



equinor

Purchase of Offshore Wind Renewable Energy Certificates

ORECRFP20-1



Beacon
Wind



Empire
Wind



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1 EXECUTIVE SUMMARY

Proposers are required to provide an executive summary that documents the eligibility of the proposed Offshore Wind Generation Facility, and the array of Proposals included in the Submission, including the proposed Contract Tenor(s), the overall Project schedule(s) including expected Commercial Operation Date(s), and other factors Proposers deem to be important.

Equinor Wind US LLC (“Equinor Wind”), on behalf of itself and its affiliates Empire Offshore Wind LLC and Beacon Wind LLC, hereby submits its offer¹ to supply offshore wind renewable energy certificates (“OREC”) to the New York State Energy Research & Development Authority (“NYSERDA”).² Equinor Wind’s proposals in this solicitation are the culmination of four years of work by a dedicated and experienced team focused on advancing the development of Equinor Wind’s offshore wind portfolio in a manner that aligns with New York’s economic and environmental objectives. These efforts, combined with technical and commercial expertise developed over the course of over four decades of offshore development, have allowed Equinor Wind to offer a range of proposals that provide NYSERDA with the ability to take a significant step towards achieving the goal of developing 9 gigawatts (“GW”) of offshore wind energy by 2035, help New York get back to work in the wake of the COVID-19 pandemic by creating thousands of good paying jobs in Disadvantaged Communities, and advance New York’s carbon reduction and environmental justice priorities.

As set forth below, Equinor Wind is offering NYSERDA the [REDACTED]

¹ Evidence of proof of payment of the appropriate bid fee is being provided as an attachment.

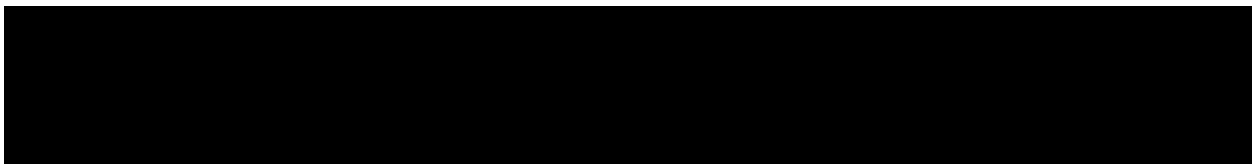
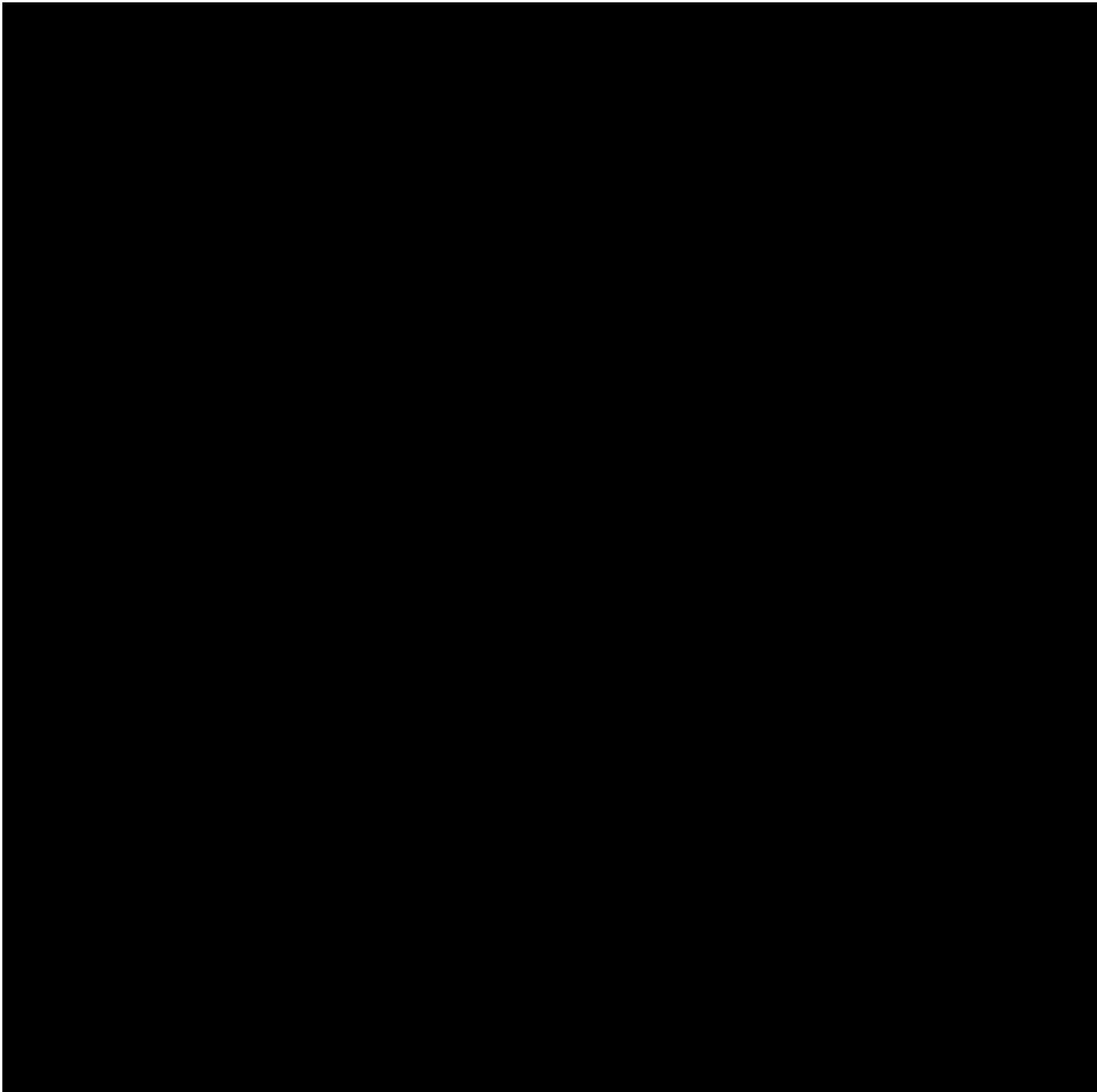
² Throughout this narrative, Equinor Wind has highlighted in yellow text that contains confidential information or trade secrets that are exempt from public disclosure. Attachments for which Equinor Wind is requesting confidential treatment are labeled with “Redacted” and “Confidential Copy – Do Not Disclose.” A statement supporting these claims of confidentiality is provided under separate cover.



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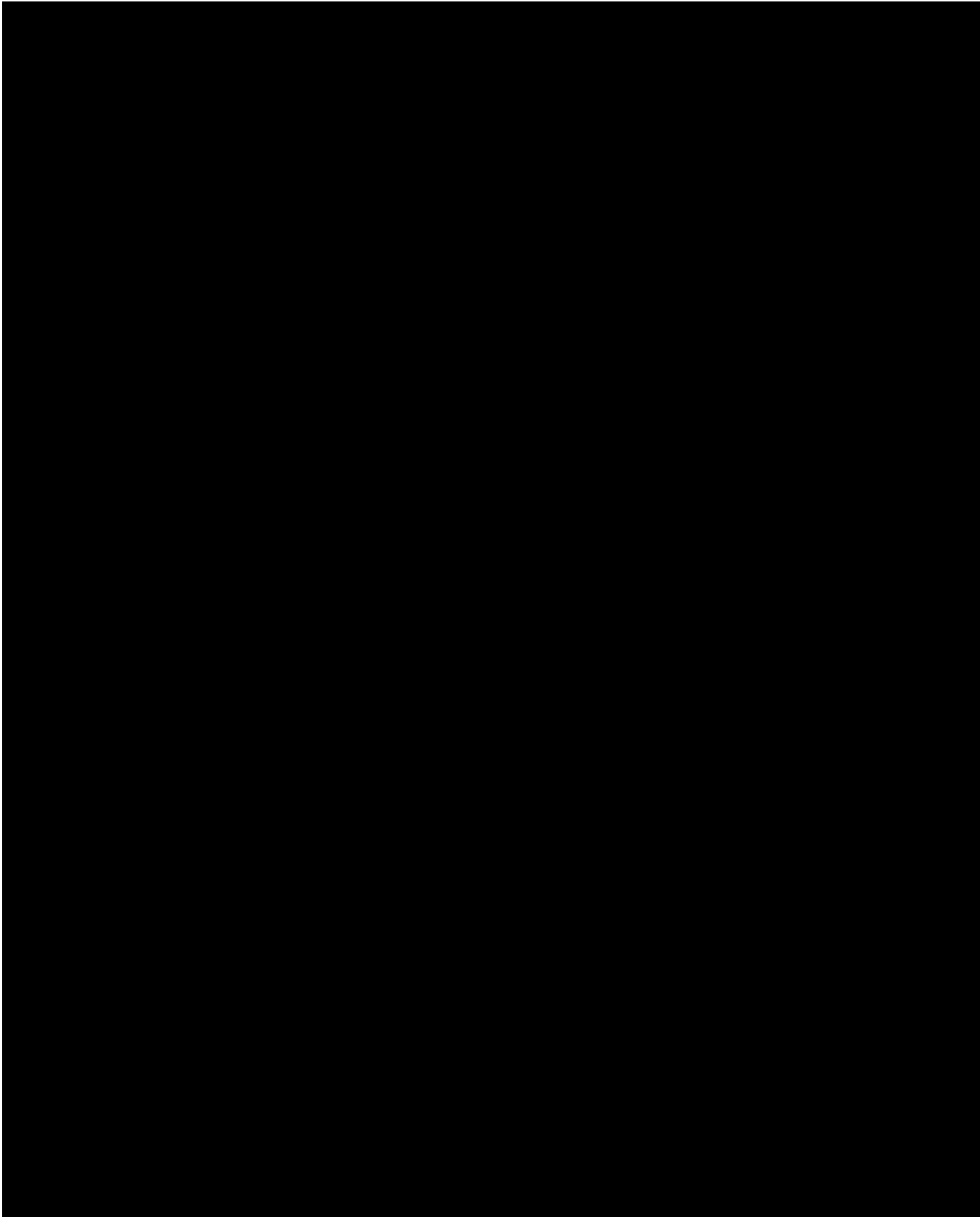




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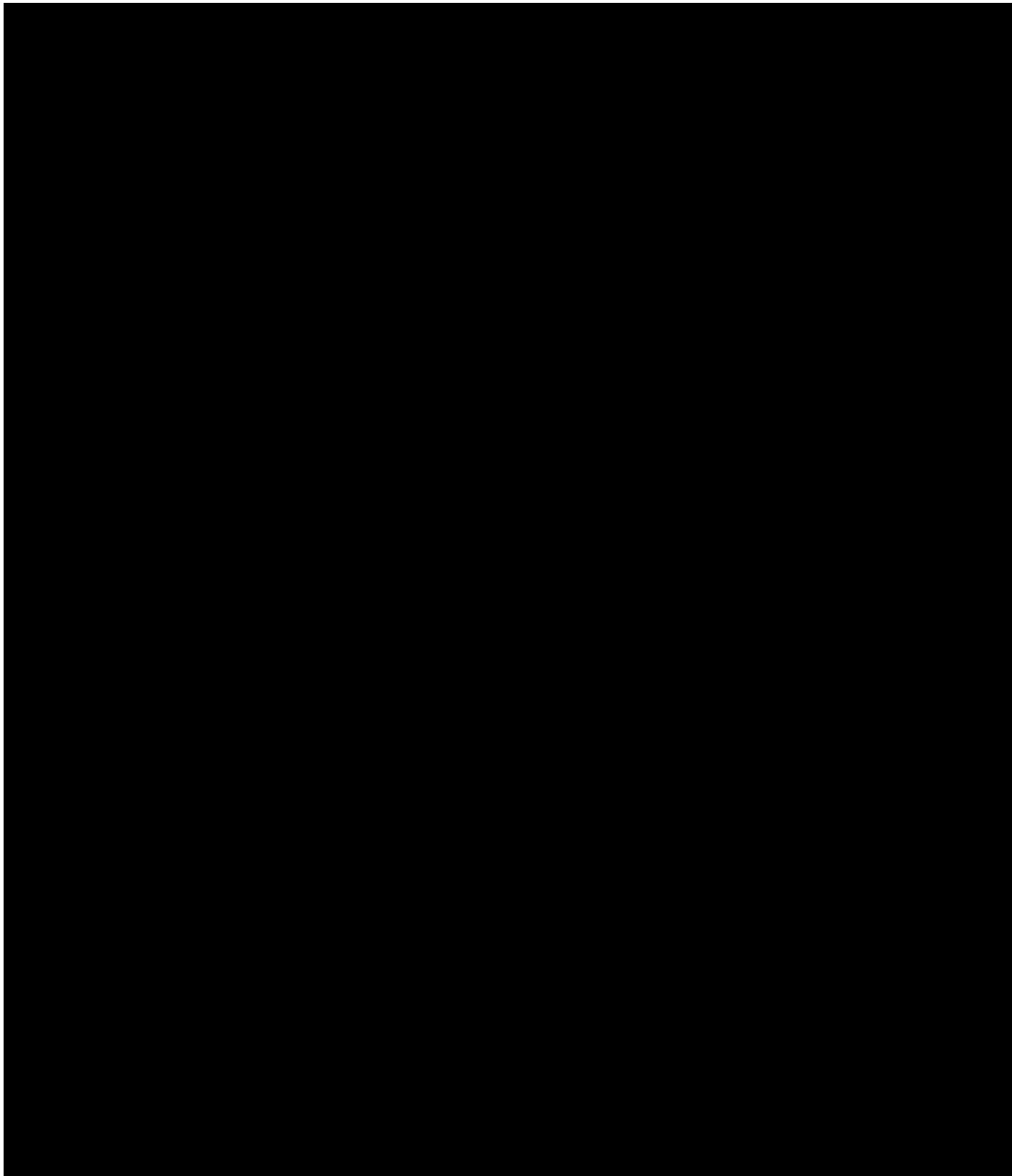




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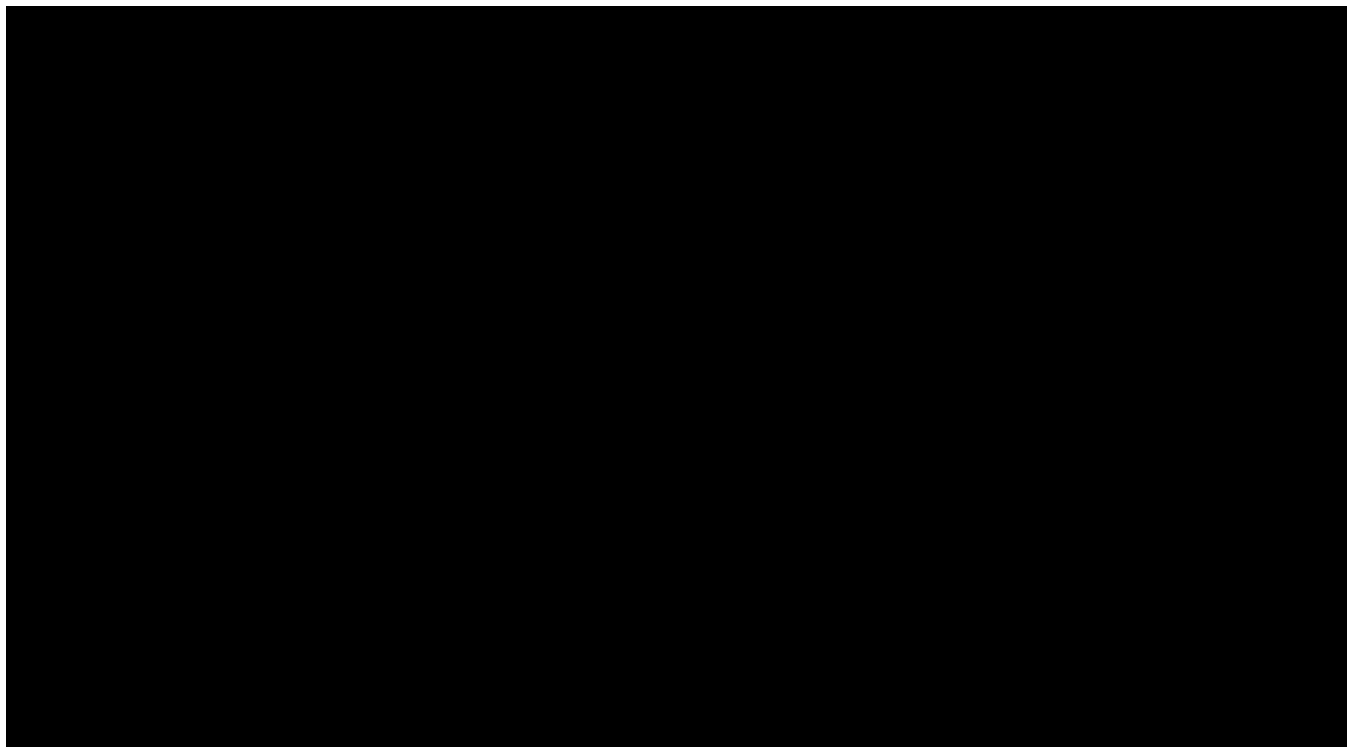




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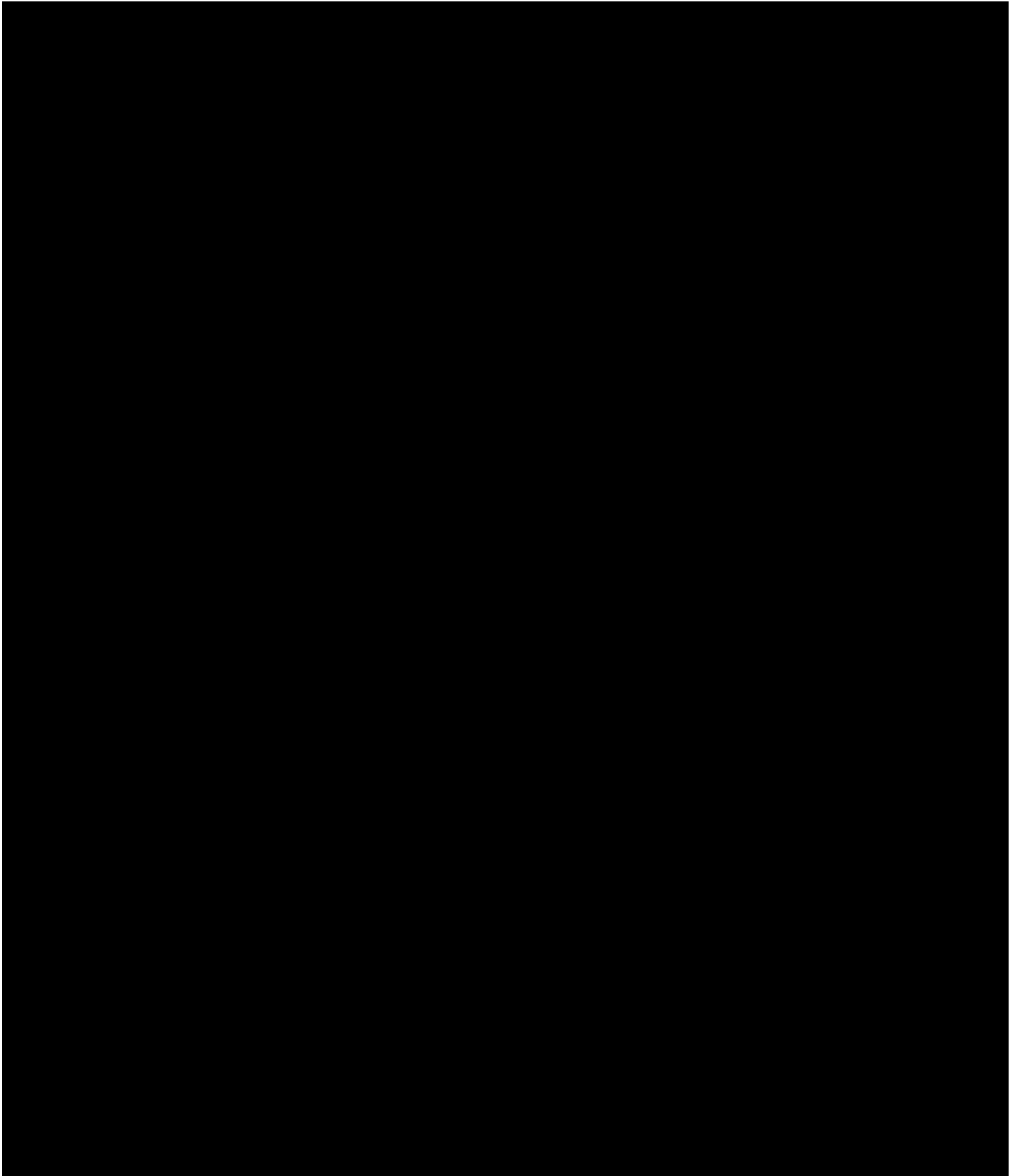


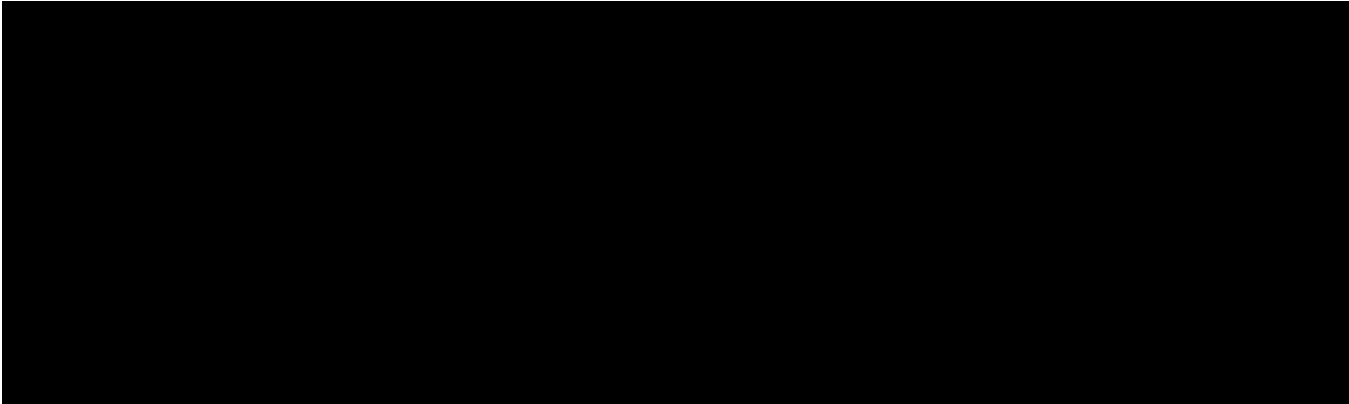


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This second solicitation clearly demonstrates New York’s drive towards achieving the state’s ambitious environmental and economic objectives. As a company deeply committed to the growth of offshore wind resources in the United States and around the world, Equinor Wind welcomes the opportunity to expand the existing partnership with New York to take the development of renewable resources off the New York coast to the next level and to cement New York’s position as a leader in the offshore wind industry.



2 IMPACTS OF COVID-19 ON PROPOSER AND PROJECT DEVELOPMENT

Proposers are required to describe how the COVID-19 pandemic has affected their business operations, the process of developing the Project, and the content of the Submission. For the avoidance of doubt, the content of this section of the Proposal Narrative is informational only and will not affect the Project Viability scoring of any of the submitted Proposals.

The onset of the COVID-19 pandemic was an unforeseeable crisis that has reached every corner of the globe. From the staggering loss of life to the unprecedented disruption in economic activity, COVID-19 has been devastating to the world and has changed the rhythm of life in ways that would have been unimaginable only months ago.

Since the beginning of this crisis, Equinor’s primary focus in these times has been ensuring the health and safety of its employees, adjusting to the “new normal” of developing projects and continuing to reliably produce and supply energy to its customers. Health and safety are top priorities for Equinor and shape all of the decisions that Equinor makes regarding the conduct of its business—now more than ever.

Throughout the pandemic, Equinor has continued to work to advance the development of the Empire Wind and Beacon Wind Projects while maintaining the health and safety of its employees and complying with applicable laws and restrictions. Accomplishing these objectives has required Equinor to rethink the way that it does business. With the vast majority of Equinor’s employees working remotely and in-person meetings seemingly a thing of the past, Equinor has had to change its approach to project development and stakeholder engagement, relying on videoconferences and electronic communications to ensure business continuity and engage with key stakeholders. In addition, in some cases, complying with restrictions on the conduct of non-essential businesses and gatherings of individuals has delayed and disrupted surveys and land acquisition activities.

Notwithstanding these disruptions, Equinor has been working tirelessly to mitigate the consequences of these effects to ensure the disruptions associated with COVID-19 do not materially delay the execution or delivery of Equinor’s projects or commitments. Equinor’s ability to effectively navigate this transition has been a testament to the dedication, commitment, and flexibility of Equinor’s systems, employees, and partners.



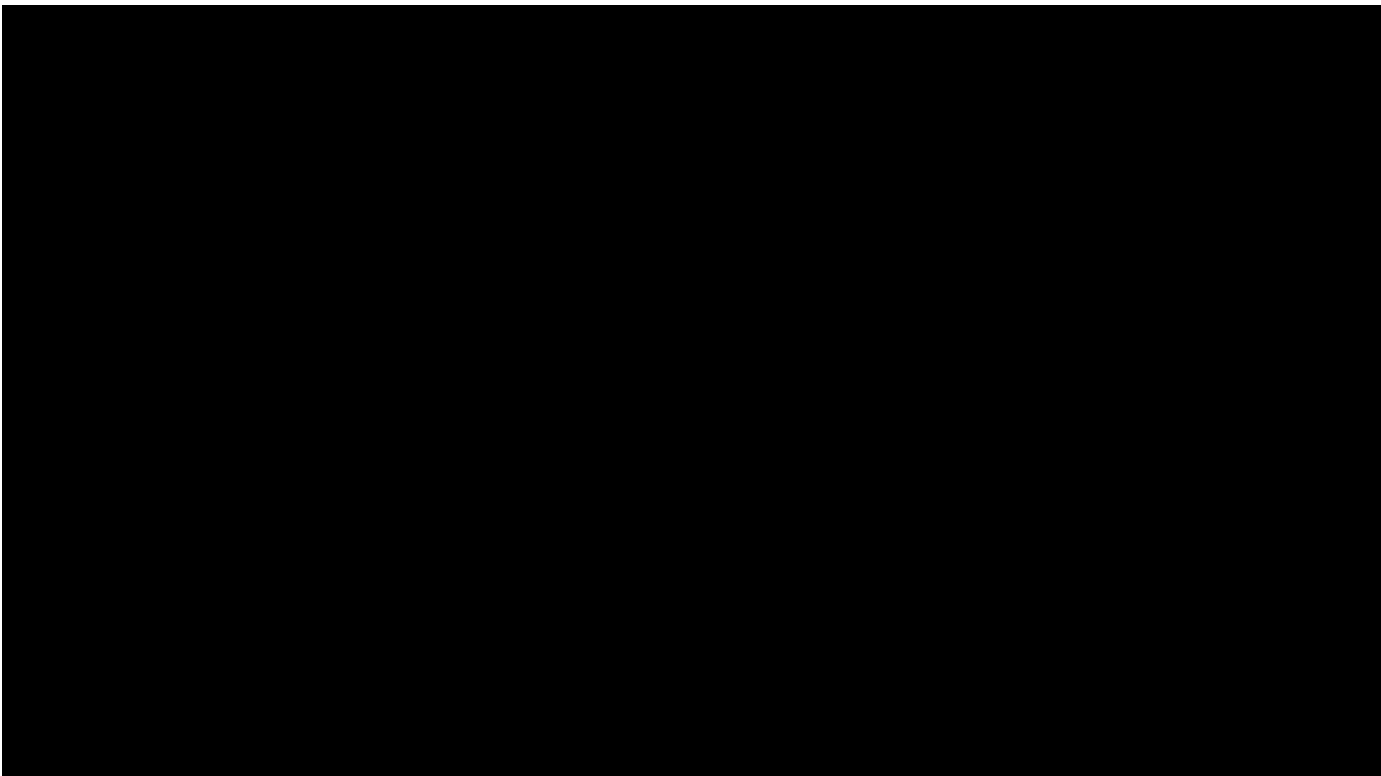
3 PROPOSER EXPERIENCE

Proposers are required to demonstrate project experience and management capability to successfully develop and operate the Project proposed. NYSERDA is interested in Project Teams that have demonstrated success in developing generating facilities of similar size and complexity and can demonstrate an ability to work together effectively to bring the Project to commercial operation in a timely fashion.

3.1 Organizational Chart

An organizational chart for the Project that lists the Project participants and identifies the corporate structure, including general and limited partners.

As shown in Figure 3, the Equinor Companies currently are all subsidiaries of Equinor US Holdings Inc. and indirect wholly-owned subsidiary of Equinor ASA. Equinor ASA is an international energy company, headquartered in Norway, that has operations in over 30 countries and more than 21,000 employees worldwide. Equinor ASA is listed on the New York and Oslo stock exchanges and has a current market capital valuation of approximately of \$47.5 billion.⁵



⁵ Valuation as of October 12, 2020.



3.2 Specific Experience

Statements that list the specific experience of Proposers and each of the Project participants (including, when applicable, Proposers, partners, and proposed contractors), in developing, financing, owning, and operating generating and transmission facilities, other projects of similar type, size and technology, and any evidence that the Project participants have worked jointly on other projects.

Equinor has established itself as a global leader in the development, financing, construction, operation, and maintenance of offshore wind facilities. Equinor and its affiliates currently have over 10 GW of offshore wind capacity in operation or actively being developed around the world, including offshore wind projects in the United States, the United Kingdom, Norway, Poland, Germany, Japan, and South Korea. Figure 4 depicts the location of offshore wind projects that are currently under development by Equinor and its affiliates.

A brief description of Equinor's presence in key areas of development is provided below.

3.2.1 The North Sea Cluster

Equinor's extensive experience operating in the demanding conditions in the North Sea has allowed Equinor to quickly establish itself as an offshore wind leader in the UK:

- Equinor has developed, constructed, and operates two utility-scale offshore wind farms in the United Kingdom: (1) the 317 MW Sheringham Shoal offshore wind farm; and (2) the 402 MW Dudgeon offshore wind farm.
- Equinor is currently developing the Sheringham Shoal and Dudgeon Extension projects adding a combined total 719 MW to these projects.



- Equinor and its partner SSE Renewables currently are developing the Dogger Bank project. Once complete, Dogger Bank will be the world's largest offshore wind farm with a total installed capacity of 3.6 GW and will be capable of powering approximately 4.5 million homes. Equinor will be the operator of the assets in the O&M phase.
- Equinor also is the developer, owner, and operator of the 30 MW Hywind Scotland wind farm, the world's first floating offshore wind farm.
- Equinor currently is developing the 88 MW Hywind Tampen Project off the coast of Norway to provide power to offshore oil and gas platforms located in the North Sea. The project will be the largest floating offshore wind project in the world and will reduce the use of gas turbine power at the platforms while offsetting approximately 200,000 tons of CO₂ emissions per year.

3.2.2 The Baltic Sea Cluster

Leveraging the success in developing offshore wind assets in the North Sea, Equinor has a rapidly expanding portfolio of projects in the Baltic Sea as well:

- Equinor is a partner in the Arkona offshore wind project, a 385 MW wind farm located in the Baltic Sea approximately 22 miles from the German coastline that was completed in 2019.
- Equinor currently holds an interest in the Baltyk offshore wind projects, three offshore wind projects that are currently under development off the coast of Poland and that are expected to have a combined capacity of approximately 3 GW.

3.2.3 The U.S. Cluster

Equinor is a leading developer in the U.S.'s rapidly expanding offshore wind sector, reflecting Equinor's commitment to support New York as it moves forward to achieve its objective of developing 9,000 MW of offshore wind by 2035. Currently, Equinor is developing two offshore wind lease areas off the coast of New York, which are the subject matter of its proposals in this solicitation:

- The Empire Wind Project, a multi-phase offshore wind project being developed under an offshore wind lease executed with the U.S. Department of Interior, Bureau of Ocean Energy Management ("BOEM") in 2017. The Empire Wind Project is being developed in the New York Bight in an area extending approximately 15 to 30 miles southeast of Long Island. The first phase of the Empire Wind Project ("EW1") currently under development is an 816 MW offshore wind project that was one of two projects selected through New York's first offshore wind solicitation.
- The Beacon Wind Project, a multi-phase offshore wind project being developed under an offshore wind lease executed with BOEM in 2018. The Beacon Wind Project is being



developed in an offshore wind lease area located approximately 60 miles east of Montauk, New York.

Once complete, the Empire Wind and Beacon Wind Projects are expected to have a combined installed capacity of over 4 GW and be capable of powering more than two million homes with renewable energy. Equinor appreciates the opportunity to support New York as it moves forward with its efforts to accomplish the ambitious goals set out in the CLCPA.

3.2.4 The Equinor Advantage

Equinor's demonstrated ability to successfully construct, own, and operate offshore wind projects is a product of leveraging the resources, experience, and technical capabilities that Equinor has developed over the course of 40 years as a leading developer of large scale, offshore oil and gas facilities around the world. Through this experience, Equinor has developed extensive technical and commercial resources focused on every stage of an offshore wind project's development, including project management, environmental analysis, marine engineering, coordination of marine/vessel operations, lifting operations, and coordination of personnel, equipment transport, and the selection and management of contractors. Equinor's relevant experience, competence, and capabilities include:

- **Project Design:** Equinor has extensive experience designing complex offshore structures and facilities that can operate reliably in the ocean environment while also accommodating wildlife, community, and commercial priorities. This experience includes designing and selecting each component of an offshore wind facility's electrical system and interconnection facilities, including turbine design and layout, sub-sea support structures, and submarine cables. The insights gained from operating offshore energy assets for decades allows Equinor to design offshore wind projects that are optimized to maximize production and facility availability and minimize downtime.
- **Manufacturing & Fabrication:** Equinor has extensive experience with, and systems for, managing and supervising manufacturing and fabrication activities. Although these systems were initially developed in connection with its oil and gas activities, they have been extended and adapted, where appropriate, to successfully execute Equinor's offshore wind projects.
- **Offshore Construction & Installation:** Equinor has unparalleled capabilities for executing, supervising, and managing complex and challenging offshore construction and installation activities. The capabilities that Equinor had developed through its oil and gas activities have been extended and adapted to support Equinor's objective of becoming an offshore wind major.
- **Sub-Sea Installation:** Equinor has a long track record of successfully installing, maintaining, and retrieving bottom fixed sub-sea installations. In connection with its oil and gas business and growing offshore wind portfolio, Equinor has successfully installed and constructed facilities employing the full range of substructure concepts, including

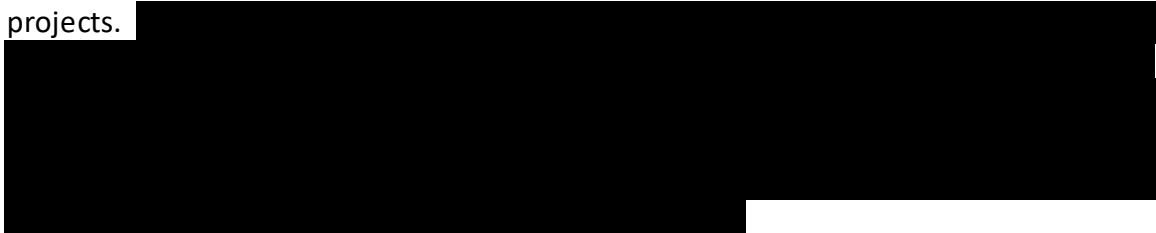


monopiles, gravity-based structures, and jackets. Equinor's experience gives it a deep understanding of not only the risks, challenges and costs but also the suitability and benefits of with different technologies.

- **Maritime Construction and Marine Logistics:** Equinor has a long history of constructing and operating maritime terminals for the transport of products and equipment around the world. Equinor employs industry best practices to seamlessly coordinate maritime vessels transporting equipment, personnel, and other cargo to ensure the efficient and timely construction and maintenance of its offshore projects while minimizing disruption to maritime and fisheries resources.
- **Environmental Assessment:** Environmental impact assessments are an integral part of successfully developing all offshore projects and Equinor has vast experience working with marine life, environmental baseline data collection and monitoring, and protecting the environment through responsible development and mitigation. Equinor is participating in joint industry initiatives investigating the impacts from offshore wind projects on wildlife, including on seabirds and marine mammals. Additionally, Equinor sits on numerous stakeholder group committees including, the Fishing Liaison for Offshore Wind and Wet Renewables, the Sound and Marine Life Program, the Fisheries Technical Working Group, and the Environmental Technical Working Group. These groups are focused on promoting best practices to minimize the impact of the development of offshore renewable generation on commercial fisheries and marine ecology.
- **Safety, Security and Sustainability (SSU):** Equinor's vision is zero harm for all projects. Equinor strives to ensure that its industry leading SSU standards are applied consistently across the Equinor group and to those providing services to support Equinor's activities around the world. Risk assessments are done in all phases of development involving all relevant parties. Equinor's approach to SSU will be applied to ensure the safe and efficient development of the Empire Wind and Beacon Wind Projects.
- **Operations and Maintenance:** Equinor operates 24-hour, 7-day a week operations and maintenance centers to monitor each of its operating offshore wind facilities and to ensure that any issues that may arise are timely identified and remedied. Composed of a multi-disciplinary team of experts, including engineers, marine coordinators, planners, emergency responders, and wind farm technicians, Equinor's operations and maintenance team works in close coordination to minimize outages and ensure that each of Equinor's projects operates reliably and safely.
- **Interconnection:** Equinor has experience with every phase of interconnecting offshore wind projects to the grid, including evaluating potential interconnection points and installing and constructing onshore and offshore interconnection facilities and substations. Equinor has experience working closely with transmission providers and local utilities to facilitate the timely and cost-effective interconnection of its projects to the grid.



- **Energy Marketing:** Equinor’s marketing and trading group has a long history of maximizing the value of Equinor’s portfolio of oil, gas, and electric generation assets, including evaluating and hedging market risk and negotiating offtake agreements with customers.
- **Financing:** Equinor has extensive experience with financing complex offshore energy projects.



- **Community Outreach:** Equinor has extensive experience communicating with and building consensus among stakeholders. Since obtaining the rights to develop offshore wind projects in the United States, Equinor has worked closely with local communities, environmental justice advocates, environmental groups, supply chain representatives, researchers, and others to ensure that they all are apprised of the latest project developments and any concerns are addressed. All of this work is done with a concerted focus on the social and economic aspects of enabling a just energy transition.

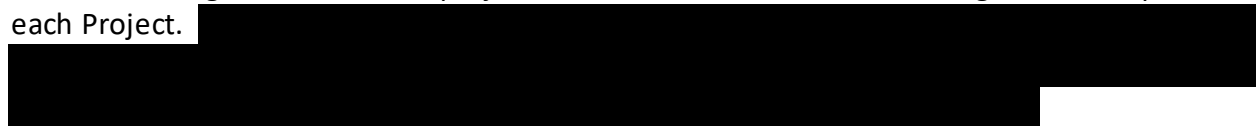
As demonstrated by NYSERDA’s selection of EW1, Equinor’s extensive resources and capabilities confirm that it is uniquely qualified to work with New York to achieve the objectives set out in the CLCPA. Equinor is enthusiastic about continuing to expand on its relationship with NYSERDA by drawing on its established capabilities to develop, operate, and maintain EW2 and BW to help New York achieve the objectives set out in the CLCPA.

3.3 Key Personnel

A management chart that lists the key personnel dedicated to this Project and resumes of the key personnel. Key personnel of Proposer’s development team having substantial Project management responsibilities must have:

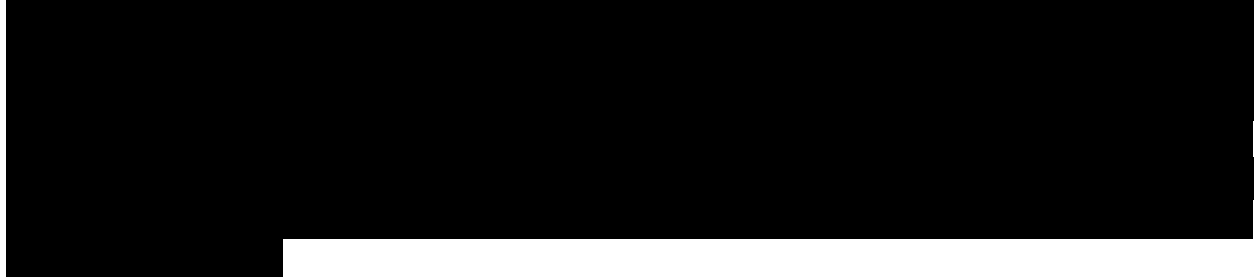
- a. Successfully developed and/or operated one or more projects of similar size or complexity or requiring similar skill sets; and*
- b. Experience in financing power generation projects (or have the financial means to finance the Project on Proposer’s balance sheet).*

Equinor has assembled highly qualified and experienced teams focused on supporting the design, development, construction, and operation of the Projects. In order to ensure the efficient and effective development of Equinor’s offshore wind portfolio, both Empire Wind and Beacon Wind have been assigned a dedicated project team that is devoted to advancing the development of each Project.





The following sections provide an overview of each of the project teams assigned to each Project.



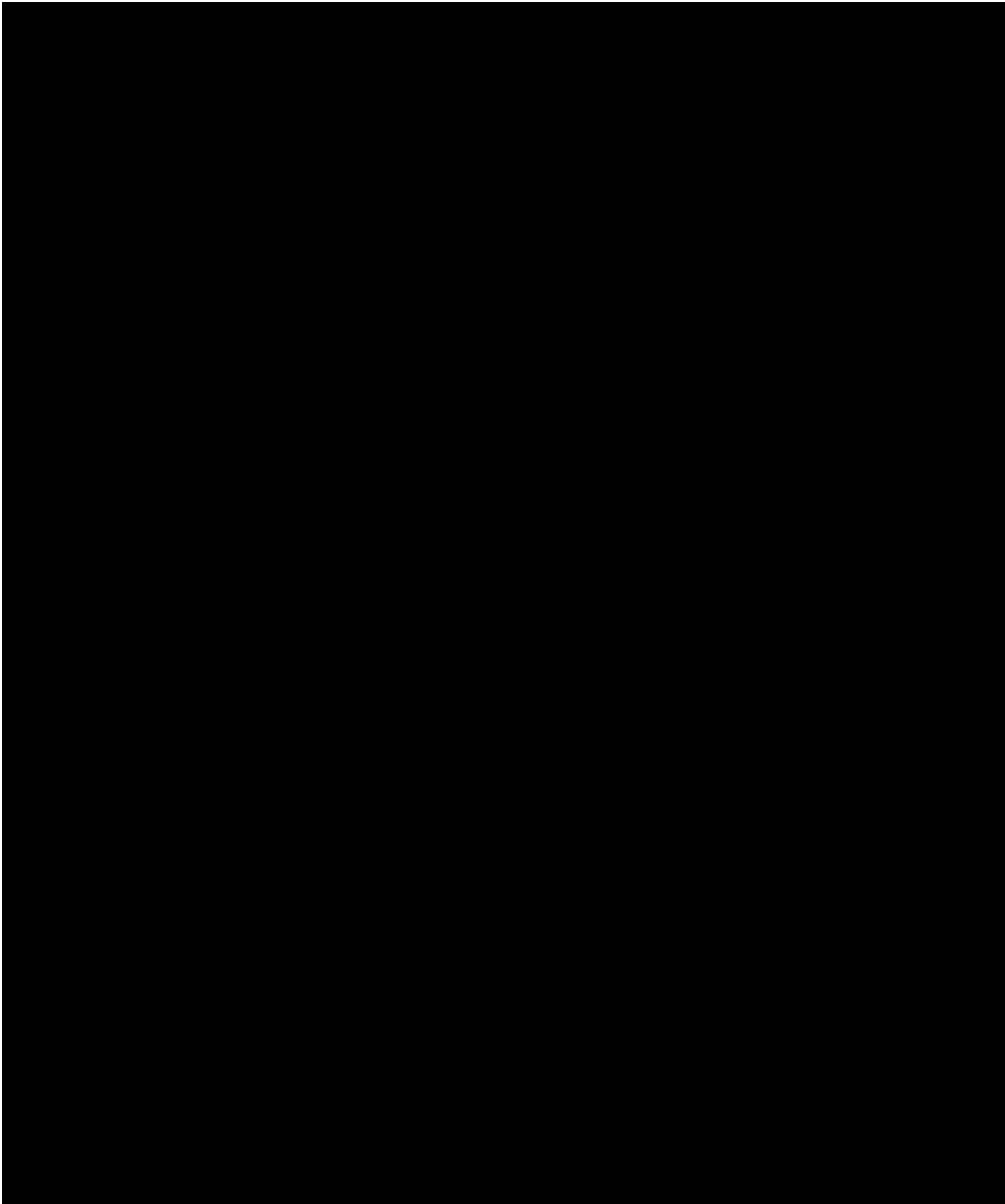
A brief description of the experience of each of the members of each project team is provided below and copies of these employees' resumes are provided as Attachment 3.A. In addition to these teams, both EW2 and BW will be able to seamlessly leverage the expertise of over 4,500 additional employees, with subject matter expertise covering the full range of subjects and technical skills relevant to the development of offshore wind resources.



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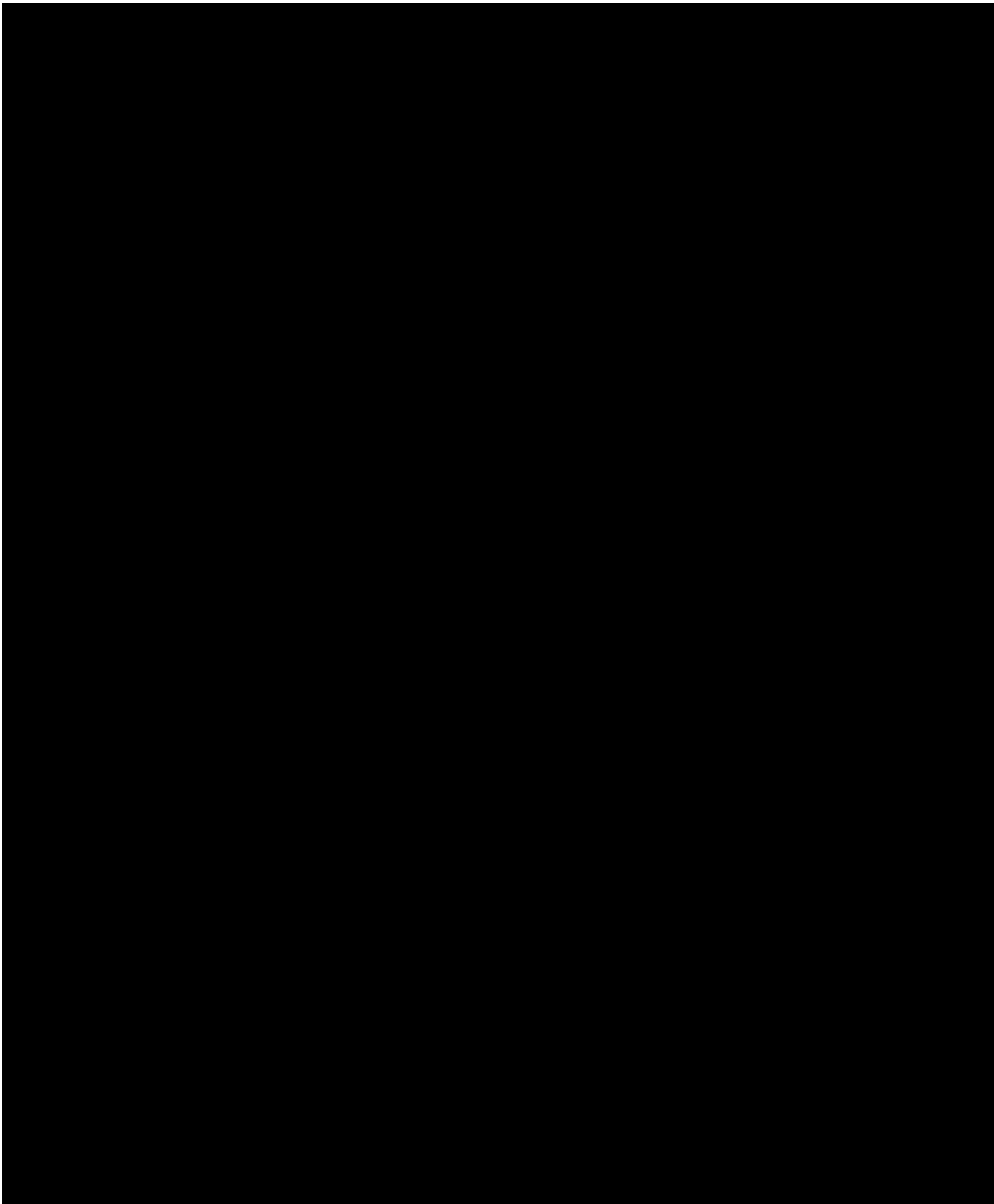




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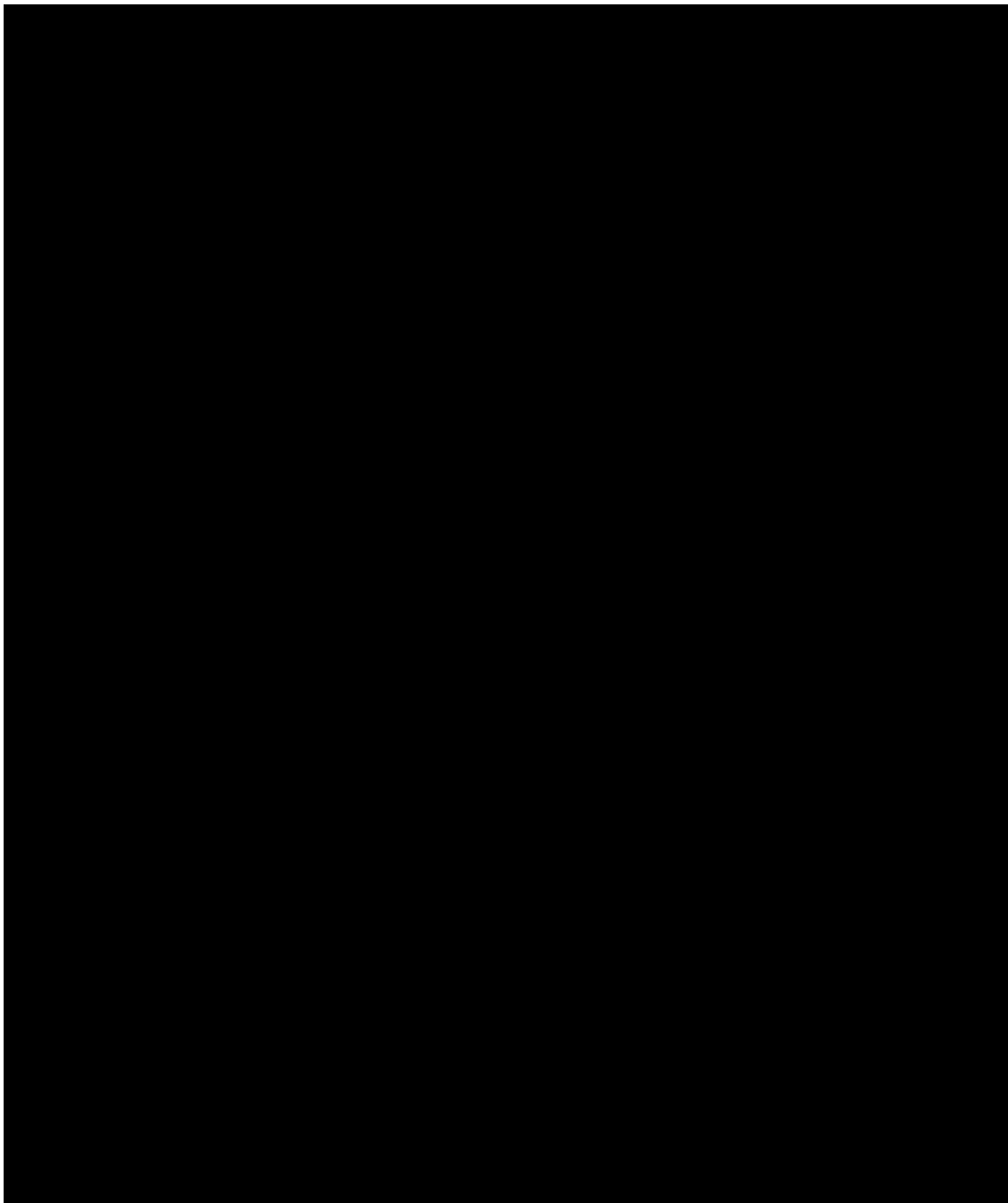




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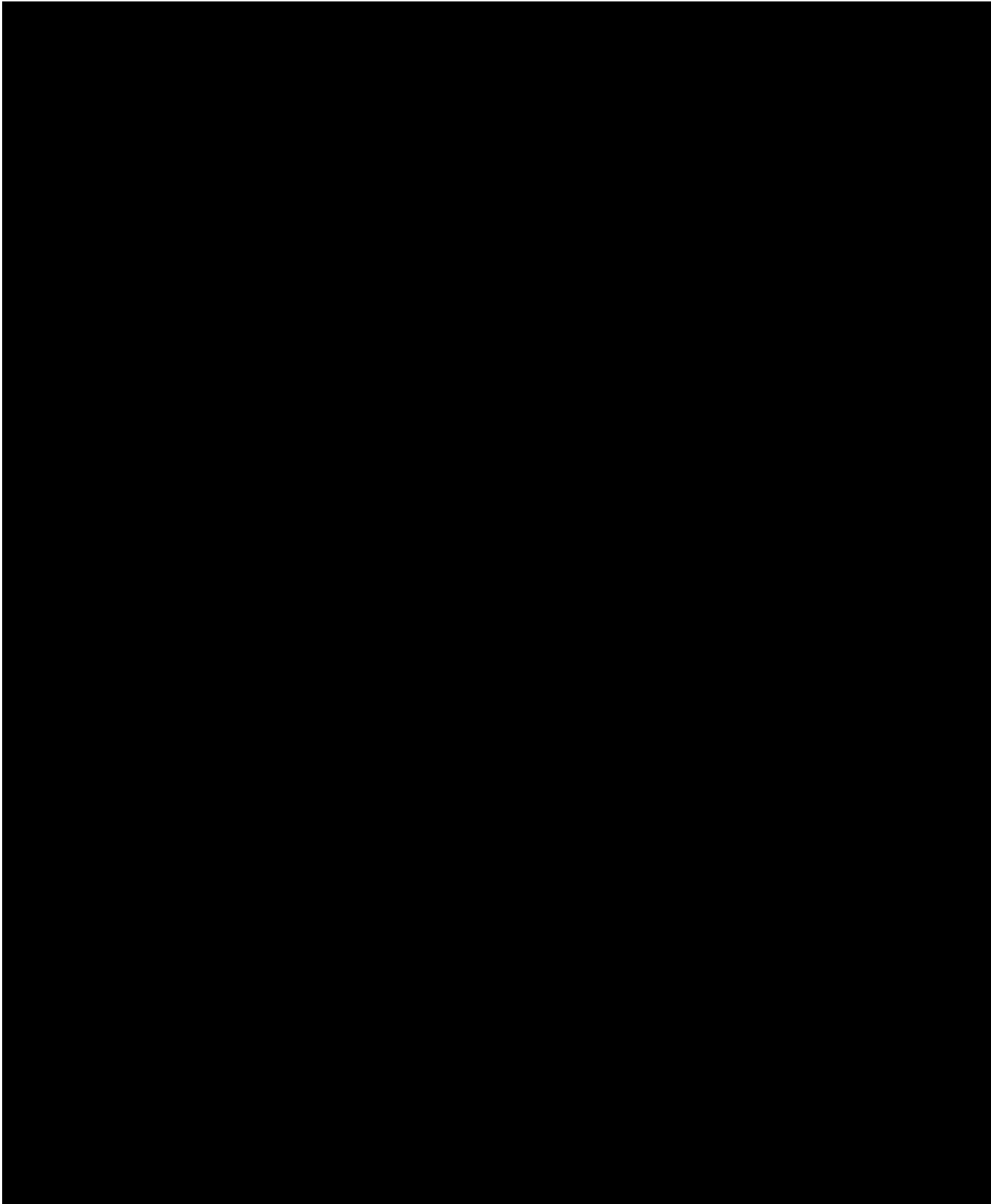




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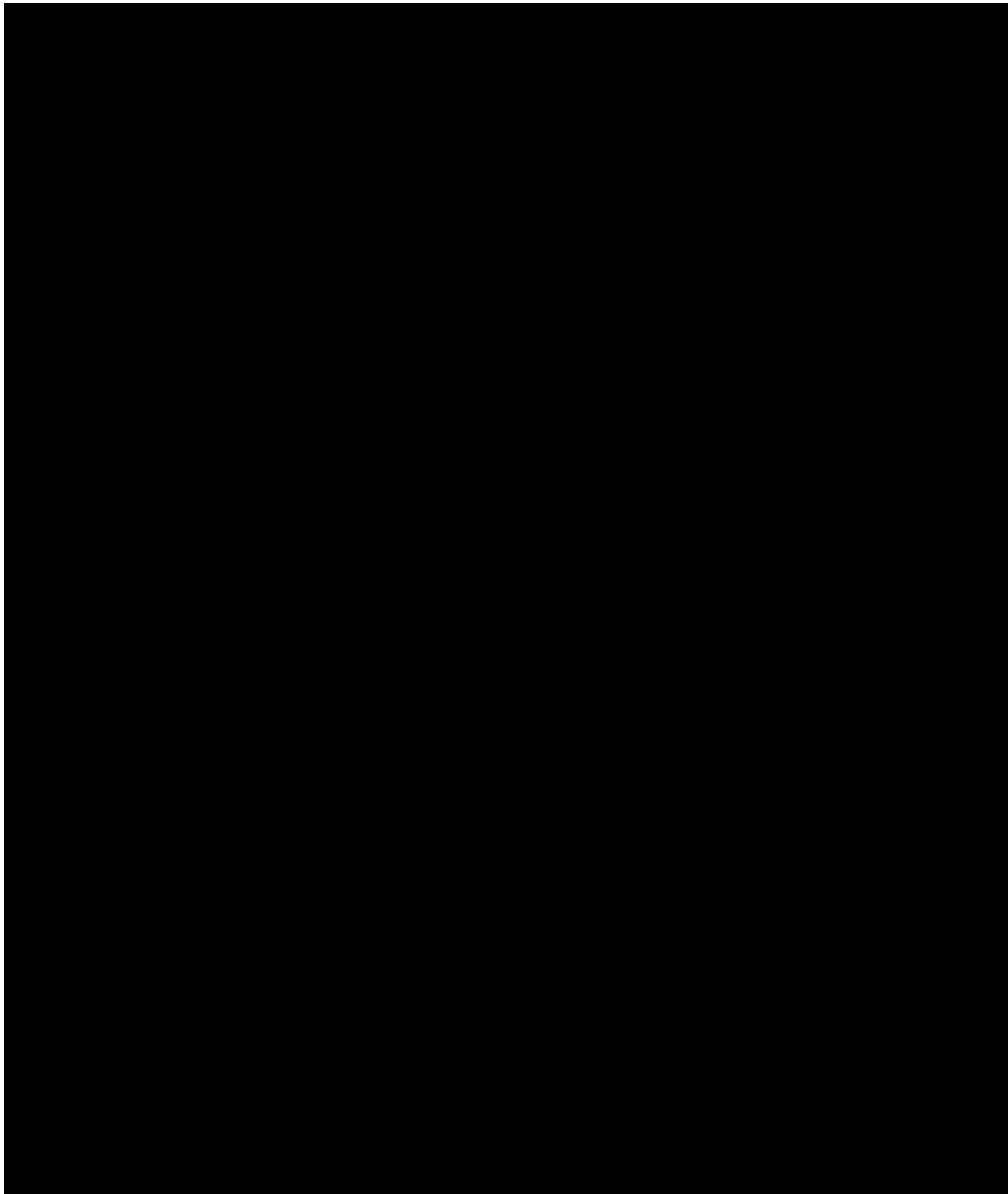




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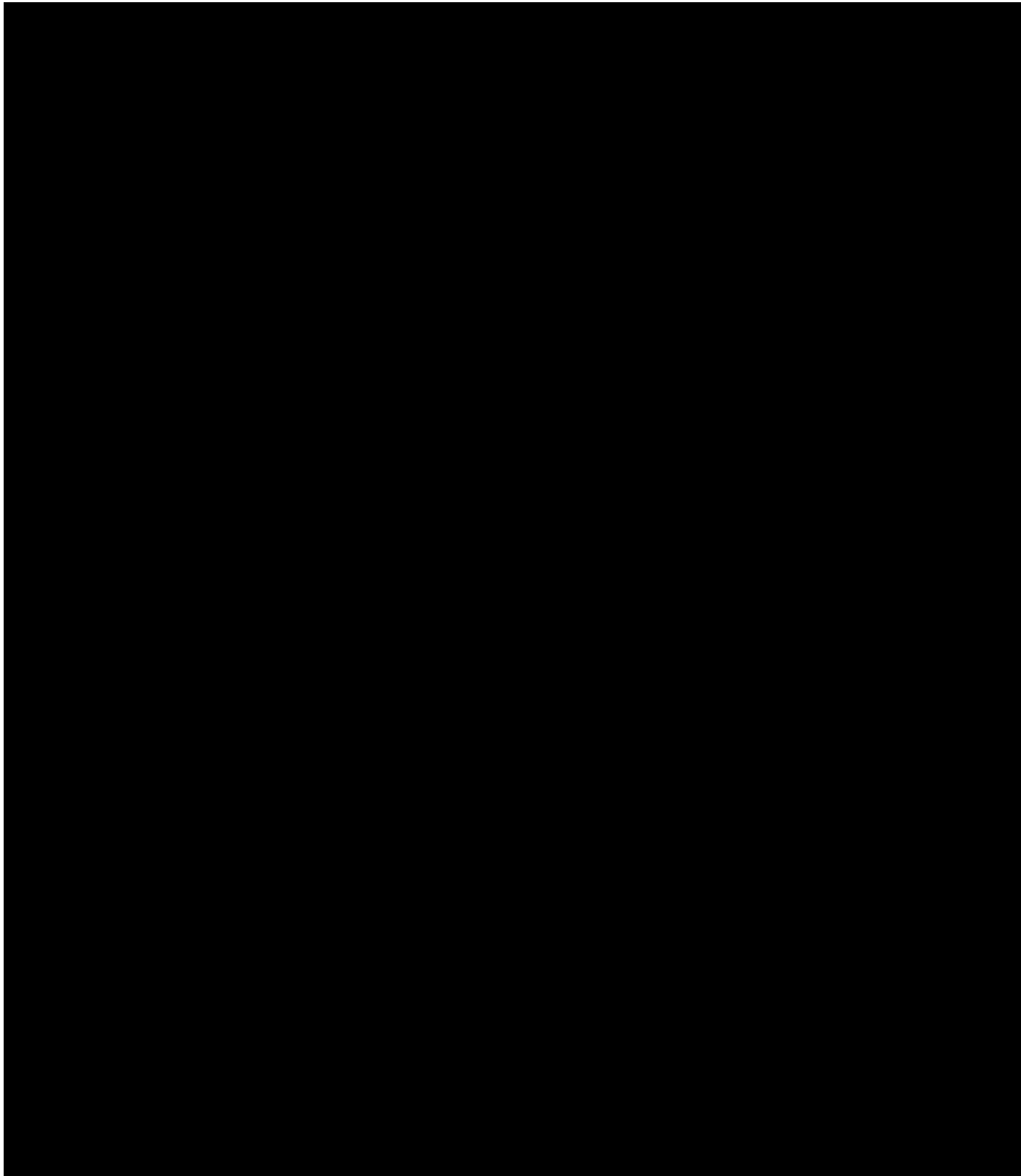


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3.3.2 Beacon Wind

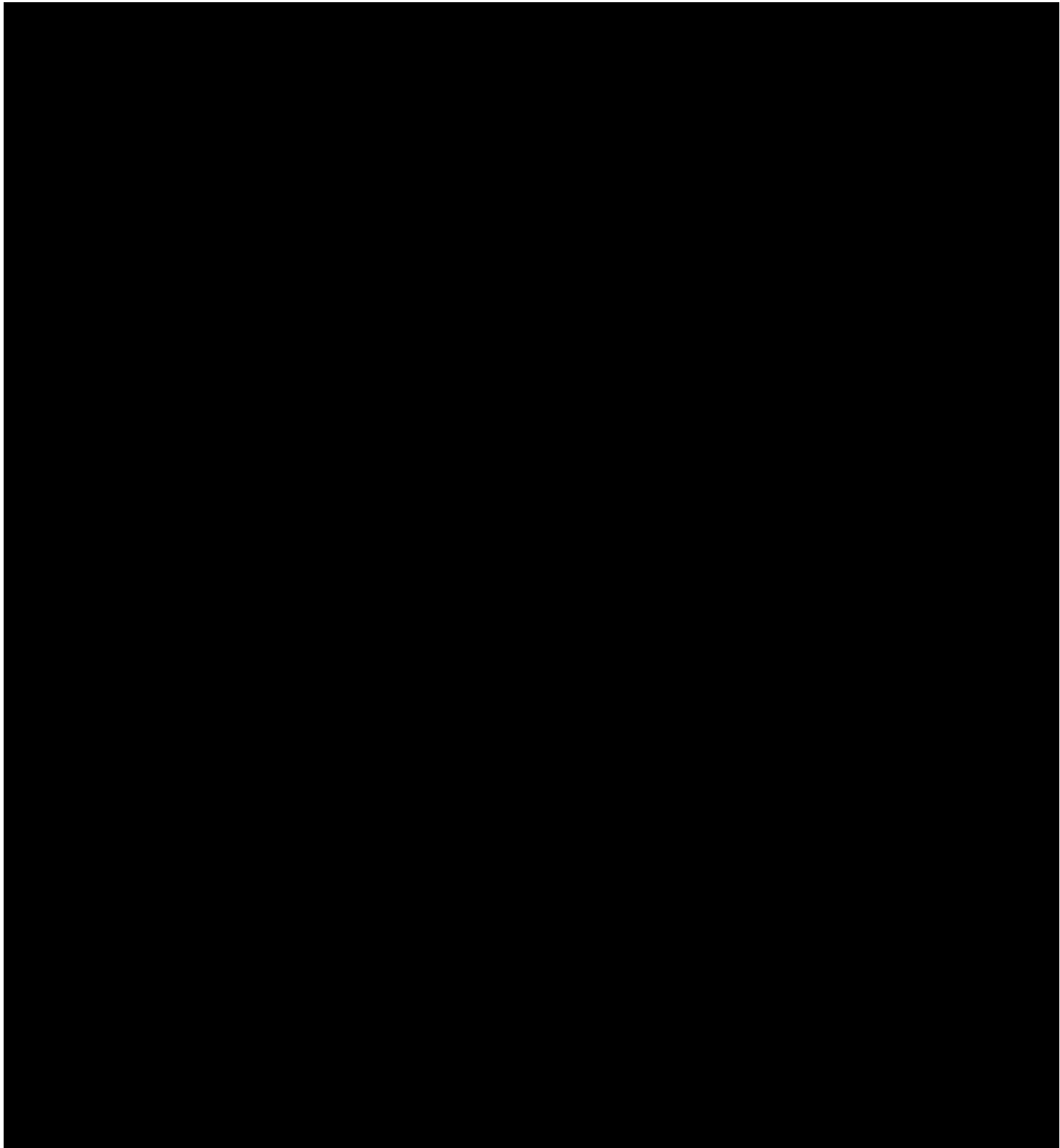




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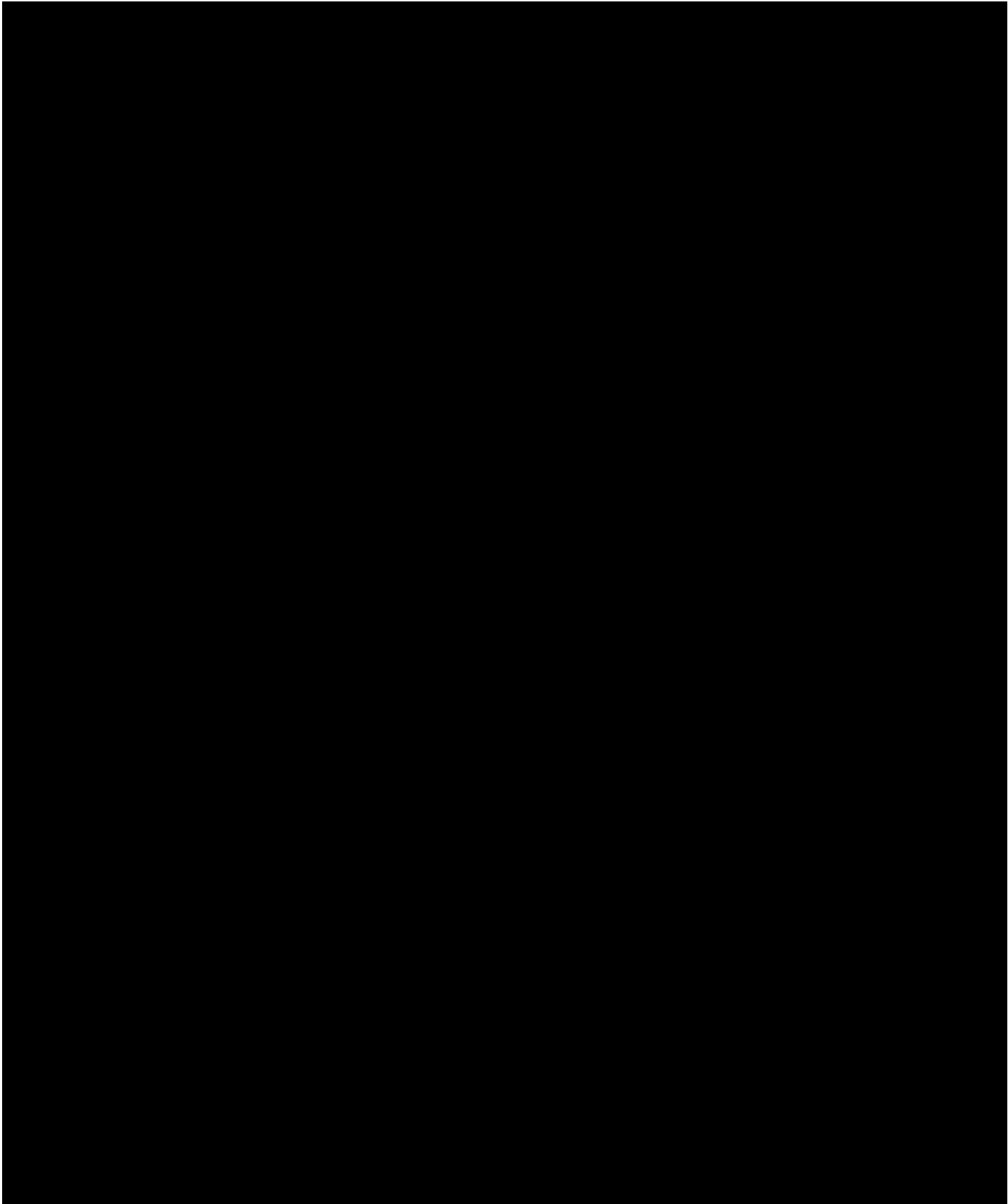




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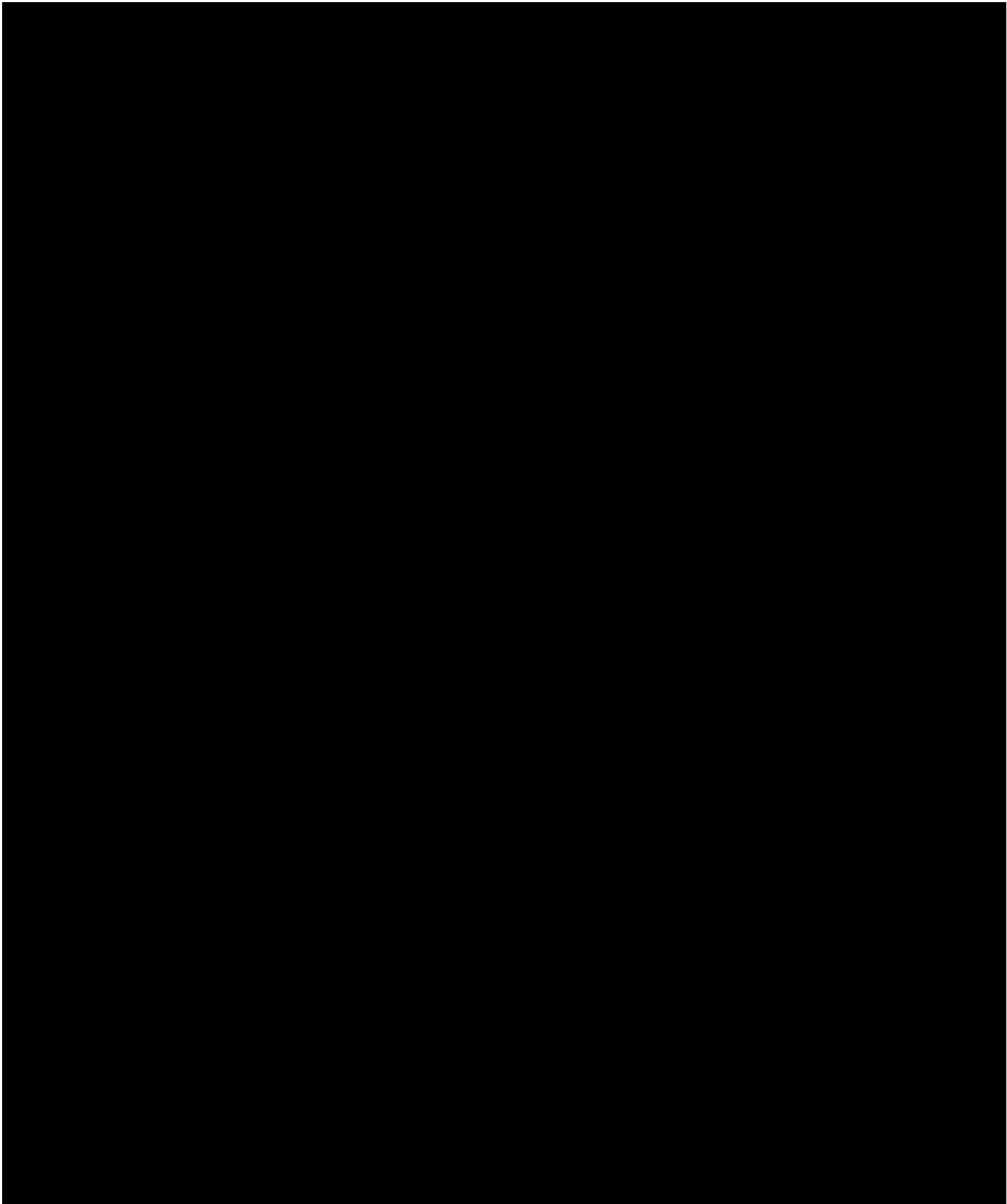




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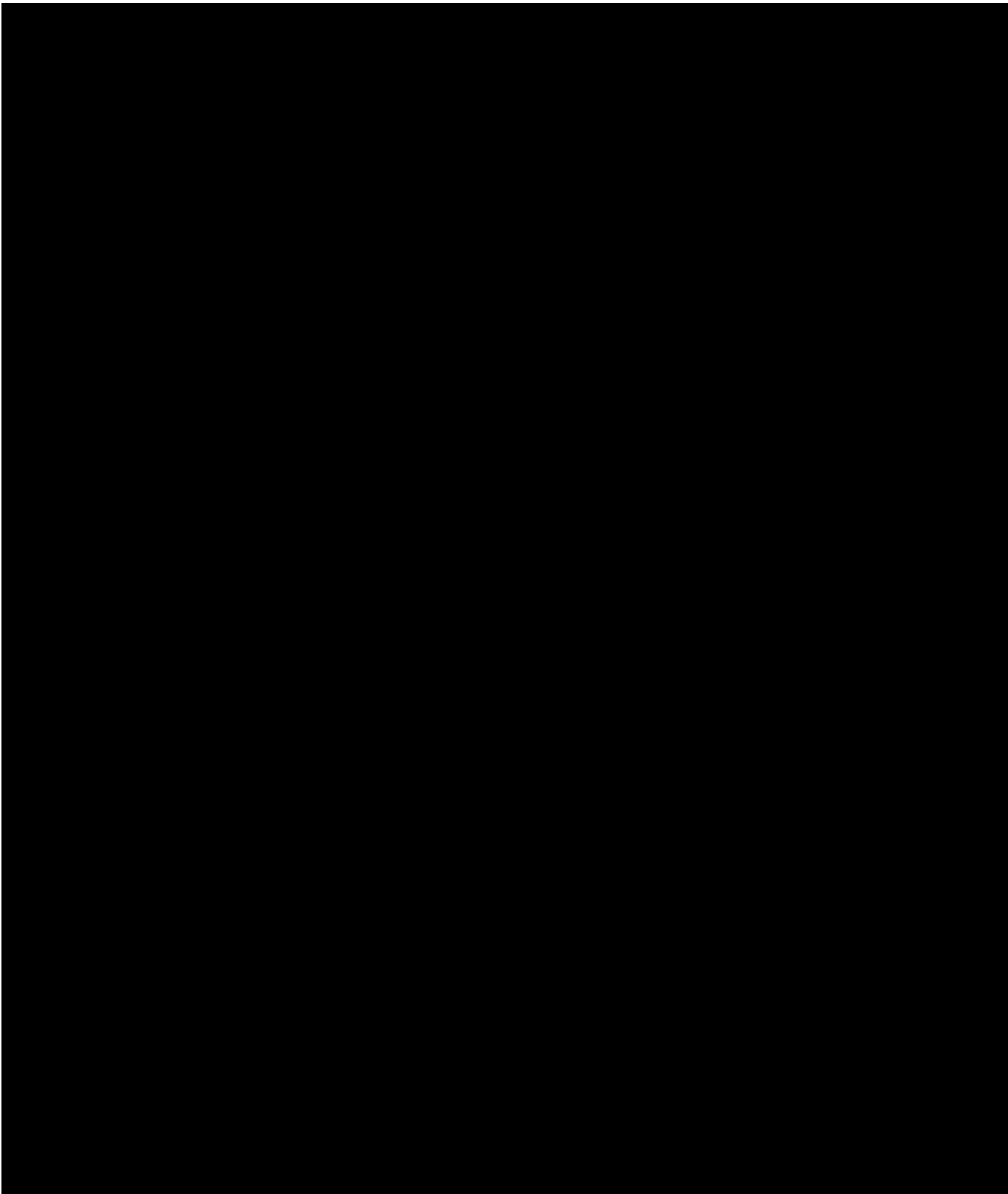




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3.4 Key Consultants

In addition to the key team of individuals set out above and the in-house capabilities of the broader Equinor group, Equinor Wind has retained numerous consultants with significant experience to support the development of the Projects. Key consultants include:

- **AECOM:** Beacon Wind has retained AECOM as an environmental consultant. AECOM specializes in assessing, avoiding, minimizing, mitigating, and documenting potential environmental and socioeconomic impacts associated with the construction and operations of offshore energy and development projects. Team members have led studies and executed marine and offshore surveys to support the permitting of offshore wind projects and the preparation of site assessment plans (“SAPs”), construction and operation plans (“COPs”), as well as completing preparation of state and federal permit applications.
- **Tetra Tech:** Empire Wind has retained Tetra Tech to serve as lead environmental consultant for the project team. Tetra Tech is responsible for the permitting scope, inclusive of environmental assessments, stakeholder engagement, and preparation of federal and state permit applications. Tetra Tech is one of the largest full-service environmental consulting firms in the United States, with a core competency of over 17,000 environmental engineers, scientists, and planners in over 400 offices worldwide, working in more than 100 countries around the globe. As an industry leader, Tetra Tech has served as the lead consultant on the development of more than 50 offshore facilities, including deepwater ports, oil and gas platforms, subsea pipelines and transmission cables, and renewable energy projects, including wind, wave, and hydrokinetic projects across the United States. Tetra Tech has conducted detailed impact assessments for various resources, including aquatic and terrestrial wildlife, wetlands/water bodies, threatened and endangered species, archaeological/historic resources, scenic resources, and land use. Tetra Tech has also led the design and execution of complex offshore marine studies (*e.g.*, geophysical, geotechnical, marine cultural, offshore avian and bat, and marine species and habitat evaluations) and completed hundreds of National Environmental Policy Act-compliant environmental impact assessment reports.
- **Sea Risk Solutions:** Sea Risk Solutions is supporting the development of the Projects by providing information and strategies to mitigate risks to maritime interests and resources. Sea Risk is acting as Fisheries Liaison Officer for the Projects, including coordinating a substantial fisheries outreach effort. The founding partner of Sea Risk, Stephen Drew, spent 15 years developing and managing the Marine Liaison group for a major subsea cable supplier. He managed marine relations and risk mitigation at cable landings in 25 countries and served five years on the International Cable Protection Committee Board of Directors. He has negotiated and served as liaison officer in cable/fishing agreements on the US West Coast. His partner, Wolfgang Rain, joined Sea Risk Solutions as a Partner after nine years managing the Marine Liaison program for a major cable supplier and ship operator and brings similar professional experience to the team. Mr. Drew previously



supported NYSERDA as Fisheries Liaison Officer for the New York Offshore Wind Master Plan, where he gained further experience with the northeast fisheries, especially the interaction between fisheries and offshore wind development in the New York Bight.

