Offshore Wind Potential in Nova Scotia

Summary Report and Analysis of Rural Community Feedback

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Breton
etonpartnershi


Hydrogen
Questions arose about if Nova Scotia could stop using coal by 2030. Communities wanted to see OSW energy used domestically for a greener grid.
When discussing grid variability, communities wanted to learn more about battery storage and if that technology was actively being integrated into


Scotia's Electricity Mix
In 2022, 67% of electricity generated by fossil fuels (e.g., coal, natural gas)
33% of electricity generated by renewable energy (e.g., solar, wind, hydro)

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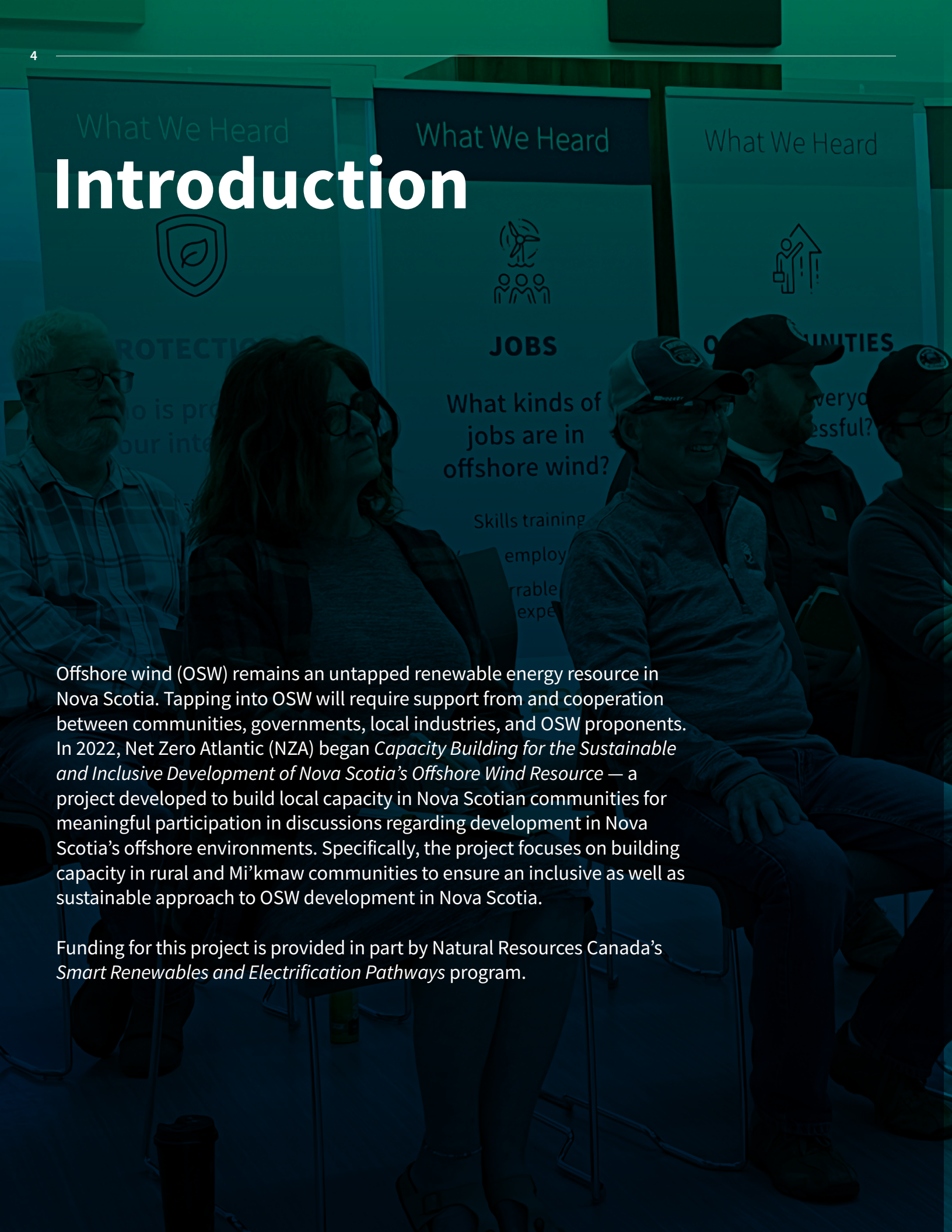
Introduction



Offshore wind (OSW) remains an untapped renewable energy resource in Nova Scotia. Tapping into OSW will require support from and cooperation between communities, governments, local industries, and OSW proponents. In 2022, Net Zero Atlantic (NZA) began *Capacity Building for the Sustainable and Inclusive Development of Nova Scotia's Offshore Wind Resource* — a project developed to build local capacity in Nova Scotian communities for meaningful participation in discussions regarding development in Nova Scotia's offshore environments. Specifically, the project focuses on building capacity in rural and Mi'kmaw communities to ensure an inclusive as well as sustainable approach to OSW development in Nova Scotia.

