Outerbridge Renewable Connector

New Jersey Board of Public Utilities Offshore Wind Transmission Proposal

Supplemental Information to Support the NJ Board of Public Utilities in the Evaluation of Transmission Projects Proposed to be Developed under the 2021 State Agreement Approach

****PUBLIC VERSION ****

ISSUE INFORMATION

Outerbridge New Jersey, LLC
1 Tower Center Blvd #11
East Brunswick, NJ 08816

Certain information in this Proposal contains commercially sensitive business information and therefore has been redacted from this Public Version of the Applicant's submission

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1. SAA POLICY OBJECTIVES

New Jersey's nation-leading offshore wind goals have the potential to deliver unprecedented benefits to the State's environment, economy and workforce. Achieving these benefits requires not only the application of thorough scientific review and precise engineering, but also prudent consideration of the cost to ratepayers and the long-term public support for the offshore wind program. With this Proposal, Outerbridge NJ offers a carefully crafted solution that not only thoughtfully addresses each of the New Jersey Board of Public Utilities' (BPU's) objectives for this solicitation, as detailed in Table 1-1, but that also supports the goals of cost-effectiveness and sustained long-term public support.

Table 1-1 — Policy Objectives

Policy Objective	How this Proposal Satisfies the BPU's Policy Objective	Why this Proposal is in the Best Interest of New Jersey
PJM System Reliability	*The Project will deliver offshore wind energy to two robust points in northern New Jersey:* [redacted] *and the 230kV system at Werner. It will also connect those two systems via a dispatchable HVDC facility, as detailed in Section 3.*	*This connection of two separate systems will enhance system reliability, improve resiliency, reduce congestion, and allow for greater injections of offshore wind, as per Section 4.*
Project Constructability	*By making use of the waterfront industrial real estate at the former Werner Generating Station, available linear space in a Conrail alignment* [redacted]*, the Project offers simple, low-risk and cost-effective project construction, detailed in Sections 3 and 6.*	*The simplicity of the Project's construction, and its avoidance of the complexities of constructing offshore infrastructure, not only will result in lower costs, but also in greater assurance that the Project can be in service in time to serve the next round of New Jersey's OSW procurement.*
Project Costs	*The Project is not only expected to have a lower gross cost, when compared to either radial transmission or offshore collectors, but also a lower net cost, when considering the full cost of delivering offshore wind (i.e. both onshore and offshore infrastructure).*	*By helping to reduce the gross cost of ORECs, the Project can help to maintain long-term support for the State's offshore wind program.*
Project Risk Mitigation	*As detailed in Section 6, the Project has been carefully designed to solve both the Last Mile risks and the Project-on-Project risks that have plagued offshore wind projects in both the US and Europe. The Project's simple configuration – needing just four parcels of real estate – and maturity further mitigates risks.*	*For any SAA Transmission Project to be successful, it must not only successfully navigate its own development and construction processes to achieve a finite schedule, but it must also earn and maintain the confidence of the Interconnecting Offshore Wind Projects. This Project's simplicity and low risk design best position it to do so.*

Policy Objective	How this Proposal Satisfies the BPU's Policy Objective	Why this Proposal is in the Best Interest of New Jersey
Environmental Benefits	*As detailed in Section 4, the Project is expected to contribute to material reductions in local emissions, by delivering zero emission energy into the higher-emissions part of the State. As detailed in the Environmental Protection Plan, the Project is expected to be implemented with no significant impacts, and avoids beach crossings, barrier islands and bays.*	*These significant benefits and avoidance of risks further mitigate schedule risks and help to ensure that the Project can be online in time to serve the Interconnecting Offshore Wind Projects selected in New Jersey's next offshore wind solicitation.*
Permitting Plan	*The simple nature of the Project's configuration, its siting in only industrially-zoned property, it's avoidance of large infrastructure in the marine environment and its avoidance of any public beaches, bays or local roads minimizes the risks of controversy or delay in the permitting process, as detailed in the attached Permitting Plan.*	*On-time permitting is critical for ensuring the Project can be online in time to serve the Interconnecting Offshore Wind Projects selected in New Jersey's next offshore wind solicitation. And, avoiding controversy helps to maintain the highest possible levels of long-term support for the offshore wind program.*
Developer Experience	*Outerbridge NJ builds on the experience of its ultimate parent—LS Power—in successfully executing the development and operation of an extensive and diverse energy infrastructure projects including transmission and battery energy storage, as well as its executive team's experience in successfully developing America's first offshore wind facility, and multiple other American offshore wind facilities.*	*Successful development in New Jersey requires a high degree of local market knowledge and relationships. This team has proven that it has both. This track record should give the NJBPU confidence that that this team represents an ideal partner for implementing this important program.*
Flexibility, Modularity and Option Value	*This Proposal will allow the NJBPU to select from projects ranging in capacity from 1200MW to 3200MW, with the ability to start with a 1200MW base project and scale up over time.*	*The Project's modular configuration will help reduce costs to ratepayers by allowing the NJBPU to specify a phased construction to match its planned purchases of offshore wind.*
Market Value of Offshore Wind Generation	*The Project will help to maximize the market value of offshore wind by delivering it into the higher-priced zones in northern NJ, which will yield lower net OREC costs.*	*By helping to reduce the net cost of ORECs to ratepayers, the Project can help to maintain long-term support for the State's offshore wind program.*
Additional New Jersey Benefits	*The Project will result in a number of significant wholesale market benefits, detailed in Section 4. It also includes an offer to construct the largest Battery Energy Storage System in the State. And, it includes significant investments in local workforce and supply chain development.*	*Outerbridge NJ is committed to comprehensive approach to supporting New Jersey's offshore wind policy objectives, including goals regarding economic development.*

2. PROJECT PROPOSAL IDENTIFICATION

2.1. PROPOSING ENTITY INFORMATION

Proposing Entity Name	Outerbridge New Jersey, LLC, a subsidiary of Rise Light & Power, LLC
Company ID	73449
Project Title	Outerbridge Renewable Connector Project
PJM Proposal ID 1 *Base Offer 1*	2021-NJOSW-582
PJM Proposal ID 2 *Base Offer 2*	2021-NJOSW-490
PJM Proposal ID 3 *Additional Offer A*	2021-NJOSW-376
PJM Proposal ID 4 *Additional Offer B*	2021-NJOSW-171
PJM Proposal ID 5 *Additional Offer C*	2021-NJOSW-21

2.2. DESIGNATED ENTITY QUALIFICATIONS

Outerbridge New Jersey, LLC (Outerbridge NJ)[1] is the ideal partner to help the BPU implement this first-of-a-kind offshore wind transmission program. First and foremost, the State of New Jersey's goals for providing clean, renewable energy are perfectly aligned with Outerbridge NJ's core values and the management team's demonstrated skills in project development and execution, including offshore wind generation and transmission development. Secondly, Outerbridge NJ's Proposal leverages the use of the Werner Site[2] and its ideal waterfront location to provide seamless integration of offshore wind facilities while avoiding disruption to New Jersey's beachfront communities and its economic contributions to the State. By doing so, the Project reduces the risk of public opposition and permitting delays. Outerbridge NJ's development and execution teams are experienced in New Jersey's offshore wind objectives and development projects. Outerbridge NJ also brings with it a strong and capable sponsor in LS Power Group

[1] Designated entity (or the "Developer") submitting the Proposal and the entity undertaking any and all action in connection with this Proposal. It is a direct wholly owned subsidiary of Light & Power Development, LLC and an indirect wholly owned subsidiary of Rise Light & Power, LLC.

[2] The 26-acre land parcel in South Amboy, New Jersey is the site of the retired Werner Generating Station and hosts the Werner Substation. The parcel will contain the equipment and structures detailed in Base Offer, Base Offer 2, Additional Offer 3, and Additional Offer 4. The site is owned by 135 Main ST SA, LLC. Outerbridge NJ has full rights to the site. 135 ST SA, LLC and Outerbridge NJ are wholly owned subsidiaries of Light & Power and indirect wholly owned subsidiaries of Rise.

(LS Power)[3], a nationally recognized firm with particular experience in New Jersey and with PJM Interconnection, LLC (PJM).[4] Finally, Outerbridge NJ has already received support from key stakeholders and is committed to robust community engagement and participation throughout the life of the Project.

2.2.1. Highly Qualified Management Team

The management team leading Outerbridge NJ has extensive experience in developing, managing, and physically operating energy assets in various markets, including New Jersey. The team is also experienced with bringing projects to commercial operation under complicated regulatory and commercial circumstances.

Led by a seasoned team that has developed and implemented significant energy infrastructure projects, Outerbridge NJ will draw upon past experiences to successfully develop and execute on the Outerbridge Project. The extensive breadth and depth of experience and reputation in the development, engineering, construction, permitting, regulatory compliance, financing, management, and operation of large energy infrastructure projects reflects the necessary capability and commitment to successfully complete the Outerbridge Project. Outerbridge NJ's organizational chart and résumés of the Project team are included in Appendix A.