- **Anatec Limited:** Anatec Limited is supporting the development of the Projects by evaluating potential impacts and identifying mitigation measures associated with maritime navigation, including preparation of the Navigational Safety Risk Assessment. Anatec has extensive experience in carrying out navigation risk assessments for offshore renewable projects and for other marine users, including oil and gas developers, ports, marinas, and cable and dredging companies. Anatec's senior leadership team has over 20 years of experience working safely in marine and offshore environments and has received international recognition for its research studies concerning risk-based decision-making.
- **Mott MacDonald:** Equinor Wind has retained Mott MacDonald to provide technical and engineering services related to the proposed interconnection of the projects to New York, including evaluating potential interconnection points. Mott MacDonald has provided a multi-disciplinary team including engineers, environmental scientists, project managers, and land acquisition experts with decades of experience developing large-scale energy and infrastructure projects in New York and throughout the world. The team supporting the development of the Projects has deep knowledge of New York and have been involved in large infrastructure projects throughout the state, including large independent power production facilities, interconnection facilities, substations, ports, tunnels, bridges, highways, and other civil construction projects.
- **SEARCH, Inc.:** Equinor Wind has retained SEARCH, Inc., the largest archaeology and cultural resources management company in the world, to assist with evaluating potential impacts to marine archaeological resources, including serving as the Qualified Marine Archaeologist for the project. SEARCH has completed more than 3,500 projects across 40 U.S. states and 36 countries, spanning five continents and three oceans. SEARCH specializes in the full spectrum of cultural services related to archaeology, maritime archaeology, architectural history, history, archives, collections management, museum services, documentary media, and public affairs.
- **ICF International, Inc.:** Equinor Wind has retained ICF, a global consulting services company, to assist in developing price forecasts and evaluating the economic and social impacts of the Projects. ICF has over 40 years of experience consulting in the energy industry providing engineering consultation, economic analysis, and policy guidance to utilities, renewable energy projects, and governments around the world. ICF's team includes over 5,000 employees across more than 65 offices worldwide.
- **Kjeller Vindteknikk:** Equinor Wind has retained Kjeller Vindteknikk, a leader in wind measurement and analysis, to confirm the wind resource and projected output of the Projects. Kjeller Vindteknikk has 20 years of experience performing wind assessments for wind projects in Sweden, Norway, Iceland, Bulgaria, Macedonia, and the United States.



Its team of meteorologists, physicists, engineers, and technicians have installed more than 200 measurement stations and performed a full suite of analyses on those data sets to support wind development.

[REDACTED]

[REDACTED]

- **SNC Lavalin:** Equinor has engaged SNC-Lavalin to assist with evaluation of issues related to interconnection and transmission. SNC has over a 106-year history of working on some of the largest and most complex projects in North America ranging from major renewable energy, transmission and distribution, hydro, and nuclear projects in the Power Sector. SNC-L has designed and delivered 3 GW of renewable projects in the solar and onshore wind sector, providing environmental services, preliminary and detailed design and BOP EPC services these projects. SNC-Lavalin has extensive experience with transmission system design, having designed over 71,000 miles of transmission lines and over 2,500 substations around the world.
- **Sargent & Lundy:** Equinor Wind has engaged Sargent & Lundy to evaluate the impact of interconnecting the Projects. Sargent & Lundy is a power engineering consulting company that provides a comprehensive suite of consulting, engineering, design, analysis, and project services for power projects worldwide.
- **Legal Assistance:** [REDACTED]



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3.5 Successful Projects

A listing of projects the Project sponsor has successfully developed or that are currently under construction. Provide the following information for each project as part of the response:

- a. Name of the project*
- b. Location of the project*
- c. Project type, size, and technology*
- d. Commercial Operation Date*
- e. Estimated and actual capacity factor of the project for the past three years*
- f. Availability factor of the project for the past three years*
- g. References, including the names and current addresses and telephone numbers of individuals to contact for each reference.*

3.5.1 Equinor's Offshore Wind Portfolio

Equinor has a proven track record of successfully developing, constructing, and operating offshore wind projects. The following sections provide an overview of Equinor's offshore wind projects, including those in operation and under development.



Empire Wind, Phase 1

The Empire Wind Project, located south of Long Island, was selected through NYSDA's ORECRFP18-1 solicitation in 2019. The wind farm is located approximately 15 miles from shore and will have a total nameplate capacity of 816 MW. The project will interconnect with the NYISO grid at the Gowanus substation in Brooklyn, New York.

Figure 7: Empire Wind, Phase 1





Sheringham Shoal

The Sheringham Shoal Project, located north of Sheringham, UK, was completed in 2012. Equinor is the operator of the joint venture company Scira, which owns Sheringham Shoal. The wind farm is located 11 miles from shore and consists of 88 turbines on monopile foundations with a total nameplate capacity of 317 MW. The project is connected to the grid through two offshore substations, two offshore cables, and an onshore cable.

An extension of the Sheringham Shoal Offshore Wind Farm is currently under development which will add 317 MW of total capacity to the north of the current array.

Figure 8: Sheringham Shoal





Dudgeon

The Dudgeon Offshore Wind Farm, located north of Cromer, UK, was completed in 2017. Equinor is the operator of the joint venture company that owns Dudgeon. The wind farm is located 20 miles from shore and consists of 67 turbines on monopile foundations with a total nameplate capacity of 402 MW. The project is connected to the grid through an offshore substation and two export cables consisting of both onshore and offshore facilities. On December 14, 2018, Equinor, along with the joint owners of Dudgeon, completed a hybrid refinancing of the project totaling more than \$1.7 Billion (£1.4 Billion).

An extension of the Dudgeon Offshore Wind Farm is currently under development, which will add 402 MW of total capacity to the north and southeast of the current array.

Figure 9: Dudgeon





Arkona

The Arkona Offshore Wind Farm, located northeast of Sassnitz, Germany, was completed in 2019. Equinor and Credit Suisse Energy Infrastructure Partners each own 25% of the project and RWE Renewables owns the remaining 50% and is operating the wind farm on behalf of the consortium. The wind farm is located 22 miles from shore and consists of 60 turbines with a nameplate capacity of 385 MW. The turbines utilize monopile foundations and are connected to the grid through an offshore substation and cables running to shore.

Figure 10: Arkona





Hywind Demo

The Hywind Demo, located west of Karmøy, Norway was completed in 2009 and is the world's first floating wind turbine. Equinor designed and developed the project which consists of a single turbine on a floating spar foundation anchored to the seafloor. The turbine has produced electricity for more than eleven years without any major component failures and continues to generate electricity. Over that time period, it has withstood wind speeds reaching 89 mph and waves in excess of 60 feet. Equinor operated the Hywind Demo until February 1, 2019, when ownership of the facility was transferred to Unitech Offshore. Unitech plans to use the project as a platform for teaching and training as well as research and development of new offshore wind technologies.

Figure 11: Hywind Demo





Hywind Scotland

The Hywind Scotland floating wind farm, located east of Peterhead, Scotland was completed in 2017. Equinor designed, developed and operates the project, which incorporates experience gained from Hywind Demo. With a total installed capacity of 30 MW, the project consists of five 6 MW turbines on floating spar foundations anchored in a water depth of 328 feet. The project consists of a mixture of available technology and new patents developed and owned by Equinor. Through this experience, Equinor continues to expand its expertise in this new model of offshore wind development. The floating wind farm is owned by Equinor and Masdar.

Figure 12: Hywind Scotland





Dogger Bank

The Dogger Bank Offshore Wind Farm is a series of three proposed projects currently under development east of Yorkshire, UK. Together they form the world's largest offshore wind farm currently under development. Alongside the other members of the Forewind consortium, Equinor secured all the necessary consents and owns a 50% interest in all 3 proposed projects in a consortium with SSE plc. The 400,000 acre development is located 80–120 miles offshore, with a projected nameplate capacity of 3.6 GW and will utilize turbines with capacities of 13 MW or more on monopile foundations in water depths of 65 to 114 feet. The current plan contemplates connecting the projects to the grid in Creycke Beck and Teesside via an HVDC transmission system. Construction started in 2020 and is planned to utilize a new generation of installation vessel with ultra low emissions. Equinor will be the operator in the O&M phase.

Figure 13: Dogger Bank





Hywind Tampen

The Hywind Tampen project, located approximately 86 miles off the Norwegian coast in the North Sea, will be the world's first floating wind turbine project to provide power directly to an offshore oil and gas operations. This 88 MW project will consist of 11 wind turbines on Equinor's pioneering floating offshore wind foundation technology anchored in water depths of between 260m and 300m. Once complete, the project is estimated to meet about 35% of the annual power demands of five oil and gas platforms on the Snorre and Gullfaks fields. This creative approach to meeting the platforms' energy demand is expected to help reduce the use of gas turbine power on the platforms, while also offsetting 200,000 tonnes of CO₂ emissions and 1,000 tonnes of NO_x emissions per year.

Figure 14: Hywind Tampen





Baltyk

Equinor is in a 50/50 joint venture with the Polish utility Polenergia in the Baltyk II and Baltyk III Offshore Wind Farms, located off the coast of Poland in the Baltic Sea. The farms have a planned capacity of 1,440 MW with the potential to power more than two million Polish households. First power for Baltyk II and Baltyk III is planned for mid-2020. Also, Equinor acquired a 50% interest in the Baltyk I license from the same partner, which allows for the development of a wind farm with a capacity up to 1,560 MW. Equinor is the manager in the construction preparation phase as these projects move towards construction and also in the potential construction and operations phases.

Figure 15: Baltyk





South Korea Leases

Equinor opened its South Korean office in 2014. Currently, Equinor is pursuing the potential development of two projects in South Korea:

- Donghae Wind Farm Project – Together with the Korean National Oil Company and East-West Power, Equinor currently is exploring the possibility of developing a 200 MW floating offshore wind project in South Korea.
- Firefly Wind Farm Project – Equinor currently is exploring the possibility of developing an 800 MW floating offshore wind project off the coast of Ulsan, South Korea. In 2020, Equinor deployed LiDAR technology within the relevant lease area to collect wind resource data to evaluate potential site viability.

Japan Leases

Equinor has partnered with two Japanese companies, JERA and J-Power, to work towards submitting a bid in Japan's first offshore wind auction to obtain the rights to pursue development in two areas offshore the northern Japanese prefecture of Akita, which have been dedicated as promotional zones for offshore wind, each representing an area for bottom-fixed offshore wind farms of approximately 400 MW and 700 MW respectively.

3.5.2 Project Details

Attachment 3.B provides more detailed information for each of Equinor's projects, both operating and under development, including the location, technology used, and key performance metrics, where available.



3.6 Partners

With regard to Proposer's Project Team, identify and describe the entity responsible for the following, as applicable:

- a. Construction Period Lender, if any*
- b. Operating Period Lender and/or Tax Equity Provider, as applicable*
- c. Financial Advisor*
- d. Environmental Consultant*
- e. Facility Operator and Manager*
- f. Owner's Engineer*
- g. EPC Contractor (if selected)*
- h. Transmission Consultant*
- i. Legal Counsel*

Equinor has extensive in-house capabilities and resources devoted to offshore wind development and has strong relationships with outside consultants and companies focused on supporting the development of offshore wind resources. Leveraging these relationships, Equinor Wind has engaged numerous consultants and partners with significant experience relevant to the development of the Projects. Key consultants and partners include:

- a. **Construction Period, Operating Period Lender, and/or Tax Equity Provider:** Further details regarding financing of the Projects is provided in Section 7.

- b. **Financial Advisor:**



- c. **Environmental Consultant:** Equinor Wind has engaged Tetra Tech, SeaRisk Solutions, AECOM, Anatec and SEARCH Inc. to provide environmental consulting services for both Projects.

- d. **Facility Operator and Manager:** Equinor Wind will be responsible for managing and operating the Projects, leveraging the expertise of its parent and affiliates in operating offshore projects around the world.

- e. **Owner's Engineer/EPC Contractor:**





[Redacted]

f. **Transmission Consultant:** Equinor has engaged Sargent & Lundy, Mott MacDonald, SNC Lavalin, and Tetra Tech to advise Equinor on matters concerning the interconnection of the Projects to the grid and its impact on the New York transmission system.

g. **Legal Counsel:** [Redacted]

h. **Tax Advisor:** [Redacted]

3.7 Experience with NYISO Market

Details of Proposer’s experience in NYISO markets. With regard to Proposer’s experience with NYISO markets, please indicate the entity that will assume the duties of Market Participant for your proposed Offshore Wind Generating Facility. Please provide a summary of Proposer’s or Market Participant’s experience with the wholesale market administered by NYISO as well as transmission services performed by Con Edison, NYPA, and PSEG-LI/LIPA.

Equinor has extensive experience with interconnecting, and marketing the output of, offshore wind projects. Equinor and its affiliates currently are responsible for managing the output of Equinor’s existing offshore wind projects. In addition, Equinor recently executed an agreement under which an Equinor company will be responsible for marketing the output of the Dogger Bank Project, which, when complete, will be the largest offshore wind project in the world.

Equinor currently anticipates leveraging these capabilities by entering into a contract under which Equinor’s Marketing & Trading division would be responsible for marketing the output of both Projects. In particular, Equinor currently anticipates that Danske Commodities, a subsidiary of Equinor, will be responsible for managing sales of energy, capacity, and ancillary services from both Projects in the NYISO markets. As discussed further below, Danske Commodities has extensive experience with wholesale markets for electricity and is currently responsible for marketing the output of Equinor’s operating offshore wind facilities and is one of the largest short-term traders of electricity in Europe.

3.7.1 Experience with Electricity Markets

Equinor Marketing & Trading

Developed over the 40-year life of the company, Equinor’s Marketing & Trading division has a long history of analyzing market conditions and identifying opportunities to maximize the value of Equinor’s portfolio of assets. [Redacted]



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Equinor Marketing & Trading has engaged significant resources evaluating the NYISO market, including evaluating potential risks and opportunities associated with the development of the Projects. In addition to leveraging the insights gained from its management of Equinor’s existing offshore wind facilities, Equinor has worked with its consultants to create detailed pricing forecasts and market simulations to evaluate the commercial opportunities available to Equinor’s offshore wind projects in New York, considering a range of potential scenarios and uncertainty.

Based on these analyses, Equinor has concluded that both Projects are well positioned to generate significant energy and capacity revenues over the life of the assets.

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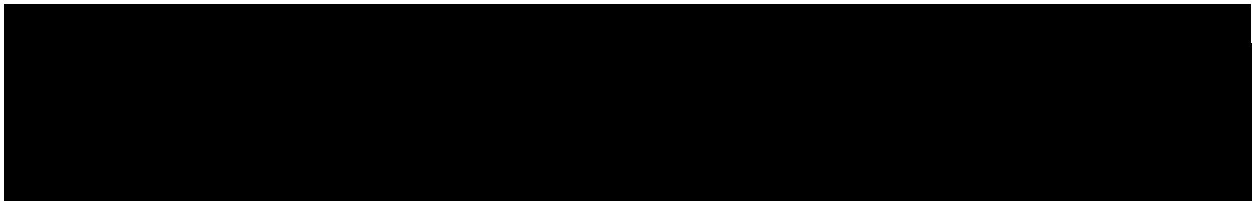
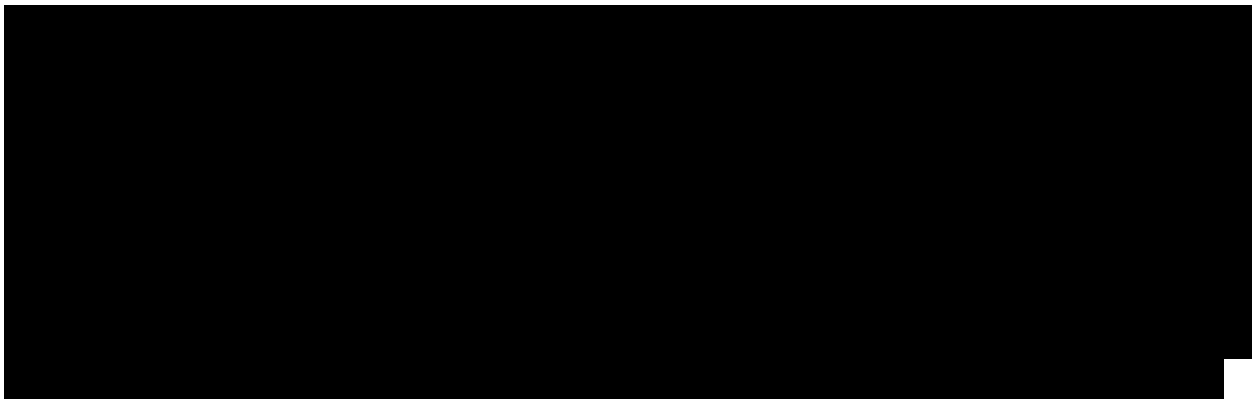
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Danske Commodities

The capabilities of Equinor’s Marketing & Trading division were enhanced through Equinor’s acquisition of Danske Commodities in 2019. Founded in 2004, Danske is one of Europe’s largest short-term electricity traders and has extensive experience trading electricity and associated products in markets around the world. For instance, in 2019, Danske traded 347 terawatt hours of electricity across 37 countries. The integration of Danske has further strengthened Equinor’s ability to optimize the value of its portfolio of assets.

Danske Commodities has accumulated a wealth of experience marketing and optimizing the value of energy, capacity, and ancillary services from renewable generation and in particular offshore wind resources in wholesale markets. Currently, Danske is responsible for marketing electricity and associated products from Equinor’s existing offshore wind projects. In August 2020, Danske Commodities also entered into a 15-year offtake agreement under which it will be responsible for trading and balancing 480 MW of the Dogger Bank Project.





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3.7.2 Experience with Transmission and Interconnection

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4 PROJECT DESCRIPTION AND SITE CONTROL

Identify the BOEM wind energy area where the proposed Offshore Wind Generation Facility will be located. Provide documentation that Proposer has a valid lease or irrevocable lease option to develop the leased area within this wind energy area over the entire Contract Tenor.

Provide a site plan (or plans) including a map (or maps) that clearly identifies the location of the proposed Offshore Wind Generation Facility, collection facilities, offshore and onshore route of the generator lead line to the interconnection point, converter station(s), and the assumed right-of-way width. Identify the anticipated interconnection point, support facilities, and the relationship of the interconnection point to other local infrastructure, including transmission facilities, roadways, and waterways.

Identify any rights that Proposer or its development partner has at the interconnection point and for the generator lead line right of way. Provide a detailed plan and timeline for the acquisition of any additional rights necessary for interconnection and for the generator lead line right-of-way. Include these plans and the timeline in the overall Project schedule in Section 6.4.11.

In addition to providing the required map(s), provide a site layout plan that illustrates the location of all on-shore and offshore equipment and facilities and clearly delineates the perimeter of the area in which offshore wind turbines will be placed. Identify the distance in statute miles between the nearest shoreline point and the nearest Offshore Wind Generation Facility turbines.

4.1 Lease Area and Project Overview

As discussed above, Equinor Winds's proposals give NYSERDA the option to procure ORECs from EW2 and BW, which are being developed in two separate lease areas located off the coast of New York. Figure 16 below depicts the location of Equinor's offshore lease areas relative to New York.



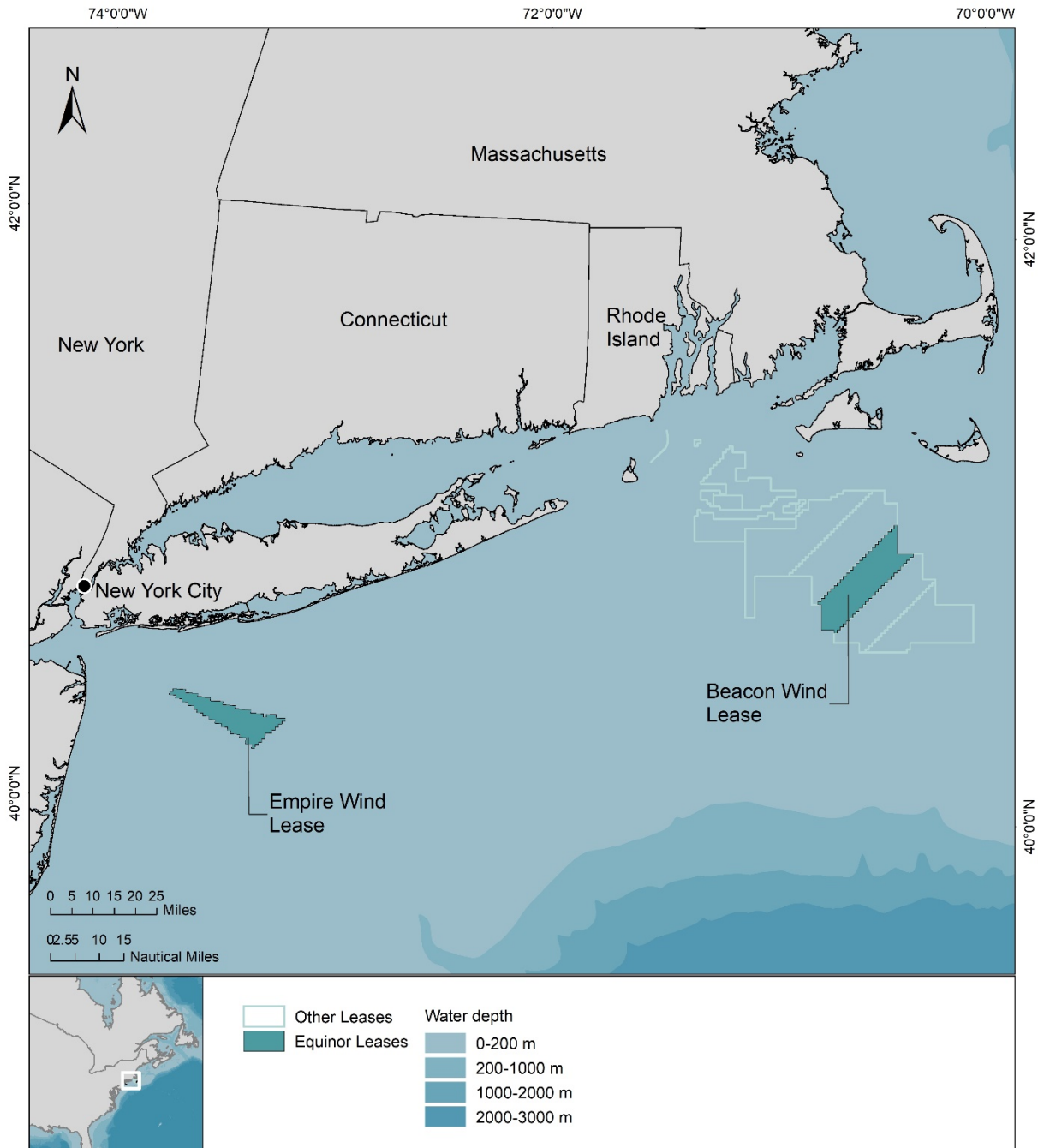
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Figure 16: Project Lease Areas



The design and construction of both of these projects has been calibrated to optimize production from the facilities and ensure that the objectives outlined in the CLCPA are met as efficiently and cost-effectively as possible. The Projects will be constructed in a manner that captures the significant efficiencies and economies of scale associated with the continuous construction of the



Empire Wind and Beacon Wind projects. [REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

The following sections provide a more detailed overview of each project and associated lease area.

4.1.1 Empire Wind

Equinor Wind is developing the Empire Wind project in the New York Wind Energy Area, a federal offshore wind lease area located south of Long Island. The New York Wind Energy Area represents the closest offshore wind lease area to New York and has been designated for the development of offshore wind resources through a multi-step process that includes extensive environmental analyses and consultation with federal, state, and local governments, stakeholders, and potential lessees. The total lease area spans approximately 123 square miles (“mi²”) and is estimated to be capable of supporting the development of approximately 2 GW of installed generation capacity. A copy of Equinor Wind’s offshore wind lease, lease number OCS-A 0512, is provided as Attachment 4.A.

Equinor Wind is currently developing the New York Wind Energy Area in multiple phases. The first phase of the project—EW1—is being developed in the westernmost portion of the lease area and will consist of 816 MW of capacity interconnected at the Gowanus Substation located in Brooklyn, New York. The project was one of two projects selected through NYSERDA’s 2018 OREC solicitation.

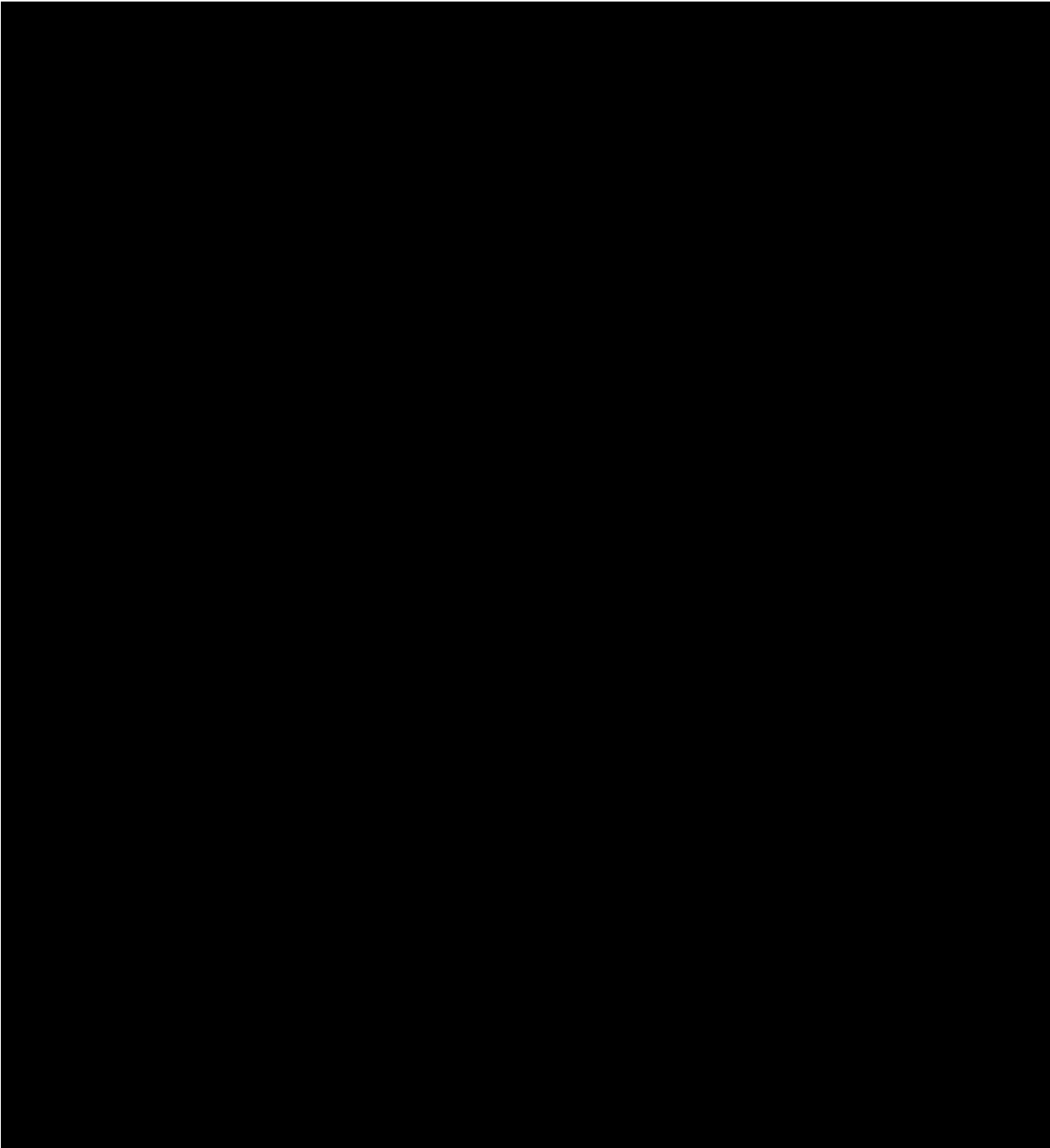
As part of this solicitation, Equinor Wind is proposing to supply ORECs from [REDACTED]



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The design of EW2 has been optimized to maximize the value to New York State based on extensive analysis of the lease area and potential interconnection points, dialogue with suppliers, and stakeholders. Equinor Wind has carried out numerous studies, requests for information to potential suppliers, and tendering processes for the various components of the project. This



approach is structured to capitalize on the relationships and synergies that Equinor Wind has cultivated through its efforts to develop EW1. As discussed further in Section 10, this holistic approach to technology selection and procurement ensures that New York State receives an efficient project that obtains the highest feasible value from the lease area.

Based on these efforts,



Figure 18 below provides a site layout plan illustrating the location of all onshore and offshore equipment associated with EW2. Note that the alternative landfall depicted on this map is shown in greater detail in Figure 26.



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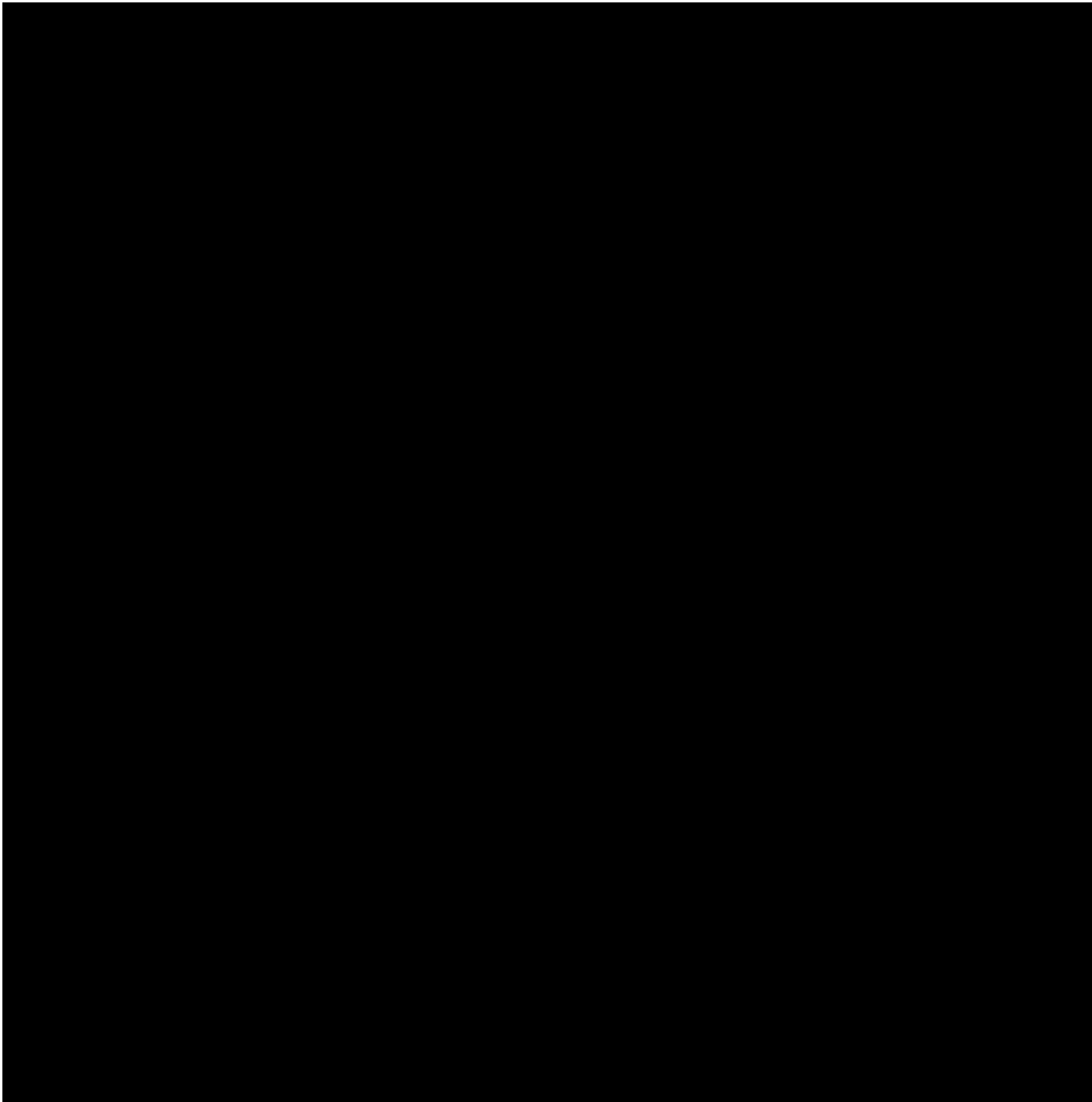
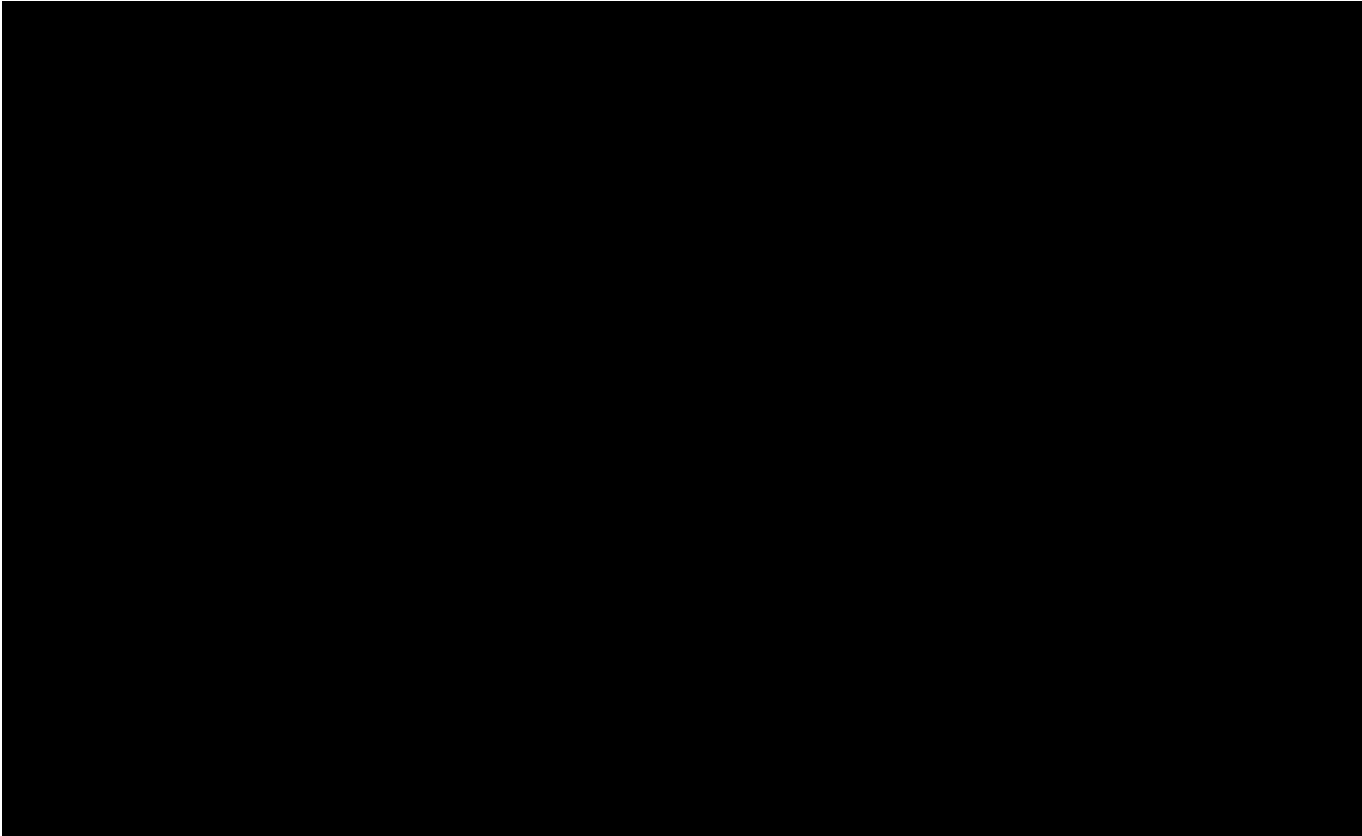




Figure 19 below provides a high-level schematic which reflects the arrangement and layout of the EW2 project components.



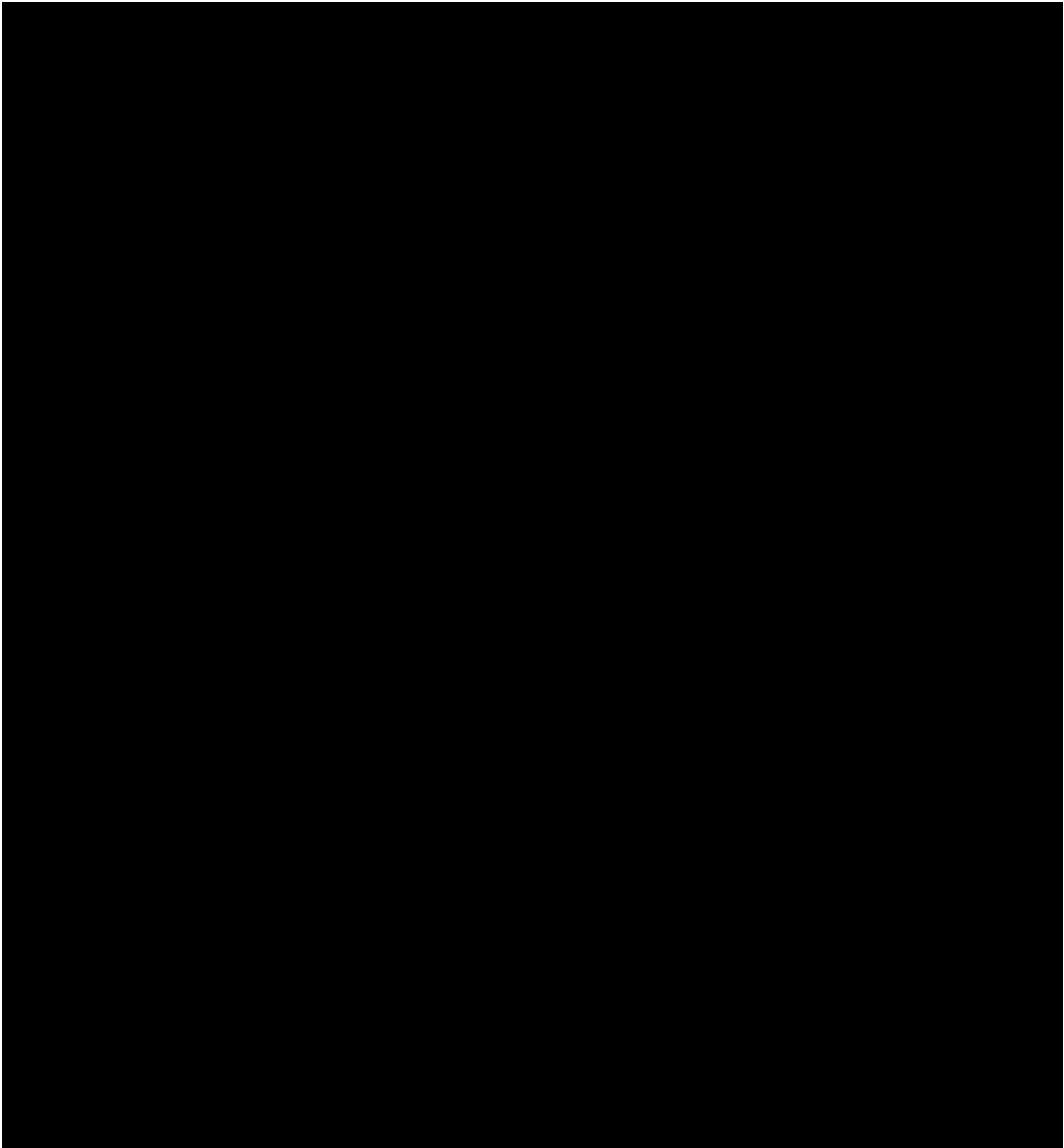
4.1.2 Beacon Wind

Equinor Wind is developing the Beacon Wind Project in the New England Wind Energy Area, a federal offshore wind lease area located east of Long Island and southeast of Massachusetts. Similar to the New York Wind Energy Lease Area, the New England Wind Energy Area is in close proximity to New York and was designated for development of offshore wind resources through the same extensive multi-step evaluation process. The lease area spans approximately 200 mi² and is estimated to be capable of supporting the development of approximately 2.4 GW of installed generation capacity. A copy of Equinor Wind's offshore wind lease, Lease number OCS-A 0520 is provided as Attachment 4.B.

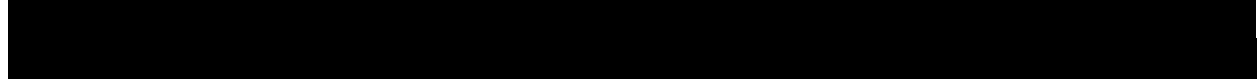
In addition to EW2,



Figure 20 provides a map depicting the location of the lease area and its distance from shore.



For the development of BW, Equinor Wind intends to build on the solid foundation established by EW1 to maximize the value delivered to New York ratepayers. [REDACTED]

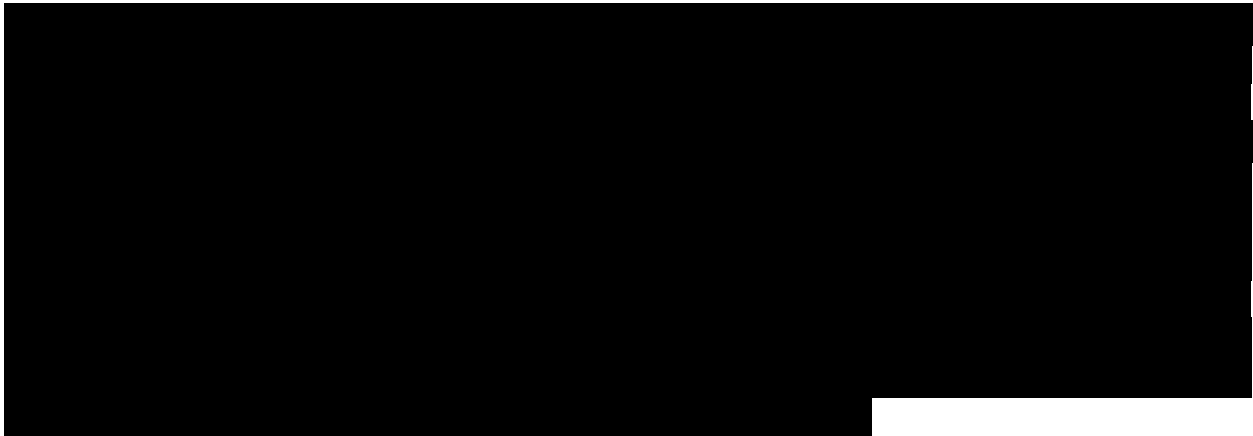




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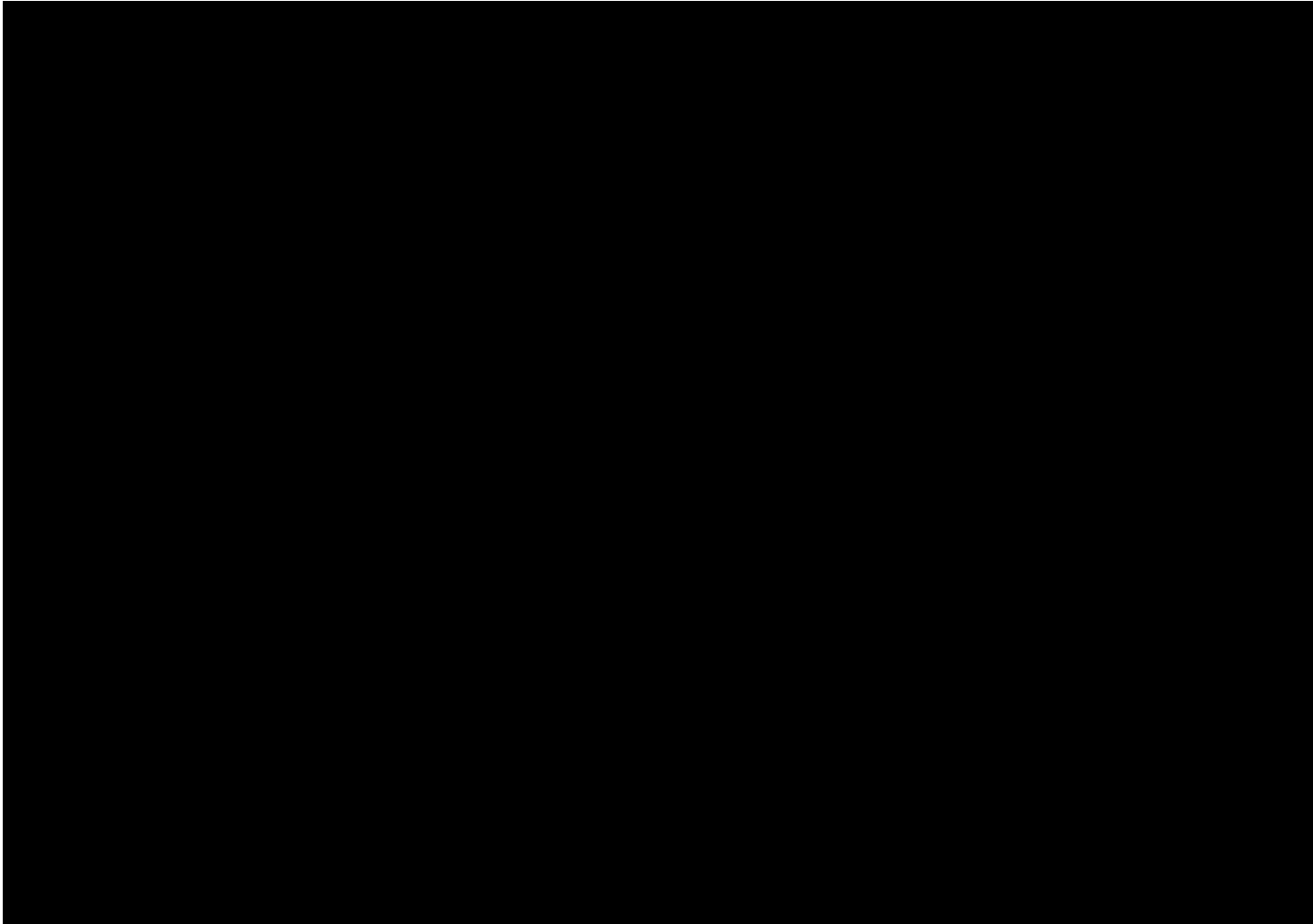
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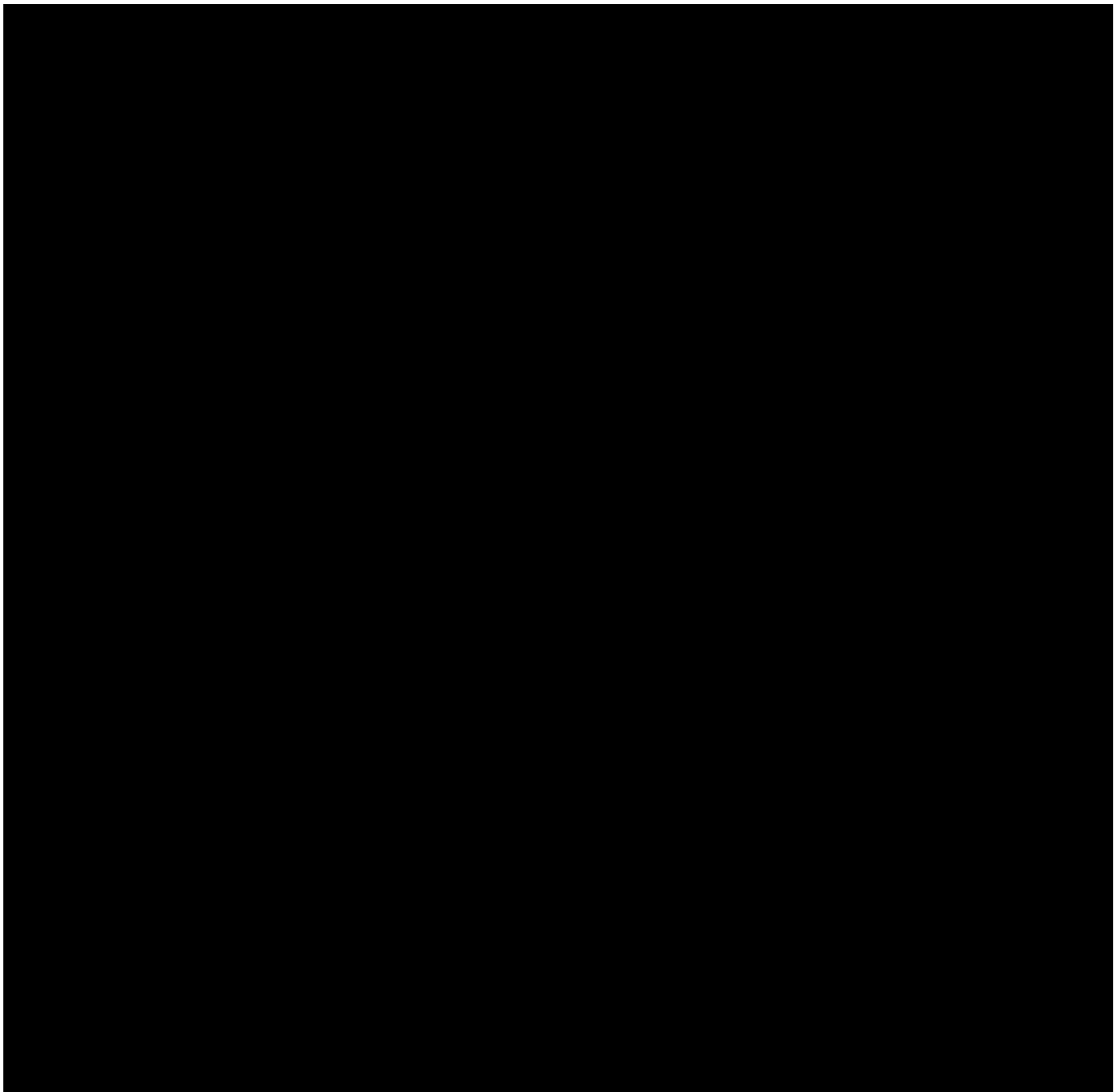
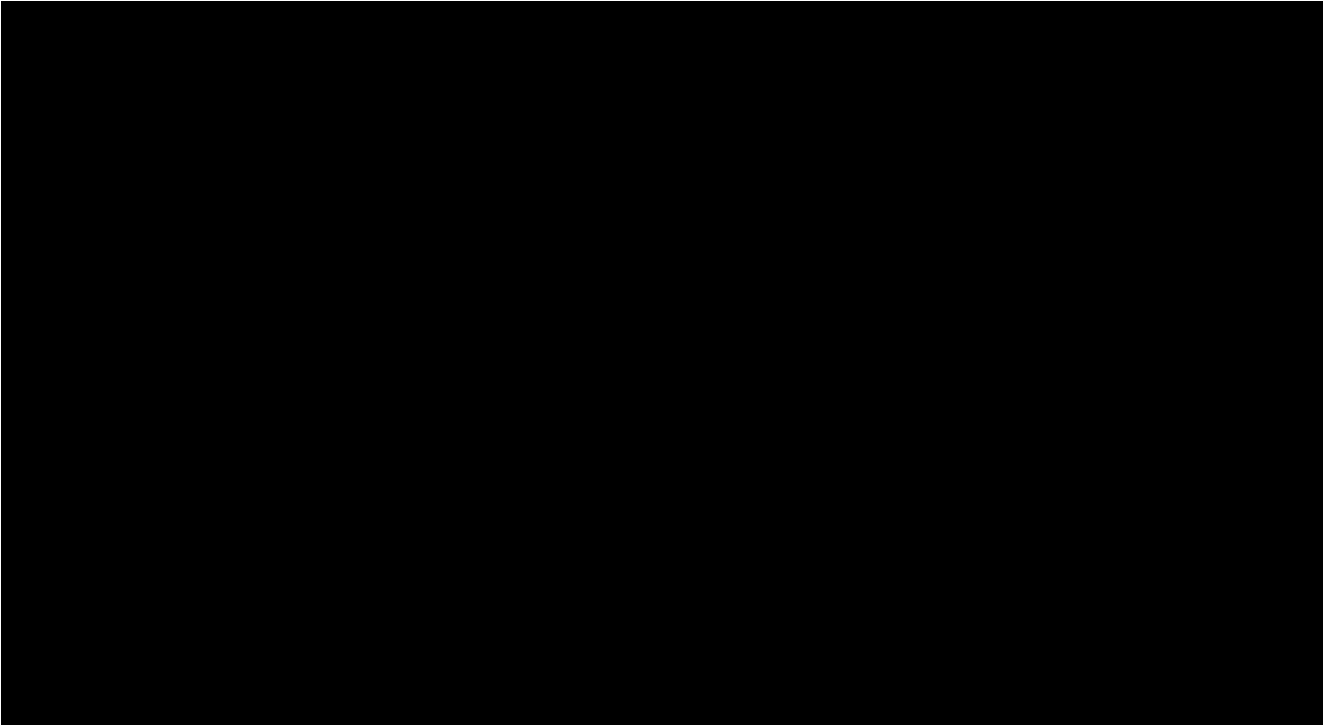


Figure 23 below provides a high-level schematic which reflects the arrangement and layout of the BW project components.



4.2 Overview of Major Project Components

The following sections provide an overview of the major components of the Projects. Further detail on the proposed technology for each project can be found in Section 10 and detail concerning the staging and construction of these components can be found in Section 12.

4.2.1 Wind Turbine Generators and Offshore Collection Facilities

The following subsections provide a more detailed overview of the wind turbine layout and design of the Projects.

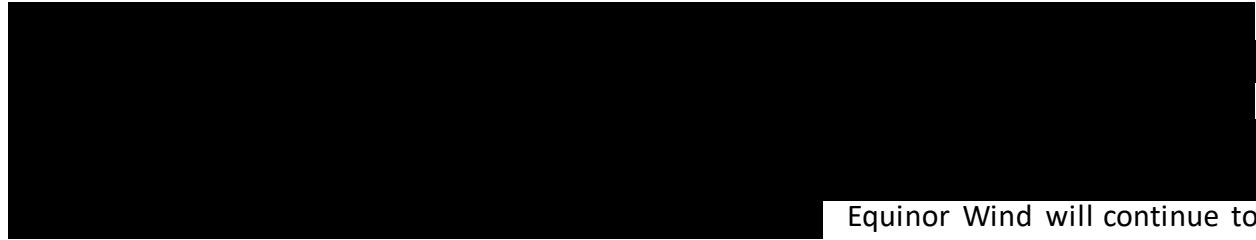
Empire Wind

The layout of EW2 has been optimized to maximize production from the facility while respecting existing uses of fisheries, maritime navigation, and ocean resources. Since executing its offshore wind lease, Equinor Wind has been evaluating a wealth of information concerning wind conditions and other metocean data to determine the optimal turbine array that maximizes production and minimizes wake effects.

This information is also utilized to ensure the layout and spacing of the project accommodates existing uses of the outer continental shelf, including commercial fishing. Equinor Wind has engaged in active dialogue with local fishermen through regular engagement with the Responsible Offshore Development Alliance (“RODA”). As part of these efforts, Equinor Wind has held numerous workshops to discuss the potential interactions between the commercial



fishing industry and the offshore wind industry and has incorporated insights and input into the design of the layout.



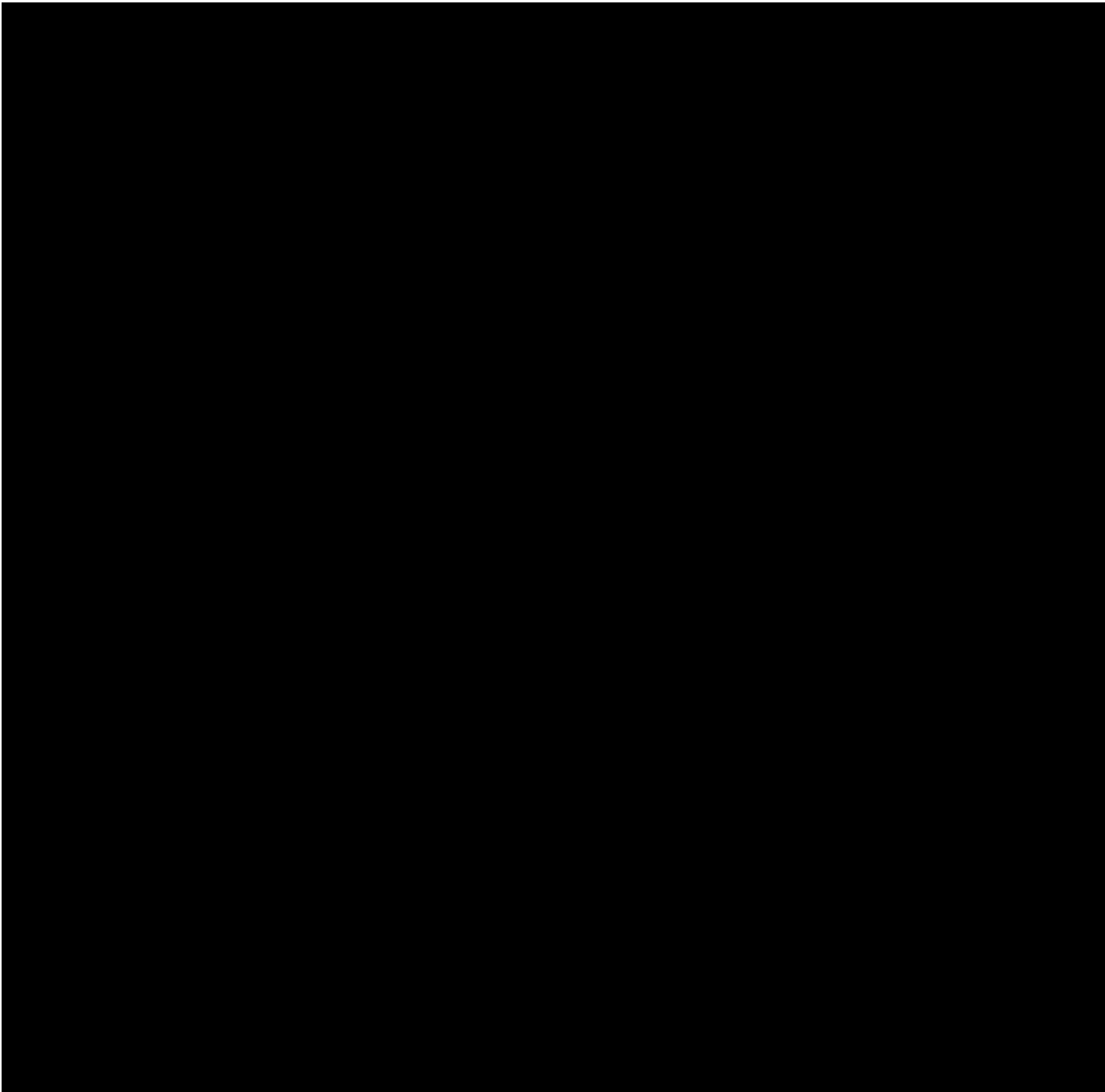
Equinor Wind will continue to calibrate the layout as it analyzes and evaluates metocean data, finalizes turbine selection, and engages in dialogue with stakeholders. As described in the Fisheries Mitigation Plan provided below, this layout has been influenced by various considerations related to the preservation of fisheries resources, commercial fishing, and navigational safety. For instance, as a result its engagement with RODA, Equinor Wind has opened up the wind turbine layout in the western portion of the lease area to minimize potential impacts to the squid fishery in the area while also ensuring efficient use of the lease area. Figure 24 below provides the anticipated layout of EW2.



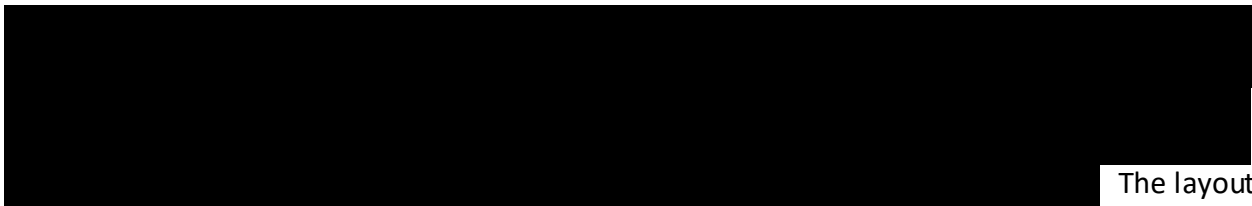
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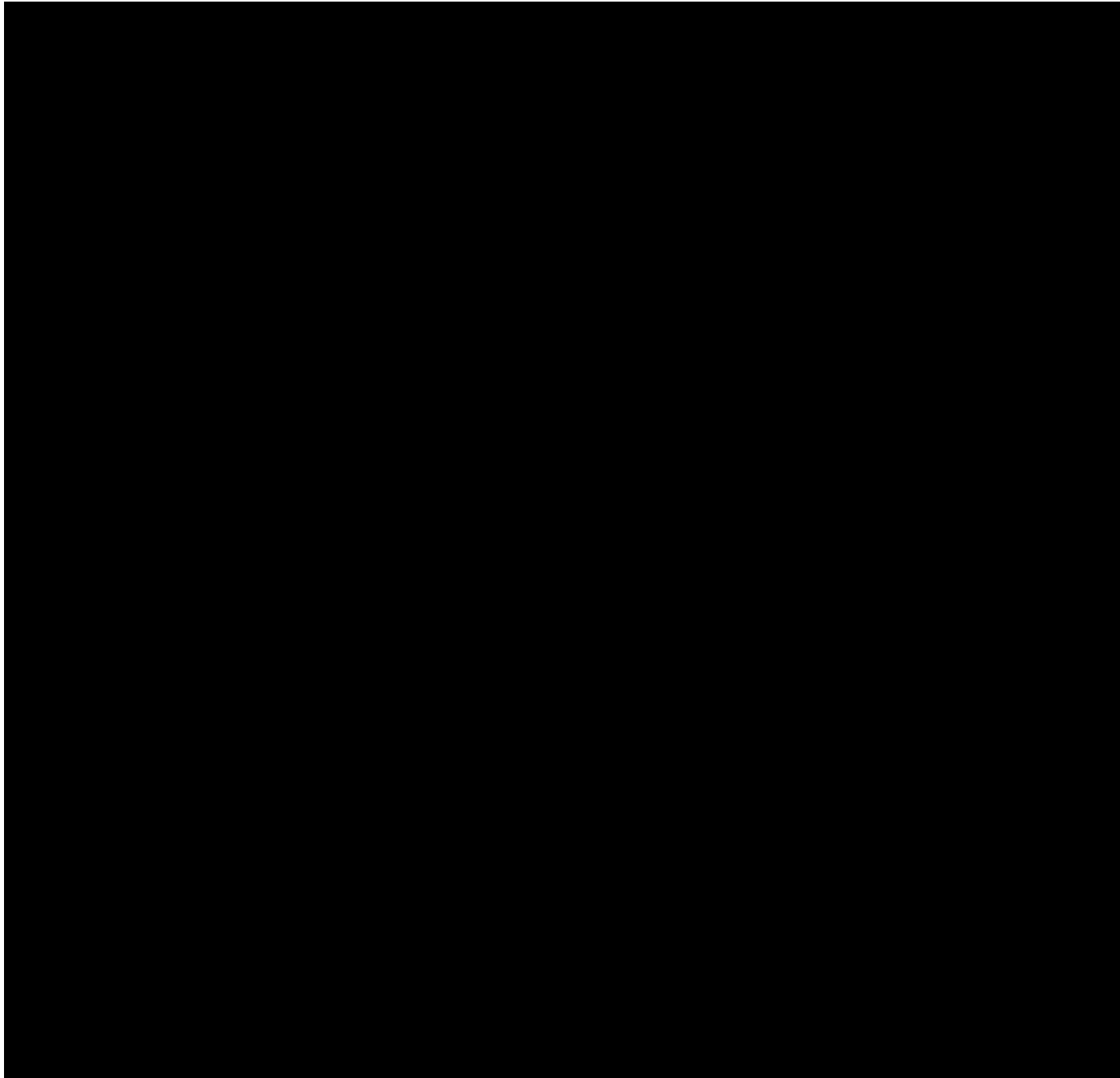
Beacon Wind



The layout of the project has been designed in close collaboration with developers in the New England wind



energy area and various stakeholders – including representatives of the fisheries, maritime navigation, and ocean resources communities – to promote the successful coexistence of current and proposed uses across all projects within the wind energy area. As further described in Attachment 4.C, the layout of BW has been endorsed by the U.S. Coast Guard to accommodate search and rescue activities in the lease area. As described in the Fisheries Mitigation Plan, this layout has been influenced by various considerations related to the preservation of fisheries resources, commercial fishing, and navigational safety. Figure 25 below provides the anticipated layout of BW.



4.2.2 Offshore Cable Route

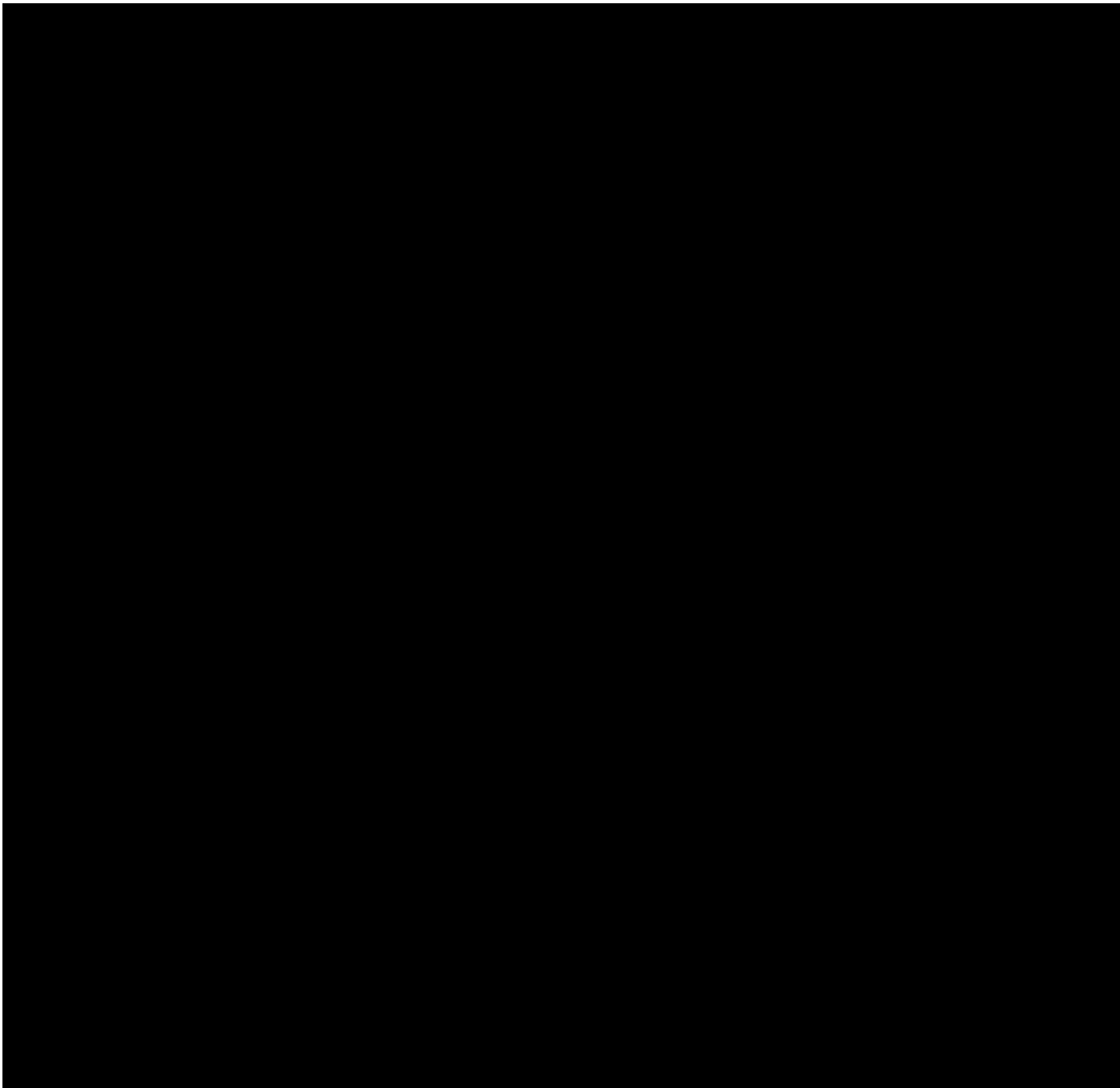
Equinor Wind has evaluated a variety of potential submarine cable routes to determine the best cable route to various landfall locations. These efforts have included extensive consultation with New York State and Federal agencies as well as a detailed study of potential cable routes. This analysis compiled information regarding existing constraints and site characteristics to determine the optimal set of potential paths from each lease area to each landfall location. These paths were developed to respect existing uses by avoiding known conflict areas, mitigate any potential



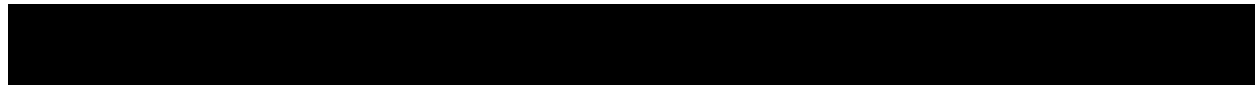
impacts that could not be avoided, and incorporate information received from stakeholder discussion and surveys. As such, the offshore cable route for each Project was designed to minimize environmental impacts by developing the shortest overall route that would avoid major offshore and inshore constraints while also optimizing the value of the project.

Empire Wind





Beacon Wind



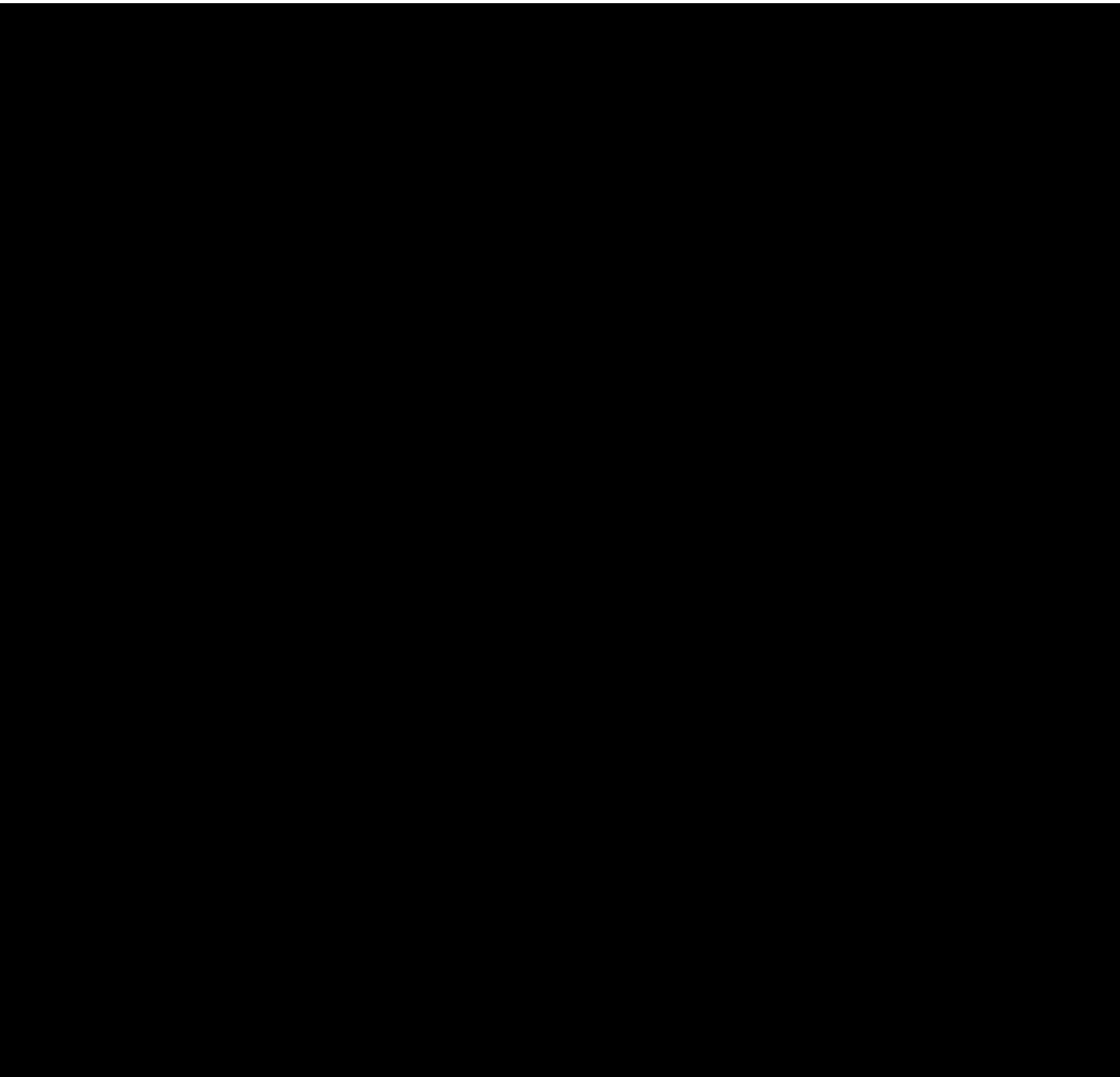
The final cable route will be determined based on the additional data received from ongoing surveys along the cable route. Further details of how fisheries considerations were factored into route design are provided in Section 13.