Funding for this project is provided in part by Natural Resources Canada's *Smart Renewables and Electrification Pathways* program.

Purpose of this Report

The approach to this project is based on two-way knowledge sharing between communities and Nova Scotia-based organizations, collecting and compiling community insight and local knowledge, and building capacity through dialogue and information exchange. The purpose of this report is to provide a summary and analysis of comments, questions, and concerns about offshore wind in Nova Scotia collected during rural community sessions from September to December 2024.

Please note that this report focuses on findings from sessions conducted with rural communities across Nova Scotia. A summary of Mi'kmaw and rural community feedback is provided in our What We Heard report developed by Net Zero Atlantic and our partner organizations, the Confederacy of Mainland Mi'kmaq and the Unama'ki Institute of Natural Resources.

About the Project Team

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Net Zero Atlantic is a leading, independent, and non-profit research organization committed to advancing Atlantic Canada's transition to a low-carbon future.

Our team encourages a sustainable and inclusive energy transition by identifying knowledge gaps, connecting experts to projects, and leading applied research and engagement.

Net Zero Atlantic developed and led the Capacity Building for the Sustainable and Inclusive Development of Nova Scotia's Offshore Wind Resource project.

Cape Breton Partnership

Cape Breton Partnership is a private sector-led economic development organization. They co-led engagement efforts in Unama'ki — Cape Breton with Net Zero Atlantic. We are grateful for the engagement support received from the Cape Breton Partnership team.

About Offshore Wind in Nova Scotia: A Timeline

2022

PROVINCIAL OSW TARGET

The Province of Nova Scotia set a target to issue licences for 5 GW of OSW capacity by 2030.

2022

HYDROGEN ALLIANCE

A joint Declaration of Intent to establish the Canada-Germany Hydrogen Alliance was signed, whereby both nations will invest in hydrogen and establish a transatlantic supply corridor.

2023

REGIONAL ASSESSMENT ANNOUNCED

The joint federal-provincial "Regional Assessment for Offshore Wind Development in Nova Scotia" (RA) was publicly announced for waters under joint federal-provincial jurisdiction.

2023

OSW ROADMAP MODULE 1

The Province released the first of three planned mudules of its Offshore Wind Roadmap.

2024

REGIONAL ASSESSMENT INTERIM REPORT

Interim report was published and identified potential areas for initial OSW development in the joint federal-provincial managed offshore area.

2024

OSW ROADMAP MODULE 2

Module 2 of the Nova Scotia Offshore Wind Roadmap was released, focusing on supply chain and infrastructure development.

2024

REGIONAL ASSESSMENT DRAFT FINAL REPORT

A draft version of the final report from the RA was released in October 2024, followed by a public comment period that closed in late December. The final report was submitted in January 2025.

2024

ROYAL ASSENT FOR PROVINCIAL BILL 471

In support of Bill C-49, Nova Scotia's Bill 471 received Royal Assent to establish a joint management regulatory framwork for OSW.

2024

ROYAL ASSENT FOR FEDERAL BILL C-49

Bill C-49 amends the Canada-NovaScotia Offshore Petroleum Resources Accord Implementation Act ("Accord Act") to include wording, parameters, and regulations for OSW.

2025

NOVA SCOTIA PROPOSES WIND ENERGY AREAS

In March 2025, the Province proposed 5 Wind Energy Areas in the jointly managed offshore area, followed by a public comment period that closed in mid-April.

2025

CONTINUED DEVELOPMENT

- Final module of Nova Scotia Offshore Wind Roadmap.
- Nova Scotia to issue the first call for bids for OSW licences.

Nova Scotia has a world class OSW resource due to several advantageous features, including optimal wind strength and consistency, favourable subsea geology, and opportunity for large-scale OSW sites. Also, there is significant potential for Nova Scotia to enable large-scale electricity generation from OSW resources, which can contribute to both meeting greenhouse gas emissions reduction targets and economic development.

A summary of Nova Scotia's activities and policy actions related to OSW development is provided in the figure above.

Approach to Rural Nova Scotia Engagement

This project has built a baseline of OSW knowledge in communities by providing a presentation of known facts and facilitating discussions that explored the environmental, socio-economic, and governance attributes of OSW development in Nova Scotia. Phase 1 aimed to enhance knowledge and capacity to engage with OSW development topics through open dialogue around key issues, potential concerns, and unknowns. Community feedback, questions, and concerns regarding OSW were recorded and compiled to better understand baseline knowledge of OSW development, while providing community feedback directly to decision makers. Findings from Phase 1 of the project were summarized in our What We Heard Report (August 2024).