2.2.2. Ownership of Best Landing Location

Any expansion of electrical infrastructure can require significant amounts of land to be successful. In addition, any conversion of zoning or land use designation in New Jersey can add significant complexity to the permitting process and uncertainty to a project overall. The complexities and risks of constructing transmission infrastructure to deliver offshore wind generated electricity to New Jersey are further complicated by issues associated with finding suitable cost-effective sites - both in location and size - for landing cables and minimizing, if not avoiding, the risk of delays associated with public opposition to the use of those sites. These factors have been at the root of many extensive delays to offshore wind development projects, as is further described in Section 6.

The Outerbridge Renewable Connector Project (the "Outerbridge Project" or the "Project"), in contrast, is uniquely positioned to avoid many of these challenges since the underlying property on the industrial waterfront in South Amboy, New Jersey is entirely controlled by Outerbridge NJ. Outerbridge NJ indirectly owns the site of the former Werner Generating Station, which is centrally located and proximate to

[3] A leading national independent energy asset manager and developer of large-scale power generation and energy infrastructure, entities of which are the sole owner of Rise. Rise is a wholly owned, independently operated, indirect subsidiary of entities of LS Power.
[4] The regional transmission organization that is part of the Eastern Interconnection grid operating the electric transmission system that serves several states, including New Jersey.

numerous Bureau of Ocean Energy Management (BOEM) offshore wind lease areas. Furthermore, the site is industrially zoned, has waterfront positioning onto the Raritan Bay, is sufficiently sized to accommodate the Outerbridge NJ Project, abuts a Conrail ROW and is host to the existing [redacted][5] Werner Substation.[6] All of this makes it the ideal location for the offshore wind generation facilities to interconnect and transmit energy to the PJM Bulk Transmission System while avoiding risks associated with permitting and public opposition, as is further described in Section 6.

2.2.3. Strong Sponsor

The Outerbridge Project will be developed by Outerbridge NJ—an indirect wholly owned subsidiary of Rise Light & Power, LLC (Rise),[7] which is a wholly owned, independently operated subsidiary of LS Power, a leading development, investment, and operating company focused on the North American power and energy infrastructure sector. This structure combines the deep energy development and infrastructure management experience from Rise with the successful development and financing expertise from LS Power.

LS Power has been developing large infrastructure projects across the United States for over 30 years and brings the lessons learned and best practices from those efforts into the Outerbridge Project. Between its development and investment efforts, LS Power has raised more than $47 billion in debt and equity financing to support North American infrastructure.

2.2.4. Development Team with Deep Local Experience

In addition to the expertise and experience of the Project Management Team and sponsor, Outerbridge NJ has contracted a group of experienced and respected leading organizations to support in the development of the Project. These companies include:

1. **Sargent & Lundy.** Leading technical evaluations, engineering, and design.
2. **Joseph Jingoli & Son, Inc.** Leading constructability analysis and cost/schedule development
3. **WSP Global, Inc.** Leading engineering and cost development of Battery Energy Storage System (BESS) Additional Offer C.
4. **ESS Group, Inc.** Leading permitting assessments and requirements.

[5] [redacted]
[6] Existing 230kV and 138kV substation at the Werner Site owned and operated by [redacted] As part of the construction of either Base Offer 1 or Base Offer 2, this Substation will be razed and reconstructed on the Werner Site utilizing GIS technology and will include additional positions on the ring-bus to allow points-of-interconnection for Additional Offer 3 or Additional Offer 4 and/or BESS.
[7] Rise will fund development and construction activities associated with Outerbridge NJ's Project(s) through either retained earnings and/or additional subscriptions of equity from current and/or potentially new investors.

5. **Taft Communications.** Supporting community engagement efforts.

Additional information on these firms is included in Appendix C.

3. PROJECT SUMMARY

3.1. NARRATIVE DESCRIPTION OF PROPOSED PROJECT(S)

3.1.1. Introduction to this Proposal

Opposition to burial of high voltage power cables under beaches and in oceanfront communities has added significant risk and cost to offshore wind projects, including those in New Jersey. Nearly every offshore wind project in America has been delayed due to cable landfalls and routing in these communities.

To overcome this significant challenge, Outerbridge NJ offers an innovative, scalable transmission and storage solution designed to help the State of New Jersey achieve its offshore wind goals at the lowest cost and with the highest level of public support (the "Proposal"). At the core of this Proposal is the redevelopment of the retired Werner Power Station, which was recently acquired by an affiliate of Outerbridge NJ, as an energy hub for clean energy. The retired Werner Generating Station site (the "Werner Site"), is currently being remediated, as part of the Industrial Site Recovery Act, Case Nos. E98538 and E2000058, to a low-occupancy standard, making it an ideal location to serve as a landing point for submarine cables from offshore wind.

The Outerbridge Project provides for a unique cost-effective, non-controversial offshore wind transmission solution because of its injection into the former Werner Power Station site. The significant advantages and public benefits of the reuse of this site include:

- **Ideal Waterfront Industrial Location.** The Werner Site on Raritan Bay in South Amboy, which is easily reachable from numerous BOEM offshore wind lease areas, with community support and no disruption to New Jersey shoreline communities and their importance to the New Jersey economy.
- **Project Site Zoning.** The proposed Project sites are zoned for industrial use with no recreational beaches, residential communities, or wildlife management areas nearby.
- **Proposed Underground HVDC Line.** The Project will install underground route following the Consolidated Rail Corporation (Conrail) right-of-way (ROW) (Conrail ROW[8]) from South Amboy to the PJM Bulk Power System for the construction of the new HVDC lines.
- **Rail Corridor Access.** The Werner site abuts the Conrail ROW, which can accommodate the underground HVDC line connecting to [redacted]

The Proposal has been designed in modules so as to provide the BPU with robust optionality to select the configuration that best aligns with its overall approach and goals in acquiring the necessary transmission

[8] The ROW along the rail system owned by Conrail on which the Project proposes to install one or both of the buried HVDC line(s).

capabilities for the offshore wind generation. The Outerbridge NJ Offers (the "Proposed Offers") provide the BPU with a range of options ranging from 1200MW to 3200MW into the high-voltage system in New Jersey, with an additional option of a 91MW/364MWh BESS at the Werner Site.

3.1.2. Introduction to the Outerbridge Project

The Werner Site allows Outerbridge NJ to offer ideal Option 1.b solutions with an approach for providing new onshore transmission facilities to support the delivery of offshore wind into the PJM 500kV Bulk Power System in northern New Jersey. The Project leverages the unique waterfront location of the Werner Site to create an easy-to-reach renewable energy hub for the interconnection of a future, to-be-awarded offshore wind generation project(s) while creating zero disruption to the Jersey shoreline or its communities.

Figure 3-1 — Werner Site in South Amboy, New Jersey

Additionally, the Outerbridge Project will make use of an existing in-use railroad right-of-way that has previously been disturbed for the construction of its underground HVDC transmission line. The Project will also use properties already partially occupied by electric infrastructure, [redacted], for the construction of a converter station. [redacted] has been assessed and found to have no mapped wetlands or flood zones.

The Project also includes infrastructure that allows it to function as a grid backbone solution to reverse power from the 500kV Deans network to the South Amboy 230kV network, when PJM determines grid conditions require it. Finally, the Project includes the opportunity for construction of a BESS on property adjacent to the former Werner Site that further elevates the Outerbridge NJ Proposal to materially contribute to the achievement of New Jersey's clean energy strategy and goals.

[redacted]

[redacted]

3.1.3. Introduction to Proposed Offers

Different combinations of the following Proposed Offers provide the opportunity for New Jersey to inject either 1200MW or 2400MW of offshore wind into the existing 500kV transmission line from [redacted] Additionally, with the selection of either the 1200MW or 2400MW Base Offers, an incremental injection capacity of either 400MW or 800MW can be added onto the existing 230kV system at Werner Substation in South Amboy (Additional Offers A or B). The Project introduces a new HVDC transmission line between the existing Werner Substation and new facilities [redacted], with the new HVDC transmission facilities running underground on an existing Conrail ROW[12] between the two sites.

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9 [redacted]

10 Existing 500kV switching station at Deans. Owned and operated by PSE&G.

11 [redacted]

12 The ROW along the rail system owned by Consolidated Rail Corporation on which the Project proposes to install one or both of the buried HVDC line(s).

