indigenous peoples, contributing to the developers' lack of knowledge about the land and needs of the people[4]. Adding complexity is the idea that procedural justice is influenced by trust in governments and project developers, as well as a range of socioeconomic characteristics and personal beliefs (Dwyer & Bidwell, 2019).

Research looking at offshore wind development has also shown the importance of distributive justice, or the experience of perceived benefits of development for affected communities. These benefits can be financial or non-financial, though largely center around the former, including grants to community benefit funds, contributions to local authorities or governments, or in rare cases,

[4] Understanding the importance of fostering this relationship is crucial especially in the context of Canada and in efforts to contribute towards Truth and Reconciliation.

community ownership[5]. In Exmouth, UK, developer contributions to community benefit funds have been shown to increase the local acceptance of a hypothetical, future offshore wind farm (Walker et al., 2014). However, leaning into themes of procedural justice, the same researchers emphasized the importance of local perceptions of the developers' intention in creating community benefits[6]. If perceived as a bribe, there is a risk of losing community support (Walker et al., 2014). Similarly, a 2011 study conducted in Delaware tested how the amount and type of monetary benefit impacted people's acceptance of an offshore wind farm. It was determined that people preferred the money to be allocated towards local community funds rather than the state general fund (Krueger et al., 2011). Other research focused on the above-mentioned Vineyard Wind 1 project found that the project was approved as a direct result of the proposed "Community Benefit Agreement" (Russell et al., 2021). Relating back to Vineyard Wind 1, high levels of social acceptance were associated with a community-governed energy cooperative called Vineyard Power, which included partial ownership to island residents (Klain et al., 2015). People were said to have joined the cooperative because of the benefits like creating financial rewards via ownership and stabilized energy prices (Nevin, 2010).

The complexity of policy coordination in the planning of offshore wind power can also affect 'higher-level' political acceptance of offshore wind energy and its status as a policy making priority. We can see this in Ireland, where the government was unable to successfully implement offshore wind policy despite favourable wind resources (Cronin et al., 2021). Roux et al. (2022) explored the ways offshore wind energy implementation slipped within Ireland's political agenda and ultimately led to a failed implementation. Developing complex legislative frameworks and policies requires support from a range of stakeholders and significant institutional capacity across several state agencies such as government departments, legislature, executive, utilities regulator and system operator. Additionally, it is important to recognize what 'politically acceptable' policy alternatives may look like given the study area's elected representatives and their constituents who will ultimately have input in approving laws and policies related to offshore wind. With a focus on the North Sea wind industry, Skjølsvold et al. (2024) revealed key policy interventions that can increase acceptance, including building clear and truthful narratives, addressing norms, feelings and facts, and using energy justice principles. Additionally, research conducted by Rentier et al. (2023) showed that catering energy policies towards the public benefit through governmental intervention, rather than relying heavily on the private sector, may increase support for offshore wind projects.

Finally, literature has highlighted the complex interactions between fisheries sectors (commercial and recreational) and the expansion of offshore wind energy (Bonsu et al., 2024; Schupp et al., 2021; White et al., 2024). Loss of access to fishing grounds and the associated loss of income are often noted as a primary concern by the commercial fishing sector (see Alexander et al., 2013; Reilly et al., 2015). Different jurisdictions, particularly well-documented in the North Sea and around the UK, have used different approaches to address these concerns and enable co-existence (to some degree) within national or project-specific planning processes (Roach et al., 2022; Schupp et al., 2021). Nova Scotia thrives off the fishing industry as it is the largest seafood producer in Canada, contributing $2.48 billion to the country's economy and generating 18,220 jobs in

[5] Offshore wind projects are typically so large, that in comparison to other renewable projects that are smaller-scale (e.g. solar, onshore wind), there is less opportunity for community-based investment.

[6] Marrying ideas of procedural and distributive justice, Cowell et al. (2011) argue that acceptance increases when community benefits are identified together by both the developer and the community.

2021 (Canada Action, 2023). We therefore expect sector-specific impacts to feature prominently in the forward planning process.

Research Questions and Methods

Based off the literature review summarized above, we developed two main research questions to guide this study:

1. What are the perspectives of the public, key stakeholders, and governments who participated in public consultation, towards potential offshore wind energy in Nova Scotia?
2. What factors appear most prevalent in impacting this socio-political acceptance of offshore wind energy in Nova Scotia?

To answer these two questions, and to determine the initial levels of socio-political acceptance within Nova Scotia, we analyzed publicly available data (n=108) associated with the *Government of Canada's Regional Assessment (RA) of Offshore Wind Development in Nova Scotia.* The Regional Assessment is part of the Canadian Government's Impact Assessment Agency of Canada (IAAC) which is intended to conduct federal impact assessments regarding major sustainable development projects. The main intentions of the IACC are to determine the environmental, economic, social, and health impacts of proposed projects to aid in decision making and ensure that effective engagement with Indigenous representatives and the public is conducted. These intentions are to guide the Regional Assessment and aid in facilitating public engagement. The 108 comments included 59 unique comments posted on the RA website between September 2022 and December 2023, as well as 49 public comments retrieved from an in-person RA open house event in November 2023.

Figure 3. Image of maps displayed during the Regional Assessment open house in Dartmouth, NS (photo taken by lead author).

Regarding the online comments, the public and other interested stakeholders had the opportunity to share their views related to offshore wind implementation in the province via an RA website. The 59 public comments posted online were posted by stakeholders, businesses, and individuals.[7] We also collected 49 open house public comments during an event held in Dartmouth, Nova Scotia on November 1, 2023, that was conducted by staff at the RA.[8] (See Figures 3 and 4 for images taken from the open house). These comments were posted using sticky notes and were displayed on comment boards, of which we took pictures of (see Figure 5). Analyzing public comments as we do here has been recognized as an effective way to better understand socio-political acceptance of renewable energy, recently used in studies looking at onshore (Windemer, 2023) and offshore wind (Guthrie et al., 2024; Schneider and O'Neill, 2025).

[7] While we believe that only those from Nova Scotia took part in this public comment opportunity, we cannot be sure that those from outside the province, or indeed outside of Canada took part.

[8] The open house provided people in Dartmouth and the surrounding area with the opportunity to learn more about offshore wind and its potential in Nova Scotia. Attendees were asked to provide feedback, concerns, or questions to enable the province to analyze and focus its approach.