Phase 2 of the project continued this two-way knowledge sharing, focusing on community-identified topics of interest and knowledge gaps related to OSW development. Information sessions and other outreach efforts that were facilitated by or with our partner and supporting organizations were developed based on the organizations' experiences working with communities and organizations of interest.

Four key insights guided Phase 2 engagement:

1. Community Co-Benefits and Considerations related to OSW Development
2. Information Sharing as a Foundation for Meaningful Participation in the OSW Industry Development
3. Interest in Skills Development and Training related to OSW Development
4. Advance Baseline Knowledge of Potential Environmental Effects and Economic Opportunities

Rural Community Information Sessions

Rural community information sessions were conducted in a two phased approach:

- Phase 1 from September 2023 until March 2024
- Phase 2 from September 2024 until December 2024

In Phase 2, the project team conducted 17 information sessions:

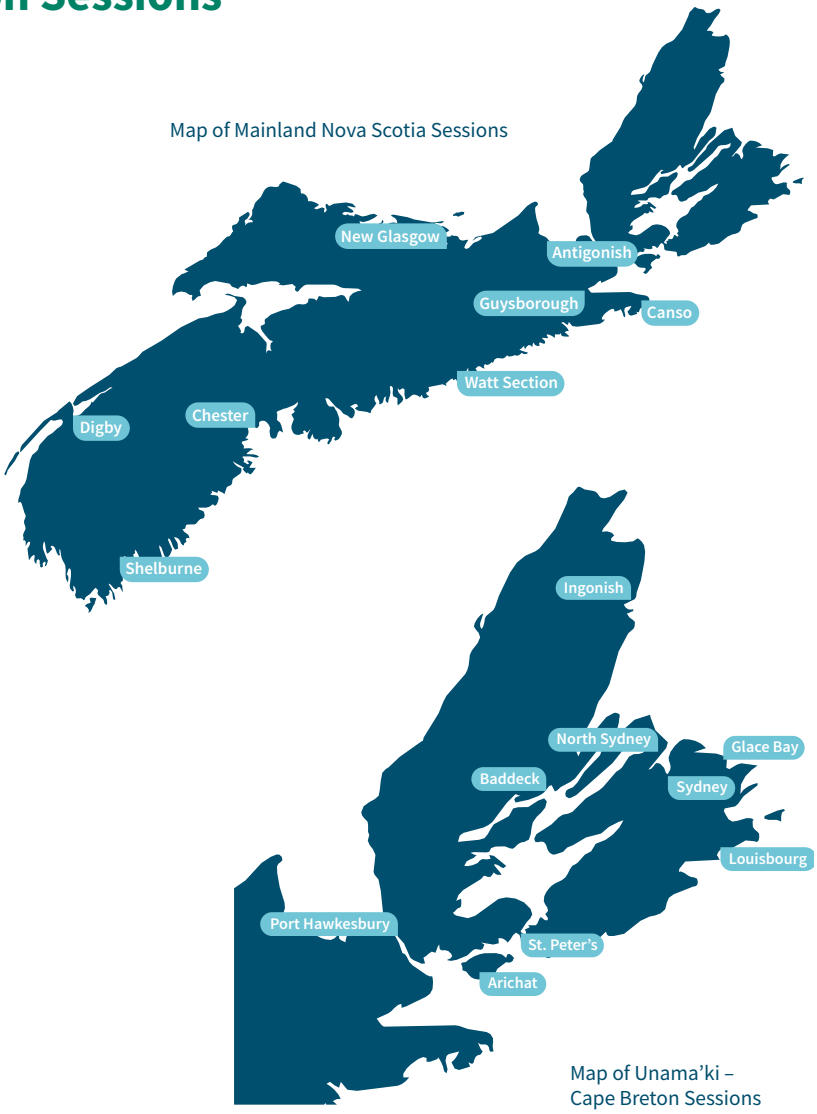
- 8 sessions in mainland Nova Scotia
- 9 sessions in Unama'ki-Cape Breton, in partnership with the Cape Breton Partnership

16 of the Phase 2 information sessions had usable datasets, representing:

- 133 participants
- 454 recorded comments and questions

33 topics were selected by the project team based on the Phase 1 What We Heard report and other sources of community feedback (e.g., Regional Assessment feedback).

It is important to note that the following analyses and comments are representative of what we heard in rural sessions conducted in Phase 2 but are not necessarily reflective of general opinions across Nova Scotia.



