SUMMARY - ENERGY SECTOR WORKING SESSIONS

Northeast Regional Ocean Council (NROC)

December 2012

1. Executive Summary

1.1. Overview

In December 2012, the Northeast Regional Ocean Council (NROC) organized a series of three working sessions for members of the energy sector in New England as part of the regional ocean planning effort in the region. The three working sessions focused on: 1) offshore wind, 2) marine hydrokinetic, and 3) gas and infrastructure. The first two meetings were held in Boston, Massachusetts; the third on gas and infrastructure was held via conference call. A total of 44 people participated in the three working sessions. The purpose of the sessions was to learn more about key issues being faced by these aspects of the energy sector in New England, anticipated changes in coming years, and the potential role of regional ocean planning to address issues and opportunities. In addition to the sector representatives, NROC members attended to participate in the discussions.

These working sessions focused on several key topics, with varying points of emphasis: permitting and governmental coordination, data needs, and other sector-specific challenges. All discussions were focused on providing context and discussing the potential role for regional ocean planning. This meeting summary contains a synthesis of comments made and questions raised during the sessions; it should be noted that not all energy producers or transmitters were represented at the sessions. The meeting summary captures those themes that were voiced most frequently or most strongly and grouped by wind, marine hydrokinetic and gas and infrastructure. It was written by the facilitation team from the Consensus Building Institute and Kearns & West.

NROC does not endorse the views in this summary document. The summary is intended to capture key themes and ideas expressed by participants: their ideas, questions, suggestions, and comments. There are times when these comments contradict one another or are stated as a certainty but may not be fully accurate. Additionally, certain points provide important context but may not necessarily lead to specific regional ocean planning tasks. Participants' points and perspectives have not been fact checked. The statements do not reflect the views of NROC or the authors of this document.

1.2. Key Themes from the Offshore Wind Working Session

Participants from the offshore wind sector shared a range of perspectives on what is moving forward smoothly and the areas they see for improvement in government decision-making and support of the industry. They discussed the need for increased process clarity and shorter timelines, among other things. Primary themes from their working session included:

- Focus NROC's role as a coordinating entity among numerous agencies in the region on generating time and money-saving permitting process improvements, including: reducing redundancy and inconsistency, maximizing sharing of information, and identifying and sharing best management practices (including from other countries).
- Maximize data collection investment through consistent standards, protocols and integration of learning from post-construction monitoring to inform a bigger regional picture (the whole becomes bigger than the sum of the parts) and to contribute to regulatory efficiency and cost reduction for both public and private sectors. There is an opportunity to not replicate specific data-gathering activities that will be required of individual projects, but to help refine those requirements through a screening-type of approach to using data. Many in the industry are especially interested in getting additional clarity on risk and uncertainty so that they can make well-educated decisions about when and how to proceed with projects.
- Regional ocean planning efforts should help clarify the permitting process for offshore wind development.
- Connect climate change risk (relative to ocean management priorities) to energy choices in the region; articulate public benefits of renewable energy in establishing trade-off scenarios between project development and interactions with other uses/natural resources.
- Consider convening stakeholder groups to discuss regional transmission issues, as they are critical to the growth of the sector. Transmission has a regional component but may not be discussed as part of a specific project, and experience from elsewhere suggests that transmission and electricity generation should be considered simultaneously.

1.3. Key Themes from the Marine Hydrokinetic Working Session

While recognizing the challenges of competing agency mandates and the fact that related technologies are in early stages of development, working session participants from the marine hydrokinetic (MHK) industry provided many suggestions for enhancing coordination and collaboration between government agencies and the MHK sector during the leasing and permitting process and discussed potential future trends. Participant discussion generally focused on the following topics:

- Enhance coordination across agencies and with companies by learning from existing examples of successful coordination and collaboration. Develop a clear permitting process road map to optimize efficiency. Provide opportunities for developers and agencies to meet together informally and regularly and develop relationships. Provide regional baseline information on natural resources and other users, recognizing that specific project proposals will need to undertake their own studies to develop project-specific information. Ensure agency permit staff understand MHK enough to be comfortable permitting appropriate projects.
- To support the development of the industry, establish a permitting process for MHK pilot projects that are small in scale or temporary in nature commensurate with their likely impact (i.e., something simpler and quicker than a full blown permit process for a commercial scale

project), recognizing that business plans for pilot efforts and commercial-scale efforts both exist and are quite different.

- Smaller-scale projects (e.g., less than typical existing power plant production or the 100s of MW many wind energy products are contemplating) may be likely in the future. Participants predict that project development is likely to move offshore due to nearshore biota issues and because wave resources are better for MHK in offshore locations, and given that, MHK developers are interested in co-location opportunities with wind development.

1.4. Key Themes from the Gas and Infrastructure Working Session

Gas and infrastructure representatives spoke about the need to make changes to the current federal and state processes only if they would improve the current system. The main themes of their working session were:

- Participants requested a clear road map indicating the steps and requirements necessary to obtain a permit for gas and infrastructure projects.
- Opportunity for increased interagency and agency-company coordination on gas and infrastructure projects.
- Transmission planning will be increasingly important with offshore renewable energy development.
- The Northeast Ocean Data Portal would be most useful if permit requirements drove the industry to start project planning with data available there.