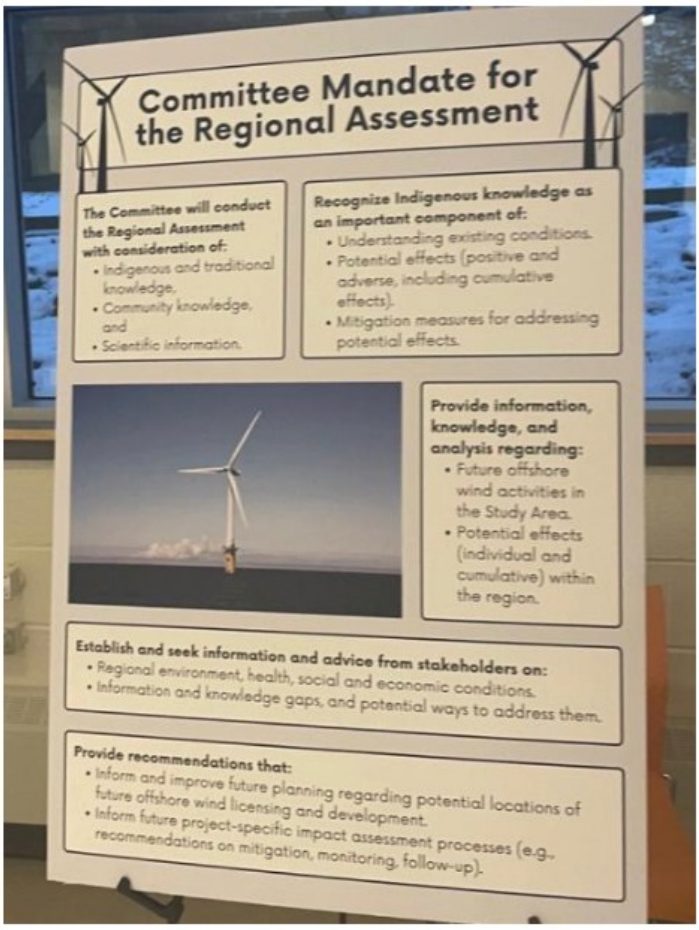

Figure 4. Image of a poster displayed during the Regional Assessment open house in Dartmouth, NS (photo taken by lead author).

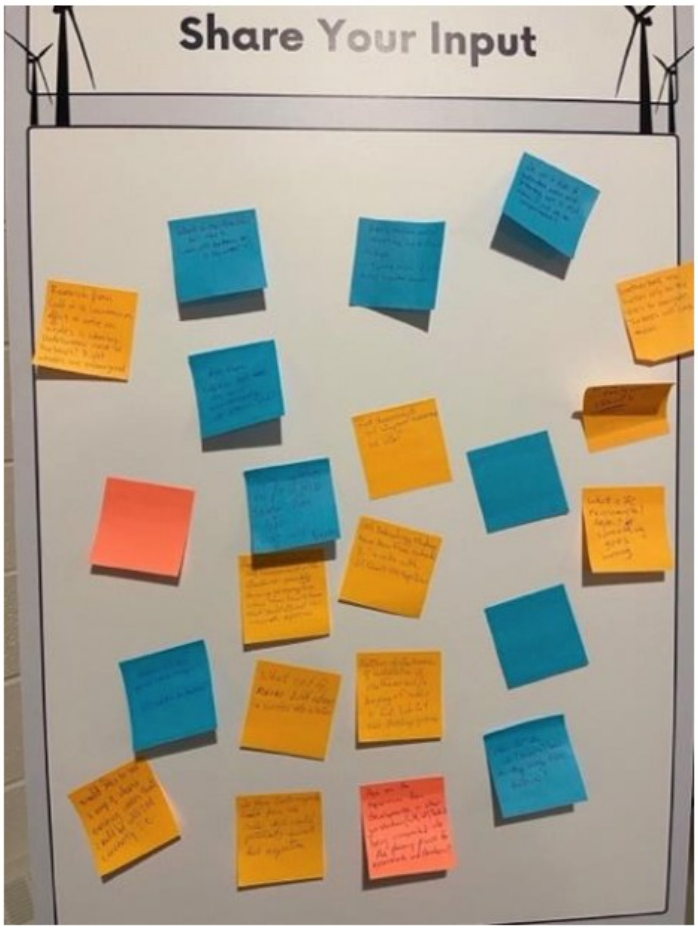

Figure 5. Open house data; sticky notes posted by attendees on the 'Share Your Input' board (photo taken by lead author).

Data Analysis

To analyze and interpret the dataset, the 108 comments were first uploaded into NVivo qualitative data analysis software. Our first step employed a quantitative content analysis to determine levels of support/opposition to offshore wind across the entire sample. Content analysis was chosen to assess the information and draw out key "themes, categories or issues" related to views of offshore wind energy (Weber, 1990). This involved reading and coding each comment across a five-level Likert scale from Strongly Opposed, Opposed, Ambivalence/Neutral/Unclear, Supportive, and Strongly Supportive (1-5).[9] For both the open house and the online public comment section, individuals were asked to state their opinion regarding the proposition of implementing offshore wind energy within Nova Scotia. The use of a Likert scale was chosen as a way to transform qualitative attributes (i.e. opinion) into quantitative data (Joshi et al., 2015) and the five-point scale is the most commonly used in social research (Tanujaya et al., 2022). The Likert scale was originally developed in 1932 to "measure attitude in

[9] The 'strongly' categories were chosen for inclusion to differentiate between endorsement and strong endorsement (Nemoto & Beglar, 2014) of support/opposition.

a scientifically accepted and validated way" and help us to quantify "subjective preferential thinking" (Joshi et al., 2015; p. 397). When conducting the content analysis, it was important to determine a strategy that would aid in distinguishing where these comments fell within the scale, specifically when determining whether a comment was opposed or strongly opposed and vice versa. The word choice and tone of the comments were the indicators that established where the comments fell within the scale. These decisions (i.e. regarding word choice and tone) were guided through a rubric that was co-developed by the first and second author. Additionally, while the first author led all analysis, including decisions regarding where each comment should be placed on the five-point scale, in four instances of uncertainty, the second author reviewed comments and the two came to a mutual decision regarding all four comments. This triangulation process is said to increase interrater reliability and rigour of the analysis (Belotto, 2018). To determine the differences between strongly support and support (and vice versa), specific language was chosen to distinguish between the two. For example, comments that mentioned strongly, extremely and similar synonyms, the comment would be placed in the "strongly" category(s).

When considering the range of the Likert scale, it was important to provide a section for comments that did not state their level of support, were indifferent to the proposal, or not involved within this type of work. To do so, we created the "middle" category which captures comments that were deemed to be Ambivalent, Neutral and/or, Unclear. Responses that were assigned to this middle category were neither supportive or opposing. While acknowledging that this decision is seen by some as controversial (Nowlis et al., 2002; Ma, 1998), ultimately, we aligned ourselves with others in the methodological literature and combined these three categories as one in an effort to avoid false responses (see for example Krosnick et al., 2002) and to ensure the scale was "subject-centered", organizing responses into a clearer range (McIver and Carmines, 1981).