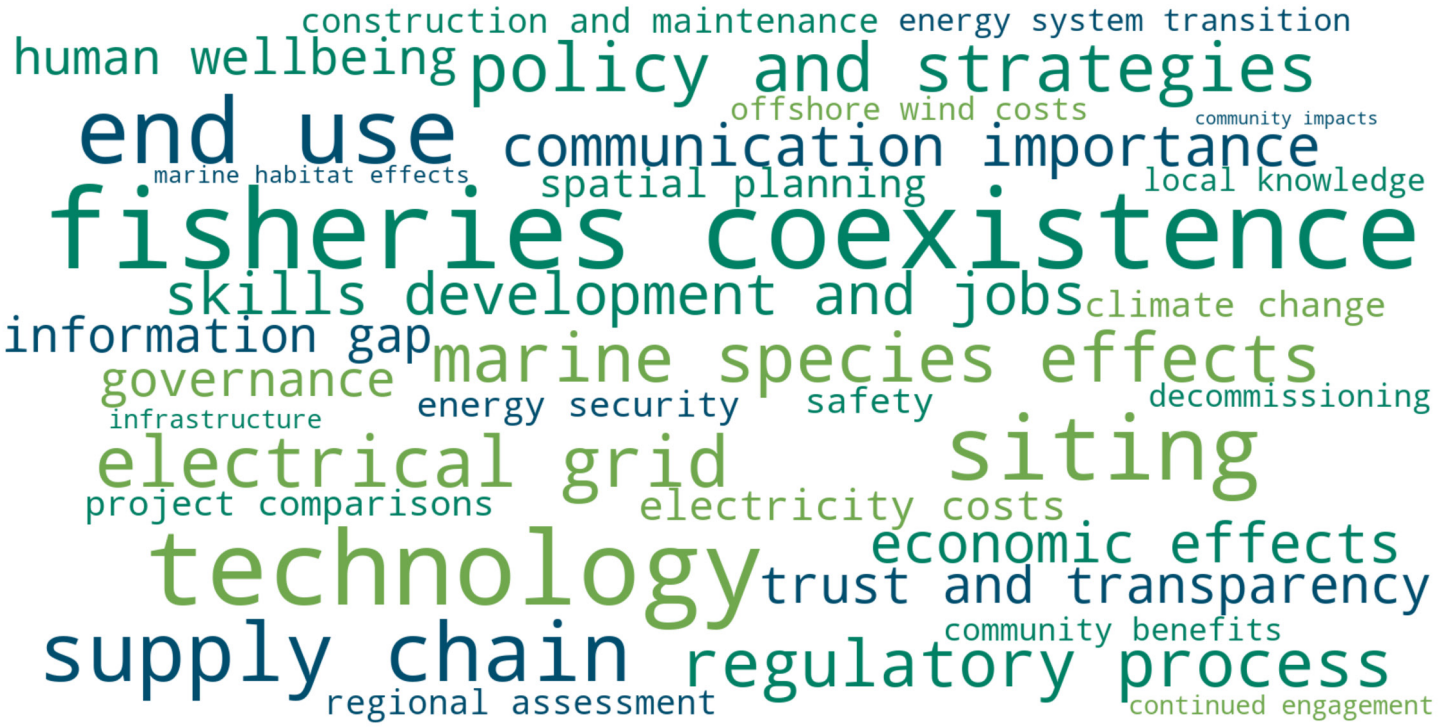
Map of Mainland Nova Scotia Sessions

Map of Unama'ki – Cape Breton Sessions

What We Heard in Rural Communities: By Topic

The following figure demonstrates what we heard in rural communities across Nova Scotia.