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Wind

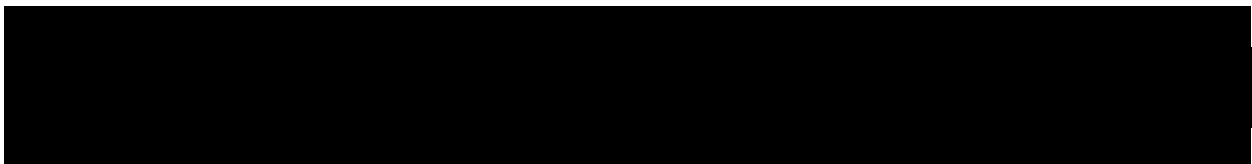


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4.2.3 Interconnection Point and Landfall Location

Empire Wind

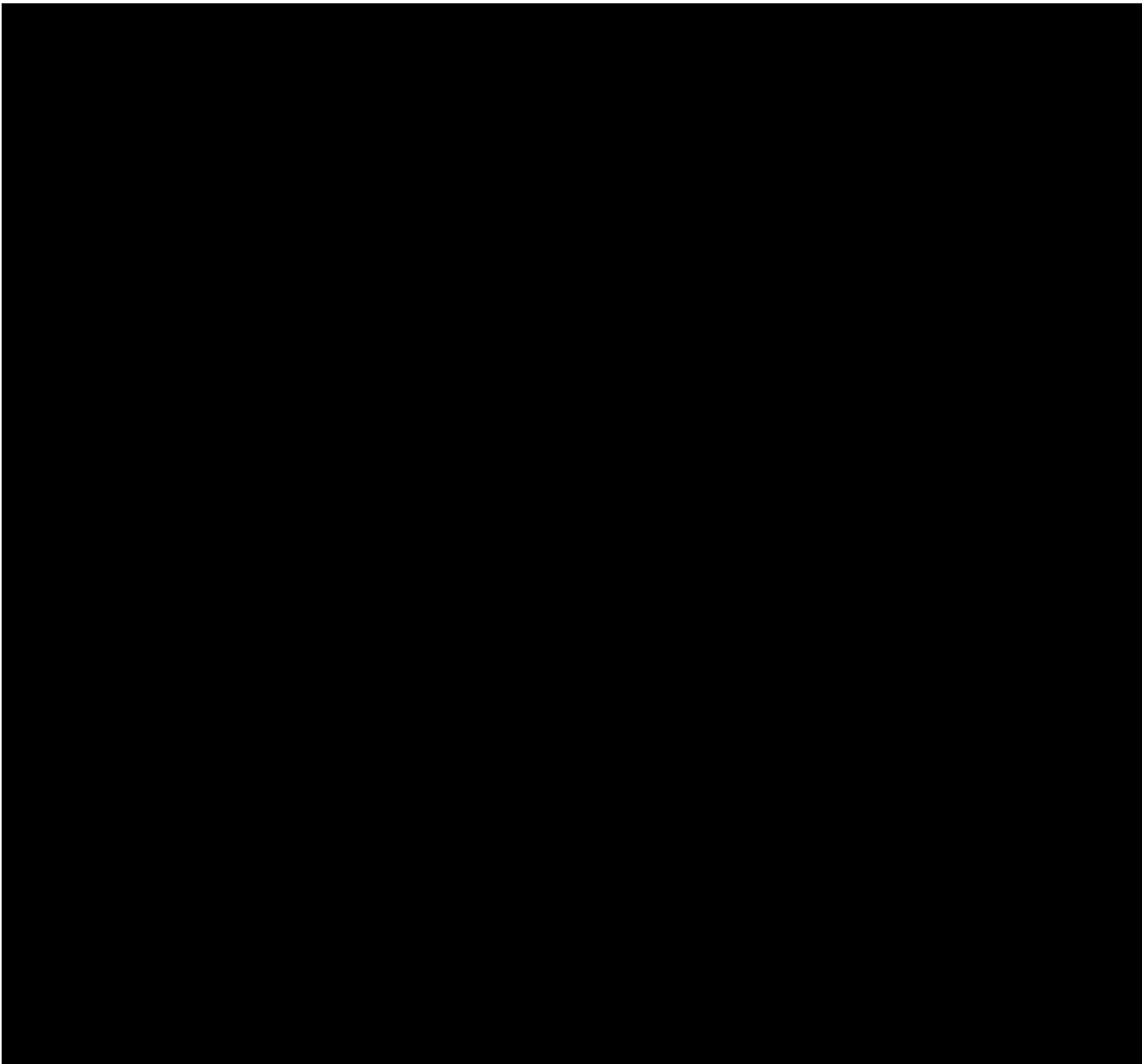
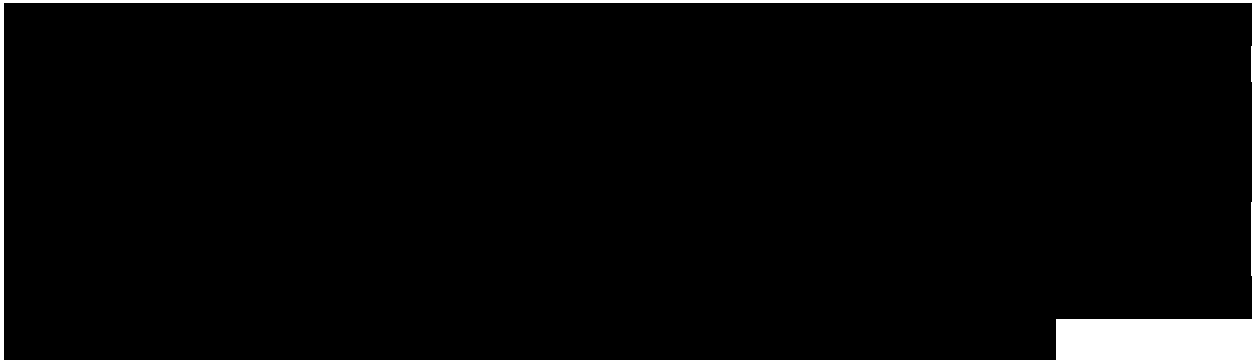




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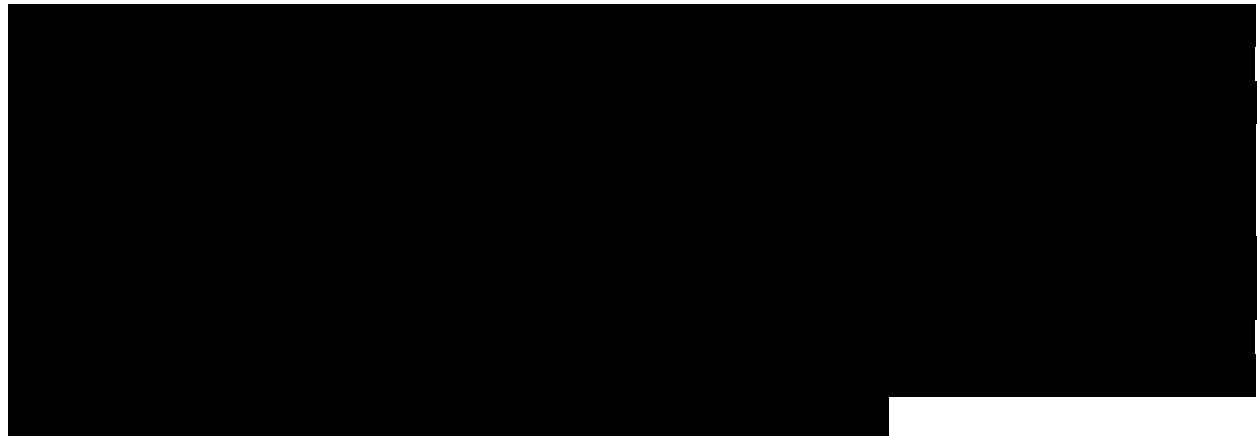
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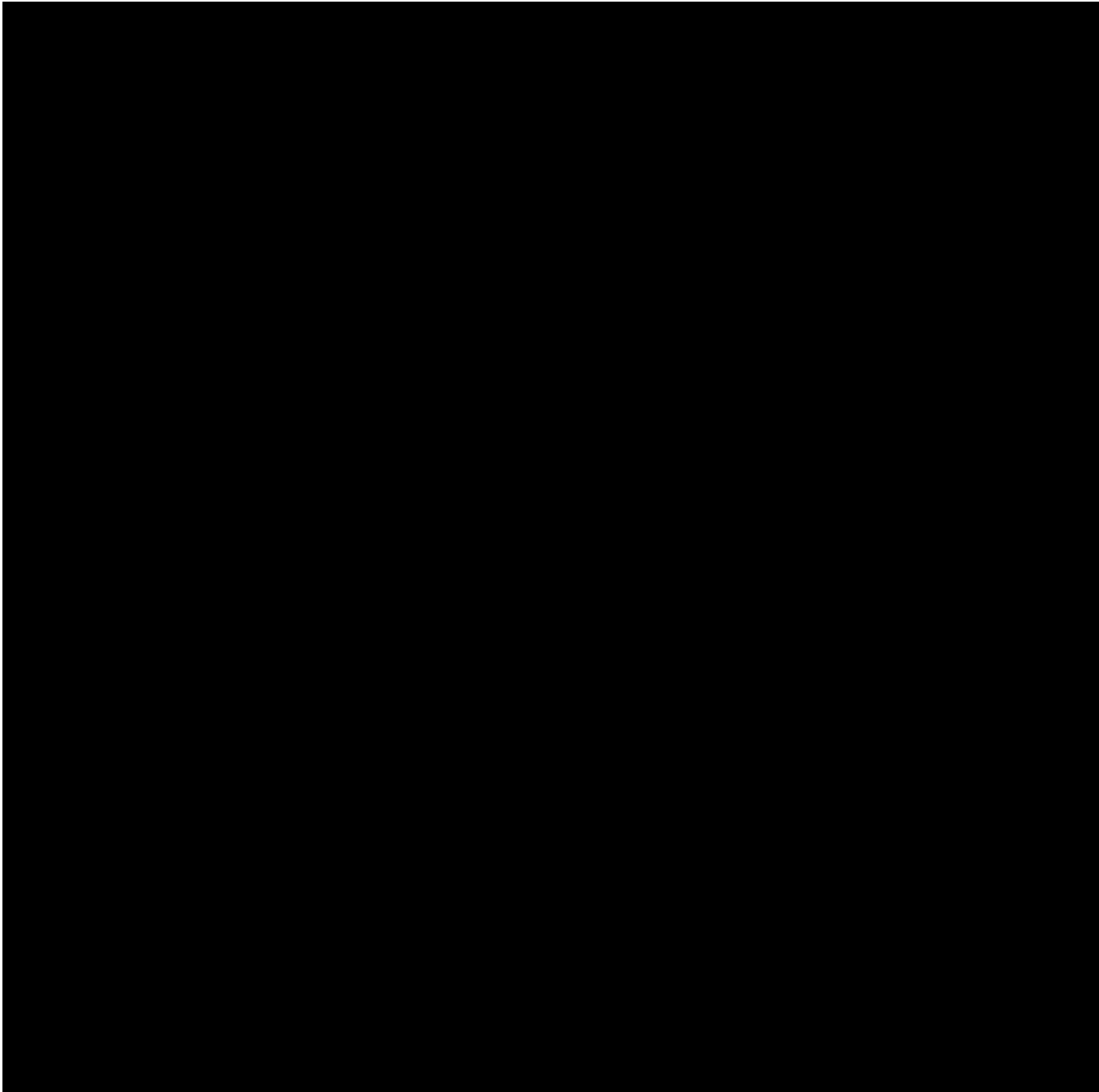


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Beacon Wind





4.3 Land Acquisition

Equinor Wind has already taken substantial steps towards acquiring the property rights necessary for the construction of both projects.



4.3.1 Federal Waters

As a condition of the executed lease agreements for both projects, Equinor Wind will receive easements necessary for the full enjoyment of the lease, including easements necessary for the purpose of installing transmission and distribution cables associated with the projects.⁸

[REDACTED]

4.3.2 State Waters

For the portion of the export cables within state waters, Equinor Wind will need to obtain an easement from the New York State Office of General Services, Bureau of Land Management. A complete description of state permitting requirements is provided in Section 9.

4.3.3 Onshore Export Cables and Substation

Upon landfall, easements and access agreements will be required for several project facilities. This includes the transmission line route from the landfall location to the onshore substation, land for the new onshore substation, and any lands required for substation upgrades. In support of permit applications and design, Equinor Wind will initially need to secure rights of access with landowners to perform field surveys (*e.g.*, wetland delineation, cultural resources, geotechnical, and land surveys).

Empire Wind

Equinor Wind has commenced discussions with property owners that may be impacted by the interconnection of EW2.

[REDACTED]

⁸ 30 C.F.R. § 585.200(b).

[REDACTED]



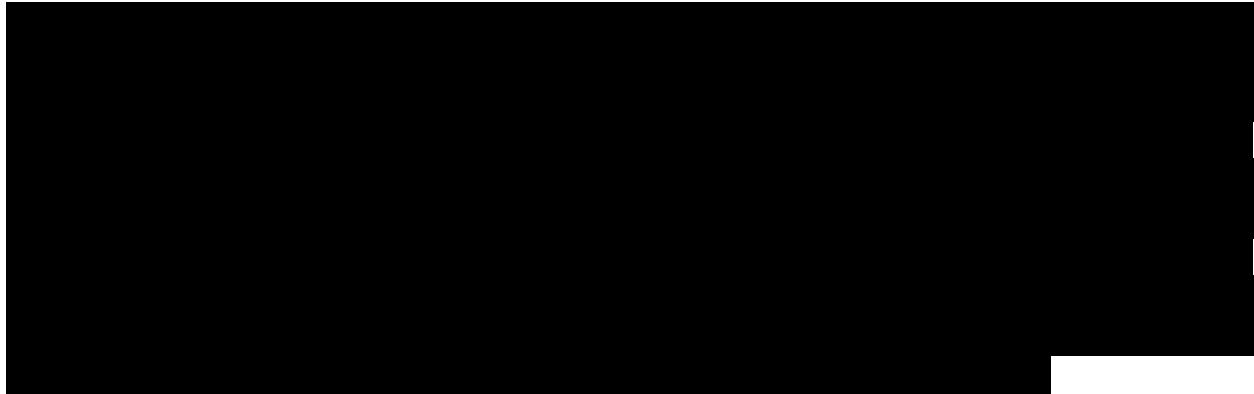
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Beacon Wind





5 ENERGY RESOURCE ASSESSMENT AND PLAN

Provide a summary of all collected wind data for the proposed Offshore Wind Generation Facility site. Identify when and how (e.g., meteorological mast or LiDAR – for “Light Detection and Ranging”) the data was collected and by whom.

Indicate where the data was collected and its proximity to the proposed Offshore Wind Generation Facility site. Include an identification of the location and height for the anemometers and/or “range gate” heights for sensing by LiDAR that were used to arrive at an assessment of the site generation capability. Describe any additional wind data collection efforts that are planned or ongoing. Provide at least one year of hourly wind resource data in a working Excel file (the required Wind Resource Data attachment). Data collected from the site is preferred, though projected data is permissible. The method of data collection must also be included.

Provide a wind resource assessment report for the Proposed Offshore Wind Generation Facility site. Include an analysis of the available wind data which addresses the relationship between wind conditions and electrical output. Provide a site-adjusted power curve. Each curve should list the elevation, temperature and air density used.

Equinor has extensive technical expertise in collecting, analyzing, and modeling wind data as a result of its portfolio of offshore energy assets, including offshore wind projects. Equinor’s Metocean Department is responsible for analyzing an array of metocean data in order to determine the optimal design and layout for Equinor’s oil, gas, and offshore wind projects, including wind speed and direction, wave height and direction, temperature, salinity, extreme weather events, and other factors that can have a significant impact on the design, operation, maintenance, and life of offshore energy projects. Through this experience, Equinor’s Metocean Department has developed a set of best practices and models that it employs to evaluate and analyze every aspect of developing, operating, and maintaining offshore energy projects. In fact, Equinor’s Metocean Department took the lead in developing the publicly available Metocean Reference Extreme Software, which is widely used within the metocean community for analysis of extreme conditions and as a benchmark for verifying the accuracy of metocean software.

As described below, Equinor’s Metocean Department, in collaboration with its consultant Kjeller Vindteknikk AS (“KVT”), has extensive information about the EW2 and BW offshore wind lease areas. This information is a combination of historical information from industry recognized data sources and onsite wind measurements that have been conducted by Equinor since acquiring the lease areas. Equinor plans to supplement this information with additional survey campaigns and onsite measures. Collectively, the information that has been collected and evaluated by Equinor’s Metocean Department and KVT provides a sound basis for estimating the wind resource potential of both Projects.

The wind resource assessment reports submitted in support of Equinor’s proposals were prepared by KVT with input from Equinor’s Metocean Department. KVT has more than 20 years of experience delivering climate and wind analysis solutions for the wind energy and other



infrastructure sectors. KVT's metrological information and analysis is used widely in a range of industries, including renewable energy development, aviation, and other weather-sensitive industries. KVT's assessments are provided as Attachments 5.A and 5.B.

5.1 Data Sources

5.1.1 Current and Ongoing Data Collection

Empire Wind

[REDACTED]

[REDACTED]

[REDACTED]

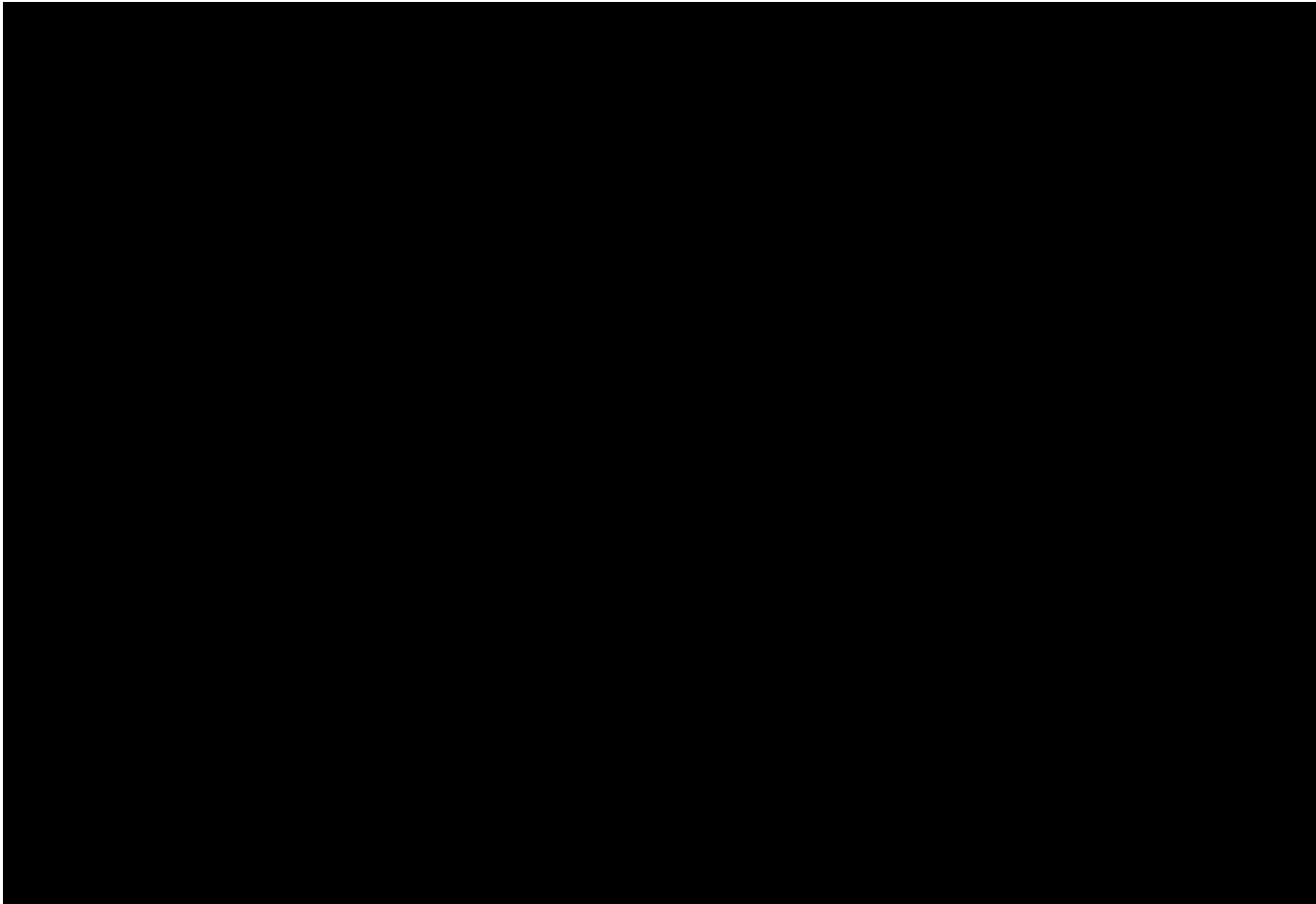
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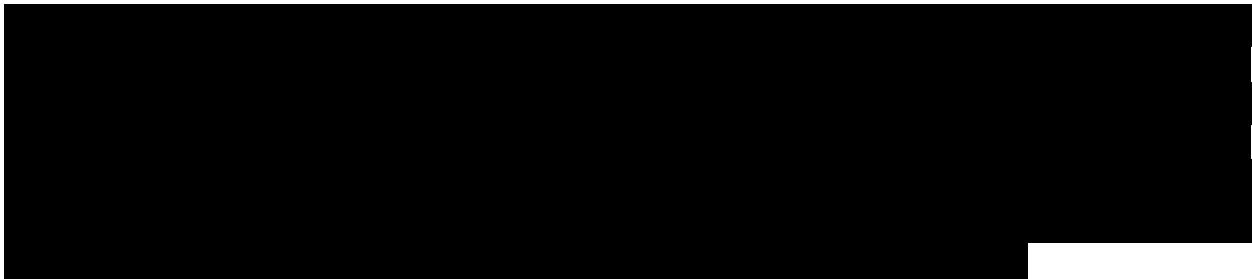
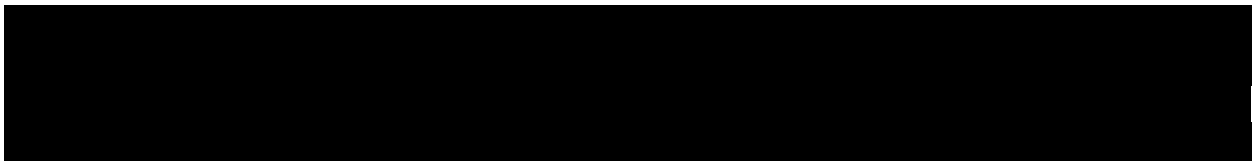
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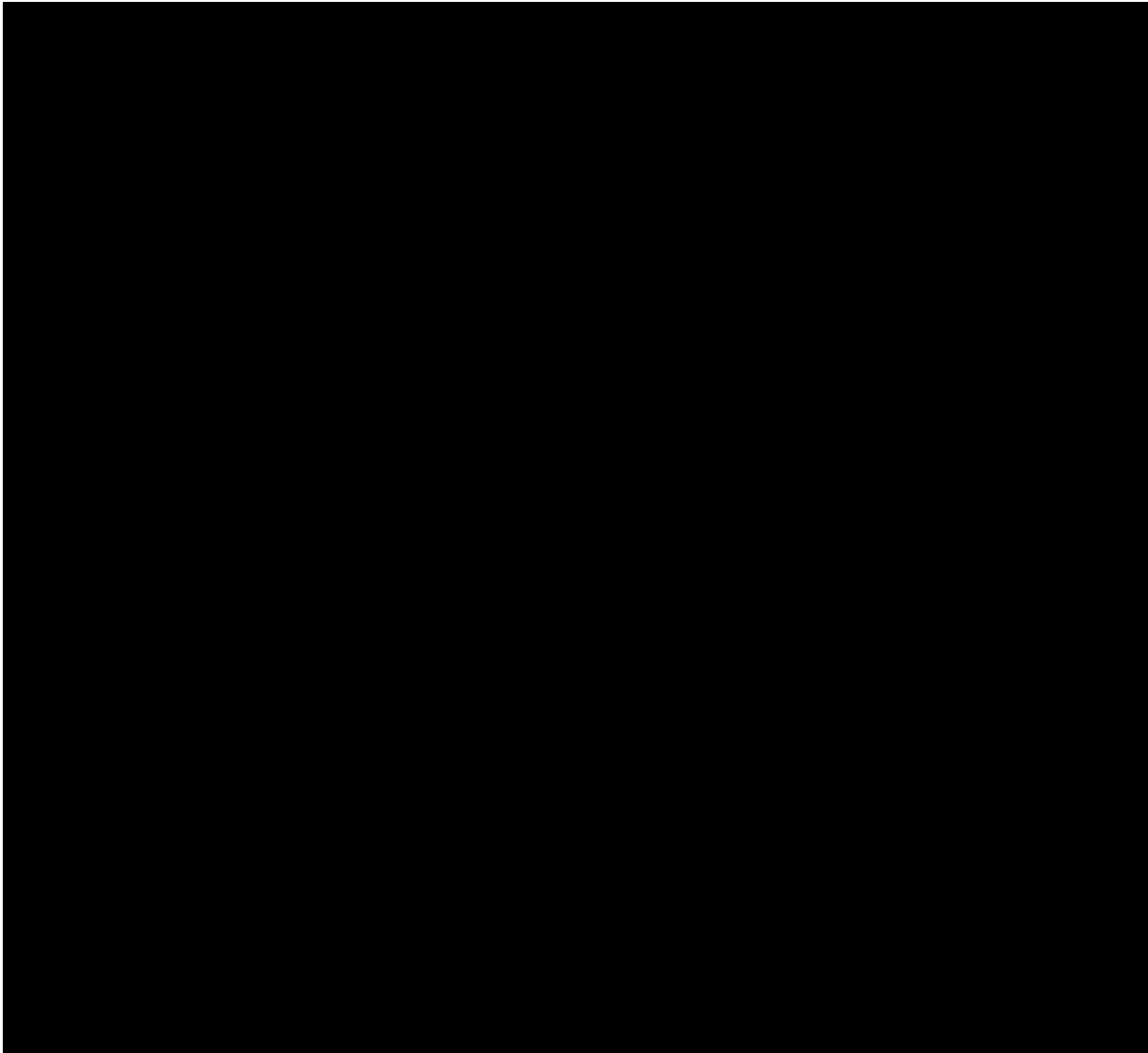


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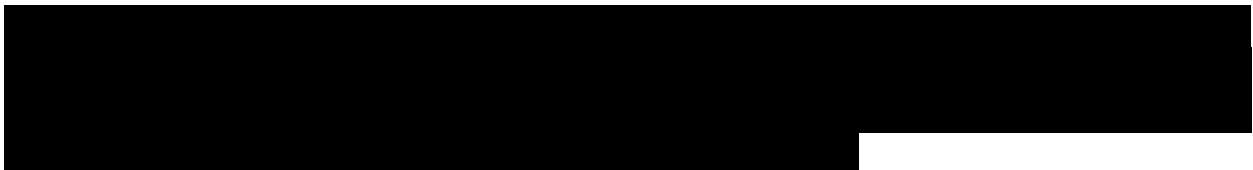


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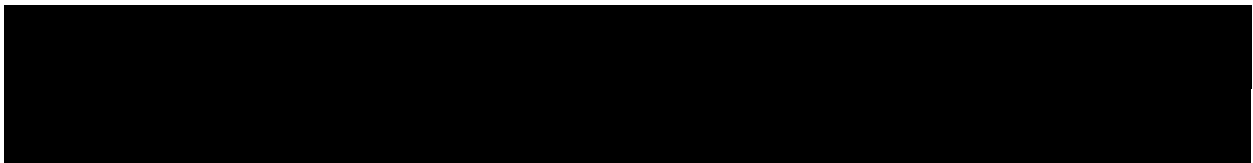


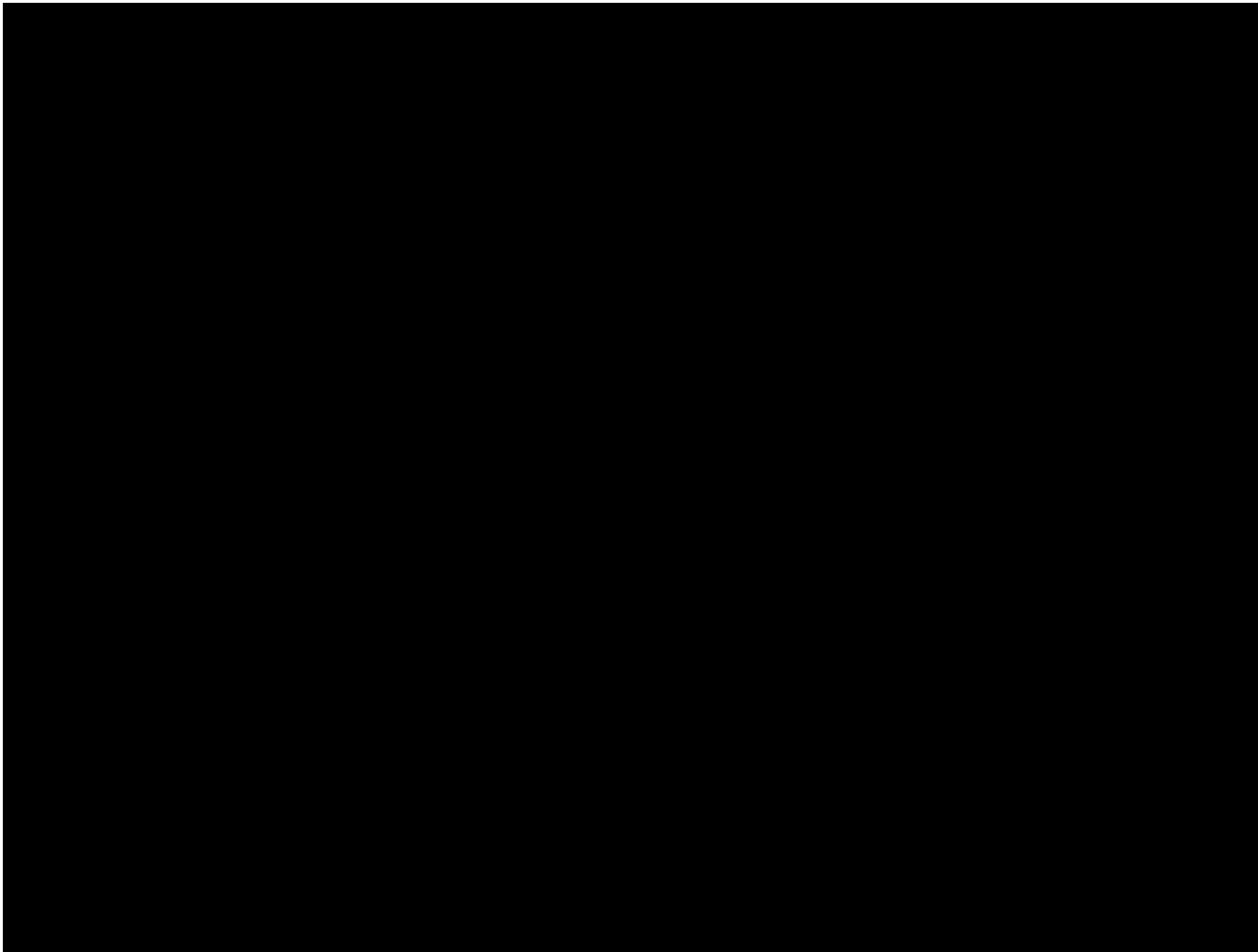
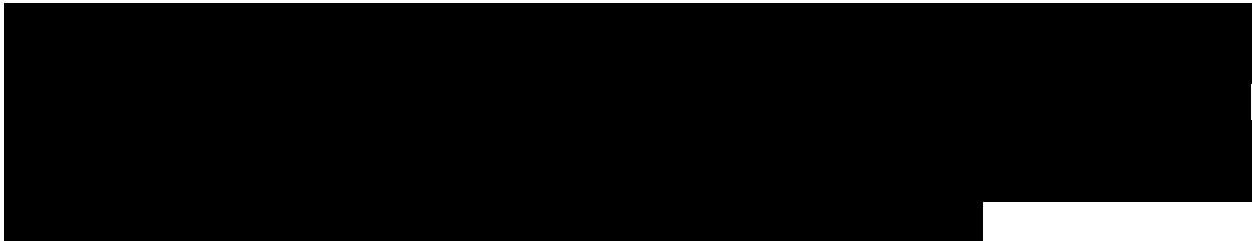


5.2 Wind Resource Assessment



5.2.1 Annual Energy Production Estimate





5.3 Losses

For the purpose of calculating Net AEP, gross production was adjusted to take into account the potential for energy losses associated with turbine availability, electrical efficiency, turbine performance, environmental conditions, global blockage effects, and curtailments. A more detailed explanation of how KVT arrived at these values is provided in the attached wind resource assessment reports.



5.3.1 Power Curve and Wind Data



In addition, one year of hourly wind data for each Project location is provided as Attachments 5.D and 5.E.





6 OPERATIONAL PARAMETERS

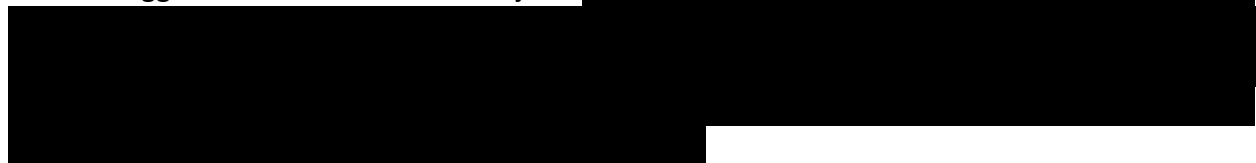
Provide partial and complete planned outage requirements in weeks or days for the Offshore Wind Generation Facility. Also, list the number of months required for the cycle to repeat (e.g., list time interval of minor and major overhauls, and the duration of overhauls). Provide all the expected operating constraints and operational restrictions for the Project, the reason for the limitation, and characterize any applicable range of uncertainty.

Equinor is committed to ensuring that its projects can safely and reliably deliver offshore wind to New York over the operational life of the project. The objective of ensuring safe and reliable operations of the Project informs every aspect of project design, construction, and operations—from the selection of best in class technologies that have been shown to operate reliably under the harshest conditions to employing operation and maintenance approaches that have been refined over decades of offshore project experience. Motivated by an unwavering commitment to excellence, Equinor’s projects are operated in a manner that ensures safety, maximizes project availability, reduces costs, are environmentally responsible, and are backed by the financial and logistical resources of the broader Equinor group.

The sections below provide more information about anticipated operation and maintenance activities at the Empire Wind and Beacon Wind Projects. Before addressing those issues, however, this section provides an overview of Equinor’s experience and approach to O&M, including how it is taking into account the objectives set out in the CLCPA in designing the O&M strategy for the Empire Wind and Beacon Wind Projects.

6.1 Equinor’s Operations and Maintenance Experience and Approach

The success of Equinor’s approach to O&M is highlighted by its demonstrated track record of operating and maintaining offshore wind farms that maximizes project availability and efficiency. Equinor currently is responsible for operation and maintenance activities at its Sheringham Shoal, Dudgeon, and Hywind Scotland projects and is in the process of delivering the operational model for the Dogger Bank Offshore Wind Project.



In January 2020, Equinor undertook a reorganization of its New Energy Solutions business unit to prepare to deliver on the company’s ambitions and commitments towards achieving a low carbon future. The new organization structure was set up to position the company for rapid growth in renewable and low carbon projects, including offshore wind. The restructuring has resulted in increased capability and capacity to efficiently handle multiple large-scale offshore wind projects, along with a clear matrix to transfer knowledge and experience between global offshore wind projects. This reorganization will ensure that Equinor’s experience and lessons



learned in connection with the operation of its projects across the globe will be brought to bear in the operation and maintenance of both the Empire Wind and Beacon Wind Projects.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



[Redacted]

[Redacted]

Equinor’s “hands on” approach to operation and maintenance also provides Equinor with the insights necessary to ensure that its projects are operated in a way that supports the objective of reducing emissions associated with project operation. Equinor plans on leveraging this experience to ensure that both the Empire Wind and Beacon Wind Projects are operated in a manner that supports the goals embodied in New York’s CLCPA. For instance, Equinor currently is considering a number of strategies to reduce the carbon footprint of both the Empire Wind and Beacon Wind Projects:

- [Redacted]

- [Redacted]

- [Redacted]

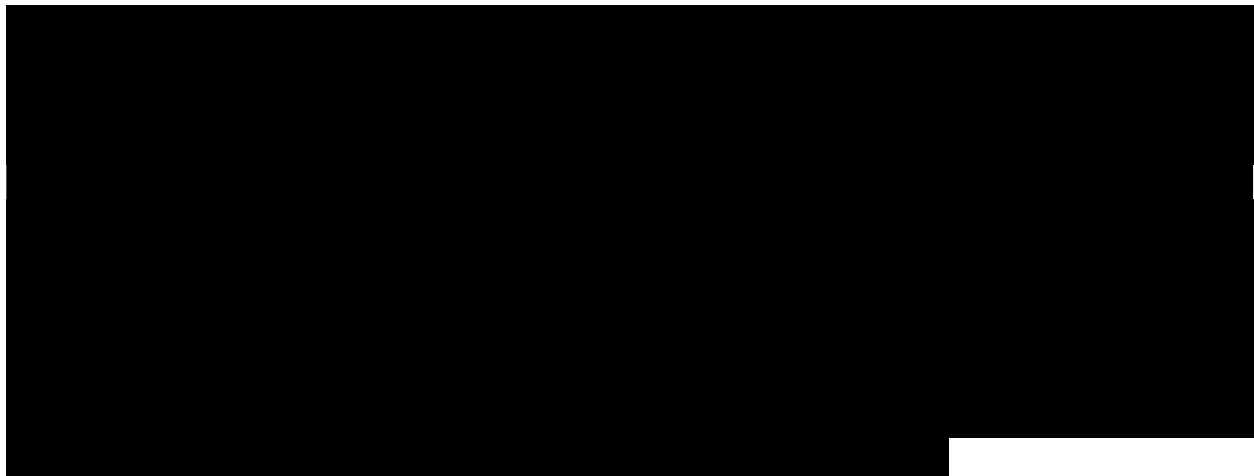


In addition to the low carbon initiatives that Equinor is developing, there are other initiatives being developed within the industry that Equinor continues to monitor and will look for opportunities to integrate into its projects. One such example is offshore vessel charging, which has the potential to lower emissions, eliminate engine noise, and offer better power efficiency.

6.2 Operations and Maintenance Protocols

6.2.1 Monitoring and Staffing

Continuous monitoring of Empire Wind’s performance is a foundational principle of Equinor’s approach to O&M and has been successfully employed at Equinor’s existing offshore wind projects. For instance, Equinor currently operates a 24/7 control room responsible for monitoring the performance and operations of its existing offshore wind generation facilities. Equinor also has extensive experience operating 24/7 control rooms in connection with its offshore oil and gas facilities. Typically, an offshore wind farm control room includes sophisticated supervisory control and data acquisition (“SCADA”) systems, high voltage switching, marine communication and monitoring systems, and other systems that ensure that Equinor is able to continuously monitor its projects and support its personnel and vessels.



The operations center will accommodate 24/7 operations and will be responsible for planning and coordinating O&M activities for both the Empire Wind and Beacon Wind Projects. Among other things, the control center will be responsible for:

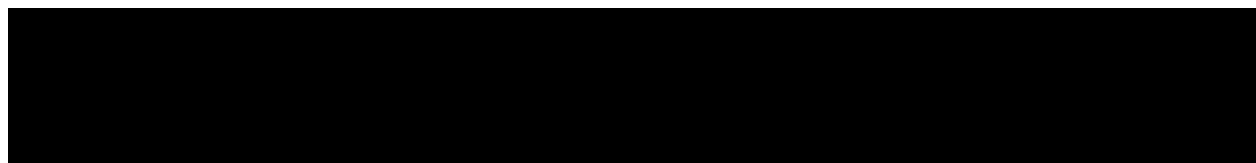
- Coordinating maintenance activities, including determining start and end times and maintaining records of maintenance activities;



- Providing an initial response to emergency situations, contacting on-site personnel and activating appropriate emergency plans and protocols;
- Monitoring site conditions, including identifying threats from lightning and ensuring that all work is performed in a manner that maintains the health and safety of onsite personnel;
- Tracking and coordinating all maritime activities related to O&M of both Projects and tracking the movement of all employees and O&M vessels using an automatic identification system;
- Ensuring a quick response to alarms, faults, and other events involving the wind turbines and associated interconnection facilities;
- Remotely monitoring the wind turbines and other major project components;
- Performing remote switching of electrical components in accordance with Equinor protocols and safety rules;
- Coordinating outages with NYISO in accordance with applicable market rules; and
- Acting as the point of contact with NYISO.

Figure 33 below depicts a typical Equinor Operations Building.

Figure 33: Operations Building for the Dudgeon Offshore Wind Project





In order to ensure immediate and timely access to the Projects and reduce downtime, technicians and personnel will stay onboard a SOV that will be located at each Project site year-round. The SOV will spend approximately two weeks at the wind farm site before returning to the O&M base to change crew members and replenish essential supplies. In addition to quartering vessel crew and wind farm personnel, the SOV will be used to store the vast majority of spare parts and equipment, with back-up supplies kept at the onshore base. The operations employees on the SOV will consist of a number of distinct teams responsible for different types of O&M:

- A troubleshooting team – responsible for resolving forced outages involving the wind turbine generators;
- A scheduled service team – responsible for routine maintenance of the wind turbines;
- A balance of plant team – responsible for all maintenance not related to the wind turbine generators, such as substation, foundation, and transition piece maintenance; and
- Maintenance planning and warehousing team – responsible for the planning of maintenance and coordinating storage of all necessary tools and components.

The Projects will also have direct access to the same institutional knowledge and back-office engineering and technical support as other operational Equinor projects, allowing experience and knowledge transfer to be captured from European and other global offshore wind markets.

6.2.2 Emergency Preparedness

Equinor is committed to providing a safe and secure environment for everyone working at both Projects. Equinor’s approach to O&M is founded upon the goal of ensuring “zero harm” and Equinor continuously works to foster a culture of safety and security in everything the company does. The support personnel for both Projects will be well-equipped to deal with any emergency situations that may arise during project operation and will employ emergency response procedures based on industry best practices and Equinor’s experience with onshore and offshore energy projects around the world.

Equinor will employ standard operating procedures that will be developed consistent with applicable regulations. This will include a Safety Management System and the Emergency Response Plan, which will detail emergency procedures for various emergency scenarios, including a communication plan to adequately inform federal authorities and at-risk users (*e.g.*, vessel operations in proximity to an emergency). These documents are initially drafted as part of the COP for each Project, and subject to review and approval via the NEPA process. Prior to preparing the Plan an Emergency Preparedness Analysis will be prepared. As they are “living”



documents, they will be reviewed and updated on a regular basis to reflect actual, applicable scenarios and response resources.

Using an SOV to house O&M personnel also will ensure that Equinor is able to respond in real-time to emergencies that arise at either Project site. Equinor expects that the SOV will be fully equipped with a medical facility, including trained medical personnel, and access to onshore doctors and medical support, as necessary. The on-site team also will have a dedicated team with a fast response craft that will be trained to address a range of emergency situations, including “man overboard” situations and other life threatening emergencies. These employees will be trained on a regular basis to ensure that they are prepared to respond to emergencies should they arise.

Equinor’s control room will also be equipped with remote monitoring and control systems that will allow Equinor to cease project operations in the event of equipment failure or other conditions necessitating shutdown of the wind turbine generators. For instance, the control room will employ remote monitoring systems that will automatically shut down the wind turbine generators in response to certain error or fault codes. In addition, this system will allow Equinor to continuously monitor turbine performance, including looking for signs of vibrations or operational abnormalities, and to curtail production, if necessary. In addition, both Projects will be fully integrated within, and be able to draw upon, Equinor’s broader emergency and crisis response organization.

Equinor has a robust emergency and crisis management team, developed over decades of offshore operations, that is well-versed in carrying out emergency operations. This includes a Global Management Assist Team (“GIMAT”) consisting of personnel that are trained in effectively responding to emergency situations and that can be deployed across the globe to assist Equinor project sites. The GIMAT’s approach to emergency response builds upon the Incident Command System, a U.S.-developed approach to command, control, and coordination of emergency response. The GIMAT will be available to and can be called upon by either Project to provide additional resources when necessary to support emergency operations.

6.3 Maintenance Schedule and Duration

6.3.1 Planned Outages

Planned maintenance outages will be scheduled in a manner designed to both maximize the safety of maintenance operations and minimize the disruption to the output of the facility. In order to maximize the output of the facility, planned outages will be scheduled during periods in which potential production is at its lowest (typically summer season/low wind seasons) and will be coordinated with NYISO in accordance with its tariff to minimize the potential reliability impacts of outages.



The following subsections provide a brief overview of the frequency of maintenance required for key project components and Attachment 6.A provides an estimate of the maintenance schedules for the Projects.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

6.3.2 Forced Outages

As a general matter, forced outages can occur at any time of the year in response to unexpected equipment failures, physical damage to the facility, requirements from appropriate authorities, and other factors creating a need for unplanned maintenance or repairs. As noted above, Equinor will be establishing a detailed operations and maintenance program that will detail



Beacon
Wind



Empire
Wind



inspection procedures and frequencies based on manufacturers' recommendations, best practices, and industry experience. Equinor will continuously monitor both projects from a control room. This information will be used by Equinor to constantly analyze equipment performance and proactively identify and avoid equipment failures that could adversely affect the performance of the Projects. To the extent that a failure occurs, the close proximity of maintenance personnel and spare parts on the SOV will ensure that equipment can be repaired and replaced as quickly as possible to minimize downtime. In the event that a forced outage occurs, Equinor will communicate the issue, as required, to the appropriate authorities (*e.g.* NYISO).



7 BUSINESS ENTITY AND FINANCING PLAN

Equinor Wind, Empire Offshore Wind LLC, and Beacon Wind LLC are each currently wholly owned subsidiaries of Equinor US Holdings Inc. and, in turn, Equinor ASA. As one of the largest energy companies in the world, Equinor ASA and its subsidiaries have an unparalleled ability to execute the Projects given the Equinor group's overall financial strength and stability. The development of Equinor ASA's US portfolio of offshore wind projects reflects its strong commitment to transitioning to a broad energy company and an offshore wind major.

As described further below, Equinor is exploring several financing options for the Projects.

Notably, on September 10, 2020, Equinor announced that it had entered into an agreement with BP to sell a 50% non-operating interest in the Empire Wind and Beacon Wind Projects for approximately \$1.1 billion. Consummation of the proposed transaction would allow both EW2 and BW to leverage the financial strength and technical expertise of two of the world's largest energy companies and reflects both companies' commitment to accelerating the energy transition. Subject to customer conditions and regulatory approvals, the transaction is expected to close in early 2021.

7.1 Financial Outlook

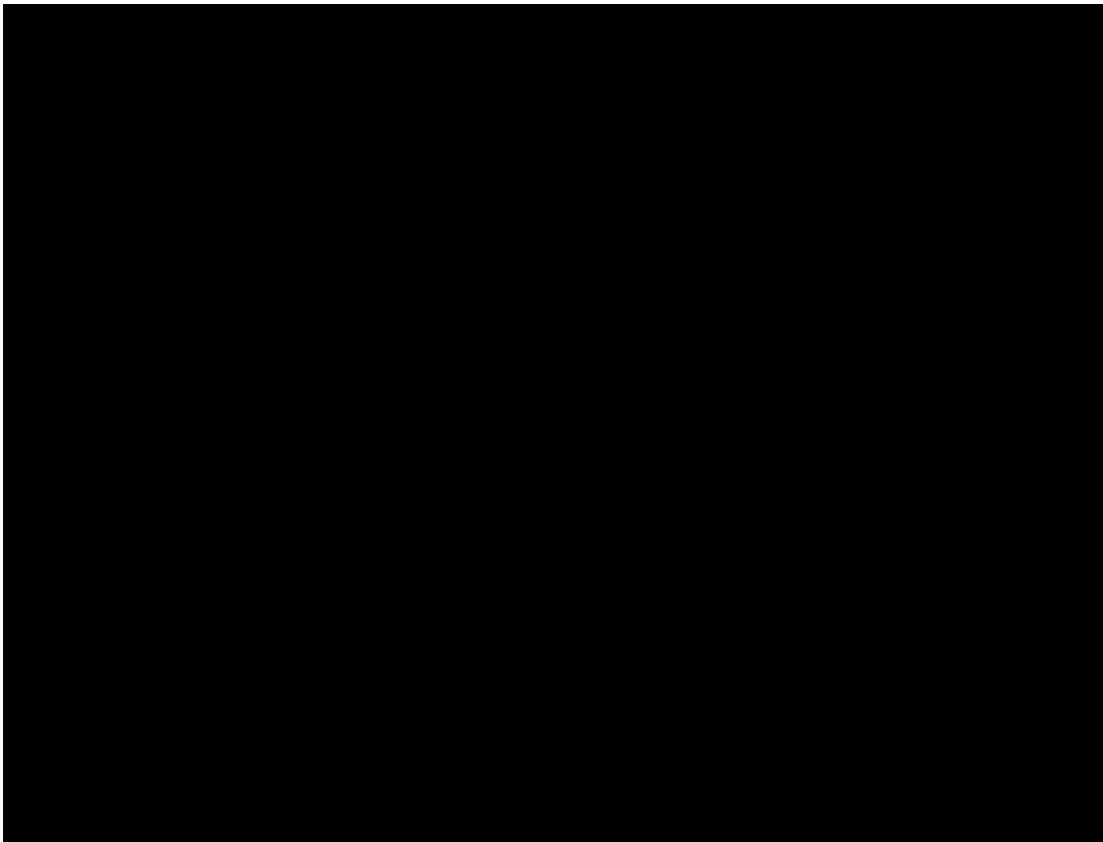
1. *Submit information and documentation that demonstrates that a long-term contract resulting from this RFP process would either permit Proposers to finance Proposals that would otherwise not be financeable or assist Proposers in obtaining financing of its Proposal.*



7.2 Organizational Structure

2. Describe the business entity structure of Proposers' organization from a financial and legal perspective, including all general and limited partners, officers, directors, managers, members and shareholders, and involvement of any subsidiaries supporting the Project. Provide an organization chart showing the relationship among the different Project participants. For joint ventures, identify all owners and their respective interests, and document Proposers' right to submit a binding Proposal.

As noted above, this bid is being submitted by Equinor Wind, on behalf of itself and its wholly owned subsidiaries, Empire Offshore Wind LLC and Beacon Wind LLC. As depicted in Figure 34 below, Empire Offshore Wind LLC and Beacon Wind LLC are direct wholly owned subsidiaries of Empire Offshore Wind Holdings LLC and Beacon Wind Holdings LLC (together, the "Project Holdcos"). The Project Holdcos, in turn, are wholly owned direct subsidiaries of Equinor Wind. Equinor Wind, in turn, is a wholly owned subsidiary of Equinor US Holdings Inc, which, in turn, is an indirect wholly owned subsidiary of Equinor ASA.



Empire Offshore Wind LLC and Beacon Wind LLC have been formed in anticipation of a corporate reorganization in connection with the sale of a 50% interest in the Empire Wind and Beacon Wind Projects to BP. Closing of this deal is expected in early 2021.



[Redacted]

[Redacted]

As described further in Attachment 7.A, [Redacted]

The leadership of Equinor Wind consists of individuals with significant experience with the development of complex offshore energy resources. An overview of the officers and directors of Equinor Wind is provided below.

7.2.1 Equinor Wind US LLC

Officers

Siri Espedal Kindem - President

Siri Espedal Kindem has held her current position as President since January 6, 2020, after serving as Senior Vice President in Operations. Ms. Kindem brings a wealth of experience from a range of business areas including operation, technology, project development, and asset management for oil, gas and offshore wind assets.

Christer af Geijerstam – Project Manager/Former President – Empire Wind

Christer af Geijerstam was President of Equinor Wind from August 31, 2018 to January 6, 2020 and took on the role of Project Manager on that date to ensure continuity within Empire Wind. Mr. af Geijerstam brings a wealth of experience from a range of business areas including strategy, business development, project development, and asset management for oil, gas and offshore wind assets. Prior to joining Equinor in 2008, he worked in Norway’s Ministry of Petroleum and Energy in the agency’s Exploration Unit.

Michael Olsen – Leader (Business Development)

Michael Olsen has held his current position since August 31, 2018. In this role, Mr. Olsen is responsible for business development, public policy, and regulatory issues that impact the company’s offshore wind activities in the United States. He was previously Senior Counsel in the



Washington, D.C. office of Bracewell LLP. Prior to that, Mr. Olsen served for almost six years in the Bush Administration at the U.S. Department of the Interior, most recently as Deputy Assistant Secretary for Land and Minerals Management. During his time with the U.S. Department of the Interior, he oversaw a wide range of energy and environmental issues, including the development of offshore renewable energy.

Alyssa Karotkin - Project Lead (Business Development)

Mrs. Karotkin joined Equinor in 2008 and is currently the Business Development Manager for Commercial Negotiations in Houston. She currently serves as Project Lead – Business Development of Equinor Wind US LLC, a position to which she was appointed on February 28, 2020. Her current responsibilities include managing a team of project managers and commercial leads that provide project execution support to a variety of business areas, including Equinor’s New Energy Solutions. That support by her and her team focuses on the company’s North American offshore wind and renewables activities. Prior to her current role, Mrs. Karotkin worked as the Acting Business Development Manager for Commercial Negotiations in Oslo, during which time she served as the liaison between the New Energy Solutions Business Development group and the Project Support and Execution group in the Global Strategy and Business Development business area. Prior to that, Mrs. Karotkin worked as a Commercial Negotiator for Equinor, during which time she provided the commercial support for Equinor’s New Energy Solutions in North America, including bidding on what is now Equinor’s Empire Wind project. Prior to joining Equinor/Statoil, Mrs. Karotkin clerked for two US federal judges. Mrs. Karotkin has a Bachelor of Arts in Public Policy and Psychology from Duke University and a Juris Doctor from the University of Texas School of Law.

Tom Geczik – Manager (Tax)

Mr. Geczik joined Equinor in 2016 as US Tax Manager and has served as an officer of Equinor Wind since 2017. In his current role, Mr. Geczik provides tax related services to Equinor Wind and ensures that US federal income tax compliance as well as state income tax compliance are completed for this entity. Mr. Geczik has worked in tax since 1992, previously in the tax departments of national accounting firms and for the past 18 years in the tax departments of large corporations. Mr. Geczik has a Bachelor of Science in Accounting from Boston College, a Juris Doctor from Case Western Reserve University and a LL.M in Taxation from New York University.

Kathleen Parchinski – Leader (Tax)

Ms. Parchinski has worked in Equinor’s Tax Department since 2009 and has served as Leader of Tax for Equinor Wind since August 2017. Her current responsibilities include providing tax support to Equinor’s US operations, including the New Energy Solutions business, as well as Equinor’s International affiliates’ activities in the US. Prior to joining Equinor, Ms. Parchinski was a Tax Manager at Ernst & Young. Ms. Parchinski has a Bachelor of Business Administration in Accounting from Pace University and is a Certified Public Accountant.



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Miguel Estrada – *Leader (Tax)*

Mr. Estrada has been a tax professional with Equinor since 2017 and has served as the Leader-Tax of Equinor Wind since August 2017. His current responsibilities include supporting the US Equinor group with federal and state income tax compliance and reporting. Prior to joining Equinor, Mr. Estrada was an International Tax Director with a multinational oil and gas service provider in Houston, TX. Mr. Estrada has a Bachelor of Business Administration (Accounting) from the University of Houston and is a Certified Public Accountant licensed by the state of Texas.

Josh Kaplan – *Assistant Secretary*

Mr. Kaplan has been legal counsel with Equinor since July 2017 and has served as assistant secretary of Equinor Wind since August 2017. His current responsibilities include providing counsel on all energy transactional and regulatory matters with a focus on crude oil and associated products in North, Central and South America. Prior to joining Equinor, Mr. Kaplan was assistant general counsel at Noble Americas Corp. where his practice included in addition to the aforementioned energy products, significant work on ethanol, biodiesel, RINs, RECs and related renewable energy credit related matters. Mr. Kaplan has a bachelor of science in Business Administration from the University at Albany, State University of New York and a Juris Doctor from New York Law School.

Todd Walls – *Chief Financial Officer*

Todd Walls has been working in Equinor's Finance & Control division since 2013 and has served as Equinor Wind CFO since February 2015. His current responsibilities include accounting and financial service support to Equinor US Mid, Downstream, and Alternative Energy companies. Prior to joining Equinor, Mr. Walls held Controllershship positions at LouisDreyfus, Noble, and FCStone. Mr. Walls holds Bachelor of Science degrees in Accounting and Finance from Bryant University.

Matthew Brotmann – *Secretary*

Mr. Brotmann joined Equinor as Senior Counsel in 2019 and currently serves as Secretary of Equinor Wind US LLC, a position to which he was appointed on October 10 2019. His current responsibilities include providing legal support to Equinor's New Energy Solutions business unit, with a focus on the company's North American offshore wind and renewables activities. Mr. Brotmann is lead counsel for the Empire Wind and Beacon Wind projects. Prior to joining Equinor, Mr. Brotmann was counsel at the New York Power Authority in the Power Transmission and Regulation group. In addition, Mr. Brotmann has served as Assistant General Counsel at MTA/Triborough Bridge and Tunnel Authority as well as a Special Advisor to the New York Attorney General under then AG Andrew Cuomo. Mr. Brotmann has a Bachelor of Arts in History from Denison University and a Juris Doctor from Pace Law School where he was Managing Editor of the Pace Environmental Law Review.



Amund Dårflot – Manager, Procurement

Mr. Dårflot has been employed by Equinor since 2007 and is currently having the position as Supply Chain Manager Offshore Wind US. His current and overall responsibility is to develop a sustainable local supply chain for Equinor's offshore wind portfolio in the US. Prior to his current role, Mr. Dårflot was Manager Supply Chain Management for Equinor's New Energy Solutions project portfolio. Mr. Dårflot has earned a Master of Business Administration degree in Strategy, Organization and Management from Norwegian School of Economics and Business Administration.

Tim Thompson – Project Lead (Business Development) (former)

Mr. Thompson served as an officer of Equinor Wind from December 2017 through February 2020.

Meagan Keiser – Secretary (Former)

Meagan Keiser served as Secretary of Equinor Wind from 2013 through October 10, 2019.

Knut Aanstad – President (Former)

Knut Aanstad served as President from February 7, 2017 through August 31, 2018.

Directors

Jens Olav Økland - Chairman

Mr. Økland (1969) joined Statoil in 1994 and has mainly worked in the midstream and downstream areas. Økland became senior vice president of business development in New Energy Solutions in August 2018 after three years as executive vice president in Marketing, Midstream and Processing. Previously Økland worked as vice president of operations for the Åsgard area in Development and Production Norway. Økland has also held a position as senior vice president of Statoil's natural gas portfolio and supply business in North America, marketing and developing infrastructure solutions for equity and non-equity production. Before heading up Statoil's downstream gas division in North America, he had senior marketing and business development positions within natural gas in Europe mainly focusing on Germany, Statoil's largest gas market. Jens Økland received his Master in Science in business from BI Norwegian Business School in Oslo.

Asbjørn Skretting – Director

Asbjørn Skretting joined Equinor US Holding Inc. in October 2017. He is responsible for the company's marketing and trading of Natural Gas in North America and holds the role as President for Equinor Natural Gas, LLC, serves as Director in Equinor US Holding Inc. and director in Equinor Wind US, LLC. Mr. Skretting has more than 20 years of experience in the energy industry, both from upstream/production and more recently mid- and downstream. Prior to joining Equinor in



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USA, he was Vice President, Risk Management in the Equinor group's global marketing and trading business area. Mr. Skretting also headed up Equinor's global biofuels trading as well as mid- and back office functions within the company. Prior to joining Equinor in 2002, Mr. Skretting worked as business consultant in Accenture. Mr. Skretting holds a master in science from the Norwegian University of Science and Technology, and a master in mathematics from the University of Stavanger, Norway.

Olav Leivestad – Director

Mr. Leivestad joined Equinor in 1992 and has held several positions within the company's Finance & Control network. Since 2012, Mr. Leivestad has been employed in the Equinor New Energy Solutions business unit as a financial / business controller and he has been a Director of Equinor Wind US LLC since 2013. Mr. Leivestad's current responsibilities including advising senior management and decision makers on business proposals within New Energy Solutions unit related to offshore/onshore wind and solar activities. Mr. Leivestad has a master's degree in Finance and Internationalization from the University of Kristiansand, Norway.

Charles O'Brien - Director

Mr. O'Brien has been Managing Counsel with Equinor since 1999 and has served as a Director of Equinor Wind since 2013. His current responsibilities include providing legal support to Equinor's Marketing, Midstream & Processing business unit, with a focus on the company's North and South American natural gas, crude oil and refined products liquids activities. Prior to joining Equinor, Mr. O'Brien was an attorney in the Trading & Markets Division of the U.S. Commodity Futures Trading Commission in Washington DC and worked as a trading assistant for several commodity brokerage firms in Chicago. Mr. O'Brien has a Bachelor of Arts in Economics from the University of Illinois at Urbana-Champaign and a Juris Doctor from the Catholic University of America, Columbus School of Law in Washington, DC.



7.3 Financing Plan

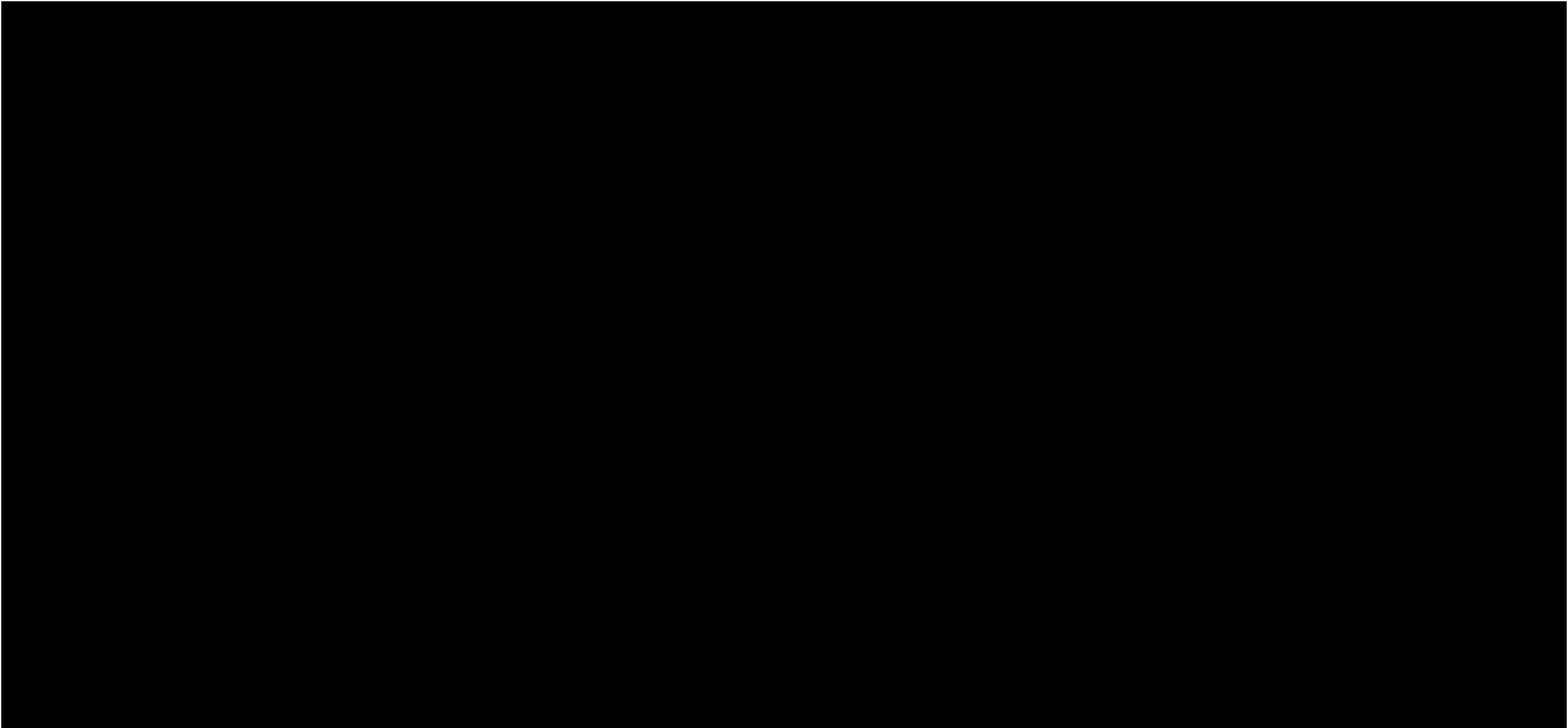
3. *Provide a description of the financing plan for the Project, including construction and term financing. The financing plan should address the following:*
- a. *Who will finance the Project (or are being considered to finance the Project) and the related financing mechanism or mechanisms that will be used (i.e., convertible debenture, equity or other) including repayment schedules and conversion features*
 - b. *The Project's existing initial financial structure and projected financial structure*
 - c. *Expected sources of debt and equity financing*
 - d. *Describe how any such agreements would differ, contingency on NYERDA's selecting either the Fixed OREC or Index OREC form of pricing*
 - e. *Estimated construction costs*
 - f. *The projected capital structure*
 - g. *Describe any agreements, both pre and post Commercial Operation Date, entered into with respect to equity ownership in the proposed Project and any other financing arrangement.*

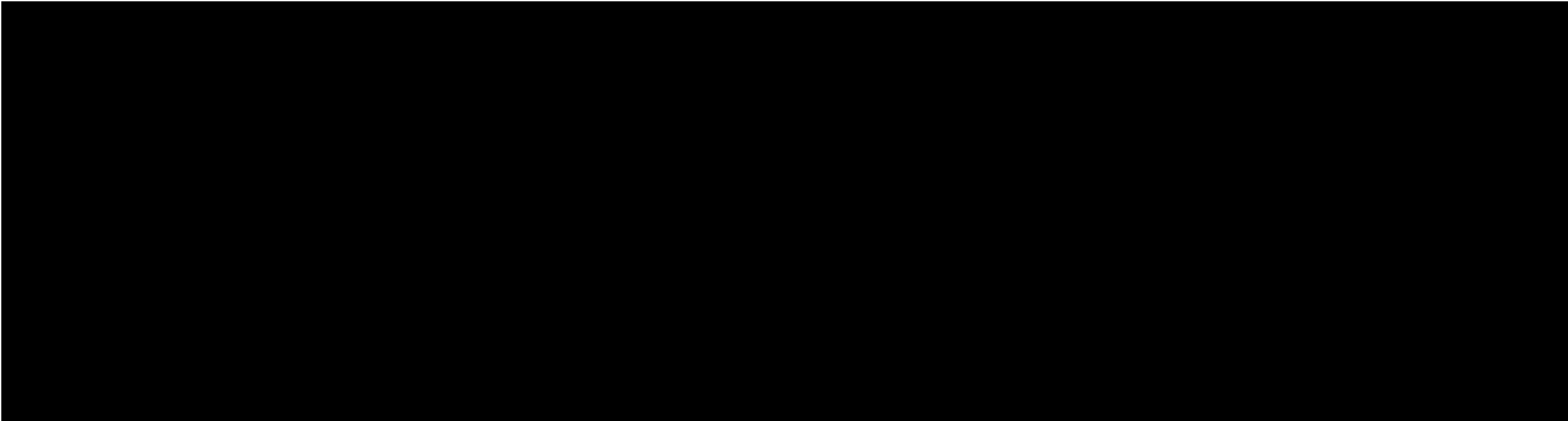
A financing plan covering both Projects is provided as Attachment 7.A.

7.4 Similar Financing

4. *Provide documentation illustrating the experience of Proposer in securing financing for projects of similar size and technology. For each project previously financed provide the following information:*
- a. *Project name and location*
 - b. *Project type and size*
 - c. *Date of construction and permanent financing*
 - d. *Form of debt and equity financing*
 - e. *Current status of the project*

Equinor has extensive experience financing complex offshore energy projects and has demonstrated the ability to successfully finance offshore wind energy projects of size and scope similar to the proposed Projects. As detailed further below in Figure 35, Equinor has funded these projects using a combination of balance sheet and external financing.







7.5 Financial Resources and Strength

5. *Provide evidence that Proposer has the financial resources and financial strength to complete and operate the Project as planned.*

Equinor Wind, through its U.S. parent, Equinor US Holding, and ultimate parent, Equinor ASA brings with it an unparalleled capability to finance development of EW2 and BW. Equinor ASA is an international energy company, headquartered in Norway, that has operations in over 30 countries and more than 21,000 employees worldwide. Equinor ASA is listed on the New York and Oslo stock exchanges and has a current market capital valuation in excess of \$47.5 billion.¹⁰ Equinor ASA is the largest operator on the Norwegian continental shelf, and a license holder in numerous oil and gas fields worldwide.

The development of the Empire Wind and Beacon Wind Projects is an extension of Equinor's broader commitment to support the energy transition through significant investments in renewable and low-emissions energy sources. Equinor ASA and its affiliates are committed to complementing its existing energy portfolio with an expanding fleet of renewable energy and other low-carbon solutions. Equinor ASA currently expects that approximately 15% to 20% of its investments will be directed towards renewable and low-carbon energy solutions by 2030. Equinor ASA already has demonstrated a major financial commitment to the development, construction, and operation of offshore wind resources with the development of its existing offshore wind fleet.

Equinor ASA's and Equinor US's ample financial resources and strong credit ratings ensure that these companies have access to the capital markets. In addition, Equinor has access to the global debt markets through the following programs and mechanisms:

- **US Shelf Registration Statement:** Equinor ASA has filed a shelf registration with the U.S. Securities and Exchange Commission. This filing permits Equinor ASA to engage in multiple public offerings without developing a separate prospectus for each offering. [REDACTED]
- **Euro Medium Term Note Programme:** Established in 1997 and listed on the London Stock Exchange, the program ensures Equinor ASA access to non-US markets. [REDACTED]

Equinor ASA also has access to a \$5 billion revolving credit facility supported by twenty-one leading global banks, including Bank of America, Citi, Goldman Sachs, JP Morgan, and Morgan Stanley. [REDACTED]

¹⁰ Valuation as of October 12, 2020.



[Redacted text block]

[Redacted text block]

7.6 Role of PTC or ITC

6. Describe the role of the Federal Production Tax Credit or Investment Tax Credit (or other incentives) on the financing of the Project, including presumed qualification year and percentage. The Proposal may not be contingent on receipt of the Production Tax Credit or Investment Tax Credit.

[Redacted text block]

- [Redacted list item]

- [Redacted list item]

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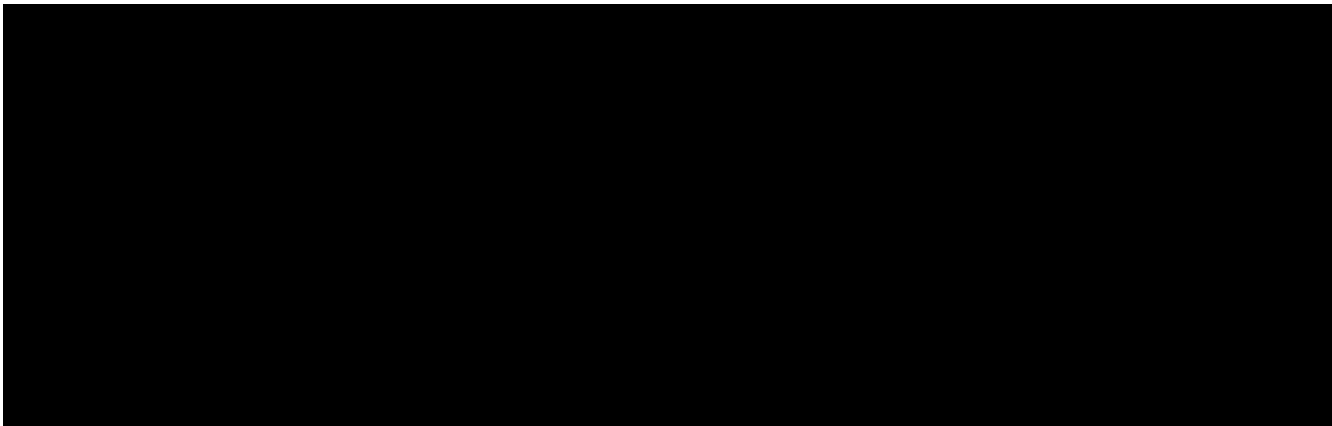


7.7 Financial Statements and Annual Report

7. Provide complete copies of the most recent audited financial statement and annual report for each Proposer for each of the past three years; including affiliates of Proposer (if audited statements are not available, reviewed or compiled statements are to be provided). Also, provide the credit ratings from Standard & Poor's and Moody's (the senior unsecured long-term debt rating or if not available, the corporate rating) of Proposer and any affiliates and partners.

Because Equinor Wind, Empire Offshore Wind, and Beacon Wind are private companies, these companies do not have any credit ratings or financial statements. However, copies of the financial statements of Equinor ASA for the past three years are provided as Attachment 7.F. In addition, the consolidated financial statements of Equinor US Holdings for the past three years are provided as Attachment 7.G.

The current credit ratings of Equinor ASA and Equinor US Holdings with Moody's and Standard and Poor's are set forth below in Figure 36:¹¹



7.7.1 Board of Directors

8. List the board of directors, officers and trustees for the past three years and any persons who Proposer knows will become officers, board members or trustees.

An overview of the officers and directors of Equinor Wind is provided in Section 7.2.1. Additionally, as a wholly owned subsidiary of Equinor ASA, Equinor Wind has the ability to draw upon significant resources from its parent company. An overview of the officers and directors of Equinor ASA is provided below.

¹¹ Currently, Equinor US is only rated by Standard & Poor's.

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Equinor ASA Officers

Eldar Stære – President and Chief Executive Officer (until Nov. 1, 2020)

Eldar Sætre has held his current position since October 15, 2014. Mr. Sætre joined Equinor in 1980. He served as Executive Vice President and CFO from October 2003 until December 2010 and as Executive Vice President for Marketing, Processing & Renewable Energy from 2011 until 2014. Mr. Sætre holds a MA in Business Economics from the Norwegian School of Economics and Business Administration in Bergen.

Anders Opedal – President and Chief Executive Officer (starting Nov. 2, 2020)

Anders Opedal has held his current position since October 15, 2018. Mr. Opedal joined Equinor in 1997 as a petroleum engineer in the Statfjord operations. Previously, he worked for Schlumberger and Baker Hughes. He has held a range of positions in Equinor in Drilling and well, Procurement and projects. He served as Chief Procurement Officer in Equinor from 2007-2010. In 2011, he took on the role as Senior Vice President for Projects in Technology, Projects and Drilling responsible for Equinor's approximately NOK 300 billion project portfolio. He served as Equinor's Executive Vice President and Chief Operating Officer before taking the role as Senior Vice President for Development & Production International, Brazil. His most recent position, which he held from August 2018, was Executive Vice President for Development & Production Brazil. He holds an MBA from Heriot-Watt University and Master's degree in Engineering from the Norwegian Institute of Technology in Trondheim.

Jannicke Nilsson – Chief Operating Officer

Jannicke Nilsson has held her current position since December 1, 2016. Ms. Nilsson joined Equinor in 1999 and has held a number of central management positions within Upstream Operations Norway, including Senior Vice President for Technical Excellence in Technology, Projects & Drilling, Senior Vice President for Operations North Sea, Vice President for Modifications and Project Portfolio Bergen, and Platform Manager at Oseberg South. In August 2013 she was appointed Programme Leader for the Equinor Technical Efficiency Programme, responsible for a project portfolio delivering yearly efficiency gains of 3.2 billion USD from 2016. She holds a M.Sc. in Cybernetics and Process Automation and a B.Sc. in Automation from the Rogaland Regional College/University of Stavanger.

Lars Christian Bacher – Chief Financial Officer

Lars Christian Bacher has held his current position since August 1, 2018. Mr. Bacher joined Equinor in 1991 and has held a number of leading positions in Equinor, including that of Platform Manager on the Norne and Statfjord fields on the Norwegian continental shelf. He was in charge of the merger process involving the offshore installations of Norsk Hydro and Equinor. He has also been Senior Vice President for Gullfaks operations and subsequently for the Tampen area, and Equinor's Canadian operations within Development & Production International. He most



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recently served as Executive Vice President of Development & Production International before moving to his current position. Mr. Bacher holds M.Sc. in Chemical Engineering from the Norwegian Institute of Technology and a business degree in Finance from the Norwegian School of Economics and Business Administration.

Siv Helen Rygh Torstensen – General Counsel and Senior Vice President (Legal)

Ms. Rygh Torstensen joined Equinor in 1998 and became general counsel on August 1, 2019. Prior to becoming general counsel, Ms. Rygh Torstensen was head of the CEO office. Prior to that, she had been Vice President Corporate in legal since 2011. From 1998 to 2011, Ms. Rygh Torstensen held various positions within legal, including as corporate compliance officer and acting general counsel. In 2013, Ms. Rygh Torstensen was part of the Secretariat for the investigation into the terrorist attack on the In Amenas gas processing facility in Algeria. Before joining Equinor she worked with the law firm Cappelen & Krefting DA and as a lawyer for Stavanger municipal council

Reidar Gjærum – *Senior Vice President (Corporate Communication)*

Reidar Gjærum has held his current position since May 1, 2005. Mr. Gjærum combines broad communication experience from Norwegian business, journalism, and politics. He joined Equinor as Senior Vice President in 2005 after serving as Executive Vice President for Communications at EDB Business Partners. Prior to EDB Business Partners, Mr. Gjærum held executive positions at JKL Oslo, Telenor, and the Confederation of Norwegian Enterprise. He holds a degree from Harvard Business School's Program for Management Development.

Jon Arnt Jacobsen – Senior Vice President (Audit)

Jon Arnt Jacobsen has held his current position since April 1, 2017. Mr. Jacobsen joined Equinor in 1998 as Senior Vice President for Group Finance. From 2004, he served six years on Equinor's Corporate Executive Committee as Executive Vice President for Manufacturing & Marketing. From 2011 to 2017 he was Equinor's Chief Procurement Officer. Prior to joining Equinor, he worked for Den norske Bank in several capacities within corporate banking, including General Manager at the Singapore branch from 1995 to 1998. Mr. Jacobsen also worked as an analyst at Esso Norge. He holds various degrees from Agder Regional College and the Norwegian Business School, as well as an MBA from the University of Wisconsin.

Ana Fonseca Nordang – *Senior Vice President (Corporate People and Leadership)*

Ana Fonseca Nordang has held her current position since September 1, 2019. Fonseca Nordang joined Equinor in 2009 as Principle Consultant for Organisational Change and Capabilities. She joined from Roxar (Emerson) where she was responsible for marketing for the software division. Prior to Roxar, she worked for CEB (Gartner), which she joined in 2001 in Washington, D.C. She led the launch of a successful new advisory practice serving mid-sized organisations. She then worked as Director of Middle Market Europe until joining Roxar in 2008.



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She has held various leadership roles across Equinor. She served as Vice President, People and Organisation in Equinor's US operations from 2015-2017. Her most recent position, which she held from July 2017, was Vice President, People and Leadership responsible for Executive and Leadership Development and Diversity & Inclusion

Irene Rummelhoff – *Executive Vice President (Marketing, Midstream, and Processing)*

Irene Rummelhoff has held her current position since August 17, 2018. Ms. Rummelhoff joined Equinor in 1991. She has held a number of management positions within international business development, exploration, and the downstream business in Equinor. Her most recent position, which she held from June 2015, was an Executive Vice President New Energy Solutions. She holds a Master's degree in Petroleum geosciences from the Norwegian Institute of Technology.

Arne Sigve Nylund – *Executive Vice President (Development and Production Norway)*

Arne Sigve Nylund has held his current position since January 1, 2014. Mr. Nylund was employed by Mobil Exploration Inc. from 1983 to 1987. Since 1987, he has held several central management positions in Equinor. He holds a degree in mechanical engineering from Stavanger College of Engineering with further qualifications in Operational Technology from Rogaland Regional College/University of Stavanger. He is also a business graduate of the Norwegian School of Business and Management.

Torggrim Reitan – *Executive Vice President (Development and Production International)*

Torggrim Reitan has held his current position since August 17, 2018. Prior to his current role, Mr. Reitan served as Executive Vice President of Development and Production USA as well as Executive Vice President and Chief Financial officer of Equinor. He has held several managerial positions in Equinor, including Senior Vice President of trading and operations for Natural Gas, Senior Vice President in Performance Management and Analysis, and Senior Vice President of Performance Management, Tax, and M&A. From 1995 to 2004, he held various positions in the Natural Gas business area and corporate functions in Equinor. He holds a M.Sc. from the Norwegian School of Economics and Business Administration.

Margareth Øvrum – *Executive Vice President (Development and Production Brazil)*

Margareth Øvrum has held her current position since October 15, 2018. Ms. Øvrum has worked for Equinor since 1982 and has held central management positions in the company, including the position of Executive Vice President for Health, Safety and the Environment and Executive Vice President for Technology & Projects. She was the company's first female platform manager, on the Gullfaks field. She was Senior Vice President for operations for Veslefrikk and Vice President of Operations Support for the Norwegian continental shelf. She joined the Corporate Executive Committee in 2004. Her most recent position was Executive Vice President for Technology, Projects, and Drilling, which she held from September 2011. She holds a Master's degree in



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Engineering from the Norwegian Institute of Technology in Trondheim, specializing in technical physics.

Geir Tungesik – Acting *Executive Vice President (Technology, Projects, and Drilling)*

Geir Tungesvik joined Equinor in 1985. He comes from the position as Senior Vice President Project Development. Previously he has held central management positions in the company including the position as Senior Vice President for Drilling and Well, Vice President for exploration drilling, Vice President for Grane production field and Vice President for health, safety and environment in Exploration.

Tore Løseth – *Executive Vice President (Exploration)*

Løseth has worked for Equinor since 2001 and has held several management positions in the company, including the positions of Senior Vice President for Exploration in the Gulf of Mexico and International Onshore.

Al Cook – *Executive Vice President (Global Strategy and Business Development)*

Al Cook has held his current position since May 1, 2018. Mr. Cook joined Equinor in 2016 as the Senior Vice President in Development & Production International overseeing operations in Angola, Argentina, Azerbaijan, Libya, Nigeria, Russia and Venezuela. He joined from BP, where he was Chief of Staff to the CEO. Cook joined BP in 1996, taking on a series of project development and commercial roles in the North Sea and Gulf of Mexico. He then worked in field operations in the North Sea from 2002 to 2005, becoming Offshore Installation Manager. From 2005, he led the IGB2 Project in Vietnam and acted as President for BP Vietnam. Cook worked from 2009 to 2014 as BP's Vice President leading the development of the Shah Deniz field in Azerbaijan and construction of the Southern Gas Corridor. He holds a Masters in Natural Sciences from St. John's College, Cambridge University and International Executive Programme at INSEAD.

Pål Eitrheim – *Executive Vice President (New Energy Solutions)*

Pål Eitrheim has held his current position since August 17, 2018. Mr. Eitrheim joined Equinor in 1998. He has held a range of positions in Equinor in Azerbaijan, Washington DC, the CEO office, and Brazil. In 2013, he led the Secretariat for the investigation into the terrorist attack on the In Amenas gas processing facility in Algeria. His most recent position, which he held from February 2017, was Senior Vice President and Chief Procurement Officer. He holds a Master's Degree in Comparative Politics from the University of Bergen, Norway and University College Dublin, Ireland.

Equinor ASA Directors

Jon Erik Reinhardsen – *Chair*



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Jon Erik Reinhardsen has served as a member of the board since September 1, 2017 and also serves a chair of the Compensation and Executive Development Committee. Mr. Reinhardsen was the Chief Executive Officer of Petroleum Geo-Services from 2008 to August 2017. PGS delivers global geophysical and reservoir services. The company has its headquarters in Oslo, Norway and offices in 17 countries with approximately 1,800 employees. In the period 2005 to 2008 Reinhardsen was President of Growth for Primary Products in the international aluminum company Alcoa Inc. From 1983 to 2005, Reinhardsen held various positions in the Aker Kværner group, including Group Executive Vice President of Aker Kværner ASA, Deputy Chief Executive Officer and Executive Vice President of Aker Kværner Oil & Gas AS in Houston, and Executive Vice President in Aker Maritime ASA. He holds a Master's Degree in Applied Mathematics and Geophysics from the University of Bergen. He has also attended the International Executive Program at the Institute for Management Development in Lausanne, Switzerland.

Joreon van der Veer – Deputy Chair

Jeroen van der Veer has served as a member of the board since March 18, 2016 and is the chair of the Board's Audit Committee. Mr. Van der Veer was the Chief Executive Officer in the international oil and gas company Royal Dutch Shell Plc (Shell) from 2004 to 2009, when he retired. Van der Veer thereafter continued as a non-executive director on the Board of Shell until 2013. He started with Shell in 1971 and has experience within all sectors of the business and has significant competence within corporate governance. He holds an M.Sc. Mechanical Engineering from Delft University of Technology, Netherlands and an M.Sc. in Economics from Erasmus University, Rotterdam, Netherlands. He also holds an honorary doctorate from the University of Port Harcourt, Nigeria.