The second stage of analysis used a thematic analysis to understand the underlying themes related to support and opposition to offshore wind energy in Nova Scotia. The data used to conduct this thematic analysis was collected during the open house. We used only the open house data as these comments represent a [small]sample of the people of Nova Scotia, and were shown to be easier to interpret. The comments that were collected during the open house were typically shorter and more concise than the online comments. Using only the open house comments for the thematic analysis, we felt more confident in assigning certain individual themes than the generally much longer online comments. Additionally, we could understand who was being represented in the comments as each was posted by an individual participating in the open house. We believe these factors helped to strengthen the thematic analysis. Thematic analysis is used to qualitatively identify, analyze and determine patterns or themes within the data, leading to curating a list of top concerns and priorities presented within the comments (Braun and Clarke, 2006). Throughout our analysis, data was inductively coded, without a predetermined codebook.

Results

Content Analysis

Initial results from the content analysis (see Figure 6) showed that the highest number of comments (n=50) fell within the Ambivalent/Unclear/Neutral category representing 46.3% of the entire dataset. The category with the second highest percentage within the dataset was Opposed (27.8%), followed by Support (14.8%), and Strongly Support (10.2%). The

lowest category was Strongly Opposed, representing just 0.9% of comments. Broken down into three categories of responses, we see that 25% were supportive, 46.3% were Ambivalent/Unclear/Neutral, and 28.7% were opposed.

To better understand who was represented, we read through the comments and created six categories of representatives based off the most common stakeholders that participated in disclosing their opinions and concerns to the RA. These six categories were: Indigenous peoples/groups, Fishers/fisheries, Governments, Individuals, Non-Governmental Organizations (NGOs), and Institutions/Companies. In the subsections of results that follow, we summarize how each group viewed the future of offshore wind in Nova Scotia.

Indigenous Peoples and Groups

This group represented Indigenous peoples and representatives and fell primarily within the opposed category (see Figure 7). While the subsample (n=9) is small, 44% were deemed to oppose offshore wind energy. The representing Indigenous groups ranged from Mik'maq, Innu, and Miawpukek Nations. These opposed comments were concerned over the RA executing proper consultation, including a letter from the Mi'gmawe'l Tplu'taqnn Nation (NB), who

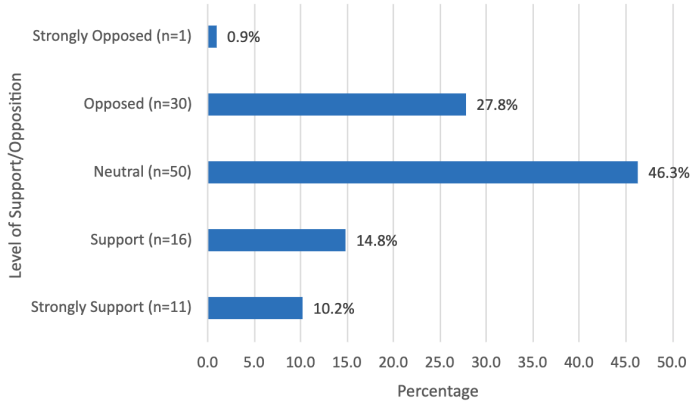

Figure 6. Level of support/opposition across the entire sample (n=108).

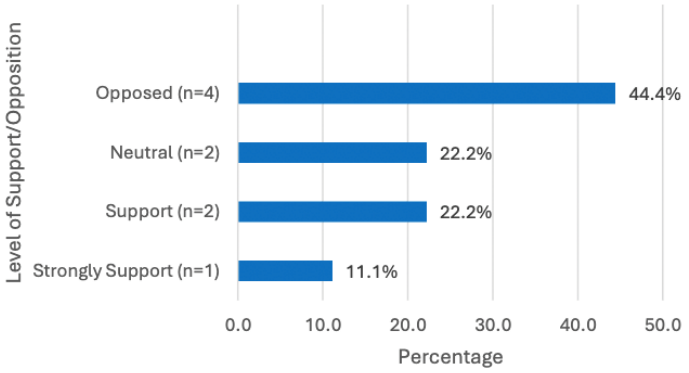

Figure 7. Level of support/opposition across the Indigenous Peoples and Groups subsample (n=9).

stated, "[the] RA runs the risk of failing to consider the potential effects on all impacted Indigenous peoples and their rights". Similarly, the Miawpukek First Nation (MFN; NL) was worried about the lack of consideration of Indigenous rights. They wrote, "MFN is concerned that Canada ... will use the RA to create regulatory processes to circumvent our Aboriginal rights and advance private corporate interests". The Neutral and Support categories were equally represented consisting of 22.2% each, and one consultee (11.1%) Strongly Supported offshore wind power. There were no comments that fell within the Strongly Opposed category.

Fishers/fisheries

With a small sample of six, fishers/fisheries were generally shown to be Neutral or in Support of offshore wind (see Figure 8). 33.3% of comments here were in both the Neutral and Support categories. Some of these comments expressed their support towards the transition to renewable energy if fishing practices are considered. For example, a representative wrote "Climate change is the challenge of our time and SPANS (Seafood Producers of Nova Scotia) supports robust and expeditious action to achieve net zero emissions. SPANS supports the development of offshore wind provided it is done in

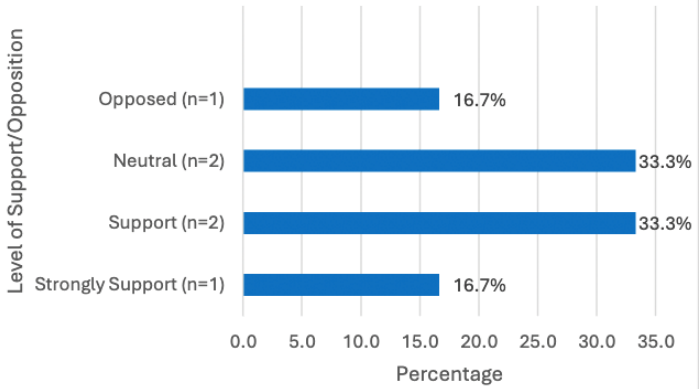

Figure 8. Level of support/opposition across the Fishers/fisheries subsample (n=6).

a manner that respects the environment and allows for continued access to fisheries resources". Similarly, the Fish, Food and Allied Workers Union stated, "We are pleased to see an emphasis on addressing challenges posed by climate change through sustainable economic development... Offshore wind energy expansion has a direct impact on fish harvesters who will compete for space and hence be affected by new infrastructure". Following the support category, the next two categories were also equally split with 16.6% of comments deemed to be in the Opposed and Strongly Support categories. There were no comments represented in the Strongly Opposed category.[10]