2. Energy Sector Working Session Introduction

2.1. Project and Process Overview

NROC is a state and federal partnership that facilitates the New England states, federal agencies, regional organizations, and other interested groups in addressing ocean and coastal issues that benefit from a regional response. Formed in 2005, NROC's mission is to provide a voluntary forum for New England states and federal partners to coordinate and collaborate on regional approaches to support balanced uses and conservation of the Northeast region's ocean and coastal resources. One of NROC's core focal areas is regional ocean planning, and several supporting projects are underway. For more on NROC, see http://northeastoceancouncil.org/.

In 2012, as part of its ocean planning work plan, NROC set out to build stronger connections with key ocean users to begin discussing potential regional ocean planning topics and develop useful data products. A core component of this work involved reaching out to marine industries (including the aquaculture, maritime commerce, and energy sectors) as well as to the commercial fishing community, recreational boaters, and the natural resource community. In November and December 2012, NROC convened a suite of working sessions with representatives from the three marine industry sectors. This summary captures key outcomes from the energy working sessions.

The energy working sessions were preceded by several months of preparations and initial outreach to the sector. To support these outreach efforts, NROC hired a facilitation team composed of staff from the Consensus Building Institute and Kearns & West (neutral facilitation firms with a focus on natural resources and public policy). Over the summer of 2012, the facilitation team reached out to key leaders from the energy sector. The facilitation team conducted confidential phone interviews, sometimes

attended by NROC staff, to better understand the state of the industry, key industry participants, and to learn how best to engage the sector. In parallel with these interviews, the facilitation team sent out an online survey to a larger group of representatives from within the industry. A total of 25 representatives from the energy sector participated in either the interview or the online survey. Finally, NROC hired an energy expert to prepare a white paper summarizing the state of the industry in New England today. The energy white paper can be found at northeastoceancouncil.org. The interview and survey results and white papers helped identify the key issues that were discussed at the energy working sessions. The Boston location of the energy working sessions was identified with input from the interviews as well as advice from the white paper author and NROC members.

Three working sessions were held for members of the energy sector in New England. Two of these working sessions were held in Boston, MA, and one was held via conference call. The sessions in Boston each lasted five hours, while the conference call was two hours long. Working session participants represented offshore wind, MHK, transmission, and gas pipeline/infrastructure companies; academia; non-profit organizations; and state and federal government; including some NROC members. A total of 44 participants attended or participated in the working sessions. A list of working session participants is in Appendix 1, and copies of the working session agendas are in Appendix 2.

The stated objectives of the working sessions were to:

- Provide an update on NROC and recent regional ocean planning efforts.
- Increase clarity and understanding around key issues facing energy development in New England.
- Explore the role that regional ocean planning can play in addressing issues from the energy industry's perspective, and identify specific next steps to doing so.
- Discuss the current status of data and tools characterizing energy development in New England, and explore the role that regional ocean planning can play in improving and expanding this information base.

Discussions from all three of the energy working sessions are included in this summary. This summary will be shared with everyone who attended or was invited to the working sessions and with members of NROC and the newly formed New England Regional Planning Body (RPB). It will also be available on the NROC website.

2.2. NROC Plans for 2013

In 2013, NROC plans to continue to reach out to the energy sector through ongoing communications with sector leaders and participants, and further development of the Northeast Data Portal (see the last section of this summary for more on the data portal). As part of the overall regional ocean planning process, there will be additional opportunities to specifically engage the energy industry, as well as the maritime commerce industry, aquaculture and commercial fishing industries, recreational boating, and natural resource conservation organizations in similar processes in 2013. Ultimately, this foundational information (maps, data sets, and white papers) will feed into regional ocean planning processes that will be implemented by the Regional Planning Body.

2.3. Meeting Summary

This meeting summary, drafted by the facilitation team,[1] is organized into the following main sections:

Section 3: Offshore Wind Working Session
Section 4: Marine Hydrokinetic Working Session
Section 5: Gas and Infrastructure Working Session

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3. Offshore Wind Working Sessions

Participants in the Offshore Wind Working Session discussed a range of topics about how offshore wind development is proceeding today and lessons that could be helpful for regional ocean planning going forward. There were 29 participants at this working session; see Appendix 1 for the full list.

3.1.Context: Overview of Offshore Wind Activities in New England

Offshore wind development is in various stages of planning and pre-construction work in New England with one project (Cape Wind) permitted and others in early scoping phases offshore Rhode Island, Massachusetts, and Maine. John Weber, NROC and Maureen Bornholdt, Bureau of Ocean Energy Management (BOEM) summarized BOEM related offshore wind development activities in New England. Ms. Bornholdt discussed examples of the of extensive engagement between BOEM and the states and resulting modifications to both the Massachusetts and Rhode Island Wind Energy Areas to address navigation, fisheries and sensitive resources issues. See the energy white paper for more details about offshore wind energy development: northeastoceancouncil.org.

3.2. Agency Coordination During the Regulatory Process

There is both formal and informal coordination happening across agencies today, and participants were asked how they think regional ocean planning can contribute to continued enhancement of agency coordination during the regulatory processes of leasing, permitting, monitoring and mitigation, if at all. Key themes expressed include the following:

- *Seek efficiencies from coordination* – Share examples of agency coordination and consistency, especially as related to permitting standards and investment in research. The offshore wind industry is focused on cost-effectiveness, time savings and other efficiencies in the regulatory process that can make significant difference. Therefore, industry representatives would like agencies to be disciplined in thinking through the permitting process from an efficiency standpoint, to seek industry input on points at which inefficiencies are causing developers high

[1] The facilitation team that worked on energy sector engagement and these working sessions were, from the Consensus Building Institute, Ona Ferguson and Eric Roberts, and from Kearns & West, Eric Poncelet and Abby Arnold.

costs, and look to regional ocean planning to increase coordination such that the benefit is efficiency.