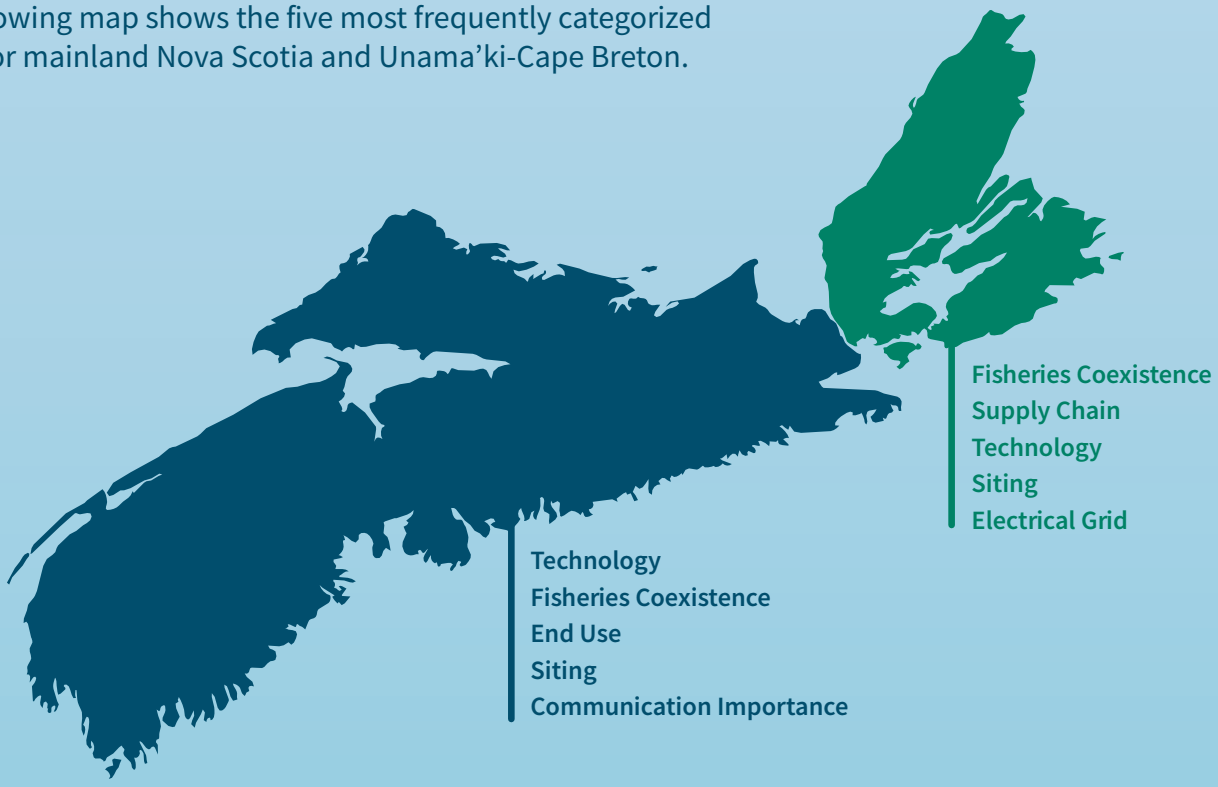
In this figure, the larger the topic is, the more frequently a comment was categorized by that topic.



Fisheries coexistence was the most frequently discussed topic across the rural community information sessions, followed closely by questions about OSW technology, siting of turbines (i.e., where turbines are placed in the offshore environment), and potential end uses of the electricity generated.

It is important to note that many comments and questions from participants approached more than one topic, so the project team selected the most relevant topic based on the comment's context. Intersecting topics and themes are described in more detail in the subsequent sections.

The following map shows the five most frequently categorized topics for mainland Nova Scotia and Unama'ki-Cape Breton.



What We Heard in Rural Communities: By Theme

This section describes the comments compiled during the rural community sessions. Comments were sorted into the seven broader themes below.

- FISHERIES COEXISTENCE
- OFFSHORE WIND TECHNOLOGY
- SOCIAL AND ECONOMIC CONSIDERATIONS
- END USE OF POWER
- ROLES, RESPONSIBILITIES, AND WHAT TO EXPECT
- ENVIRONMENTAL EFFECTS AND CLIMATE CHANGE
- COMMUNICATION AND OUTREACH

THEME 1

Fisheries Coexistence

Associated topic: Fisheries coexistence

Fisheries coexistence was the most frequently discussed topic in our analysis, representing 11% of the total comments gathered across the rural information sessions. To ensure that the importance of this topic is clearly communicated, fisheries coexistence was drawn out into a theme. Fisheries coexistence had substantial overlap with other key themes, including comments about permitting, regulations, potential exclusion zones, marine species effects, and social and economic considerations.

- Where turbines are placed (siting) frequently overlapped with concerns about fishing activity. Concerns about fishers being excluded from existing fishing grounds due to OSW construction and operation was a frequently discussed topic.
- Questions about fishing data availability from OSW sites in the United States were common, alongside how potential displacement of fishers was addressed. Many questions pertained directly to the lobster fishery.
- Participants were interested in the minimum distance between fishing activities and OSW turbines in other jurisdictions, and whether the fishing method (e.g., longline, pots and traps) affects that distance.
- Sharing information about fishing-specific regulations from other jurisdictions, such as the United Kingdom, were suggested by participants to enhance community knowledge.
- Many participants felt that the fishing industry is picking up steam, with record catches in the past few years, increases in gear purchases, and increases in fishing vessel size. Some participants were concerned that the organizations and companies promoting OSW are not aware of these recent developments.

"Why should we consider offshore wind in Nova Scotia? We have a great fishery, and we have to protect it."

THEME 2

Offshore Wind Technology

Associated topics: Construction and maintenance, Decommissioning, Infrastructure, Project comparisons, Siting, Technology

Offshore wind technology was one of the most highly discussed themes across the sessions, representing approximately 22% of all community comments and questions. Many participants had questions about how the technology itself worked (e.g., how fast blades spun), where turbines could be placed, the processes of construction, maintenance, and decommissioning turbines, and how OSW projects and technologies compare around the world.