- **Base Offer 1.** Facilitates the injection of 1200MW of energy and capacity from one or more Interconnecting Offshore Wind Projects through the construction of Outerbridge Onshore Collector Station #1[13] and Outerbridge HVDC Converter Station #1,[14] both located on the former Werner Site; an underground HVDC Transmission Line #1[15] running along the Conrail ROW; [redacted][16] and [redacted][17] both located [redacted][18] [redacted].[19] Base Offer 1 also includes the ability to provide reverse power flow from [redacted] to the Werner Substation. As proposed, construction of Base Offer 1 includes provisions and spatial constraint designs to allow for cost effective future expansion of Base Offer 1 in accommodating a 2400MW injection in the future, upon PJM's and the BPU's request; however, if Base Offer 1 is selected, this expansion capability is elective and can be omitted with a corresponding reduction in the Project cost.
- **Base Offer 2.** Facilitates the injection of 2400MW of energy and capacity from one or more Interconnecting Offshore Wind Projects through the construction of the Outerbridge Onshore Collector Station #1, Outerbridge Onshore Collector Station #2,[20] and Outerbridge HVDC Converter Station #1 and Outerbridge HVDC Converter Station #2[21], all of which are located on the former Werner Site; underground HVDC Transmission Line #1 and HVDC Transmission Line #2,[22] both installed along the Conrail ROW; [redacted][23] and [redacted]. As in Base Offer 1, Base Offer 2 includes the ability to provide reverse power flow from [redacted] to the Werner Substation.

Significantly, the Project provides valuable system flexibility since inherent in the construction of either Base Offer 1 or Base Offer 2 is the ability to use the HVDC transmission line to provide reverse flow of energy from [redacted] the Werner 230kV network. This capability offers

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[13] The first AC collector station to be located at the Werner Site, corresponding to Base Offer 1 or Base Offer 2, which will serve as the point-of-interconnection for one or more Interconnecting Offshore Wind Project(s)s having up to 1200MW capacity.

[14] The first converter station at the Werner Site encompassing capacity for 1200MW required for the construction of Base Offer 1 or Base Offer 2.

[15] The first HVDC transmission line that will run from the Werner Site to [redacted] as part of Base Offer 1 or Base Offer 2.

[16] The converter station at [redacted] that will receive a single HVDC transmission line from Werner Site as part of Base Offer 1 or the first [redacted]fer 2.

[17] [redacted]

[18] [redacted]

[19] [redacted]

[20] The second AC collector station to be located at the Werner Site, corresponding to Base Offer 2, which will serve as the point-of-interconnection for one or more Interconnecting Offshore Wind Projects having 2400MW capacity.

[21] The second converter station at the Werner Site required for the construction of Base Offer 2.

[22] The second HVDC transmission line that will run from the Werner Site to [redacted] as part of Base Offer 2.

[23] [redacted]

ultimate system flexibility to inject all or some of the offshore wind generated energy into either [redacted] or the Werner 230kV network, up to its capacity, and supplement offshore wind generated energy when not abundantly available with power flow into the Werner 230kV network, as system conditions may require.

- **Additional Offer A.** Facilitates an additional injection of 400MW of energy and capacity from one or more offshore wind projects to the 230kV system located at Werner Substation through such upgrades to Werner Substation as may be required. This Additional Offer is contingent upon the selection of either Base Offer 1 or Base Offer 2.
- **Additional Offer B.** Facilitates an additional injection of 800MW of energy and capacity from one or more Offshore Wind Projects construction to the 230kV system located at Werner Substation through such upgrades to Werner Substation as may be required. This Additional Offer is contingent upon the selection of either Base Offer 1 or Base Offer 2.
- **Additional Offer C.** Constructs a 91MW/364MWh BESS on property adjacent to the new Outerbridge Onshore Collector Station(s). The proposed BESS facility will be interconnected at 230kV. This Additional Offer is contingent upon the selection of either Base Offer 1 or Base Offer 2 and can be selected with or without the selection of Additional Offer A or Additional Offer B.

The proposed Battery Energy Storage System (Additional Offer C) will help facilitate New Jersey's transition to clean energy by providing PJM with the following support services:

- Frequency Smoothing Dynamic Response capability
- Load Shifting to address Contingency-related transmission line overloads.
- Emergency response capacity ranging from 15 minutes to 4 hours in duration
- Capacity available to respond to PJM's standard summer peak demand having a 10-hour duration

The Outerbridge NJ Proposal therefore provides BPU and PJM with options to support onshore delivery ranging from 1200MW to 3200MW of offshore wind into the high-voltage system in New Jersey, either with or without the addition of a 91MW/364MWh BESS at the Werner Site.

By leveraging existing industrial use properties and locating all infrastructure in industrial, utility, or railroad real estate and ROWs, the Outerbridge Project effectively avoids construction under beach-front communities, or public real estate or roads, allowing the Project to be executed without the local opposition experienced by other offshore wind cable landing solutions. Use of these proposed properties reduces permitting risk, a key factor in the cost, execution and timeline of any offshore wind project.

It is for these reasons that the Project has garnered such support already from local, municipal, and state stakeholders. Appendix D provides the support letters already received from stakeholders voicing their enthusiasm for all the benefits that the Outerbridge Project will realize both for the State of New Jersey and the local communities in which the Project will be constructed.

3.2. PROJECT OPTIONALITY, FLEXIBILITY, AND MODULARITY

At the core of the Outerbridge NJ proposal are two Base Offers that facilitate the injection of either 1200MW or 2400MW of offshore wind generated power to [redacted]. With the selection of either of these two Base Offers, the remaining three Additional Offers can be combined in such ways as to create 12 cost-effective solutions in support of New Jersey's renewable goals while also minimizing risk exposure associated with property acquisitions, permitting delays and subsequent schedule/cost overruns. The following table outlines the combinations of the Offers presented by the Outerbridge Project in support of 12 solutions available to the BPU and PJM:

Table 3-1 — Solution Options Available through Various Combinations of Offers

	Solution Options
Base Offer 1 1200MW [redacted]	1. 1200MW standalone 2. + 400MW at Werner Site 3. + 800MW at Werner Site 4. + battery at Werner Site 5. + 400MW and battery at Werner Site 6. + 800MW and battery at Werner Site
Base Offer 2 2400MW [redacted]	7. 2400MW standalone 8. + 400MW at Werner Site 9. + 800MW at Werner Site 10. + battery at Werner Site 11. + 400MW and battery at Werner Site 12. + 800MW and battery at Werner Site

The Outerbridge Project's innovative Proposed Offers and their combinations not only support New Jersey's renewable energy strategy, but it also supports a transmission investment schedule that can be optimally aligned with the planned schedule of offshore wind generation facility completion.

Furthermore, Base Offer 1 (1200MW injection into [redacted]) includes provisions for phasing future expansion of that Offer to a 2400MW injection onto [redacted]. As proposed, Base Offer 1 includes the underground HVDC ductwork and manhole system that will allow for the future installation of a second HVDC line and adequate spatial constraints in station designs for the future installation of an additional bus-section, breaker, transformer, and other system requirements at both the Outerbridge Substation and [redacted], should PJM and the BPU authorize such expansion; however, the inclusion of this expansion capability is elective and can be omitted with a corresponding reduction in the Project costs for Base Offer 1.

As previously noted, Outerbridge NJ has developed the potential use of the HVDC line(s) running between the Werner Site and [redacted] as a backbone solution that can allow for the reverse flow of power from [redacted] to the Werner Substation. The utilization of the Outerbridge HVDC transmission line(s) as an AC backbone network between [redacted] and the Werner Substation will increase operational flexibility in system operations to better manage the transmission system. The DC flow can be controlled precisely to maximize the offshore wind generation and to help manage downstream congestion impact in the transmission network. Since an AC backbone between Werner [redacted] provides an additional exporting facility to the proposed points of injection (POIs), it will increase offshore wind resource availability. The AC connection can be used to optimize the capacity injections at Werner Substation and [redacted] by controlling DC flow. The coordination of large volumes of capacity injections will also assist PJM in managing the transmission constraints that are impacted by offshore wind generation, thereby reducing offshore wind curtailment and congestion costs, as further described in Section 4.

3.3. INTERDEPENDENCY OF OPTIONS

As mentioned in Section 3.1 and Table 3-1 of this document, the Outerbridge Project has as its core two Base Offers—1200MW Base Offer 1 or 2400MW Base Offer 2—that, if selected, can be combined with Additional Offers A, B, and C for offshore wind injection at Werner Substation (Additional Offers A and B) and a BESS at the Werner Site (Additional Offer C). The following outlines the offers, their interdependencies, and their possible configurations:

- **Base Offer 1.** Construction of a 1200MW HVDC project with a POI into [redacted] (no interdependencies).
- **Base Offer 2.** Construction of a 2400MW HVDC project with a POI into [redacted] (no interdependencies).
- **Base Offer 1 and Additional Offer A.** Combines 1200MW injection to [redacted] plus 400MW injection into the 230kV system at Werner Substation.
- **Base Offer 1 and Additional Offer B.** Combines 1200MW injection to [redacted] plus 800MW injection into the 230kV system at Werner Substation.
- **Base Offer 2 and Additional Offer A.** Combines 2400MW injection to [redacted] plus 400MW injection into the 230kV system at Werner Substation.
- **Base Offer 2 and Additional Offer B.** Combines 2400MW injection to [redacted] plus 800MW injection into the 230kV system at Werner Substation.