- *Define regional ocean planning's role* – With all the variety of activities happening at the state and national role, additional thought is needed to develop a clear role for regional ocean planning if NROC is to act in a coordinating capacity.
- *Provide supply chain guidance* – Companies that would provide goods and services for offshore wind developments are waiting to invest and need a clear timeline for ocean planning or other key decision points in order to be able to plan.
- *Be clear about the permitting process* – Some said the most essential interest of the industry is to have a transparent permitting process. They want to understand the permitting steps.
- *Communicate about process* – People in industry are not necessarily aware of the coordination occurring among agencies. Participants suggested that NROC or industry associations provide regular updates on those activities to people in the industry.
- *Develop and support best practices* – Regional ocean planning can play an important role in developing and supporting best practices among its partners by
    - Identifying, sharing and adopting lessons from Europe – The offshore wind industry is more fully evolved in Europe, and New England should benefit from Europe's technical and process lessons learned, especially regarding methods for government tolerance of early research and development activities, pilot projects and insurance.
    - Using lessons from the US – Some said the BOEM oil and gas competitive permitting system is predictable and works, offering a good model for wind power.
- *Provide clarity on climate change and support for renewables* - How will climate change influence energy-related decision making? What is the commitment at a state and federal level to support renewable energy industries and their ability to reduce emissions that will cause long-term change to the coast? NROC could consider articulating the hidden costs of oil and coal use that the renewables industry is competing with. Participants want to educate the public about externalities and hidden costs of other forms of energy to articulate the importance of offshore wind even if it appears to cost a bit more upfront per kilowatt-hour. Ocean acidification, sea level rise and rising ocean temperatures associated with climate change constitute regional risks and should make long-term mitigation and renewable energy development a priority.
- *Jointly identify points at which coordination is needed* – NROC could undertake informal discussions with industry to identify areas where there is a lack of coordination. One example of this is a recent informal discussion among USCG, EPA and NOAA during which they identified challenges around turbine inspections and boat safety, types of vessels and crew transfer.
- *Reduce costs for research and development* –Explore whether there are means for regional ocean planning to reduce R&D costs.
- *Define risks* – NROC could work with stakeholders to determine what constitutes significant risks that need to be addressed and how to define uncertainties, in order to create predictability. Regional ocean planning could then help fill data gaps related to these risks, recognizing that ultimately a developer will be responsible for undertaking project-specific studies. Regional information could help inform specific studies that would need to be undertaken through a

screening-type of approach. Regional data could also help determine variable risk to a developer in any one area. Risk is important on many levels for offshore wind development (relative risk of energy options, risk from negative interactions of turbines and wildlife and other human uses). NROC should explore how to incorporate these kinds of risks into tradeoffs in regional ocean planning.

3.3. Transmission

Planning for regional transmission opportunities related to offshore wind (or other types) energy development is an opportunity northeast regional ocean planning could consider. NROC could look into what regional transmission planning opportunities exist and which are related to ocean planning. John Weber introduced the topic, noting that transmission of energy from offshore wind is currently discussed on a project-by-project basis. One question is whether there would be value to address transmission at a larger spatial scale as it is being studied on shore. Participants responded as follows:

- *Work on transmission regionally* - NROC should convene people to discuss offshore transmission, as it is unlikely any single agency or group will undertake this topic offshore. Participants said an example where regional scale planning would be useful is where siting multiple cables from five or ten projects would be useful in order to reduce conflicts with other users as well as costs for developers. However, some in the industry feel there are other immediate priorities for the wind sector that take precedence over transmission.
- *Convene stakeholders to discuss transmission* - NROC could convene stakeholders to review options for siting transmission lines to reduce conflicts. NROC's ability to convene stakeholders is its strength, and participants suggested NROC bring stakeholders together across states to come to some shared agreement about transmission. They suggested in particular that NROC convene transmission discussions with industry on these key topics:
    - Preferred routes or transmission corridors
    - Interface with utility engineering teams – Discussions about transmission ought to occur with grid operators and the utilities. They may not be supportive of new sources of energy, so it is important to learn their long-term needs and see if their needs can be met in discussions of addressing offshore transmission needs.
    - Landing sites/interface with the shore – Regional ocean planning could be very helpful by identifying sites or areas where transmission can end up on land because there is high demand and low conflict.
    - Learning from onshore models of distribution such as distributed facilities connected or in a corridor
    - Competitive distance between multiple cable routes
    - AC/DC systems
    - Types of vessels allowed to do maintenance on installations
    - Burial depth and tools companies are allowed to use to bury cables
    - How transmission siting would affect or link with marine hydrokinetic developments
- *Trunklines are not a priority* - Participants thought it would generally be fine for regional ocean planning to consider an interconnect or trunkline, but noted some skepticism that there is not currently funding for such a system in New England. They said a trunkline would be good for developers to have, but that developers cannot count on such a system until it is installed and

ready to use. Others said that it is too early in the development of the industry to consider this and suggested regional ocean planning first help get a few wind projects installed before exploring this. They also noted that this decision likely has a decade-long timeframe.

- *Pair transmission and development* - The timing of transmission and site development must be considered together. People suggested that the US should learn from examples where these issues were not paired in the UK and in Germany (where projects were permitted but the utilities weren't ready and able to build out the cables). China, Belgium and Germany are planning marine interconnects.
- *Consider insurance implications* – One participant said that cable installation costs approximately 10% of a project's cost, but cable problems represent over 80% of insurance losses in the industry, so the insurance companies that will insure these developments will do so only with a secure and mature operations and maintenance plan. Regional ocean planning could develop best practices with other users such as fishermen seek opportunities to address this through permit standards.