Technology:

- Participants asked what the benefits of offshore turbines are, and whether the technology is different from onshore.
- Comparisons between floating and fixed bottom turbines were a frequent discussion topic. Participants had questions about differences between the turbines, pros and cons of each, and whether they were able to generate the same amount of electricity.
- For floating turbines, there were questions about the size of the anchor chains, limitations on where turbines may be placed (e.g., water depth), and whether the technology and costs associated with floating turbines were feasible for Nova Scotia.
- There were further questions about:
  - Necessary distances between turbines to safely and efficiently operate,
  - What factors determine the distance between turbines,
  - Whether OSW turbines could consistently produce electricity on a day-to-day basis,
  - How electricity from the turbines is collected and transmitted to shore,
  - Whether advancements in turbine technology would make existing turbines obsolete within their operating lifespan.

"Why can offshore wind turbines generate more [electricity] than onshore wind turbines? [Is it due to] offshore turbines being bigger or offshore having stronger and steadier winds?"

Siting:

- There was support for a buffer zone between offshore wind and the coastline. Concerns were raised that turbines too close to the coastline would have impacts on aesthetics, tourism activity, and nearshore fishing activity.
- Questions about the scale of potential OSW energy projects included total area of a project, number of turbines, and whether turbines will be built within the same area or in multiple areas. Questions about the timelines for site selection were frequently raised.

Construction and Maintenance:

- Questions about costs involved in building and maintaining offshore wind were raised, as well as how long the construction process will take.
- Types of maintenance and repair activities that may be expected for OSW sites were addressed.
- Comparisons between oil rigs and OSW sites were raised, particularly about whether construction and maintenance for OSW turbines would be comparable to oil rigs.

Decommissioning:

Participants had several questions about the life cycle of turbines, including:

- What happens to the materials once turbines are decommissioned?
- Are turbine materials recyclable or reusable?
- Would leaving turbine foundations in the water have fewer environmental impacts than if they were removed entirely?

"Is there a plan for what to do with the turbines after their lifespan is over?"

Infrastructure:

- Some participants were curious about whether existing pipeline infrastructure in and around Sable Island could be used for OSW development.
- Participants were interested in learning about the kinds of infrastructure projects are needed for OSW development, such as road and ports infrastructure.

Project comparisons:

- Questions surrounded projects in other jurisdictions, including:
  - What jurisdictions where OSW has been developed are most applicable to Nova Scotia?
  - How long was the time from construction to operation of the turbines?

THEME 3

Social and Economic Considerations

Associated topics: Community impacts, Community benefits, Economic effects, Human wellbeing, Safety, Skills development and jobs, Spatial planning, Supply chain

Social and economic considerations covered a broad range of community comments and questions, accounting for 20% of the conversation. Participants had questions and comments about local benefits, impacts, and broader economic effects of OSW, as well as impacts related to the use of the offshore environment and effects on existing activities and industries. Other questions related to Nova Scotia's participation in the industry, from the supply chain to employment and educational opportunities.

Economic Effects:

- There were several questions about how the OSW industry would impact the Nova Scotian economy, including:
  - How may communities stand to benefit based on where OSW sites are located?
  - What are the potential negative impacts on existing industries?
  - What are the potential benefits by developing OSW to create green hydrogen for export?
  - How can communities and industries get involved?
- There were concerns that the length of time necessary to establish the regulatory environment may slow the development timeline and associated economic benefits.
- Some participants showed interest in being involved with ports and other supporting industries as OSW continues to develop.

Community Impacts and Benefits:

- There were concerns that smaller communities may not be heard in the broader conversation about benefits. Participants emphasized the need for direct community benefits and involvement in the OSW development process.
- What OSW developers may offer for work/educational opportunities was raised in some discussions, as well as how these opportunities may be promoted in communities.
- Questions about whether production of green hydrogen through OSW will negatively impact drinking water supply came up in discussion. Questions were raised about use of freshwater vs. salt water in green hydrogen production.

> ***"For us as Nova Scotians, I would want to know 'what is in it for us?'"***

Skills Development and Jobs:

- Participants had several questions about the workforce needed for OSW, including:
  - What kinds of jobs would be needed?
  - Are most jobs related to the construction phase? What is the division between temporary and permanent jobs?
  - What are the working conditions for technicians? What are the safety considerations in place for employees working at sea?
- Post-secondary institution preparedness was addressed, particularly about the availability of educational opportunities for wind technicians and active research underway regarding the industry's development.
- Participants were interested in understanding the balance between local and foreign workers involved in the establishment of an OSW industry.

Supply Chain:

- There were questions about the potential players in the supply chain, including:
  - Who will be responsible for manufacturing and installing turbines?
  - Which ports would be best suited for OSW?
  - Are there existing local companies with capacity to participate?
  - Is barrier reduction needed to facilitate Nova Scotian participation?
- What supply chains look like in other countries and their applicability to Canada frequently came up.