- **Base Offer 1 or Base Offer 2 and Additional Offer C.** Constructions a 91MW x 364MWh BESS on property immediately adjacent to the new Outerbridge Onshore Collector Station(s) and is dependent on the selection of either Base Offer 1 or 2, with or without any combination of Additional Offers A and B.

Each of these options are contingent upon the selection of Outerbridge NJ's Base Offer 1 or Base Offer 2. Selection of Additional Offers A, B, and C or any appropriate combination of Additional Offer C with either A or B, is dependent on the selection of either Base Offer 1 or Base Offer 2.

The Additional Offers leverage certain economies of scale on cost and benefits when combined with the Base Offer 1 or 2.

3.3.1. Base Offer 1

Base Offer 1 offers a 1200MW transmission facility providing an interconnection point to offshore wind developers on the waterfront at the Werner Site that gives the generation unfettered access to the 500kV transmission system via [redacted][24] adjacent to [redacted]. The Base Offer 1 injection of 1200MW is not dependent on any other offer. Base Offer 1 allows for a straightforward way to support New Jersey's third offshore wind solicitation while providing flexibility for the potential future expansion capabilities of the same Project real estate and ROW for a future 2400MW solution.

3.3.2. Base Offer 2

Base Offer 2 offers a 2400MW transmission facility providing an interconnection point to offshore wind developers on the waterfront at the Werner Site that gives the generation unfettered access to the PJM Bulk Transmission System[25] via the new [redacted] adjacent to [redacted]. The Base Offer 2 injection of 2400MW is not dependent on any other offer. Base Offer 2 includes an expanded HVDC system between Werner and [redacted] to accommodate the 2400MW injection that will certainly benefit from economies of scale in its development, engineering, procurement, and construction, and will result in the further de-risking of additional offshore wind capacity to reach New Jersey's goals more quickly. Base Offer 2 also adds an additional HVDC converter at both Werner and [redacted] that will be on the same property at the Werner Site and the same property at [redacted], providing benefits to various construction cost components. Outerbridge NJ will also pursue procurement of the HVDC converter stations from the same manufacturer with the best offering.

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[24] [redacted]

[25] Interconnected high-voltage transmission facilities and control systems overseen by PJM as the independent system operator.

3.3.3. Additional Offers A and B

Both Additional Offers A and B provide efficient means of delivering 400MW and 800MW respectively on top of Base Offer 1 or Base Offer 2. The interconnections for the 400MW associated with Additional Offer A and the 800MW associated with Additional Offer B are right on the Werner Site. It is relatively economical to integrate [redacted]. Either Additional Offer A or Additional Offer B complements Base Offer 1 or Base Offer 2, bringing the overall cost per megawatt down.

3.3.4. Additional Offer C

Additional Offer C provides a 91MW x 364MWh BESS that will be injected into the new Werner Substation. The proposed BESS will be constructed on available property adjacent to the Werner Site, which creates a convenient tie-in point via a new 230/34.5kV transformer to the newly rebuilt Werner Substation. If selected, an additional fifth breaker will be added to the new Werner Substation 230kV ring-bus that will accommodate the Additional Offer C BESS. If Additional Offer C is implemented in conjunction with either Additional Offer A (400MW) or Additional Offer B (800MW), it will aid in maximizing the offshore wind injection of either Additional Offer A or B at Werner Substation. As a stand-alone addition to either Base Offer 1 or Base Offer 2, the BESS can provide multiple services supporting the reliability and resiliency of the network to its transition towards integration of intermittent resources, including a peak reduction of 36MW to 55MW during PJM's 10-hour peak period.[26]

3.4. OVERVIEW OF PROJECT BENEFITS IN SUPPORT OF NJ POLICY GOALS

As further detailed in Section 4 of this document, an independent assessment of the Outerbridge NJ Proposal's macroeconomic benefits was prepared by Analysis Group, Inc. and is included in Appendix E of this submittal. That assessment concluded that the Outerbridge NJ Proposed Offers are cost-effective, reliable, and relatively low-risk onshore solutions that directly support the advancement of New Jersey's offshore wind and renewable energy strategy and policies while helping to lower power supply prices in the State. That report also finds that the Outerbridge NJ proposal supports economic growth in the State's highest-density population areas while also directly supporting the reduction of air emissions in northern New Jersey, resulting in the improvement of air quality.

The Outerbridge Project will support public policy, market efficiency, and other benefits to New Jersey in response to this first-of-a-kind state solicitation for transmission projects to support offshore wind. The Project will repurpose the site of a former coal fired power plant to become a renewable energy hub for

[26] Refer to Appendix I.

New Jersey, using existing industrial-zoned properties and ROWs to deliver clean OSW power to New Jersey's electric consumers. Benefits noted include the following:

- Outerbridge NJ controls the Werner Site, a waterfront industrial zoned parcel with unfettered access to BOEM offshore wind lease areas that was previously occupied by the Werner Generating Station and is currently the location of the Werner Substation. The Werner Site has direct access to the Raritan Bay ocean harbor thereby avoiding disruption to beach-front communities and their significant economic value to the State of New Jersey. The site is undergoing the NJ State remediation process.
- The Werner Site abuts a railroad ROW that is suitable to install the extra high-voltage direct current transmission line(s) required to deliver power to New Jersey's electric consumers.
- [redacted]
- The Outerbridge Project is projected to generate nearly $1.4 billion in economic value for New Jersey (based on direct, indirect, and induced construction benefits of the Outerbridge Base Offer 2 + Additional Offer B)[1] while supporting delivery of high levels of offshore wind output to PJM's Bulk Power System in New Jersey
- The Project capitalizes on the advantages of injecting large quantities of offshore wind into the densely populated northern New Jersey area to supply the high demand for electricity in that region
- The Outerbridge Project provides New Jersey modular, flexible transmission options while helping to build confidence in New Jersey's infrastructure supporting offshore wind development since it de-risks the construction of an onshore transmission solution to offshore wind generation
- The Outerbridge NJ Proposal minimizes siting and permitting challenges and construction risks as well as costs and risk to ratepayers

3.5. OVERVIEW OF MAJOR RISKS AND STRATEGIES TO LIMIT RISKS

The Outerbridge Project both avoids risks typically associated with offshore wind projects and mitigates the greatest risks to subsequent offshore wind projects in New Jersey: the "last mile." The portion of offshore wind from cable landfall to interconnection substations is one of the most significant risks confronting the feasibility of offshore wind projects, and by extension, the success of New Jersey's offshore wind program. The Outerbridge Project has been carefully designed to mitigate the Last Mile risks, as further detailed in Section 6. Additionally, Outerbridge NJ's control of critical real estate, its robust stakeholder engagement program, investments in maturing permitting and entitlements, proven approach to procurement and construction, and avoidance of offshore activities makes the Project a low-risk option for the NJBPU and New Jersey's ratepayers. Outerbridge NJ also uses effective strategies to limit and manage risk are

[1] Full macroeconomic benefits outlined in the Analysis Group's Project Benefits Report, Appendix D

developed through the application of well-established and proven methodologies, as described in Section 6.

3.6. [redacted]

[redacted]

[redacted]

- [redacted]
- [redacted]
- [redacted]

3.7. PJM BULK TRANSMISSION SYSTEM UPGRADES

As detailed in Appendix J, the Proposed Offers are expected to require certain varying levels of network upgrades. Additional Offer C may, or may not, require upgrades to the PJM Bulk Transmission System. The Proposed Offers each assume that network upgrade costs incurred by Outerbridge NJ, if any, are pass through costs. The assumed value of network upgrades is detailed in Section 7.2 of Appendix J.

This Proposal constitutes an Option 1b solution. Outerbridge NJ is not offering an Option 1a solution to address default POI injection violations at this time. This Proposal constitutes a unique combination of default and alternative POI locations and injection amounts with significant optionality, which we believe considerably reduces the number of network violations and the associated network upgrade costs. Accordingly, in the event the NJBPU awards Outerbridge NJ one of its Proposed Offers that *does* require network upgrades to the PJM Bulk Transmission System, then Outerbridge NJ anticipates that the construction of such upgrades would be effected in one of two ways:

(A) If the NJBPU, in addition to the award to Outerbridge NJ, also awards an Option 1a solution that addresses the network upgrades triggered by the Outerbridge Project, then such network upgrades would be constructed by, funded by, and included in the rate base of the recipient of the applicable

Option 1a solution. Outerbridge NJ would have no obligation to fund or construct such network upgrades and no right to include the same in its rate base.