Government Representatives

Government representatives (n=10) (Figure 9) showcased a majority of Neutral comments (n=6 or 60%). These comments praised the RA for their work and the opportunity to contribute. Specifically, the Cape Breton Regional Enterprise Network stated "Thank you for the opportunity to comment. We look forward to working with all stakeholders and the [IAAC] to ensure continued progress towards sustainable and inclusive community economic development in Cape Breton – Unama'ki". As well, Parks Canada mentioned "Thank you for the opportunity to highlight the reasons we have an interest in being involved as a federal agency as the work of the committees proceeds into the conduct phase" (Comment 41). Following the Neutral section, the next highest category was Support (20%), followed by both the Opposed and Strongly Support categories (10% each). Parks Canada and Cape Breton Enterprise Network were both in support of the proposal. Warren MacCleod, on behalf of the Municipality and District of Shelburne, was largely opposed to the proposal. Warren's comment was the only one that explicitly called for more municipal planning involvement, claiming that "coastal Municipalities and...fishermen and women truly are subject matter experts" and that the study areas considered should include onshore communities. There were no comments that fell within the Strongly Opposed category.

Individuals

By far the largest group of comments (n=62) were from non-Indigenous individuals (Figure 10). These comments were posted by concerned citizens, mainly by those at the open house (n=48). These comments fell significantly within the Ambivalence/Neutral/ Unclear category (n=33 or 53.2%). The second

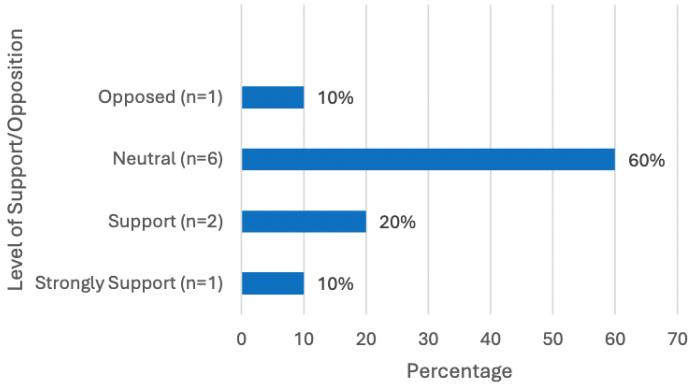

Figure 9. Level of support/opposition across the Government Representatives subsample (n=10).

[10] Warren's full comment can be found on the IAAC website.

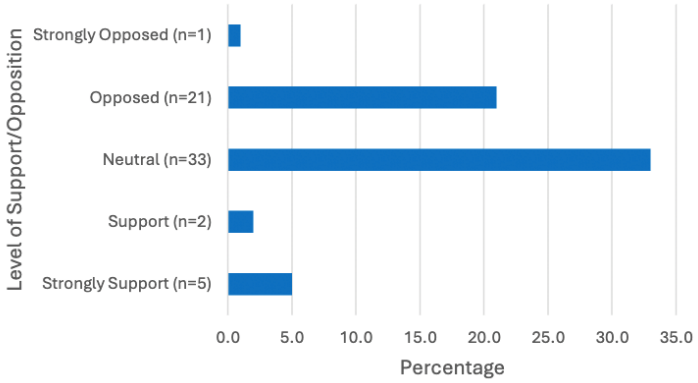

Figure 10. Level of support/opposition across the Individuals subsample (n= 62).

highest category was Opposed (33.9%). This category consisted of comments showcasing personal dislike towards the prospect of offshore wind energy. The next highest categories were Strongly Support (8.1%), Support (3.2%), and Strongly Opposed (1.6%).

Non-Government Organizations

The next group that was identified were Non-Governmental Organizations (NGOs) (Figure 11). With a sample of four, this group was strictly 50% in Support and 50% in Opposition to Offshore Wind Development. One of the comments that fell within the Opposition category and that discussed many concerns regarding the proposal was from the Ecology Action Center (EAC), a local Nova Scotian environmental NGO advocating for biodiversity protection, climate change mitigation, and environmental justice. The EAC raised concerns ranging from environmental impacts, engagement details, research, decommissioning, and provisions for a circular economy. Another comment from the Guysborough County Inshore Fishermen's Association cited concerns around altered views, writing that financial mitigation agreements are needed because "Fishermen are residents of the small coastal communities that will have an impacted view and seascape...These are the Nova Scotians who will be impacted the most." There were no comments deemed to fall into categories of Strongly Support, Ambivalence/Neutral/ Unclear, or Strongly Opposed.

Institution/Companies

Finally, the last group were comments posted by other Institutions or Companies (Figure 12). This group was shown to be relatively Ambivalent/ Unclear/Neutral to Supportive. 44.4% of comments were deemed to be Neutral, while 27.8% were Supportive, and 16.7% were Strongly Supportive (for a total support of 44.5%). The supportive comments expressed their excitement for the external benefits of offshore wind implementation. Island Dynamics Inc. expressed their support because of the abundance of more job opportunities when they wrote "I am very much in favour of wind energy production and green/renewable energy in general". There was little representation of opposition, consisting of only 5% Opposed and none within the Strongly Opposed category.

Thematic Analysis

Next, we conducted a thematic analysis to identify key themes within the Open House dataset (n=49). This helped us to identify six key themes: Impacts on Fisheries, Concerns around Biodiversity Impacts, Procedural Issues, General Environmental concerns, Industrialization of the Seascape, and Benefits

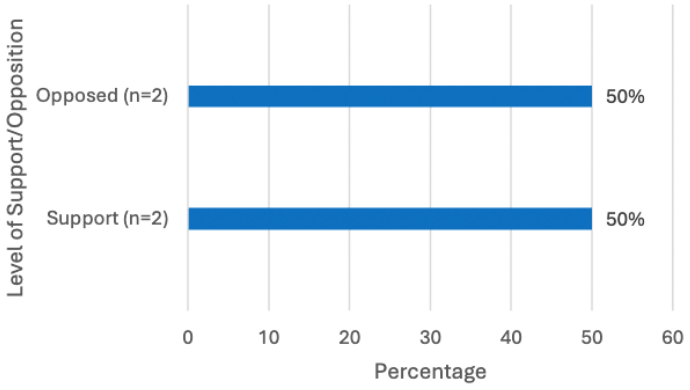

Figure 11. Level of support/opposition across the Non-Government Organizations (NGO) subsample (n=4).