3.4. Standardizing Data Collection and Analysis

After a brief presentation by Nick Napoli, NROC, on the Northeast Ocean Data Portal, participants were asked for their thoughts on data related to regional ocean planning and the wind sector in particular. Their comments, grouped by question, were as follows:

3.4.1. Would it be helpful to have a standardized approach for gathering and analyzing data about natural resources and human activities relevant to offshore wind? How could regional ocean planning assist with this? Participants said generally that it would be very useful to have more standardization in this realm and offered comments and suggestions on why it matters and possible ways to make it happen and components to include. They also said that, regarding the data portal, the types of data being collected and the approach to preparing products (discussing draft products with specific experts before issuing public final products) is a good one. Their key points were:

- Be sure that results from large-scale public data collection are tied into permitting decisions and are helpful to the private sector. Be clear who is collecting what data for efficiency.
- Regional ocean planning should identify distribution and abundance of particular marine species and the permitting risks associated with those data.
- Document the process and the motivation for creating the data portal. If the data can help answer whether and where wind can be permitted (by mitigating environmental impact, etc.), that would be very helpful.
- Consider how data is collected and the cases in which people self-reporting data might have an interest in over-reporting to over-claim parts of the ocean. Be very clear about data sources.
- Display and weigh information in sophisticated ways – these depictions are essential in terms of how people process the information.
- Create guidelines that ensure data sets collected by different developers in response to requirements are compatible (this would ensure, for example, that Cape Wind and Deepwater Wind's avian research results are compatible). That would maximize efficiency of data collection across the region by both developers and agencies. BOEM staff said they will be

posting data collection protocols for marine mammals, benthic communities, and bat/avian data collection soon, and that the data applicants submit will generally be publicly available.

- Clarify that maps are not two-dimensional and that in many cases multiple uses can occur in the same place.
- Remember that the sea is dynamic and conditions change over time. One use may impact habitat, altering other uses over the years. Remember the temporal component during data collection.
- Help people understand what the data in the data portal is and what it means. In areas where there is subjectivity, let stakeholders weigh in on how the data should be used. This will take a lot of discussion. Clear communication about the nature of the data in the data portal and appropriate application is a significant challenge and opportunity.

3.4.2. What data would benefit from a regional perspective and how?

- *Definition of risk* – Those involved in regional ocean planning could create the comprehensive list of risks for wind development that a project team could consider. The industry would like data collection and coordination to culminate in some articulation of liability/risk mitigation. That would give them the information they need to compute their business calculations. For example, gather enough information about marine mammal behavior to tell wind developers what areas to avoid to increase their chances of or decrease their timeline for getting a permit approved. Others said that calculating risk isn't the job of agencies, but agencies and industry need the same data on where wind developments can go to do the least harm and regional ocean planning could increase data collection and integrate the data that exists. Data collection and products should be appropriately characterized so developers can use them to understand their risks.
- *Coordinate data collection* - Developers are required to give all their data to BOEM, and BOEM guidelines are helpful. Regional ocean planning can help coordinate data collection and studies. Regional ocean planning can identify data gaps, or identify all the data being collected sometimes not in coordination and invite everyone to create shared baseline data of existing operations – one of the current gaps. Regional ocean planning could also suggest topics that do not require further study if a wind developer meets particular standards. Many different grants are given for data collection, and as they are not coordinated, they may be collecting redundant information. Regional ocean planning can help ensure that when industry collects data it fits with agency data in terms of methodology of collection, analysis and data processing.
- *Translate for insurers* - Data collection and conclusions should be translated into language insurance companies can understand regarding permitting risk. If a project can't be insured, it cannot be financed. Companies know the permitting risks in Europe, and it would be beneficial to enable technical teams from wind developers to know the equivalent in the US.
- *Transform the data into decision tools* – The data is essential, and regional ocean planning should focus on public interest and priorities, not what is in the water where already. It is essential that NROC communicate how they are thinking the data can be used (e.g. do lines on a map mean a particular use will be permanently sited? Is the data for screening or siting purposes?).
- *Focus on key issues* – Issues related to electromagnetic fields (EMF), marine mammals and transmission cables are especially likely to benefit from regional data collection.

- *Collect social science data* – NROC should be collecting or collating data on human populations and traditional knowledge (via social science data) in addition to natural resource data. This should include surveys of communities, what stakeholders think about offshore renewables and increases in other sources of energy, and discussions with those involved in nuclear power generation.
- *Interpret pre- and post-construction data* – In a few years, there will be a role for collecting post-construction data of wind farms. Regional coordination might be useful for interpreting the impacts we see at that time, as how impacts are evaluated depends on the perspective taken. Pre-construction data should also be scoped with industry.
- *Track cumulative monitoring results* – It would be good to have monitoring data available widely so all in the industry and agencies can benefit. Consistency in post-construction monitoring can help those in the region track cumulative impacts. Regional ocean planning could help keep an eye on cumulative impacts and positive results of the industry.
- *Species-specific risks* – Some suggested that risks to species that are present and those conditions that individual species are vulnerable to might be a useful thing to have data on.

3.4.3. With limited resources, how should data needs be prioritized? What opportunities are there to coordinate and leverage data? In addition to the topics above, participants identified the following as especially key data priorities.