(B) If the NJBPU does not award an Option 1a solution that addresses the network upgrades triggered by the Outerbridge Project, then Outerbridge NJ will seek for such network upgrades to be constructed by the applicable Transmission Owners under the standard PJM Merchant Transmission Interconnection process. Outerbridge NJ will either have the obligation to fund the construction work performed by the Transmission Owners and have the right to include the same in its rate base, or the Transmission Owners will fund the work and recover costs by their own rate mechanisms.

Outerbridge NJ welcomes the opportunity to discuss these or other means by which required network upgrades, if any, are to be constructed, funded and subject to cost recovery.

3.8. PROJECT EXECUTION PLAN

The Outerbridge NJ proposal encompasses a large project with complex onshore cable construction and ties to offshore subsea outlets. Outerbridge NJ recognizes that regional expertise, experience within New Jersey and established project delivery experience within the electrical transmission industry is critical to support their internal team and schedule objectives. A sample of the framework and structure of the Project Execution Plan that will be developed for the Project can be found in Appendix G. The following is an overview of the planning approach that will be used for the Project.

[redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

For the purpose of planning project delivery, Outerbridge NJ is separating the Project into two distinct phases:

- **Project Development Phase.** Defined as all project activities preceding the Financial Close. This includes project planning, conceptual design, detailed engineering, permitting/regulatory application preparation, attaining all property rights, business development activities and other initiation tasks

- **Project Execution Phase.** Defined as project activities following Financial Close. This includes full notice to proceed on large material and construction contracts and project construction execution.

During the early portions of the Project Development Phase, Outerbridge NJ will also be comparing the advantages and disadvantages of implementing other project execution models to ensure the best plan is in place to ensure successful completion of Project's goals. Traditional Engineer-Procure-Construct (EPC), Engineer-Procure-Construction Management (EPCM), Program Management and Owner's Engineer models will be evaluated, along with any potential hybrid approach given the large and diverse nature of the Project's scope.

Outerbridge NJ has contracted several nationally recognized engineering and construction firms with local New Jersey presence and experience to provide preliminary input on technological considerations, budget development, constructability assessment and other consulting services. Outerbridge NJ will continue to evaluate delivery models with the intent to award a contract to a Program Manager/Owner's Engineer as well as multiple turnkey EPC agreements (to be managed by the Program Manager/Owner's Engineer) as further defined in the procurement strategy section of the Project Execution Plan.

In the role of Program Manager/Owner's Engineer, services being provided include overall project management and project delivery responsibilities, as well as ensuring collaboration of a large project team with multiple development partners. In early project phases (pre-construction), focus will be on the development of a complete Project Execution Plan and the implementation of a full suite of project controls. Other services provided include safety management, project management, procurement management, permitting management, field service coordination, and cross-functional coordination. The Program Manager/Owner's Engineer scope of work will evolve as the project team continues to grow as may be required to support the needs of the project.

Please note that a full list of defined terms is provided in Appendix A, which provides reference for the entirety of this Proposal document.

4. PROPOSAL BENEFITS

The Outerbridge Project provides significant cost and reliability benefits to New Jersey's ratepayers, major advantages to support the implementation of the State's offshore wind goals, and economic benefits that will create jobs and opportunity in New Jersey.

The Outerbridge Project's key benefits are its locational advantages gained by its use of the Werner Site as an interconnection point for OSW generation and use of an existing Conrail ROW for the construction of the HVDC line. The advantages are namely:

- the ability to interconnect OSW infrastructure to onshore electric systems without that need for disruption of the Jersey Shoreline, Shore communities, or non-industrial zoned real estate
- the opportunity to inject offshore wind into high-density population areas with minimal or no need for costly PJM Bulk Transmission System upgrades
- the Project's ability to reduce electricity pricing by injecting OSW power with low energy prices into higher load centers in the more densely populated northern part of New Jersey
- the Project's positive impact on the reduction of air emissions in parts of New Jersey with significant numbers of ratepayers in overburdened communities

These benefits, coupled with the Project's modular approach in providing solutions that can meet the needs and goals of the State both now and into the future, allow the Outerbridge Project to uniquely serve New Jersey, its ratepayers, its environment, and its quest for a green, reliable, and resilient electric system.

A comprehensive Project Benefits report created by the Analysis Group is attached in Appendix D.

4.1. BENEFITS ASSOCIATED WITH RELIABILITY CRITERIA

The Outerbridge Project is expected to yield significant and unique reliability benefits, based on both its connection to the 500kV system and linking [redacted] with the Werner facilities. As detailed in this section, Outerbridge NJ quantified these benefits by performing reliability studies to evaluate the performance of the Project proposals in satisfying the PJM reliability evaluation criteria. The reliability studies include a generator deliverability test, long-term deliverability analysis, and a baseline thermal and voltage analysis.

4.1.1. Generator Deliverability Test

The load flow analysis included 2028 summer, winter, and light load generator deliverability studies for three proposed combinations of capacity injections at the Werner Substation and [redacted] POIs. It identified potential new contingency overloads, previously identified contingency overloads, and potential congestion problems due to local energy deliverability, which are likely to result in operational restriction to the proposed capacity injections at these two locations. The study identified only a few overloaded facilities on the configurations evaluated. Although this study is not an exhaustive analysis of all potential combinations of the Base Offers and Additional Offers proposed in the Outerbridge Project, Outerbridge NJ remains available to provide additional studies as may be required or requested. Based on the power flow analysis results, it was concluded that:

- The combination of 1200MW injection at [redacted] and 400MW injection at Werner Substation did not cause any new overloads in the 2028 summer and winter seasonal models. There was only a single overload observed in the 2028 light load model [redacted]
- The combination of 2400MW injection at [redacted] and 400MW injection at Werner Substation resulted in two new overloads (Windsor–Clarksville 230kV and [redacted] in the 2028 summer model, one overload (Windsor–Clarksville 230kV) in the 2028 winter model, and two overloads ([redacted] and [redacted]) in the 2028 light load model.
- For the combination of 2400MW injection at [redacted] and 800MW injection at Werner Substation, the 2400MW injection at [redacted] resulted in two overloads, and the 800MW injection at Werner Substation resulted in five overloads in the 2028 summer model. In the 2028 winter and light load models, the number of overloads was reduced to two.
- For the combination of 7500MW of total offshore wind generation, the Outerbridge NJ team created and compared two scenarios: the Outerbridge NJ Base Offer 1 and the Base Case Scenario. The reliability analysis results showed that the Outerbridge NJ Proposal generated far fewer network overloads compared with the alternate Base Case Scenario.

4.1.2. Long-Term Deliverability Analysis

Outerbridge NJ completed the generator deliverability analysis that included long-term (2035) summer, winter and light load generator deliverability studies for the three proposed combinations of capacity injections at the Werner Substation and [redacted] POIs. The purpose was to perform PJM system impact studies to identify potential new contingency overloads, previously identified contingency overloads, and potential congestion problems due to local energy deliverability that may result in operational restriction(s) to the proposed capacity injections at these two locations in the following scenarios. Although this study is not an exhaustive analysis of all potential combinations of the Base Offers and Additional Offers proposed in the Outerbridge Project, Outerbridge NJ remains available to provide additional studies, as may be required or requested. Based on the generator deliverability analysis results, it was concluded that:

- For the combination of 1200MW injection at [redacted] and 400MW injection at Werner Substation, no new overloads in the summer and winter seasonal models occurred. There was only a single overload ([redacted]) observed in the light load model.

- For the combination of 2400MW injection at [redacted] and 400MW injection at Werner Substation, two new overloads were identified in the summer model ([redacted] and [redacted]), one overload in the winter model (Windsor–Clarksville 230kV), and two overloads in the light load model ([redacted]).
- For the combination of 2400MW injection at [redacted] and 800MW injection at Werner Substation, the 2400MW injection at [redacted] resulted in two overloads, and the 800MW injection at Werner Substation resulted in five overloads in the summer model. In the winter and light load models, the number of overloads was reduced to two.

Outerbridge NJ finds that these are low levels of overloads in light of the overall size of the injections studied and proposed in the Outerbridge NJ Proposed Offers.

4.1.3. Baseline Thermal and Voltage Analysis

Outerbridge NJ performed the baseline thermal and voltage analysis using the modified 2028 summer, winter, and light load base cases based on the Proposed Offers. The baseline study checks for thermal and voltage violations in both pre-contingency (N-0) and post-contingency (N-1) conditions as a result of combined megawatt injections at [redacted] and Werner Substation. The study results showed that there were no new thermal or voltage violations as a result of the Outerbridge NJ proposal in both the summer and winter base cases. In the light load base cases, the new branch overloads due to the Outerbridge Project are the Raritan River–Werner 115kV Line and Werner 230/115kV transformer in the post-contingency (N-1) condition. Both of them were observed in the generator deliverability study.