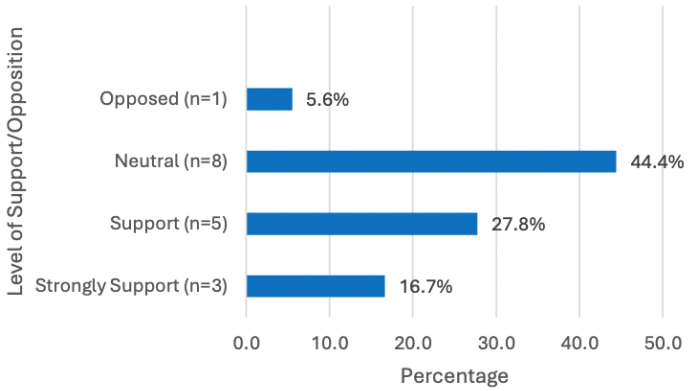

Figure 12. Level of support/opposition across the Institution/ Companies subsample (n=17).

(Figure 13). The Impacts on Fisheries category consisted of comments that mentioned the potential impacts offshore wind sites may have on fishing practices, regulations and the industry. The category Concerns around Biodiversity Impacts were comments that expressed concerns regarding the effects offshore wind implementation may have on marine wildlife. Next, the Procedural Issues category outlines the comments that mention any concerns regarding the process of the Regional Assessment and implementation. General Environmental concerns revolved around any mention of offshore wind implementation detrimentally impacting the natural environment and the marine ecosystem. The Industrialization of the Seascape category focused on any comments that referenced wind turbine construction and implementation logistics. Finally, the Benefits category consisted of comments that referenced or questioned any potential positive effects of offshore wind implementation. The number of comments within each category was balanced, ranging from 5 to 10. The most prevalent themes discussed in the Open House data were Concerns around Biodiversity and Impacts on Fisheries (n=10 each). More detail on each theme is provided in the subsections below.

Impacts on Fisheries

Prior to conducting this analysis, we predicted that the Fishing and Lobster industry was going be a main concern within the Open House data. In the end, Fisheries-related concerns represented 20.4% of the Open House data. The comments consisted of concerns over maintaining an effective fishing industry and people's livelihoods including a comment that read "How will this affect fisherman livelihood and our food supply?" (Individual 106), as well as ways in which the impacted industry will be dealt with by the RA and the laws that will be in place once the project is approved: "We can't fish in protected areas and probably not in offshore wind areas – will we be compensated?" (Individual 85).

Concerns around Biodiversity Impacts

The other most common theme was Concerns around Biodiversity Impacts (20.4%). These concerns revolved mainly around how biodiversity will be maintained and if wind turbines will have an impact on species. This includes the statement: "Leatherback Sea turtles rely on the stars to navigate. Turbines will confuse them" (Individual 86). Similarly, whales were a species that was discussed widely throughout the comments including a comment that read: "[we] Need whale migration paths, feeding areas, mapped onto [the] RA study

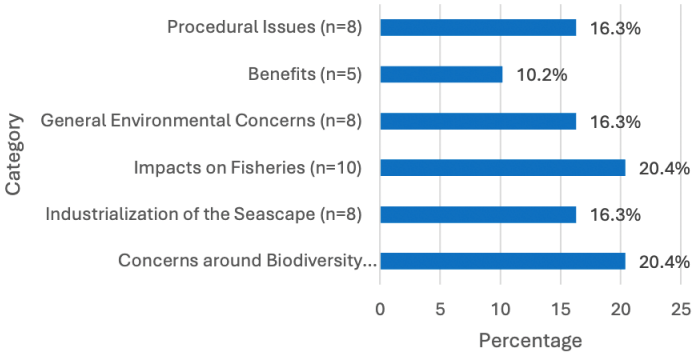

Figure 13. The Percentage of identified themes within the Open House Data and the number of comments (n=49) coded within each theme.

area" (Individual 69). Additionally, concerns regarding species habitats were mentioned "Eastern Canada is being auctioned off to the highest bidder while we struggle to afford energy and put food on the table. Combined with the potential loss of our livelihood from these projects' risk for habitat destruction it's another bad deal like Muskrat Falls. Always politicians and a few getting bribed and rich while everyone else suffers. Do better" (Individual 48).

Procedural Issues

The Procedural Issues-related comments (16.3%) mainly revolved around questions about the process and further consultation opportunities associated with the RA. This includes concerns like: "Public review period must be more than 30 days. Spring 2024 is our busy lobster season" (Individual 83). Additionally, statements regarding the timeline of the project and the needs of the public were mentioned "Winter 2024 Deliverable: be more specific about date, as March 2024 is final deliverable, how long will [the] public comment period be, between the 2 dates?" (Individual 65).

General Environmental Impacts

The General Environmental Concerns theme (16.3%) showcased comments that referenced different kinds of environmental concerns. This includes questions around mitigation plans following potential disasters: "Will the construction or operation of the wind farms increase the chances of spills?" (Individual 73). Within this theme, the importance of risk and environmental assessments were also mentioned: "Risk assessments and impact assessments are vital" (Individual 84).

Industrialization of the Seascape

Another theme that represented 16.3% of the Open House data was what we call the Industrialization of the Seascape. These comments were mainly general questions about wind turbines and how this project will compare to other jurisdictions. Specifically, the comments consisted of questions like "Why are the turbines so big?" (Individual 62) and "How much concrete is needed for the bases of fixed turbines?" (Individual 74). As well, comments mentioned how Nova Scotia will compare to other jurisdictions "How would these turbines compare to the ones in the North Sea of the UK?" (Individual 72) and "Can we learn from other offshore wind projects?" (Individual 66).

Benefits

The sixth category that was established was Benefits, consisting of 10.2% of comments. These comments mostly brought forward questions regarding the benefits of renewable energy and offshore wind development, including: "What benefits will Canada see? What will Nova Scotia see? Where is this energy going?" (Individual 78). This theme also contained statements reflecting support for offshore wind: "Jobs training for service areas for building infrastructure and continuing jobs!!!" (Individual 68).

Discussion

In this research, we sought to explore levels and types of socio-political acceptance/opposition as they relate to offshore wind energy planning in Nova Scotia, Canada. Public comments posted to the online Regional Assessment (RA) as well as those presented at a November 2023 open house hosted by the RA team provided a unique dataset to understand a sample of initial public concerns, questions, and expectations. Analyzing public comments has been shown to be an effective way to measure the socio-political acceptance of climate and clean energy initiatives (see Bailey & Darkal, 2017; Walker, 2020)

This research is timely, as federal and provincial governments are developing the necessary policy

changes, and municipal government may soon be engaged and involved in more local planning processes. This kind of research is also important as without a recognition and prioritization of social acceptance, the political viability of clean energy initiatives – such as offshore wind energy – can be threatened (Millar et al., 2021; Walker et al., 2022).