Bjørn Tore Godal

Bjørn Tore Godal has served as a member of the board since September 1, 2010 and is a member of the Board's Compensation and Executive Development Committee and the Board's safety, Sustainability and Ethics Committee. Mr. Godal was a member of the Norwegian parliament for 15 years from 1986 to 2001. At various times he served as Minister for Trade and Shipping, Minister for Defense and Minister of Foreign Affairs for a total of eight years between 1991 and 2001. From 2007 to 2010, he was Special Adviser for international energy and climate issues at the Ministry of Foreign Affairs. From 2003 to 2007, he was Norway's ambassador to Germany and from 2002 to 2003 he was senior adviser at the Department of Political Science at the University of Oslo. From 2014 to 2016, Mr. Godal led a government-appointed committee responsible for the evaluation of the civil and military contribution from Norway in Afghanistan in the period 2001 to 2014. He holds a Bachelor of Arts degree in Political science, History and Sociology from the University of Oslo.

Hilde Møllerstad



Ms. Møllerstad has been a member of the board since July 1, 2019. She has been employed by Equinor since 1991 and works within petroleum technology in development and international production. She has had several trust offices in Tekna Equinor since 1993 and she has been a member of the corporate assembly in Equinor from 2013-2019. She was a board member of Tekna Private from 2012-2017.

Per Martin Labråten

Per Martin Labråten has served as a member of the board since June 8, 2017 and is a member of the Safety, Sustainability and Ethics Committee. Mr. Labråthen has worked as a process technician at the petrochemical plant on Oseberg field in the North Sea. Labråthen is now a full-time employee representative as the leader of IE Equinor branch. He holds a craft certificate as a process/chemistry worker.

Tove Anderson

Ms. Tove Anderson has been a member of the board since July 1, 2020. Andersen is Executive Vice President for Europe in Yara International ASA. Since 2018, she has been Executive Vice President, Production, in Yara. From 2016 to 2018 she held the position as Executive Vice President, Supply Chain, in Yara and has previously had several management roles within Yara and Norsk Hydro/Yara. She started in Norsk Hydro in 1997. She has extensive international industrial experience, and she has broad board experience

Rebekka Glasser Herlofsen

Rebekka Glasser Herlofsen has served as a member of the board since March 19, 2015 and is a member of the Board's Audit Committee. In April 2017, Ms. Herlofsen took on a new position as Chief Financial Officer in Wallenius Wilhelmsen Logistics ASA, an international shipping company. Before joining WWL ASA, she was the Chief Financial Officer in the shipping company Thorvald Klaveness. She has broad financial and strategic experience from several corporations and board directorships. Ms. Herlofsen's professional career began in the Nordic Investment Bank, Enskilda Securities, where she worked in corporate finance from 1995 to 1999 in Oslo and London. During the next ten years she worked in the Norwegian shipping company Bergesen d.y. ASA (later BW Group). During her period with Bergesen d.y. ASA/BW Group she held leading positions within M&A, strategy and corporate planning and was part of the group management team. She holds a M.Sc. in Economics and Business Administration and Certified Financial Analyst Program from the Norwegian School of Economics.

Finn Bjørn Ruyter

Mr. Ruyter has been a member of the board since July 1, 2019. Since 2018, Mr. Ruyter has been CEO of Hafslund E-CO AS. He was CEO of Hafslund ASA from January 2012, and CFO in the company from 2010 to 2011. In 2009 and 2010, he held a position as Chief Operating Officer in the Philippine hydro power company SN Aboitiz Power.



Stig Læg Reid

Stig Læg Reid has served as a member of the board since July 1, 2013. Mr. Læg Reid has been employed in ÅSV and Norsk Hydro since 1985 as project engineer and constructor for production of primary metals and as a weight estimator for platform design. He is now a full-time employee representative as the leader of NITO, Equinor. He holds a Bachelor degree in Mechanical Construction from OIH.

Anne Drinkwater

Anne Drinkwater has served as a member of the board since July 1, 2018 and is a member of the Board's Audit Committee and the Board's Safety, Sustainability, and Ethics Committee. Ms. Drinkwater was employed with BP in the period 1978 to 2012, holding a number of different leadership positions in the company. In the period 2009 to 2012 she was chief executive officer of BP Canada. A British citizen, she has extensive international experience, including being responsible for operations in the US, Norway, Indonesia, the Middle East, and Africa. Through her career Ms. Drinkwater has acquired a deep understanding of the oil and gas sector, holding both operational roles, and more distinct business responsibilities. She holds a Bachelor of Science in Applied Mathematics and Statistics from Brunel University London.

Jonathan Lewis

Jonathan Lewis has served as a member of the board since July 1, 2018 and is a member of the Board's Compensation and Executive Development Committee and the Board's Safety, Sustainability, and Ethics Committee. Mr. Lewis joined as Chief Executive Officer to Capita in December 2017; having previously spent 30 years working for large multi-national companies in technology-enabled industries. Lewis came to Capita from Amec Foster Wheeler plc, a global consulting, engineering and construction company, where he was CEO from 2016 to 2017. Prior to this, he held a number of senior leadership positions at Halliburton from 1996 to 2016. He has previously held several directorships within technology and the oil and gas industry. He has an education from the Stanford Executive Program at the Stanford University Graduate School of Business, a PhD in Reservoir Characterization, Geology/Sedimentology from University of Reading and a Bachelor of Science Degree in Geology from Kingston University.

7.8 Security Capability/Plan

9. Demonstrate Proposer's ability (and/or the ability of its credit support provider) to provide the required security, including its plan for doing so.

Equinor's strong financial rating and assets will ensure that EW2 and BW have ready access to letters of credit, parental guarantees, and other forms of security necessary to meet its contractual obligations. In particular, Equinor has access to letters of credit or bank guarantees through bilateral agreements with a number of reputable, international banks. A bank issuing a letter of credit or bank guarantee on behalf of Equinor ASA or an affiliated company will normally



also be a participant in the Equinor group multicurrency revolving credit facility described above.

[Redacted]

7.9 Credit Events

10. Provide a description of any current or recent credit issues/ credit rating downgrade events regarding Proposer or affiliate entities raised by rating agencies, banks, or accounting firms.

None.

7.10 Litigation Events (Project)

11. Disclose any pending (currently or in the past three years) litigation or disputes related to projects planned, developed, owned or managed by Proposer or any of its affiliates in the United States, or related to any energy product sale agreement.

On September 30, 2018, the United States District Court for the District of Columbia issued an opinion granting motions for summary judgment against a coalition of parties that sought to challenge BOEM’s sale of a lease area for the development of offshore wind projects off of the coast of New York. Shortly thereafter, Fisheries Survival Fund (“Fisheries”) filed a motion asking the district court to alter or amend the judgment based on new evidence, namely the issuance of several power purchases agreements for offshore wind facilities proposed for areas other than off New York. Both BOEM and Equinor Wind opposed Fisheries’ motion. On Feb. 14, 2020 the court denied Fisheries’ motion ruling that the claims were not ripe. On April 13, 2020, Fisheries filed an appeal of the decision with the U.S. Court of Appeals for the District of Columbia Circuit. A motion schedule was set with dispositive motions to be filed by June 1, 2020. On September 11, 2020, Appellants filed an “Amended Consent Motion to Stay Briefing for Four Weeks”. Copies of each of these documents are provided in Attachment 7.H.

Other than this action, there have not been any litigation or disputes related to projects, planned, developed, owned or managed by Equinor Wind or any of its affiliates in the United States or related to any energy product sale agreement.

7.11 Project Lifetime Expectations

12. Provide the expected operating life of the proposed Project and the depreciation period for all substantial physical aspects of the offer, including generation facilities, generator lead lines to move power to the grid, and transmission system upgrades.

[Redacted]

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Each of the facilities described above will be depreciated in accordance with applicable IRS requirements.

7.12 Affiliated Entities and Joint Ventures

13. List all of Proposers' affiliated entities and joint ventures transacting business in the energy sector.

As noted above, Equinor Wind, Empire Offshore Wind LLC, and Beacon Wind LLC are indirect wholly owned subsidiaries of Equinor ASA, an international energy company headquartered in Norway. Through its subsidiaries, Equinor ASA engages in the development of offshore wind facilities as well as the exploration, development, and production of oil and gas around the world. Equinor ASA is the leading operator on the Norwegian continental shelf and has substantial international operations. A full overview of the Equinor ASA and its subsidiaries' business activities are provided in the annual reports provided as an attachment to this bid.

As noted above, Equinor has entered into an agreement with BP to sell a 50% non-operating interest in the Empire Wind and Beacon Wind Projects for approximately \$1.1 billion. Subject to customary conditions and regulatory approvals, the transaction is expected to close in early 2021.

7.13 Litigation Events (General)

14. Describe any litigation, disputes, claims or complaints, or events of default or other failure to satisfy contract obligations, or failure to deliver products, involving Proposer or an affiliate, and relating to the purchase or sale of energy, capacity or RECs or other electricity products.

Equinor Wind, Empire Offshore Wind LLC, Beacon Wind LLC, and their affiliates have not been the subject of any significant, relevant, and adverse litigation, disputes, claims, or complaints, events of default or failure to satisfy contract obligations, or failure to deliver products relating to the purchase or sale of energy, capacity, or RECs or other electricity products.

7.14 Investigation Disclosure

15. Confirm that Proposer, and the directors, employees and agents of Proposer and any affiliate of Proposer are not currently under investigation by any governmental agency and have not in the last four years been convicted or found liable for any act prohibited by State or Federal law in any jurisdiction involving conspiracy, collusion or other impropriety with respect to offering on any contract, or have been the subject of any debarment action (detail any exceptions).

Equinor Wind, its parents, affiliates, directors, the key employees described above, and agents listed above are not the subject of any significant, relevant, and adverse investigation by any



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governmental agency and have not in the last four years been convicted or found liable for any act prohibited by state or federal law in any jurisdiction involving conspiracy, collusion, or other impropriety with respect to offering on any contract and have not been the subject of any disbarment action.



8 INTERCONNECTION AND DELIVERABILITY

Proposers are required to demonstrate the Offshore Wind Generation Facility's interconnection status and deliverability capabilities. A narrative description of the interconnection and deliverability plan should be included in the Proposal Narrative. Detailed supporting information should be included in the required Interconnection and Deliverability Plan attachment.

8.1 Interconnection Plan Overview

As discussed further in the Interconnection and Deliverability Plan provided as Attachment 8.A, Equinor has conducted an extensive analysis using a range of technical, commercial, and environmental factors in order to select the points of interconnection for the EW2 and BW Projects. This evaluation included:

- █ [REDACTED]
- █ [REDACTED]

[REDACTED]

8.1.1 High-Value Interconnection Points

Empire Wind

[REDACTED]



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[Redacted text block]

[Redacted text block]

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[Redacted text block]

[Redacted text block]

■ [Redacted text block]

■ [Redacted text block]



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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Further detail concerning Equinor Wind's Interconnection and Deliverability Plan, including detail relevant to Article VII, can be found in Attachments 8.A, 8.S, and 8.T.



9 ENVIRONMENTAL ASSESSMENT AND PERMIT ACQUISITION PLAN

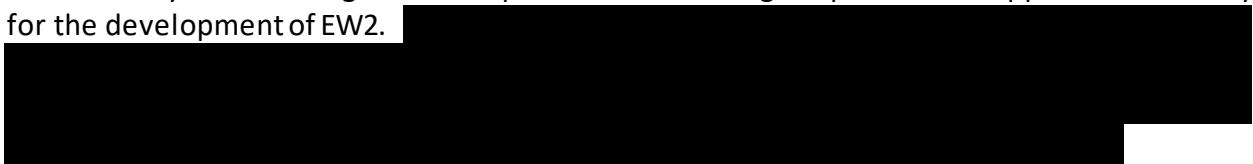
9.1 Permits, Licenses, and Environmental Documentation List

1. *Provide a comprehensive list of all the permits, licenses, and environmental assessments and/or environmental impact statements required to construct and operate the Project. Along with this list, identify the governmental agencies that are responsible for issuing approval of all the permits, licenses, and environmental assessments and/or environmental impact statements. If a Proposer has secured any permit or has applied for a permit, please indicate this in the response. Provide the anticipated timeline for seeking and receiving the required permits, licenses, and environmental assessments and/or environmental impact statements. Include a Project approval assessment which describes, in narrative form, each segment of the process, the required permit or approval, the status of the request or application and the basis for projection of success by the milestone date. All requirements should be included on the Project schedule, as described in Section 6.4.11.*

Equinor Wind has reviewed federal, state, and local permitting requirements in detail in order to identify the regulatory frameworks governing the construction and operation of the Projects. As noted in Section 4 of this application, both projects will be located in federal waters and interconnected to the NYISO. The permitting requirements for the Projects are nearly identical, with the only difference being additional coastal consistency certification requirements associated with the Beacon Wind transmission cable route, as detailed in Section 9.1.2 below.

The Environmental Assessment and Permit Acquisition Plans (“Plans”) provide a summary of the information required for each applicable regulatory approval, as well as a strategy for obtaining these approvals, including efficient coordination among agencies to facilitate a more streamlined permitting timeline. The Plans are supported by comprehensive environmental and technical assessments that are either in process or planned. Additional details are provided in the permitting matrix provided for EW2 as Attachments 9.A and for BW as 9.B. Details on the timeline and associated milestones for these Plans have also been incorporated into project schedule discussed in Section 11.2.

The following sections provide a narrative overview of the federal, state, and local approvals that will be required for the Projects to initiate construction. As discussed further below, Equinor Wind already has taken significant steps towards obtaining the permits and approvals necessary for the development of EW2.



Equinor Wind also has been actively engaged with relevant stakeholders, including state and federal agencies about the Projects and required permits and approvals. These include: the New York State Department of State (“NYS DOS”), New York State Department of Environmental



Conservation (“NYSDEC”), New York State Office of Parks, Recreation and Historic Preservation (“NYSOPRHP”), New York State Department of Public Services (“NYDPS”), New York State Office of General Services (“NYSOGS”) and New York State Energy Research and Development Authority (“NYSERDA”), including ongoing participation in New York State’s Environmental Work Group (“E-TWG”) and Fisheries Technical Working Group (“F-TWG”). Additional details describing when and how state agencies are and will be involved are provided below, summarized in the permitting matrices provided as attachments.

9.1.1 Federal Permits

U.S. Dept. of Interior, Bureau of Ocean Energy Mgmt.

The federal permitting process will be largely coordinated by BOEM and will include a review of environmental impacts under the National Environmental Policy Act of 1969 (“NEPA”).¹⁴ Under NEPA, federal agencies evaluate the potential impacts of any proposed major federal action with the potential to significantly affect the quality of the human environment. Through this process, federal agencies will also consider alternatives to the proposed action. BOEM serves as the lead federal agency for NEPA review and compliance with respect to the Projects.

BOEM’s jurisdictional obligations are defined under the Outer Continental Shelf Lands Act (“OCSLA”) as implemented through regulations governing Renewable Energy and Alternate Uses of Existing Facilities on the Outer Continental Shelf (30 C.F.R. pt. 585). Under OCSLA, as amended by the Energy Policy Act of 2005, the Secretary of the Interior is authorized to issue leases for wind and other alternative energy development on the outer continental shelf (“OCS”). The OCS is defined as all submerged lands and seabeds within U.S. navigable waters, seaward and outside of the state jurisdiction or 3 nm.¹⁵ Under delegated authority from the Department of the Interior, BOEM issued Leases OCS-A-0512 and OCS-A-0520 to Equinor Wind. These leases are the primary mechanism by which BOEM regulates the use of the submerged lands for the Projects per 30 C.F.R. pt. 585.

Detailed information about proposed activities and schedule requirements for the BOEM process are defined in both the Leases and in applicable regulatory guidelines. A summary of these requirements and timelines is provided in Figure 38.

¹⁴ 42 U.S.C. § 4321 *et seq.*

¹⁵ *See* 43 U.S.C. § 1301.



Figure 38: BOEM Requirements and Lease Stipulations

Filing/Milestone	Description	Date
SAP Survey Plan	A description of methods and timing of surveys necessary to meet the information requirements of 30 C.F.R. § 585.610-611, including shallow hazards, geological, biological, geotechnical, and archaeological surveys. Plan submitted to BOEM for review and comment.	At least 30 calendar days prior to the date of the pre-survey meeting At least 90 days prior to start of marine surveys
Pre-Survey Meeting for the SAP surveys	Hold a pre-survey meeting with BOEM at which a qualified marine archaeologist must be present to discuss the SAP Survey Plan.	At least 60 days prior to start of SAP surveys
SAP	Plan due at the end of the Preliminary Term (<i>i.e.</i> , 12 months after the Effective Date) describing the activities to collect wind resource and metocean measurements using buoys or fixed-platform meteorological towers.	Prior to the end of the Preliminary Term
Semi-Annual Progress Report	A semi-annual progress report throughout the duration of the site assessment term providing a brief narrative of the overall progress since the last progress report.	Every 6 months after SAP approval
Construction and Operation Survey Plan	A plan describing the methods and timing of surveys necessary to meet the information requirements of a COP (§ 585.626 and 627). These surveys include shallow hazards, geological, biological, geotechnical, and archaeological.	At least 30 calendar days prior to pre-survey meeting At least 90 days prior to start of marine surveys



Filing/Milestone	Description	Date
Pre-Survey Meeting for the COP surveys	Hold a Pre-Survey Meeting with BOEM at which a Qualified Marine Archaeologist must be present, to discuss the COP Survey Plan.	At least 60 days prior to start of COP surveys
Construction and Operation Plan ("COP")	A plan describing the activities for constructing and operating an offshore wind project that includes the requirements of § 585.601, 626, and 627.	6 months prior to the end of the 5-year Site Assessment Term
Facility Design Report ("FDR")	A report that provides specific details of the design of any facilities, including cables and pipelines that are outlined in the approved SAP and/or COP, which demonstrates that the design conforms to the responsibilities listed in §585.105(a).	May be submitted with COP or following COP approval.
Fabrication and Installation Report ("FIR")	A report that describes how the facilities will be fabricated and installed in accordance with the design criteria identified in the FDR; the approved SAP and/or COP, and generally accepted industry standards and practices.	May be submitted with COP or following COP approval.

Empire Wind

In accordance with BOEM’s requirements, on June 18, 2018, Equinor Wind submitted Empire Wind’s SAP to BOEM setting out its plan for the installation of metocean facilities within the lease area. On August 22, 2018, BOEM notified Equinor Wind that its SAP was complete. Equinor Wind



amended the SAP in July 2018, August 2018, and October 2018. The Empire Wind SAP is available at: <https://www.boem.gov/SAP-Equinor-Public/>.¹⁶

On November 21, 2018, after appropriate consultations with relevant federal, state and tribal entities, local governments, and potentially affected stakeholders, BOEM approved the SAP, clearing the way for the subsequent installation of the metocean facilities in the lease area. A copy of BOEM's approval of the SAP is available at: <https://www.boem.gov/OCS-A-0512-SAP-Approval>.

On December 2, 2018, Equinor Wind installed the metocean facilities in the lease area.

[REDACTED]

[REDACTED]

[REDACTED]

Beacon Wind

[REDACTED]

¹⁶ Given that the SAP is publicly available, Equinor Wind is not submitting a copy as an attachment to this proposal.

[REDACTED]



U.S. Coast Guard

The U.S. Coast Guard (“USCG”), will issue a PATON approval for navigational lighting on structures above the waterline (e.g., floating LiDAR buoys, WTGs, and offshore substation platforms) once required permits from the U.S. Army Corps of Engineers (“USACE”) are obtained. Approximately two weeks prior to the initiation of construction activities, the USCG will publish a Local Notice to Mariners (“Notice”), which will remain in effect throughout the construction period. USCG will also be a cooperating agency under NEPA and will review the Navigation Safety Risk Assessment associated with the proposed facilities, where they will issue a Captain of the Port (“COTP”) approving, approving with modifications or denying the NSRA provided in the COP.

Empire Wind is located in the following operational areas: District 1 – Sector New York and Sector Long Island Sound. A PATON authorization was issued for the buoys deployed in the lease area and the NSRA has been provided to USCG staff for multiple rounds of review.

Beacon Wind is located in the following operational areas: District 1 – Sector Southeastern New England and Sector Long Island Sound.



U.S. Environmental Protection Agency

The United States Environmental Protection Agency (“EPA”), Region 1 and Region 2 will review the Beacon Wind Project and Empire Wind Project for potential air emissions associated with construction and operation and maintenance vessels with respect to state non-attainment areas for criteria pollutants, respectively. The EPA will require an air quality permit for project-related activities on the OCS under the Clean Air Act (“CAA”), including emergency generators, should they be installed in the turbine towers, and marine vessels used for construction and/or operation while such vessels are physically attached to the seafloor.

As part of the OCS air permit process, a Corresponding Onshore Area (“COA”) will be identified by the EPA in order to determine what federal and state air quality regulations may apply to the project (40 C.F.R. Part 55). In most cases, the COA will be the nearest point of land to a proposed project.

For the Empire Wind Project, New York is geographically closest to the lease area and will likely be designated the COA by default, although New Jersey will have the opportunity to request such.

For the Beacon Wind Project, Massachusetts is geographically closest to the lease area and will likely be designated the COA by default.

To protect human health, the EPA establishes National Ambient Air Quality Standards (“NAAQS”) pursuant to the CAA that apply to outdoor air throughout the country. For each NAAQS pollutant



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and averaging period, the EPA may designate a specified geographic area as being in attainment of the standard, as being in nonattainment of the standard, or as being a maintenance area (*i.e.*, an area that was previously in nonattainment but has since been redesignated as attaining the standard due to ongoing improvements in local air quality). Because the COA for the lease area will be a nonattainment or maintenance area for several pollutants, a General Conformity analysis pursuant to 40 C.F.R. pt. 93 will be required for air emissions occurring within 3 nm from shore (and potentially as far as 25 nm from the state seaward boundary), both for construction of the project and for any operational air emissions that will not be included in the OCS air permit. If calendar year emissions of any pollutant exceed the applicable General Conformity threshold, then a formal determination of General Conformity will be required.

The OCS air permit and General Conformity determination will cover offshore construction and operation, as well as onshore and offshore construction, but will not cover onshore operation (*i.e.*, stationary sources). For example, if the onshore substation is built with an emergency generator engine for operations, that engine could require state-only minor source air permitting in New York. As Equinor Wind refines the design of both Projects, Equinor Wind will engage with NYSDEC to determine applicable requirements.

Under Section 402 of the CWA, the EPA will issue a National Pollutant Discharge Elimination System (“NPDES”) Vessel General Permit for the discharge of any pollutant into navigable waters outside of the New York State jurisdictional boundary. EPA has delegated authority to NYSDEC for any State Pollutant Discharge Elimination System (“SPDES”) permits that may be required within state jurisdiction.

U.S. Army Corps of Engineers

Equinor Wind has been in the process of conducting site investigations in federal waters (*e.g.*, geotechnical, geophysical borings) to support the design of the export cable and the wind farm (from 2017). The Empire Wind activities meet the requirements of a Nationwide Permit #6 for Survey Activities.¹⁸ Activities associated with facilities associated with the SAP qualify for a Nationwide Permit #5. As for Beacon Wind, these activities meet the requirements of the New England District – Massachusetts General Permit # 19. The buoy deployment activities that will be described in the SAP are anticipated to be authorized by the New England District in accordance with Massachusetts General Permit # 18.

Equinor Wind anticipates that an Individual Permit from the USACE will be required for dredging and installation activities in Waters of the U.S for both Projects. For dredging and excavation, Section 404 of the Clean Water Act (“CWA”) (33 U.S.C. § 1344) prohibits the discharge of dredged

¹⁸ Any activities located in state waters will require the state water quality certificate and coastal zone consistency determination. This is predicated on proposed activities meeting NY-regional specific conditions. Equinor Wind is consulting with both NYSDEC and NYSOGS for work proposed within the 3 nm jurisdictional boundary and preparing the required documentation in support of this work.



or fill material into navigable waters of the United States without a permit from the USACE. Navigable waters are “subject to the ebb and flow of the tide and/or presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce” (33 C.F.R. § 329.4). Section 401 of the CWA requires applicants to obtain a certification or waiver from the NYSDEC for any activity that may result in a discharge of a pollutant into waters of the United States, including any dredged or fill materials. Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. § 401 *et seq.*) requires a permit from the USACE for construction of any structure, such as wind turbine generators and/or a submarine transmission cable, in or over any navigable waters of the United States. USACE also regulates dredging activities pursuant to Section 10 of the Rivers and Harbors Act. USACE is expected to be a cooperating agency under NEPA to satisfy the NEPA requirements for the Individual Permit. The CWA application package will include: ENG Form 4345, project drawings, and other supporting information. In the event that activities propose impacts to wetlands subject to USACE jurisdiction (*e.g.*, tidal wetlands), Equinor Wind will be required to complete field delineations to define the wetland boundary and corresponding buffer. The delineation is subject to review and approval by USACE through the permitting process. Depending on the nature and extent of dredging activities, USACE may require sampling and analysis of proposed dredge material to characterize this material within the permit application. Any characterization of proposed dredge material will also be coordinated with NYSDEC within state jurisdictional waters. Depending on the nature of these impacts, mitigation may be required.

USACE also regulates occupancy for any project that would be located within a federally sponsored project (*e.g.*, navigational channels, anchorages, beach replenishment areas), regardless of whether the sponsorship is partial or whole under Section 408 of the CWA. Equinor Wind will review the project details with USACE to determine the applicability of these requirements to the Projects.

Empire Wind is located entirely within the jurisdictional area of the New York District. As such, the Section 10/404/408 authorizations will be issued by USACE-NY.

Beacon Wind is located within the jurisdictional areas of the New York District and the New England District. Inter-jurisdictional projects are common, and a lead-district will be established as the primary point of contact for Equinor Wind, BOEM, and the NEPA process.

Other Federal Agencies

Because both Projects are outside of the federal territorial seas (defined as 3 nm to 12 nm), the Federal Aviation Administration (“FAA”) review of structures over 200 feet will not apply to the project. However, BOEM has incorporated FAA guidance on marking and lighting in its own guidance.





Environmental resource protection agencies, including the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (“NOAA NMFS”) and the U.S. Fish and Wildlife Service (“USFWS”), Northeast Region (Region 5), will be responsible for reviewing project impacts to protected resources and evaluating the need for mitigation through prescribed best management practices. These agencies will have the opportunity to review environmental documents and comment through inter-agency consultations required pursuant to NEPA. NOAA NMFS and USFWS will review impacts to marine, coastal, and terrestrial threatened and endangered species protected by the federal Endangered Species Act (“ESA”). Impacts to non-listed species and habitats will also be evaluated under several other wildlife protection laws, including the Migratory Bird Treaty Act of 1918 (“MBTA”), the Bald and Golden Eagle Protection Act (“BGEPA”), the Marine Mammal Protection Act of 1972 (“MMPA”), and the Magnuson-Stevens Fishery Conservation and Management Act (“MSFCMA”). Additionally, in accordance with 50 C.F.R § 600.920(e)(1), BOEM and NOAA NMFS will assess impacts to Essential Fish Habitat.

Under the MMPA and ESA, NOAA NMFS and USFWS are required to review any activity that may result in the unintentional “taking” of marine mammals and of sea turtles and fish incidental to activities including construction projects. Incidental take is authorized if it is determined that the taking would: (a) be a small number; (b) have no more than a negligible impact; and (c) not have an unmitigable adverse impact. Incidental Take Authorizations can be provided in the form of an Incidental Harassment Authorization or a Letter of Authorization, depending on the nature and duration of the activity, which will be discussed in close consultation with NOAA NMFS.

Implementation of the following federal statutes have been delegated:

- The Coastal Zone Management Act (“CZMA”) requires that the responsible state agency provide a determination that construction and operation of the proposed project is consistent with state’s coastal protection policies. NYSDOS, the agency responsible for administering the New York Coastal Management Program and will



issue its determination in connection with the COP. The Beacon Wind Project is anticipated to have CZMA review from the States of Massachusetts, Rhode Island, Connecticut, and New York.

- The CWA Section 401 permit (“State Water Quality Certificate”) must be issued as a pre-requisite to the USACE permit and will be issued by New York State for both projects as part of the Article VII certificate.
- NYSDEC has delegated authority for CWA Section 404. In some locations, USACE Section 404 and NYSDEC permits will be required.
- NYSDEC has the delegated authority to implement Section 402 of the CWA and thus enforces the NYSDEC under its NYSDEC program and will issue permits required for the installation of the transmission cable to shore and substation upgrades.

Additionally, the National Historic Preservation Act of 1966 (“NHPA”) requires consultation with the State Historic Preservation Office and with the Tribal Historic Preservation Office of any Native American Tribes which may be affected by the Projects. Section 106 of the NHPA requires federal agencies to take into account the effects of a proposed action on properties eligible for inclusion in the National Register of Historic Places (“NRHP”) and, if applicable, develop plans to avoid, minimize, or mitigate adverse effects to the historic properties. “Properties” are defined as “cultural resources,” which include prehistoric and historic sites, buildings, and structures that are listed on or eligible for listing in the NRHP.

9.1.2 State Permits

NY Public Service Commission and Department of Public Service Commission

The primary state environmental review and approval for both Projects is defined by Article VII of the Public Service Law. At the conclusion of the Article VII process, Equinor Wind will be issued a Certificate of Environmental Compatibility and Public Need (“ECPN”), which is required for the siting of major utility infrastructure¹⁹ in the state of New York. The Article VII application will address the proposed transmission system connecting the offshore wind farm to the interconnecting substation including any associated infrastructure upgrades (e.g., switching station) that may be required for deliverability at the interconnection point. Applications for major electric transmission lines, like the one to be proposed by Equinor Wind, are governed by 16 NYCRR Part 86 and 88.

The Public Service Commission (“PSC”) regulates investor owned electric, natural gas, steam, telecommunications, and water utilities in New York State and issues the ECPN. The PSC decides any application filed under Article VII, the certification review process for major electric and gas

¹⁹ Major electric transmission facilities are lines with a design capacity of 100 kV or more extending for at least 10 miles, or 125 kV and over, extending a distance of one mile or more.



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transmission facilities. The Department of Public Service (“DPS”), who serve as staff to the PSC, is the State agency that carries out the PSC’s legal mandates. Namely, one of DPS’s responsibilities is to participate in all Article VII proceedings to represent the public interest.

The Article VII Application will be prepared based on the results of various technical studies. The application will include a description of the preferred alternative, presentation of the technical studies and potential impacts, a discussion of project need and an evaluation of alternatives. The application will also identify pertinent local regulations in the towns and counties traversed by the transmission line and will indicate those regulations that are considered unduly restrictive. The application will also include supporting direct testimony from the technical experts who will serve as potential witnesses during evidentiary hearings. Consultation with the PSC staff prior to completion of the Article VII Application will be used to provide guidance regarding the scope of the technical studies to be included in the Article VII Application.

Statutory parties to the Article VII process must be provided copies of the Article VII Application. These parties include: each municipality in which any portion of the facility is to be located, various state agencies, and each member of the state legislature through whose district the facility is to be located. Once the Article VII Application is filed with the PSC, staff will conduct a completeness determination review of the application and initiate the review process.

New York State Department of Environmental Conservation

The New York State Department of Environmental Conservation (“NYSDEC”) is primarily a cooperating agency in the Article VII review process. Subject matter experts in wetlands, wildlife, contaminated soils, fisheries etc. will participate in the discovery process during the Article VII review, however the ultimate approval of the Projects rests with the PSC for wetlands permitting and other environmental approvals.

NYSDEC has delegated authority to implement Section 401 of the CWA for the State Water Quality Certificate. This too will be authorized under the PSC Article VII process for work within New York State waters. NYSDEC also has the delegated authority to implement Section 402 of the CWA and thus enforces the SPDES and will issue permit(s) for the installation of the transmission cable to shore (e.g., construction stormwater permit and/or discharge permit for construction dewatering).

New York State Department of State

The New York State Department of State (“NYSDOS”), is responsible for administering the New York State Coastal Management Program (“NYS CMP”). Consistency review is the tool which enables the NYSDOS to manage coastal uses and resources while facilitating cooperation and coordination with involved state, federal and local agencies. The “consistency” of a proposed activity with the NYS CMP is determined through a set of coastal policies and procedures



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designed to enable appropriate economic development while advancing the protection and preservation of ecological, cultural, historic, recreational, and esthetic values.

Survey activities supporting the design of EW2 and BW have been (or will be) federally authorized by the NWP #6. These permits have not received a blanket consistency determination from NYSDOS. Equinor Wind has, and will continue to seek, consistency determinations for geotechnical borings within New York State waters prior to implementation.

New York State Office of General Services

NYSOGS holds title to the seabed within 3 nm of the coastline “in trust” for the people of the State of New York. Structures located in, on, or above submerged state-owned lands are regulated under the Public Lands Law and may require authorization from the state. A submerged lands lease will be required by the NYSOGS for the export cables to shore.

New York State Energy Research and Development Authority

The New York State Energy Research and Development Authority (“NYSERDA”) is the lead agency coordinating offshore wind opportunities in New York State. In support of the Governor’s proposal to meet 50 percent of New York’s electricity needs with renewable sources by 2030, NYSERDA continues to work closely with coastal communities and the fishing and maritime industries to identify offshore wind sites to be included in New York State’s Offshore Wind Master Plan (“Master Plan”). Although it has no permitting authority, it may impose certain conditions via issuance of the bid award in order to support meeting objectives described in the Master Plan. In addition, the assessments and surveys conducted by NYSERDA to inform the Offshore Wind Master Plan have been and will continue to be of significant value towards informing Equinor Wind’s development plans, permitting, and stakeholder outreach.

New York State Department of Transportation

As the onshore route for EW2 may be located in state highways, parkways, and expressway rights-of-way, authorization may be required from the New York State Department of Transportation (“NYSDOT”), including a Highway Access Permit and a Permit for Use and Occupancy within State Rights-of-Way. This authorization is not required for BW.

NYSDOT has an agreement with the Federal Highway Administration (“FHWA”) regarding how utilities are accommodated on controlled access highways (Accommodation Plan for Longitudinal Use of Freeway Right-of-Way By Utilities); however, only communication utilities are permitted. Therefore, any request for a non-highway use of a controlled access highway (i.e., for construction and operation of the Projects) is considered an exception to the Accommodation Plan and would require approval by the Federal Highway Administration. Unlike the other approvals described in this plan, the FHWA approval is issued to NYSDOT and not Equinor Wind.



New York State Office of Parks and Historic Preservation

New York State Office of Parks and Historic Preservation (“NYSOPRHP”) provides advice and guidance to municipalities, the Governor and the Legislature on the municipal alienation process. Parkland alienation applies to every municipal park in the State of New York. For those municipal parks that have also received Federal funds; such as through the Land and Water Conservation Fund, both alienation and conversion procedures apply.

With regard to cable routing, if a portion of a beach, open space or bike path, that is designated municipal parkland, is needed for a cable easement, even if temporary, such a conveyance would require the authorization of a parkland alienation bill from the New York State Legislature and approval by the Governor. This is likely applicable to EW2, given its proposed landfall near the City of Long Beach, NY and its associated Ocean Beach Park. This state action triggers the SEQR process. In addition, if the conversion process applies, review by the National Park Service is required which triggers a NEPA review (at this time not anticipated).

New York State Coordination

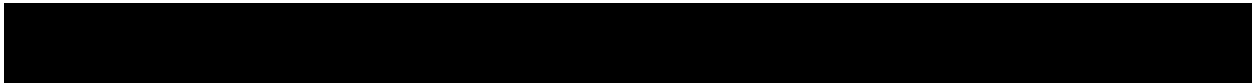
The environmental assessment activity for EW2 and BW, through the Article VII process, will rely on input from NYSDEC, OPRHP, and NYSDOS to inform the review. These agencies will similarly play a significant role in the NEPA process and will be asked to coordinate with BOEM.

[REDACTED]

[REDACTED]

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9.1.3 Local Permits

Since the Article VII process supersedes local permitting, the PSC has the authority to grant waivers from local ordinance requirements that are determined to be unreasonable or prohibitive to construction and operation of a transmission project determined to be in the public interest of New York residents. The threshold to obtain a waiver for local ordinances is often high. Accordingly, this pathway will only be taken if there are no other commercial or technically viable alternatives. In the event that zoning variances may be required from local planning boards, the PSC will expect a good faith effort to have been made by Equinor Wind to reach an agreement between the municipalities, prior to seeking a waiver. Compliance with applicable ordinances and any requests for waivers (if needed) will be prepared as part of the initial Article VII Application.

9.1.4 Federal and State Agency Coordination

As discussed above, as the lead federal agency under NEPA, BOEM is responsible for reviewing and approving the Survey Plans (i.e., SAP, COP, FIR/FDR), SAP, and COP, as well as the FDR/FIR. BOEM will prepare an EIS upon the completeness determination of the COP. After public comment and formal review of the EIS, BOEM will issue a ROD for the buildout of each lease area, including EW2 and BW. The ROD will explain BOEM's decision, describe the alternatives BOEM considered, and discuss mitigation and monitoring to be undertaken by the project proponent, if necessary.

During its technical review of the abovementioned documents, BOEM will engage in formal consultation with the cooperating federal agencies (e.g., USACE, USFWS, NOAA NMFS, EPA, etc.) under the CZMA, ESA, MBTA, BGEPA, MMPA, MSFCMA, CWA, and CAA. Additionally, state agencies, particularly those delegated authority as discussed above, will be engaged in review of the COP and other permit applications, in coordination with the federal NEPA review.



Similar to the federal review process, several consultations will be required prior to approval of permits, including the Division of Parks and Forestry, Natural Heritage Program for impacts to threatened and endangered species; and the Historic Preservation Office for consultation under the New York Register of Historic Places Act and Section 106 of the NHPA.

Equinor Wind has been actively engaged with these agencies and other stakeholders to share results and discuss potential impacts from the Projects.

9.2 Pending Permits, Licenses, and Environmental Documentation Timing

2. *Provide the anticipated timeline for seeking and receiving the required permits, licenses, and environmental assessments and/or environmental impact statements. Include a Project approval assessment which describes, in narrative form, each segment of the process, the required permit or approval, the status of the request or application and the basis for projection of success by the milestone date. All requirements should be included on the Project schedule in as described in Section 6.4.11.*

This section describes the sequence for seeking and receiving the required permits, licenses, and environmental assessments and/or environmental impact statements. At the time that this proposal was prepared, Equinor Wind has completed activities associated with the SAP [REDACTED]

[REDACTED] As each Project proceeds, a variety of tasks will be moving in parallel paths. From study planning to survey execution and stakeholder outreach, the number of ongoing activities that must be tracked diligently in order to maintain consistency and quality will demand careful attention and thorough record keeping. Given the complexity of a proposed offshore wind farm and the number of technical details that must be managed, each Project has established a well-developed process for keeping track of commitments and environmental requirements either offered up by Equinor Wind or required through permitting. Equinor Wind will maintain a Commitments Register that will include information about the origin of the commitments and/or environmental requirements (when they were made and who they were made to), what aspect of the facility the requirements apply to (e.g., installation of the submarine cable, pre-construction notification, etc.), and estimated start/end of that commitment to ensure a successful project.

Equinor Wind believes in early and frequent engagement with the regulatory agencies. Public involvement in both the federal and state regulatory process is important and has and will continue to be managed proactively. Stakeholders include, but are not limited to: Congressional delegations; federal, state, and local regulatory agencies; citizen groups; environmental/nongovernmental groups; coastal states; Native American tribes; fishermen's organizations; recreation and tourism interests; marine trades; commercial interests; and the general public or other groups with broad interest in the Empire Wind Project. Details on outreach to these entities and others are further described in other sections of this RFP (e.g., Community Outreach Plan; Environmental Mitigation Plan, and Fisheries Mitigation Plan).



Below, Equinor Wind provides a high level overview and sequencing of the various permitting processes for both Projects. The permitting plan execution timeline for each Project is discussed further in Section 11.2 and in Attachments 11.C and 11.D.

9.2.1 Phase I: Continued Survey Planning

[REDACTED]

In accordance with BOEM lease conditions, Equinor Wind must submit survey plans to BOEM for review in advance of conducting site characterization activities. To date, Equinor has submitted six survey plans to BOEM for Empire Wind and two for Beacon Wind.

Bottom disturbing activities described in BOEM survey plans are also permitted by the USACE. Empire Wind activities have been authorized under the New York District Nationwide Permit #6 for Survey Activities.²⁰ Because the New England District does not endorse the nationwide permits; Beacon Wind bottom disturbing survey activities are authorized under Massachusetts General Permit # 19 for sampling activity in the lease area and outside of New York jurisdictional waters.

[REDACTED]

Under the MMPA and ESA, NOAA NMFS and USFWS are required to review any activity that may result in the unintentional “taking” of marine mammals and of sea turtles and fish incidental to activities including construction projects. Incidental take is authorized if it is determined that the taking would: (a) be a small number; (b) have no more than a negligible impact; and (c) not have an unmitigable adverse impact. Incidental Take Authorizations can be provided in the form of an Incidental Harassment Authorization or a Letter of Authorization, depending on the nature and duration of the activity, which will be discussed in close consultation with NOAA NMFS.

[REDACTED]

9.2.2 Phase II: COP, Article VII, Coastal Consistency and NYSOGS Submittals

The following section describes the process by which Equinor Wind will secure permits, licenses, and environmental impact statements for Empire Wind and Beacon Wind. Additional details for

²⁰ Any activities located in state waters will require the state water quality certificate and coastal zone consistency determination. This is predicated on proposed activities meeting NY-regional specific conditions. Equinor Wind is consulting with both NYSDEC and NYSOGS for work proposed within the 3 nm jurisdictional boundary and preparing the required documentation in support of this work.



individual permits are provided in Attachments 9.A and 9.B. The schedule and timeline for approvals are provided in Section 9.1.1.

In general, the COP (federal) and Article VII application (New York) are the two primary environmental and siting approvals that have the longest durations and require the most detailed impact assessments. Public involvement is a critical aspect of both review processes and therefore it is preferable to file both applications close together. Several environmental assessments are needed to support the characterization of baseline conditions and potential impacts, which are further detailed in Section 14. These assessments are either complete, in progress or will be initiated so that information can be incorporated into the COP and the Article VII Application, including but not limited to:

- Offshore site characterization surveys, including benthic, geophysical, metocean, geotechnical, and marine archeological assessments;
- Offshore avian surveys;
- Marine mammals and sea turtles monitoring;
- Bat Monitoring;
- Essential Fish Habitat Assessment;
- Wetlands delineation;
- Terrestrial cultural surveys;
- Visual surveys;
- Historic properties surveys;
- Navigational risk safety assessment;
- In-air noise;
- Cable burial risk assessment;
- Aviation risk assessment;
- Underwater noise acoustic modeling;
- Air quality modeling;
- Sediment transport analysis; and
- Electromagnetic Field (“EMF”) modeling.

Consultations with various agencies have been and will continue to be completed to support the assessments. As information becomes available, Equinor Wind has been proactive with sharing results with the appropriate authorities.



An additional requirement for the Article VII application is the System Reliability Impact Study (“SRIS”), prepared by NYISO as a result of the interconnection requests filed by Equinor Wind. It is anticipated that this will be received in advance of application submittal to NYSDPS.

Empire Wind Project



A copy of all federal application materials will also be submitted to NYSDOS at the same time they are sent to the federal permitting agency to support the Coastal Consistency Determination. Equinor Wind will certify to the federal agency and the NYSDOS that EW2 complies and is consistent with the New York State Coastal Management Program. No federal agency can issue a permit for a project affecting New York’s coastal area until the NYSDOS concurs with the consistency certification. By federal regulation, NYSDOS has six months to complete its review of a consistency certification and make a decision. Typically, most consistency reviews can be completed within one or two months. To date, Equinor Wind has consulted with, and will continue to consult with the above mentioned agencies on development of EW2, and therefore those agencies have had and will have opportunities to input into and comment on the process prior to BOEM’s issuance of the NOI.

Approval of the Article VII application will be contingent on entities where Equinor Wind proposes occupation within existing rights of way (“ROWs”) (e.g., NYSDOT). As such, Equinor Wind intends to submit its application to these entities at the same time as the Article VII application.



Equinor Wind submitted its Fixing America's Surface Transportation Act (FAST-41) Initiation Notice, in accordance with 42 U.S.C. Section 4370(m) on 02 April 2020 to the FAST-41 Council. The Department of Interior responded on 20 April 2020, confirming the lease area project's (including Empire Wind 2 Project) eligibility for inclusion on the FAST-41 Permitting Dashboard. EW is currently on the FAST-41 Permitting Dashboard as a planned project, where it will remain this status until BOEM initiates the formal interagency consultation process with other cooperating federal agencies.

[REDACTED]

Beacon Wind Project

Equinor Wind will follow the same process described above for the Beacon Wind Project, including providing copies to NYSDOS, NYSDEC, NYSOPRHP, NYDPS, NYSOGS and NYSERDA and incorporating their input.

[REDACTED]

9.2.3 Phase III: USACE, EPA, NOAA NMFS Application Submittals

The lead agencies responsible for the COP will rely on other federal agencies to comment and coordinate the environmental reviews of both Projects. Therefore, it will be necessary to prepare and submit the USACE, EPA OCS Air Permit and NOAA NMFS application packages in an appropriate timeframe as it relates to the COP review process. Information gathered during the studies outlined and completed for Phases I and II of this Permit Acquisition Plan will support these applications, including additional site-specific data through field surveys. Detailed design drawings will also be prepared as part of the application packages.

9.2.4 Phase IV: Supplemental Requirements for BOEM and PSC

Upon COP approval, Equinor Wind will submit the FDR and the FIR for BOEM approval prior to construction. Per §585.705, Equinor Wind will be required to enlist a CVA who will review and certify the FDR and FIR to ensure that the facilities are designed, fabricated and installed in conformance with accepted engineering practices.

Following issuance of the Article VII Certificate, Equinor Wind will prepare the various additional documents to verify its compliance with the certificate conditions, including the EM&CP. This document must be formally filed with and approved by the PSC before construction can proceed. The EM&CP will detail the precise location of the proposed facilities and the special precautions that will be taken during construction to ensure environmental compatibility. It is important to



note that the Article VII authorization does not include property rights. As such, the EM&CP cannot be issued until all property right are obtained, including the New York State Department of Transportation Accommodation Permit.

Both of these documents will rely on the additional design details that will have been developed as the project matures.

9.2.5 Phase V: Remaining Permit Applications

During the review of the FDR/FIR and EM&CP, Equinor will submit the remaining permit applications required for project construction:

- The PATON to USCG for wind farm development;
- The Vessel Discharge Permit to EPA for wind farm development and operations; and
- The Notice of Intent and Stormwater Pollution Prevention Plan (“SWPPP”) and SPDES permit applications to NYSDEC for export cable landing and routing and substation construction.

9.3 Construction Permit Close-out and Operations Turnover

As the construction phase of each Project comes to a close, it may be necessary to complete certain obligations or commitments associated with permits obtained for construction. For example, Equinor Wind may be required to restore vegetation temporarily removed/disturbed as part of onshore export cable installation, with documented successful vegetation establishment after a certain timeframe of planting. Equinor Wind will continue to maintain the Commitments Register referenced in Section 9.2, such that these requirements are closed out appropriately.

Similarly, in preparation for operations, Equinor Wind will be turning the project over to the dedicated Operations Team. Leading up to the turnover, Equinor Wind will prepare an “Operations Compliance Matrix,” which will identify all operations permits, required monitoring/recordkeeping, regulatory submittals (if applicable), and timeframes. This information is necessary such that the dedicated Environmental Compliance Manager for operations becomes familiar with and is able to establish a compliance program for implementation throughout the operations phase. Examples of items that would be part of this matrix, include but are not limited to:

- EPA Vessel Discharge Permit monitoring and annual reports;
- OSRP spill response training; and
- OSRP biennial review and submittal.

As part of the development of Standard Operating Procedures (SOPs) for the wind farm, Equinor Wind will consider relevant regulatory requirements associated with environmental compliance that need to be incorporated. For example, under the OSRP, spill response equipment will need



to be inspected and maintained monthly and records of such inspections must be maintained for two years. Operations Team members will be trained on these at an established, applicable interval (e.g., annual or other) to ensure continued environmental compliance.

9.4 Decommissioning

In a similar manner to the operations turnover, certain things will be required to maintain compliance during decommissioning activities. These are expected to be initially identified during the current permitting phase of the Projects and logged in the Commitments Register. Throughout operations, the Commitments Register will be reviewed periodically to ensure any nuances associated with decommissioning requirements are captured, such that upon initiation of decommissioning activities, the appropriate oversight resources can be dedicated to see this activity to completion.



10 ENGINEERING AND TECHNOLOGY

Provide information about the specific technology or equipment including the track record of the technology and equipment and other information as necessary to demonstrate that the technology is viable. Provide a preliminary engineering plan which includes at least the following enumerated information. If specific information is not known, identify manufacturers, vendors, and equipment that will be considered.

- a. Type of foundation, Offer Capacity, and generator lead line transmission technology*
- b. Major equipment components to be used, including nacelle, hub, blade, tower, foundation, transmission structures and platforms, electrical equipment and cable)*
- c. Manufacturer of each of the equipment components as well as the location of where each component will be manufactured*
- d. Status of acquisition of the equipment components*
- e. Status of any contracts for the equipment Proposer has or Proposer's plan for securing equipment and the status of any pertinent commercial arrangements*
- f. Equipment vendors selected/considered*
- g. Track record of equipment operations*
- h. Design considerations (technology selection, layout) for climate adaptation and resiliency such as sea level rise and dynamic flooding events, potential impacts from increased frequency and severity of storms (i.e. superstorms, hurricanes), seismic activity, etc.*
- i. Design considerations that help to support responsible disposal and or recycling of components after the end of their useful life and equipment plans that generally aim to consider the precepts of the circular economy.*
- j. In the event the equipment manufacturer has not yet been selected, identify in the equipment procurement strategy the factors under consideration for selecting the preferred equipment, including alignment with the considerations above, as well as the anticipated timing associated with the selection of the equipment manufacturer, including the timing for binding commercial agreement(s).*

10.1 Overview of Major Project Components and Technologies

10.1.1 Wind Turbine Generators

The WTGs used in an offshore wind project will have a critical impact on project cost, performance, and reliability, including the project's ability to generate energy during low wind periods, the capacity factor of the project, and the frequency and cost of preventative and unplanned maintenance required. As a result of their large rotor diameters and higher hub height, generally larger wind turbines are able to more effectively harvest wind resources, resulting in lower energy costs, higher capacity factors, and higher annual energy production.



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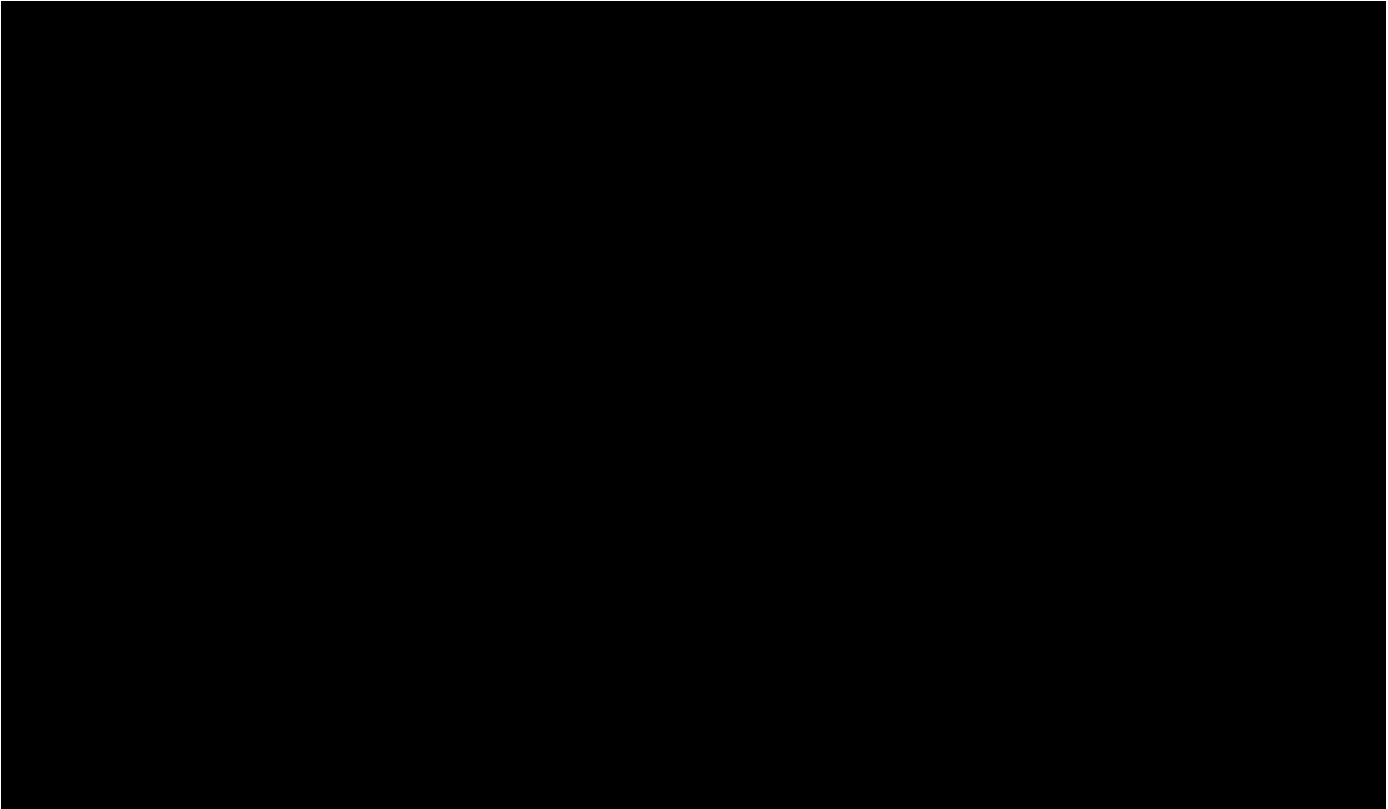
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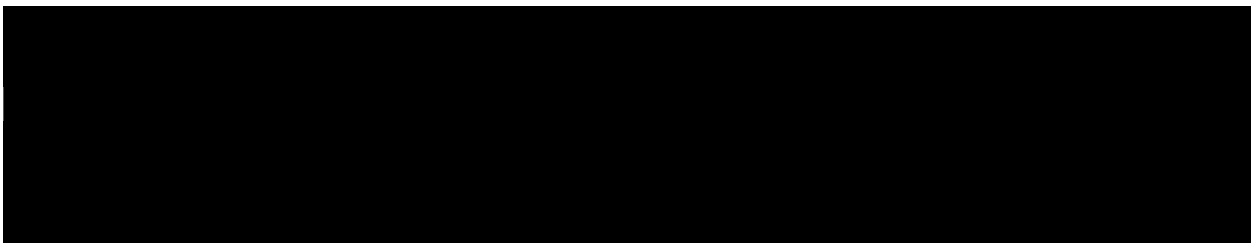
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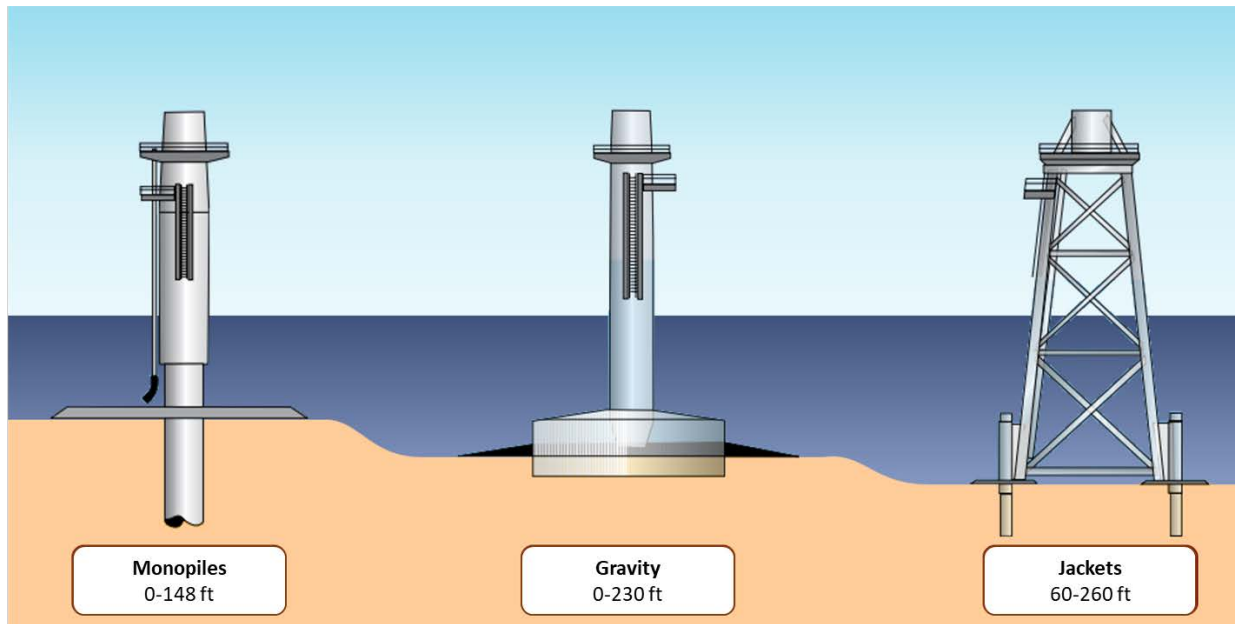




10.1.2 WTG Foundations

For the WTG foundations, Equinor Wind has conducted extensive studies and analysis of the costs, benefits, and feasibility of three potential types of foundations: gravity-based substructures (“GBS”), monopiles, and jackets. This analysis also included detailed concept studies of the suitability of each for each Project area. Figure 40 shows each of these structures and the range of suitable water depths for each technology.

Figure 40: Suitable Water Depths for Each Type of Foundation Technology



Empire Wind

Since 2017, Equinor has carried out geotechnical and geophysical surveys of the Empire Wind lease area and established a geophysical model of soil conditions across the site. In 2020, Equinor conducted a second geotechnical campaign to collect borehole samples and in-situ soil strength information. The laboratory tests of the borehole samples and the in-situ tests will be used to further improve Equinor’s models and foundation design for the site.



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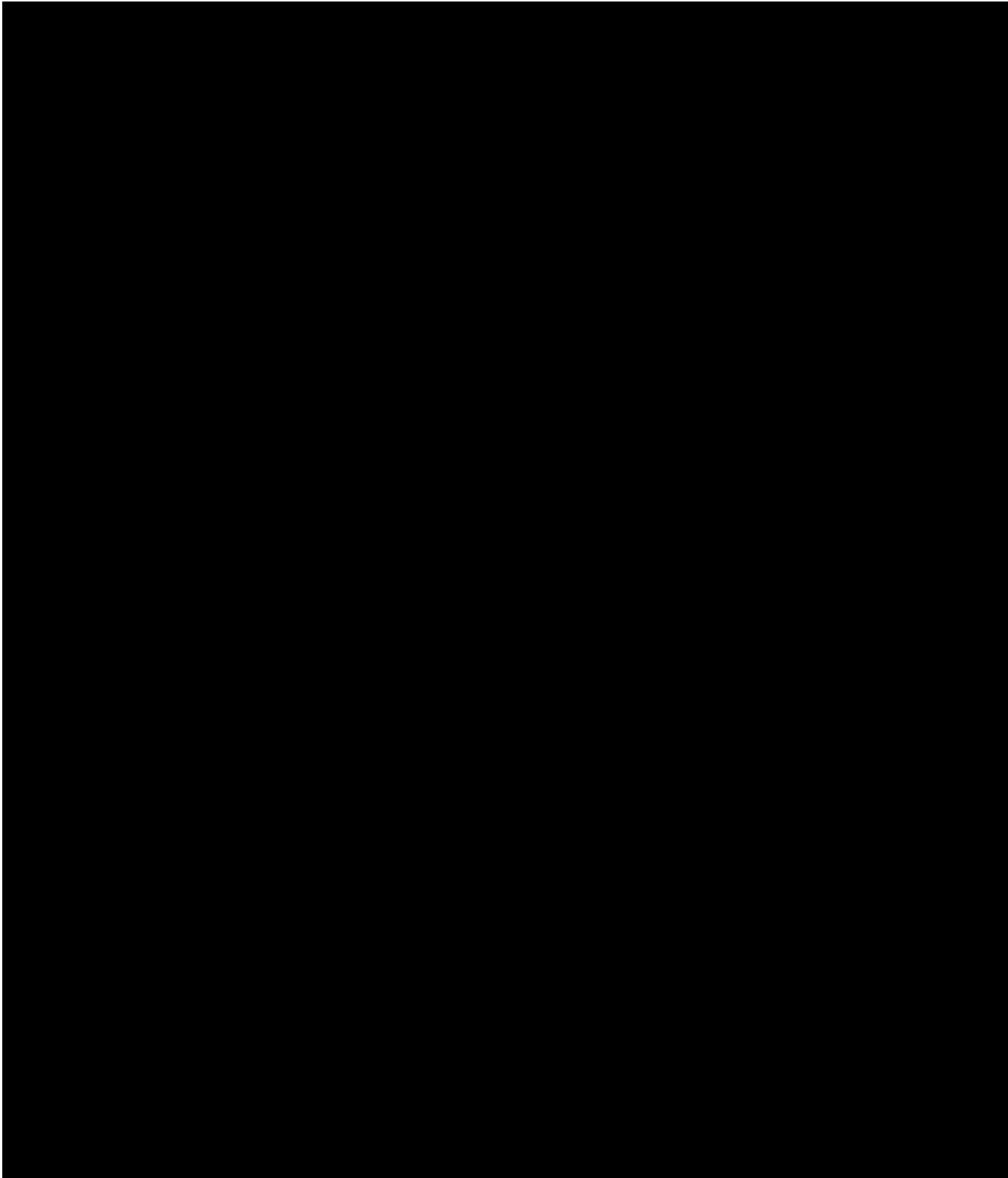
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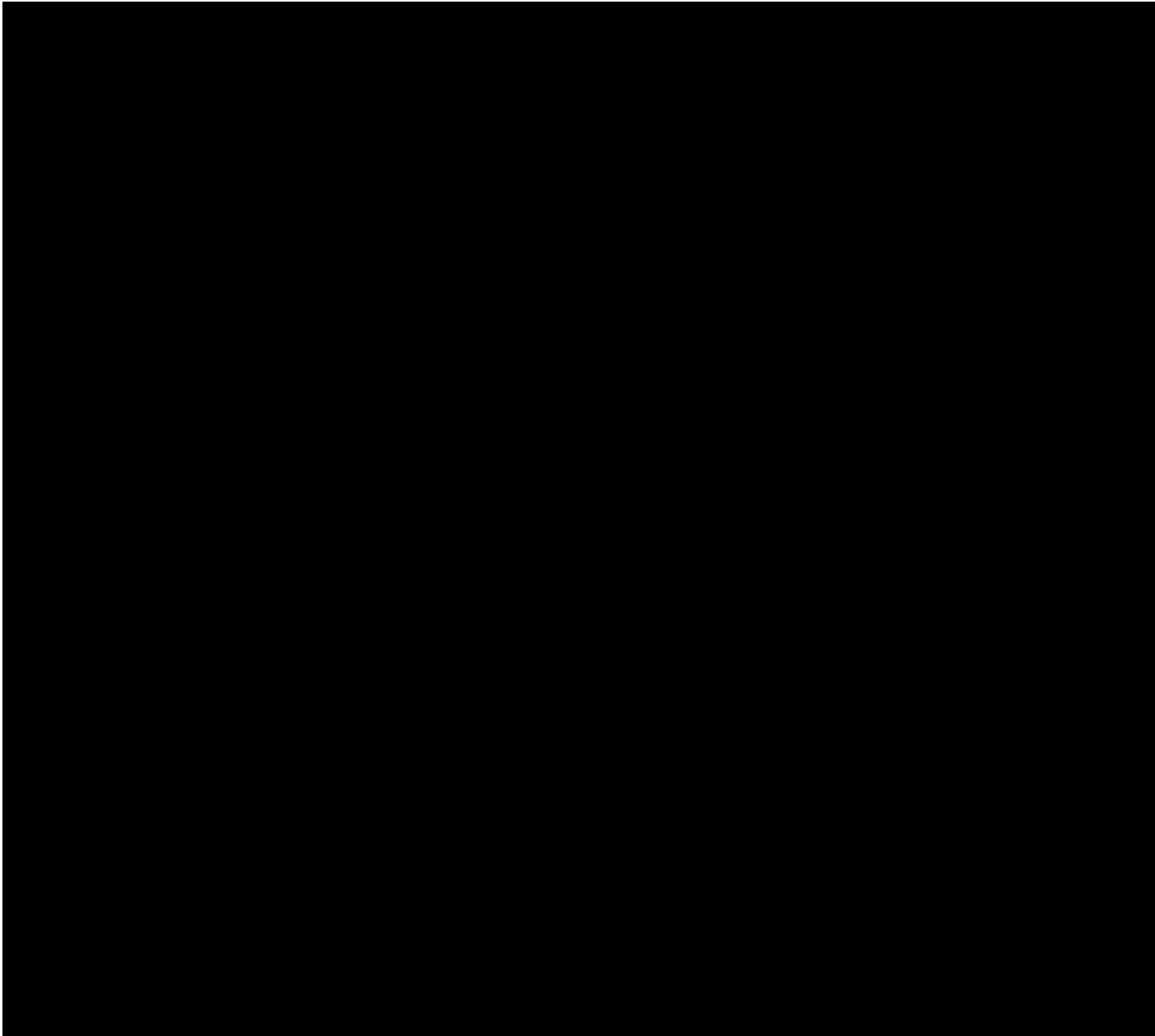




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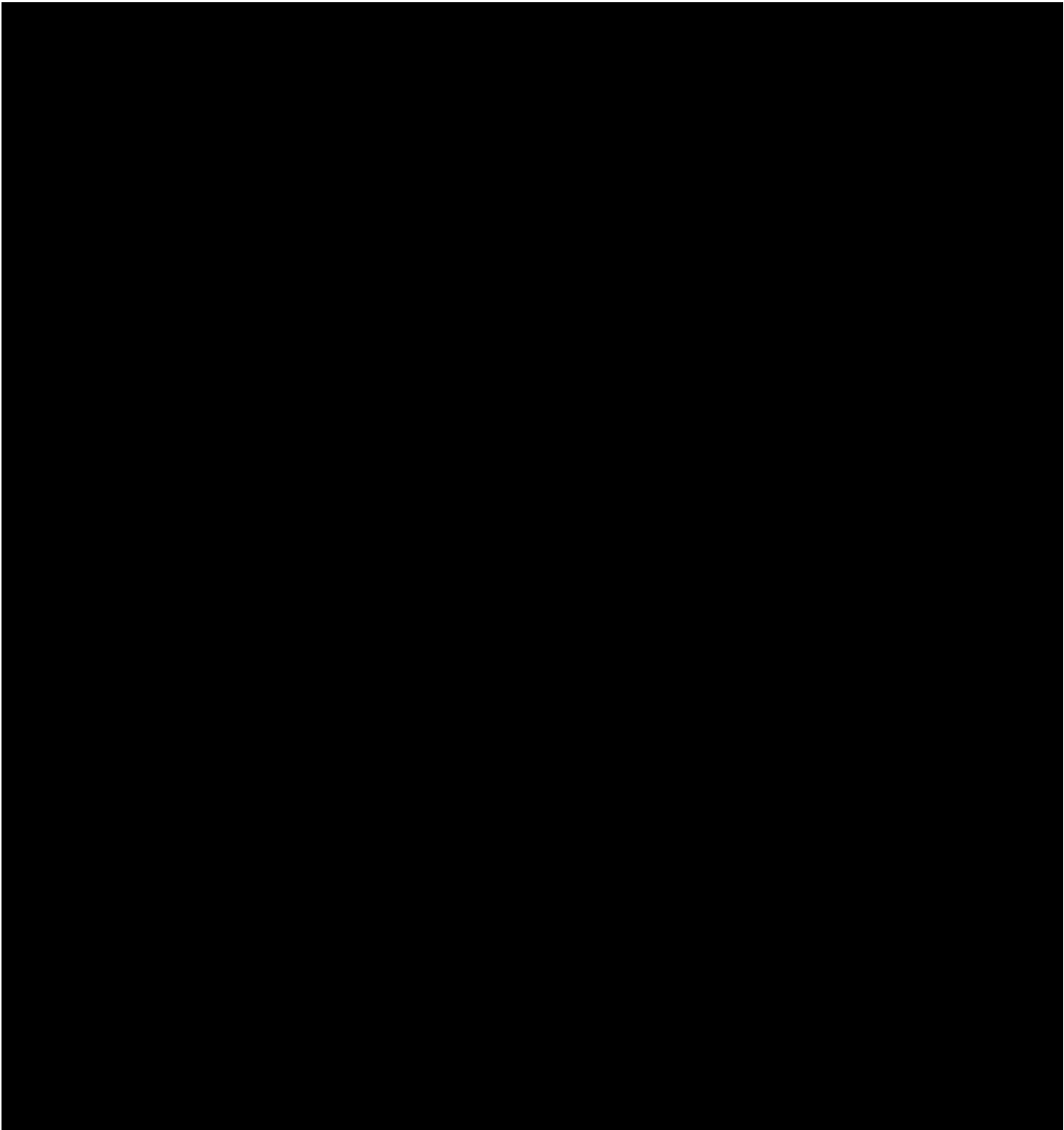




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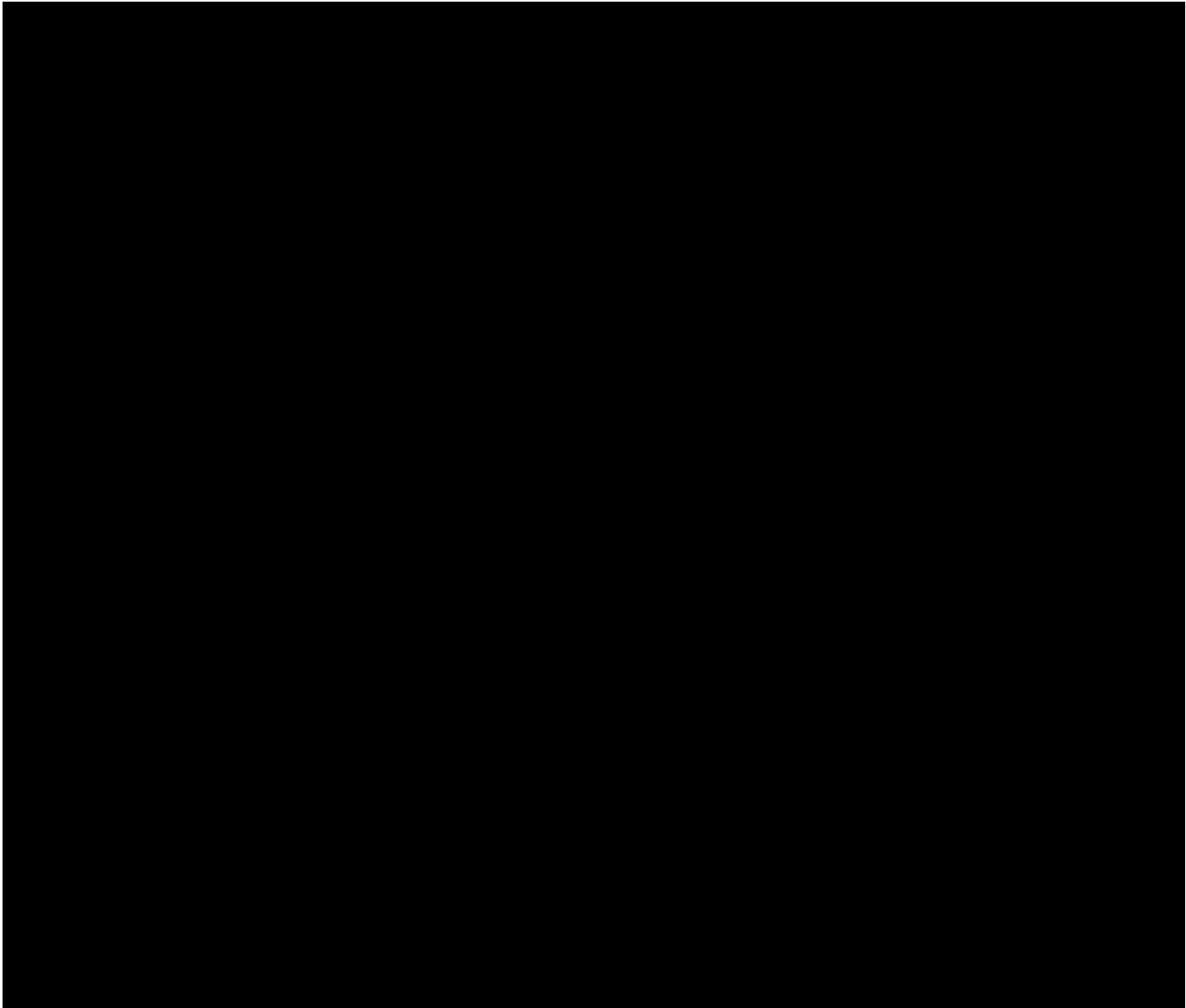
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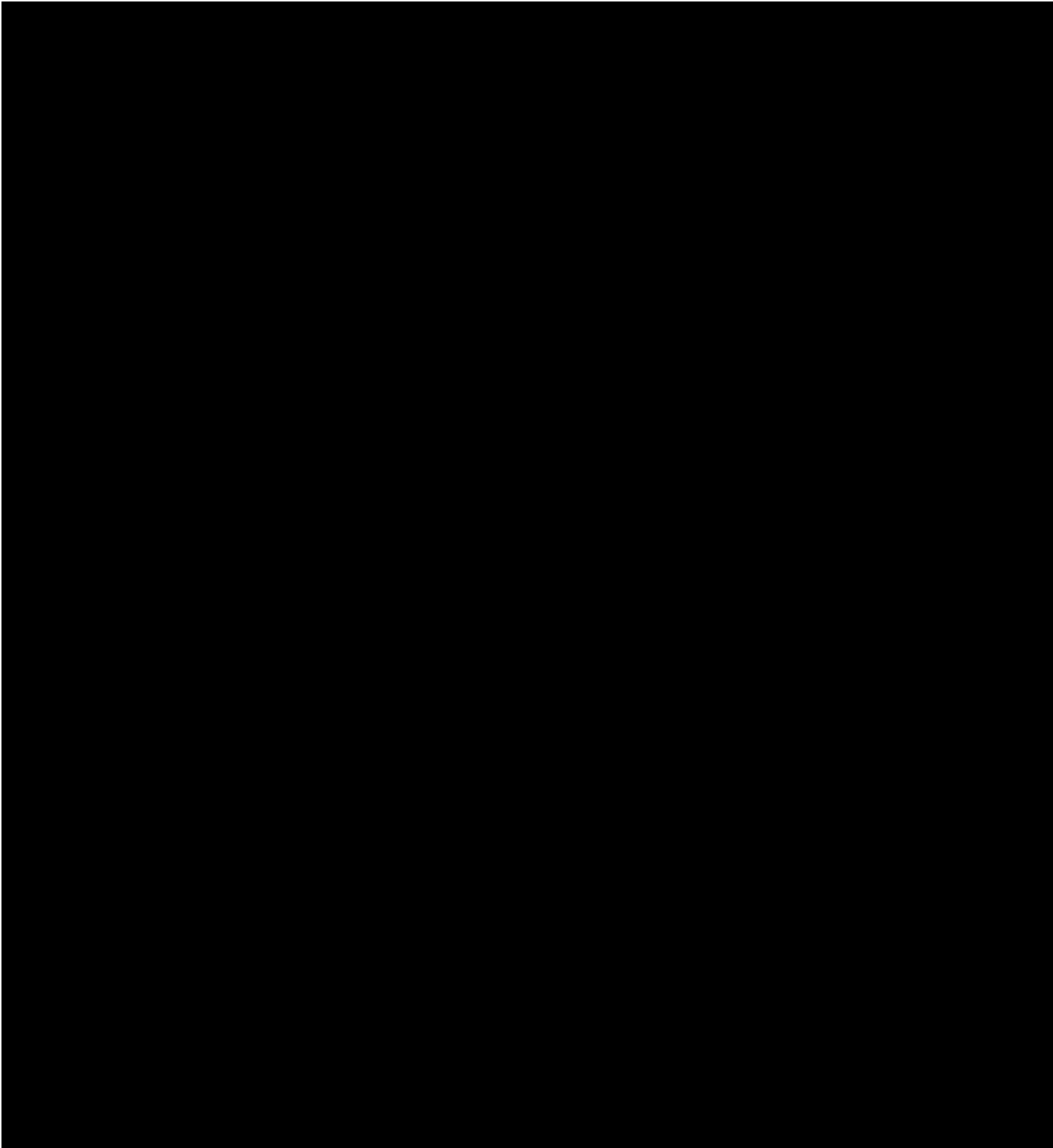
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10.1.3 Inter-Array Cables

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²⁴ <https://www.carbontrust.com/offshore-wind/owa/electrical/>.



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10.1.4 Transmission Approach

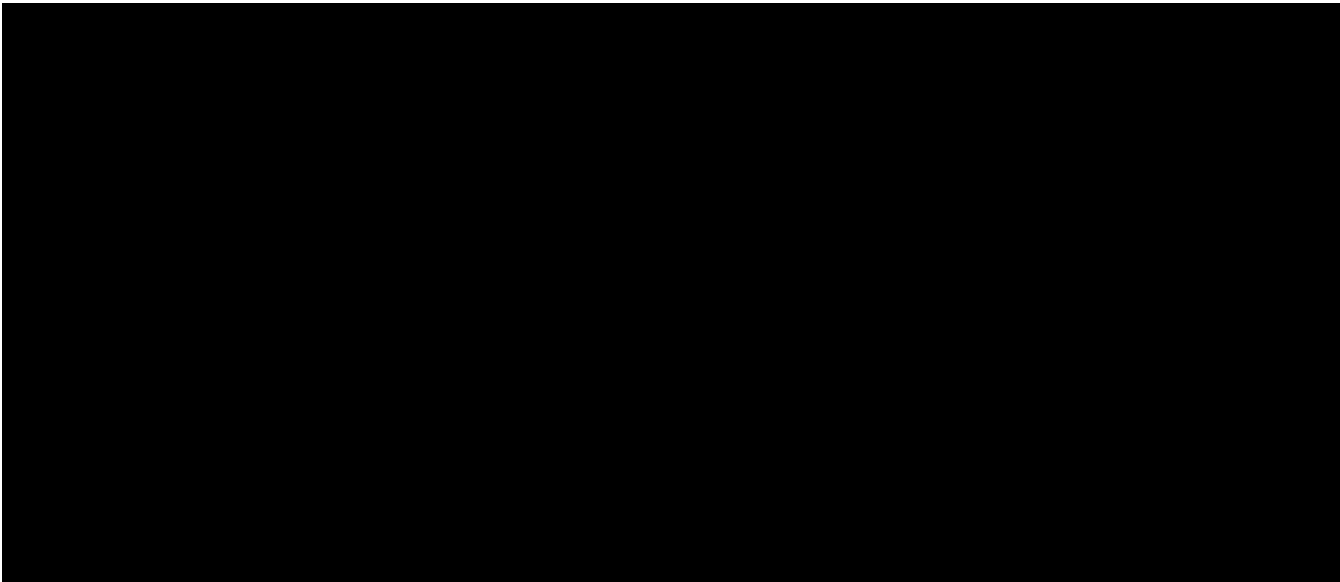
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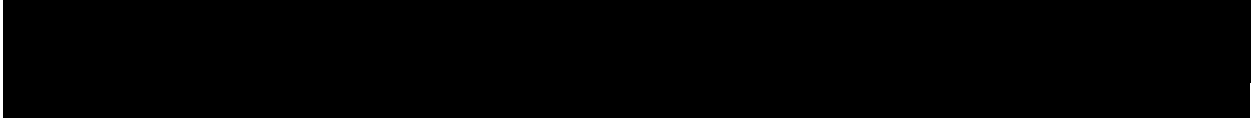
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10.1.5 Offshore Substation

Equinor plans to utilize a single offshore substation located within each Project area in close proximity to the connected WTGs.