4.2. ADDITIONAL BENEFITS REDUCING NEED FOR RELIABILITY MUST-RUN GENERATION

The PJM generation deactivation page does not contain any generating unit specified as a reliability must-run resource.[27]

As a result, Outerbridge NJ was not able to make a determination on the reliability criteria benefits associated with reducing the need for reliability must-run resources. It should be noted that there are two natural gas generating units pending retirement in New Jersey: 120.2MW of New Bay Cogen Combined Cycle and 115.3MW Pedricktown Cogen Combined Cycle. The PJM reliability analysis on these two units is underway with the PJM Transmission Expansion Advisory Committee (material still pending to be

[27] https://www.pjm.com/planning/services-requests/gen-deactivations.aspx

published by PJM). Once posted, Outerbridge NJ will be able to perform the reliability benefit analysis if there are any transmission problems due to the retirement of one or both units.

Regarding the impact on special operating procedures, the Outerbridge NJ proposed POIs are not in the PJM Artificial Island area where the generator output is significantly affected by the potential system dynamic stability under a number of critical contingencies in the region. Therefore, it is expected that the Outerbridge NJ proposal will not have significant impact on the clearing time of the Artificial Island critical contingencies nor cause any stability concern. Therefore, Outerbridge NJ has not performed the stability analysis to evaluate the dynamic performance of the system with respect to the Artificial Island critical contingencies. If required, the stability study will be performed to demonstrate the Outerbridge NJ proposal impact on the fault clearing time of Artificial Island contingencies.

For extreme weather-related outages, Outerbridge NJ expects that its Proposal will help reduce the likelihood of unforced or forced outages due to extreme weather including thunderstorms, hurricanes, extended cold weather events, long duration blizzards, and/or icing conditions. The main reason for the expected reduction of such outages is the close proximity of the offshore wind generation to the load, requiring less transmission to deliver the energy to the load and therefore greater resiliency to weather-related transmission outages or islanding conditions. In addition, the underground construction of the proposed HVDC transmission line is more reliable for point-to-point offshore wind integration.

Regarding the probability of common mode outages due to electrical and non-electrical causes—including the effects of NERC Category P2, P4, P5, and P7 events such as bus faults, faulted breakers, and double circuit tower-line outages—Outerbridge NJ has performed the generator deliverability study using 2028 summer peak model and compared the overload results, including common mode outages between Outerbridge NJ's Base Offer 2 plus Additional Offer A and other alternative options. The study results show that the Outerbridge Project resulted in nearly 50% fewer post-contingency overloads as compared to the alternative option. The Outerbridge Project resulted in 10 post-contingency overloads under the common mode outages (3 breaker contingencies and 7 tower contingencies) while the alternative option caused 19 post contingency-overloads related to the common mode outages (11 breaker contingencies and 8 tower contingencies). This highlights that the Outerbridge Project will help reduce the overloads caused by the common mode outages and, therefore, decrease the probability and impact of these outages on the reliability of the PJM system.

4.3. ABILITY TO MAXIMIZE ENERGY, CAPACITY, AND REC VALUES OF OSW

[redacted]

[redacted][28]

1. [redacted]
2. [redacted]
3. [redacted]

The Outerbridge will make a major contribution to cost-effectively meet the State's Renewable Portfolio Standard (RPS) obligation, and specifically the OSW RPS obligation. The Outerbridge Project will allow for an increase in the annual supply of RECs that is equal to the amount of OSW energy that the Outerbridge Project can deliver—as much as 14,000GWhs. By 2030, New Jersey's RPS requires 50% of electric consumer sales to have RECs associated with these retail energy sales. Based on PJM's New Jersey's electric utilities' long-term energy consumption forecast, the New Jersey RPS obligation corresponds to roughly 40,000GWhs in 2030.[29] Outerbridge NJ's proposal alone will facilitate meeting up to 35% of the estimated New Jersey 2030 RPS obligation. At the same time, New Jersey REC price forecasts associated with recent New Jersey BPU OSW solicitations show REC prices reaching over $30/MWh.[30] The increased supply of RECs from OSW generation resource delivered via Outerbridge NJ's project can be expected to lower future REC prices, reducing costs for New Jersey electric consumers.[31]

4.4. ADDITIONAL ONSHORE GRID BENEFITS IMPROVING PJM MARKET PERFORMANCE

The Analysis Group performed production cost modeling to investigate the economic impact of the Proposal to the overall PJM and New Jersey electrical system. All analysis was performed using the PROMOD IV production cost and market simulation software. The PROMOD model provided by PJM of the eastern US

28 [redacted]

29 PJM Load Forecast Report, January 2021, Prepared by PJM Resource Adequacy Planning Department at 70, available at: https://www.pjm.com/-/media/library/reports-notices/load-forecast/2021-load-report.ashx.

30 Evaluation of New Jersey Solicitation for ORECs for Offshore Wind Capacity, Framework for Evaluation of Impacts, Public Version, prepared for the New Jersey Board of Public Utilities, Levitan & Associates, Inc., June 21, 2019 at Figure 7.

31 In this instance it is assumed that OSW energy beyond the quantity already committed to in completed New Jersey BPU solicitations is delivered under Outerbridge NJ's proposal.

interconnection was used as a starting point for the analysis. Given that the Outerbridge NJ proposal provides for the ability to inject a significant amount of the planned offshore wind generation into northern New Jersey [redacted] two separate simulations were performed: one considering the Outerbridge NJ proposal is not chosen by PJM and another where the Outerbridge NJ proposal is chosen. Both cases were focused on the year 2035 when all 7500MW of the planned offshore wind generation is expected to be in operation, and in July when system demand is at its peak. These cases are:

- **Base Case.** Outerbridge NJ proposal is not chosen, which provides no transmission path for offshore wind injection into [redacted] or northern New Jersey as a whole. Instead, the offshore wind generation is primarily injected into central and southern New Jersey.
- **Outerbridge NJ Proposal.** Outerbridge NJ proposal is chosen, facilitating the injection of a significant amount of offshore wind generation into northern New Jersey, [redacted]

The modeled offshore wind injection locations and amounts for the analyzed scenarios are detailed in Table 4-1. Note that the additional 1100MW associated with the Ørsted Ocean Wind Project were included for each scenario (the injection location and amount for this offshore capacity was already modeled in the PROMOD file PJM provided). The injection scenarios below also reflect the recently awarded Ocean Wind 2 project interconnecting to the Smithburg Substation and Atlantic Shores Offshore Wind projects to the Cardiff Substation. The combinations of Outerbridge Base Offer 1 and Additional Offer A, and Base Offer 2 and Additional Offer B provide for a range on the analysis from 1600MW to 3200MW injections. Additional analysis on the other possible combinations of the Outerbridge Proposed Offers will be provided if required.

Table 4-1 —Economic Analysis Scenarios Considered, Modeled Offshore Wind Injection Amounts (MW)

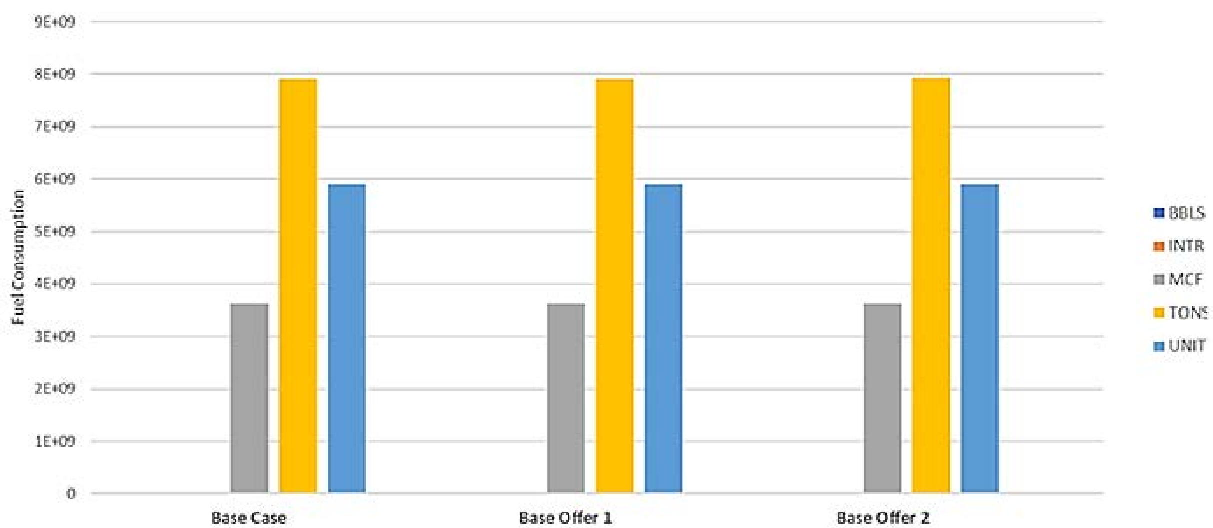
Substation	Base Case	Outerbridge Base Offer 1 + Additional Offer A	Outerbridge Base Offer 2 + Additional Offer B
[redacted]	0	[redacted]	[redacted]
Werner	0	400	800
Larrabee	1245	934	623
Smithburg	2226	1670	1113
Cardiff	2928	2196	1464

Based on study results, the Atlantic City Electric (ACE) footprint will experience the largest reduction in load weighted average LMPs, with a reduction of -0.79%, or $0.318 per MWh for the Outerbridge Base Offer 1.