- *Barriers* - NROC should identify regional issues that are likely to impede the wind industry and convene stakeholders to discuss and work through those issues (such as EMF, cable issues and siting).
- *Screening data* - Data that can help developers screen what species or issues they will need to study can be very helpful. In this case, regional data collection and analysis can help industry narrow the geographic area they consider as a possibility. The more regional ocean planning can do preliminary analysis across the region that wind applicants would otherwise be required to conduct, the more helpful. That will help developers identify areas to focus on and reduce the resources industry needs for data collection.
- *Identify gaps and level of certainty* - Identify data gaps for important species and try to get those filled, indicating what level of certainty is required for permitting.
- *Human activity* – NROC can gather and share information on human activities and uses in the ocean, specifically fishing.

4. Marine Hydrokinetic Working Sessions

Participants in the marine hydrokinetic (MHK) working session discussed the state of the MHK industry in New England and opportunities for regional ocean planning to support this new industry. There were 17 participants at this working session, see Appendix 1 for the full list.

4.1. Context: Overview of Marine Hydrokinetic (MHK) Activities in New England

Tidal or ocean currents can be used to produce Marine Hydrokinetic (MHK) energy. An emerging energy sector, MHK technology is newer and less developed than both the offshore wind or the oil and gas sectors. However, MHK developers have been leaders in the successful permitting, licensing, installation

and operation of ocean energy devices. MHK companies are developing prototypes to learn how to make efficient use of kinetic energy resources, both on a commercial-scale and on a pilot-basis. See the white paper for more details about MHK energy development: northeastoceancouncil.org

4.2. Enhancing overall agency coordination during leasing and permitting

How might regional ocean planning assist in enhancing agency coordination during the leasing and permitting phases of a project? Participants offered the following comments and suggestions.

- *Find and share examples of successful coordination and collaboration* – Participants said that one successful model of coordination is the Memo of Understanding (MOU) between the Federal Energy Regulatory Commission (FERC) and the State of Maine, which enables representatives of FERC and Maine to meet regularly with the Maine Department of Environmental Protection acting as the lead agency to coordinate leasing and permitting processes. Although this coordination involved a long learning process, the trust established between regulators has created an efficient process. Ultimately, energy companies and agencies brought the best available data to the table and worked together to develop tools to make effective decisionsA participant also suggested looking to Europe for other successful offshore energy development examples.
- *Consider the context in which interagency coordination occurs* – Participants noted that diverse agency mandates can make coordination and collaboration difficult. For example, administration changes can lead to a shift in policies and priorities. It is important for energy development companies to educate and build consensus across government agencies.
- *Educate permit staff* – A participant suggested that permitting decision-making must be made by experienced agency personal at the appropriate level. In some cases, staff inexperienced with MHK development could inadequately evaluate the range of acceptable tolerance and project complexity that might be hindering awarding of permits.
- *Support early contact between developers and agencies* – Several working session participants said engaging with regulators early and throughout the project development process can help establish trust and facilitate productive working relationships. Although it may seem counter-intuitive, participants suggested that meeting early with all of the applicable agencies to discuss a project idea and to identify the data and information necessary to address agency concerns may ultimately determine whether or not a particular project idea warrants further exploration. Participants said this early engagement approach is usually beneficial because a company can identify the key concerns and include data to address those concerns in permit applications. Additionally, if a good relationship is established early during leasing and permitting, it can carry over into the monitoring, analysis and compliance phases of the project. Progress can also be slowed due to personal issues between developers and agency personnel.
- *Establish a clearly defined and optimized permitting process* – Participants expressed concern about the length of time required to permit MHK projects, noting that some MHK projects might require 25 different permits from various state and federal agencies over a five to ten year approval process. As an example of an optimized permitting process, a participant described how the Massachusetts Coastal Zone Management (CZM) program requires a limited review if it has received pilot project approval from FERC. They requested a clear road map of permitting process steps and key agency contacts for MHK permits.

- *Provide opportunities for informal gatherings between agencies and energy companies* – Participants said regional ocean planning could provide a good forum to establish working relationship and enhance collaboration. Informal meetings about regional ocean energy activities would reduce the concerns of the MHK industry that marine spatial planning will be implemented without addressing their concerns. One example is that of the oil and gas industry whereby agencies meet quarterly to discuss the energy projects developers are pursuing. There is also a federal group meeting quarterly to discuss MHK, which might be another forum for discussion.
- *Establish special permitting processes for MHK pilot projects or demonstration sites* – Pilot and demonstration projects are key at this stage of industry development to optimize MHK technology. Demonstration projects may not be installed permanently, and participants suggested that a process be developed for developing short-term projects in New England. For example, the Massachusetts Department of Environmental Protection is considering regulatory revisions to more easily permit demonstration projects.

4.3. Exploring Research and Development and Early Technology Trends

Working session participants discussed which research and development technology trends might alter or enhance the geographic or economic viability of MHK in New England, as well as which locations might become viable due to new technology. Their comments were as follows:

- *Projects will move offshore* – Project development for wave energy is likely to move offshore due to near-shore biota issues and because wave resources are better offshore. Projects have historically been in locations with high energy, but the key in the future may be to deploy more efficient energy generating devices in less energetic locations. Sites that are good for wind power offshore are often good for wave energy, which could be a future opportunity for co-location to solve transmission issues or may lead to future conflict among users.
- *Smaller and mid-scale projects could become more common* – Market research indicates there may be a larger market for smaller, highly efficient mid-scale energy generation devices in the future. More companies will likely focus their efforts at this scale in the coming years. Participants also said that although they currently attract financing with federal or state partnerships, the long-term goal is full commercial development.
- *Technology may become moveable* – Some companies may design devices, or portions of devices, that are readily deployable and removable, which could mean the devices are moved based on seasons or on fluctuations of a given site's energy capacity.
- *Energy may be transported on vessels* – One participant speculated that energy storage systems might be developed to transport energy on vessels.