The design goal of each Project's offshore substation is to maximize system availability and reliability while accommodating a safe, efficient, and O&M friendly design.

The offshore substations for both Projects will include required utilities and services to accommodate the high voltage transmission assets, as well as required personnel and asset protection systems to ensure safe and reliable operations. The topside design will align with the O&M approach described above as an unmanned installation with boat-landing access for CTV and gangway access with the SOV.

The topside will be mounted on a jacket substructure secured to the seafloor with piles or suction buckets. The design and fabrication of this type of jacket is well established in the industry and supported by robust supply chains and design standards.



The main structure, composed of the topside and jacket, will account for the relevant design conditions, including ensuring sufficient topside air-gap to facilitate expected sea level rise. Furthermore, the layout design will enhance the resiliency of the topside against adverse weather and environmental conditions by minimizing the equipment located outdoors and exposed to extreme heat, cold, and wind.

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10.1.6 Export Cables

As noted above in Section 8 and the associated Attachments, in order to optimize the interconnection of both Projects, Equinor Wind commissioned a series of studies to evaluate potential interconnection points and cable routes.

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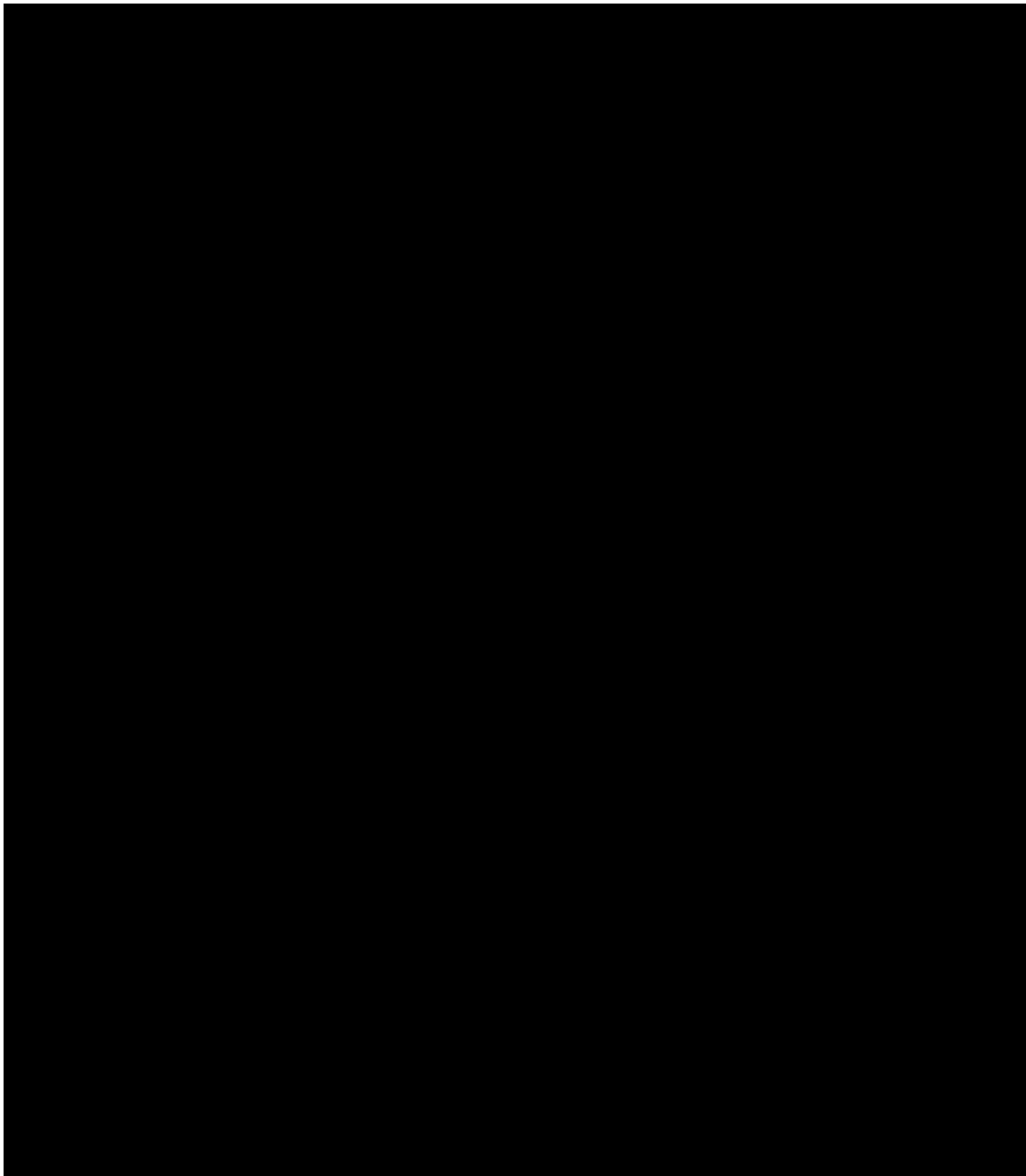
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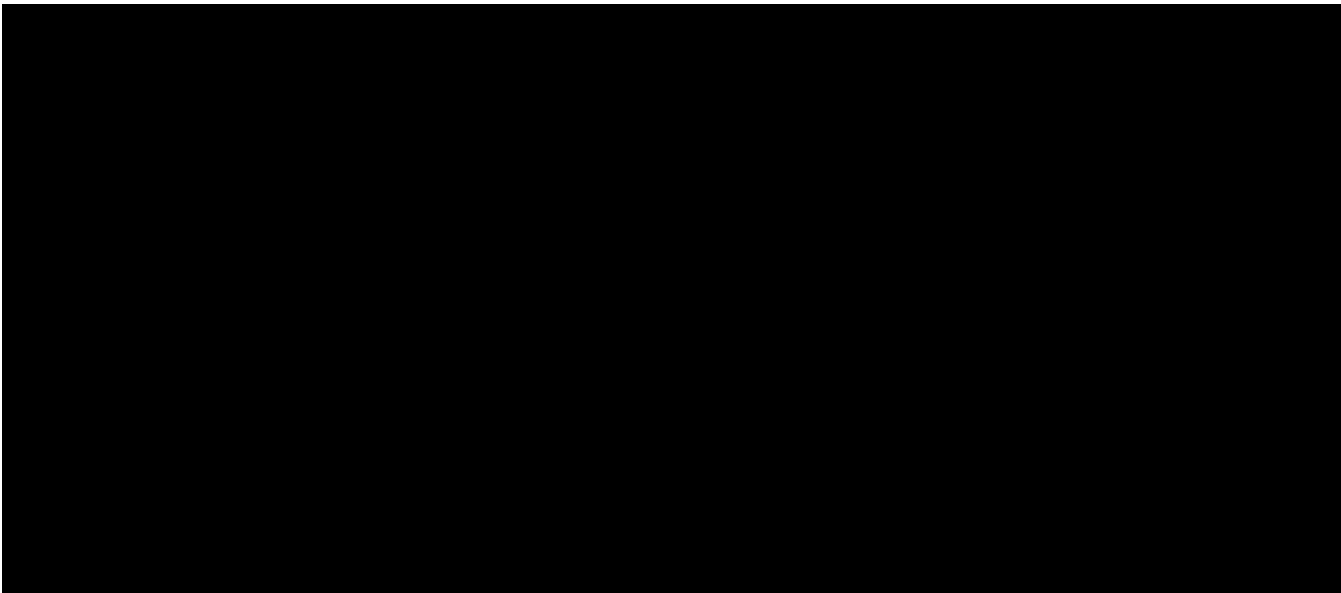




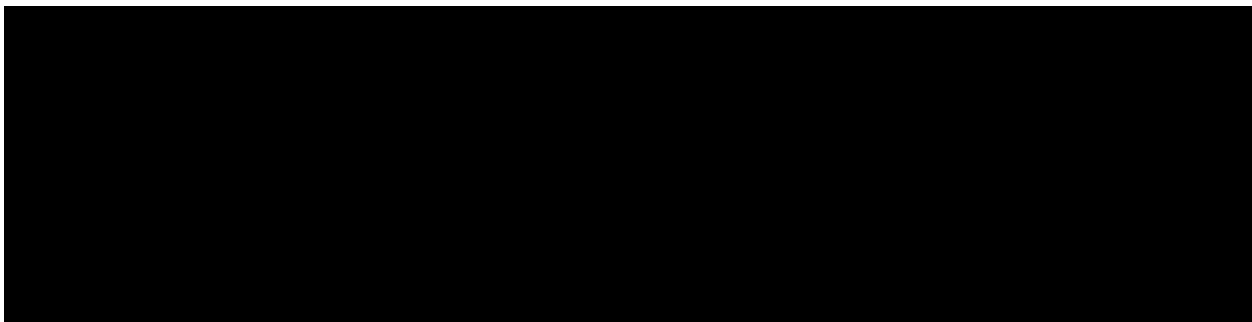
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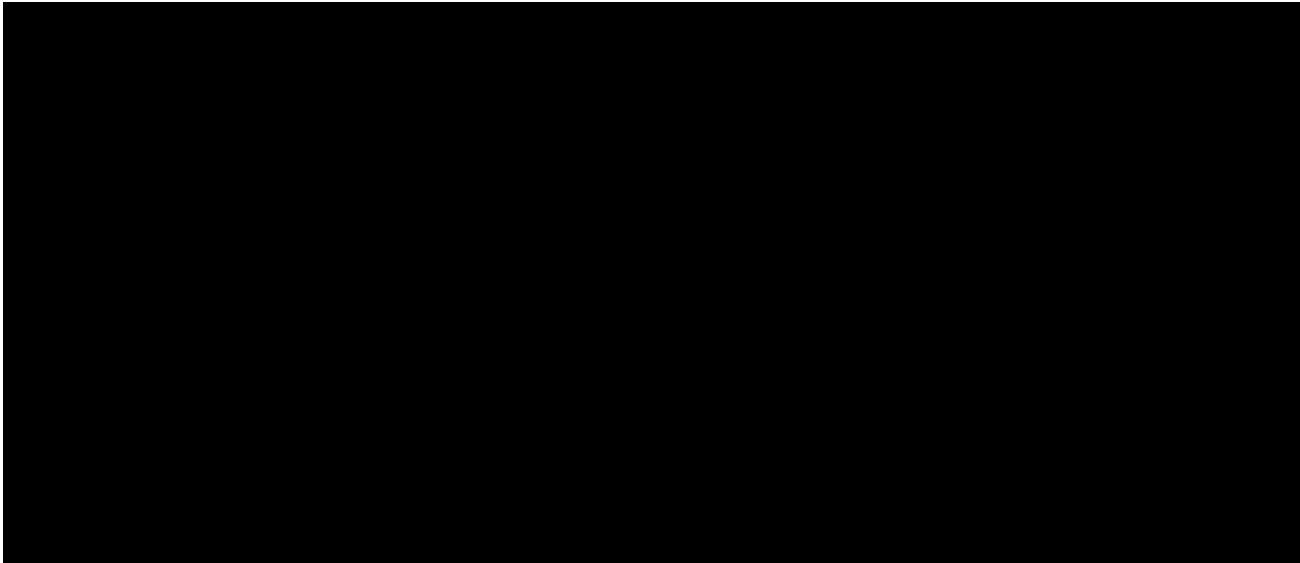


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10.1.7 Onshore Substation

All equipment in the onshore substation is commonly used equipment for transmission systems and is currently available on the market. Figure 58 depicts the onshore substation constructed at Equinor’s existing Dudgeon offshore wind facility.

Figure 58: Dudgeon Onshore Substation





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10.2 Procurement Strategy

Since being granted rights to develop each lease area, Equinor Wind has been diligently evaluating potential design and supply options for both Projects. Equinor Wind is committed to ensuring that the development of its Projects fosters the growth and development of a robust offshore wind supply chain within New York that makes New York a hub of the offshore wind industry and allows the state to efficiently and cost-effectively meet its CLCPA goals. As described further in the attached Economic Benefits Plans and Port Infrastructure Plans, Equinor Wind's



approach can be tailored to maximize the economic benefits to New York to the extent practicable, while promoting the efficient and cost-effective development of both Projects.

Equinor Wind has a well-defined procurement strategy that will ensure that Equinor Wind is able to procure necessary components and equipment on a timeline that allows it to meet its target commercial operation date, while ensuring that all project components meet Equinor Wind's rigorous quality standards. An overview of Equinor Wind's approach to equipment solicitation and supply chain management is provided below. In addition, a general overview of the timing of the procurement of project components is provided in Section 11.3.

The project will define sourcing strategies based on the scope of work and technical specifications for the different work packages and information provided by main potential suppliers through Request for Information processes and studies.

10.2.1 Current Progress

Since the first phase of the Empire Wind Project was chosen as part of NYSERDA's initial offshore wind solicitation, Equinor Wind has worked on maturing the procurement strategy for EW1 and is currently in the tendering process for several material contracts, including the WTG turbine supply agreement

[REDACTED]

[REDACTED]

10.2.2 Equipment Solicitation and Supply Chain Management

Equipment solicitation and supply chain management are integrated into the planning, execution and operation of each Project. Procurement activities and the development of an overall procurement strategy started at an early stage of each project. This strategy incorporates lessons



from previous offshore wind projects, including EW1, and is based on each Project's specific conditions and requirements, as well as market analysis and screening.

Equinor Wind's procurement process consists of the following main steps:

- Development of procurement strategy;
- Development of a bidders list;
- Contract drafting;
- Sourcing;
- Contract award; and
- Contract management.

10.2.3 Development of Procurement Strategy

The first step in the procurement process is to establish a defined procurement strategy in cooperation with the technical group within Equinor that will be installing and managing the procured product or equipment. This process also includes a risk assessment for the specific contract package to ensure that any potential issues are known and addressed early on.



10.2.4 Development of a Bidders List

Once a strategy is established, Equinor develops a bidder list. This process begins with identifying qualified suppliers. Each supplier must meet minimum requirements with regards to safety, quality, human rights and integrity, which is confirmed through a due diligence process.

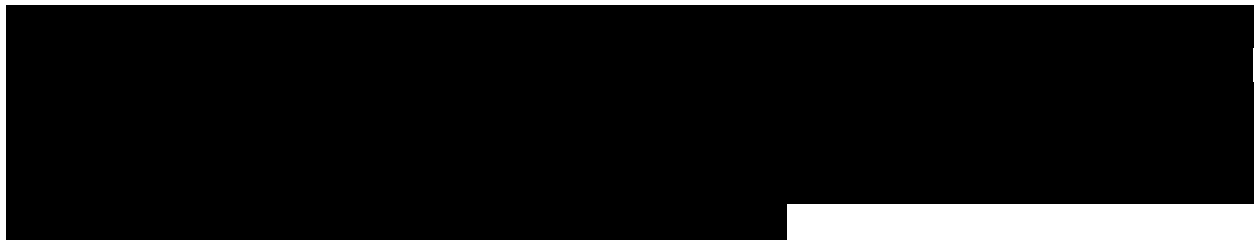
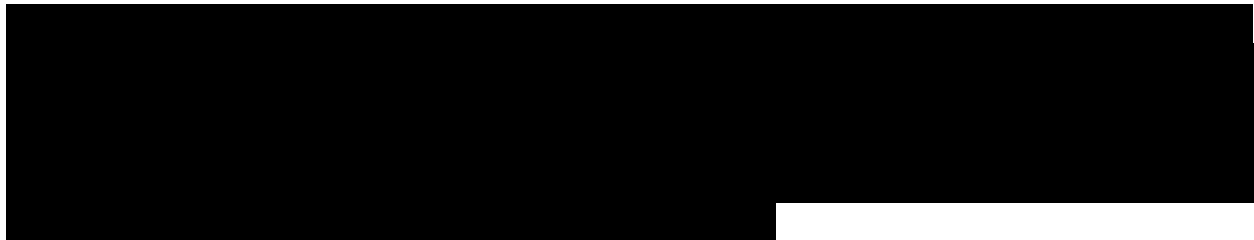
In addition to these business requirements, suppliers must meet the project's technical requirements. Equinor uses a supplier qualification system, such as ISNetworld, to vet and compare potential suppliers. In many cases, more potential suppliers will pass the minimum requirements than those that are selected to be added to a bidders list. Therefore, Equinor uses a prequalification process to shortlist suppliers and ensure that only qualified and capable



suppliers are invited to tender a contract. This prequalification process is specifically tailored for each procurement and typically involves follow-up questions to potential suppliers, site visits, and/or audits, depending on the needs of the project.

10.2.5 Contract Drafting

The sourcing process starts with defining the scope of work and delivery in detail. Once settled, the contract documents are drafted, including terms and conditions, specific compliance requirements, compensation format, proposed delivery milestones, payment schedules, technical requirements, and administrative requirements. This is completed by Equinor's procurement group in cooperation with other departments responsible for the project at issue. Equinor's procurement group will tailor each contract to reflect the size, scope, and complexity of a project.



10.2.6 Sourcing

Based on the results of the qualification process described above, Equinor will invite qualified suppliers to bid to supply the equipment or perform the work at issue. In order to guide the bid process, Equinor will develop detailed instructions that will define the information to be included in the bid, provide guidance regarding how to submit the bid, detail Equinor's evaluation criteria, and include the draft contract developed by Equinor. After a predefined period, Equinor receives the bids and starts the contract evaluation and negotiation phase.

Objective and non-discriminatory evaluation criteria are defined for the specific procurement and agreed to prior to the bid opening to ensure a fair and fact-based selection process. The evaluation is performed by a cross functional team and will cover the Health, Safety, and Environmental ("HSE"), technical, commercial, and schedule aspects of the bids. The evaluation process will continue until Equinor has identified which supplier best suits its business needs and the project's specific requirements.



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communities through its sourcing activities to help further the principles behind the CLCPA.

10.2.7 Contract Award

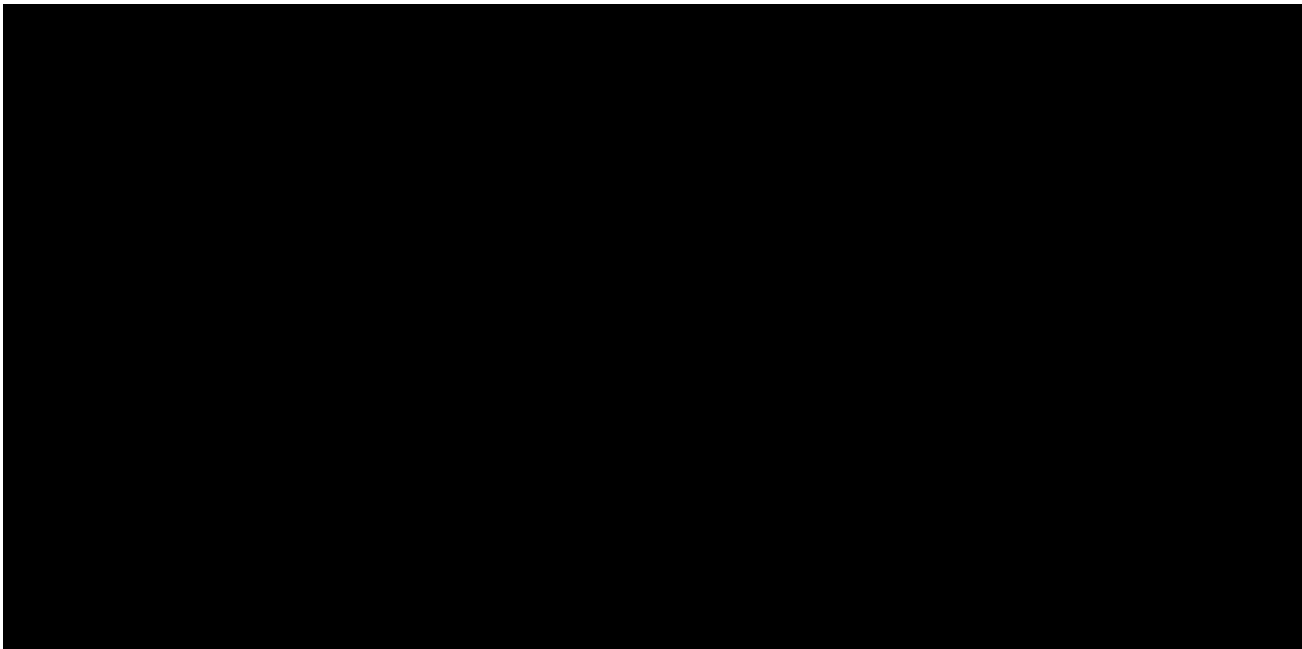
The Chief Procurement Officer (“CPO”) holds the authority to legally commit Equinor to suppliers. All legal commitments are handled through the CPO in order to safeguard the principle of segregation of duties and ensure the appropriate involvement of both the requisitioning line and the procurement function.

As soon as the contract has been signed by both parties, unsuccessful bidders are informed in writing. Debrief meetings are proposed to assist them in improving future bids.

Figures 59 and 60 below depict the expected contract structure for the Projects and the expected contract award schedule. Equinor Wind reserves the right to combine or split contracts to improve project execution, mitigate risks and/or reduce costs. [REDACTED]

[REDACTED]

[REDACTED]



10.2.8 Contract Management

After the contract has been signed, a kick-off meeting with the supplier is held to ensure that the contract requirements and Equinor’s expectations are well understood, and to agree on communication lines and routines during the contract period.

Equinor will appoint a Company Representative (“CR”) who will act as the contract owner and the single point of contact for the supplier. The CR has a multi-disciplinary team of professionals and experts to help manage the contract and follow up with the supplier. The main focus during the contract management phase is to ensure that the supplier delivers and acts according to the commitments made in the contract with respect to quality, schedule, health and safety, and cost. The supplier’s performance will be monitored throughout the contract period based on Key Performance Indicators (“KPI”) (e.g., compliance and safety). Regular meetings with the supplier (e.g., monthly progress meetings and weekly/biweekly technical meetings) will take place during the contract period. For larger contracts, a steering or sponsor committee is often established.

10.3 Manufacturer Location

Figure 61 provides an overview of the potential locations for the manufacture of various project components for each Project. Given that Equinor Wind is still in discussions with potential suppliers, the final location of the manufacturer will be finalized based on the outcome of



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Equinor's procurement process. As a result, the list below should not be considered final and is subject to change as Equinor Wind moves forward with development of the project.²⁵

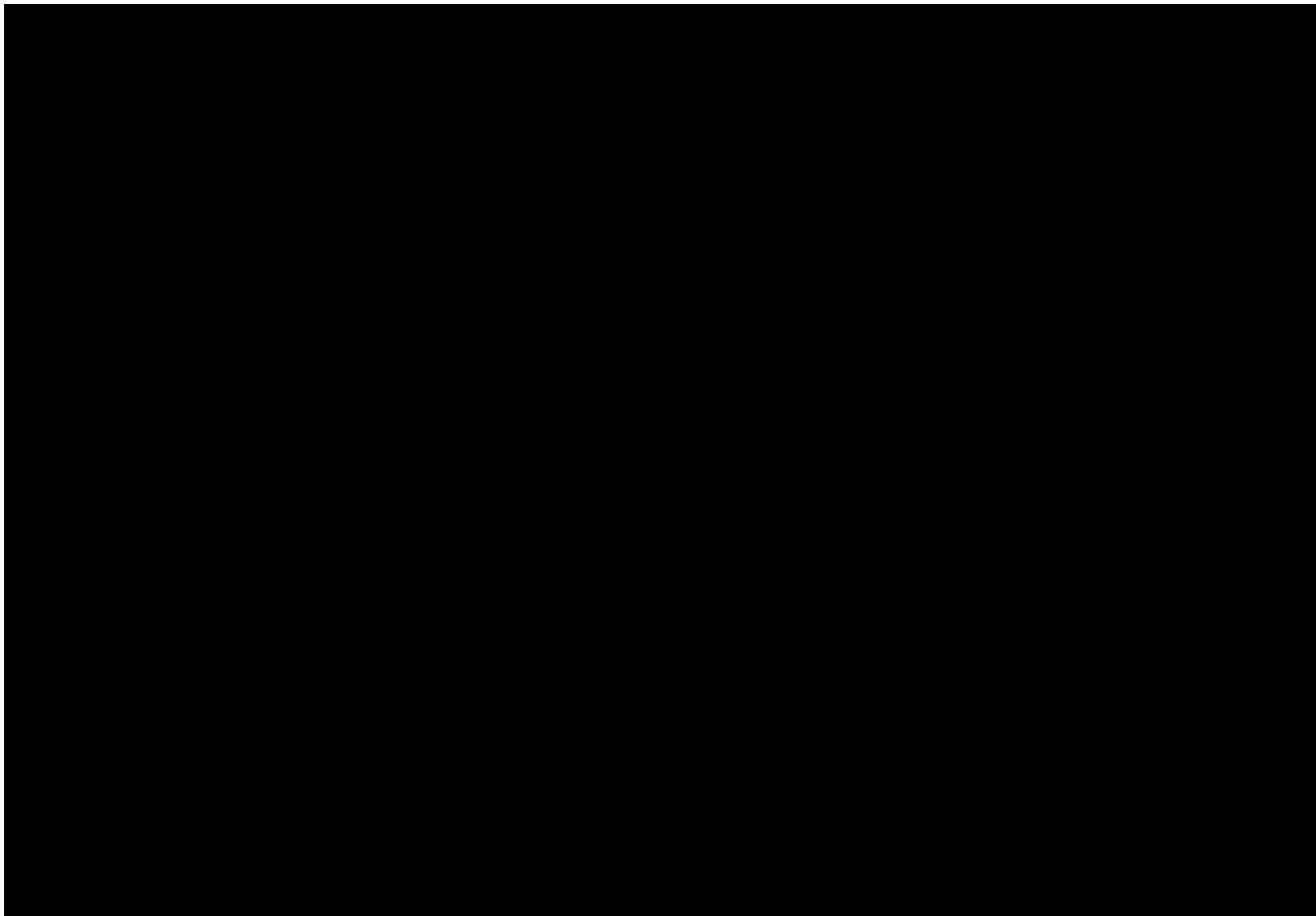




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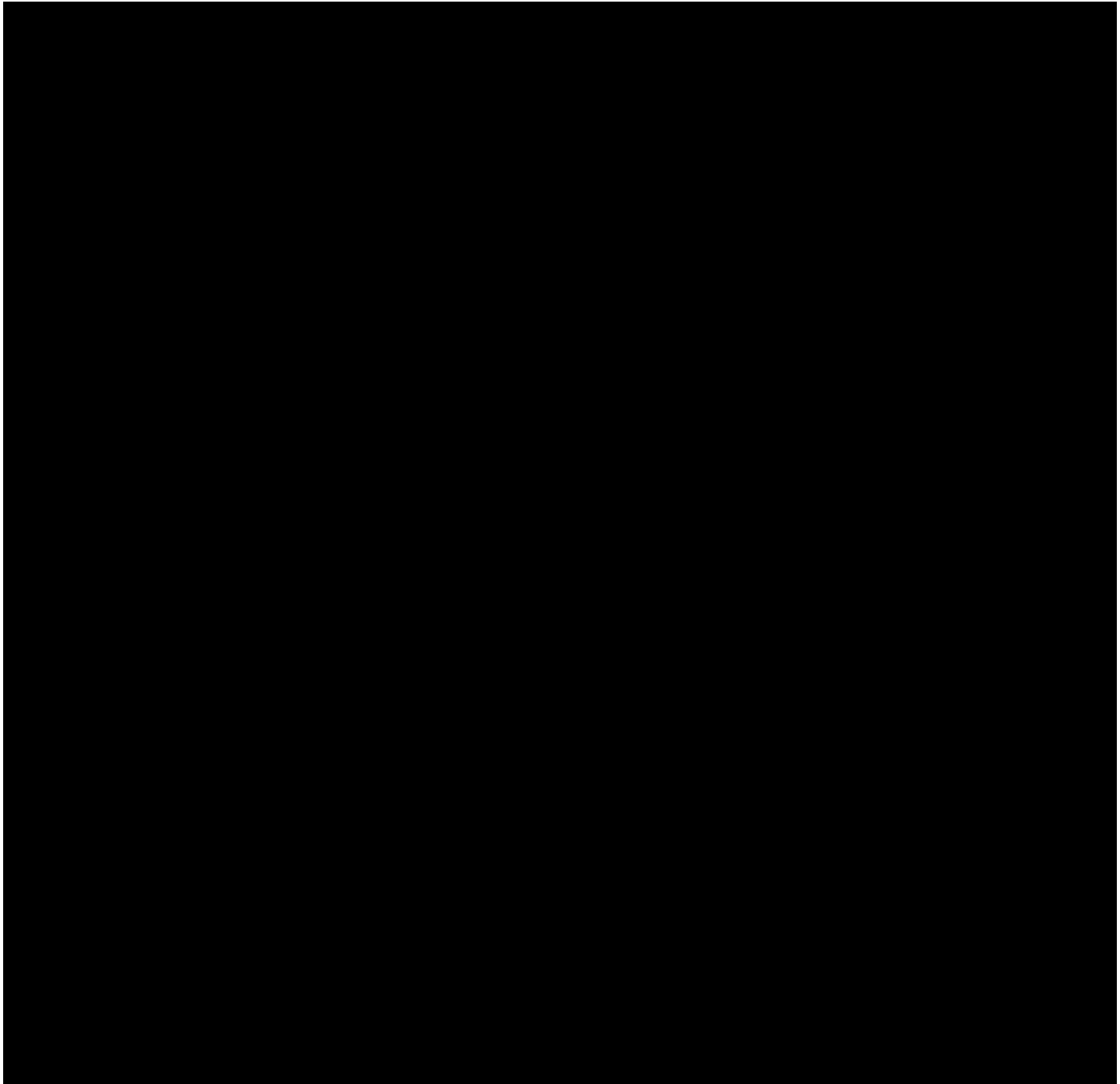
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10.4 Design Considerations

As with any offshore installation, offshore wind projects are subject to numerous risks that have the potential to cause physical damage to the facility or otherwise disrupt operations, including extreme weather events and maritime collisions. For that reason, Equinor incorporates these risks into every aspect of project development, including project design, construction, and O&M. Figure 62 provides an overview of physical risks and mitigation measures relevant to the both Projects.

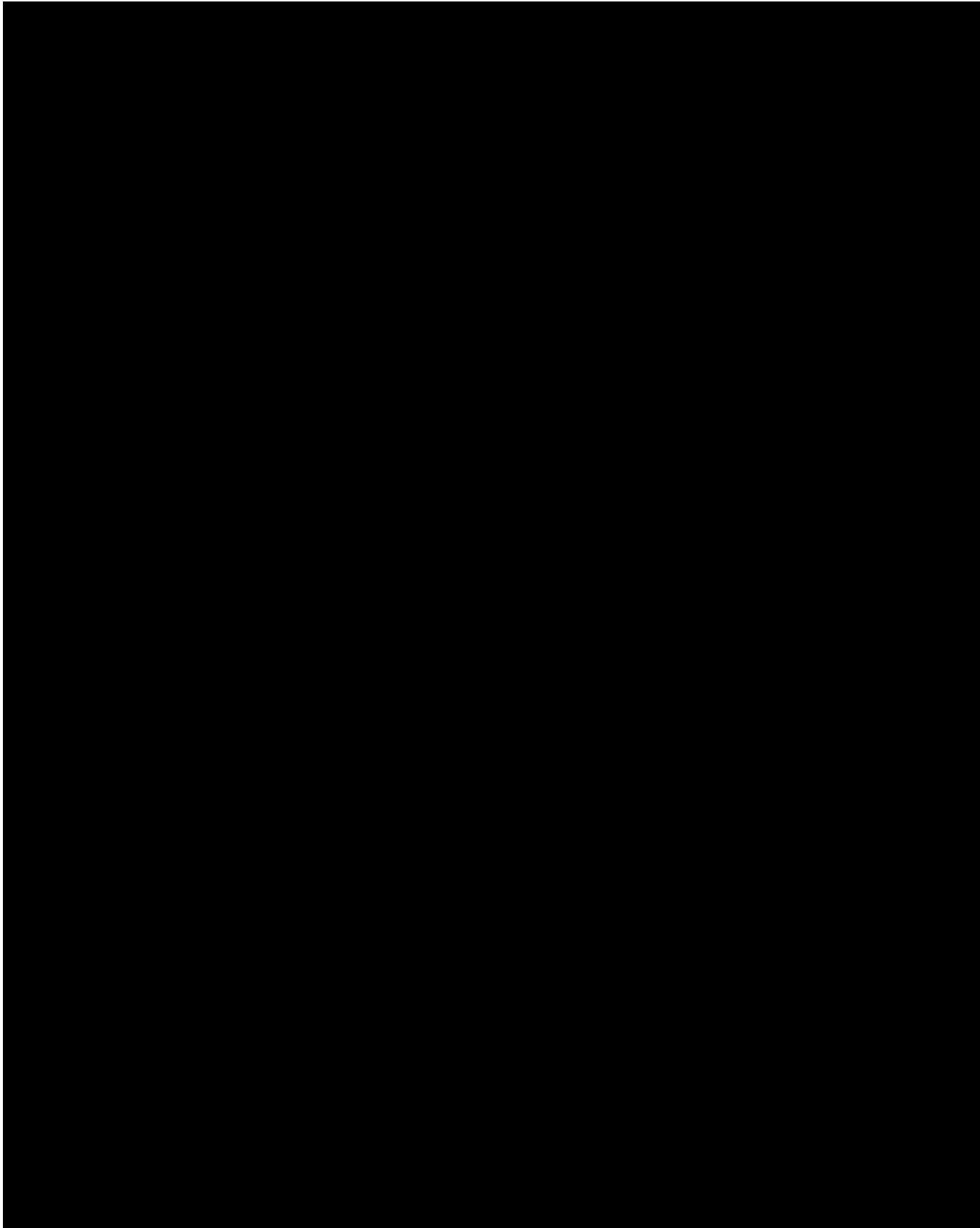




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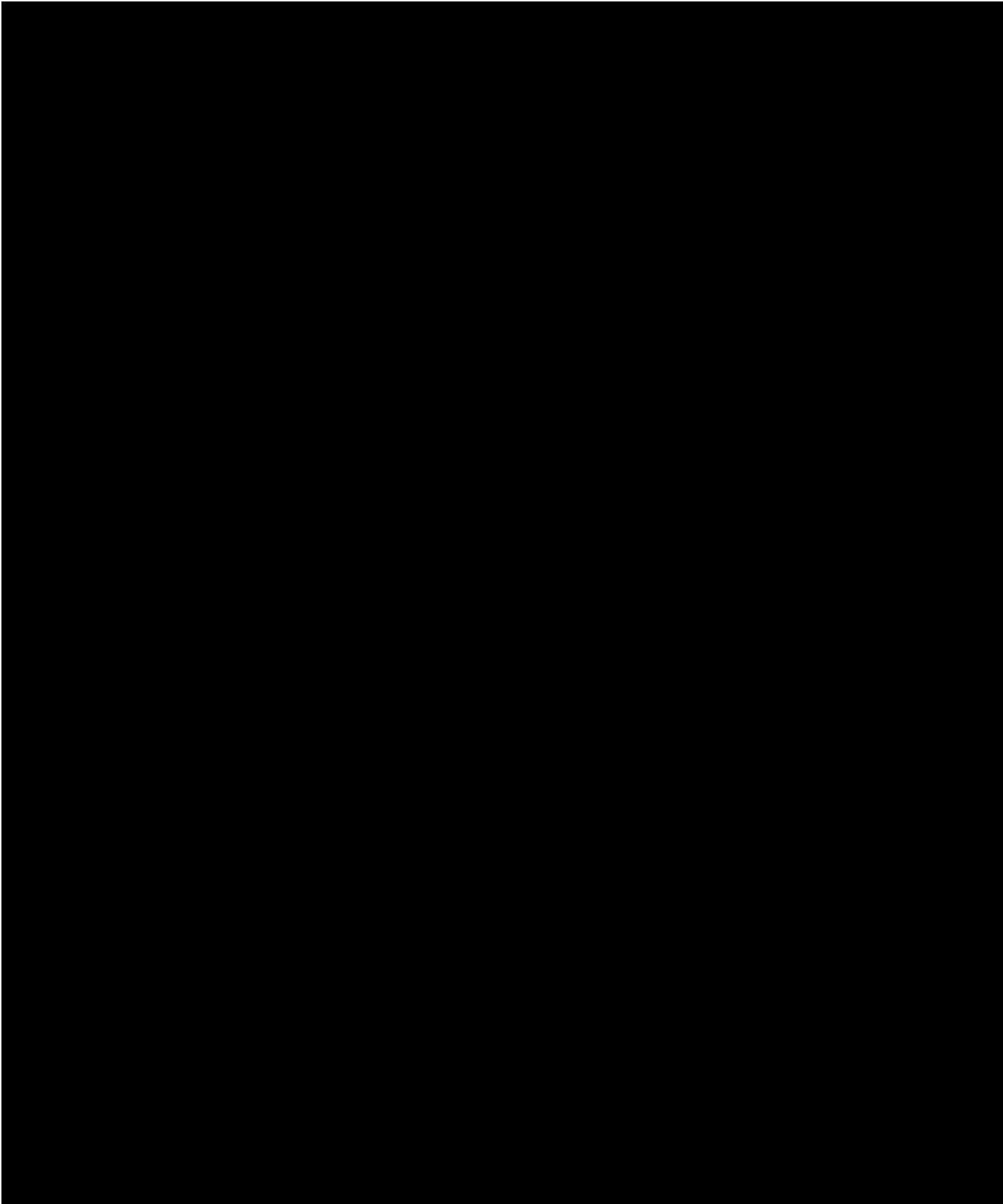


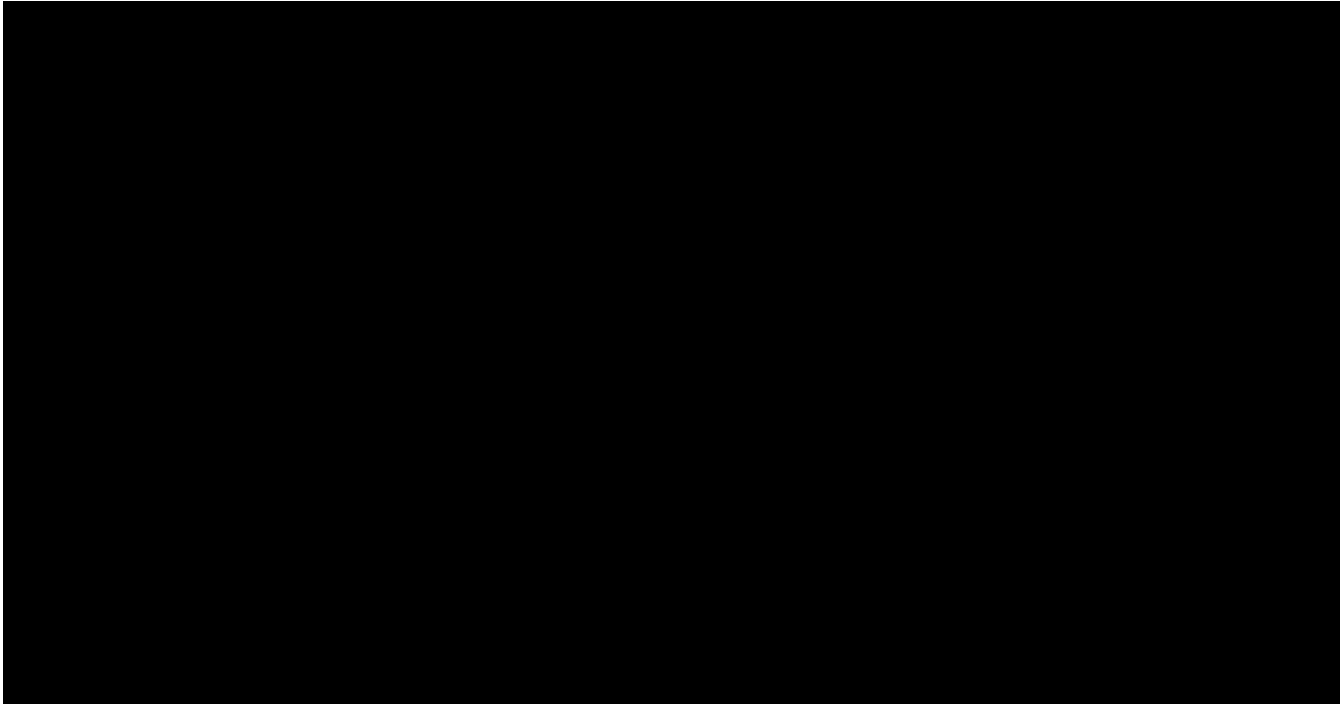


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10.5 Lighting Controls Plan

Describe the lighting controls that will be utilized on the Offshore Wind Generation Facility and explain how these controls comply with the minimum contract standards and the Offshore Wind Order.

Equinor Wind is committed to minimizing the impact of the Projects on the view from the associated coastlines. As described further in Section 16 below, Equinor Wind has conducted a detailed study and simulation of the viewshed impact of each Project under a full range of conditions and at various times of day.

To further minimize the potential impact of both Projects, Equinor Wind expects to utilize an Aircraft Detection Lighting System (“ADLS”). This system uses radar technology to monitor the airspace over and around the wind farm and ensures that lights will only be activated when aircraft is in the vicinity of the wind farm. The system’s detection coverage satisfies the FAA’s Obstruction Marking and Lighting Advisory Circular, which sets forth the requirements for lighting obstructions that may be a safety risk to air navigation (AC 70/7460L). In accordance with this requirement, lighting shall be activated and illuminated prior to an aircraft penetrating the perimeter of a group of structures (e.g., WTGs), which is a minimum of 3 nm horizontally and 1,000 ft vertically.

 If, during later stages of design, it is deemed infeasible, or a better technology becomes available, Equinor Wind will evaluate such technology for use, in consultation with NYSERDA.



The installation of ADLS will reduce the potential impact of the Projects on bird and bat species, as well as limit the impact on viewshed resources by minimizing the duration and/or frequency of illumination during nighttime or other appropriate times (*e.g.*, poor visibility). Importantly, detailed assessments of the impact of lighting on birds, bats, and viewshed resources will be carried out as part of BOEM’s environmental assessment process in the COP. Equinor Wind performed an ADLS assessment for the Empire Wind projects as part of its COP, which considered historic air traffic data to determine the total light system activation of obstruction lighting based on the maximum design scenario of the Project Design Envelope. A similar assessment will be conducted for the Beacon Wind COP. It is important to note that ADLS systems are designed specifically for a project and based on several factors. Therefore, more specific details on anticipated illumination for the projects’ ADLS can be developed upon selection of the WTG type, overall height, and layout.

The wind turbines will be lit and marked in accordance with FAA and USCG requirements for aviation and navigation obstruction lighting, respectively. In addition to adhering to FAA filing requirements for the wind turbines, Equinor Wind will light and mark all wind turbines in accordance with FAA Advisory Circular 70/7460-1L, BOEM’s Draft Proposed Guidelines for Providing Information on Lighting and Marking of Structures Supporting Renewable Energy Development (2019), and International Association of Marine Aids to Navigation and Lighthouse Authorities Recommendation O-139 on The Marking of Man-Made Offshore Structures or most current requirements.



11 PROJECT SCHEDULE

A Proposer must demonstrate that its Project can be developed, financed, and constructed within a commercially reasonable timeframe. Proposer is required to provide sufficient information and documentation showing that Proposer’s resources, process, and schedule are adequate for the acquisition of all rights, permits, and approvals for the financing of the Project consistent with the proposed milestone dates that support the proposed Commercial Operation Date(s).

Proposers are required to provide a complete critical path schedule for the Project from the notice of award to the start of commercial operations. For each Project element listed below, provide the start and end dates:

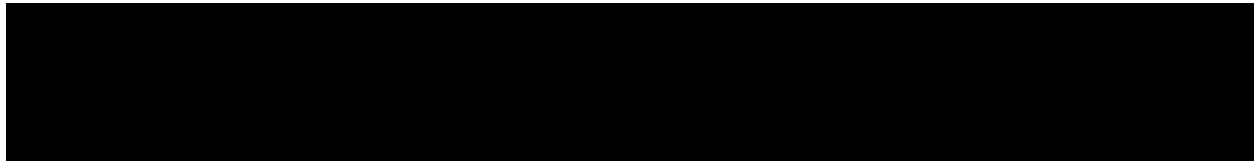
1. Identify the elements on the critical path. The schedule should include, at a minimum, preliminary engineering, financing, acquisition of real property rights, Federal, state and/or local permits, licenses, environmental assessments and/or environmental impact statements (including anticipated permit submittal and approval dates), completion of interconnection studies and approvals culminating in the execution of the Interconnection Service Agreement, financial close, engineer/procure/construct contracts, start of construction, construction schedule, and any other requirements that could influence the Project schedule.

11.1 Critical Path Schedule

Equinor Wind has developed a detailed and standardized approach to planning and executing offshore wind projects, which has been used to successfully execute large and complex projects in Europe. This approach is tailored to provide a basis for well-informed decision-making, ensure effective use of time and resources, and provide certainty to our stakeholders and partners.

As such, each Project has a Project Master Schedule (“PMS”), which integrates the major tasks associated with the development of the Project. This schedule has been developed where relevant with input from manufacturers and the supply chain and builds on Equinor’s experience to ensure that it is realistic and achievable given current conditions and main assumptions. As each Project collects more data and continues to mature its respective designs, the schedule will be refined to incorporate these developments.

The schedule for each Project is comprised of several defined work packages, some of which will be executed concurrently. Below is a brief overview of the scheduling context and strategy for each Project, followed by a discussion of each work package, its major components, and associated timeline.





[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

11.2 Permitting and Site Survey

As further detailed in Section 9.1, Equinor Wind will be required to obtain a range of local, state, and federal permits in order to construct each Project. Permitting is an integrated part of the project schedule and includes studies, assessments, and surveys for the COP and local permitting. Section 9.1 provides a detailed overview of the permits that will be required for the development of each Project and Equinor Wind's progress to date in obtaining the requisite approvals.

Information concerning Equinor Wind's plan for interconnection of each Project and the associated land acquisition requirements is provided in Section 8 and the associated Attachments.



[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

11.3 Construction Schedule

Equinor Wind has developed a detailed schedule for the engineering, procurement, fabrication, and installation of major components of each Project. This schedule has been developed through extensive dialogue with prospective suppliers as well as Equinor's experience developing offshore wind facilities of similar size and scope. A consolidated view of the construction schedules are provided as Attachments 11.E and 11.F. The following sections provide a more granular breakdown of the timing of the engineering, procurement, fabrication, and installation of individual components of each Project.



11.3.1 Wind Turbine Generators

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

11.3.2 WTG Foundations

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



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11.3.3 Cables

[Redacted text block]

[Redacted text block]

[Redacted text block]



[Redacted]

[Redacted]

[Redacted]

11.3.4 Electrical System

Equinor Wind has commissioned several studies covering the necessary equipment and layout of the offshore and onshore substations. The results of a concept study performed in 2019 and 2020 will be used to confirm the electrical equipment for the onshore and offshore substations and inform the electrical system design. The equipment chosen for the onshore and offshore substations will provide the basis for the layouts, procurement, fabrication, and pre-commissioning of the onshore and offshore substations.

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]



[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

11.3.5 Marine Operations

As each Project develops, the marine construction schedule will be further optimized to allow for simultaneous work on different aspects of the project if possible to execute in a safe and efficient manner. Additionally, each schedule notes the restriction windows applied to the marine operations of each project and have been incorporated into the planning process.

[Redacted]

[Redacted]

[Redacted]

[Redacted]



[Redacted]

[Redacted]

[Redacted]

11.4 Decommissioning

Equinor Wind is committed to responsibly developing both Projects, including the eventual decommissioning of the projects in compliance with applicable regulations and the stipulations in Equinor Wind’s leases. Given the current stage of development, a decommissioning timeline has not been established. Prior to the end of the project lifetime, Equinor Wind will conduct an assessment of each project site employing best practices and analytical methods to determine the feasibility and potential risks associated with decommissioning. The results of this analysis will then be reflected in a decommissioning application, which will be submitted to BOEM for review and approval prior to the commencement of decommissioning activities.

[Redacted]

11.5 Offshore Construction Windows

1. Describe the anticipated permissible offshore construction windows, and how the construction milestones will be accommodated within these windows.

Installation windows have been established based on the metocean characteristics of the lease areas in order to maximize efficiency in the project marine operations. These windows take into account available weather data and the operational limitations of the various marine operations. Some of the analysis is performed by installation contractors and verified by Equinor while others are performed entirely by Equinor based on its extensive maritime operations experience. This analysis utilizes Equinor’s proprietary marine operations simulation software, MARSIM and COSMO, as well as publicly available software from Shoreline.

Equinor has vast experience conducting complex marine installation activities as a result of its oil, gas, and offshore wind projects. This experience has been applied to the design of a realistic installation schedule for both Projects that takes into account the full range of factors that have the potential to impact marine operations, including environmental restrictions and regulations, and expected weather conditions.



Marine Installation activities can occur year-round, but the preferred windows for each task are provided below.



Given its vast experience conducting complex marine operations, Equinor has developed a variety of procedures to ensure that project components are ready during a given installation window. These procedures include ensuring timely delivery of components, inspection for compliance with specifications, and coordinating vessel activities to allow for efficient use of resources.



- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

The COP, FIR, and FDR will be approved by BOEM before marine installation begins.

11.6 Marine Installations per Year

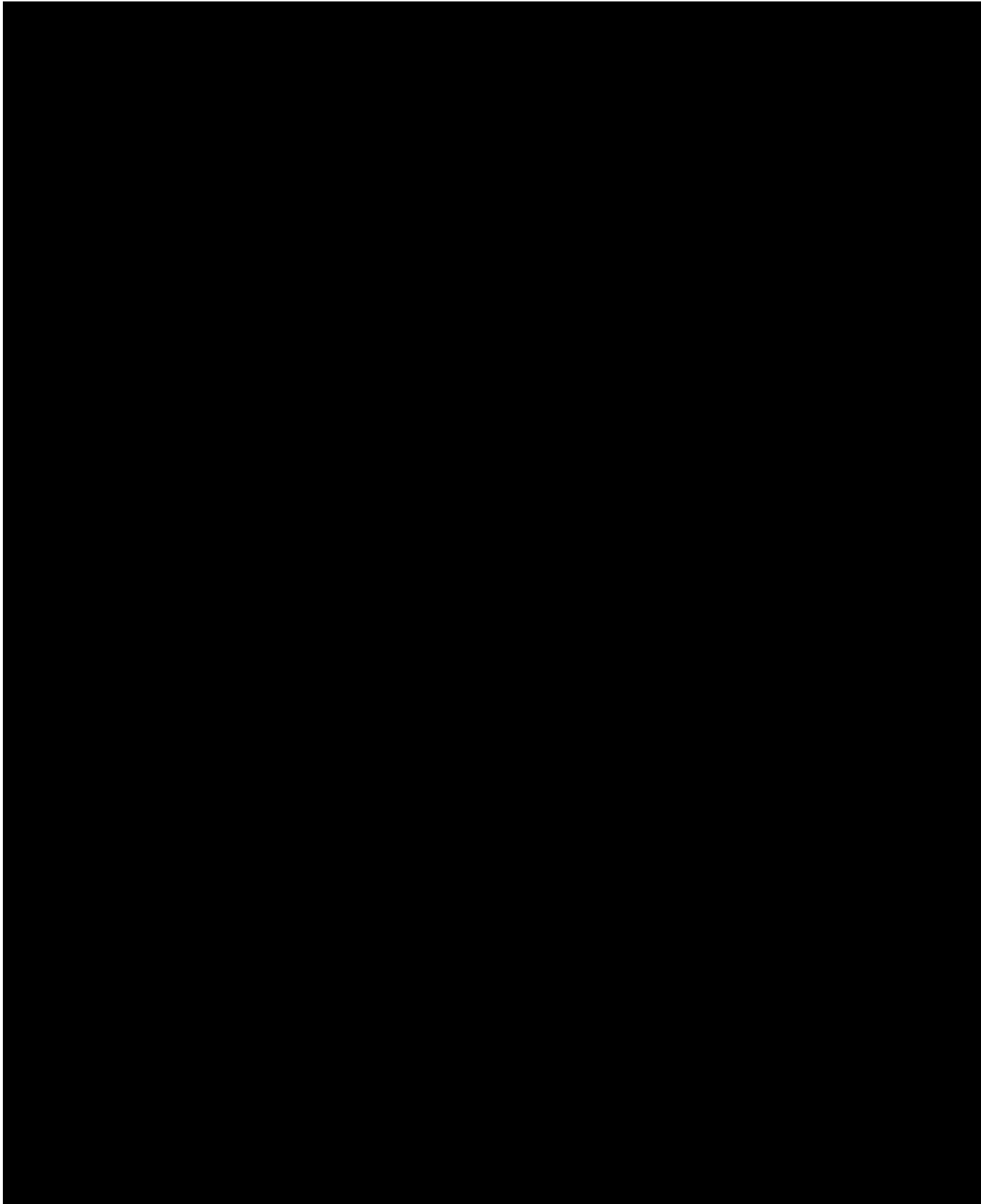




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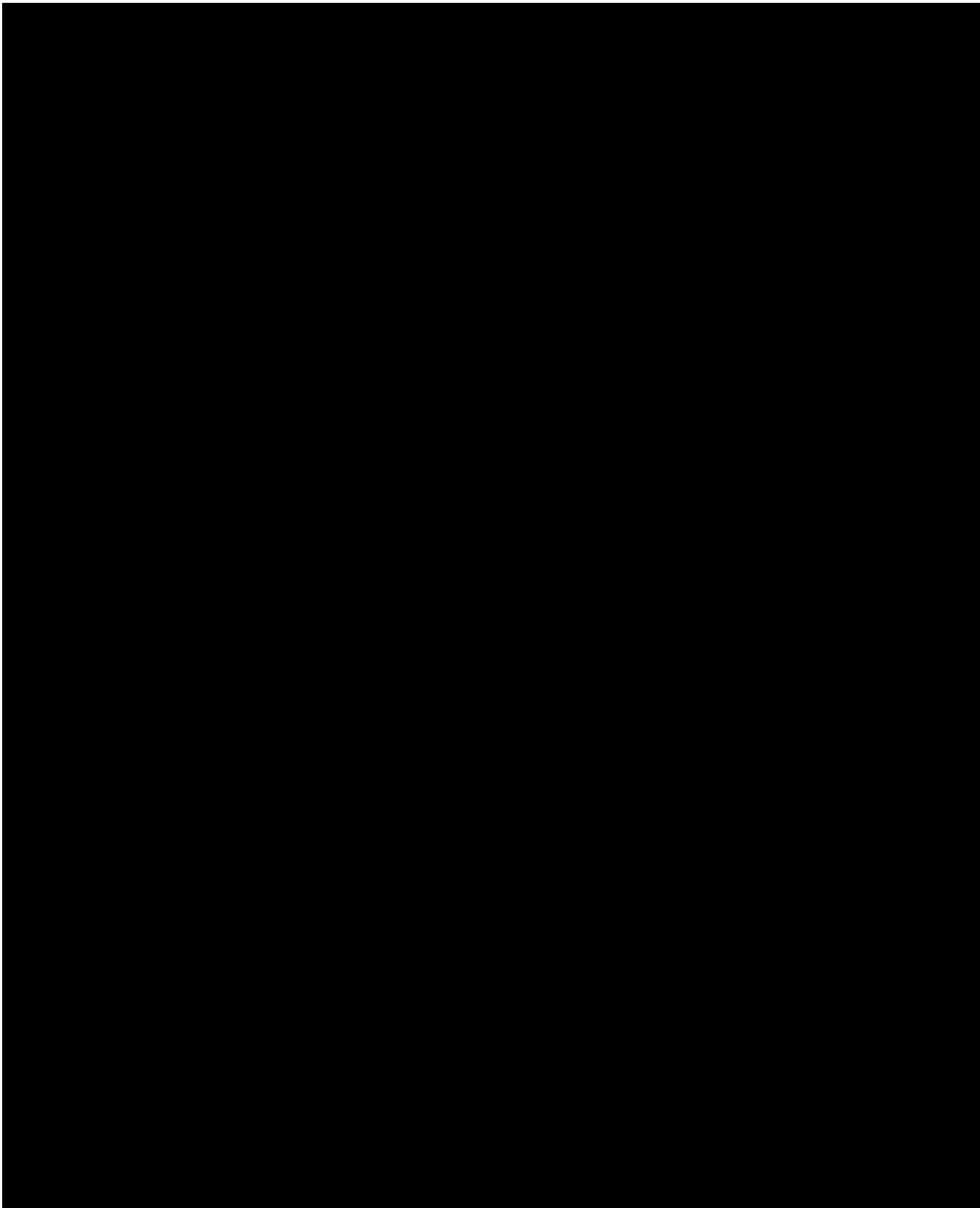




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12 CONSTRUCTION AND LOGISTICS

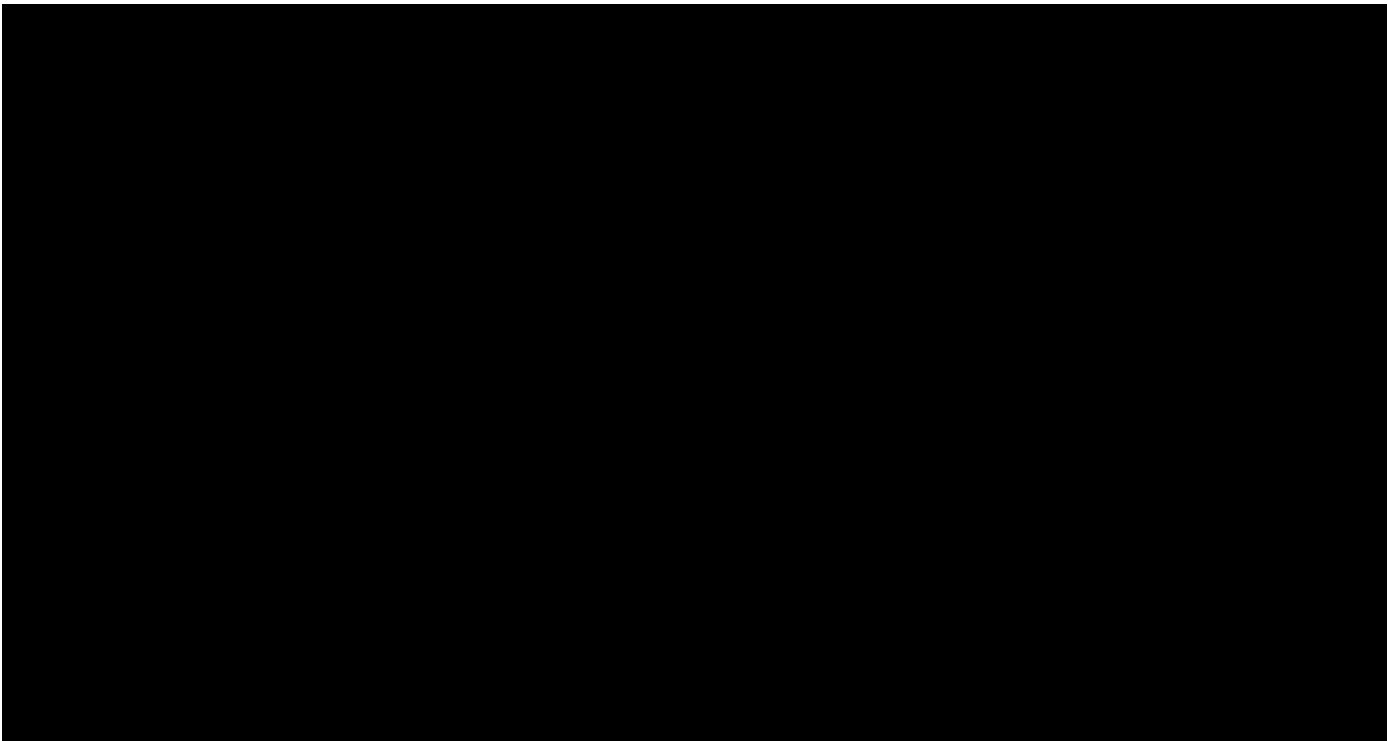
This section of the Proposal addresses necessary arrangements and processes for outfitting, assembly, storage, and deployment of major Project components such as turbine nacelles, blades, towers, foundations, and transmission support structures.

12.1 Major Tasks and Necessary Equipment

List the major tasks or steps associated with deployment of the proposed Project and the necessary specialized equipment (e.g., vessels, cranes).

The construction and deployment plan for each Project is based on experience gained over the course of Equinor's decades of constructing and deploying large scale offshore energy projects, including its existing offshore wind portfolio. The construction and deployment plan for each project has been calibrated to ensure timely completion of each Project given the characteristics of each lease area, the availability of necessary equipment and vessels, and offshore installation vessels.

Figure 63 below provides an overview of the major tasks associated with deployment of the Projects and the equipment necessary for each task.

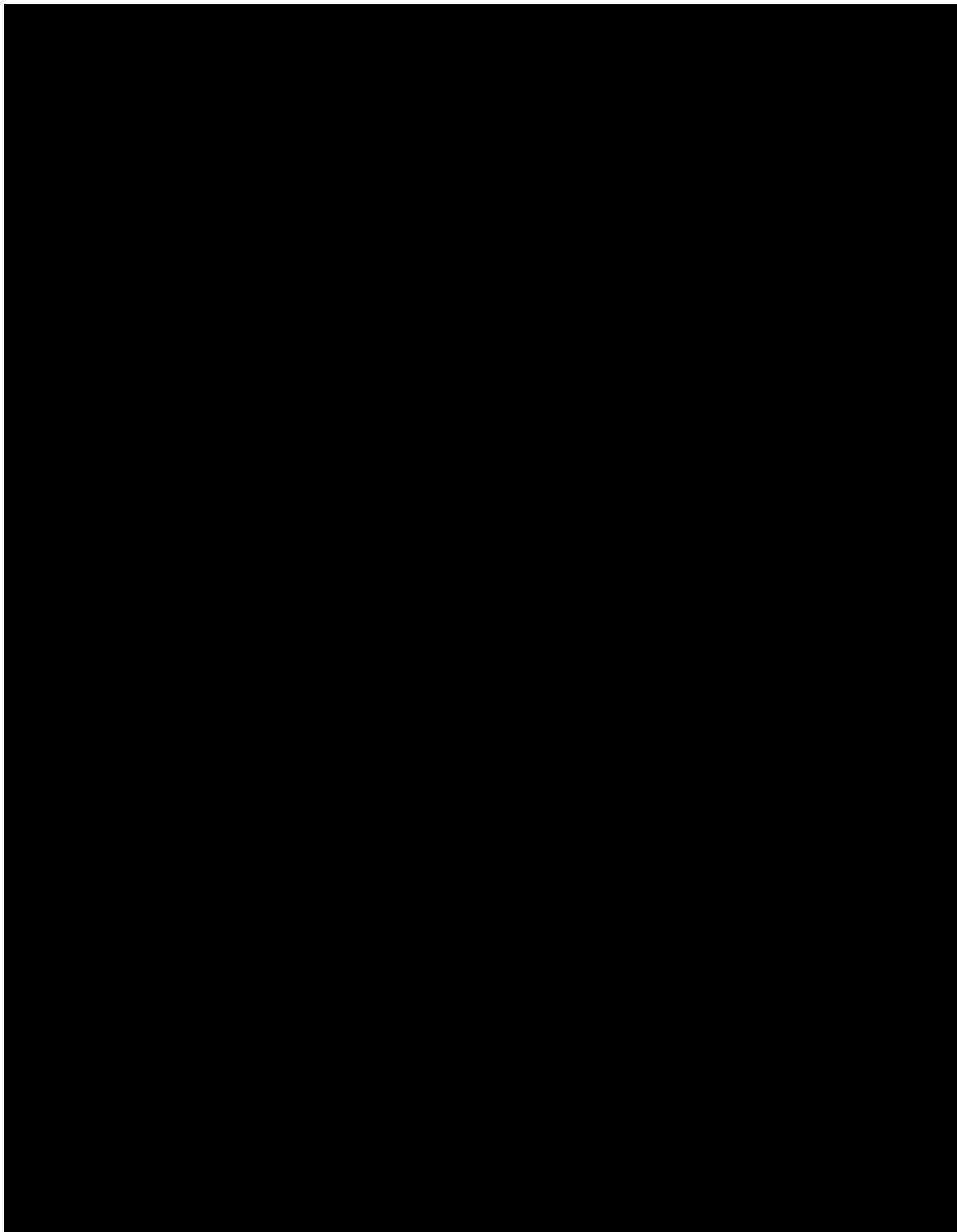


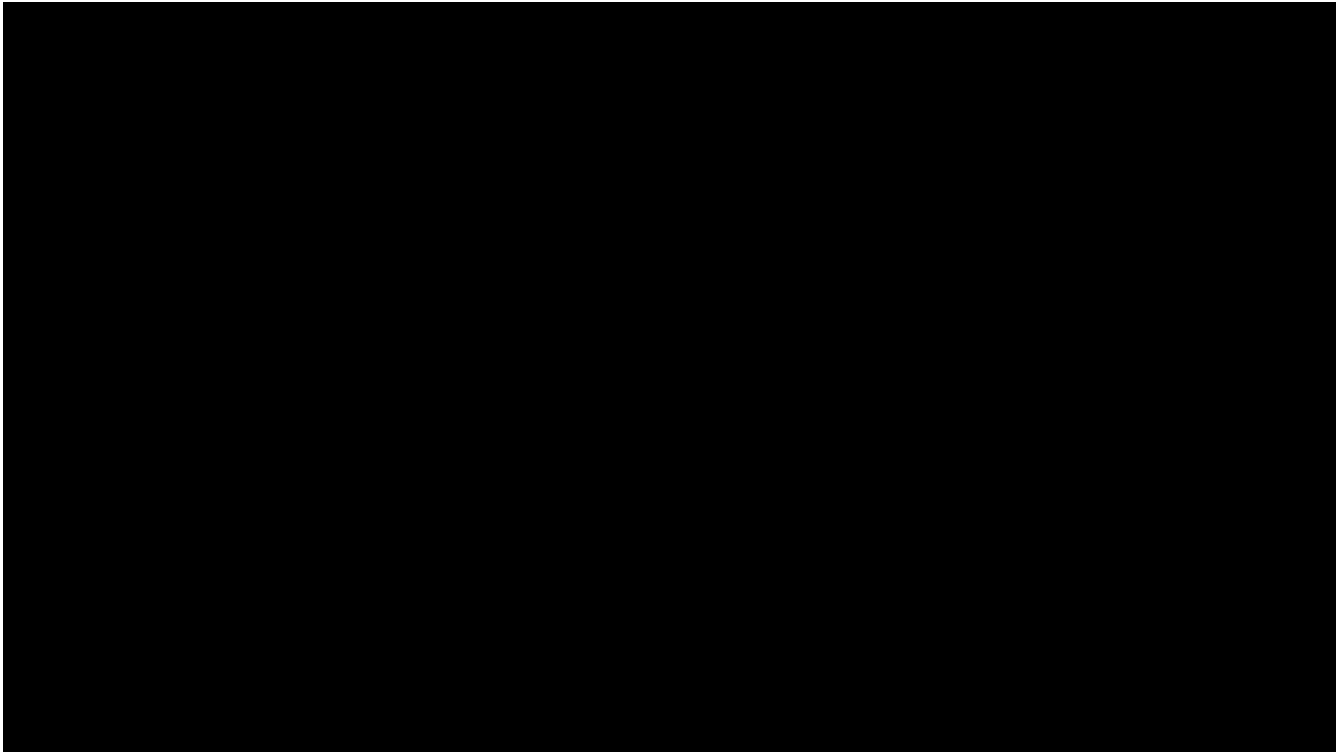


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12.2 Staging and Deployment

Describe the proposed approach for staging and deployment of major Project components to the Project site. Include a description and discussion of the laydown facility/facilities to be used for construction, assembly, staging, storage, and deployment.

With decades of experience developing offshore oil, gas, and wind facilities, Equinor has a proven track record of successfully staging and deploying large scale, offshore wind energy projects. Equinor has extensive experience coordinating port and maritime activities and employs industry best practices to seamlessly coordinate port and maritime operations to ensure the timely and cost-effective construction of offshore projects while minimizing disruption to maritime and fisheries resources.

The construction plan for the Projects incorporates Equinor's insights and best practices gained over decades of developing offshore projects. Equinor utilizes industry leading best practices based on years of experience in planning, executing and operating challenging offshore energy projects to the highest standards. These best practices include stringent contractor evaluation and quality control measures, detailed planning aligned with industry and regulatory rules, and proprietary software built specifically for Equinor's needs and processes. Furthermore, Equinor utilizes KPIs to evaluate a project's development and provide insights for future improvements of these systems. Based on this experience, construction activities will be primarily divided into onshore and offshore components.





[REDACTED]

The process of manufacturing, shipping, assembly, and in-field installation of major project components is discussed below and prospective supplier letters of support are provided in Attachment 12.A. Detailed information regarding the project schedule is provided in Section 11.

12.2.1 WTGs

The staging and deployment of the WTGs will consist of the following distinct tasks and are the same for each Project:

- Fabrication
- Transportation to staging port and staging
- Transportation to site from the staging port and installation at the project site
- Commissioning

Fabrication

[REDACTED]

[REDACTED] further detail on Equinor’s proposal to use the Port of Albany as a tower fabrication location.

Transportation to Local Staging Port and Staging

[REDACTED]

Additionally, the port facility will need to comply with International Ship and Port Security standards.

Since obtaining rights to the lease area, Equinor Wind has been collaborating with local ports and

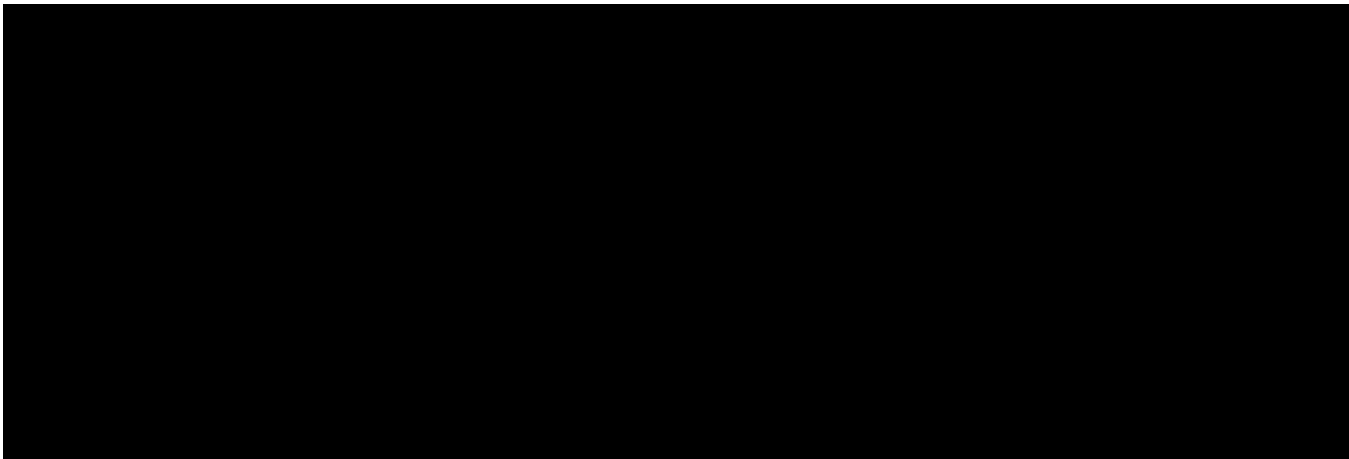
[REDACTED]



[REDACTED] Equinor Wind is working with local authorities and organizations to identify potential port facilities that can successfully service the project. A number of feasible candidate ports have been identified and discussions are ongoing with the port authorities and state agencies in the hopes of broadening the development options. [REDACTED]

[REDACTED]

[REDACTED] An example of the types of vessels that typically are used for component transportation can be found in Figure 64 below.



[REDACTED] the WTG components will be unloaded from the transportation vessels. After off-loading, preservation measures will be in place at the staging port to maintain the WTG components until they are ready for load-out. Prior to load-out onto the transportation vessel for installation, Equinor Wind will conduct a “walk down” procedure to ensure the integrity of the components and compliance with specifications. Additionally, some initial component assembly and commissioning activities will occur at the quayside, in accordance with turbine manufacturer standard procedures, to reduce the commissioning time offshore.

Transportation to Site and Installation

Once pre-installation preparation and testing are complete, the wind turbines will be loaded on a transport vessel spread for transportation to the project site. The schedule focuses on achieving a sufficient inventory of component at the staging port to ensure a high efficiency for the installation vessel.

²⁶ Photo Credit: BWS Study Report.



The transportation and installation process will continue year-round until construction of the project is complete. As a general matter, Equinor expects there to be some delays due to adverse weather, but the current project schedule, detailed in Section 11, has been tailored to account for these delays. Equinor Wind will engage a qualified transportation and installation contractor for transportation and installation of the wind turbine components. The contractor will be responsible for selecting the methodology that will be used to safely transport the components from the staging port to each lease area in compliance with the Jones Act. [REDACTED]

[REDACTED]

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Commissioning

Following installation, the WTGs will be prepared for operation and energization.