Results from PROMOD's detailed flow-gate congestion report show that the Outerbridge Base Offer 2 is expected to fully mitigate projected base case congestion at the Smithburg 500/230kV Transformer and the Cardiff–Lewis 138kV Circuit and provide a 45% reduction to the projected base case congestion at the Silver Run–LS Power Cable. This represents a total reduction in annual congestion of $167 million, $29 million, and $19 million in [redacted] ACE, and PSE&G, respectively. Results also show that total PJM system congestion decreases by as much as 33% because of the Project (specifically for the Outerbridge NJ Base Offer 2). Since curtailment energy is mainly caused by congestion, available curtailment results also indicate that Outerbridge Base Offer 2 offers a 14% reduction in curtailment at the Smithburg Substation. This reduction in curtailment is projected to impact about 80%–85% of the total renewable energy purchased in JCP&L's service territory.

Fuel consumption load weighted LMPs and emissions results are consistent across all scenarios studied; therefore, minimum changes in production cost are expected when comparing with a scenario that accounts for the same amount of renewable injection.

Figure 4-1 — Annual Fuel Consumption by Scenario



4.4.1. Results Discussion

The analysis illustrates a significant improvement in bus-level LMP for the Outerbridge NJ proposal case (Base Offer 2) as compared to the "Base Case." This improvement is best illustrated in Figure 4-2 to Figure 4-5. Each plot presents bus-level LMP on the x-axis and the congestion component of LMP on the y-axis. As can be seen in the Pre-OSW Scenario results, a number of busses in southern New Jersey (Atlantic Electric service area) are near the top right of the plot (see the circled data points). The position of these points indicates that the average LMP and the average congestion component of LMP for the month of July are both much higher than other busses in New Jersey.

In contrast, the subsequent Outerbridge NJ proposal plot illustrates that, by allowing for the injection of offshore wind generation into northern New Jersey [redacted] and Werner Substations), the Outerbridge NJ proposal is able to reduce overall LMPs in the south. The result can be seen in the plot, which shows that the outlier ACE LMP data points from Scenario 1 fall to a lower overall LMP and lower congestion component of LMP in Scenario 2.

Figure 4-2 — Pre-OSW Scenario LMP and Congestion Comparison (Monthly Average LMP)

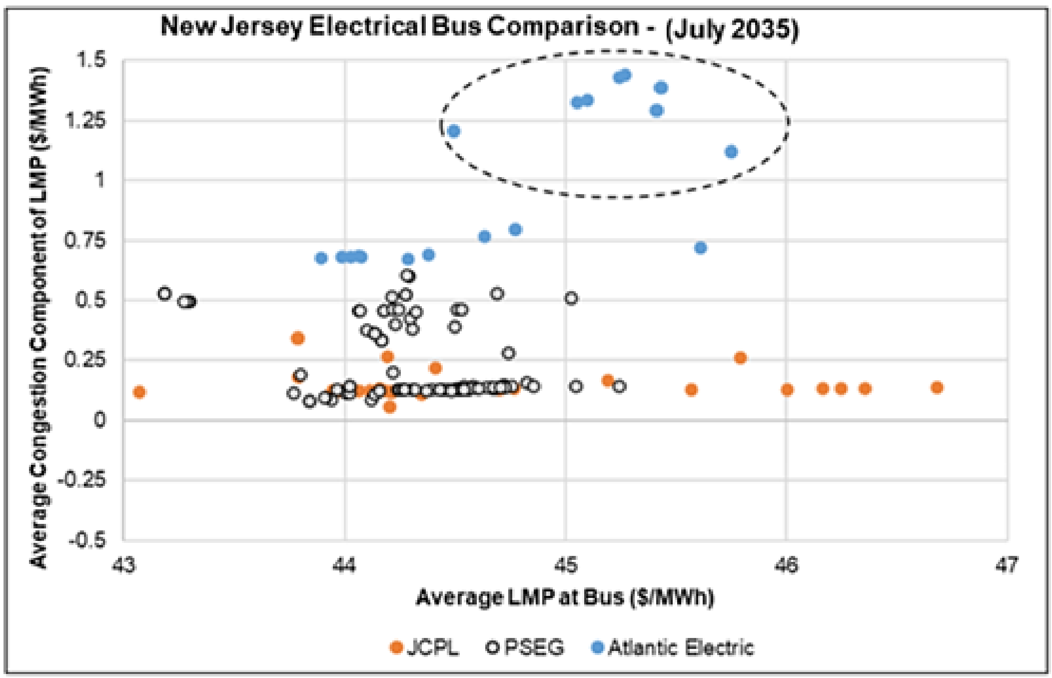
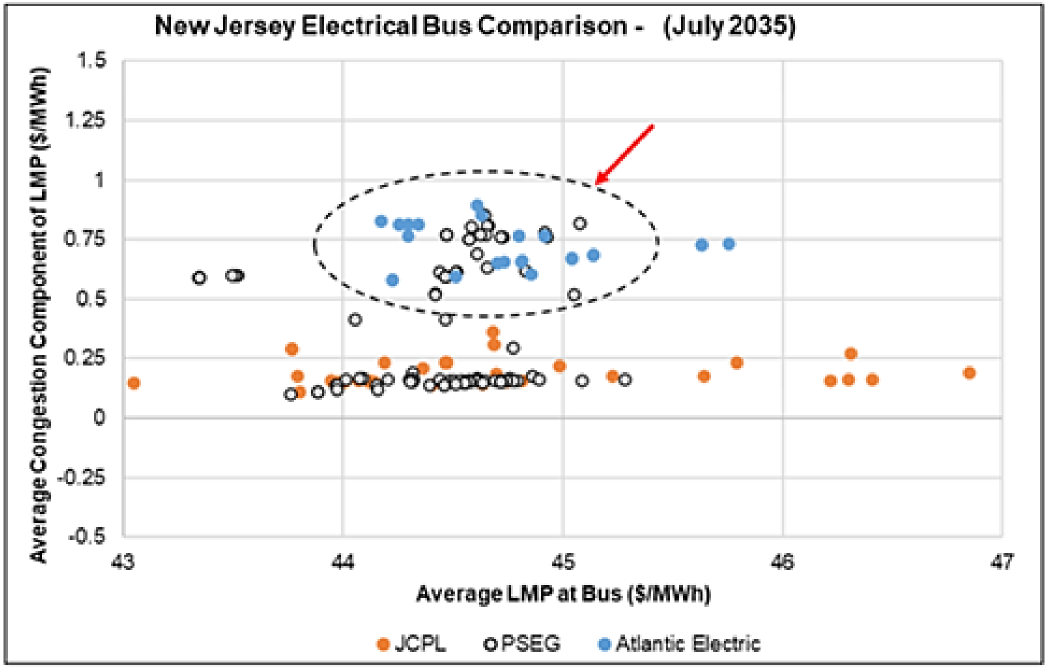


Figure 4-3 — Outerbridge NJ Proposal LMP and Congestion Comparison (Monthly Average LMP)



By focusing on the on-peak demand time periods, the positive impact of the Outerbridge NJ proposal can be shown to be more pronounced. This can be seen the following plots, which illustrate the same information as the previous plots, but only for the on-peak time periods.