As shown above, there was one instance of a clear request for more municipal involvement in offshore wind energy planning. However, only time will tell if this request is taken up by higher-level governments and if this local knowledge and expertise is valued. Running contrary to development patterns in other places around the world (see McNatt, 2018; Thellbro et al., 2022; Weber, 2023), there is currently no clearly defined role for municipal governments regarding offshore wind energy in Nova Scotia.

Summary of Findings

Our initial content analysis showed that at this early stage, those who shared their views regarding offshore wind energy in Nova Scotia are mostly split between being in support of, and opposed to, such development. Indeed, we found that nearly half of responses (46.3%) were coded as Ambivalent, Neutral, and/or Unclear. A significant amount of these comments came from the open house data which mostly consisted of questions rather than statements, making it difficult to determine opinion. The next most referenced category was Opposed, representing 27.8% of the dataset. 0.9% of comments were found to be in the Strongly Opposed category. Comments aligning with Support (25%) and Strongly Support (10.2%) nearly mirror these results. The split in Nova Scotia is not necessarily surprising as through the analysis of the comments, we can see a lot of misunderstanding directly related to the fact that offshore wind energy is a new concept for Nova Scotia and Canada as a whole.

To determine how different groups of individuals felt about the future of offshore wind, we conducted a secondary content analysis. The first step in this process was to identify all groups, which were: Indigenous Peoples and Groups, Fishers/fisheries, Government, Individuals, Non-Government Organizations (NGOs) and, Institutions/Companies. Those groups we found to be Opposed were Indigenous Peoples and Groups, Individuals, and NGOs. The highest level of opposition was seen through Indigenous Peoples and Groups, where almost half of the representatives (44.4%) were opposed. These comments consisted of concerns and statements revolving around feeling underrepresented. The concerns that were expressed were distinct and effective in portraying the lack of communication between the RA and Indigenous groups. As discussed by Bacchiocchi et al. (2022), prioritizing relationships with Indigenous peoples is crucial in achieving a much more successful outcome. As a reminder, in this work, we define success as project development alongside high levels of local and socio-political acceptance (see Dwyer & Bidwell., 2019; Jobert et al., 2007). Central to this acceptance is likely to be inclusive and fair processes and outcomes (see Creamer et al., 2019; Walker & Baxter, 2017b) related to offshore wind energy. Unlike the work of Bacchiocchi et al. (2022) – which is the only other study we found that looks to understand Indigenous views in the way we do – we did not find that such perspectives were being either leveraged or diminished to suit an organization's pro or anti-wind goals. However, this is something to take note of as discussions of offshore wind in Nova Scotia proceed.

Individual representatives were also significantly opposed. While the highest percentage of comments were found in the Neutral category (52.5%), a total of 36% of were Opposed or Strongly Opposed. This trend of overall opposition is aligned with earlier

findings from Kempton et al. (2005) who describe how opposition in Cape Cod, MA, USA was born out of the expectation of negative impacts (see also Bush & Hoagland, 2016). Our findings are in contrast to the high levels of support seen in coastal Carolina (USA) where people believed that offshore wind would improve local economies. Many of these comments in our study indicated a mistrust of the process, fueled by past injustices, including the "bad deal" associated with the Muskrat Falls hydroelectric project. Additionally, through Bacchiocchi's (2022) research it was expressed how past energy injustices contribute to strengthening opposition and results in communities feeling more hesitant to drastic energy initiatives. Cowell et al. (2011) established that in general terms, providing community benefits may aid in promoting environmental justice and will help address concerns or feelings of underrepresentation throughout the process of implementation (see also Russell et al., 2021; Nevin, 2010). Though of course money (or other benefits) presented in the 'wrong' way (i.e. poor timing, context, and/or design) – including a focus on the individual rather than the community (Walker et al., 2014; Walker & Baxter, 2017b) can be perceived as bribery or a payoff and thus reduce feelings of support and/or justice (Cass et al., 2010; Jørgensen, 2020; Knauf, 2022; Walker et al., 2017).

Although we do not have specific information on whether the above-mentioned individuals were in potential host communities, our research illustrates the need for more public consultation to further understand the geographical links with support and/or opposition. Understanding "hot spot" areas where there is more opposition could aid in focusing more on why and how to work with the individuals in the community to strengthen support.

Looking at NGO representatives, we see an even split: 50% of comments were opposed, and 50% were in support. Though representing a small subsample of 4, this suggests that environmentally focused NGOs like the Ecology Action Centre (EAC) and Oceans North, are expressing concerns regarding offshore wind. These two organizations stated their concerns regarding the timeline of implementation. Some of these concerns reflect those that were presented during the Martha's Vineyard Wind 1 case and solutions were proposed to ease the worries of the community (Klain et al., 2017). In their earlier work, Klain et al. (2015) discuss how consultants were hired to illustrate the impacts of offshore wind turbines on sight lines, and local ecology – a process that slows down planning, but does so in a more public and participatory way. Going forward, the RA would be well-positioned to address these kinds of comments via such planning. In this sense, we agree with the views of Rydin et al. (2018) who write in their study of offshore infrastructure in England and Wales, that "local NGOs can be a significant voice for the locality, self-consciously representing local communities and a collective local view of the public interest" (p. 576). In this way, our results point to the potential for such 'liasons' (see Dwyer & Bidwell, 2019; Klain et al., 2015) to play important roles in guiding an offshore wind energy future in Nova Scotia.

Our research also showed that there are other stakeholders that support offshore wind in Nova Scotia, in part due to the efforts that have already been made by the RA. Specifically, groups that scored high in the Support category include Fishers/fisheries, Government, and Institutions/Companies.

In the initial content analysis, fishery representatives scored higher in the Support (33.3%) category rather than Opposed (16.7%). This finding aligns with the recent 'What We Heard' report from the RA, which said that fishers were "generally happy" especially regarding the 25km offshore buffer recommended (IAAC, 2024b). However, in the thematic analysis looking only at open house

comments, one of the largest concerns was impacts on fisheries and the Fishing/Lobster industry whilst supportive comments acknowledged climate change and the need for more renewable energy. It is plausible that the fishing industry may both acknowledge the general importance of deploying offshore wind energy and be very sensitive to commercial risks and how the planning process will deal with potential trade-offs (White et al., 2024). It is also noteworthy that no supportive comments had yet flagged the opportunities that offshore wind energy may present to the sector, given the relatively high interest of fishermen in some other jurisdictions for alternative and complementary employment in the marine energy sector (Alexander et al., 2013; Roux & le Maitre, 2022) .