Spatial Planning and Considerations:

- Potential exclusion zones and restrictions on vessel traffic in OSW areas were raised frequently.
- The need for further research and lessons learned from other jurisdictions was discussed, particularly from long-term OSW projects, to assess potential positive and negative effects on existing offshore activities (e.g., tourism, shipping, transportation).

Human Wellbeing:

- There were questions and concerns about potential effects from OSW development on human wellbeing, such as increased marine traffic, pollution, and impacts to sightlines and aesthetics.
- Questions arose about available research from other jurisdictions on potential short and long-term impacts of OSW sites on human wellbeing.

Safety:

- Participants wondered about how climate change may affect OSW turbines, and how potential damage to OSW sites from storms may be mitigated (e.g., wind speeds at which a turbine may power down to prevent damage).
- Participants asked about safety measures should a turbine be damaged or unrepairable.

Photo: A facility where turbine technology is stored before transport.

THEME 4

End Use of Power

Associated topics: Electrical grid, Electricity costs, End use, Energy security, OSW costs

How electricity generated from OSW sites is planned to be used, and associated effects on Nova Scotians, were two broad topics that were frequently discussed across the rural sessions. End use of power accounted for 17% of the comments across the rural sessions. Comments in this theme were often connected to questions about the regulatory process and governance of the industry.

Electrical Grid:

- Participants had several questions about Nova Scotia's electrical grid, including
  - How does the grid function?
  - How will the grid handle electricity produced from 5 GW of OSW capacity?
  - What would be the necessary grid infrastructure upgrades? Who is responsible for these upgrades?
- Several participants wondered if utilities (e.g., Nova Scotia Power) were in conversation about incorporating electricity from OSW into the grid.
- There were questions about what OSW substations would look like on-land: where will they be placed and how big will they be?

End Use:

- There were several comments and questions noting that OSW development has been intertwined with green hydrogen in conversations across Nova Scotia. Many participants sought clarity about plans to develop both industries.
- A common discussion point was whether electricity produced by OSW should be used domestically or exported in the form of green hydrogen or electricity. There were questions about the Canada-Germany Hydrogen Alliance and whether there are domestic market opportunities for OSW (e.g., within Atlantic Canada, in Canada).
- There were questions about subsea cable connectivity between the United States and Atlantic Canada.

Electricity Costs:

- Conversations approached how OSW could affect household power bills and participants generally prioritized keeping costs low for Nova Scotians.
- Participants inquired about whether those who live in a community that is closer to an OSW site could have a reduced power costs as compensation.

> ***"Will some of the [electricity produced] go to Nova Scotia or are they exporting all of it?"***

Offshore Wind Costs:

- The cost differences between developing onshore and OSW were discussed, as well as what the environmental costs would be if OSW is not developed.
- Participants wanted to learn more about potential developers that are interested in OSW in Nova Scotia, and whether profits from OSW would go to international companies rather than Canadian companies.
- Participants wondered how the government and developers would protect OSW infrastructure from sabotage or vandalism.

Energy Security:

- Participants asked if there are hydrogen production facilities in other jurisdictions and if Nova Scotia is a large enough province to justify 5 GW of OSW capacity.
- There were concerns that while OSW electricity would be generated in Nova Scotia, it would not contribute to our energy security if it were all exported.

THEME 5

Roles, Responsibilities, and What to Expect

Associated topics: Governance, Regulatory process, Policy and strategies, Regional assessment, Trust and transparency

'What should we expect from OSW development' was a key question across community information sessions. 14% of the comments and questions across rural sessions were specific to who is involved in governing the industry, policies, strategies, and the regulatory process, as well as the *Regional Assessment for Offshore Wind Development in Nova Scotia*.

Governance:

- There were questions about who is responsible for decision-making on various aspects of OSW development, including OSW locations, procurement, permitting, monitoring, and decommissioning of turbines.
- Participants asked questions about Nova Scotia Power's role in the OSW industry.

Regulatory Process, Policy, and Strategies:

- The potential permitting process and the role of developers frequently came up in discussion; this included who would be responsible for surveying potential sites for offshore and land-based operations.
- Timeline questions included the next steps in the OSW call for bids process and when turbines might be operational. Some participants asked if any leases had already been granted, and when environmental assessments for potential sites may be completed.
- Participants discussed regulations in other jurisdictions and asked about lessons learned that could be applicable in Canada.
- Participants wondered if there were plans for development beyond the current 5 GW capacity target.
- Potential competition between the Atlantic provinces for OSW development came up in discussion.