[Redacted text block]

[Redacted text block]



12.2.2 Foundations

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- | [REDACTED]
- | [REDACTED]
- | [REDACTED]
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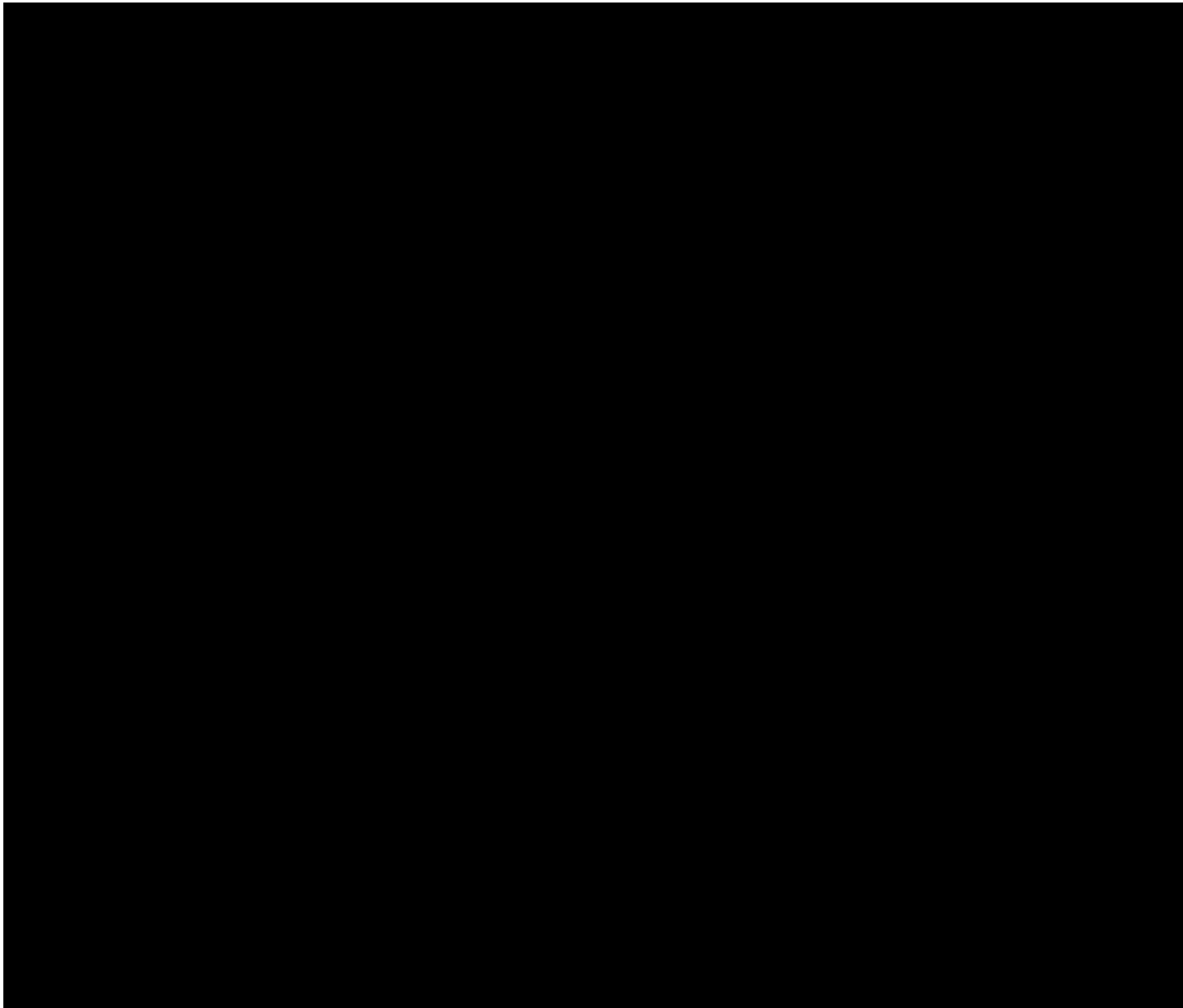
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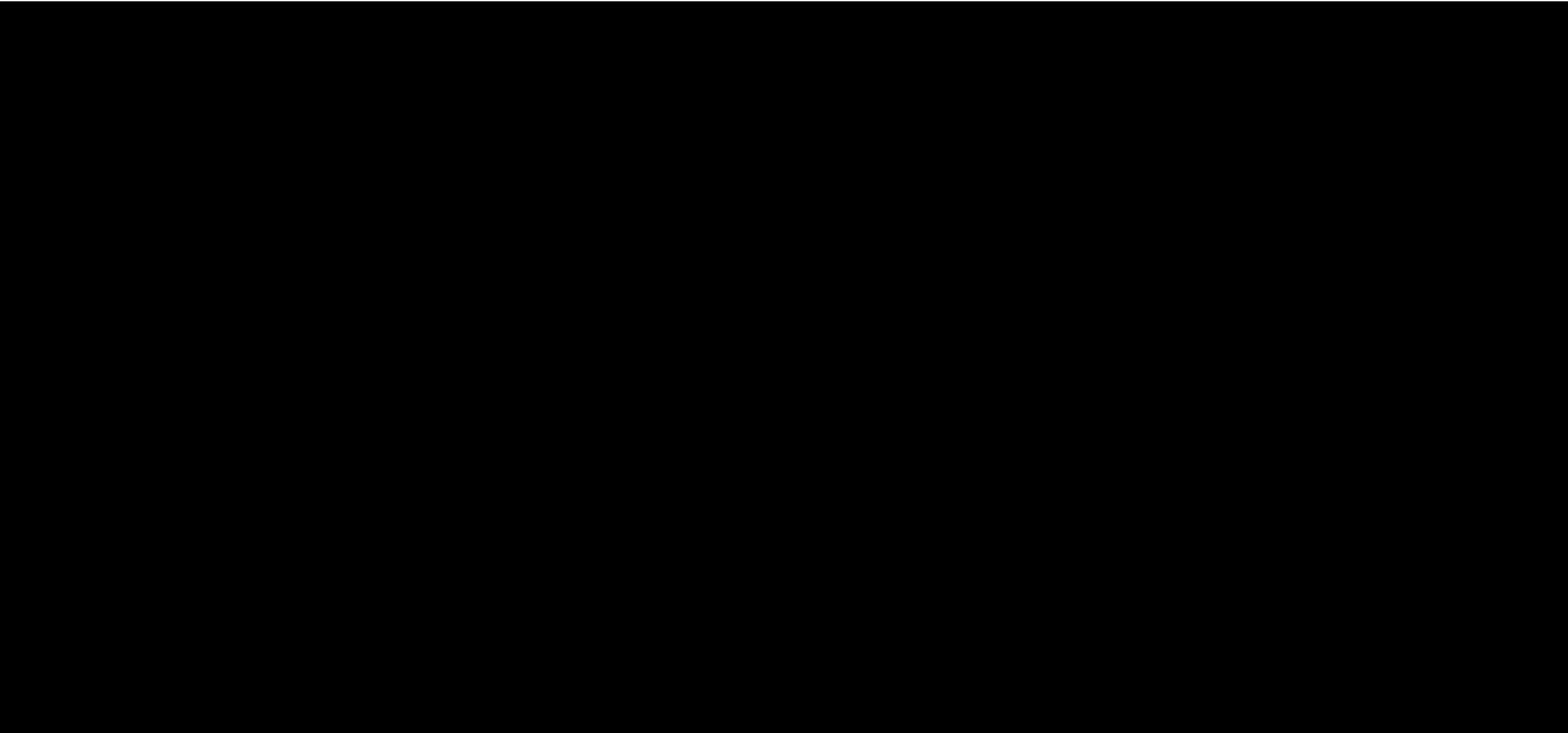


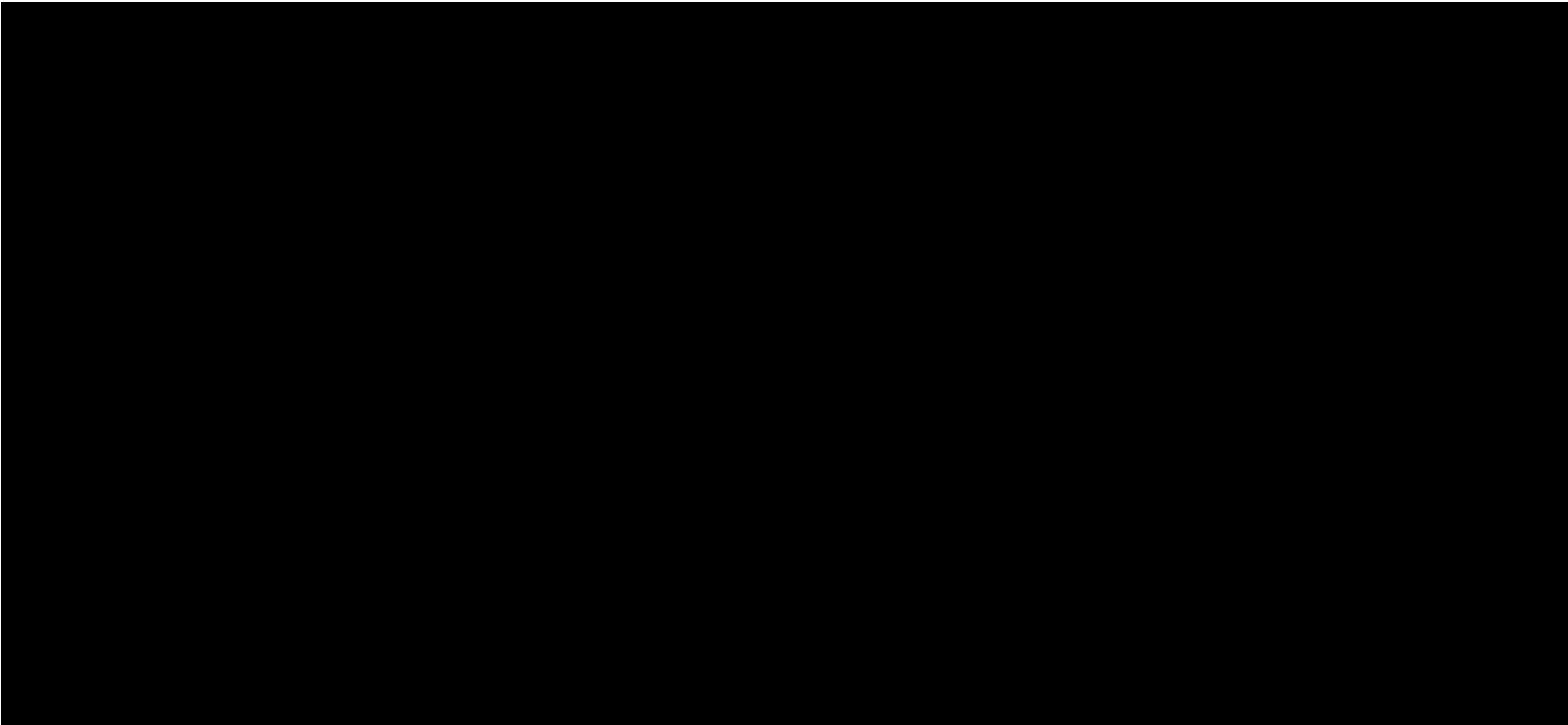
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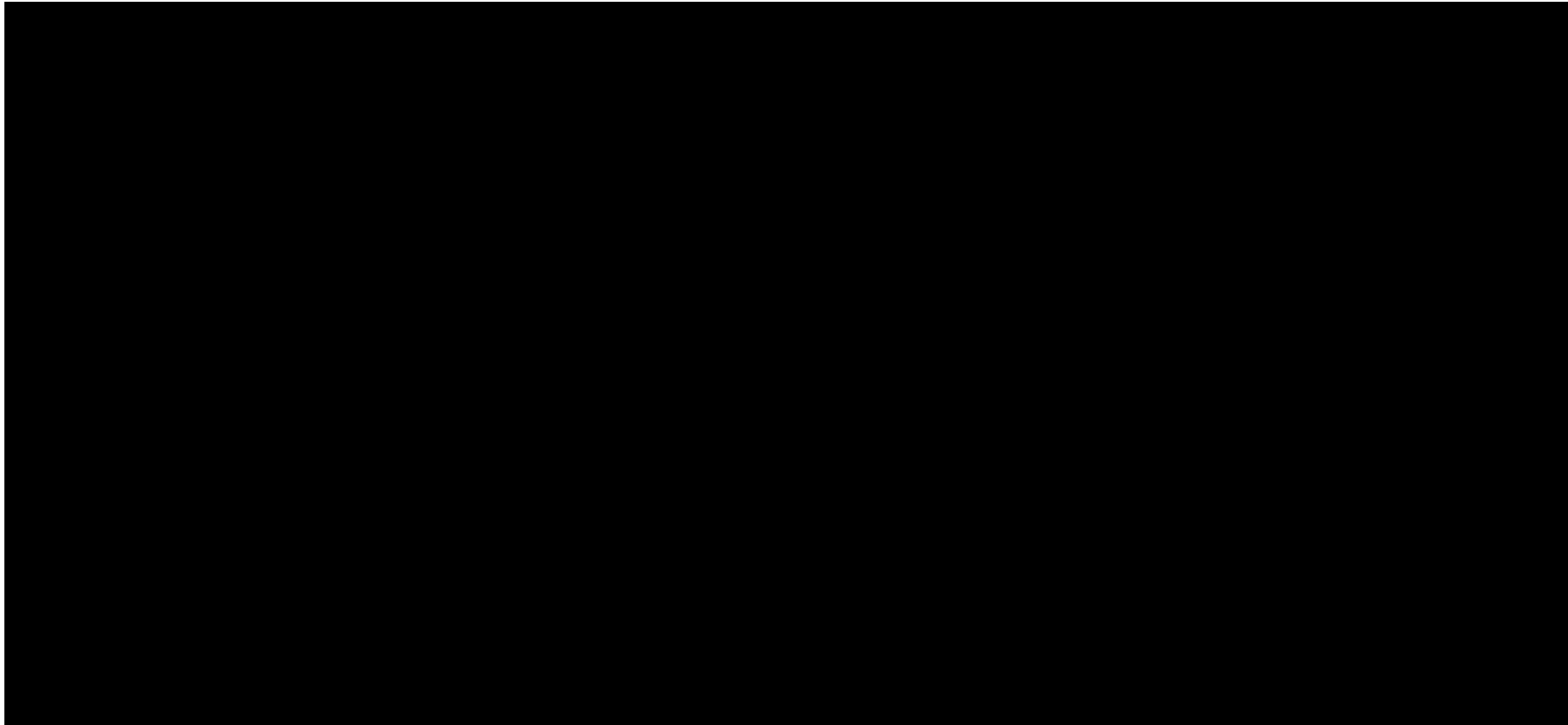


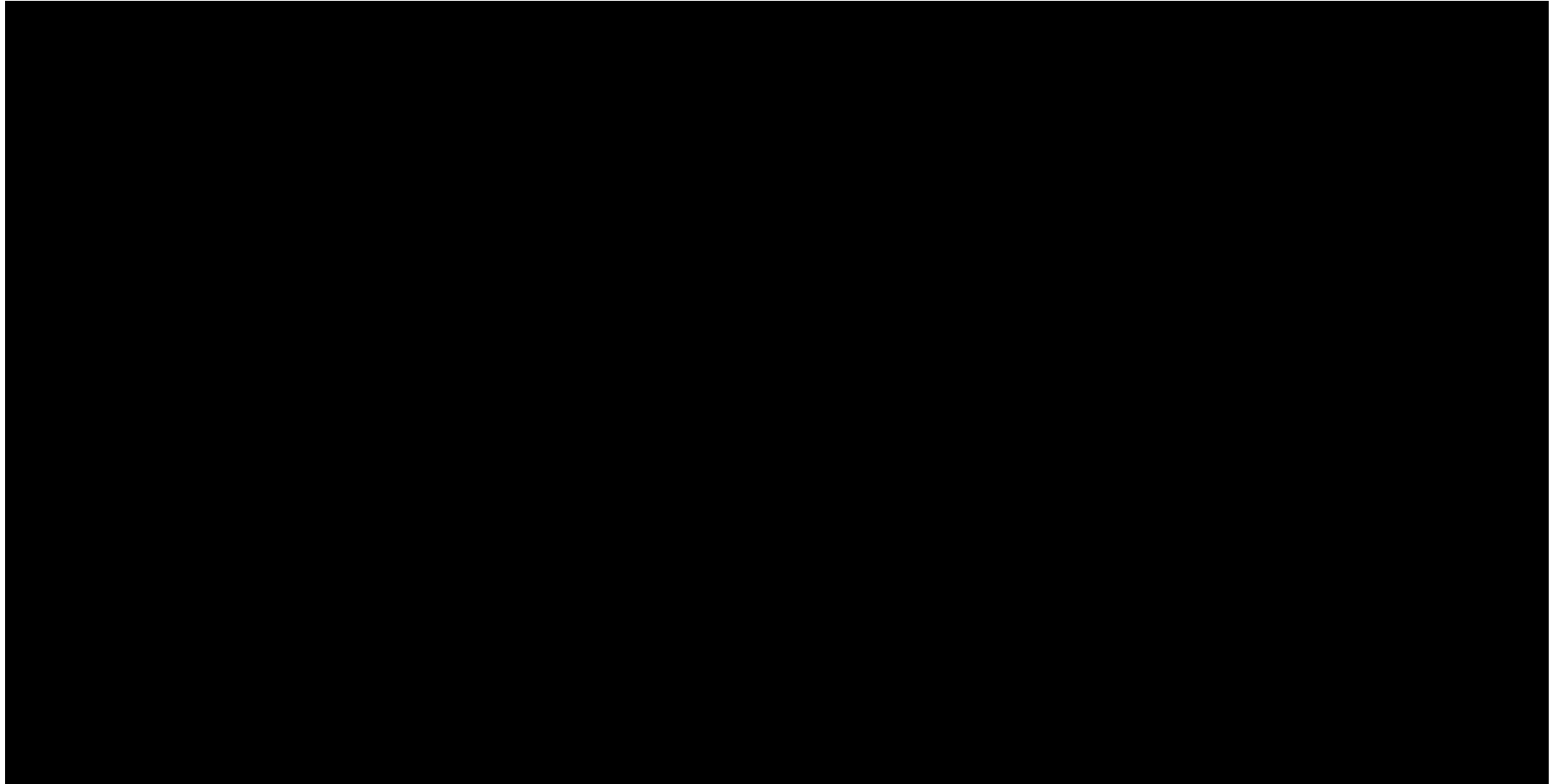
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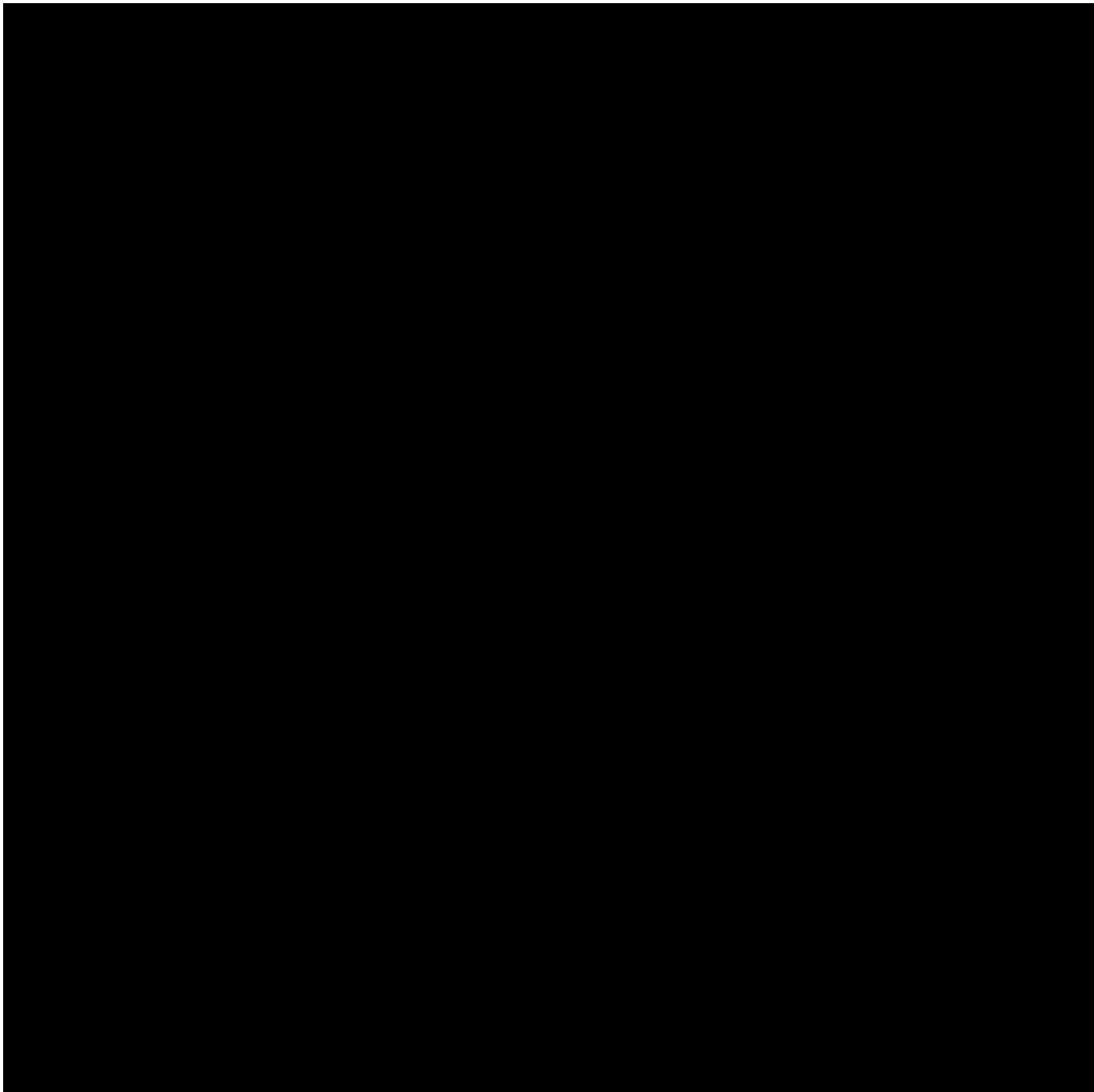




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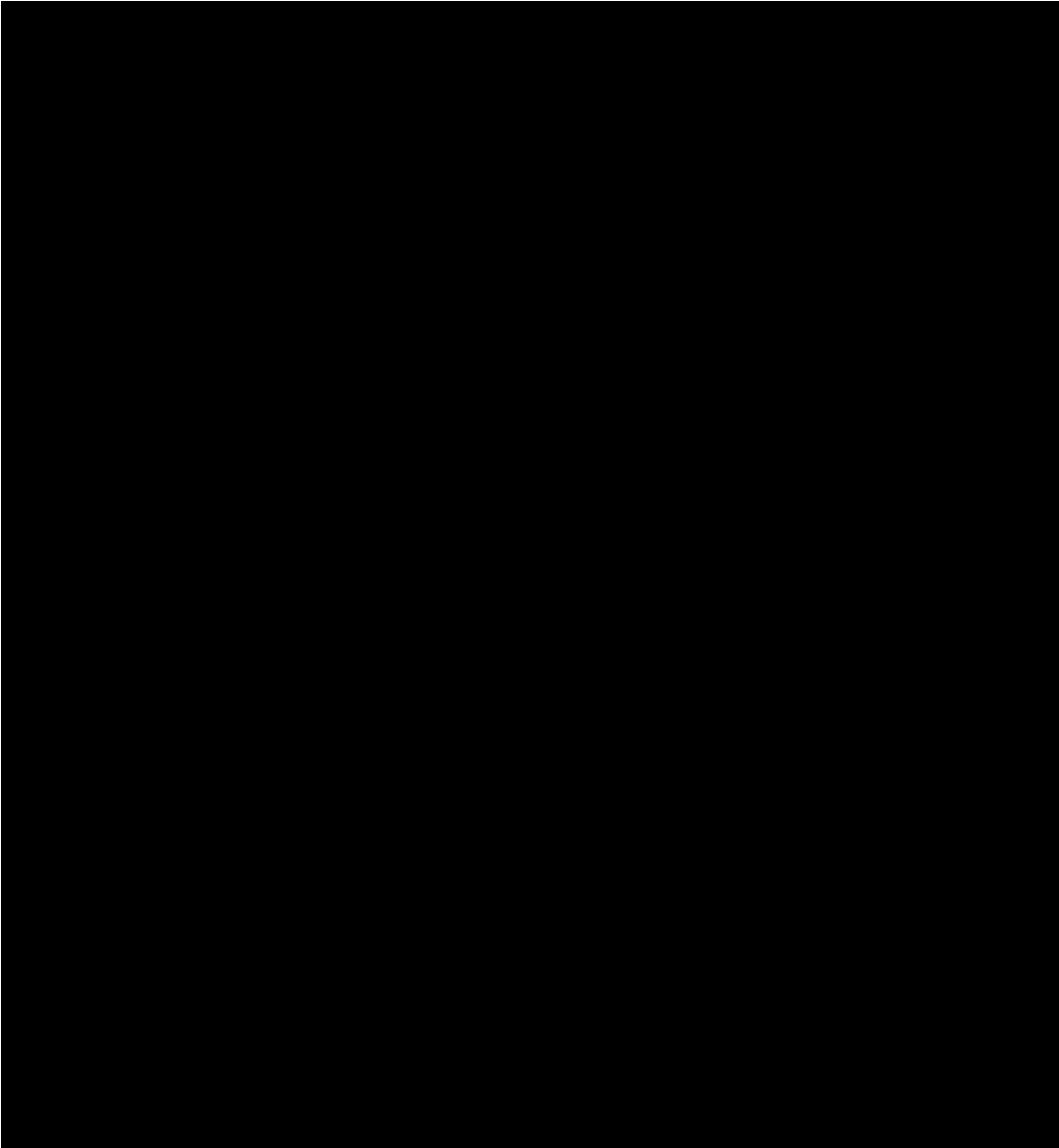




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²⁷ Photo Credit: SHL Study Report

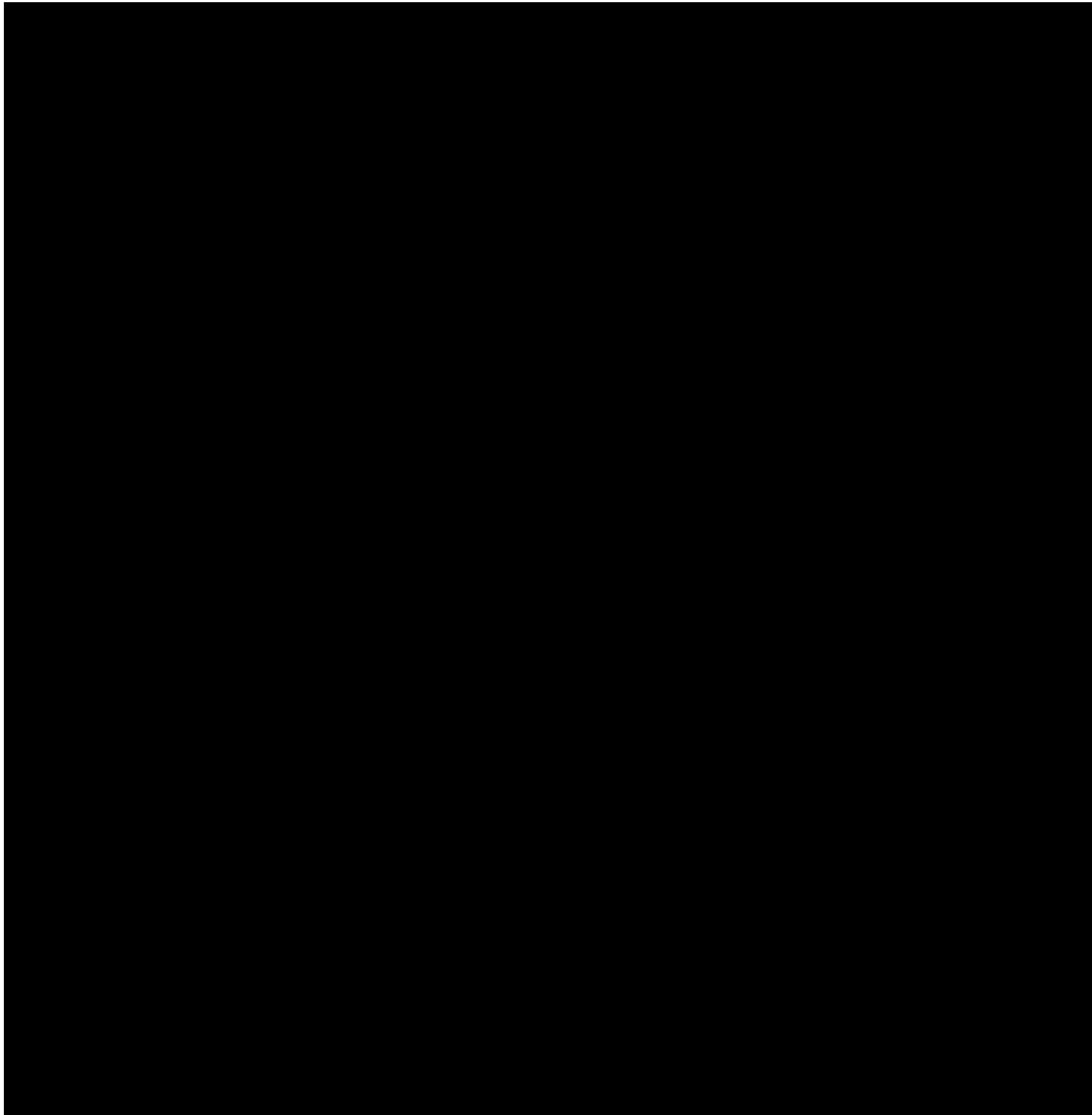
²⁸ Photo Credit: Saipem



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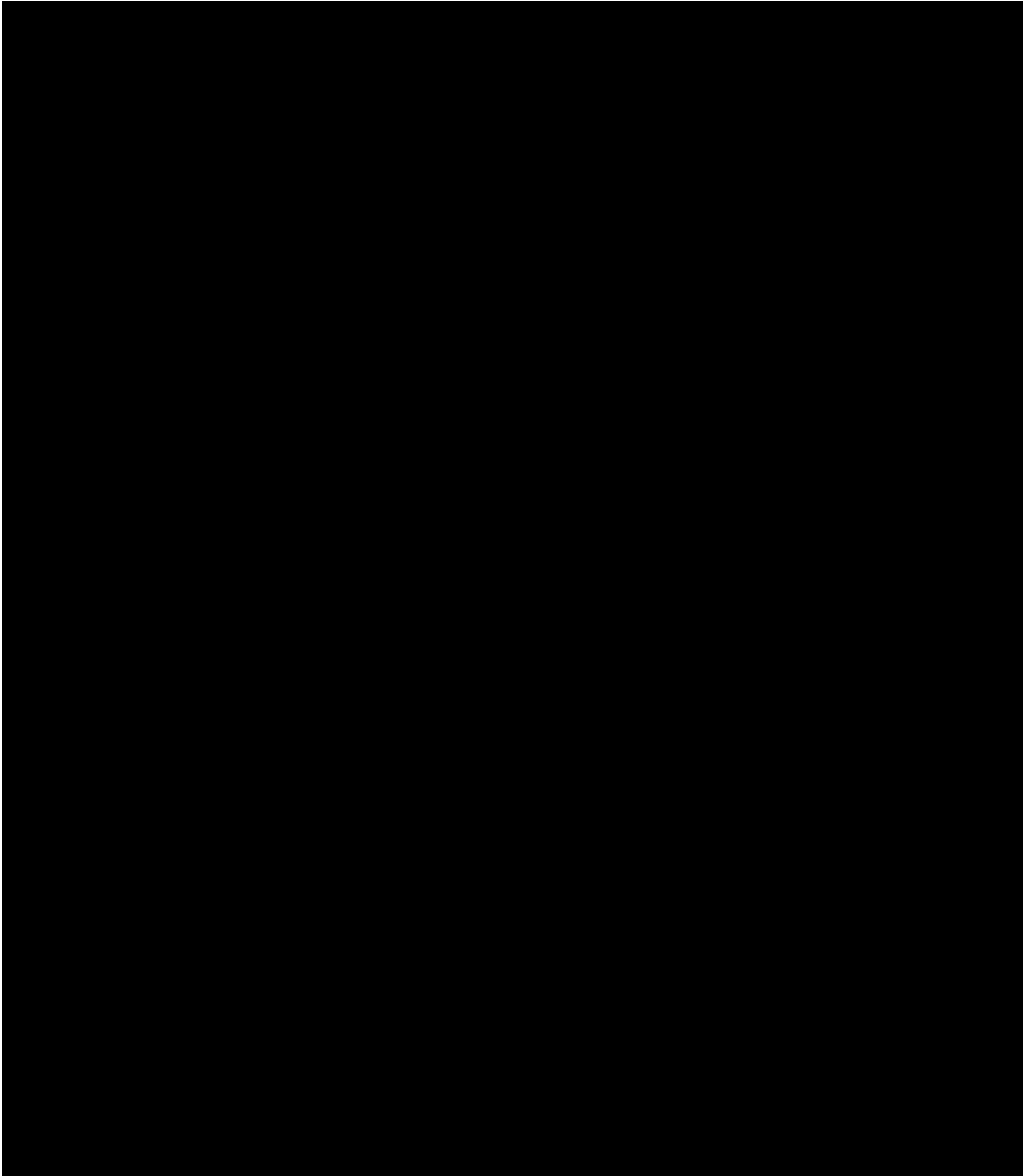




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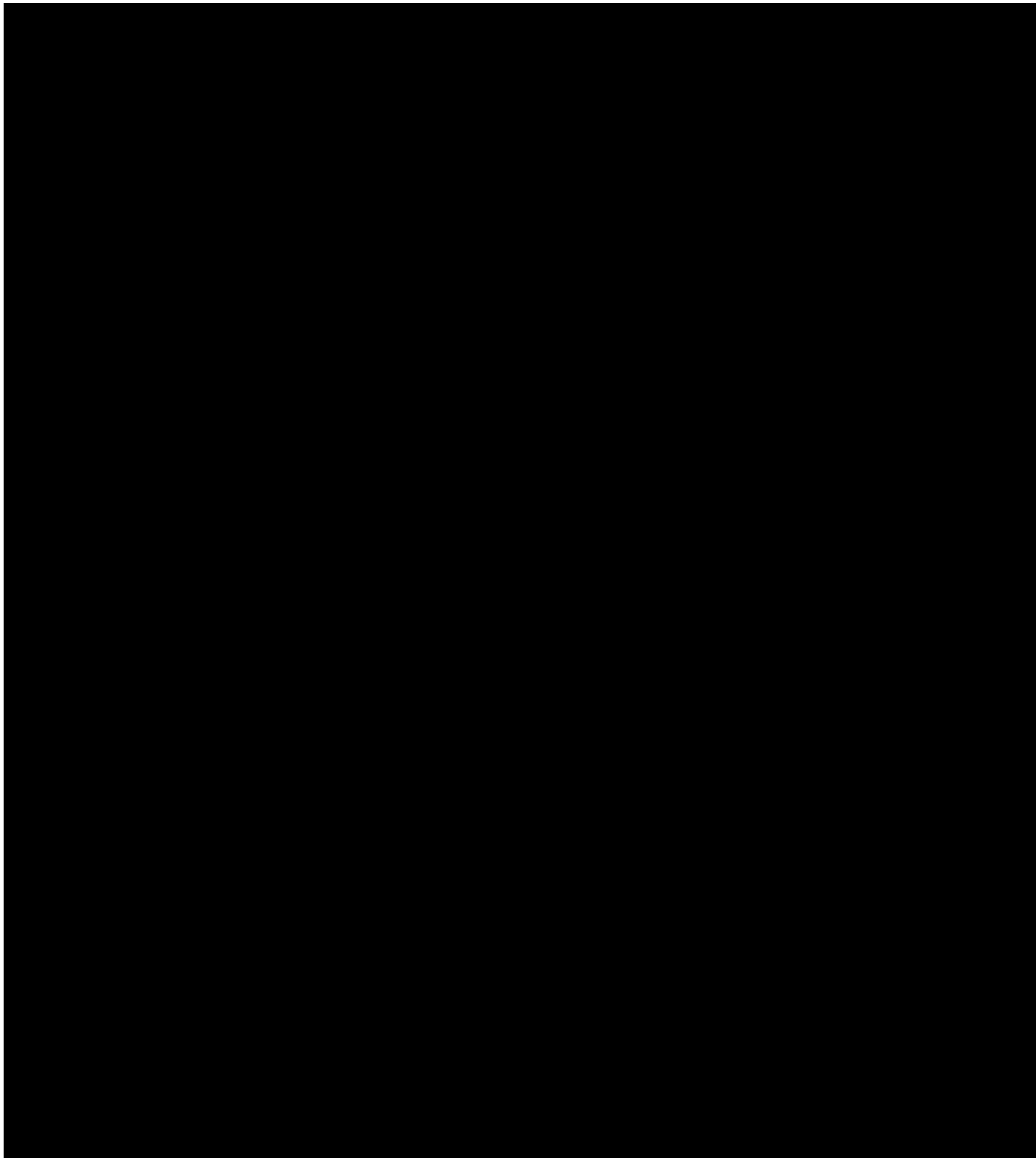




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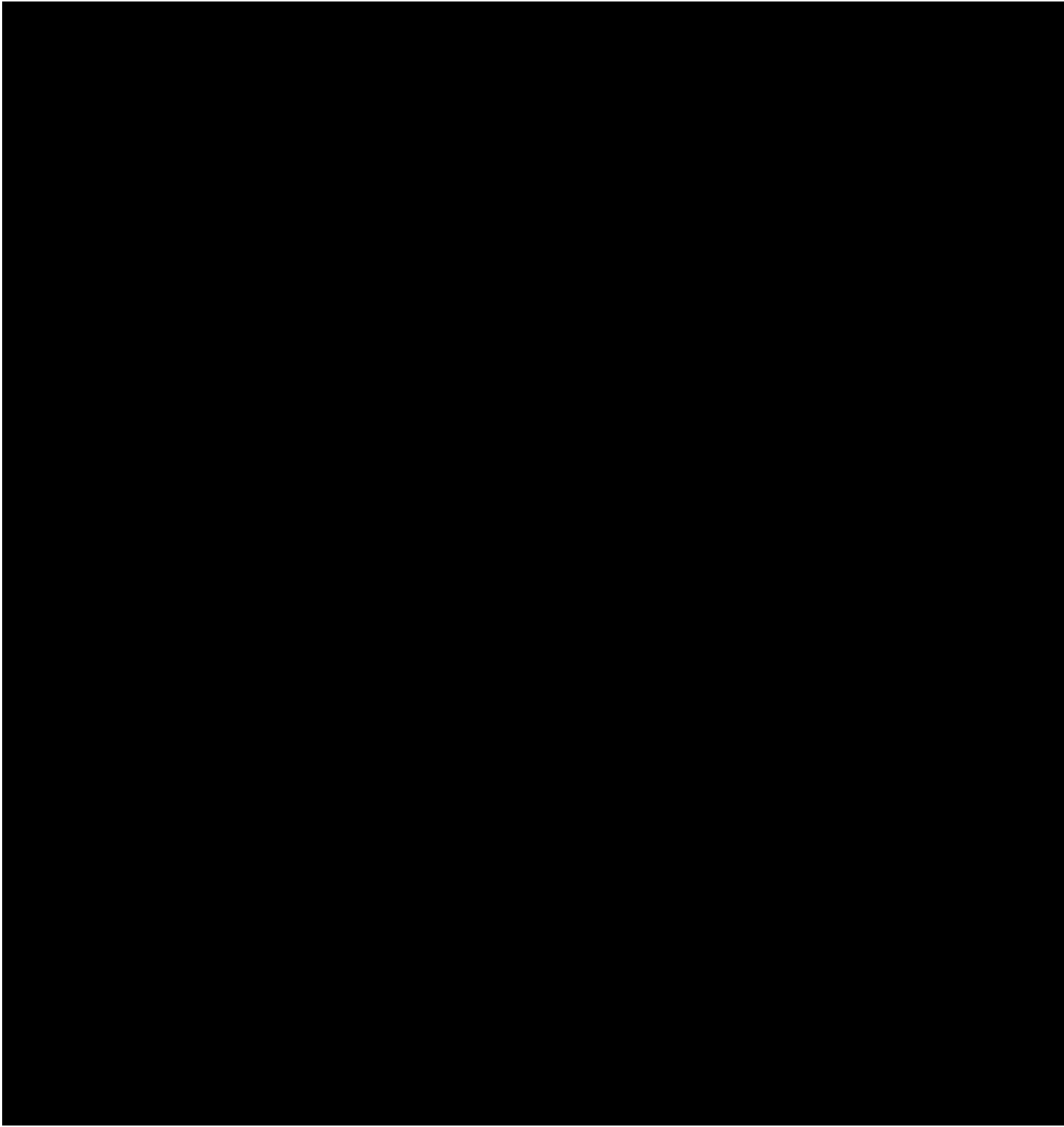
²⁹ Photo credit: Courtesy of Seaway Heavy Lifting and Bigroll



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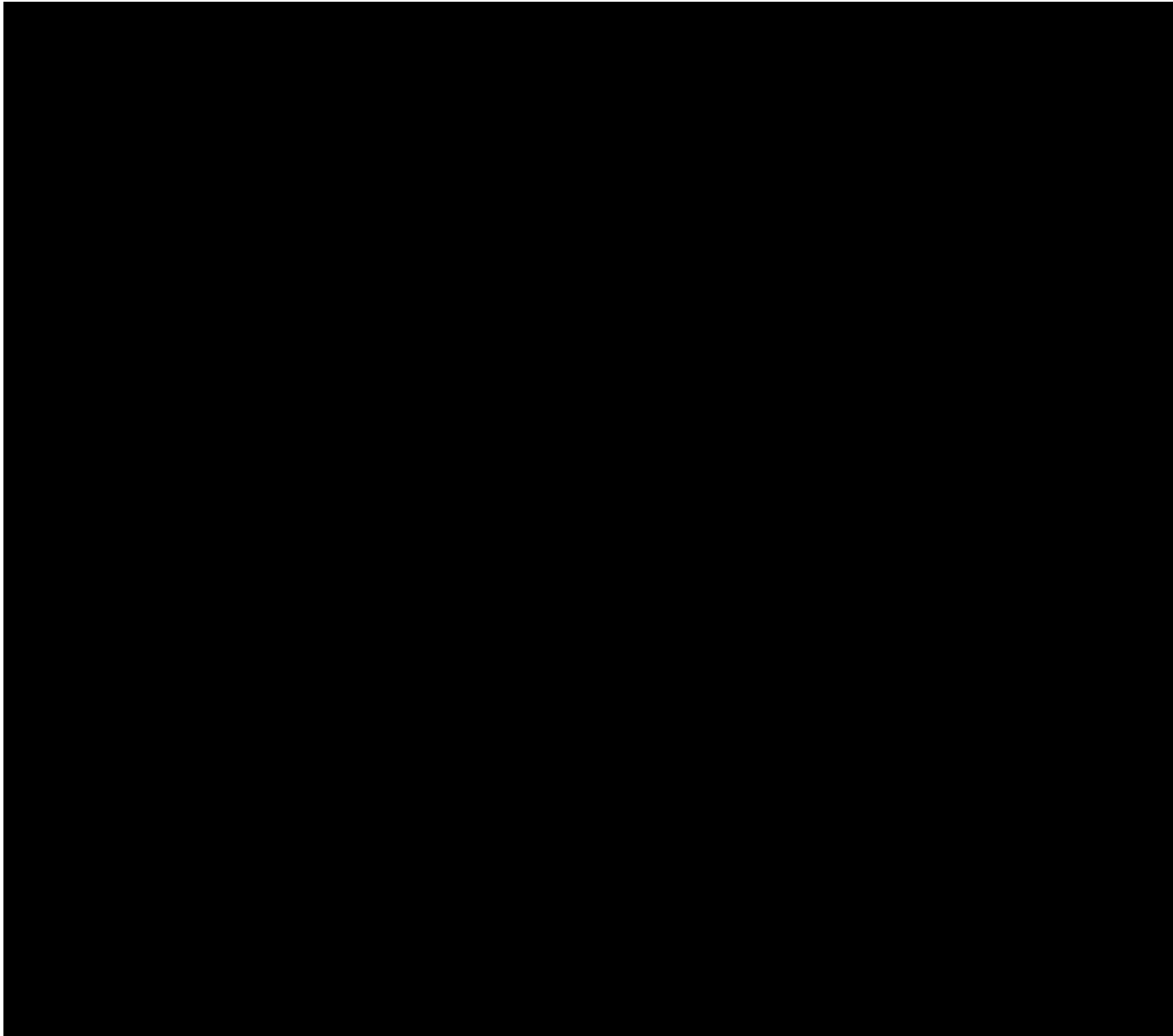




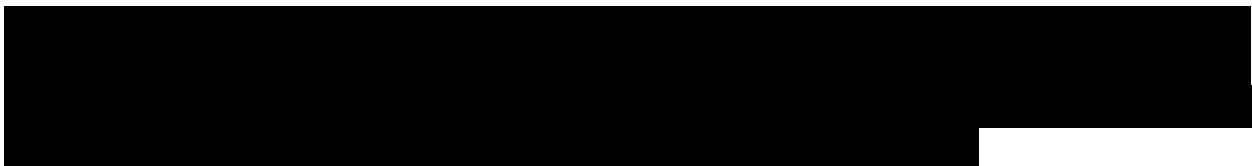
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Foundation Transport

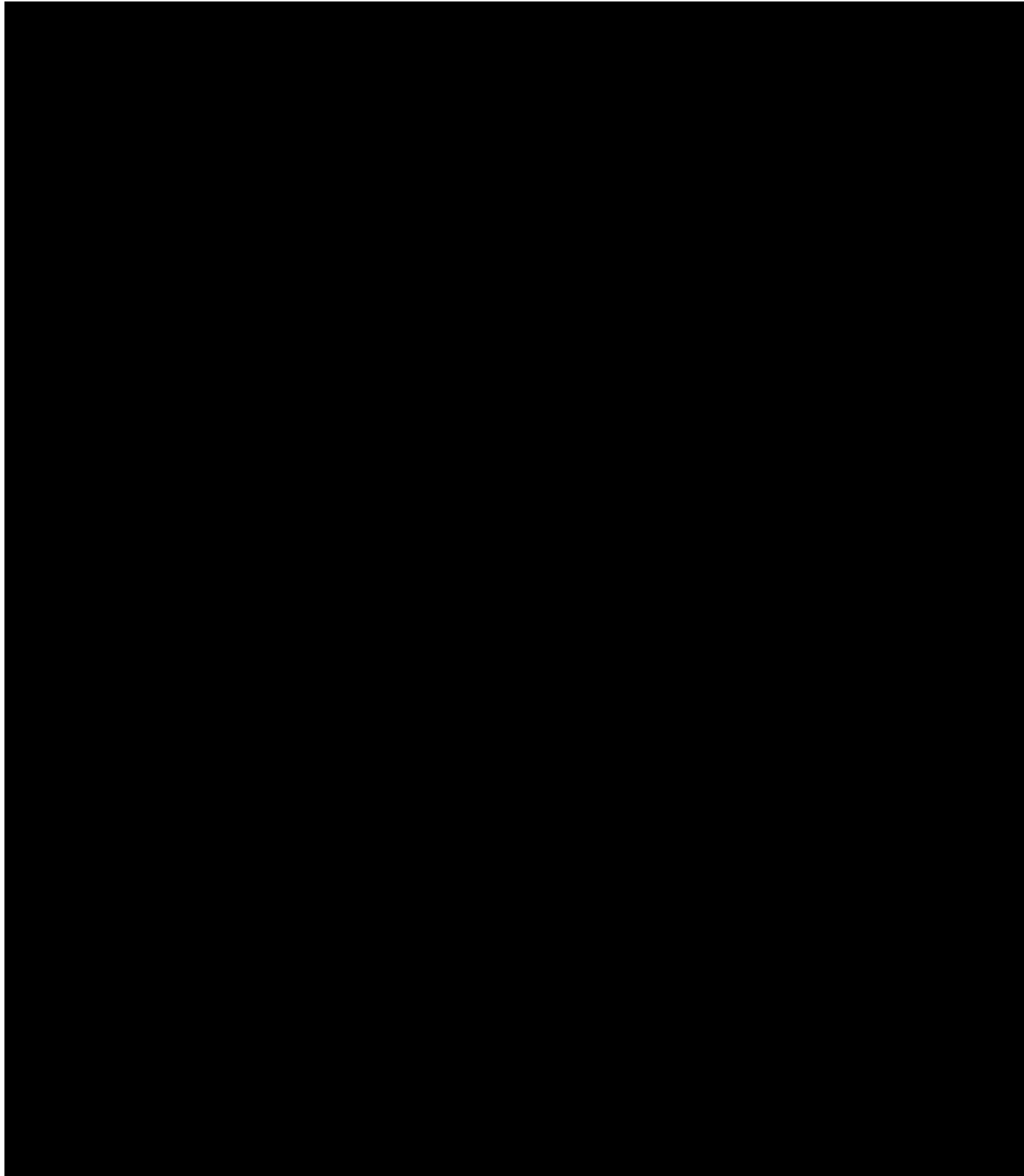




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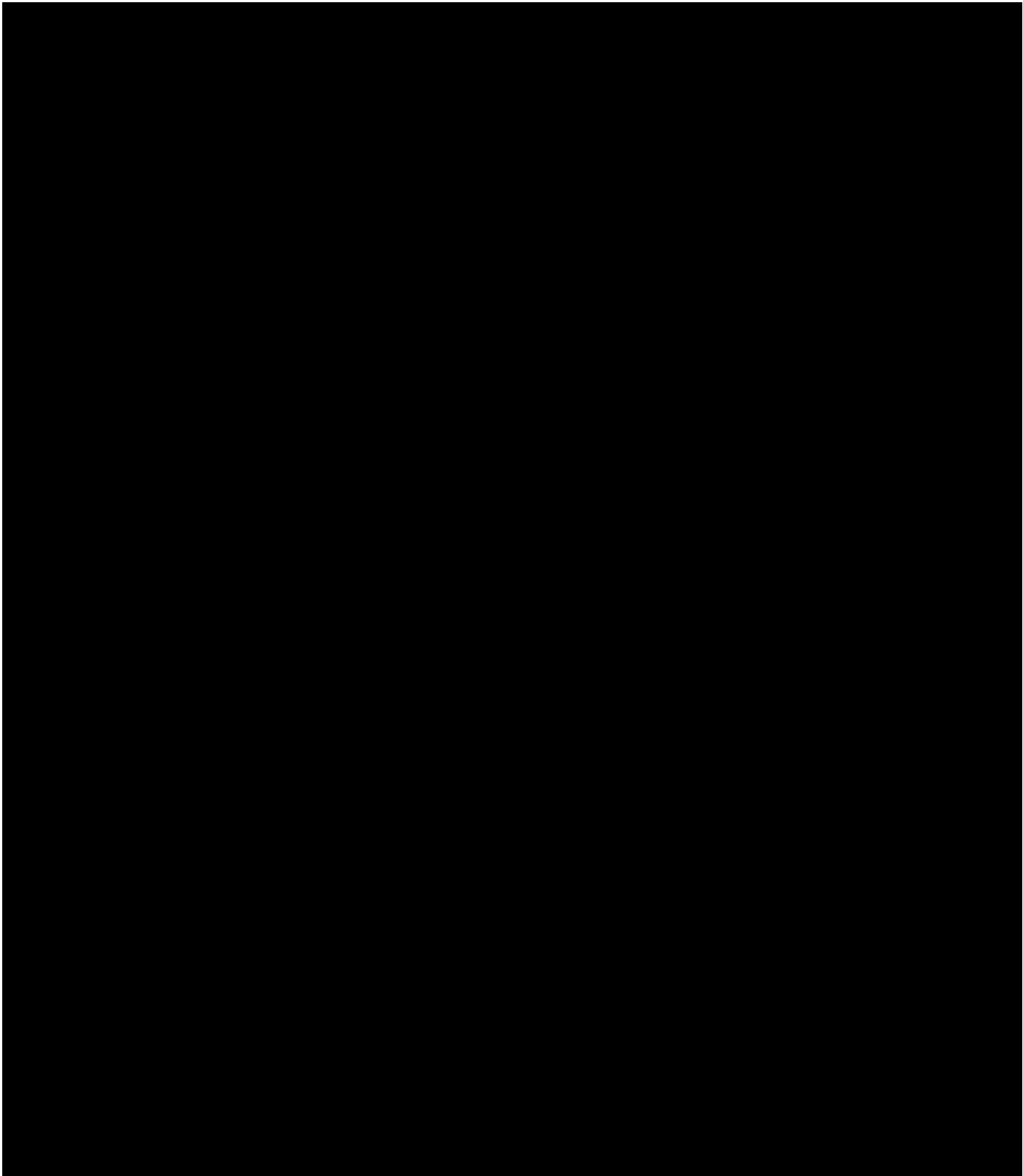




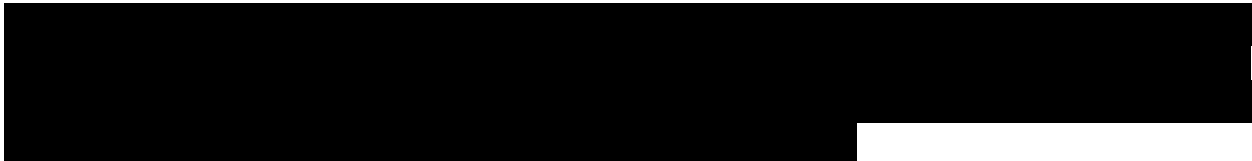
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³² Photo Credit: Boskalis



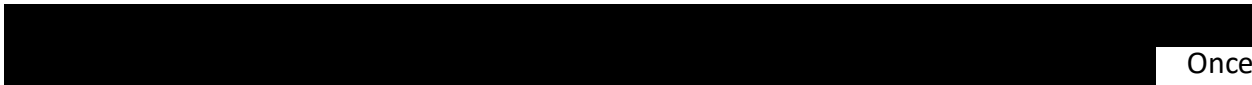
12.2.3 Export Cables

Fabrication and Installation of the submarine export cables will consist of the following steps:

- Fabrication and Transportation
- Surveys and pre-grapnel run
- Laying and Burial
- Connection to offshore substation



Fabrication and Transportation



Once fabricated, the cables will be loaded directly onto the offshore CLV by the manufacturer and transported from the manufacturing facilities to the project site onboard the vessel. Figure 85 depicts a CLV in operation.

**Figure 85: Typical CLV in Operation³³**

For the portions of the cable route in shallow waters and confined spaces a Cable Lay Barge (“CLB”) with improved maneuverability may be utilized. The cable bundle will be laid using a Reel Drive System from the barge. The Cable Reel will be transported from the cable manufacturer. Thereafter it will be lifted and installed into the Reel Drive System on the CLB. The CLB will be prepared and rigged up locally in the New York area and be operated by local hired personnel supervised by the Cable Lay Contractor. Figure 86 depicts a CLB in operation.

³³ Photo Credit: Prysmian RFI



Figure 86: CLB in Operation



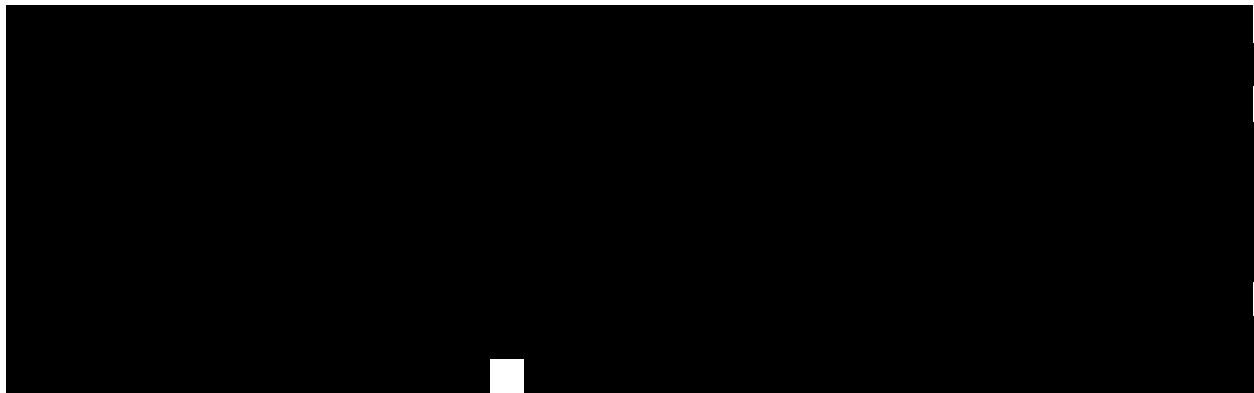
Surveys and Grapnel Run

Prior to any installation, a survey will be conducted to evaluate the seabed geology, assess the water depth, and identify any objects or conditions that would impact cable installation. Once the survey is complete, a grapnel run will be performed which involves pulling a grapnel train over the planned cable route to clear debris and ensure the seabed is ready for cable installation.

Laying and Burial

Empire Wind

Once transported to the project site, the CLV will install the cable starting at the onshore EW2 landfall point and moving along the pre-determined EW2 cable route to the offshore substation.





Beacon Wind

As above, the cable lay process will begin at the onshore BW landfall point and move along the pre-determined BW cable route to the offshore substation.



Connection to Offshore Substation

Export and inter-array cable connection to the offshore substation will be executed in accordance with industry best practices. When the CLV reaches the offshore substation, a messenger wire that was preinstalled in the foundation J-tubes will be secured to the end of the cable. The messenger wire will then be pulled into the offshore substation cable deck through the J-tubes and attached to the hang off points before energization and commissioning.

12.2.4 Offshore Substation

The staging and deployment of the offshore substation will consist of the following steps:

- Fabrication
- Transportation to project site
- Installation

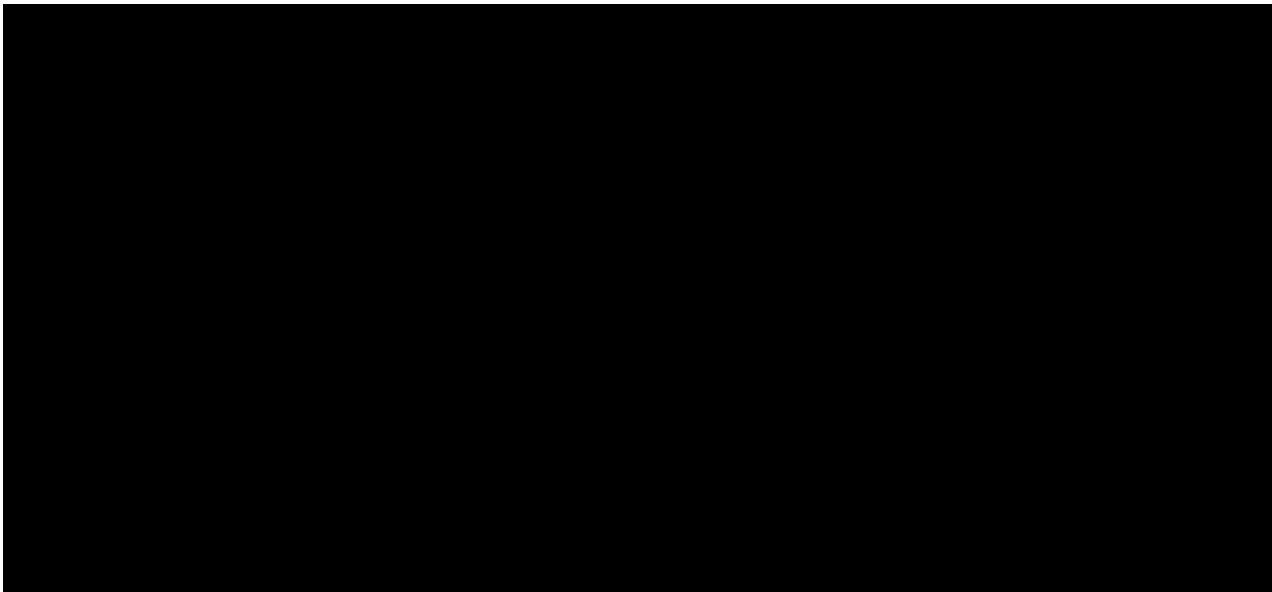
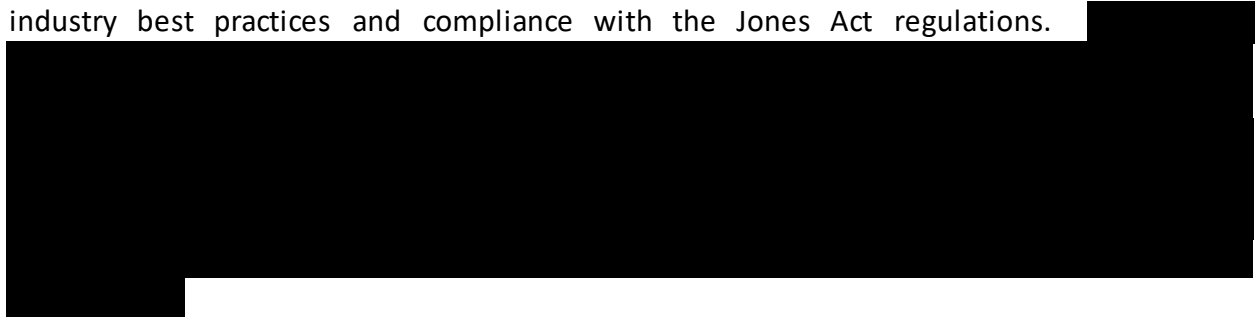


Fabrication

Equinor Wind currently expects the offshore substation topside to be constructed either in North America or Europe. Topside fabrication will require a contractor experienced in complex interface management environments, fabrication facilities, and continuous material flow operations. Major equipment is expected to be delivered to the fabrication yard from their respective manufacturing locations. Therefore, communication between the equipment manufacturer and yard fabricator needs to be established beforehand to ensure proper handling and installation of the equipment.

Transportation

Offshore substation transportation and installation tasks will be executed in accordance with industry best practices and compliance with the Jones Act regulations.



Installation

The transport marine spread with the offshore substation topside on deck will meet the HLV at the installation site. Prior to topside installation, the foundation topside interface will be prepared for topside installation. Once complete, the HLV will lift the topside and install onto the preinstalled foundation. Upon landing the topside onto the foundation, the steel interface



between topside and foundation will be welded together. Figure 88 below depicts the Dudgeon jacket foundation on a barge and HLV installation of the offshore substation.

**Figure 88: Dudgeon Offshore Substation Jacket on Barge (Left)
Typical HLV Used for Offshore Substation Installation (Right)**



Upon completion of topside installation, offshore substation commissioning will commence.



12.2.5 Inter-Array Cable

The inter-array cable installation process is similar to the export cable installation process described above, including:

- Fabrication and transportation
- Surveys and pre-grapnel run
- Laying and Burial
- Connection to offshore substation

The cables will be loaded on the CLV in long lengths and cut at correct lengths during the cable installation process. The WTGs will be interconnected to the offshore substation through an inter-array network. The selected installation contractor will begin cable installation shortly after the first foundation is completed. Based on surveys characterizing the cable lay route, the cable path will be cleared using a pre-lay grapnel train run similar to the export cable installation process. At each foundation location, the pre-installed messenger lines will be connected to the array cable and used to guide the cable through the foundation J-tubes and up to the transition piece. Once at the transition piece, the cable will be temporarily secured at the hang-off points to allow the CLV to lay cable away from the foundation in the direction of the next connection



point at the next foundation. Once the appropriate length has been reached, the cable is cut and attached to the messenger line system on the second foundation. The cable is then pulled into the second foundation and secured at the hang off point. Once both ends are properly installed, the section laying on the sea floor in between the two foundations will be buried with the aid of a trench and lay vessel. After that, the cables will be permanently integrated into the electrical components in the transition piece and prepared for commissioning.

12.2.6 Onshore Landfall and Cable Routing

Onshore landfall and cable routing will consist of the following steps

- Surveys and ground investigations
- Cable Landfall
- Onshore export cable installation

Surveys and Ground Investigations

Environmental surveys and ground investigations will be performed prior to starting any construction activities at the landfall location and along the cable corridor from the landfall to the substation site. This information will inform the design and permitting of the project, as appropriate.

Cable Landfall

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[REDACTED]

[REDACTED]



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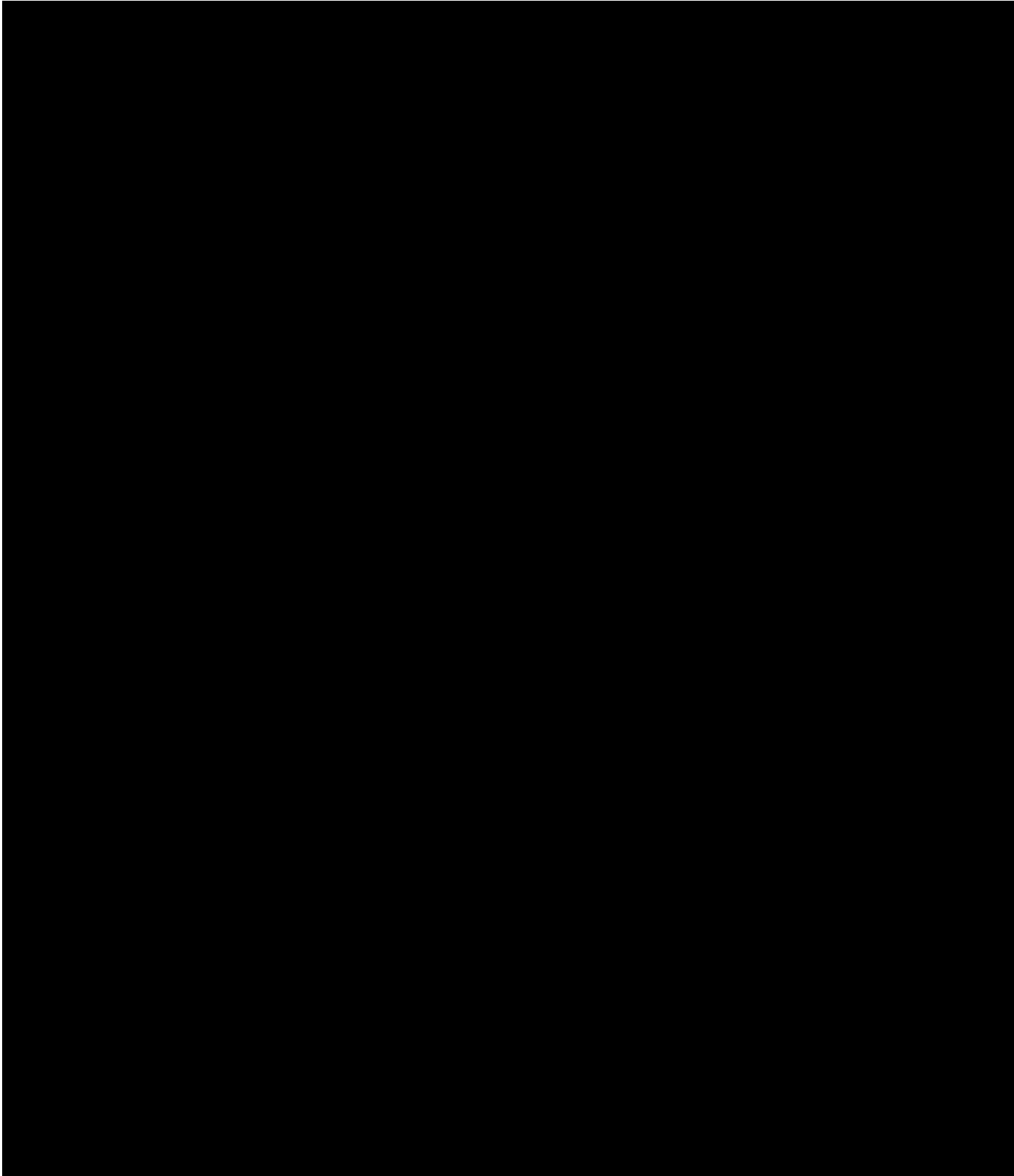




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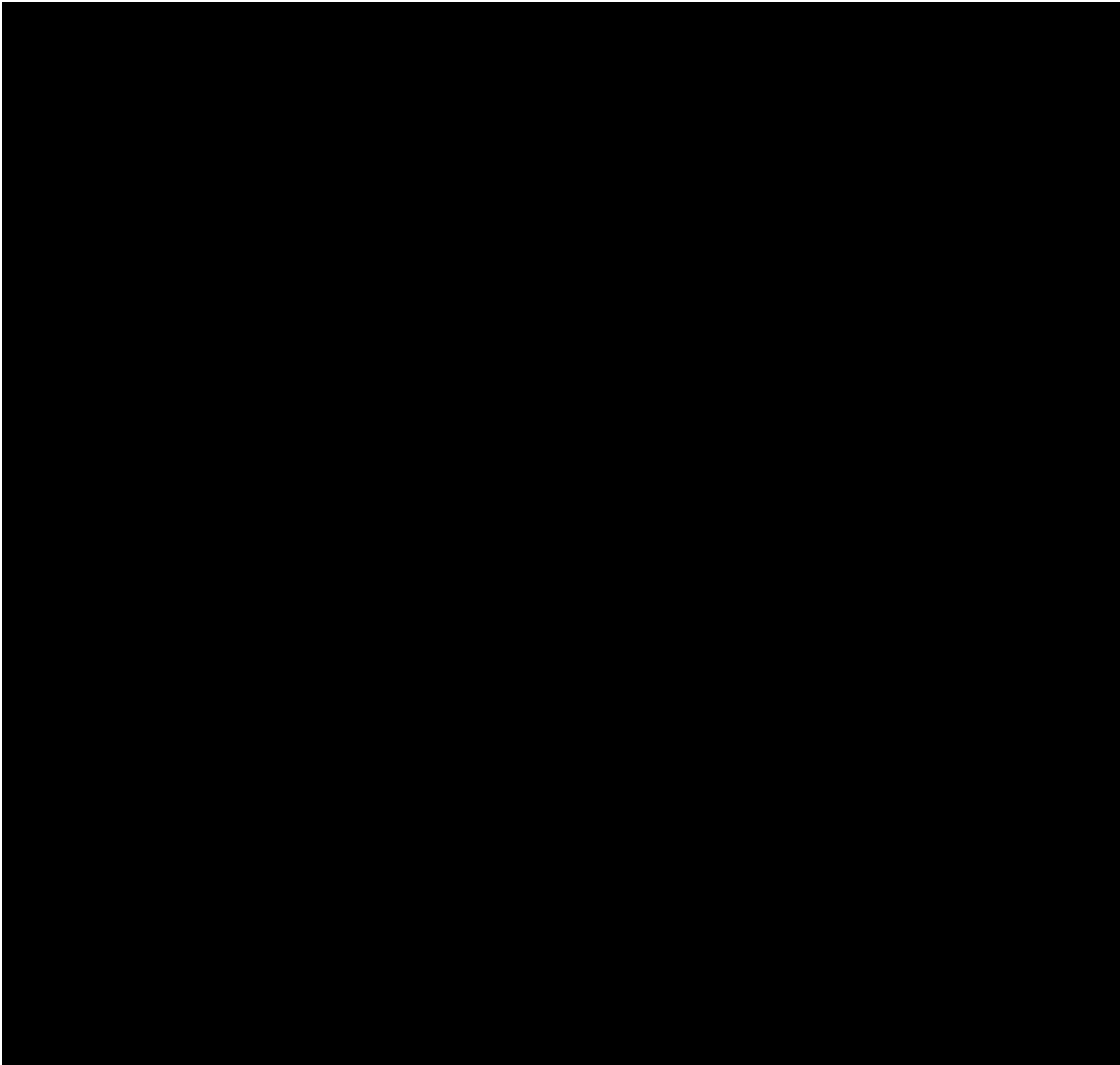




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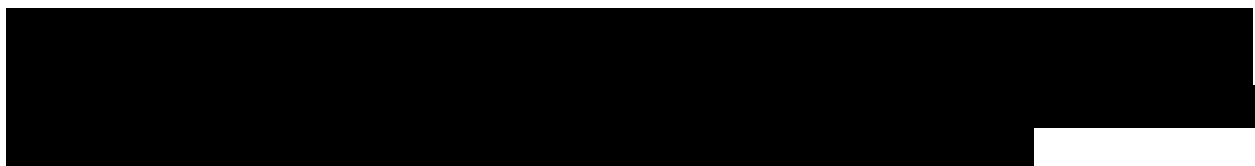


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The final location will depend on constraints including available space, right of way, ground conditions, existing utilities.

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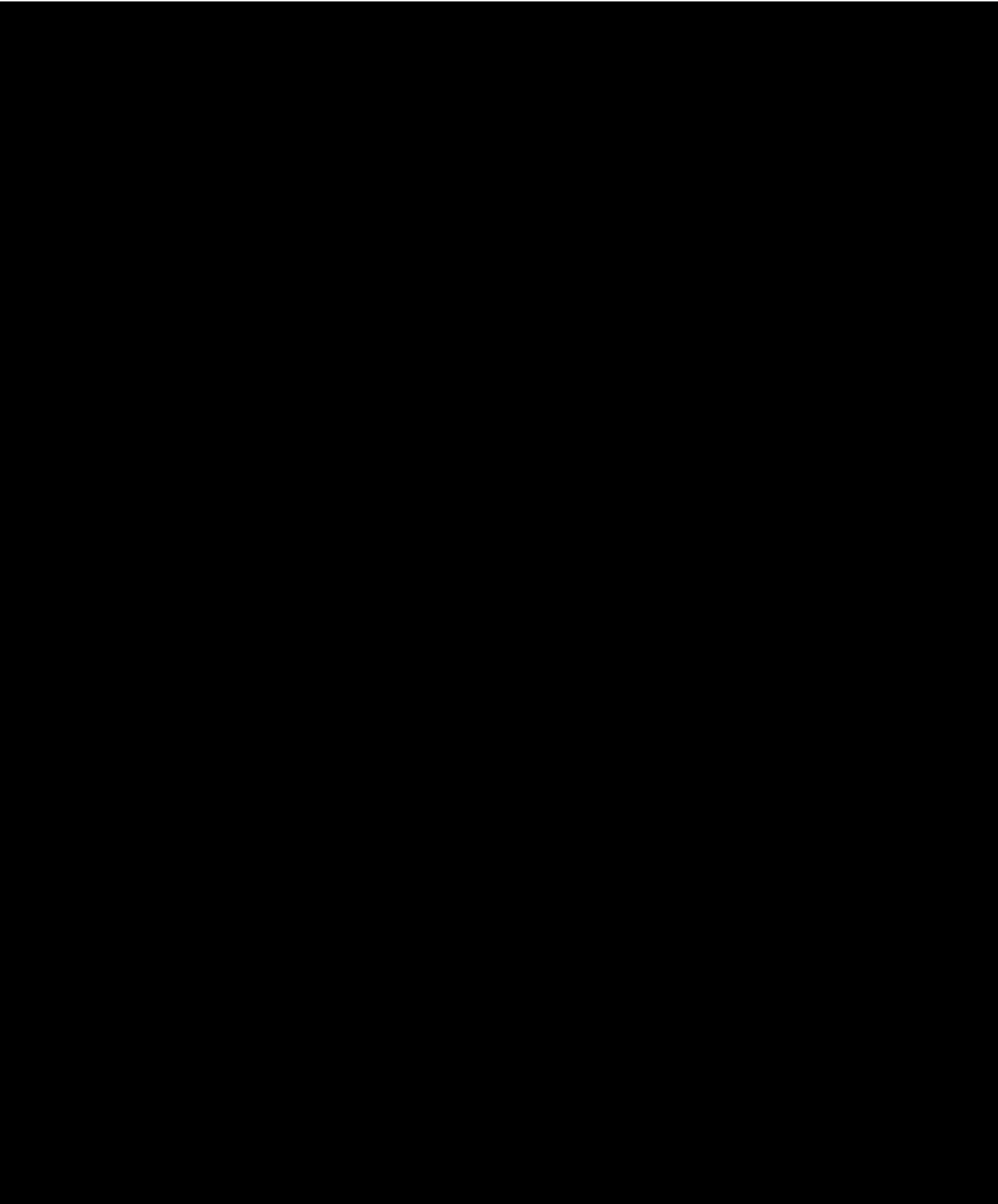




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█ [Redacted]

Surveys and Ground Investigations

[Redacted]

Construction Activities

[Redacted]

- █ [Redacted]
- █ [Redacted]
- █ [Redacted]
- █ [Redacted]
- █ [Redacted]

[Redacted]

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Electrical Equipment Installation



The electrical HV equipment typically includes:

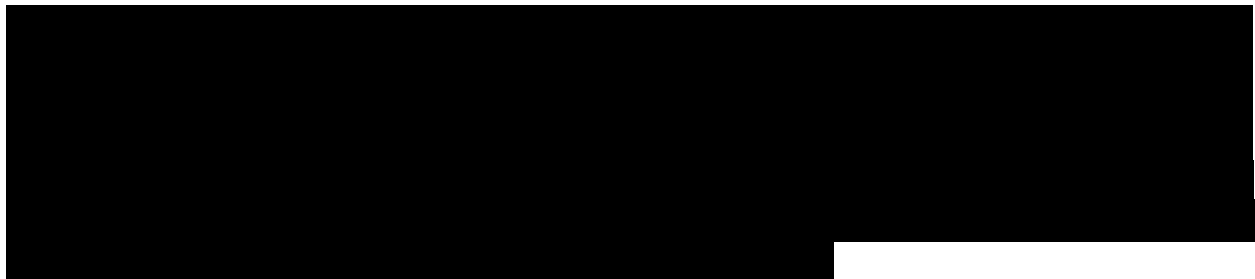
- Transformers
- Reactors
- Harmonic filters
- Switchgears

Due to the size and complexity of some of the equipment, specialized transport and installation personnel will be utilized. Utility systems, instruments, and automation systems will also be installed at this time followed by their associated instrument panels, batteries, and control equipment. The cables connecting the equipment will be installed through the preinstalled ducts and cable pull-through. The export cables will be connected to the switchgear/high voltage breaker after high voltage testing is complete.

Commissioning and Energization

Prior to energizing the onshore substation all utility systems, instruments, and automation systems must be fully tested and commissioned. The entire process for each Project will be performed in coordination with the NYISO.

Empire Wind





[Redacted text block]

[Redacted text block]

[Redacted text block]

12.2.8 Grid Interconnection and Network Upgrades

Empire Wind

Equinor Wind currently anticipates that any network upgrades necessary to accommodate the interconnection of the Empire Wind Project will be completed [Redacted]

[Redacted text block]

Beacon Wind

Equinor wind anticipates that any network upgrades necessary to accommodate the interconnection of the Beacon Wind Project will be completed [Redacted]

[Redacted text block]



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12.3 Marine Terminals and Waterfront Facilities

Identify the marine terminals and other waterfront facilities that will be used to stage, assemble, and deploy the Project for each stage of construction.

a. If available, evidence that Proposer or the equipment/service provider have right(s) to use a marine terminal and/or waterfront facility for construction of the Project (e.g., by virtue of ownership or land development rights obtained from the owner).

b. If not available, describe the status of acquisition of real property rights for necessary marine terminal and/or waterfront facilities, any options in place for the exercise of these rights and describe the plan for securing the necessary real property rights, including the proposed timeline. Include these plans and the timeline in the overall Project schedule in Section 6.4.11.

c. Identify any joint use of existing or proposed real property rights for marine terminal or waterfront facilities.

[REDACTED]

[REDACTED]

[REDACTED]

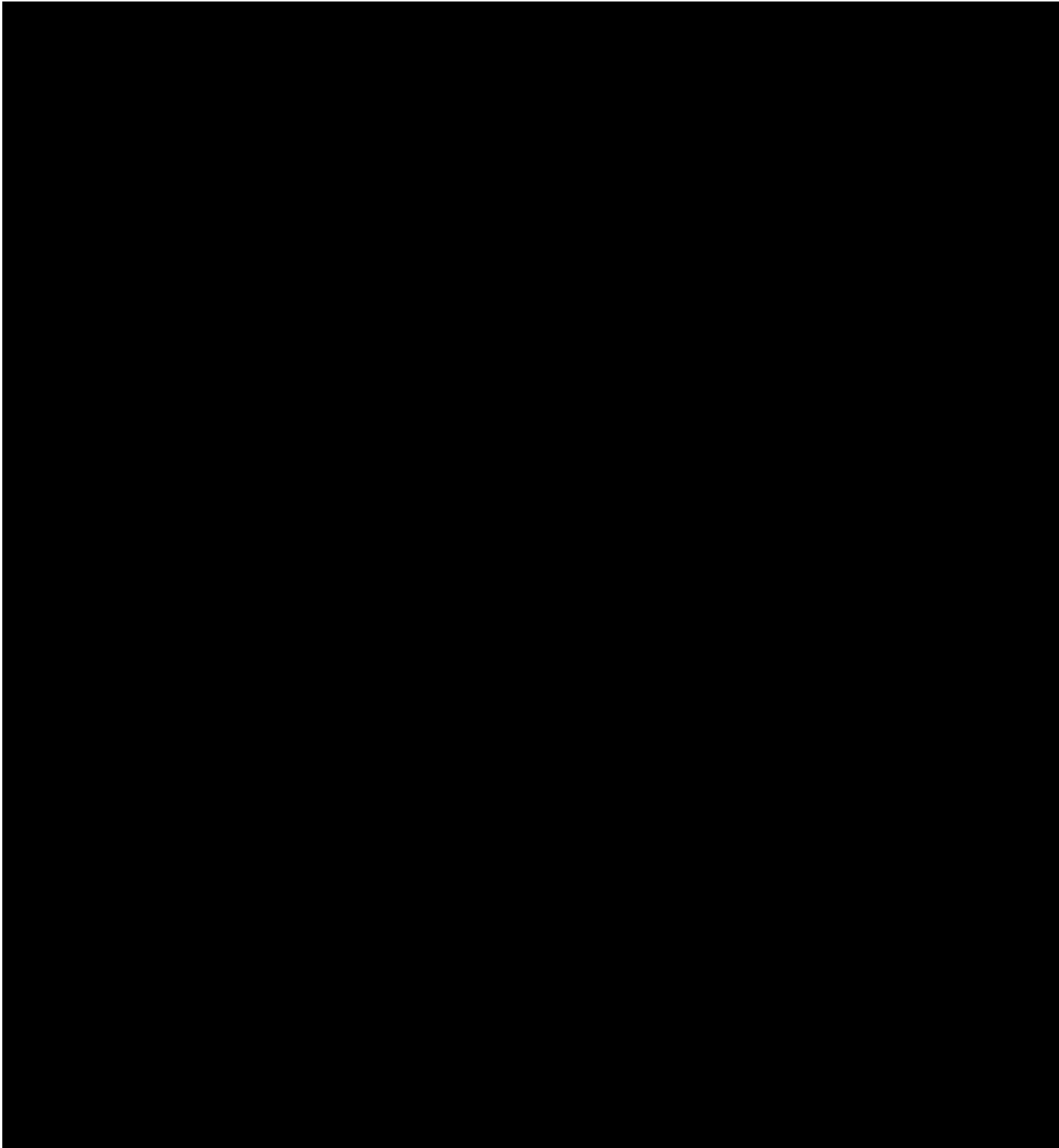
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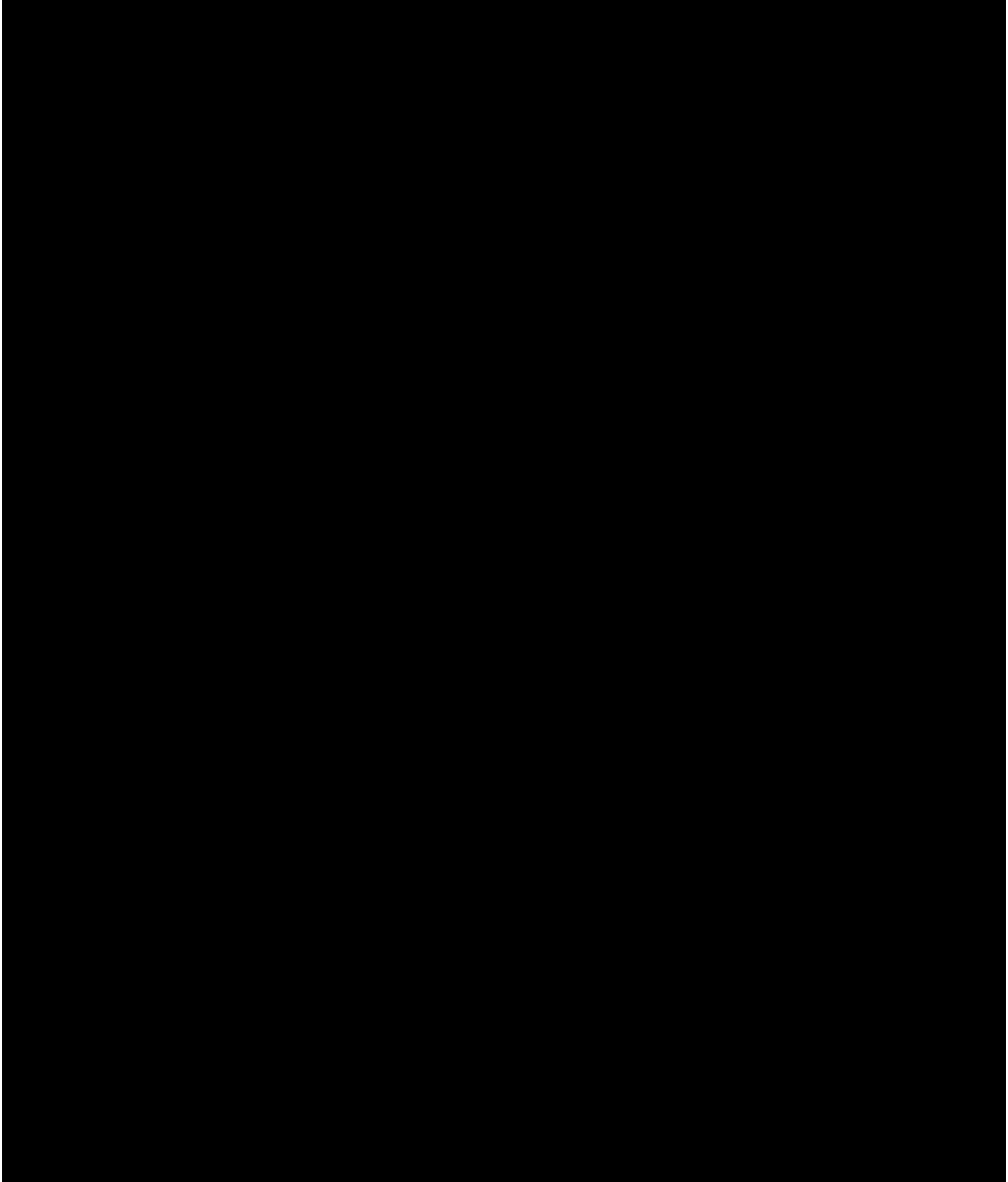




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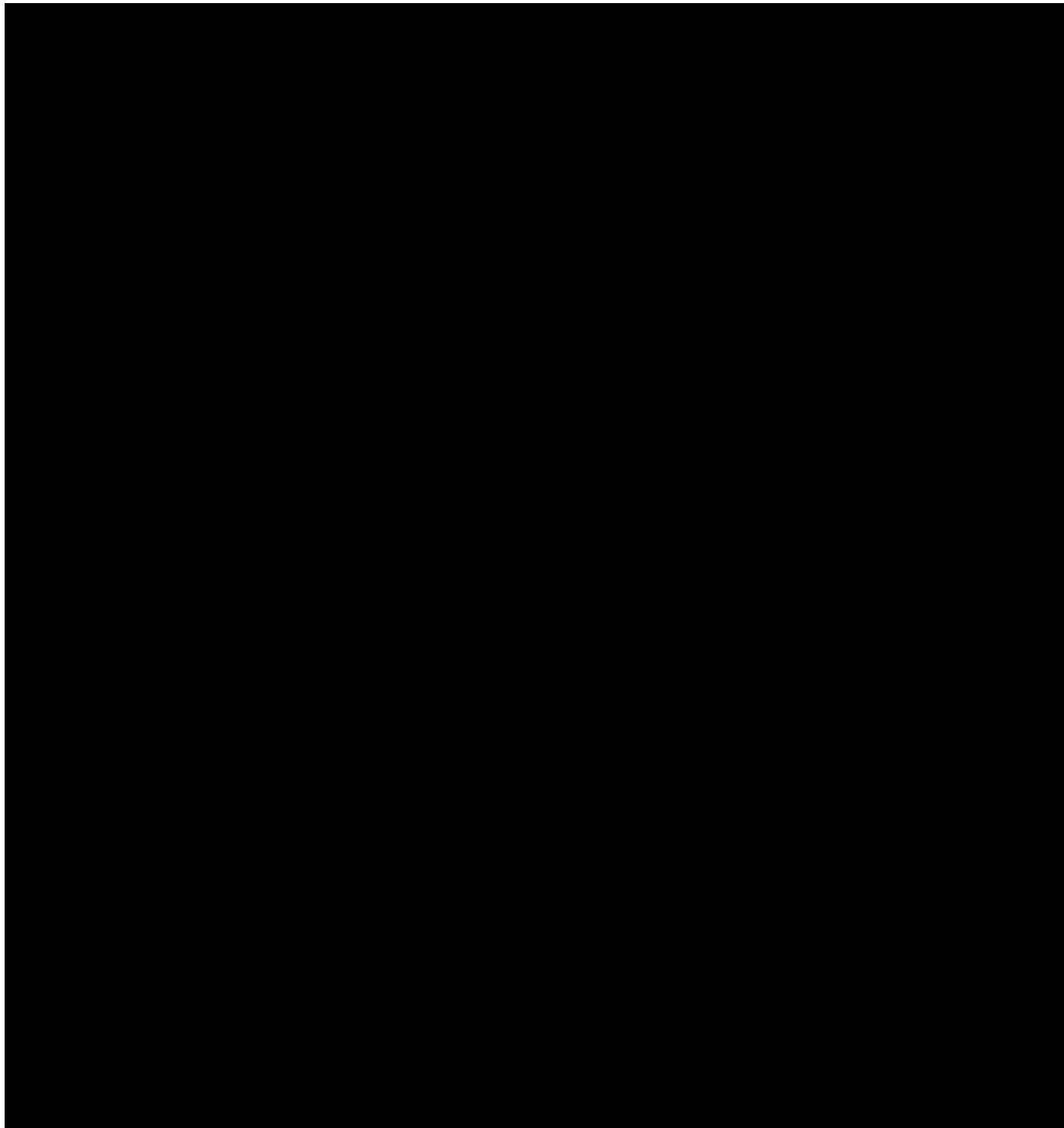




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12.4 Number Type and Size of Vessels

Indicate the number, type and size of vessels that will be used, their respective uses, and how vessels will be secured for the required construction period. Explain how Proposer's deployment strategy will conform to requirements of the Merchant Marine Act of 1920 (the Jones Act).