While most fell into the middle category, our analysis revealed Government representatives were also leaning towards Support. Though 60% of the total comments were Neutral, the next most coded category was Support (20%). These comments were from groups like Parks Canada and the Cape Breton Regional Enterprise Network and often stated how much they appreciated the opportunity to comment and provide their recommendations to further improve the RA's proposed future of offshore wind. A study conducted by Smirnova et al. (2021), established the ways in which government support can be increased through policy inclusion and other initiatives and how involving government departments aids to increase overall government support for renewable energy initiatives. This further solidifies the importance of incorporating government representatives within the implementation process and gaining their support to increase social acceptance.

Finally, Institutions/Companies were also leaning towards Support for offshore wind. This group consisted of both universities and energy-related companies and often centered around the need to transition to more renewable energy because of climate change. Also, companies stated their excitement due to the many benefits that can be a result of implementation, including job opportunities. As stated previously, social acceptance improves when direct benefits are established for local authorities, either financial or non-financial, such as job opportunities and transitioning to renewable energy initiatives (Cowell et al., 2011).

The thematic analysis helped us to identify six key themes that were most discussed through the open house comments. These themes included Impacts on Fisheries, Concerns around Biodiversity Impacts, Procedural Issues, General Environmental Concerns, Industrialization of the Seascape and Benefits. At 20.4% each, the most represented themes were Impacts on Fisheries and Concerns around Biodiversity Impacts. Through chatting with people at the open house, the fishing industry was a significant topic of concern in many conversations. For the RA moving forward, it is vital to understand the importance of including and collaborating with fishing and lobster representatives to allow for their practices and the operations of offshore wind to function harmoniously. As discussed by Gray et al., (2005) fishing industries have been proven to be willing to negotiate with developers to find a solution that will be effective for both parties. However, as Walker et al. (2014), emphasizes, this willingness to cooperate is established through relationships between the developer and the community/industry. Concerns around Biodiversity Impacts mainly revolved around comments with how biodiversity will be maintained and if the wind turbines will have an impact on species including the migration pathways of Leatherback Sea Turtles and whales. These concerns are likely valid and may come to fruition through noise and habitat disturbances – though offshore wind energy may also enhance biodiversity through the creation of new habitats (Kończak, 2024).

Next, the themes Procedural Issues, General Environmental Concerns, and Industrialization of the Seascape each represented 16.3% of the open house dataset. The Procedural Issues comments mainly revolved around questions about the process and further consultation opportunities. Additionally, many people expressed their concerns about the planning and consultation timeline, specifically the public consultation in respect to specific industries' busy seasons. As well, people wanted clarity on when they will be able to provide more feedback. Together these comments point to the need for what the well-established onshore wind energy literature refers to as procedural justice (Walker & Baxter, 2017a; Simcock, 2016). Indeed, this measure of justice is said to be "the most important tool to achieve acceptance for wind power projects in many cases (p. 5).

The General Environmental Concerns theme referenced the probability of environmental problems and if offshore wind were to occur, the plans that need to be established to minimize impacts. Many people asked questions about how implementation will increase the likelihood of issues occurring that will impact the environment, including the odds of oil spills. People were concerned that not enough research has been conducted to truly understand the impacts offshore wind may have on the environment within Nova Scotia. This call for more environmental research as it relates to offshore wind energy development can be seen in both primary and grey literature (Szostek et al., 2024).

Finally, the third theme, the Industrialization of the Seascape, was mainly related to general questions about large wind turbines and how this project will compare to other jurisdictions that currently have offshore wind turbines. Specifically, the comments consisted of questions asking why offshore turbines were so large, and how much concrete is needed in construction. One way to answer these kinds of questions would be to provide a document, like the Ocean Special Area Management Plan (OSAMP) that provides general information about the entire process (Klain et al., 2015).

The final theme of Benefits had the least amount of coverage within the dataset (10.2%). Most comments within this theme either stated what the benefits of offshore wind (e.g. jobs and training) will be or asked what benefits will be in Nova Scotia. A key question here was where the energy would be going or used for in the future. That people are interested in, and their support is likely shaped by, the benefits brought forth by offshore wind energy is something supported throughout the onshore and offshore wind energy literature (Krueger et al., 2011; Russell et al., 2021; Walker et al., 2014; Walker & Baxter, 2017b).

Policy Recommendations

To add more practical value to this research, we now outline some key policy and planning recommendations that may aid in the future of offshore wind energy in Nova Scotia. It is our hope that, like more established research in spatial (Jay, 2010; Möller, 2011) and community energy planning (Calvert & Jahns, 2021; Walter et al., 2021), we can help shape the approaches taken in this newly emerging sector.

Improving clarity around competing interests

First, because the main thematic concerns were Concerns around Biodiversity Impacts and Impacts on Fisheries, governments – both federal and provincial – should ensure that they develop policy that not only helps address the impacts of offshore wind on the marine environment, but also develop resources that provide clarity on how fishing practices, wildlife, and turbines might co-exist. When considering options to improve fishery representation, a policy intervention that was

explored by Klain et al. (2015) was implementing a community co-operative between the developers and the community. Doing this in Nova Scotia could aid in allowing for more opportunity for concerned fisherman to voice their views. Novel trade-off analysis may also yield benefit in the designation of offshore wind energy zones or sites (White et al., 2024).

Educational resources and knowledge-sharing

Through the entire analysis, there was a significant number of comments seeking more clarity on what the future of offshore wind might look like for Nova Scotia. Many comments fell within the Ambivalence/ Neutral/Unclear category, as most were seeking further clarification on the implementation process, the logistics of offshore wind and how it is going to benefit Nova Scotia. This is not surprising given that the prospect of offshore wind energy is at very early stages in Nova Scotia. Still, we believe this suggests that more and improved educational resources are needed to help to improve people's understanding of offshore wind energy – a finding seen in research from Poland (Chomać-Pierzecka, 2024), the US (Smythe et al., 2020), and the UK (Fletcher et al., 2009). Indeed, in the Smythe et al. (2020) paper, participants "expressed a desire for better outreach and educational materials" (p. 8). To improve public understanding, a policy intervention used in Block Island, Rhode Island, introduced OSAMP, which while lengthy and difficult to navigate for many, outlined the entire process, the steps that were being taken by the developer, and the benefits of the project (Klain et al., 2015). Through this plan and related resources (e.g. a video series, practitioner's guide) being released to the public, people were able to further understand why it is important to advocate for such an ambitious renewable energy project. This type of policy implementation can be used in the context of Nova Scotia, where organizations such as Net-Zero Atlantic (2025) are helping to build capacity and understanding regarding a range of issues related to offshore wind energy. Even as researchers who work in this space, we learned new information from going to the open house and recognize there is a lack of credible and place-specific resources out there to help the public. We believe that the involvement of coastal municipalities can only help in this regard. Unlike onshore wind, it is unclear what kind of role these local governments will play in the future of offshore wind energy planning, though their expertise and perspectives should be considered in any sustainable development pathway.