4.4. Discussion of MHK Sector Data

NROC presented the data and maps they have compiled on the Northeast Ocean Data Portal. Participants discussed what data they might find useful, and their discussion generally focused on the following topics and themes:

- *Data gaps for industry to fill* – There are many data gaps surrounding MHK projects, as MHK is an emerging sector. Some participants proposed that companies collect as much site-specific

data as possible with the intent of sharing the data, so the industry can identify best practices and responsibly site and develop projects.

- *Data needed for permitting* – Other participants suggested that data collection be categorized in a way that will inform the permitting process and provide for monitoring at an appropriate risk level. Suggested data categories included: what is legally required, what is technically feasible, biological-impact related, and impacts on stakeholders.
- *Site-specific data vs. regional data* – Since energy development companies must collect site-specific data to characterize the local economic, environmental and engineering impacts likely to be caused by their project, participants said site-specific data would be more useful than regional data. Companies need to characterize the water column to identify which section of the water column will most consistently provide energy. One participant suggested that regional data could provide baseline information, but noted that endangered species and marine mammal protection data are often the pinch point of the permitting process. Some participants felt regional data would be useful to regulators reviewing permit applications and to the industry for preliminary application documents, to summarize existing information, and to create a consultation record. More specifically, the regional data would help identify the potential competing uses of a potential siting area, whether or not marine mammals were observed, the location of fisheries spawning grounds, the location of migratory paths, etc.
- *High quality data* – To reduce potential disagreements over data, participants recommended aggregating data that a wide variety of users agree is credible and reliable. Additionally, the data portal should provide metadata so users know the data source and collection methodology.
- *Keep data distinct* – Consider separating wave data from tidal data, since tidal is site specific and wave is more general.
- *Examples of data sets or tools to include* – Participant suggested the following examples of data sets to including the portal:
    - A location-based decision support tool similar to the one created by URI, PRRB and Tethys (http://mhk.pnnl.gov/wiki/index.php/Tethys_Home).
    - Maps of fisheries data or other users, noting that the data sets should probably not be prioritizing one use over another.
    - Maps of transmission lines that detail where the lines are located, the electricity load they carry, and where it goes on shore.
- *Standardization of data* – Data should not be standardized by taking averages, because taking averages means the user loses the ability to see the fluctuations in data.

5. Gas and Infrastructure Working Session

Participants in the Gas and Infrastructure Working Session discussed the current and future state of the sector given national trends, identifying topics where regional ocean planning might come into play. There were seven participants at this working session; see Appendix 1 for the full list. Because this working session had fewer participants than others, the discussions were relatively brief and the conversation more informal.

5.1. Context: Overview of gas and infrastructure activities in New England

Liquefied Natural Gas containers come into New England and transport a key energy source to the region. There has not been offshore oil and gas development due to potential damage to the fishing industry. See the white paper for more details about gas and infrastructure: northeastoceancouncil.org.

5.2. Overall agency coordination during leasing and permitting

Participants were asked what specific agency coordination needs exist, how regional ocean planning efforts can address those needs, and whether or not there is potential use for performance standards for pre- and post-construction monitoring or for assessing mitigation and restoration efforts. Participants' discussion generally focused on the following:

- *Regulatory Simplicity* – Participants recommended maintaining the current oil and gas regulatory framework at a general level, which has worked for many years. In addition, they suggested simplifying the permitting process to avoid overlapping performance standards and duplicative information requests and mitigation fees. Participants said a procedural review of the regulations could identify the data and information a company is expected to provide to comply with state and federal requirements. If new regulations were promulgated, the participants suggested clearly identifying where and why additional regulation is necessary and what any new regulations would accomplish. There was a general sense among the participants that this sector is already well regulated.
- *Need for ocean-transmission* – Participants said there is a need now to move electricity in the water, not just on land. They suggested convening additional discussions on this subject with Cape Wind, Anbaric Transmission, other transmission interests, traditional energy providers, and the New England ISO.
- *Interagency coordination, early engagement, and coordination between companies* – Participants suggested that increased coordination between federal and state NEPA agencies would make the permitting process more efficient. The framework for interagency coordination used to implement the Massachusetts Ocean Plan could serve as a model for how state and federal partners can work together across jurisdictional boundaries. Early, active engagement with regulatory agencies with oil and gas companies can foster better understanding of a proposed project and reduce permitting delays. For example, Comcast engaged regulators early in a proposed cable-laying project, which allowed Comcast to clearly identify the data the agencies would require of them. After the project was approximately 80% complete, NSTAR approached Comcast to discuss bundling an electric cable with the Comcast infrastructure, an idea welcomed by the agencies because permitting separate projects would have taken more time and resources. In another example of early engagement enabling a company better understand the permitting requirements, a company decided not to advance a project when the requirements seemed too challenging. Industry representatives want to know early if there is a reason their project will never be permitted.
- *Additional stakeholders to engage* – Participants suggested engaging utility districts and local wetlands commissions in regional ocean planning efforts related to the energy sector.

5.3. Future gas and infrastructure trends

- *Electricity transmission and energy infrastructure* – Participants anticipate that energy transmission planning will become increasingly important as offshore renewable energy development continues. The topic would be more relevant to oil and gas development if BOEM

developed exploration and mineral recovery plans. Another participant noted that energy infrastructure needs are high on the agenda of the Massachusetts Coastal Zone Management program.