Regional Assessment:

- There was some confusion regarding the role of the Regional Assessment Committee and how outputs from the Regional Assessment would inform OSW site selection.
- Participants were interested in learning about the Regional Assessment process and whether their recommendations may inform legislation and regulations.

Trust and Transparency:

- There was some distrust expressed in governance bodies and regulators; some participants felt that where OSW turbines will ultimately be placed has already been decided.
- Some participants expressed that the regulatory process has been rushed, with more time needed for engagement, regulations, and environmental assessment of potential areas.

"It's difficult to give meaningful input when we don't know the regulations."

THEME 6

Environmental Effects and Climate Change

Associated topics: Climate change, Energy system transition, Marine habitat effects, Marine species effects

Environmental effects, particularly related to species-specific effects, were addressed in every rural session and accounted for 8% of all comments. Many questions and comments on environmental and climate change topics intersected with fisheries, roles and responsibilities, and general feedback on the need for robust environmental assessments.

Marine Habitat Effects:

- Questions approached the potential habitat effects from marine vessel traffic, burying cables in the seabed, and how habitat effects will be monitored and mitigated.
- Participants were interested in understanding the potential reef effect from OSW, including the potential of adding rocks around turbine bases to create artificial habitats.

Marine Species Effects:

- Potential species-specific impacts from OSW development were addressed frequently, including on migratory birds, lobsters, and marine mammals.
- Participants asked questions about the impacts of noise, vibrations, electromagnetic fields, and potential debris from OSW sites.
- Overall, participants noted that more data on these potential effects and how they may be mitigated is necessary in order to increase public support for OSW in Nova Scotia.

Climate Change and Energy System Transition:

- Climate change was a topic that intersected with several key themes, including effects of climate change on local industries (tourism, fisheries).
- Some participants wondered if OSW development may be approached in a similar manner as onshore wind or solar to meet local/municipal climate targets.
- Participants were curious about the impact of climate change on wind speeds, and how this could affect the amount of electricity generated from OSW turbines.
- There were general comments on the need for more renewable energy in Nova Scotia. How much renewable energy is needed to reach net-zero targets as demand continues to grow?
- How turbines will be disposed after being decommissioned and whether components could be recycled were common questions.

"My greatest concern is that [development] takes a long time, and in the next 20 years, the environment is going to keep changing."

THEME 7

Communication and Outreach

Associated topics: Communication importance, Continued engagement, Information gaps, Local knowledge

Across the rural sessions, we heard that continued conversation about OSW is necessary as the industry continues to advance. As the comments in this section overlapped across topics, the following comments capture information across the broader communication and outreach theme.

- There were concerns regarding misinformation about OSW. Several participants felt that OSW could provide tangible benefits, and if those benefits are communicated effectively and regularly, then there may be a more positive reaction to OSW development.

> ***"The biggest challenge for [offshore wind development] is going to be misinformation"***

- Participants noted that in-person engagement was the preferred approach to receiving information about OSW. It was emphasized that finding more suitable times for the community and using local communication channels (e.g., local radio, community organizations) would encourage greater participation in information sessions.
- Follow-on sessions were requested in some communities. Many participants asked about where to go online for accurate information and resources.

> ***"I would rather [attend a session] and get the information from you than go online."***

- Some participants asked about the availability of OSW information sheets and research, particularly about the potential effects of OSW on lobster fishing areas. Many participants wanted to view additional resources on several OSW-related topics.

Conclusion and Recommendations

This report summarizes the feedback collected during Phase 2 rural community information sessions of the *Capacity Building for the Sustainable and Inclusive Development of Nova Scotia's Offshore Wind Resource* project. Overall, feedback collected from rural communities across mainland Nova Scotia and Unama'ki – Cape Breton centered on the following themes:

- Fisheries Coexistence;
- Offshore Wind Technology;
- Social and Economic Considerations;
- End Use of Power;
- Roles, Responsibilities, and What to Expect;
- Environmental Effects and Climate Change; and,
- Communication Importance.

Four key recommendations from the rural engagement program emerged, which can inform future engagement and capacity building efforts:

Enhance Organizational and Community Participation

Building enduring capacity requires continued support and coordinated engagement across organizations and communities.

Timing of Engagement Sessions

Work with communities to assess community-specific needs, including timing of engagement and information dissemination.

Data Collection and Visualization Approaches in Engagement

Activities collecting public feedback should consider methods that facilitate communication to a wide range of audiences.

Importance of Ongoing Access to Credible Information

Communities and organizations requested in-person return of the Project Team to share relevant information and requested additional methods to access information.

We thank all of the communities that participated in information sessions. For more information on wind in Atlantic Canada, please visit our knowledge hub that showcases our net zero research, projects, and resources focused on the role of wind in our region's energy transition.

For more resources on wind in Atlantic Canada, visit netzeroatlantic.ca/wind.