Participation of lobster and fishing interests

Due to the prevalence of lobster and fishing industries in and around Nova Scotia, it is crucial that stakeholders need to be involved during offshore wind planning and implementation. Yet when looking at other jurisdictions, not many that have implemented offshore wind have such a strong and prevalent fishing industry, making it hard to determine effective strategies for Nova Scotia. Still, in the UK we can look to the Crown Estate and the Fishing Liaison with Offshore Wind and Wet (FLOWW) Renewables Group, who "foster good relations between the fishing and offshore renewable energy sectors and encourage co-existence of the industries across the UK" (TCE, 2015). Setting up a similar organization in Nova Scotia might create a helpful, independent space for these discussions. In our work here, looking at the current policy that was recently updated in February 2024 by the RA, there are some tools that could be used to further strengthen the policy for fishery participation. As discussed previously, Martha's Vineyard Wind 1 implemented a community energy co-operative, allowing community representatives to be part of the decision-making process — creating more equality

among the community and developer rather than a hierarchy. Especially once host communities are identified, there are ways Nova Scotia can adapt this policy to aid in achieving more inclusion of the fishing industry within the implementation process. The most recent policy update is promising, including work that has identified Advisory Groups forming a body of representatives that are knowledgeable within the fishing and lobster harvesting fields.

More avenues for Indigenous participation

Finally, and perhaps most importantly, it is crucial to provide more opportunities for Indigenous peoples and representatives to become more involved throughout the implementation process. With the pledge of Truth and Reconciliation and the related TRC Calls to Action, the beginning of an offshore wind industry creates an opportunity for Nova Scotia to work towards that goal. Indigenous communities often share a wealth of local and ecological knowledge (Hangle, 2018) – and capitalizing on this knowledge through collaboration will aid in a more successful outcome. The recent policy update posted in February 2024, discusses the province's commitment to include Indigenous peoples and hosting consultation meetings for Indigenous representatives. This recognition is extremely important, though as stated by Bacchiocchi et al. (2022), Indigenous communities continue to be overlooked even with similar policy interventions - often co-opted or sidelined from the decision-making process, leading to energy injustice. Addressing this problem is complex, though a starting point is that policy and planning practices must be guided by the unique concerns of each group/community as well as more general guidance provided through the Truth and Reconciliation (TRC) Commission's 94 Calls to Action (Poirier & Hedaraly, 2019; Walker et al., 2021).

Limitations and Future Research

This research has limitations that may also create opportunities for future research. Firstly, in any kind of qualitative content analysis, there is an unavoidable human bias (Mehra, 2002) and thus difficulty in assigning Likert-scale responses to textual data. It was up to the discretion of the lead researcher to code each comment as they saw fit. However, this subjectivity was minimized through: i) a rubric; ii) regular meetings with the second author, where discussions were held regarding the coding strategy; and iii) interrater reliability checks (see 3.1, above). Studies interested in moving closer to a so-called objective approach, might explore larger numbers of investigators involved in triangulation (Belotto, 2018) or finding ways to ask people if 'this is what they meant' through a process of member checking (Birt et al., 2016). Alternatively, a survey where members of the public are asked to assign their views to a position on a Likert scale may reduce researcher bias.

Secondly, and as is made clear in similar research (Walker, 2020), our analysis should not be taken as representative of overall opinion of the public or groups of stakeholders on an offshore wind energy future in Nova Scotia. Our study design and dataset limited us to only a small number of those people and groups aware and willing to post their comments on the RA website and at the open house. There may be a systematic bias here, as it has been shown elsewhere that people who are negatively disposed to a wind project (whether onshore or offshore) are much more likely to participate in public consultations (SEAI, 2023). We can also imagine examples of the opposite trend, whereby those that are opposed fear ostracization and may not choose to participate (Bennett & Bennett, 2021). These criticisms may be associated with broader claims that public comments may not be an accurate proxy for social acceptance, and especially that such comments

do not provide the space for nuanced views to come forward (see Bidwell et al., 2023). We agree that a fulsome understanding of social acceptance needs to look beyond the kind of public comment analysis performed here.

More generally, the small sample size is a weakness, and future research should focus on collecting a larger number of responses. Still, we believe this research provides an exploratory snapshot as well as some of the key views, concerns, and opinions regarding offshore wind energy in the province. Regarding our study's small sample focused on socio-political acceptance, future research should focus on overall public opinion through large-scale, province-wide surveys as well as more community-centered follow-up interviews and surveys within impacted or host communities (Klain et al., 2017; Devine-Wright & Wiersma, 2020). When such places are identified, this work would be positioned to assess Wüstenhagen et al.'s (2007) important second dimension of social acceptance, community acceptance. More broadly, we also call for further research to be conducted in Nova Scotia as the province moves forward with further stages of assessment and planning, as well as other jurisdictions considering offshore wind energy for the first time. Further research examining public views after offshore turbines are built in places with operating projects should also continue and will no doubt help places like Nova Scotia know what they might expect. This connects with recent calls for future research across the social acceptance of renewable energy literature, including a focus on longitudinal studies, and studies that center on power dynamics, financial participation, and emotions (Ellis et al., 2023).

Conclusion

Due to the climate emergency and a range of other factors, countries are rapidly implementing initiatives to transition to low-carbon energy systems. With ambitious goals in place from both the governments of Canada and Nova Scotia, we are likely to see more and more renewable energy projects being implemented. If the province chooses to capture the world's strongest offshore winds, Nova Scotia has an incredible opportunity to benefit from this form of renewable energy. However as displayed in other jurisdictions, physical resources can only take us so far, and paying due attention to public views is essential if we are to develop offshore wind energy in a way that is truly sustainable. We hope this early-stage research is able to increase our understanding of the range of concerns that individuals and groups have regarding a potential future of offshore wind energy in Nova Scotia, and what aspects of the proposal the province needs to prioritize moving forward to improve social acceptance. Policy recommendations have been provided for the province to create a more inclusive approach to offshore wind energy consultation and planning that values municipal, coastal, and Indigenous knowledge. Even with such a rich resource just kilometers off its shores, the province needs to be cautious in their approach and only develop offshore wind energy if, and when it serves the interests and aspirations of the diverse communities and people in Nova Scotia.

Acknowledgments

We are grateful to all those individuals and groups who shared their views regarding a potential future for offshore wind energy in Nova Scotia. We would also like to thank those committee members associated with the Regional Assessment of Offshore Wind Development in Nova Scotia for their invitation to the November 2023 open house in Dartmouth.

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