Due to the nascent development of offshore wind farm projects in the U.S., there are a limited number of Jones Act-compliant vessels that are also feasible for offshore wind construction. Therefore, in order to develop the project safely and in a cost efficient manner, some foreign vessels will need to be used.

Equinor has extensive experience in vetting vessels for use in our marine operations. As foundation concepts become more mature and boundary conditions for components are set, further dialogue with marine installation contractors are initiated. This to identify which vessels are expected to be available at time of execution.

Equinor Wind and vessel operators will execute contractual agreements to address project marine construction activities. The marine coordination center established by Equinor Wind will track all vessels engaged in marine operations and maintain proper communications throughout the campaign in accordance with local and federal regulations.

Equinor Wind is committed to complying with all Jones Act regulations throughout all project development stages.

[REDACTED]

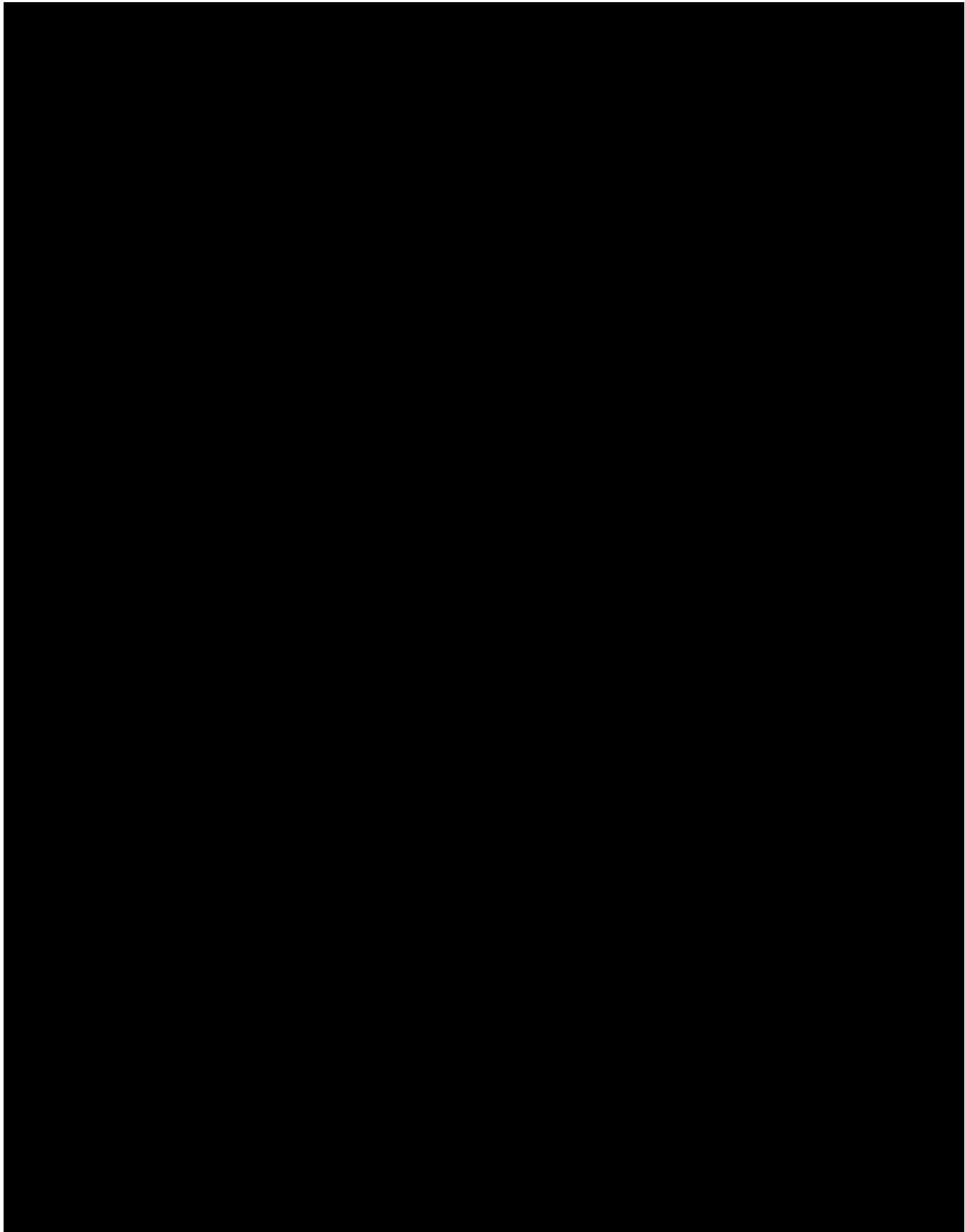
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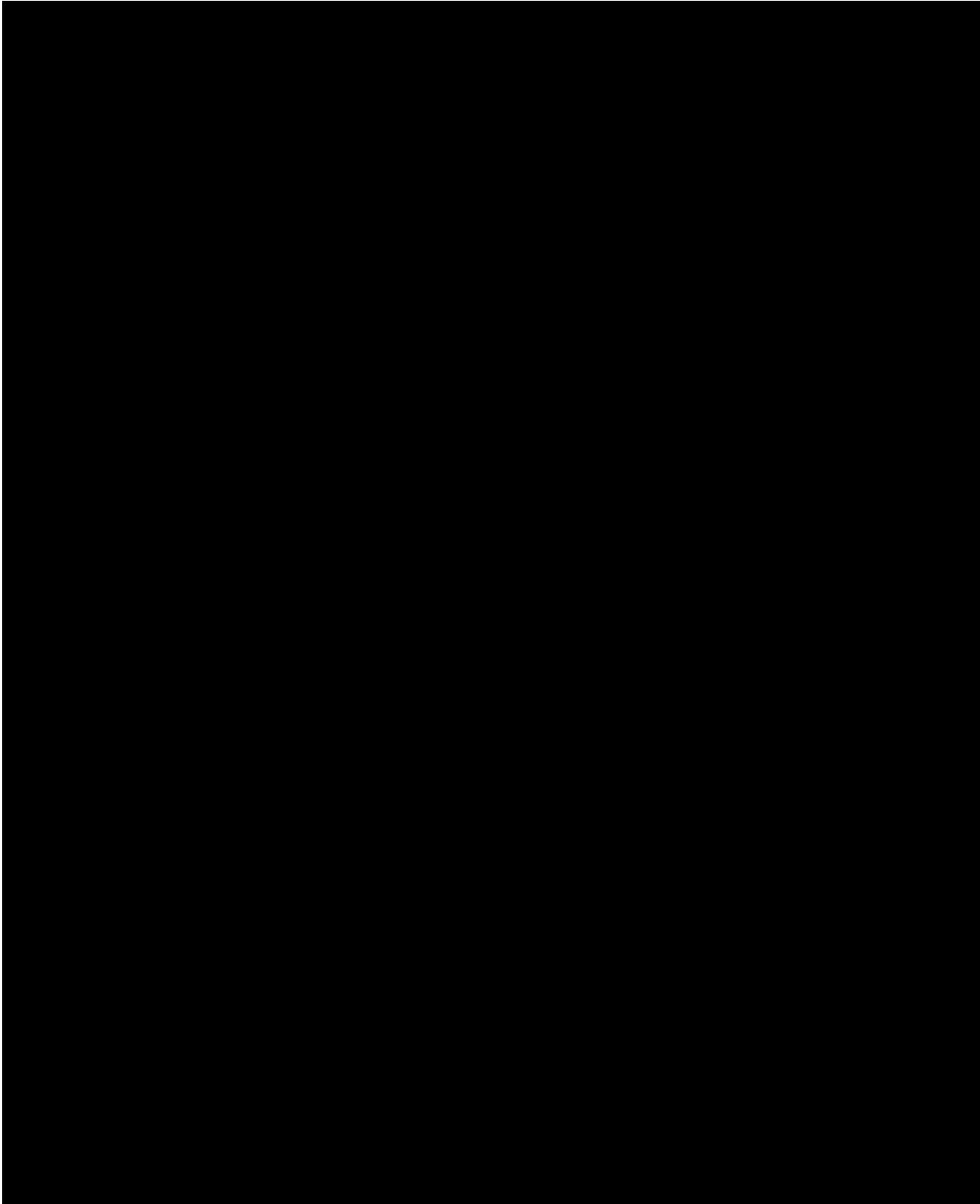




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12.5 Responsibility Assignment

List the party or parties responsible for each deployment activity and describe the role of each party. Describe the status of Proposer's contractual agreements with third-party equipment/service providers.

An overview of the division of roles and responsibilities respecting staging and deployment activities is provided in Section 10.2.7. As noted in Section 10.2.7, Equinor Wind remains in discussion with potential contractors that would support staging and deployment activities and has not yet finalized contractual arrangements respecting these activities. A detailed overview of the timing of finalizing these arrangements is provided in Section 11.3 and the associated Attachments.

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13 FISHERIES MITIGATION PLAN

Proposers must include in their Proposal a Fisheries Mitigation Plan in as much detail as possible that describes how Proposer will mitigate adverse impacts on the commercial fishing industry that may be caused by the Project. A narrative description of the Fisheries Mitigation Plan should be included in the Proposal Narrative. The Fisheries Mitigation Plan itself should be submitted as the required Fisheries Mitigation Plan attachment. Both confidential and public versions of the Fisheries Mitigation Plan must be included in the Submission. Elements of the Fisheries Mitigation Plan are described in detail in Appendix D. Proposers are advised to review the Fish and Fisheries Study prepared for the New York State Offshore Wind Master Plan with respect to the potential impacts of offshore wind energy development on the fishing industry, and also are advised to include in their mitigation plan the appropriate Best Management Practices described in the Master Plan, its supporting studies and more recent relevant work.

13.1 Fisheries Mitigation Plan Summary

The Proposer must briefly present its philosophy and approach to avoiding, minimizing, restoring and offsetting the potential fisheries impacts of the proposed Project and how the Proposer will use research, data and stakeholder feedback to support decision making with respect to pre-construction surveys, site design, construction, operations and decommissioning.

Equinor Wind welcomes the opportunity to submit a Fisheries Mitigation Plan (“FMP”) for both EW2 and BW as part of its application to supply offshore renewable energy certificates to New York. From experience developing offshore wind energy facilities, Equinor Wind believes that the responsible development of offshore wind energy resources can be compatible with fisheries resources and commercial and recreational fishing.

Equinor Wind believes that impacts to fisheries can be minimized by carefully evaluating existing uses of the lease areas, avoiding impacts where feasible, or reducing impacts through mitigation. Equinor Wind’s approach to fisheries mitigation is founded upon the fisheries mitigation hierarchy. More specifically, this approach means that Equinor Wind anticipates and avoid impacts to fisheries resources and fishers, minimize impacts where avoidance is not possible, and take steps to offset any significant residual adverse impacts that are predicted to remain.

Equinor Wind will review existing research and data and seek input from stakeholders regarding data gaps to inform decisions made throughout the Project life cycle. Pre- and post-construction monitoring shall be designed to improve the understanding of impacts of offshore wind energy development and operations on fisheries. Equinor Wind will review and seek input from stakeholders on proposed and conducted survey rationales and methodologies as well as design, construction and operation, and decommissioning plans for the Project.



Equinor Wind does not intend to restrict or apply for broad-based restrictions on fishing activities within the operational wind farms. To the extent that any restrictions are necessary, these may be limited to standard safety zones during the construction phase and operational safety zones around manned or sensitive offshore platforms or access points. Equinor Wind recognizes the importance of adaptive management and will continue to improve and mature its procedures to evaluate and mitigate impacts to fisheries resources. For example, the plans described herein are an update to the details described in the original Empire Wind bid submittal, reviewed and commented on by NYSERDA, and subsequently presented to the F-TWG in November 2019.

Equinor Wind has already taken the following steps to avoid and minimize potential impacts:

- Modifying survey schedules and locations in survey planning—and in real-time—by adaptive management of survey locations so as to avoid areas with active and/or seasonal fishing;
- Incorporating data and feedback in early spatial planning of export cable routes to avoid high use, high value, and high sensitivity fisheries areas;
- Establishing a fisheries communications and outreach strategy to effectively engage with and solicit input from a wide range of fishers and stakeholders in multiple regions;
- Applying data and fisheries feedback in early spatial planning for the project area, including (1) setting “Layout Rules” for the wind farm that will minimize impacts on fishing and facilitate continued safe access to traditional fishing grounds, (2) establishing principles around layouts for EW1 and EW2, and (3) establishing preferred layouts for through engagement with RODA and non-RODA members.
- Collaborating with neighboring offshore wind projects and applying data and fisheries feedback in the early spatial planning for Beacon Wind lease area by establishing a 1x1 nm turbine spacing layout with clear directional rows to minimize impacts on fishing and facilitate continued safe access to traditional fishing grounds.

Mitigation measures will be identified and developed with relevant fisheries stakeholders through an iterative process occurring during project design, siting structures, cable route planning, scheduling of work, and design of construction and operations methods.

The following sections summarize Equinor Wind’s approach to the commercial and recreational fishing communities throughout all stages of the project life, including how impacts will be assessed and mitigation measures considered and applied. Furthermore, the following sections set out principles for how Equinor Wind will work with the fishing industry to avoid or minimize impacts and collaborate on conducting research and monitoring. Naturally, the Fisheries Mitigation Plans will continue to evolve through consultation with the F-TWG and the fishing industry as the projects develop.



13.2 Communications and Collaboration

The New York State Offshore Wind Master Plan, the New York State Public Service Commission Order Establishing Offshore Wind Standard Framework for Phase 1 Procurement issued on July 12, 2018 and the Order Authorizing Offshore Wind Solicitation in 2020 issued on April 23, 2020 pursuant to Case No. 18-E-0071, and this RFP emphasize the value of stakeholder engagement in the development of offshore wind energy Projects. Further, the Orders require Proposers to work with the State supported Fisheries Technical Working Group (“F-TWG”). The Proposer must describe how it will identify stakeholders relevant to fishery issues and describe how the Proposer intends to communicate with those stakeholders during survey work, and design, construction, operation, and decommissioning of the Project. The Proposer must also describe how, specifically, it will communicate with vessels actively fishing in areas in or adjacent to the Project area during site assessment and construction activities and facilitate proper notification to vessels and resource managers. This description of communication protocols must account for the need to coordinate with members of the F-TWG and consultations with New York State agencies during the various Project phases.

Equinor Wind believes that regular, open and broad consultation is key to ensuring that all parties are well informed of Equinor Wind’s offshore wind plans, designs, and activities so that they may provide meaningful input in design and mitigation options. Equinor Wind intends for its fisheries outreach will be as inclusive as possible, including engagement with fisheries stakeholders through Fishing Industry Representatives (“FIR”) and/or groups such as F-TWG and RODA, as well as by engaging with organizations or individual fishers not represented in these groups. [REDACTED]

[REDACTED] Equinor Wind has included a list of its communication officers in Section 2.2 of the FMPs for EW2 and BW (Attachments 13.A and 13.B, respectively) to facilitate discussion of particular issues.

Equinor Wind has established a comprehensive internal database of local and regional fisheries associations, societies, groups, individual fishers, and the various industry organizations. This database is maintained and regularly updated by the FLO in conjunction with Equinor Wind’s key project team members.

Members of the commercial and recreational fishing communities are identified through various channels and include, but are not limited to:

- Contacting fishing industry leaders known through the combined FLOs’ and Fisheries Manager’s liaison and industry experience;
- Contacting fishing industry association leaders;
- Attending Fishery Management Council meetings;
- Attending meetings related to offshore wind and fisheries interactions;
- Manning stands at commercial and recreational fishing forums;
- Recommendations from state and federal fisheries staff;



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- Fisheries Management Council Advisory Panel lists online;
- Public comments and documents online;
- Word of mouth from the fishing community;
- Automatic Identification System (AIS) monitoring including ship identification;
- Fishing vessels identified offshore during surveys by the OFLR;
- NMFS permit holder lists online;
- Dock visits; and
- Fisheries contacts information referenced in NYSERDA's New York State Offshore Wind Master Plan Fish and Fisheries Study (NYSERDA, 2017; Appendix J).

Equinor Wind participates and consults with other stakeholders and working groups, including:

- Equinor Wind is participating in international fisheries groups, including the UK's Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW).
- Equinor Wind is participating in the Environmental Technical Working Group (E-TWG) and its current representation on the E-TWG can be found within the Environmental Mitigation Plans being submitted with this proposal (see Attachments 14.A and 14.B, respectively).
- Equinor Wind attends "State of the Science" workshops and participates in focal species workgroups.
- Equinor Wind will consult with New England state agencies, as appropriate.
- Equinor Wind participates in other state Fisheries Working Groups, for example the Massachusetts Fisheries Working Group.
- Equinor Wind is a founding member of the RODA joint industry task force and participates regularly in meetings.
- Equinor Wind is a founding board member of Responsible Offshore Science Alliance (ROSA) and participates as a member of the advisory council.
- Equinor Wind hosts webinars for fisheries open houses during COVID-19 pandemic and will likely use this as a communication tool on the go forward.
- Equinor Wind's Fisheries Manager is a member of the New England Fisheries Management Council (NEFMC) Habitat Advisory Panel.

Equinor Wind will continue to participate in the F-TWG, represented by those listed within the Communication Officers table located in Section 2.2 of the FMPs (Attachments 13.A and 13.B, respectively). Equinor Wind will present all aspects of the Empire Wind and Beacon Wind FMPs to the F-TWG during dedicated workshops at appropriate timing intervals to ensure the goals of the FMPs are met and the FMPs are improved to reflect feedback. As well as the F-TWG, Equinor Wind will proactively engage with the fishing industry not represented on F-TWG, or in addition to those on F-TWG. This may occur through industry groups such as RODA, other FIRs, or with individual fishing organizations or fishers.



Equinor Wind is committed to continuing consultation with New York State agencies throughout the project development processes. This includes:

- Providing project development updates and schedules for EW2 and Beacon Wind;
- Consulting on benthic and fisheries resources;
- Continuing consultation with NY State agencies regarding the Empire Wind projects, [REDACTED]
- Introducing and updating New York State agencies to Beacon Wind, which recently included a September 25, 2020 introductory presentation; the New York State agencies Equinor Wind has engaged with and continues to engage with include: New York Department of State (NYSDOS);
- New York State Department of Environmental Conservation (NYSDEC);
- New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP);
- New York State Department of Public Service (NYS DPS);
- New York Office of General Services (NYSOGS); and
- New York State Energy Research and Development Authority (NYSERDA).

Equinor Wind intends to reach a wide range of potentially affected parties in order to provide project updates, communicate during offshore activities, and to solicit feedback on the offshore wind energy development. To achieve this, Equinor Wind is taking a broad approach to dissemination of information. Equinor Wind will continue to use these practices as the project develops and will add further outlets as appropriate.

Equinor Wind communicates with vessels actively fishing in areas in or adjacent to each project's area during site assessment activities. Equinor Wind will continue to implement this practice during construction and decommissioning activities to ensure proper notifications to vessels and resource managers through the following means:

- Notification of upcoming site assessment and/or construction activities via various sources, including Survey Flyers, LNMs, email notifications, details on project-specific webpages and relevant fisheries web pages.
- The OFLR will be responsible for monitoring the presence of fishing vessels and/or fishing gear in or around locations of site assessments and/or construction activities, and communications with vessels at sea and for relaying information back to the FLO.
- The FLO and Fisheries Manager will be responsible for engaging with fisheries managers, fleet managers, FIRs and individual fishermen prior to and during site assessment and/or construction activities.
- The FLO will monitor AIS in real-time to identify fishing activity (for those fishing vessels carrying AIS) in or around locations of sites assessment and/or construction activity.



- Where appropriate, scout vessels acting on behalf of Equinor Wind will monitor for the presence of static fishing gear, identify owners and contact details, and relay the information to site assessment/construction vessels/OFLRs and the FLO.

The FLO has documented over 1,200 contact events through September 2020, rising to over 1,300 contact events when including individual email notices. Throughout the consultation process, Equinor Wind will be open to consideration of other means or methods to that would provide for effective and efficient communication with the fisheries stakeholders.



13.3 Monitoring and Research

Fisheries research and peer-reviewed publication of research findings is key to advancing the knowledge of how offshore wind energy development might affect fish and fisheries. Proposers are encouraged to work with the fishing industry in the collection of data, to publish their own work in scientific journals, and to coordinate with scientists and regulators interested in investigating fishery- and wind energy-related scientific questions.

Because offshore wind energy development is in early stages in the US there is little empirical information as to the effects such development may have on ecological communities and fishery resources specific to the New York Bight. Thoughtfully planned, designed, and implemented pre-, during- and post-construction monitoring and research to understand fish responses and potential effects from development is key for adaptive management. Further, multiple regional sites working together and coordinating monitoring and research in a consistent manner would bring additional value to the scientific understanding of how development of offshore wind energy is affecting regional resources.

The Proposer must (to the extent possible at this stage) describe how it plans to conduct scientifically sound, statistically rigorous studies to accomplish the following:

- 1. Establish baseline data on the spatial and temporal presence of fish and invertebrates in the proposed area of the Project at multiple life history stages including egg, larval, juvenile, adult, and spawning stages, as well as associated fish and invertebrate habitats;*
- 2. Monitor for impacts on these types of life history stages during each phase of physical work for the Project (site assessment, construction, operation, and decommissioning) to inform mitigation planning for later phases of the Project as well as for future Projects;*
- 3. Assess and quantify (to the extent practical) changes attributable to Project activities; and*
- 4. Determine how the proposed Project area is used by commercial and recreational fisheries in the region, including current and historic usage as well as associated transit routes, and how usages changes in commercial and recreational fishing patters will be calculated post-construction.*

Proposers should also identify opportunities for developing or investing in collaborative research with the fishing industry to collect ecological and/or fishing data. The description must account for the need to coordinate with members of the F-TWG during data gathering and assessment.

In the event that these activities cannot be clearly defined at this stage, the Proposer must describe how it will approach these questions and data gaps.

The Proposer must describe how it plans to make fisheries data available in accordance with Section 2.2.6 of the RFP.

Equinor Wind is committed to collecting and evaluating existing data, conducting research studies, incorporating feedback from the fishing community, and conducting site specific or collaborative regional surveys and research in order to establish a baseline characterization of the lease areas' natural habitat, resources, and uses. Establishing this baseline data is necessary to identify and quantify potential impacts from the proposed offshore wind energy development, identify mitigation options to avoid or minimize impacts, and establish protocols for monitoring



impacts or data gaps where appropriate. Equinor Wind’s efforts to establish baseline data and monitor for potential impacts are conducted in accordance with best practices, including BOEM guidance as well as consideration of recommendations for further research from groups such as F-TWG and E-TWG. This section provides an overview of Equinor Wind’s approach to establishing baseline data, monitoring for potential impacts and changes in usage, and assessing and quantifying changes attributable to project activities (*i.e.*, pre-, during and post- construction).

Equinor Wind will explore appropriate monitoring and research protocols, including, for example, monitoring of potential behavioral responses or changes in spatial and temporal distribution of biological resources or fishing practices as a direct result of the offshore wind energy development. Monitoring plans for the Empire Wind and Beacon Wind projects are not yet defined; this is best dealt with in consultation and in collaboration with the fishing industry, regulators, other interest groups and other wind developers. Baseline data characterization and monitoring will be conducted in accordance with best practices, including BOEM guidance, and with consideration of recommendations for further research from groups such as F-TWG and E-TWG and ROSA.

Equinor Wind has been defining baseline data on the spatial and temporal presence of fish and invertebrates in the proposed area of the project using key existing literature and datasets:

- Public data sources suitable for characterizing benthic habitat and fisheries resources in the relevant area, including evaluation of NYSERDA’s Master Plan Fish and Fisheries Study (2017; Appendix J).
- NOAA National Centers for Coastal Ocean Science and BOEM Comprehensive Seafloor Substrate Mapping and Model Validation in the Atlantic (2019).
- Estuarine Living Marine Resource database (NOAA 2000) provide descriptions of spatial and temporal distributions of species (by life stage) in Hudson River/Raritan Bay and the Great South Bay, however, the database is not updated regularly.
- Use of fisheries effort data as a proxy for fish species.



13.3.1 Pre-Construction

Equinor Wind acknowledges that ongoing research and monitoring for each of the project sites and at a wider regional scale is important to refine the understanding of impacts, potential mitigation options, and for future planning purposes for benthic and fisheries resources, including facilitating the responsible leasing and development of future offshore wind energy areas within the Northeast and Mid-Atlantic Ocean.



Equinor Wind has collected data of benthic and fisheries resources to inform the baseline characterization of benthic and fisheries resources. Data supporting baseline conditions of EW2 include:

- NOAA National Centers for Coastal Ocean Science and BOEM Comprehensive Seafloor Substrate Mapping and Model Validation in the Atlantic research/survey collected sediment grab samples at 400 locations in the lease area, as well as bathymetric data and opportunistic fisheries data.
 - Status: Complete
- Equinor Wind commissioned benthic sampling in 2018 by Gardline Environmental covering the entire Lease Area and which builds on previous comprehensive benthic surveys carried out by NOAA’s National Center for Coastal Ocean Science (NOS). These Equinor Wind surveys were conducted at a total of 67 sample stations and included grab samples and drop down digital video and stills imagery. Grab samples were analyzed for sediment grain size distribution and macro faunal analysis. This report has been made publicly available for download from the Empire Wind website.
 - Status: Complete
- Equinor Wind commissioned a benthic sampling that was conducted in 2019 by Inspire Environmental and which covered the proposed potential export cable routes for the Lease Area. Sampling included Sediment Profile Imaging (SPI) and Plan View (PV) imaging at 157 sample stations, with 15 reference stations and sediment grab samples for sediment grain size analysis and macrofaunal analysis for verification. This report has been made publicly available for download from the Empire Wind website.
 - Status: Complete
- Geophysical, benthic habitat (through geophysical interpretation), and geotechnical surveys from March 2018 to November 2018 across the entire Lease Area and export cable corridors, with additional geophysical and geotechnical surveys, was carried out in 2019 to fill in data gaps and cover areas from landfall to the 65 ft (20 m) depth contour.
 - Status: Complete



- With the site specific and existing benthic data, and the existing fisheries data, there is sufficient data for the purpose of the COP impact assessments, spatial planning and/or mitigation. However, Equinor Wind will consult with F-TWG, E-TWG, and relevant federal agencies and stakeholders on requirements for further surveys for targeted benthic and fisheries monitoring and research for EW2.



Data supporting baseline conditions of the Beacon Wind Project include:

- [REDACTED]
- Equinor Wind has funded a study by the Anderson Cabot Center for Ocean Life at the New England Aquarium to establish monitoring systems to assess the impacts of offshore wind development on highly migratory species (HMS; sharks, tunas, billfishes) and the large recreational fishery that targets them. The study will occur over an 18-month period and will expand upon a Massachusetts Clean Energy Center (MassCEC) project to monitor Highly Migratory Species (HMS) presence and will also work to monitor recreational fishing activities for HMS.
 - Status: Active
- Equinor Wind notes that for the Beacon Wind project, neighboring lease holders are also engaged in the collection of baseline data that will strengthen the regional understanding of baseline characterization within the Project Area.
 - Status: Active
- With the site specific and existing benthic data, and the existing fisheries data, there will be sufficient data for the purpose of the COP impact assessments, spatial planning, and/or mitigation. However, Equinor Wind will consult with F-TWG, E-TWG, and relevant federal agencies and stakeholders on requirements for further surveys for targeted benthic and fisheries monitoring and research for the Beacon Wind project.

Current and historical use of the EW2 and BW by commercial and recreational fisheries will continue to be determined by the communication and collaboration approaches described in Section 13.2. Monitoring changes in pre and post construction fishing effort due to the presence of an offshore wind energy development can be challenging. Many factors dictate fishing effort within a given area on a seasonal and year by year basis which make statistically detecting “change” difficult. For example, fishing effort may be influenced by factors independent of an offshore wind farm such as quota, presence of a mobile species, market prices, fuel prices, and fisheries closures. As such, due to the complexities and the need to design a methodology that has both industry and fisheries support, Equinor Wind proposes that if required, such studies be discussed as part of the F-TWG.

13.3.2 During Construction

Equinor Wind is committed to exploring appropriate monitoring protocols, which might include, for example, monitoring of potential behavioral responses or changes in spatial and temporal distribution of biological resources or fishing practices as a direct result of Equinor Wind’s



offshore wind energy development. Monitoring and research should ideally be targeted towards interactions between offshore wind projects and the receptors it is being judged against.

Equinor Wind is open to monitoring that explores other approaches to detect and quantify change, where further monitoring is appropriate, for example behavioral responses. Equinor Wind will work with the regulatory agencies, F-TWG, and relevant stakeholders to identify research and monitoring needs and agree on methodology. Ideally, specific questions and focal taxa shall be chosen for the projects either based on site-specific fisheries risk assessment(s), or in relation to broader regional efforts to assess variation between sites and understand cumulative impacts for sensitive species. Monitoring will, to the extent practicable, use appropriate study designs and methodologies to effectively evaluate impacts during construction and operation by testing hypotheses and helping to assure statistical power for meaningful data analysis. However, for some biological monitoring, this level of robustness to adequately detect change as a direct result of an offshore wind farm is not always possible as many outside factors can influence these variations with much greater significance than the factors that can be attributed to causes from offshore wind energy developments (e.g., seawater temperature, nutrient levels, etc.).

13.3.3 Post Construction

Detecting change in biological resources such as fisheries resources as a direct result of an offshore wind development can be challenging, as the fisheries resource may be subject to natural fluctuations in abundance and spatial and temporal distribution due to outside factors, for example oceanographic conditions. As such, any proposals for monitoring should be statistically robust, and Equinor Wind advocates for technical experts to conduct statistical power analyses up front in the planning process before implementing future studies. Equinor Wind is committed to exploring appropriate monitoring protocols, for example monitoring of potential behavioral responses or changes in spatial and temporal distribution of biological resources as a direct result of its offshore wind energy development. Equinor Wind will collaborate with F-TWG and E-TWG and seek input from stakeholders on monitoring requirements and methods and is willing to explore collaborative fisheries research and monitoring initiatives with entities such as ROSA.

Current and historical use of the Empire Wind project area by commercial and recreational fisheries has and will continue to be determined [REDACTED] [REDACTED] which includes the Empire Wind projects. Fisheries data and consultation feedback from the fishing industry and maritime community has resulted in the Beacon Wind Project establishing a 1x1 nm layout along with other developers in the Massachusetts – Rhode Island Wind Energy Area to minimize impacts on existing fishing practices and facilitate ongoing access to traditional fishing grounds. The layout also takes into account existing and future maritime navigation trends and Search and Rescue capabilities.

Monitoring changes in pre- and post-construction fishing activities due to the presence of an offshore wind energy development can be challenging. Many factors influence fishing activities



within a given area on both a seasonal and yearly basis, which make statistically detecting “change” difficult. For example, fishing activities may be influenced by factors independent of an offshore wind farm, such as quota, presence of a mobile species, market prices, fuel prices, and fisheries closures. As such, due to the complexities and the need to design a methodology that has both industry and fisheries support, Equinor Wind proposes that if required, such studies be discussed as part of the F-TWG. Equinor Wind is in favor of developing and supporting research initiatives aimed at improving opportunities for continued and enhanced access for recreational and commercial fishing in the operational offshore wind energy developments. For example, Equinor Wind is supportive of research aimed at innovative technical approaches to issues such as turbine spacing, impacts on navigation equipment, trawling equipment, safety equipment, training, and/or information dissemination options.

If impacts are deemed to be present, Equinor Wind can consider several options, including:

- Exploring whether further mitigation can be applied to reduce impacts (e.g., improved access through technical solutions to fishing practices and/or navigation equipment);
- Using adaptive management by applying mitigation in the spatial planning and layouts of later phases of development in the lease area; and
- Sharing the results so that they can be used in adaptive management on a wider scale, for development of future lease areas in the Northeast and Mid-Atlantic Ocean and wider offshore wind energy space.



13.4 Supporting Other Research

The selected Proposer will be required to coordinate with third-party supported scientists, providing reasonably-requested Project data and access to the Project area for independent scientists examining environmental and fishery sensitivities and/or the impacts of offshore wind energy development on fish, invertebrates and fisheries for the purpose of publication in peer reviewed journals.

The Proposer must describe how such requests will be considered and processed, and any restrictions on data provision or access the Proposer believes may be required to protect trade secrets or maintain site security.

The Proposer may also elect to identify a level of financial commitment that will be appropriated to leverage third-party environmental research funding related to fish, invertebrates and fisheries, including federal or State-supported research, or that the Proposer would be willing to contribute to a general fund for supporting third-party research into relevant fish and invertebrate communities and associated commercial and recreational fisheries and the effects of offshore wind energy development. Such financial commitments will be favorably considered in the proposal review process.

Equinor Wind is committed to collaborating with the scientific community, F-TWG, relevant stakeholders, other offshore wind energy developers, and third-party groups to conduct robust and relevant research studies that relate to fisheries and offshore wind energy developments. Studies may include fishing feasibility (by technique) within operational wind farms, and options for research can be discussed through the F-TWG or other fisheries related initiatives, such as ROSA and the fishing industry. Equinor Wind is a board member of ROSA and an active member of the Advisory Council. Equinor Wind believes that technical experts should conduct statistical power analyses up front in the planning process before proceeding with future studies. In addition, F-TWG and/or E-TWG are appropriate forums in which to discuss the development of such analyses and should be part of this process.

Equinor Wind is committed to providing to researchers and scientists data that is not commercially sensitive. Oceanographic data, not deemed proprietary, for example seawater temperature and salinity, from the “Metocean Facilities” deployed within the Lease Area. Requests can be made directly via Dave Phillips at dphi@equinor.com. Equinor Wind will make non-proprietary environmental and fisheries data publicly available in a format and manner best suited for efficient distribution.

Equinor Wind also will consider making existing wind farm related vessels, buoys, or structures available for research opportunities where the research activities will not materially impact the existing objectives of those resources. Equinor Wind is willing to consider requests to access Equinor Wind’s existing operating offshore wind energy developments in Europe to conduct research and monitoring and will make an effort to meet with any interested parties when contacted to discuss prospective research.



Equinor Wind already is collaborating with third-party researchers in support of monitoring activities and assessing impacts in the following ways:

- Equinor Wind is funding a study with the Anderson Cabot Center for Ocean Life at the New England Aquarium to establish monitoring systems to assess the impacts of offshore wind development on highly migratory species (HMS; sharks, tunas, billfishes) and the large recreational fishery that targets them.
- Equinor Wind has been collaborating with SUNY Stony Brook to attach four fish tag receiver gates to the Empire Wind metocean facilities. The receiver gates, used primarily for detecting Atlantic sturgeon but also capable of detecting other tagged species, were part of a previously BOEM-funded study. Equinor Wind has been coordinating with Stony Brook on opportunities to download and service the sensors during scheduled service visits approximately every 6 months. Equinor Wind intends to continue this collaboration.
- Equinor Wind is collaborating with the Wildlife Conservation Society (WCS) and Woods Hole Oceanographic Institute (WHOI) on real-time large whale detection and notification buoys in a minimum 3-year monitoring program. This includes an exhibit will be set up at the New York Aquarium concerning the program.
- As soon as the Beacon Wind metocean facilities (e.g., current meters and wave buoys) are deployed [REDACTED] oceanographic data, not deemed proprietary will be made available upon request;
- Protected Species Observer (PSO) data is currently being shared in support of a research study being conducted by NMFS and the New England Aquarium to evaluate how PSO data can be utilized to support regional species stock assessments.
- Equinor Wind contributed [REDACTED] to the startup of ROSA.
- Equinor Wind is a member of the RODA Task Force.

If selected as a winning bid under this OREC RFP, Equinor Wind is committed to support regional monitoring of wildlife and key commercial fish stocks equivalent to the specified value of \$10,000 per MW. Half of this will support regional monitoring of key commercial fish stocks to better understand how offshore wind energy development is potentially altering the biomass and/or distribution of these stocks; and the other half will support regional monitoring of wildlife to better understand how offshore wind energy development effects distribution and abundance of sensitive species. These monitoring efforts may be committed via regional monitoring organizations (e.g., ROSA, Regional Wildlife Science Entity (RWSE) or similar) or independently by Equinor Wind.



13.5 Site Design Considerations

As offshore wind energy technology advances, Proposers are able to consider various alternatives for elements of the proposed site design and related infrastructure. The Proposer must describe how it will consider the potential adverse impacts of infrastructure design elements (e.g., turbine spacing and layout, turbine foundation type, cable burial and protection methods, and cable crossing designs) on fishing in the proposed Project area.

The Proposer must demonstrate that the Project area and proposed site design allows for reasonable flexibility in the site layout (e.g. orientation of turbine lines, distance between turbines, and navigation areas) to accommodate changes that may be needed in the future. The Proposal must outline how the Proposer will engage with stakeholder groups such as the F-TWG and other regional fishermen and shipping and navigation to determine Project layouts that address stakeholder concerns.

Fisheries data and consultation feedback from the fishing industry and maritime community has resulted in different layout approaches for Equinor Wind's US offshore wind portfolio. Equinor Wind believes that layout of infrastructure design elements depends on the specific lease location and many factors that may be unique to a given Project Area.

Along with other developers in the Massachusetts – Rhode Island Wind Energy Area, the Beacon Wind project will utilize a 1nm x 1 nm layout with predictable rows to provide consistent turbine layout across the larger area and to minimize impacts on existing fishing practices while facilitating access to traditional fishing grounds. The layout also takes into account existing and future maritime navigation trends and Search and Rescue capabilities.

Equinor Wind will use a cable burial risk assessment to determine sufficient burial depth for the inter-array cable layout and along the export cable routes. Where target burial depth cannot be reached, secondary protection shall be considered. To minimize risk of anchors and fishing gear snagging the submarine export cables, the export cable routes have been routed to target areas where chances of burial are improved and to avoid areas of high fishing activity.



13.6 Construction and Operation

The Proposer must describe its planned operational protocol to avoid, minimize, and mitigate impacts to fish, invertebrates and fisheries during Project construction and operation phases, such as vessel transit routes, designation and monitoring of safety zones, gear monitoring and retrieval, and communication with fishing vessels and resource managers. The Proposer must also describe its process for determining when mitigation strategies are insufficient and under what conditions they might elect to rehabilitate or restore fisheries in an alternative location or when the provision of compensation of some form may be appropriate.

The Proposer must describe how they will minimize potential loss of fishing gear due to snags on turbine structures, associated cables or cable mattresses, or related structures installed or deployed as a result of offshore wind energy development, and how the Proposer will approach claims of lost gear in the event of a snag that provides for a fair and timely review of the claim and appropriate compensation of impacted parties.

Equinor Wind does not intend to restrict or apply for broad-based restrictions on fishing activities within the operational wind farm. To the extent they are necessary, potential construction strategies, such as rolling construction with safety zones, could be used in consultation with the appropriate regulators, F-TWG, and the fishing community to minimize the overall area of temporarily closed areas. Scout vessels will be used to identify fixed gear in advance of project-specific activities, project-related vessels will use prescribed transit routes, and safety vessels will be placed around high-risk structures.

During the construction and operations phase, the FLO will communicate with fisheries concerning temporary construction closures through in-person communications, email services, flyers, websites, and LNMs. Vessels associated with the projects will comply with international and flag state regulations including the COLREGs and the SOLAS and will utilize existing TSSs, maintained channels, and transit lanes to the extent practicable. Equinor Wind will complete a Cable Installation Plan detailing how cable installation will be managed to ensure disruption is minimized. All submarine export cables, inter-array cables, wind turbines, and offshore substation locations will be provided to NOAA for inclusion on nautical charts. To the extent practicable and in consultation with the fishing industry, these features will be marked on the most common types of software used by fishermen for navigation and fishing. Following installation of the export and inter-array cables, Equinor Wind will conduct cable burial surveys at appropriate intervals to assess if target burial depth is being maintained, and Equinor Wind will share information on identified navigational risks as appropriate. The use of concrete mattresses as surface cable protection will be limited, to the extent practicable. Equinor Wind will consider the use of HDD at the landfall to minimize physical disturbance of coastal habitats. Equinor Wind would implement appropriate measures during HDD activities at landfalls to minimize potential release of HDD fluid. To minimize an inadvertent fluid return, an HDD Contingency Plan would be developed and implemented.



Equinor Wind is consulting with regulatory authorities and fisheries stakeholders for the development and use of a Gear Loss Prevention and Claim Procedure.

13.7 Project Decommissioning

The Proposer must describe how it will develop a decommissioning plan, including coordination with fisheries stakeholders, and any elements of its contemplated decommissioning plan that can be identified at this stage. Proposals demonstrating thoughtful consideration of the full life cycle of offshore wind energy Projects will be considered favorably.

Equinor Wind will be required to develop a decommissioning plan for each of the projects, subject to review and approval under BOEM's regulations in 30 C.F.R. Part 585. The decommissioning plan may require additional environmental review and analysis under NEPA.

Equinor Wind will consult regulators and fisheries stakeholders to study the potential impacts of decommissioning. At this early stage, it is not possible to accurately predict impacts and appropriate mitigation for decommissioning; however, decommissioning impacts are not expected to exceed impacts from construction. Potential impacts and mitigation options will become clearer post construction and during operations, facilitated by monitoring.

The process for development of a decommissioning plan will be discussed further with E-TWG and F-TWG and relevant regulators and stakeholders. Lessons learned from the construction and operations activities will be applied to the decommissioning plan at the appropriate time. Equinor Wind will consult with the fishing industry on the Empire Wind decommissioning plans at the appropriate time, closer to the decommissioning activities.

13.8 Fisheries Compensation Plan

If a fisheries compensation plan is being considered to offset impacts, the Proposer must describe how it will determine instances where all reasonable attempts to avoid and minimize Project impacts, or restoration to predevelopment conditions are not feasible and some type of fisheries compensation plan is warranted. The Proposer must describe how a fisheries compensation plan was, or will be developed; how the Proposer will coordinate with the F-TWG and other entities in the design or review of the fisheries compensation plan, and; how the compensation plan will be administered by an non-governmental third-party to provide reasonable and fair compensation for impacts that cannot be sufficiently addressed through other means.



13.9 Additional Considerations

The Proposer must outline any additional mitigation strategies not otherwise described herein that would improve the Plan and reduce impacts on the fishing community. Proposers are encouraged to review the Bureau of Ocean Energy Management (BOEM) Guidelines for Providing Information on Fisheries Social and Economic Conditions for Renewable Energy Development on the Atlantic Outer Continental Shelf Pursuant to 30 Code of Federal Regulations (CFR) Part 585. (Available at <https://www.boem.gov/Social-and-Economic-Conditions-Fishery-Communication-Guidelines/>) and Development of Mitigation Measures to Address Potential Use Conflicts between Commercial Wind Energy Lessees/Grantees and Commercial Fishermen on the Atlantic Outer Continental Shelf Report on Best Management Practices and Mitigation Measures. A final report for the U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewal Energy Programs, Herndon, VA. OCS Study BOEM (available at <https://www.boem.gov/OCS-Study-BOEM-2014-654/>) in the development of their Plan.

Equinor Wind is committed to working with F-TWG, regulators, and the fishing community to identify if fisheries data gaps still exist, identify if there are the potential data sources and/or studies that can better inform these gaps or impacts, and reach consensus on methodologies for conducting meaningful studies.



14 ENVIRONMENTAL MITIGATION PLAN

Proposers must include in their Proposals a detailed Environmental Mitigation Plan that describes how Proposer will mitigate adverse environmental impacts that may be caused by the Project. A narrative description of the Environmental Mitigation Plan should be included in the Proposal Narrative. The Environmental Mitigation Plan itself should be submitted as the required Environmental Mitigation Plan attachment. Both confidential and public versions of the Environmental Mitigation Plan must be included in the Submission. Elements of the Environmental Mitigation Plan are described in detail in Appendix E. Proposers are advised to review the environmental studies prepared for the New York State Offshore Wind Master Plan with respect to the potential impacts of offshore wind energy development on the environment, and also are advised to include in their mitigation plan the appropriate Best Management Practices described in the Master Plan, its supporting studies and more recent relevant work.

14.1 Environmental Mitigation Plan Summary

The Proposer must briefly present its philosophy and approach to avoiding, minimizing, restoring and offsetting the potential environmental impacts of the proposed Project and how the Proposer will use research, data and stakeholder feedback to support decision making with respect to site design, construction, operations and decommissioning.

As a governing philosophy, Equinor Wind is committed to the mitigation hierarchy, and Equinor Wind's implementation of this strategy is reflected in this EMP. Equinor Wind believes that from the outset, measures to avoid or mitigate adverse environmental impacts, while maximizing the positive beneficial environmental impacts of an offshore wind energy project, should be:

- Identified and developed in consultation and coordination with the relevant stakeholders;
- Based on robust baseline characterization that has been developed in consultation with relevant stakeholders;
- Based on evidence and the latest science, and where data gaps exist or the receptor-effect interactions are unknown, such gaps should be filled through targeted data collection, monitoring, and/or research;
- Incorporated into spatial planning, for example, in project siting and design; and
- Applied to how the projects are implemented (surveys, construction methods, operations and maintenance activities, and decommissioning).

Equinor Wind recognizes the importance of adaptive management and will continue to improve and mature its procedures for evaluating and mitigating impacts to environmental resources. Equinor Wind also recognizes that existing environmental plans, permitting, and assessment documents have been reviewed by the E-TWG, and Equinor Wind will continue to engage with the E-TWG as these resources continue to be developed and refined. For example, Equinor Wind

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presented the EW1 EMP to the E-TWG in November 2019 and has applied feedback from that process into the EMPs developed for EW2 and BW.

The EMP for each project are provided as Attachments 14.A and 14.B.

14.2 Communications and Collaboration

The New York State Offshore Wind Master Plan, the New York State Public Service Commission Order Establishing Offshore Wind Standard Framework for Phase 1 Procurement issued on July 12, 2018 and the Order Authorizing Offshore Wind Solicitation in 2020 issued on April 23, 2020 pursuant to Case No. 18-E-0071, and this RFP emphasize the value of stakeholder engagement in the development of offshore wind energy Projects. Further, the Orders require Proposers to work with the State-supported Environmental Technical Working Group (“E-TWG”). Many other stakeholders are engaged in offshore wind energy development. The Proposer must describe how it will identify stakeholders relevant to environmental issues and describe how the Proposer intends to communicate with those stakeholders during survey work, and design, construction, operation and decommissioning of the Project. This description must account for communications with members of the E-TWG and consultations with New York State agencies during the various Project phases.

Equinor Wind notes that openness and transparency are core values of its approach to engaging with stakeholders. Equinor Wind believes consultation and coordination with relevant stakeholders is important as a means of identifying potential risks or opportunities for sufficiently avoiding and mitigating environmental impacts. This includes sharing updates, plans, results, and information regularly and at all stages of project development so that all stakeholders have sufficient opportunities to input into these processes, while also being sensitive to the potential for stakeholder fatigue.

Equinor Wind has identified and implemented proven steps to identify and to consult with relevant stakeholder groups to get feedback on plans, data, and mitigation. This outreach and involvement increases “buy-in” on decisions in advance of the regulatory process. In other words, this is a “no surprises” approach. The EMPs for EW2 and BW provide information on how potential impacts may be mitigated, with further mitigation measures to be developed in further consultation with the relevant stakeholder groups, including E-TWG and New York State agencies.

Equinor Wind has been active in the E-TWG since its inception and is committed to active participation as a means to collaborate on best practices and research for offshore wind energy development, balancing environmental concerns with responsible technically and commercially feasible development, while fostering opportunities for future offshore wind energy development. Equinor Wind will continue to engage with the E-TWG on the basis of its portfolio of projects in development, rather than on a project-by-project basis. This approach is intended to streamline communication by providing a single point of contact for information exchange and



consistent message. Equinor Wind considers the Environmental NGOs (ENGOS) on E-TWG as a proxy “ENGO steering committee” for engagement with the ENGO community on responsible development and to provide guidance on additional outreach that may be valuable. Equinor Wind will continue to engage with regulatory agencies, ENGOS, research institutions and relevant stakeholders either via independent meetings or through environmental round tables in order to maximize opportunities to discuss the project and solicit feedback. For example, Equinor Wind considers the issuance of the EW1 EMP as an “ENGO roundtable” type discussion; meanwhile, the Equinor Wind held its first introductory ENGO roundtable for Beacon Wind September 17th, 2020. Equinor Wind will also proactively engage with ENGOS not directly represented on the E-TWG through direct engagement or environmental round tables hosted by Equinor Wind or others, as appropriate.

Equinor Wind actively participates in numerous working groups, steering committees, or other groups focused on evaluating and reducing environmental impacts from offshore wind development. For instance, Equinor Wind is a member of the Steering Committee that is working with NYSDERA and other partners to stand-up a Regional Science Entity. Equinor Wind also is Steering Group member representing the offshore wind developer’s caucus for the developing Regional Wildlife Science Entity (RWSE). A fuller list of entities and initiatives with which Equinor Wind is involved may be found in its EMPs.

14.3 Monitoring and Research

The Proposer must (to the extent possible at this stage) describe how, for large whales (particularly the North Atlantic right whale), other marine mammals, sea turtles, birds, bats, fish and invertebrates, it plans to conduct scientifically sound, statistically rigorous studies to accomplish the following:

- 1. Establish baseline data on the presence of these types of wildlife within the area of the proposed Project (including areas where Project-related vessels would travel to reach the Project area);*
- 2. Assess and quantify (to the extent practical) changes attributable to Project activities; and*
- 3. Monitor for impacts on these types of wildlife during each phase of physical work for the Project (site assessment, construction, operation, and decommissioning) to inform mitigation planning for later phases of the Project as well as for future Projects.*

In the event that these activities cannot be clearly defined at this stage, the Proposer must describe how it will approach these questions and data gaps.

The Proposer must describe how it plans to make environmental data available in accordance with Section 2.2.6 of the RFP.

Equinor Wind is committed to collecting and evaluating existing data, conducting research studies, incorporating feedback from the environmental community, and conducting site specific



or collaborative regional surveys and research in order to establish a baseline characterization of the lease areas' natural habitat, resources, and uses. Establishing this baseline data is necessary to identify and quantify potential impacts from the proposed offshore wind energy development, identify mitigation options to avoid or minimize impacts, and establish protocols for monitoring impacts or data gaps where appropriate. Equinor Wind's efforts to establish baseline data and monitor for potential impacts are and will be conducted in accordance with best practices, including BOEM guidance, as well as consideration of recommendations for further research from groups such as F-TWG and E-TWG.

Equinor Wind will explore appropriate monitoring and research protocols, including, for example, monitoring of potential behavioral responses or changes in spatial and temporal distribution of biological resources or fishing practices as a direct result of the offshore wind energy development. Monitoring plans for Empire Wind and Beacon Wind are not yet defined. Equinor Wind believes these are best formulated in consultation with the fishing industry, regulators, interest groups, and other wind developers. Equinor Wind will make data and analyses from studies that monitor the effects of its offshore wind development available to researchers and scientists, with appropriate limitations on proprietary information.

For the pre-construction, construction, and post-construction phases, Equinor Wind will identify priority taxa or species, and Equinor Wind is committed to using science and relying on technical experts to identify such priorities and establish appropriate monitoring and research approaches.

14.3.1 Pre-Construction

Equinor Wind acknowledges that ongoing research and monitoring for each of the project sites and at a wider regional scale is important to refine the understanding of impacts, potential mitigation options, and for future planning purposes for environmental resources, including facilitating the responsible leasing and development of future offshore wind energy areas within the Northeast and Mid-Atlantic Ocean. Equinor Wind has been establishing baseline data on the spatial and temporal presence of environmental resources in the proposed area of the projects using key existing literature and datasets.

14.3.2 During Construction

Equinor Wind is committed to exploring appropriate monitoring protocols, for example monitoring of potential behavioral responses or changes in spatial and temporal distribution of environmental resources as a direct result of the offshore wind energy development. Monitoring and research should ideally be targeted towards interactions between offshore wind energy developments and the receptors it is being judged against.

Equinor Wind is open to monitoring that explores other approaches to detect and quantify change, where further monitoring is appropriate, for example behavioral responses. Equinor Wind will work with the regulatory agencies, E-TWG/F-TWG, and relevant stakeholders to identify research and monitoring needs and agree on methodologies. Ideally, specific questions



and focal taxa shall be chosen for the Project(s) either based on site-specific risk assessment(s), or in relation to broader regional efforts to assess variation between sites and understand cumulative impacts for sensitive species. Monitoring will, to the extent practicable, use appropriate study designs and methodologies to effectively evaluate impacts during construction and operation by testing hypotheses and helping to assure statistical power for meaningful data analysis. However, for some biological monitoring, this level of robustness to adequately detect change as a direct result of an offshore wind farm is not always possible as many outside factors can influence these variations with much greater significance than the factors that can be attributed to causes from offshore wind energy developments (e.g., seawater temperature, nutrient levels, etc.).

14.3.3 Post-Construction

Detecting change in biological resources as a direct result of an offshore wind development can be challenging, as the resource(s) may be subject to natural fluctuations in abundance and spatial and temporal distribution due to outside factors, for example oceanographic conditions. As such, any proposals for monitoring should be statistically robust, and technical experts should conduct statistical power analyses up front in the planning process before implementing future studies. Equinor Wind is committed to exploring appropriate monitoring protocols, for example monitoring of potential behavioral responses or changes in spatial and temporal distribution of biological resources as a direct result of the offshore wind energy development.

Monitoring changes in pre- and post-construction of environmental resources due to the presence of an offshore wind energy development can be challenging. Equinor Wind will collaborate with F-TWG and E-TWG and seek input from stakeholders on monitoring requirements and methods and is willing to explore collaborative research and monitoring initiatives, through mechanisms such as a Regional Wildlife Science Entity (RWSE) or others.



14.4 Supporting Other Environmental Research

The selected Proposer will be required to coordinate with independent scientists supported by third parties for the purpose of research and publication in peer reviewed journals. This coordination may include the provision of reasonably requested Project data, and access to the Project area to examine environmental sensitivities and/or the impacts of offshore wind energy development on the environment.

The Proposer must describe how such requests will be considered and processed, and any restrictions on data provision or access the Proposer believes may be required to protect trade secrets or maintain site security.

The Proposer may also elect to identify a level of financial commitment that will be appropriated to leverage third-party environmental research funding, including federal or State-supported research, or that the Proposer would be willing to contribute to a general fund for supporting third-party research into relevant ecological communities and the effects of offshore wind energy development. Such financial commitments will be favorably considered in the proposal review process.

Equinor Wind is committed to collaborating with the scientific community, E-TWG, relevant stakeholders, other offshore wind energy developers, and third-party groups to conduct robust and relevant research studies that relate to environmental resources and offshore wind projects. Equinor Wind is a member of the Steering Committee that is working with NYSDERA and other partners to stand-up a Regional Wildlife Science Entity (RWSE) that is envisioned to provide support for regional science collaboration focused on studying the potential impacts from offshore wind development on sensitive environmental receptors. Additionally, Equinor Wind is a board member of ROSA and active member of the Advisory Council.

Equinor Wind will make an effort to meet with any interested parties when contacted to discuss prospective research. Equinor Wind is also willing to consider requests to access Equinor Wind's existing operating offshore wind energy developments in Europe to conduct research and monitoring. With regards to any restrictions, Equinor Wind will restrict confidential, propriety, and commercially sensitive data (as noted within Section 3 of the Empire Wind and Beacon Wind EMP).

Equinor Wind, contingent upon a winning bid under this OREC RFP, is committed to support regional monitoring of wildlife and key commercial fish stocks equivalent to the specified value of \$10,000 per MW. Half of this will support regional monitoring of key commercial fish stocks to better understand how offshore wind energy development is potentially altering the biomass and/or distribution of these stocks; and the other half will support regional monitoring of wildlife to better understand how offshore wind energy development effects distribution and abundance of sensitive species. These monitoring efforts may be committed via regional monitoring organizations (e.g., ROSA, RWSE, or similar) or independently by Equinor Wind.



14.5 Marine Mammals and Sea Turtles

The development of offshore wind energy poses some concerns about effects on marine mammals and sea turtles, primarily related to the introduction of man-made sounds, changes in ship traffic, and the long-term presence of turbines in the ocean.

Sounds resulting from bottom surveys, ships, and pile driving may risk introducing possible changes in mammal behavior, including effective habitat reduction because of sound avoidance, interruption of life-cycle activities, and injury to hearing. For some marine mammals, low-frequency sounds such as pile driving, if performed in close proximity to an animal, can potentially cause permanent damage to hearing or temporarily make it difficult for the animal to hear predators, prey, and each other.

The Proposer must provide a description of how it will work to understand and minimize the Project's risk to marine mammals and sea turtles, with special attention to highly vulnerable and endangered species such as the North Atlantic right whale. At a minimum this should consist of:

1. A basic description of what is known about the proposed site in terms of marine mammal and sea turtle assemblage, temporal and spatial use of the site, and which species the Proposer believes to be of greatest concern and why;

2. A description of proposed measures to minimize the impacts of sound on marine mammals and sea turtles during all phases of Project development. This should include, at a minimum:

a. Anticipated pre- and post-construction survey techniques to establish an ecological baseline and changes to that baseline within the Project site;

b. Minimum size of exclusion zone intended to be monitored during geophysical surveys and construction;

c. Planned approaches to understanding marine mammal and sea turtle presence and absence within the development site exclusion zone during site assessment and construction (e.g., a combination of visual monitoring by protected species observers and passive acoustic monitoring, the use of night vision and infra-red cameras during nighttime activities, etc.);

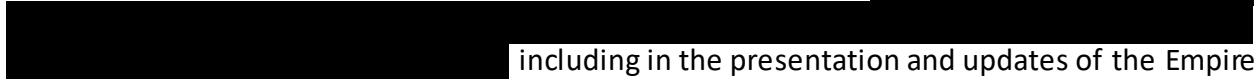
d. Proposed temporal constraints on construction activities and geophysical surveys with noise levels that could cause injury or harassment in marine mammals (e.g., seasonal restrictions during periods of heightened vulnerability for priority species; commencing activities during daylight hours and good visibility conditions, dynamic adjustments following the detection of a marine mammal); and

e. Proposed equipment and technologies the Proposer would use to reduce the amount of sound at the source, if any.

3. A description of how the Proposer will seek to minimize the risk of ship strikes through timing, speed restrictions (e.g., stakeholders have suggested speed restrictions of 10 knots during time periods with high densities of species of concern), use of shipping lanes, and conformance to the National Oceanic and Atmospheric Administration guidance to avoid ship collision with whales (<https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-ship-strikes-north-atlantic-right-whales>).



The projects' assessments, design, and mitigations are fabricated in a manner meant to appropriately address the needs and requirements of all of the species known to occur within the Project Areas without having to prioritize some over others.



including in the presentation and updates of the Empire Wind EMP in the E-TWG. Equinor Wind will include similar considerations and consultations for Beacon Wind. Baseline data associated with marine mammals and sea turtles is provided within this section. The following is a high-level summary of Equinor Wind's present knowledge.

14.5.1 Marine Mammals

There are 38 marine mammals (cetaceans and pinnipeds) found in the Northwest Atlantic OCS region waters with documented ranges that include the Project Areas. All 38 marine mammals are protected by the MMPA and five are additionally federally listed as Endangered under the ESA. Of those 38 species, there are 20 considered common (known to be present either year-round or seasonally in the Project Areas). Across the Project Areas, there are five whale species listed as endangered under the ESA that may occur or are expected or likely to occur within or transiting near the Lease Areas or export cable corridors. These include the fin whale, sei whale, blue whale, north Atlantic right whale, and the sperm whale. There is no Critical Habitat for any marine mammal species in the Project Areas.

While rare occurrences of these three ESA-listed whales have been reported in the Empire Wind Project Area, these species are considered to be rare and are not expected. These five species of whale are protected under the MMPA and the ESA and are considered likely to be found in the Project Areas. Because these species may occur and are federally endangered, a Biological Assessment will be prepared during the NEPA process in accordance with Section 7 of the ESA to address these specific species. For a full list of marine mammals which are common in the marine waters of the Atlantic OCS (including the Project Areas) please see Section 4.1.1 of the Empire Wind and Beacon Wind EMPs.

14.5.2 Sea Turtles

There are five species of sea turtles that have been documented in or within the Northwest Atlantic OCS region waters which includes waters of the Project Areas. These species include Atlantic (Kemp's) ridley (*Lepidochelys kempii*), loggerhead (*Caretta caretta*), followed by green (*Chelonia mydas*), leatherback (*Dermochelys coriacea*), and the Atlantic hawksbill (*Eretmochelys imbricate*). The hawksbill is considered unlikely to occur and if seen would be as incidental transients. There is no Critical Habitat for sea turtles in the Project Areas.



In the Empire Wind Project Area waters, these four sea turtle species are likely to occur near the continental shelf edge and the outer edge of the Lease Area, with higher densities during summer and fall; (June through November; however, they have the potential to be present year-round, albeit in very low numbers in the winter (winter sightings would be rare and due to cold-stunning). It is possible that any of these four species of sea turtles could also occur near the onshore portions of the Empire Wind Project, near the offshore export cable landfall, as these areas may contain algae or eelgrass habitat, as well as benthic habitat for species of mollusks and arthropods that are the preferred diet of juvenile sea turtles. There are no current habitual nesting sites in New York coastline habitat; sea turtles migrate over 1,000 miles (1,600 km) from their northern latitude feeding grounds to nesting grounds either in the southern U.S. or other countries to reproduce. Only two of the species known to occur in the Empire Wind Project Area nest in the U.S.: the loggerhead and the green. Typically, the furthest north that sea turtle nesting occurs is in the southeastern U.S. as far north as North Carolina, but there are exceptions. In New York, sea turtles are known to occur throughout the nearshore waters as far north and west as the Lower Bay portion of Gowanus Bay.

Of the five species of sea turtles that have been documented in or within the Northwest Atlantic OCS region waters, the juvenile Kemp's ridley and loggerhead are the most abundant species that occur and are likely to occur within the Empire Wind Project Area. They are found in nearshore waters, where they are known to forage during their early life years of 3-7. Green and leatherback sea turtles are also known to occur in the Empire Wind Project Area regularly. While sea turtles are most common in the Empire Wind Project Area in the summer and fall, they have been sighted year-round. Sea turtle age classes present in the Empire Wind Project Area include both juveniles and adults; however, juveniles typically occur in larger numbers.

Proposed Measures to Minimize Impacts of Sound:

Equinor Wind has identified the potential for underwater noise impacts to marine mammals and sea turtles from geophysical survey equipment, construction, and installation. The following is a list of proposed mitigations measures for the projects:

Geophysical Surveys

- Exclusion, clearance, and monitoring zones will be maintained as necessary to help measure and mitigate potential effects on marine mammals;
- Monitoring during noise-generating activities shall be done through an integrated monitoring approach, including the use of PAM, NMFS-approved PSOs, and other proven technologies, as appropriate, to the extent practicable and in compliance with federal regulation;
- Noise generating geophysical survey work shall not commence after dark or at other times of low visibility that would prevent sufficient monitoring of exclusion zones, to the extent compatible with practicability and worker safety;



- Soft starts and shut-down procedures to minimize impacts associated with noise emitting survey equipment, where technically feasible and in accordance with associated authorizations.

General:

- Monitoring during construction and installation activities, including those done during times of reduced visibility, will be done through an integrated monitoring approach, including the use of PAM, NMFS-approved PSOs, and other proven technologies, as appropriate, to the extent practicable;

[Redacted content]

[Redacted content]

[Redacted content]

[Redacted content]

[Redacted content]

[Redacted content]

[Redacted content]

[Redacted content]

Proposed Measures to Minimize Risk of Ship Strikes:

Equinor Wind has identified the potential for ship strike impacts to marine mammals and sea turtles from portfolio-associated activities. The following is a list of some of the proposed mitigations measures for the projects. For a complete list, please see Section 4.3 of the Empire Wind and Beacon Wind EMPs:

- Use of exclusion/safety zones, potentially based on real-time monitoring systems as well as NOAA and NMFS-approved PSOs and PAMS.
- Equinor Wind empowers all personnel onboard a vessel to raise an alert of potential marine mammals and sea turtle risk via the Lead PSO, with the Lead PSO given full mandate for mitigation decisions.



- Equinor Wind’s vessel strike avoidance measures will (and have been) consistent with: (1) NOAA NMFS guidance to avoid ship collision with marine mammals and sea turtles; (2) conditions within the lease area; (3) and any Incidental Take Authorizations issued by NOAA NMFS.
- Vessel collision avoidance mitigation measures including, but not limited to use of dedicated shipping lanes, training of crews on collision avoidance measures, compliance with speed restrictions, and compliance with minimum separation distances from certain species.
- Equinor Wind also will adopt vessel collision avoidance measures for project vessels working in or in transit to and from the Lease Areas
- Equinor Wind will adopt vessel speed restrictions associated with seasonal management areas (“SMA”) and dynamic management areas (“DMA”) relevant to the size of the vessels used and other vessel strike avoidance measures.

Appropriate project-related personnel onboard project vessels will be provided marine mammal sighting and reporting procedures training appropriate for each specific phase and its potential impacts to marine mammal species, as necessary. These monitoring, sighting, and reporting protocols will be outlined in any Incidental Harassment Authorization (IHA) deemed necessary for the projects, in an effort to emphasize individual responsibility for marine mammal awareness and protection.

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14.6 Birds and Bats

Offshore wind energy has the potential to adversely impact birds and bats during siting, construction, and operation. Impacts include direct mortality from collisions with wind turbines and other structures, habitat loss, displacement, and sensory disturbances from sound and light. Since offshore wind is a new industry in the Atlantic and all potential impacts are not known, it is critical that current use by birds and bats is well understood before construction and use and impacts continue to be monitored during and post-construction so that unexpected impacts can be mitigated for.

The Proposer must provide a description of how it will work to understand and minimize the Project's risk to birds and bats. At a minimum this should include:

- 1. A description of what is known about the proposed site in terms of bird and bat assemblages, temporal and spatial use of the site by key species, and which species the Proposer believes to be of greatest concern and why;*
- 2. The planned approach that the Proposer will use to evaluate risks to birds and bats generally, and those of greatest concern specifically;*
- 3. Steps the Proposer will pursue to minimize risk to birds and bats (e.g. lighting); and*
- 4. Identification of technological approaches to assess impacts or any Proposals for other research or mitigations relating to birds or bats planned or under consideration at this time.*

14.6.1 Birds

Equinor Wind has already undertaken significant efforts to understand impacts to birds. Equinor Wind contracted Biodiversity Research Institute to conduct an exposure and risk assessment for both offshore and onshore species of birds known to and/or have the potential to occur in the Empire Wind Project Area. Using a risk assessment framework, the potential effects associated with the construction and operation of the proposed offshore wind developments were evaluated. The framework used a weight-of-evidence approach and combined evaluations of both exposure (*i.e.*, likelihood of occurrence in the Empire Wind Offshore Study Area), and behavioral vulnerability within the context of the literature to establish potential risk. The Beacon Wind project is also engaged in avian surveys within the Lease Area and will soon deploy acoustic receivers to detect avian species and quantify abundance offshore. These efforts combined will provide a regional dataset that spans the Equinor Wind portfolio.

A broad group of avian species has been documented in or may pass through the Empire Wind Lease Area, including migrants (such as raptors and songbirds), coastal birds (such as shorebirds, waterfowl, and waders), and marine birds (such as seabirds and sea ducks). There is a high diversity of marine birds that may use the Empire Wind Lease Area, as it is located in the New York Bight, which overlaps with northern and southern species assemblages. Three species listed



under the ESA are present in the region: the piping plover (*Charadrius melodus*), red knot (*Calidris canutus rufa*), and roseate tern (*Sterna dougallii*). Piping plovers nest along New York and New Jersey beaches, and will also migrate (spring and fall) through the region to and from northern breeding sites. Red knots pass through the region during migration in transit to far northern breeding sites. Roseate terns also fly through the Mid-Atlantic region on their way north to breeding sites in New York and New England. It is also noted that for the Beacon Wind Project Area, two species of birds that may occur in the WEA are listed under the ESA as endangered or threatened. The northwestern Atlantic Ocean population of Roseate Tern (*Sterna dougallii*) is listed as endangered, and the Atlantic Coast population of the Piping Plover (*Charadrius melodus*) is listed as threatened. A third bird species that may occur in the WEA, the Red Knot (*Calidris canutus rufa*), is currently regarded by the USFWS as a candidate for ESA listing status but has been proposed to be listed as threatened.

Situated within the Atlantic Flyway, the Empire Wind Lease Area is located within one of four major North American north-south migration routes for many species of seabirds, shorebirds, waterfowl, raptors, and songbirds. The Atlantic Flyway is located along the eastern coast of North America, which includes several states and Canadian provinces that span the route from Canada to South America and the Caribbean. Coastal and marine environments along the Atlantic Flyway provide important habitat and food resources for hundreds of avian species at stop-over sites, breeding locations, and wintering areas. Migrant terrestrial species may follow the coastline during migration or choose more direct flight routes over expanses of open water. Many marine birds also make annual migrations up and down the eastern seaboard (e.g., gannets, loons, and sea ducks), taking them directly through the New York Bight region in spring and fall. The New York Bight also supports large populations of birds in summer, some of which breed in the area, such as gulls and terns. Other summer residents, such as shearwaters and storm-petrels, visit from the Southern Hemisphere (where they breed during the austral summer). In the fall, many of the summer residents leave the area and migrate south to warmer regions and are replaced by species that breed further north and winter in the mid-Atlantic region. This results in a complex ecosystem where the community composition shifts regularly, and temporal and geographic patterns are highly variable. A list of bird species potentially exposed to the offshore components of the Empire Wind project identified through species recorded offshore of New York in the NYSEDA (2018) and Equinor Wind-funded high resolution digital aerial surveys and cross-referenced with USFWS IPaC database (2018a) [REDACTED].

14.6.2 Bats

Bat species within the Project Areas can be categorized into two major groups based on their wintering strategy: cave-hibernating bats and long-distance migratory tree bats. Long-distance migrators are at higher risk of collision with operating turbines during migration, while cave hibernating bats are at higher risk of displacement by onshore habitat alterations. Both groups of bats are nocturnal insectivores, active during March to November, and occur in forested and open land habitats. Cave-hibernating bats are non-migratory or migrate regionally between summer breeding habitat and winter hibernacula (typically a cave) in the northeastern U.S. and

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are generally not observed offshore (over 3.5 mi [5.6 km] from shore). Cave hibernating bats known to occur in the northeastern U.S. include big brown bat (*Eptesicus fuscus*), eastern small-footed bat (*Myotis leibii*), Indiana bat (*Myotis sodalis*), little brown bat (*Myotis lucifugus*), northern long-eared bat (*Myotis septentrionalis*), and tri-colored bat (*Perimyotis subflavus*). The northern long-eared bat and the Indiana bat are both federally and state (New York) protected. Long-distance migratory tree bats known to occur in the northeastern U.S. include eastern red bat (*Lasiurus borealis*), hoary bat (*Lasiurus cinereus*), and silver-haired bat (*Lasionycteris noctivagans*). Rather than hibernating in the winter months, these species fly to the southern parts of the United States and Mexico (Cryan 2003) and have been observed offshore during fall migration and summer.

Cave-hibernating bats generally exhibit lower activity offshore than long-distance migratory tree bats, with their migratory movements occurring primarily in the fall. Acoustic studies indicate that the greatest percentage of migration activity for cave-hibernating bats takes place between July and October. In addition, acoustical monitoring at Block Island, Rhode Island, identified *Myotis* species during the Summer and Fall of 2009 and Spring of 2010, indicating cave-hibernating bats were active in the nearshore and onshore areas; however, calls were not identified to species. Based on these data and existing information in the literature, *Myotis* bats are not expected to be present in the Lease Areas, as the maximum distance *Myotis* bats have been detected offshore in the mid-Atlantic is 7.2 mi (11.5 km). Overall, acoustic studies indicate limited use of the offshore environment by cave-hibernating bats, and any use of the Lease Areas by this group is likely limited to fall migration. Of the cave-hibernating bats that have the potential to occur in the offshore Project Areas, only big brown bats were acoustically detected in the Empire Wind Lease Area during the 2018 Offshore Bat Acoustic Survey. Three big brown bat calls were recorded on June 25, 2019, suggesting very low levels of activity in the spring. No big brown bat calls were recorded from June 26 to September 14, 2019, suggesting very low to no use during summer. Thirteen big brown bat calls were recorded on September 15, 2019, suggesting low levels of fall migratory activity. Additionally, 21 unidentified Low Frequency bat calls, which could have been from big brown bats, were recorded during the late summer and fall migration period.

Both silver-haired and hoary bat have been recorded off the coast of New Jersey. All three tree bat species known to occur in the northeast region, eastern red, hoary, and silver-haired bats, were also detected in low numbers at Block Island, though mainly during migration (May; August–October). The 2018 acoustic survey in the Empire Wind Lease Area corroborates these findings. In the Empire Wind Lease Area, 39 percent of all bat passes recorded during 2018 were eastern red bats and 31 percent were silver-haired bats. Hoary bats were detected at very low numbers during the survey but not within the Lease Area, with the farthest location from shore being approximately 8.4 mi (13.5 km) from shore. While migratory tree bats were detected at low levels offshore from May through November, 99 percent were recorded from August 10 to November 15, indicating exposure is likely greatest during fall migration, and conversely is very low at other times of the year.



[REDACTED]. The combination of these data sets will provide a regional data set on bat species.

Evaluation of Risks to Birds and Bats:

In order to evaluate the baseline conditions and potential impacts to birds and bats, Equinor Wind reviewed existing data as well as collected additional data. For example, Equinor Wind contracted APEM, supported by Normandeau, to conduct monthly digital aerial surveys from November 2017 to October 2018 for the Empire Wind Lease Area, with monthly results, monthly reports, and quarterly and final reports made publicly available online. APEM and the methodology chosen was similar to the approach taken by NYSERDA, which also used APEM and these methods to conduct quarterly digital aerial surveys over the New York Bight and Lease Area. [REDACTED]

[REDACTED]. Equinor Wind installed a passive bat detector onboard the survey vessel RV Ocean Researcher to detect passing bats while the vessel was engaged in other survey activity in the lease area from April 2018 through December 2018. [REDACTED]

[REDACTED] The assessment approach and methods were designed to supplement the substantial body of existing data and to meet BOEM's data requirements for site characterization studies to evaluate the potential effects of the proposed project. In addition to the above survey work, Equinor Wind has performed a number of desktop studies to characterize bird and bat baseline conditions. Equinor Wind's unique ability to partner data collection efforts across projects makes way for a more complete regional dataset on these species.

Equinor Wind has followed BOEM guidelines and has used the Mid-Atlantic Ocean Data Portal's data of temporal use, abundance, and species distribution by avian species or groups in the lease area. The modeling data can also be used to potentially identify species that are high risk for collision or displacement, and species that are protected by federal and/or state laws.

Steps to Minimize Risk to Birds and Bats:

Equinor Wind has identified the potential for impacts from portfolio-associated activities for birds and bats. The following is a list of some of the proposed mitigations measures for the projects. For a complete list, please see Section 5.3 of the Empire Wind and Beacon Wind EMPs:

- To avoid and minimize attraction- and disorientation-related impacts to birds and bats, artificial lighting on Equinor Wind projects will be reduced to the extent practicable while maintaining human safety and compliance with FAA, USCG, BOEM and other regulations;
- Monitoring will be conducted to determine if there is a need for perching-related deterrents to reduce attraction and minimize potential perching and loafing opportunities for birds;



- During construction, installation of anti-perching devices where appropriate on offshore, above-water, project-related vessels and structures to minimize introduction of perching structures to the offshore environment;
- Onshore components will be sited in previously disturbed areas, existing roadways, or otherwise unsuitable avian habitat and/or ROWs to the extent practicable;
- Temporarily disturbed areas will be revegetated with appropriate native species, as appropriate; and
- Project-related vessels will be instructed to avoid rafting seabirds to minimize disturbance during construction, operations, and maintenance.