- *Natural gas distribution* – Although possible in the long-term, participants do not anticipate a great increase in the export of natural gas from the New England in the near-term.

5.4. Gas and infrastructure sector data

- *Usefulness of data* – The Northeast Ocean Data Portal could be very useful to enable people in the industry to stay abreast of established or proposed offshore projects. If state or federal agencies required developers to start project planning with the data contained in the data portal, the portal would prove very useful very quickly. For example, permit applications for offshore interstate pipelines might ask whether the developer has looked at the portal.

APPENDIX 1: Working Session Participants

Wind – December 3 – Boston, MA

Abby Arnold, Kearns & West (facilitator)
Ron Beck, US Coast Guard
Maureen Bornholdt, Bureau of Ocean Energy Management
Catherine Bowes, National Wildlife Federation
Jessica Bradley, Bureau of Ocean Energy Management
Bruce Carlisle, Massachusetts Coastal Zone Management
Mel Cote, Environmental Protection Agency
Fara Courtney, US Offshore Wind Collaborative
Ray Dackerman, Condor Wind Energy
Michele DesAutels, US Coast Guard
Ona Ferguson, Consensus Building Institute (facilitator)
Rhonda Jackson, Fishermen's Energy
Aileen Kenney, Deepwater Wind
Bob LaBelle, Bureau of Ocean Energy Management
Katie Lund, National Ocean and Atmospheric Administration
Daniel Martin, National Ocean and Atmospheric Administration Coastal Services Center
Megan Massaua, US Department of Energy
John Miller, New England Marine Renewable Energy Center
Nick Napoli, Northeast Regional Ocean Council
Betsy Nicholson, National Ocean and Atmospheric Administration
Bonnie Ram, University of Delaware, Ram Power, LLC
Mark Rodgers, Cape Wind
Alison Rogers, Environmental Protection Agency
Tyler Studds, Mass Clean Energy Center
John Weber, Northeast Regional Ocean Council
Joel Whitman
Paul Williamson, Maine Wind Industry Initiative

Marine Hydrokinetic Energy – December 4 – Boston, MA

Foerd Ames, Ocean Wave Energy Company
Ken Baldwin, University of New Hampshire
Stephen Barrett, Harris Miller Miller & Hanson, Inc.
Ron Beck, US Coast Guard
Stephen Bowler, Federal Energy Regulatory Commission
Peter Browne, HDR Engineering
Bruce Carlisle, Massachusetts Coastal Zone Management
Ona Ferguson, Consensus Building Institute (facilitator)
Nathan Johnson, Ocean Renewable Power Company
Bob LaBelle, Bureau of Ocean Energy Management
Glen Marquis, Ocean Renewable Power Company
Daniel Martin, National Ocean and Atmospheric Administration Coastal Services Center
Meghan Massaua, Department of Energy
Sean McDermott, National Marine Fisheries Service

John Miller, UMASS Dartmouth, Marine Renewable Energy Center
Nick Napoli, Northeast Regional Ocean Council
Betsy Nicholson, National Ocean and Atmospheric Administration
Sean O'Neill, Ocean Renewable Energy Coalition
Eric Roberts, Consensus Building Institute (facilitator)
Alison Rogers, Environmental Protection Agency
John Weber, Northeast Regional Ocean Council

Gas and Infrastructure – December 5 – Conference Call

James Behnke, Rich May Law
Bruce Carlisle, Massachusetts Coastal Zone Management
Denise DesAutels, National Ocean and Atmospheric Administration
Michelle Desautels, US Coast Guard
Ona Ferguson, Consensus Building Institute (facilitator)
Daniel Martin, National Oceanic and Atmospheric Administration Coastal Services Center
Brian McCabe, National Grid
Joe Newman, National Grid
Eric Poncelet, Kearns & West (facilitator)
Eric Roberts, Consensus Building Institute (facilitator)
John Weber, Northeast Regional Ocean Council

APPENDIX 2: Working Session Agendas

AGENDA
OFFSHORE WIND SECTOR WORKING SESSION
Northeast Regional Ocean Council (NROC) Sector Outreach
EPA Post Office Square Building, 5 Post Office Square, Boston, MA (Court Room 6)
December 3, 2012 (9:00 AM – 4:30 PM)

WORKING SESSION OBJECTIVES

- Provide an update on NROC and recent regional ocean planning efforts.
- Increase clarity and understanding around key issues facing the offshore wind sector in New England.
- Explore the role that regional ocean planning can play in addressing these issues from the offshore wind industry's perspective, and identify specific next steps to doing so.
- Discuss the current status of data characterizing the offshore wind sector in New England, and explore the role that regional ocean planning can play in improving and expanding this information base.