Approach to Assess Impacts to Birds and Bats:

In addition to the monitoring philosophy discussed above in Section 14.3, Equinor Wind also believes that monitoring of highly mobile species such as birds should focus on behavioral responses rather than pre-, during, and post-construction monitoring of abundance, which may not always have robust statistical power to identify change as a direct result of the wind farm. Should further monitoring of birds be required, for example for Roseate terns, then Equinor Wind is willing to explore monitoring through novel techniques such as GPS tagging exercises, subject to approvals from the relevant regulatory agencies. Equinor Wind will continue desktop studies and stakeholder discussions for avian and bat species. During field studies, Equinor Wind will complete appropriate surveys to further characterize the project area and determine presence/absence of habitat within proposed project activities.

Lastly, Equinor Wind notes that impacts, and the need for mitigation measures, will be sufficiently examined as part of BOEM's NEPA process as part of the projects' respective COPs, through state permitting processes, and in consultation with USFWS and relevant stakeholders. Where appropriate, mitigation will be implemented to reduce impacts to as low as practicable.



14.7 Fish, Invertebrates and their Habitats

The Proposer must provide a description of how it will work to understand and minimize the Project's risk to fish and invertebrates and their habitats. At a minimum this should include:

- 1. A basic description of what is known about the proposed site in terms of fish and invertebrate assemblage, and temporal and spatial variations in fish, invertebrates and their habitats at the proposed site. The use of collaborative monitoring models with the fishing community is encouraged to develop trusted baseline data;*
- 2. Identification of fish and invertebrate species the Proposer believes to be of greatest concern and why;*
- 3. The planned approach that the Proposer will use to evaluate risks and impacts to fish, invertebrates and their habitats generally, and the species or habitats of greatest concern specifically;*
- 4. Steps the Proposer will pursue to minimize risk to fish, invertebrates and their habitats (e.g., foundation type, scour protection, cable shielding for electromagnetic fields, construction windows, siltation/turbidity controls, use of dynamic-positioning vessels and jet plow embedment); and*
- 5. Any Proposals for other research or measures taken to reduce risk or impacts to fish, invertebrates or their habitats (e.g., ecosystem or habitat enhancements).*

The Empire Wind Project Area lies just on the border between Southern New England and the Mid-Atlantic Bight, with the Hudson Canyon as the nominal boundary between the two ecoregions (Cook and Auster 2007). The Empire Wind Lease Area and submarine export cable routes to New York are geographically within Southern New England, and the submarine export cable route to New Jersey crosses into the Mid-Atlantic Bight. Ecologically, however, these geographic distinctions have little meaning because dominant species assemblages from both ecoregions are resident in or transient through the Empire Wind Project Area. With sea temperatures increasing, historically southern species are moving north, further blurring the ecoregion boundary (Hare et al. 2016). While site-specific data are given the greatest weight in this section, recent regional reports of conditions in Southern New England and the Mid-Atlantic Bight are considered representative of the Empire Wind Project Area as appropriate.

Harvested fishes and macroinvertebrates managed under the MSFCMA or other fisheries programs occur throughout the Empire Wind Project Area. Most of the managed species have designated EFH in the Empire Wind Project Area. Additional information on managed species and designated EFH found within the Project Area [REDACTED]

No hardbottom or sensitive species were observed in the Empire Wind offshore cable installation corridor survey. No black sea bass (*Centropristis striata*), Atlantic cod (*Gadus morhua*), ocean quahog (*Arctica islandica*), or Atlantic surfclam (*Spisula solidissima*) were observed in any of the three corridors. Benthic habitats are strongly influenced by the overlying ocean, especially the top 600 ft (200 m) of the ocean known as the photic zone, where sunlight supports photosynthetic phytoplankton. The water column is particularly important for planktonic eggs



and larvae of demersal species and all life stages of planktivorous species. Oceanic currents, temperature, conductivity, pH, dissolved oxygen, and other features of the water column influence the occurrence and abundance of marine species in the Project Area. Pelagic habitats extend from the sea surface to near the seafloor; habitats vary by depth, temperature, light penetration, distance from shore, turbidity, and other physical and chemical characteristics. Dynamic water quality parameters such as dissolved oxygen, pH, and conductivity are influenced by currents, human activities onshore, climate and weather, and other processes. Water depth is a key feature that affects the horizontal and vertical distribution of fish and macroinvertebrates within pelagic habitats. Other important features, such as light penetration, temperature, and dissolved oxygen, generally co-vary with depth, although the relationships can be complex and dynamic. Water depths within the Lease Area are relatively uniform, ranging from 65 to 147 ft (20 to 45 m); about 76 percent of the Lease Area is between 98 and 131 ft (30 and 40 m) deep.

Benthic (seafloor) habitats include the substrate or seafloor and shallow subsurface of the seabed. Benthic communities serve as a trophic link between plankton and higher-order consumers because they feed on plankton and detritus and are preyed upon by fishes and larger invertebrates. The benthic substrate throughout the Beacon Wind Lease Area is expected to be relatively homogeneous and comprised largely of sand with variable portions of silt and clay. The Beacon Wind Lease area location on the continental shelf, and associated water depths provide a benthic environment that is dominated by deposition or is non-erosional. Therefore, the seafloor in the Beacon Wind Lease Area is relatively flat and lacking apparent heterogeneous habitat.

Hardbottom habitat provides an exposed and sediment-free surfaces for sessile, epifaunal benthic organisms to attach. Hardbottom habitats are typically characterized by having coarse material (>50 % gravel, cobbles, boulders in a sand matrix). Existing data for the Beacon Wind Lease Area suggested that there are no hardbottom, coarse material habitats identified. The export cable route may encounter hardbottom habitat as it transitions from offshore to nearshore landing locations, particularly crossing through the eastern portion of the Long Island Sound. Hardbottom habitats are considered heterogeneous and sensitive seafloor communities by NMFS. In New England and Mid-Atlantic waters, where hardbottom habitat is identified, communities can consist of cold-water corals and other epifaunal organisms. NMFS recommends avoidance of hardbottom habitat that may have sensitive seafloor communities, such as cold corals and if these areas cannot be avoided then impact should be minimized and mitigated.

Species at Risk:

Equinor Wind notes that fish and invertebrate species of interest in the lease area fall into three groups based on regulatory status: (1) species managed under the MSA; (2) species listed under the ESA; and (3) non-game fish and invertebrate species that are considered important prey (or shelter, in the case of biogenic habitats) for fish and wildlife. In addition, the role of the benthic habitat as a fisheries resource is fundamental to the identification of essential fishing habitat (EFH), as reflected in the emphasis on EFH in BOEM's benthic survey guidance (BOEM 2019). EFH has been designated in the Empire Wind Lease Area for various life stages of more than two



dozen nonmigratory managed species, including finfish, sharks and rays, and invertebrates. Designated EFH for three (3) coastal migratory pelagic and seventeen (17) highly migratory managed fish species also occurs in the Empire Wind Lease Area. Additionally, three federally-listed endangered fish may occur in the Empire Wind Lease Area: Atlantic salmon (*Salmo salar*); Atlantic sturgeon (*Acipenser oxyrinchus*); and shortnose sturgeon (*Acipenser brevirostrum*).

NYSDEC lists a number of other fish species as endangered, most if not all, are associated with freshwater habitat which will be evaluated, as applicable to the export cable route. [REDACTED]

Approach to Assess Impacts to Fish, Invertebrates, and Habitats:

In addition to the monitoring philosophy discussed above in Section 14.3, Equinor Wind also understands that from the outset, any research and monitoring to assess changes and impacts should be statistically robust. However, for some biological monitoring, the level of robustness to adequately detect change as a direct result of an offshore wind farm is not always possible as many outside factors can influence these variations with much greater significance than the factors that can be attributed to causes from offshore wind energy developments (e.g., seawater temperature, nutrient levels, etc.). As such, Equinor Wind is open to monitoring that explore other approaches to detect and quantify change, where further monitoring is appropriate, for example behavioral responses. Equinor Wind will work with the regulatory agencies, E-TWG and relevant stakeholders to identify research and monitoring needs and agree on methodology.

Steps to Minimize Risk to Fish, Invertebrates, and Habitats:

Equinor Wind has identified the potential for impacts from portfolio-associated activities to fish, invertebrates, and their habitats. The following is a list of some of the proposed mitigations measures for the projects. For a complete list, please see Section 6.3 of the Empire Wind and Beacon Wind EMPs:

- Equinor Wind will seek input from regulatory authorities, the fishing industry, and maritime industry to site foundations and cable routes in the least impactful manner that is practicable;
- Equinor Wind will avoid, to the extent possible, siting structures (wind turbines, offshore substations, and submarine cables) in areas of sensitive habitat, where feasible;
- [REDACTED]
- Equinor Wind will, to the extent possible, avoid sensitive benthic habitats;



- Equinor Wind will implement mitigation and avoidance measures to protect water quality, such as spill prevention. Specifically, Equinor Wind will use appropriate measures for vessel operation and implementing an OSRP, which includes measures to prevent, detect, and contain accidental release of oil and other hazardous materials. Project personnel will be trained in accordance with relevant laws, regulations, and Project policies, as described in the OSRP;
- Equinor Wind commits to sufficiently bury electrical cables where feasible, minimizing seabed habitat loss and reducing the effects of EMF; where deep burial is not technically feasible, rock armoring will shield the cable from the overlying water; and

█ [REDACTED]

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15 COMMUNITY ENGAGEMENT PLAN

Provide a community engagement plan that identifies proposed stakeholder engagement activities during construction and operation of the Project. A narrative description of the community engagement plan should be included in the Proposal Narrative. Discuss the status of implementing the community engagement plan. Include information on specific localized support and/or opposition to the Project of which Proposer is aware. Detailed supporting information, including copies of any agreements with communities and other constituencies impacted by the Project, not already covered in the Fisheries Mitigation Plan or the Environmental Mitigation Plan, and documentation identifying the level of public support for the Project including letters from public officials, community and local interest groups, newspaper articles, etc. should be included in the required Letters of Support for the Proposal attachment.

15.1 Introduction

Equinor recognizes that community engagement is a critical part of successful project development. Accordingly, Equinor places a high priority on stakeholder engagement and community outreach throughout project development and operation. Equinor also is committed to ensuring that the significant benefits that will result from New York's commitment to renewable energy are shared broadly, including with members of disadvantaged communities.

The COVID 19 pandemic has affected all New Yorkers, but no crisis in memory has more clearly exposed the vast gap in vulnerability based on race and economic status. In April, the *New York Times* reported that African American and Latino New Yorkers were dying at twice the rate of whites. The Pew Research Center reports that wage and job losses disproportionately hit Black and Latino households. COVID hospitalization and death rates by zip code revealed a map of New York's most economically disadvantaged communities. Before the pandemic forced the shutdown of the economy, the jobless rate in New York City was 3.4%, a historic low. A report this month says that one-third of the workforce in Brooklyn and Queens is receiving unemployment benefits, with unemployment highest in the communities that have long struggled with historic, systemic racism and lack of economic opportunity.

The development of the Empire and Beacon Wind projects, as proposed here, strongly supports New York's goal, as stated in the nation-leading Climate Leadership and Community Protection Act, to focus the opportunity and investments of offshore wind in the communities that need it most. Throughout this proposal, the communities Equinor Wind seeks to support through the investment of hundreds of millions of dollars are all communities qualifying as "disadvantaged" prior to COVID, and all communities where an influx of infrastructure spending and new jobs will make a positive impact in New York's COVID recovery. The transition to offshore wind and other clean resources will also improve air quality and public health in these communities, which have often been some of the most polluted areas of the state.

Equinor is eager to continue to expand its presence in New York in connection with the development of the Empire Wind and Beacon Wind Projects. For that reason, Equinor is



proposing to use this solicitation as an opportunity to build on the solid foundation that was established through NYSERDA's selection of the first phase of the Empire Wind Project through several key community engagement initiatives. These include:

- █ [REDACTED]
- █ [REDACTED]
- █ [REDACTED]
- █ [REDACTED]

Collectively, these initiatives will ensure that the communities supporting the development of the Empire Wind and Beacon Wind Projects reap the benefits of the rapidly growing offshore wind industry. These commitments, totaling \$47 Million with \$12 Million dedicated to workforce initiatives, will generate lasting benefits through sustainable workforce engagement, a cleaner environment, and support for community-led initiatives.

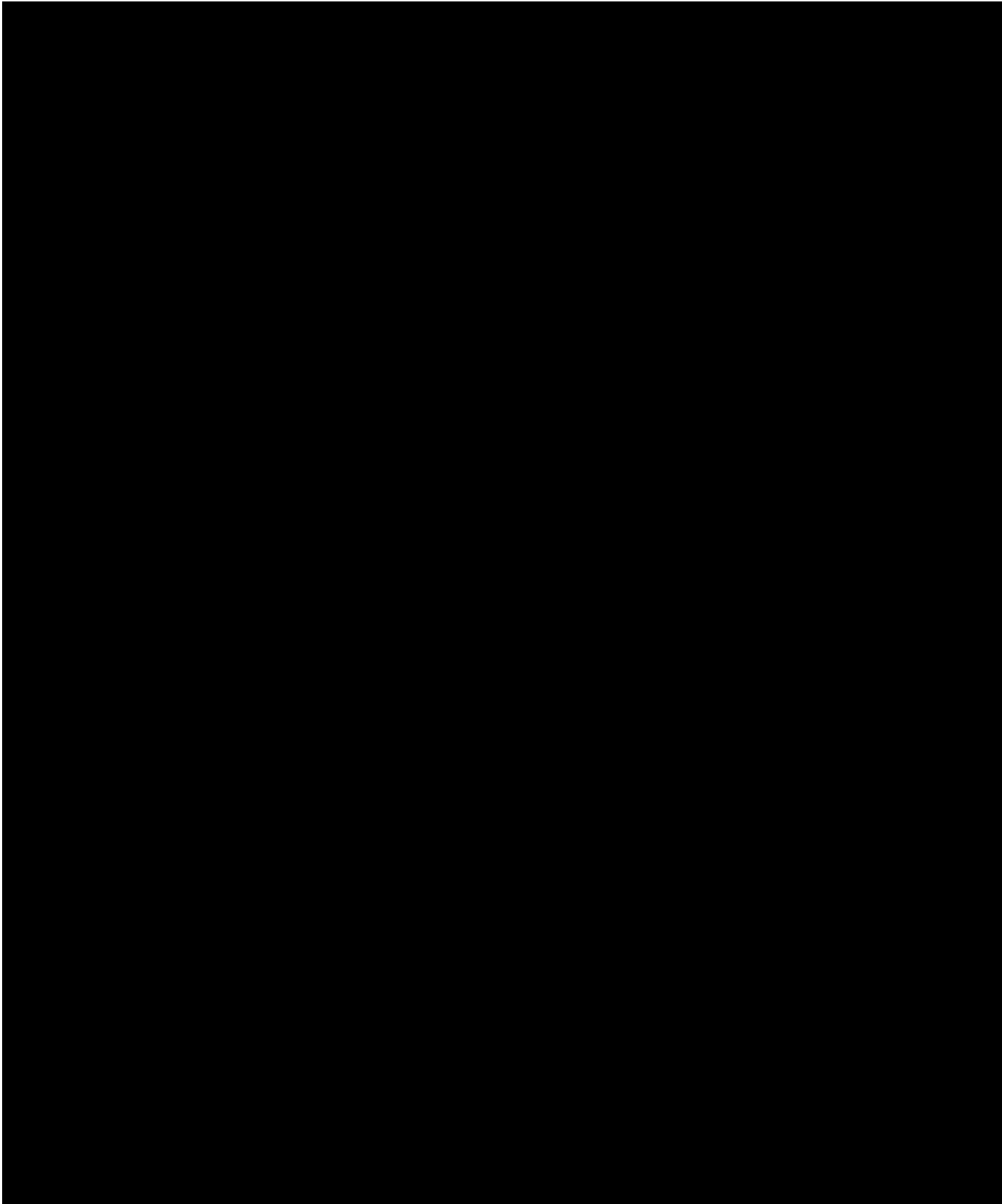
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Interest Areas

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Organization Type

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15.2 Building Partnerships: Equinor's Engagement with NY Communities

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15.3 Deepening Equinor’s Commitment to New York: Future engagement with NY Communities

Equinor’s engagement for EW2 and BW builds on the outreach for phase one of the Empire Wind Project, leveraging Equinor’s experience and relationships to drive additional workforce development and ensure consistent stakeholder engagement.

The following sections provide an overview of key initiatives that Equinor commits to pursue if EW2 and BW are selected through this solicitation. These initiatives ensure that the benefits of offshore wind are broadly shared throughout New York, resulting in an inclusive and sustainable offshore wind industry.

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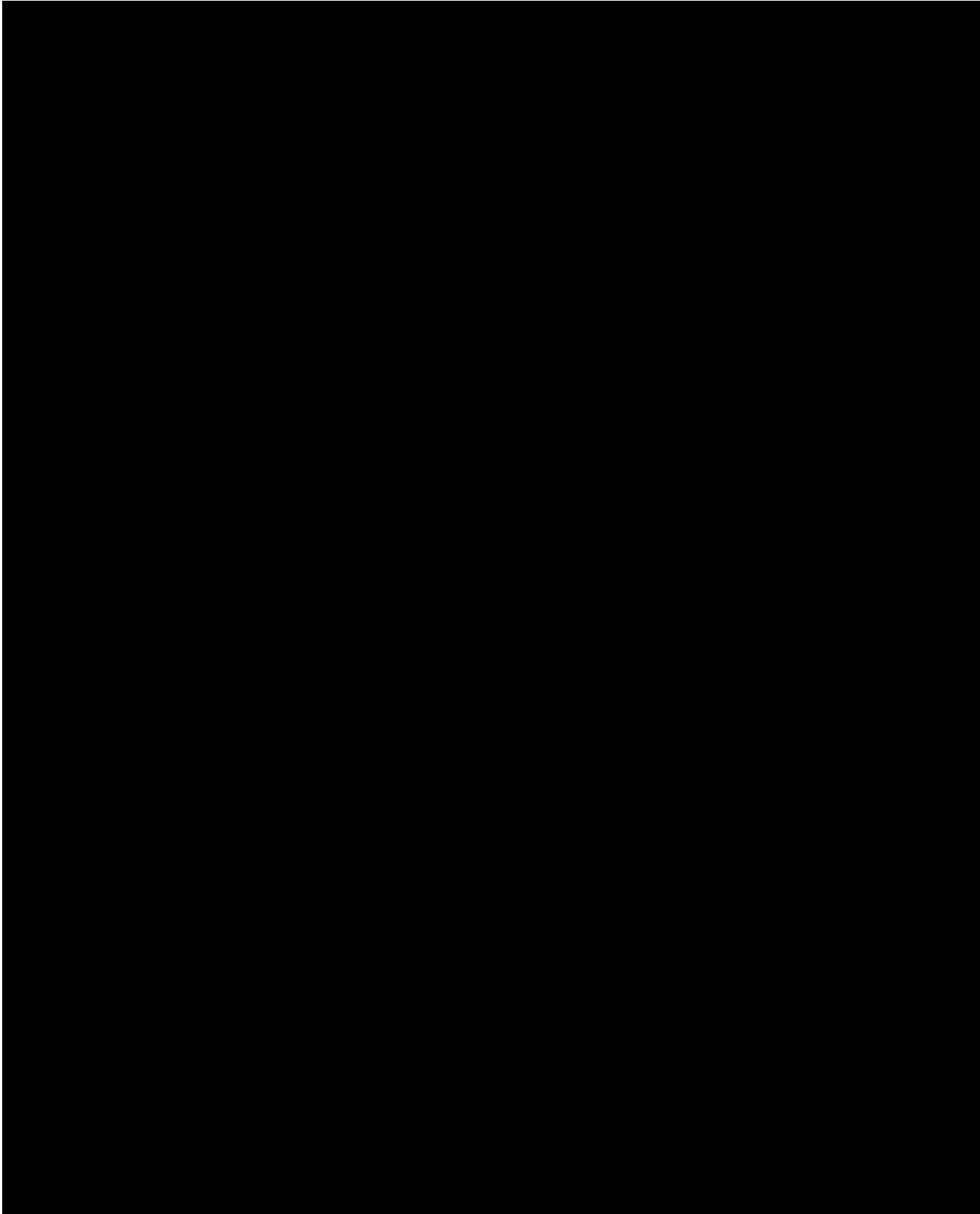
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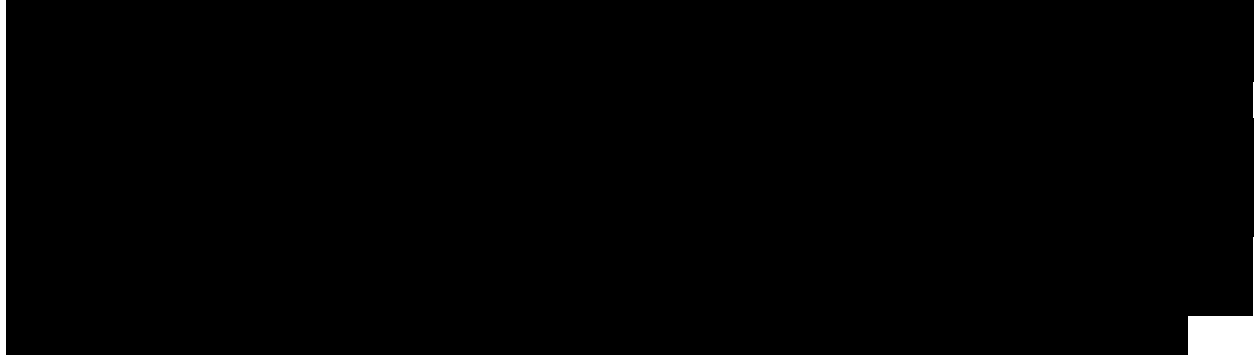


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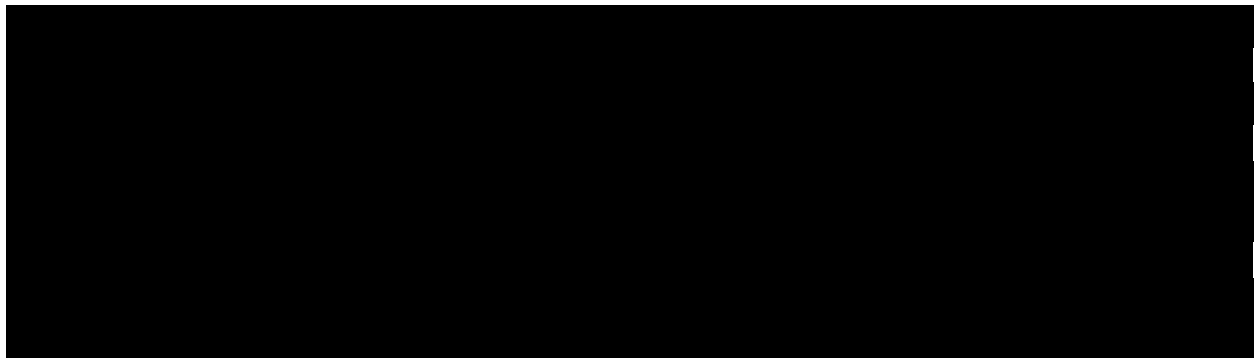


15.3.2 Environmental Justice Communities

Sunset Park



NYC Office

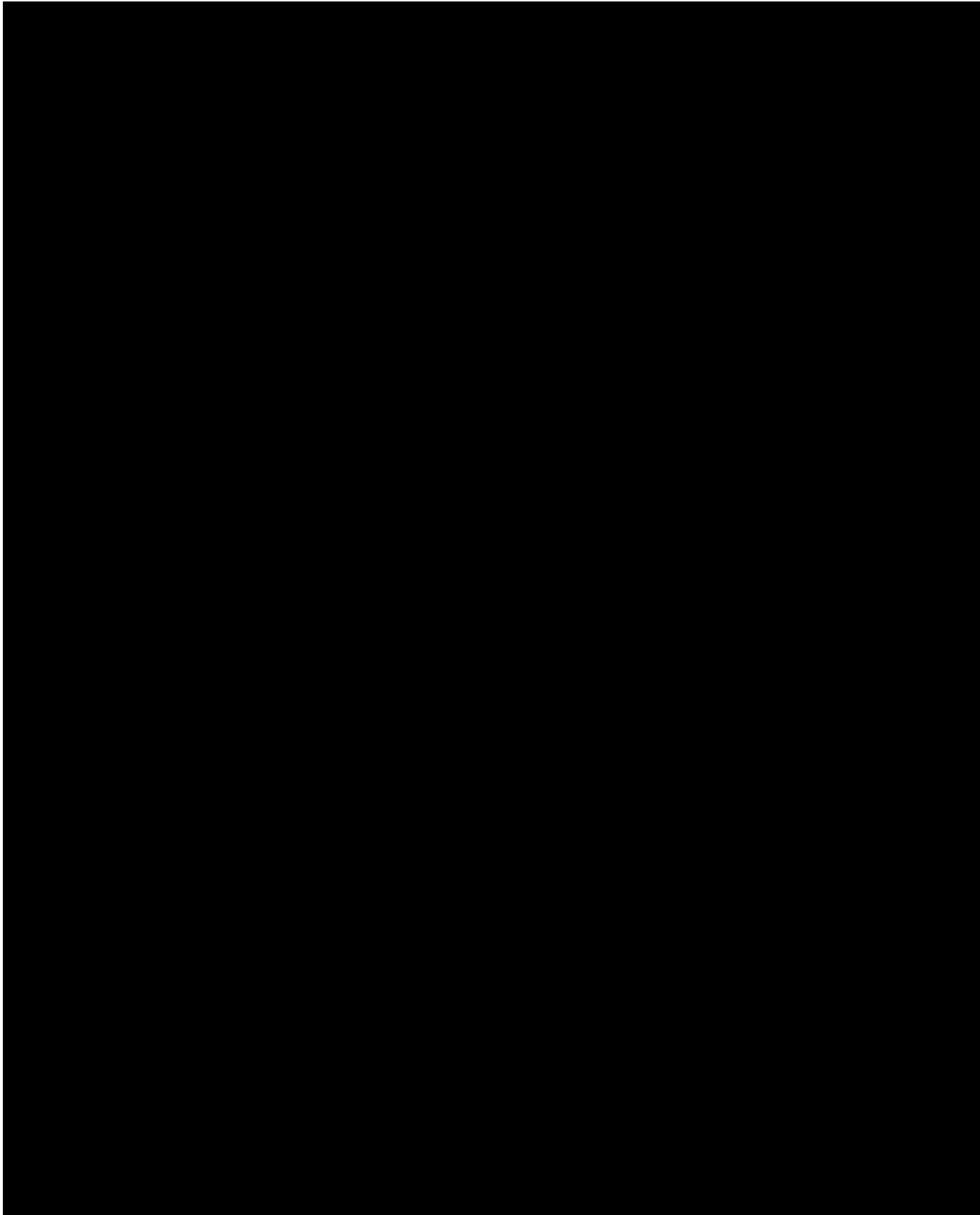




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15.3.3 Workforce Readiness

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15.3.4 Environmental Issues

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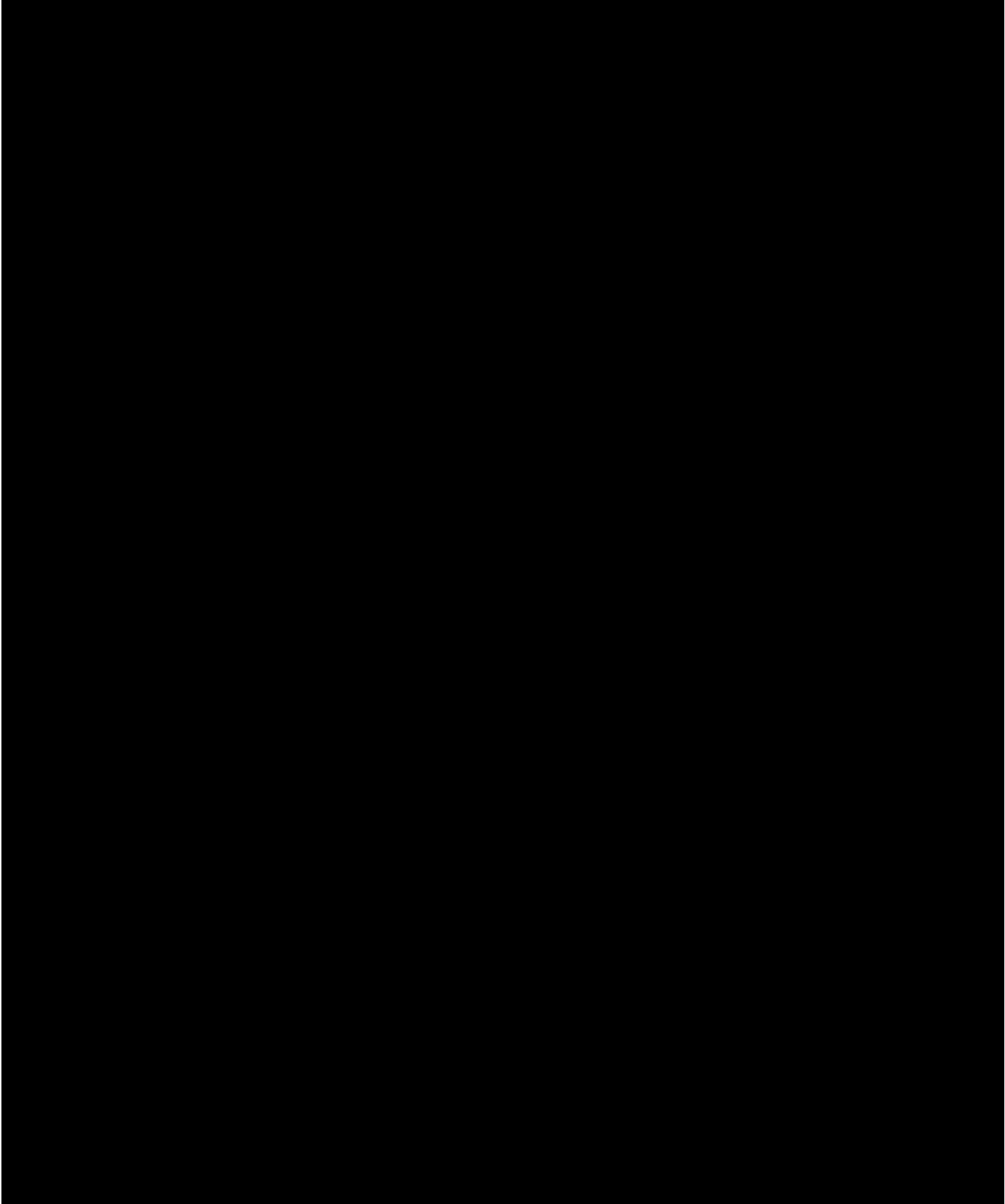
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15.3.5 Communications and Dispute Resolution

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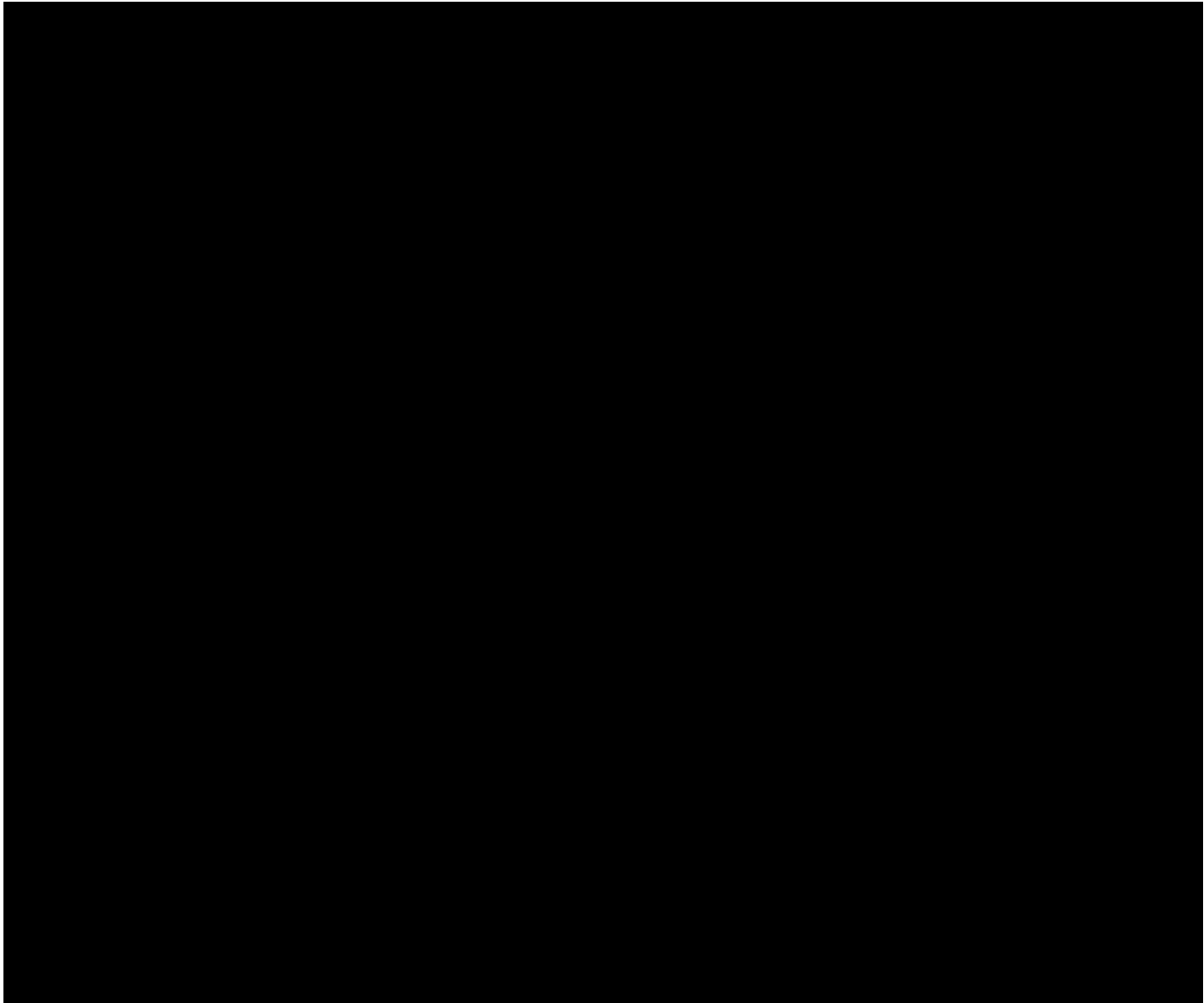
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16 VISIBILITY AND VIEWSHED IMPACTS

Proposers must address a Project's visibility from shore. If a Project is proposed to include turbines less than 20 statute miles from the nearest shoreline point of any state, Proposers must explain (i) how the Project will minimize adverse impacts related to visibility of turbines, including potential impacts on the local and state economy and historic and visual resources, such as publicly-accessible viewsheds, and (ii) how consideration of economic and environmental concerns contributed to the proposed distance from shore.

Additionally, all Proposals, regardless of distance from the nearest shoreline, must include a visibility study that presents visual simulations of the proposed Offshore Wind Generation Facility. Visibility studies must include a map or maps along with supporting GIS shape files that depict the nearest coastline, the boundary of the proposed site to be developed and any other reasonable reference points (e.g. coastal cities, historic sites, other wind energy areas). Simulations must be single frame, photographic images with superimposed simulations of the proposed wind turbine technology configured to represent a commercially-scaled and technically feasible scenario that is consistent with the proposed Project including operating capacity, wind turbine size, and generic spacing and configuration. Viewing instructions must be included on each simulation.

Visual simulations must represent, at a minimum, clear, partly cloudy, and overcast conditions during early morning, mid-afternoon, and late day, as well as one simulation at night with the turbines lit under clear conditions. Visual simulations must be provided from a minimum of two representative vantage points which represent the closest points to shore from any turbine within the Offshore Wind Generation Facility and, if applicable, any sensitive or historic viewpoints within 20 statute miles of the nearest turbine. The visibility study must also include analysis of the percentage of time during which different visibility conditions are expected to occur based on past meteorological data.

The simulations must be provided in a format suitable to be printed or electronically viewed by the public and/or the Scoring Committee.

Equinor recognizes the importance of ensuring that offshore wind is developed in a manner that minimizes the adverse impact on viewsheds and respects significant historical, cultural, and economic resources. With both EW2 and BW located over 20 miles from shore, these projects are not expected to have any adverse visual impacts. Nevertheless, Equinor Wind is tailoring the development of both Projects in a manner that minimizes visibility and the potential impact on viewshed resources. This includes:

- Utilizing project-specific turbines with uniform size rotor blades, nacelles, and towers.
- Utilizing turbines of a light color, such as white or light gray, as dictated by the USCG and BOEM requirements to minimize contrast with the sky under many conditions;
- Sympathetic maritime navigation night lighting systems for offshore and onshore structures where feasible; and

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- Smart aviation lighting systems, such as an ADLS, further discussed in Section 10.5.³⁵

In order to demonstrate that the Projects will not have a significant impact on viewshed resources, Equinor is providing visual simulations from representative vantage points for EW2 and BW under a variety of conditions as required by the RFP. Copies of the visual simulations are provided as Attachments 16.A and 16.B.

Equinor emphasizes that all simulations should be printed 11" x 17" in full size with no scaling and viewed from an arm's length away (approximately 24 inches) in order to simulate actual viewing conditions. Viewing the attached simulations in a manner that does not follow the directions set out above, such as on a computer screen, will provide an unrealistic and exaggerated view of the visual impact of these projects.

16.1 Overview of Visual Simulation

As described further below, in order to assess the visual impact of the Projects, Equinor conducted visual simulations from key viewpoints under a range of conditions and at different times throughout the day. As demonstrated in the attached simulations, the Projects will not adversely affect viewshed resources. Notably, both EW2 and BW are significant distances from shore. For instance, the turbines for EW2 will be more than 21 miles from the Long Island coast. The nearest turbine for BW is over 60 miles from the eastern tip of Long Island and over 20 miles from Nantucket, Massachusetts. Thus, while portions of the proposed Projects are expected to be visible from certain coastal locations, the visual impact will be limited by distance, the curvature of the earth, and weather and meteorological factors (e.g., fog, glare from the sun).

In many cases, the visibility is limited to a very small percentage of the viewshed or not visible at all. In many coastal locations, views of the Projects will be obstructed by existing vegetation and development along the shore. Where views are unobstructed onshore, they may be influenced by offshore areas within and adjacent to the lease areas that are occupied by adjacent wind farms that have already been contracted. Thus, the scenic viewshed from an onshore vantage point may not be unobstructed when construction begins for the Projects.

Visibility varies widely based on conditions and the magnitude of the impacts vary based on subjective opinion. In any case, the viewshed impacts will be addressed based on feedback from stakeholders as the Projects continue to develop. It is important to note that in some cases, the

³⁵ Federal Aviation Administration and USCG lights on the wind turbines will contribute to their visual effect, especially during nighttime or poor visibility conditions. These warning lights are a required safety measure; therefore, they cannot be reduced in number or eliminated. However, lighting-related impacts can be minimized by optimizing wind turbine lighting to the minimum time duration allowable by the FAA and USCG.



presence and visibility of wind turbines has resulted in economic benefits, for example where people visit the coastline to see these features offshore, including offshore sightseeing trips.

Visual simulations may not adequately reflect the influences on a viewer's ability to see at a distance or under different lighting conditions, and therefore the "noticeability" of the proposed Projects may vary. For example, viewers looking in a southerly direction out towards the Projects from western Long Island, under certain clear conditions, will be subject to glare from the sun. This glare has a physical effect on the viewer which may decrease the ability to focus on objects, thereby limiting a viewer's ability to clearly see the seascape, including any turbines. In addition, the view of the Projects is likely to be obstructed due to vessels transiting the length of Long Island or anchoring in the Ambrose anchorage area located south of Long Island. These factors necessarily will reduce the visibility of the Projects and should be taken into account when evaluating the effect of the Projects on viewshed resources.

Figure 98: Sunlight Glare and Vessels at Anchor Viewing the Seascape Southward View from Atlantic Beach, NY



The GIS files associated with each simulation are provided as Attachments 16.E and 16.F.



16.1.1 Empire Wind

For the purpose of EW2, Equinor performed visual simulations at two Key Observation Points (“KOPs”). The viewpoints were selected based on the proximity to the proposed location of EW2 and taking into account viewing location types (*e.g.*, shoreline; inland/elevated views; and sensitive historic properties). The KOPs studied include:

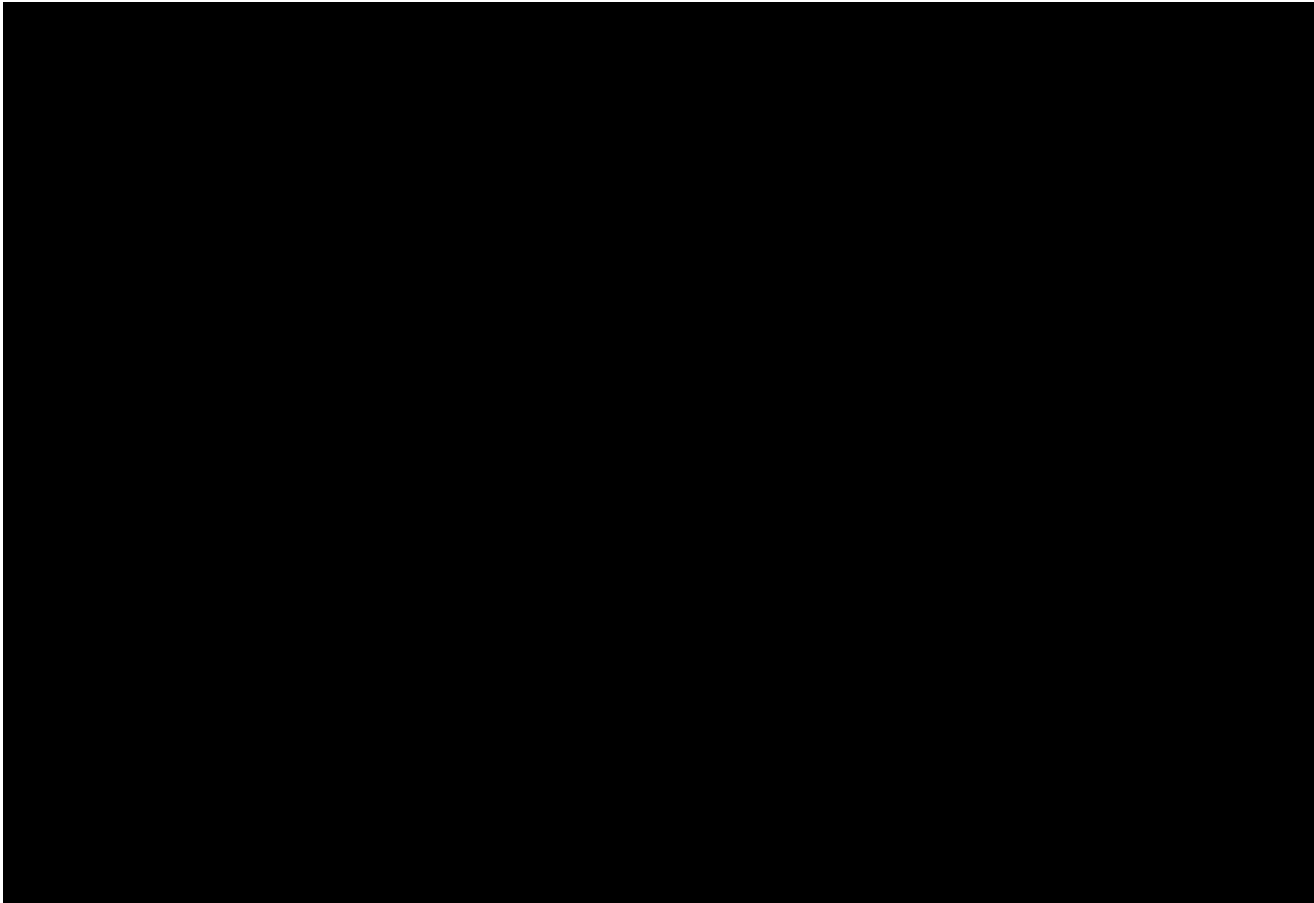
- **Robert Moses State Park:** This state park is located oceanfront on the western edge of Fire Island, New York, which represents the closest point to shore from any turbine in the EW2 project area; and
- **Fire Island Lighthouse:** Fire Island Lighthouse is a 168 ft (51.2 m) tall lighthouse located on the southwestern end of Fire Island, New York. The observation deck within the lighthouse provides an elevated view of the lease area.

Figure 99 provides an overview of these locations and their distance from EW2.

Figure 99: Location of Key Observation Points

Name	Location	Distance to Nearest Turbine
Robert Moses State Park	Fire Island, New York	21.4 miles/34.5 km
Fire Island Lighthouse ³⁶	Fire Island, New York	22.1 miles/35.6 km

³⁶ This viewpoint is included in BOEM’s Compendium Report (2015), which was selected by BOEM in coordination with the National Park Service (“NPS”).



Because EW2 is located within the Area of Analysis (“AoA”) included in NYSERDA’s Visual Threshold Study (“VTS”), the NYSERDA VTS was reviewed to identify the typical or average weather conditions and visibility conditions within the EW2 project area as well as the percentage of time during which different visibility conditions are expected to occur. The NYSERDA VTS assessed the visibility of a hypothetical wind farm at various distances (13.2 to 30 miles) from shore under different meteorological conditions within the AoA. The AoA identified in the NYSERDA VTS consisted of the Atlantic shoreline of Long Island and offshore views roughly perpendicular to that shoreline. Weather data was examined in the study to determine how frequently each combination of visibility (*i.e.*, less than 10 miles or greater than 10 miles), background sky conditions (*i.e.*, clear, partly cloudy, or overcast), and time of day (*i.e.*, morning, midday, afternoon) is likely to occur during a typical year. The analysis was based on hourly meteorological surface data collected from the DS3505 data set available from the National Climatic Data Center for the weather stations at the John F. Kennedy International Airport and the Long Island-MacArthur Airport for a period of six years.



Based on the results of the analysis in the NYSERDA VTS, during daytime hours,³⁷ overcast conditions were most common over the course of a year, occurring approximately 60% of the daylight hours. Clear conditions occur in approximately 17% of the daylight hours, followed by partly cloudy conditions which occurred approximately 6% of daylight hours. Under these three types of conditions it is assumed that visibility would be 10 miles or greater. For the remaining 16% of the daylight hours, visibility was less than 10 miles.

The most frequent condition is overcast skies during the morning, which occurs 21.8% of daylight hours, followed by overcast skies during midday and afternoon hours, which occurs 17% and 21.5% of daylight hours, respectively. The least frequent weather condition is partly cloudy skies during the midday hours (1.8% of total daylight hours). Figure 101 provides a summary of the frequency of occurrence of the various time of day/weather scenarios.

Figure 101: Frequency of Occurrence of Various Time of Day/Weather Scenarios

Time of Day	Percentage of Daylight Hours			Visibility <10 miles
	Clear	Partly Cloudy	Overcast	
Morning	7.6	2.2	21.8	8.4
Midday	4.2	1.8	17.0	3.6
Afternoon	5.3	1.9	21.5	4.6
Total	17.1	5.9	60.3	16.6

The NYSERDA VTS indicates that the conditions during which visibility is greatest occur during less than 10% of the daylight hours during a typical year, and that the conditions during which visibility is lowest occur over 75% of the daylight hours.

The attached simulations demonstrate that the visual impact of EW2 will be limited under any of the scenarios above. It is important to note, however, that the visual simulations provide a conservative view of the visibility of the project and do not take into account various factors that are likely to reduce the visual impact of the project.

For instance, viewer experience is likely to vary significantly from person-to-person and will be influenced by a number of factors, including visual acuity and viewer activity. Acuity is the physical ability to decipher a subject at a specific distance and level of contrast. Activity relates to where a viewer’s attention is focused.

Additionally, there are numerous environmental factors that are not taken into account in the simulations that will have the effect of reducing the visibility of the project. For instance, the

³⁷ The NYSERDA VTS did not assess nighttime conditions with the exception of the use of nighttime aviation warning lights.



direction and intensity of the light source and sea spray can have a significant impact on the visibility of the Project. The sun angle can change the apparent color of turbines against the sky. Flat light, diffused by cloud cover, would reduce the color reflection and hard shadows that can make objects appear in contrast with their backdrop. The visibility of turbines can increase during certain overcast conditions, such as during the early morning or late afternoon when a break in the clouds can allow low-angle sunlight to illuminate white turbines against a dark overcast sky. However, this condition occurs relatively infrequently and lasts for only a short time, and thus would be insignificant in terms of frequency of occurrence throughout a given year. Sea spray can serve to scatter and diffuse light—and therefore visibility—thus reducing the effective visibility range. When all factors are considered, it is likely that visibility models relying on meteorological measurements alone, such as employed in the attached visual simulations, may overstate the theoretical visibility of offshore wind turbines.

The nighttime visualizations provided also do not consider other ambient lighting effects that will affect the noticeability of EW2. These ambient lights, which can be referred to as existing light pollution, can emanate within a viewer’s space from lamppost lighting on the boardwalks or within parks, and more broadly by the glow in the nightscape from the New York City and New Jersey metropolitan and industrial areas, and from lights from maritime vessel traffic. This existing ambient lighting may decrease the visual impact of EW2, including the level of noticeability. Figure 102 illustrates a measure of light pollution known as “radiance” as measured by NOAA’s Earth Observation Group Visible Infrared Imaging Radiometer Suite (VIIRS) in 2018 for coastal Long Island, provided through its Light Pollution Map (www.lightpollutionmap.info). “Radiance” is defined by how much power emitted, reflected, transmitted or received by a surface will then be received by an optical system looking at that surface, where higher radiance can be expected in areas with higher light pollution.

Figure 102: Radiance for Coastal Long Island





16.1.2 Beacon Wind

In order to evaluate the visibility of BW, a preliminary list of 26 viewpoints was assessed to determine which of these viewpoints would be the most appropriate for KOP selection and study. It was determined using GIS mapping that none of the viewpoints considered, including those on Nantucket, were within 20 statute miles from the Project’s closest turbine. The closest KOP was determined to be on Nantucket at 20.4 statute miles. Therefore, Equinor selected the two closest locations to the Beacon Wind turbines as KOPs for visual simulations:

- **Madaket Beach:** a natural and recreational resource located in the historic village of Madaket on the far west coast of Nantucket, MA, which represents the closest point from the nearest proposed turbine.
- **Cisco Beach:** an important natural and recreational resource located in the popular residential area of Cisco.

Figure 103: Location of Simulations and Distance to Nearest Turbine for Beacon Wind Project

Name	Location	Distance to Nearest Turbine
Madaket Beach ³⁸	Nantucket, Massachusetts	20.4 miles/32.8 km
Cisco Beach	Nantucket, Massachusetts	20.6 miles/33.1 km

Figure 104 illustrates the two viewpoints on Nantucket that were selected for temporal and climate-based simulations.

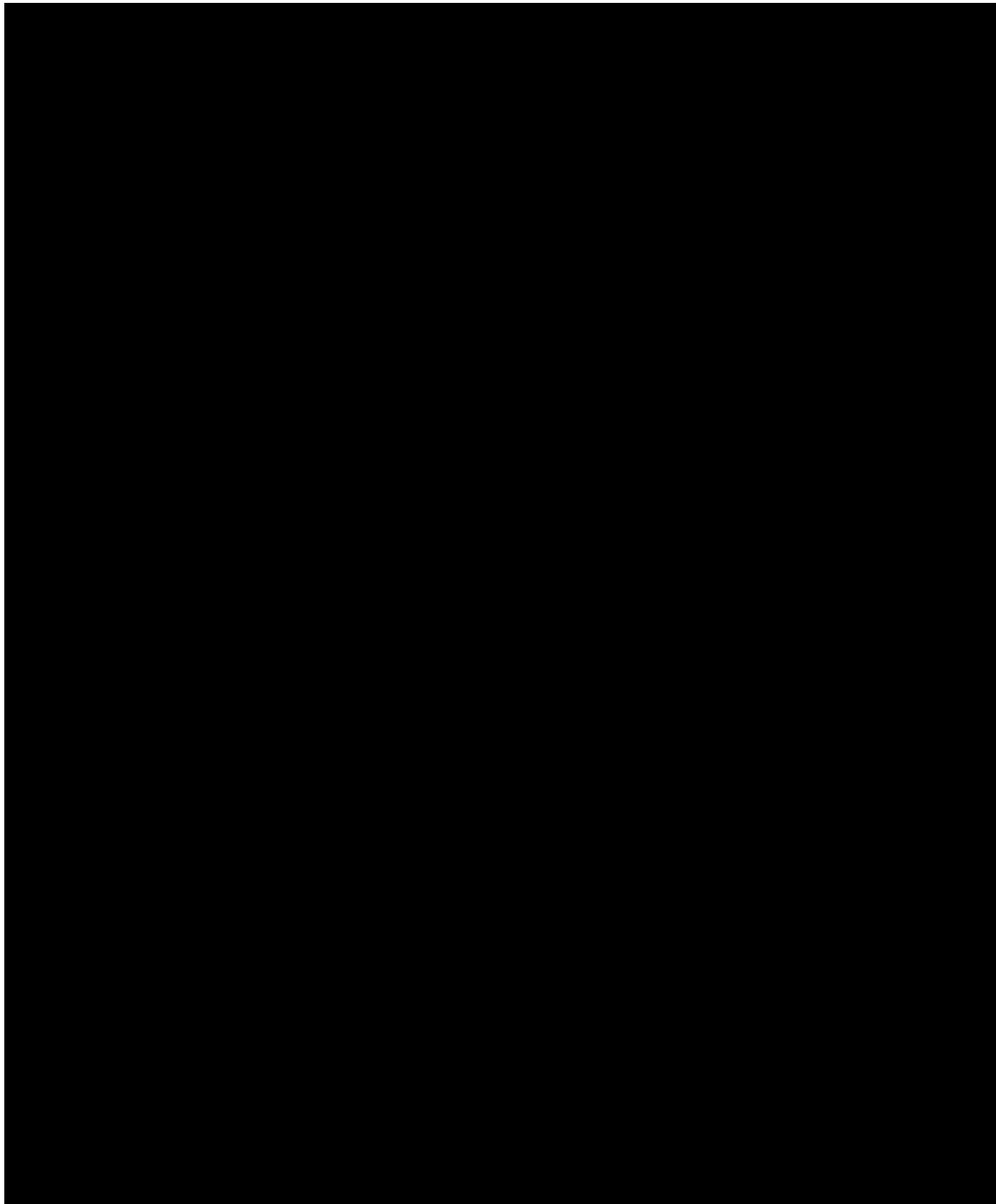
³⁸ Indicates a viewpoint included in BOEM’s Visualization Simulations for Offshore Massachusetts and Rhode Island Wind Energy Area. 2017.



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As part of its assessment of the visibility of BW, Equinor also evaluated the results of a meteorological study by BOEM, 2017³⁹ to identify commonly occurring weather conditions at the KOPs. This study evaluated hourly meteorological surface data collected at the National Weather Service Tom Nevers Field, Nantucket measurement site for a 10-year period (January 1, 2003, – December 31, 2012). Meteorological conditions were categorized based upon National Climatic Data Center criteria as follows:

- Clear = having an unlimited cloud ceiling height (clouds can cover up to 50% of the sky).
- Cloudy = broken or overcast sky cover, greater than 50% of the sky.
- Rainy = any “trace” or measurable precipitation (rain, snow, sleet, etc.) amount.
- Foggy and hazy conditions are defined by National Climatic Data Center weather codes that define the type and intensity of different weather conditions.

Day or daylight hours were defined as the time between sunrise and sunset, as determined via the EPA’s PCRAMMET model. Seasons are defined as:

- Winter = December 22–March 21;
- Spring = March 22–June 21;
- Summer = June 22–September 21; and
- Autumn = September 22–December 21.

The frequency of occurrence for five meteorological conditions during daylight hours (Figure 105) suggested that annually, clear conditions were prevalent. Specifically, the Nantucket sky was characterized as clear for at least 51% of daylight hours. This condition coincides with a significant population increase during summer months due to tourism and occupation of seasonal, secondary homes. Cloud cover occurs 19% of daylight hours in a given year making this the second most frequent meteorological condition on island. Clear sky conditions are most prominent during the summer months (53% of any summer day, on an annual basis). Cloud cover

³⁹ Visualization Simulations for Offshore Massachusetts and Rhode Island Wind Energy Area Meteorological Report. OCS Study BOEM 2017-037



is most prominent during the fall (23% of any fall day, on an annual basis). Fog occurs principally during summer months (26% of any summer day, on an annual basis).

Figure 105: Frequency of Meteorological Conditions – Nantucket, MA

Condition	Percent of Daylight Hours				
	Annually	Winter	Spring	Summer	Autumn
Clear	51	52	48	53	51
Cloudy	19	21	20	14	23
Rainy	6	8	6	4	8
Foggy	22	18	24	26	17
Hazy	2	1	2	3	1

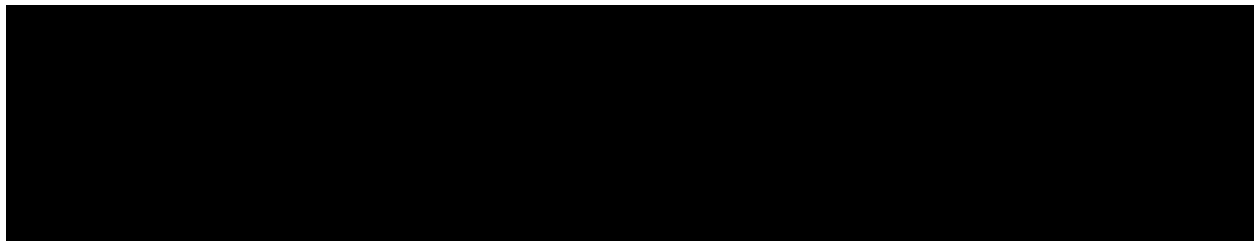
Note: That the average daylight visibility for foggy and hazy conditions is less than 10 miles.

The predominant meteorological conditions on Nantucket are clear skies, followed by cloudy and foggy conditions. Foggy, hazy and rainy conditions would likely reduce visibility of the Project from Nantucket on average to 10 miles or less (Figure 106). In light of the fact that the nearest turbine will be over 20 miles from the nearest point on Nantucket, meteorological conditions of foggy, hazy, and rainy will likely render the Project imperceptible from viewers at the closest points on Nantucket.

Figure 106: Average Daylight Visibility in Miles – Nantucket, MA

Condition	Average Daylight Visibility in Miles				
	Annually	Winter	Spring	Summer	Autumn
Clear	20	24	21	16	21
Cloudy	14	17	13	9	16
Rainy	10	9	10	9	10
Foggy	3	3	2	3	3
Hazy	6	6	6	5	6

As in the case of EW2, the attached visual simulations do not take into account various factors that are likely to reduce the visibility of the project, including the angle of the sun, sea spray, and ambient light sources. As a result, the visual simulations can be viewed as providing a conservative assessment of the visibility of BW from the KOPs.





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17 ECONOMIC BENEFITS

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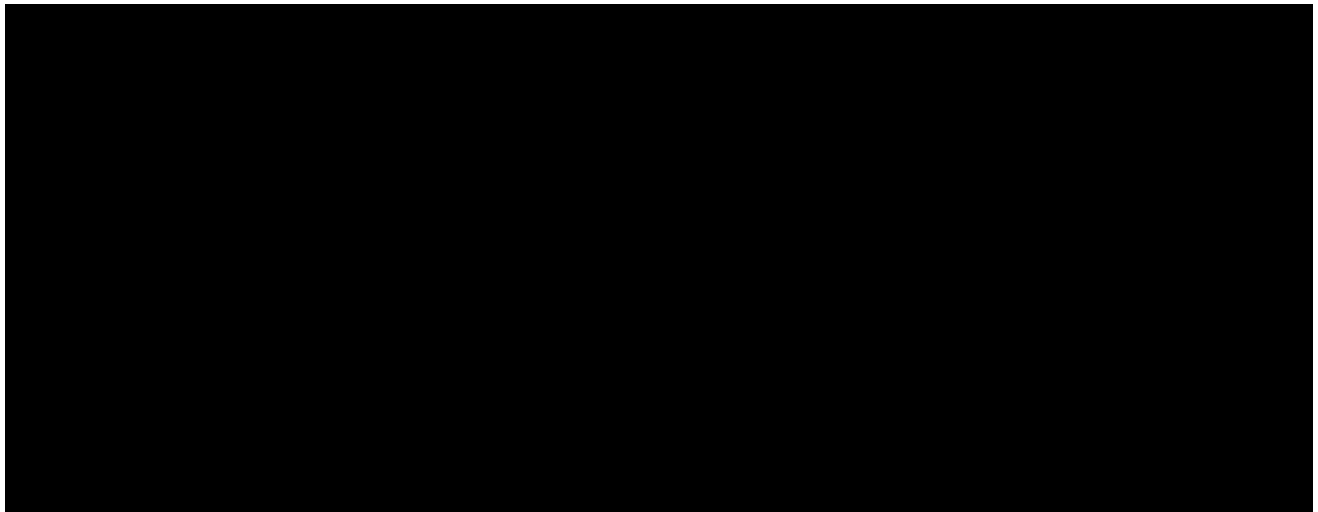
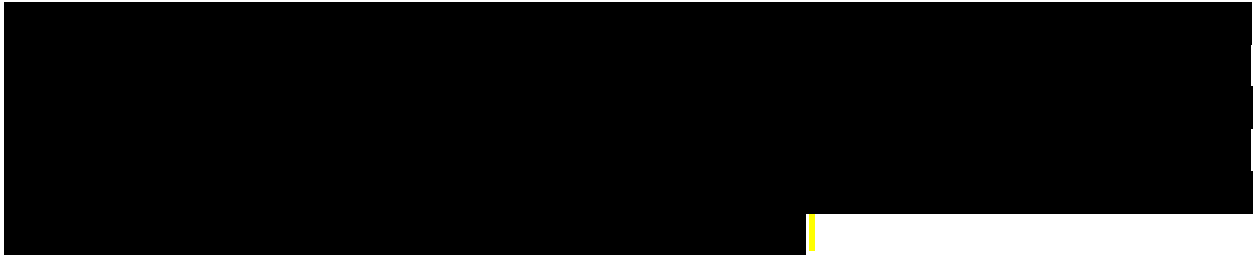
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⁴⁰ Calculated through the 3rd year of commercial operation of the Projects (rounded figures)



18 CARBON EMISSIONS AND EMBODIED CARBON

Proposers are required to describe how the Project will actively support the outcomes envisioned by New York's State's nation-leading climate legislation, the CLCPA, including its target of reducing greenhouse gas emissions 80% by the year 2050. In fulfillment of which, the Proposal should demonstrate a commitment to understanding the carbon footprint of the Proposed Project overall and a description of how, by design, the Project is actively seeking opportunities to reduce the amount of embodied carbon. To begin to provide some basic accountability for embodied carbon, the Proposal must describe the efforts undertaken by the Proposer, including any tools or methodologies used, to better understand and consider carbon intensity in design, sourcing and construction, and the steps that have been taken to minimize carbon emissions, including embodied carbon, from the proposed Project. The Proposer should also propose the methodology by which such reduction activities will be considered and integrated into the Project's design as the project evolves. Finally, the Proposer should include the proposed process by which the Proposer will validate, following commissioning of the Project, a final accounting of the Project's embodied carbon, including any methodology and certifiable environmental product declarations, to promote disclosure of the Project's ultimate carbon footprint and relatedly, the Project's energy and carbon payback periods.

Equinor Wind is committed to helping New York State achieve the goals set out in the CLCPA, which positions New York State as a national and global leader in the world's fight against climate change. Just as New York aims to build upon its climate leadership through the CLCPA, Equinor is transforming into a broad energy company and is an industry leader in carbon efficiency. In 2008, Equinor set a target to reduce its annual emissions from the Norwegian Continental Shelf by 800,000 tonnes by 2020. In the wake of the Paris Climate Accords in 2015, Equinor raised its emissions reduction target by 50% to 1.2 million tonnes per year by 2020; ultimately, Equinor was able to achieve this goal by 2018. Equinor continues to streamline its operations to cut emissions, and has implemented 370 separate measures to streamline and cut emissions that have reduced carbon emissions from offshore installations in Norway by 1.7 million tonnes annually.

Equinor's ability to rapidly reduce its carbon emissions reflects Equinor's commitment to using innovation to pave the way to a greener future. For instance, Equinor has become a world leader in Carbon Capture and Storage ("CCS"), with over 40 CCS projects operating world-wide. Its longest standing CCS project, Sleipner West, has been capturing and permanently storing approximately 1 million tonnes of CO₂ per year since 1996 and In Salah CCS, launched in 2004, reached its storage capacity of 3 million tonnes of CO₂ in 2011. Going forward Equinor is the operator of the Norwegian Northern Lights project which is developing the facilities to transport and permanently store captured carbon resulting from other industrial facilities.

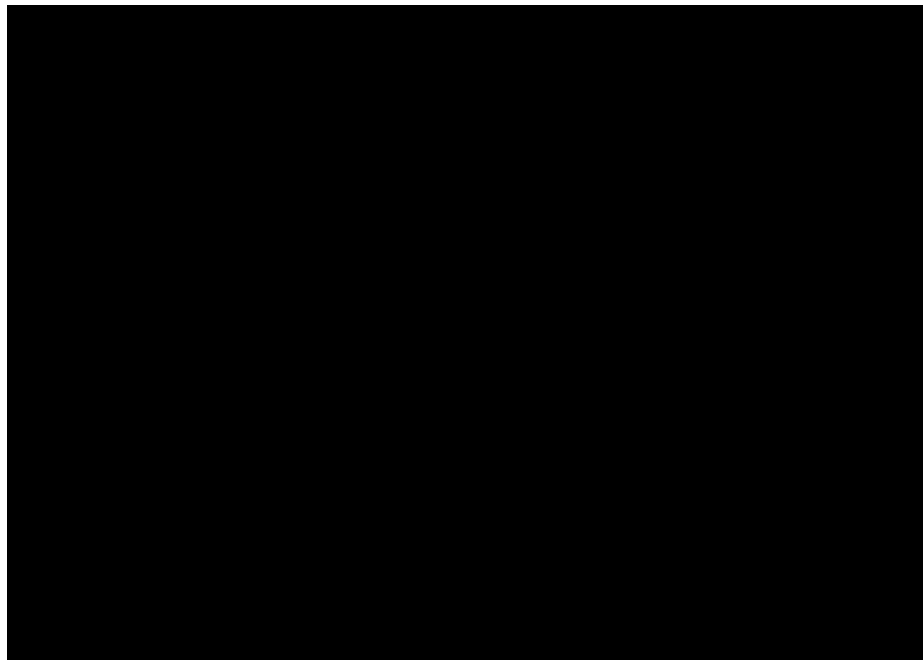
In addition to CCS, Equinor also is actively pursuing the development of hydrogen power solutions. For instance, Equinor is part of a joint venture that is actively exploring converting Vattenfall's Magnum gas-fired power plant located in the Netherlands to run on hydrogen, potentially reducing emissions by up to 4 million tonnes per year.



These initiatives are part of Equinor’s commitment to being at the forefront of the energy transition. Equinor aims to grow its renewables business tenfold, become carbon neutral in its global operations by 2030, and reduce the net carbon intensity of its products by at least 50% by 2050. Equinor is already delivering on these ambitions. According to Rystand Energy, Equinor accounts for 55% of all expected investments in low carbon projects amongst energy majors and is the only energy major directing the majority of its greenfield capital expenditures to renewable projects through 2025.⁴¹

Equinor’s development of the Empire Wind and Beacon Wind Projects is an extension of these commitments. Equinor believes that each of these projects can play a key role in helping New York achieve its carbon reduction goals by producing clean, renewable energy to power New York homes and businesses while providing significant economic benefits to the state.

Studies of the carbon emissions associated with different generation sources have consistently demonstrated that offshore wind is one of the least carbon intensive generation resources. In fact, according to the United Nation’s Intergovernmental Panel on Climate Change, offshore wind is one of only seven technologies consistent with the long-term goals outlined in the Paris Climate Accords. On a life cycle basis, offshore wind (12g CO₂/kWh) maintains half the carbon intensity of hydropower (24g CO₂/kWh) and is over forty times cleaner than natural gas generation (490g CO₂/kWh). Figure 108 below provides an overview of the carbon intensity of various generation technologies.



⁴¹ See Rystad Energy, Press Release, Among Oil Majors Promising Renewable Investments, Only One Stands Out as Leader of the Pack, available at: <https://www.rystadenergy.com/newsevents/news/press-releases/among-oil-majors-promising-renewable-investments-only-one-stands-out-as-leader-of-the-pack/>.



18.1 Driving Emissions Improvements in Offshore Wind

Equinor is committed to minimizing the embodied carbon associated with the development, construction, and operation of the Empire Wind and Beacon Wind Projects. For that reason, Equinor has been actively evaluating every element of the development of these projects – from project design through operations – to identify opportunities to reduce the embodied carbon associated with the Projects.

For instance, Equinor is working with its suppliers to identify opportunities to reduce the carbon emissions associated with the fabrication of key project components. This includes, for instance, investigating the composition of key equipment necessary for the project and leveraging innovation to reduce the emissions associated with raw materials whenever possible.

[REDACTED]

[REDACTED]

Equinor also is exploring numerous initiatives to reduce the carbon emissions associated with project operations and maintenance.

[REDACTED]

- [REDACTED]

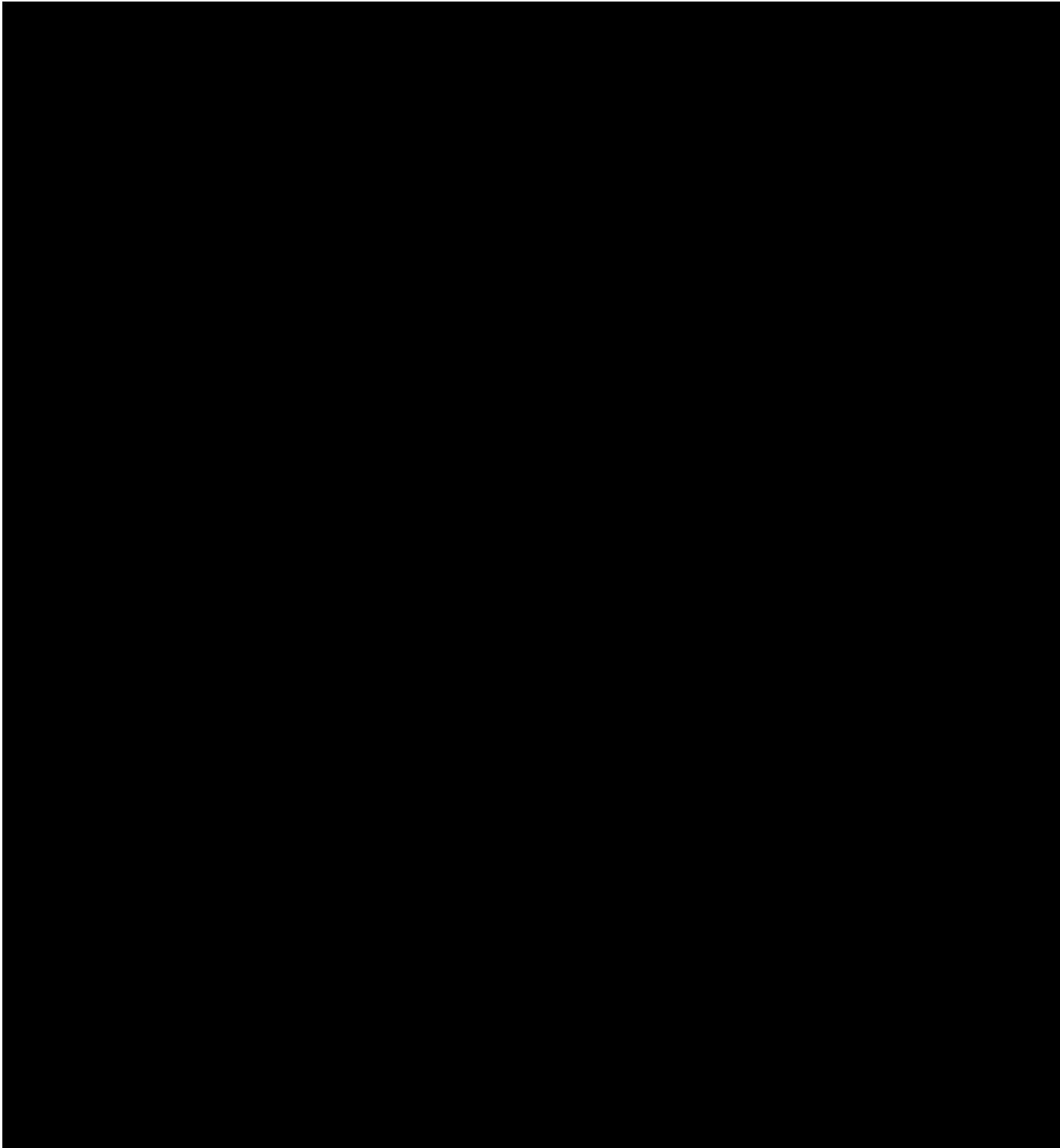
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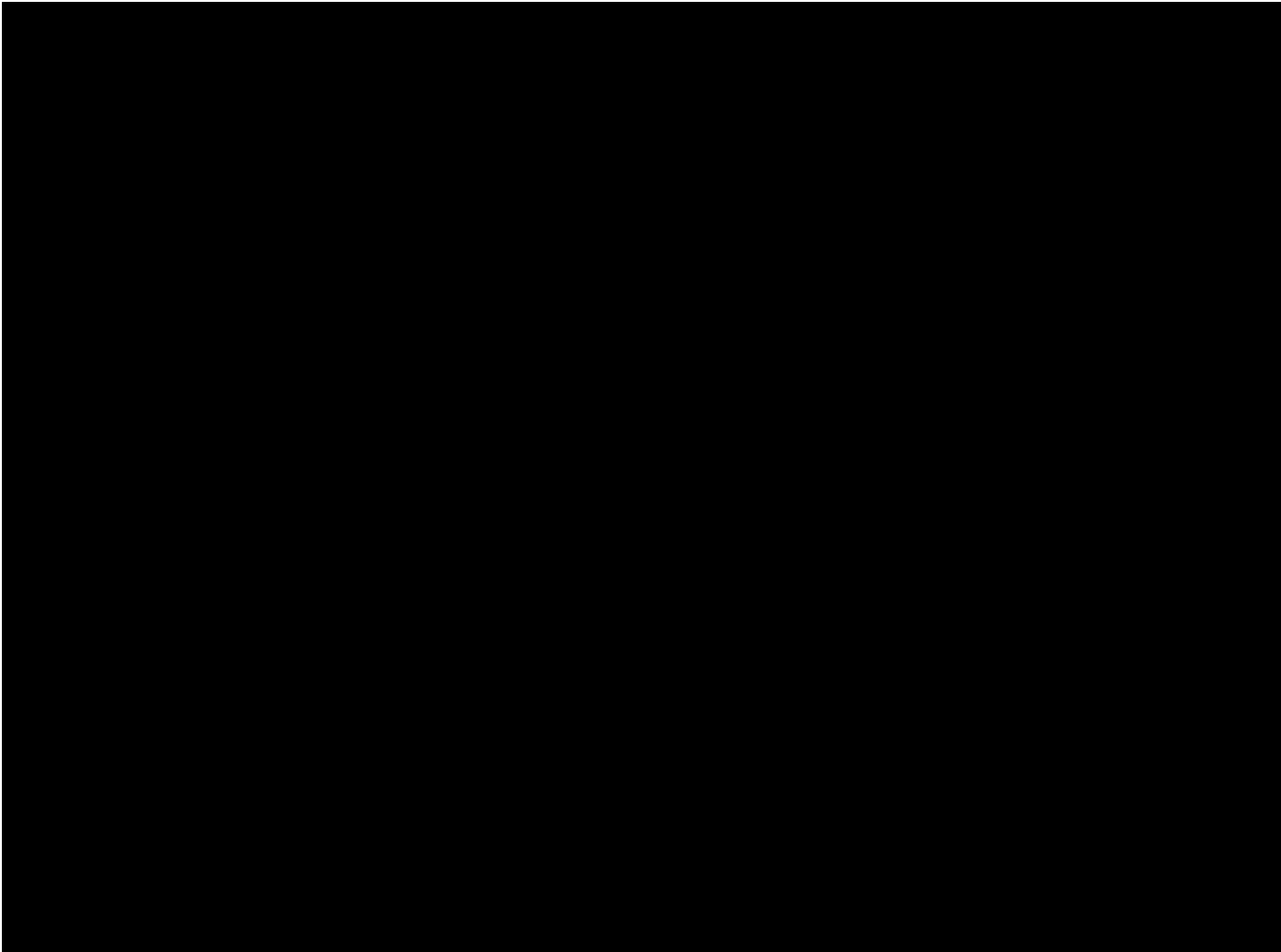


Beacon
Wind



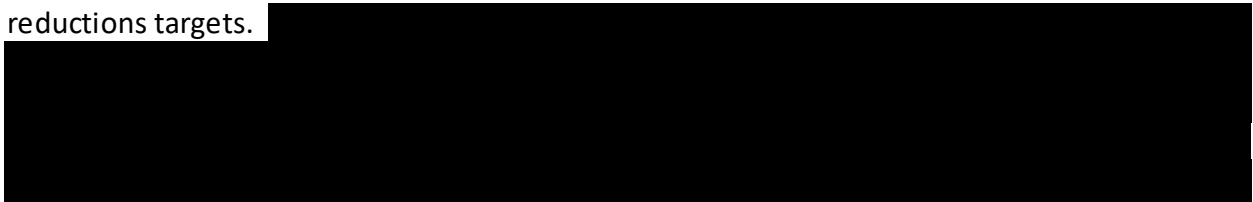
Empire
Wind





Equinor will also leverage its planning capability to reduce the number of vessel trips during the projects' lifetimes, including optimizing sailing routes, sailing speed, engine utilization, and personnel occupancy to maximize output while minimizing emissions. Similar planning initiatives implemented across Equinor's Norwegian assets resulted in maritime emissions reductions of over 32% between 2013 and 2019, despite maintaining similar activity levels.

With the emissions profiles of offshore wind projects varying greatly depending upon project maturity, collaboration with suppliers is vital to reducing emissions during development. In addition to the physical measures above, Equinor aligns its climate priorities across the supply chain through commercial arrangements. This can manifest itself in many forms, such as contractual obligations to measure, report, and disclose emissions and to set emissions reductions targets.





18.2 Promoting Transparency: Verification of Emissions

Transparency and confidence in emissions figures is key to combatting climate change globally. Equinor is committed to transparency in both principal and practice – after all, openness is one of Equinor’s four core values. At a corporate level, Equinor has issued public sustainability reports since 2001. To ensure accuracy, Equinor contracts Ernst & Young to conduct annual audits of its sustainability reporting. Equinor’s commitment to sustainability and reporting has earned Equinor recognition from a host of organizations focused on Environmental, Social, and Corporate Governance (“ESG”) initiatives, including MSCI’s “AAA” ESG rating.

For that reason, following the commencement of commercial operation at the projects, EW2 and BW will conduct a quantitative Life Cycle Analysis (“LCA”) based on ISO 14040 and 14044 of the carbon emissions embedded within the projects. The life cycle analysis will primarily aim to quantify the emission embedded within the project during the development phase, anticipate the emissions that will be incurred during the operations and retirement phases, identify opportunities to improve the environmental performance of the project, and inform decision-makers of key sensitivities to further reduce emissions in this and future projects. The LCA will be conducted by an internal team to ensure timely and accurate access to relevant data, but the findings of the LCA will, as per the ISO standards, be subject to confirmation through a third party critical review to further facilitate learning and enhance the credibility of its results.

In addition to the completion of the LCA, after the projects reach commercial operation, Equinor will conduct annual third-party studies verifying the project’s ongoing emissions and production. These reviews will enable the continuous improvement of emissions performance by providing impartial insights into the effectiveness of its emissions mitigation and production enhancement activities and ensure the veracity of captured data.

Through these efforts, Equinor will calculate and disclose an accurate, verifiable assessment of the total emissions associated with project construction and operation as well as the estimated carbon payback period of the project.



Beacon
Wind



Empire
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19 EXCEPTIONS TO AGREEMENT





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20 PROPOSER CERTIFICATION

Equinor Wind's Proposer Certification is provided under separate cover.