AGENDA

Time	Topic
8:30 AM	*Arrivals*
9:00 AM	**Welcome** • Welcome, introductions, and an overview of the day's agenda – John Weber or Nick Napoli, Northeast Regional Ocean Council (NROC)
9:15 AM	**Overview of ocean planning and offshore win activities in New England** • Introduction to the Northeast Regional Ocean Council and Regional Ocean Planning – John Weber/Nick Napoli, NROC • Review of recent offshore wind development activities –Maureen Bornholdt, BOEM
9:45 AM	**Discussion of key sector issues and trends, and potential role for ocean planning** Issue #1: Agency coordination during the regulatory process • Overview – John Weber/Nick Napoli, NROC • Discussion: Is there a way for regional ocean planning to contribute to continued enhancement of agency coordination during the regulatory processes: leasing, permitting, monitoring, mitigation?
10:45 AM	*Break*

11:00 AM	**(Cont.) Discussion of key sector issues and trends, and potential role for ocean planning** Issue #2: Transmission • Overview – John Weber/Nick Napoli, NROC • Discussion: What regional transmission planning opportunities exist and what are potential aspects related to ocean planning
12:00 PM	*Lunch*
1:00 PM	**(Cont.) Discussion of key sector issues and trends, and potential role for ocean planning** Issue #3: Standardizing data collection and analysis • Overview – John Weber/Nick Napoli, NROC • Discussion o Would it be helpful to have a standardized approach to gather and/or analyze data (natural resources, other human activities) relevant to offshore wind? o How could regional ocean planning assist with this?
2:00 PM	*Break*
2:15 PM	**Update and discussion of relevant data** • Update on status of the data characterizing offshore wind, and related data needs regarding natural resources or other human activities – John Weber/Nick Napoli, NROC • Discussion: o What data would benefit from a regional perspective, and in what ways? o With limited resources, how should data needs be prioritized? o What opportunities are there to coordinate and leverage data?
4:15 PM	**Recap and next steps**
4:30 PM	*Adjourn*

AGENDA

MARINE HYDROKINETIC SECTOR WORKING SESSION

Northeast Regional Ocean Council (NROC) Sector Outreach
EPA Post Office Square Building, 5 Post Office Square, Boston, MA (Mt. Washington Room)
December 4, 2012 (10:00 AM – 3:00 PM)

WORKING SESSION OBJECTIVES

- Provide an update on NROC and recent regional ocean planning efforts.
- Increase clarity and understanding around key issues facing the marine hydrokinetic (MKH) sector in New England.
- Explore the role that regional ocean planning can play in addressing these issues from the MHK's industry's perspective, and identify specific next steps to doing so.
- Discuss the current status of data characterizing the MHK sector in New England, and explore the role that regional ocean planning can play in improving and expanding this information base.

AGENDA

Time	Topic
9:30 AM	*Arrivals*
10:00 AM	**Welcome** • Welcome, introductions, and an overview of the day's agenda – John Weber, Northeast Regional Ocean Council, NROC
10:15 AM	**Overview of ocean planning and MHK activities in New England** • Introduction to the Northeast Regional Ocean Council and Regional Ocean Planning – John Weber, NROC • Review of recent MHK development activities – Sean O'Neill, Ocean Renewable Energy Coalition

10:45 AM	**Discussion of key sector issues and trends, and potential role for ocean planning**
	Issue #1: Enhancing overall agency coordination during leasing and permitting
	• Overview – John Weber/Nick Napoli, NROC
	• Discussion
	  ○ What else does NROC need to know about this issue?
	  ○ What are the opportunities for regional ocean planning?
	
	Issue #2: Exploring R&D and early technology trends
	• Discussion
	  ○ Which R&D or early technology trends will alter or enhance the geographic or economic viability of MHK in New England?
	  ○ Which areas might become viable?

12:30 PM	*Lunch*

1:30 PM	**Update and discussion of sector data**
	• Update on status of the data characterizing MHK, and related data needs – Nick Napoli, NROC
	• Discussion:
	  ○ What data would benefit from standardization of collection, methodology, or analysis?
	  ○ Discussion of key information needs for potential new projects.
	  ○ With limited resources, what are priority data needs?

2:45 PM	**Recap and next steps**
3:00 PM	*Adjourn*

WEBINAR AGENDA

GAS AND ENERGY INFRASTRUCTURE SECTOR WORKING SESSION
Northeast Regional Ocean Council (NROC) Sector Outreach
December 5, 2012 (10:00 AM – 12:00 PM)

*Please see email for webinar connection options and instructions

WORKING SESSION OBJECTIVES

- Provide an update on NROC and recent ocean planning efforts.
- Increase clarity and understanding around key issues facing the gas and energy infrastructure sector in New England.
- Explore the role that regional ocean planning can play in addressing these issues from the gas and energy infrastructure industry's perspective, and identify specific next steps to doing so.
- Discuss the current status of data characterizing the gas and energy infrastructure sector in New England, and explore the role that regional ocean planning can play in improving and expanding this information base.

AGENDA

Time	Topic
9:50 AM	*Log into webinar*
10:00 AM	**Welcome** • Welcome, introductions, and an overview of webinar agenda – John Weber, Northeast Regional Ocean Council (NROC)
10:10 AM	**Overview of ocean planning and gas and energy infrastructure activities in New England** • Introduction to the Northeast Regional Ocean Council and Regional Ocean Planning – John Weber, NROC • Review of recent gas and energy infrastructure development activities – John Weber, NROC

10:30 AM	**Discussion of overall agency coordination during leasing and permitting, including federal-federal and federal-state**
	• Discussion:
	  ○ What specific agency coordination needs exist, and how could a regional ocean planning effort address them?
	  ○ Is there potential use of performance standards for pre- and post-construction monitoring, or assessing mitigation and restoration efforts?

11:15 AM	**Update and discussion of sector data**
	• Update on status of the data related to gas and energy infrastructure siting (e.g., natural resources and other human activity information) , and additional data needs – John Weber, NROC
	• Discussion:
	  ○ What data would benefit from standardization of collection/methodology/analysis (i.e. development of best practices)?
	  ○ With limited resources, what are priority data needs?

11:55 AM	**Recap and next steps**
12:00 PM	*Adjourn*