Figure 4-4 — Pre-OSW Scenario LMP & Congestion Comparison (On-Peak Monthly Average LMP)

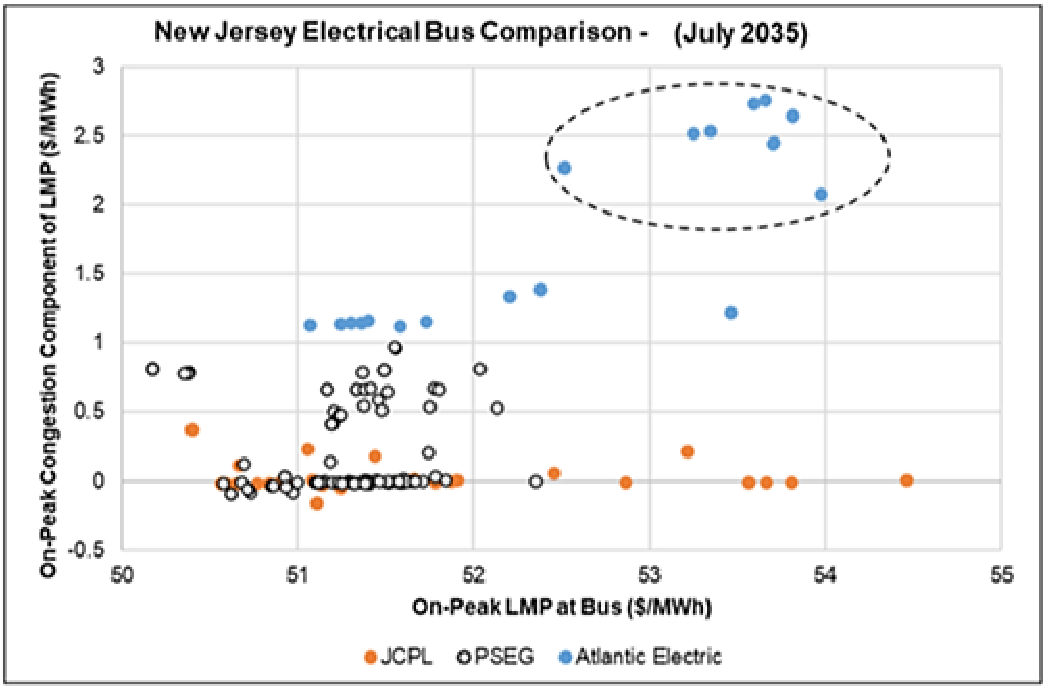
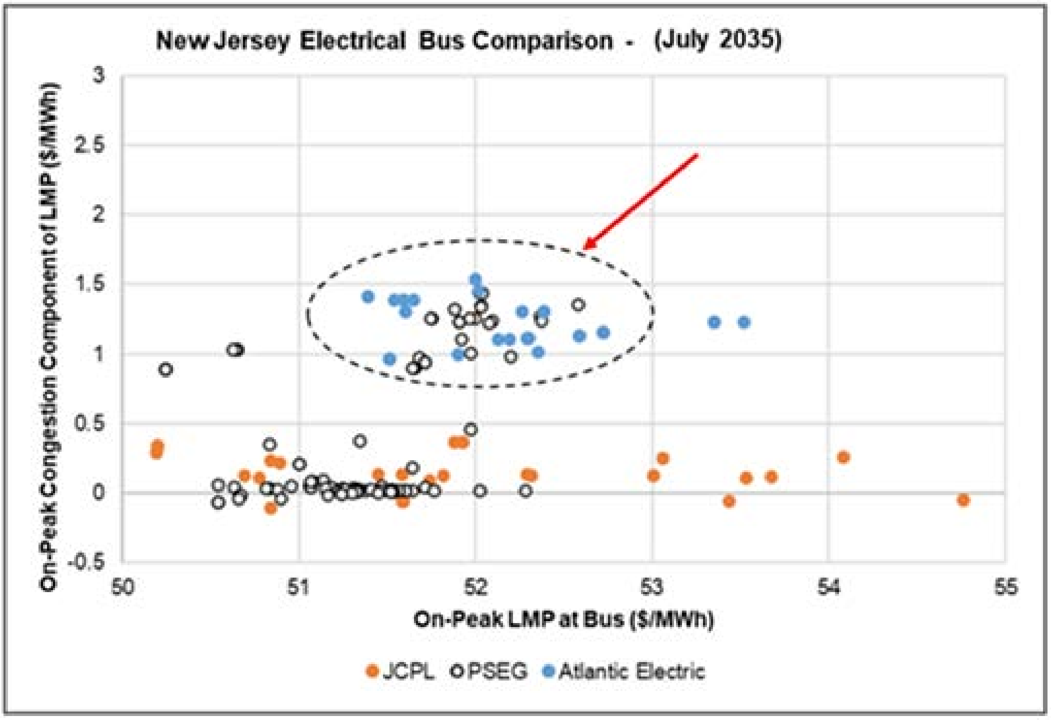
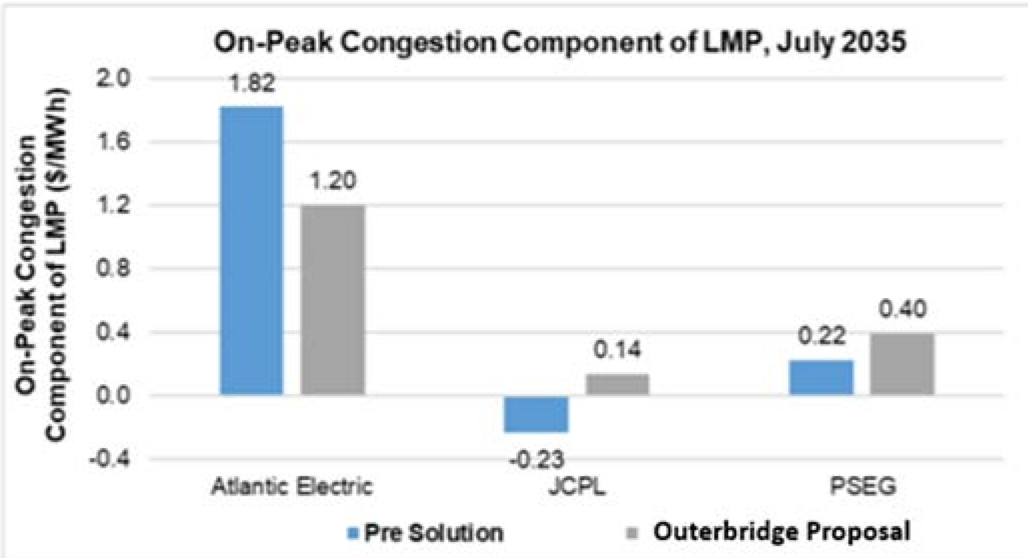


Figure 4-5 — Outerbridge NJ Proposal LMP and Congestion Comparison (On-Peak Monthly Average LMP)



The arithmetic average of the bus-level on-peak congestion component of LMP was also plotted. This graph further illustrates the fact that the Outerbridge NJ proposal can significantly improve north to south congestion in New Jersey over the Pre-OSW Scenario.

Figure 4-6 — On-Peak Congestion Component of LMP, July 2035



Finally, the Outerbridge NJ proposal's ability to help reduce potential offshore wind curtailment was also analyzed. It was found that both the Pre-OSW Scenario and the Outerbridge NJ proposal scenarios did not have appreciable estimated levels of offshore wind curtailment.

4.5. TRANSMISSION SYSTEM BENEFITS

All Outerbridge NJ Proposed Offers involve the complete reconstruction of the aging Werner Substation in South Amboy, and [redacted], further adding to the reliability and resiliency of the PJM transmission areas these assets serve. By bringing power directly to the existing [redacted] the Outerbridge Project also allows for the injection of up to 2400MW of offshore wind generation onto the PJM Bulk Transmission System without requiring significant transmission system upgrades, thereby avoiding the cost uncertainty and risk of additional project delays and customer outages that accompany such upgrades.

Importantly, Outerbridge NJ has configured its technical solution in each of Base Offer 1 and Base Offer 2 to leverage the new Outerbridge NJ HVDC line(s) between the Werner and [redacted] to flow grid power between [redacted] and Werner Substation to provide relief of identified constraints in the Werner area grid. Outerbridge NJ is committed to including this capability with the selection of either Base Offer 1 or Base Offer 2 to maximize the reliability and resiliency benefits of this solution.

4.6. PUBLIC POLICY BENEFITS

The Outerbridge project provides a range of benefits relating to the value of energy, capacity and renewable energy credits (RECs), including the following:

- The relatively short length of the transmission corridor, combined with the use of HVDC technology and the large injection capability into the northern New Jersey grid near to [redacted] mean that the project's total transmission-equipment costs are expected to be lower on a per-MW basis than other potential project proposals that may rely wholly, or in part, on high-voltage alternating current ("HVAC") transmission technology (which would typically require wider rights of way for similar volumes, with higher site-preparation and construction costs).
- The project will inject up to 3200MW of offshore wind into northern New Jersey where that wind generated power can serve mainly New Jersey consumers (who will pay for the transmission to deliver the OSW) rather than other customers in eastern PJM areas (such as in the Philadelphia metropolitan area in eastern Pennsylvania, which is close to injection locations in southern New Jersey). Such large injections of OSW will: help lower wholesale electric energy prices in New Jersey; reduce line losses (given proximity to northern New Jersey load centers and delivery onto the 500kV system); put downward pressure on capacity costs in capacity-constrained northern New Jersey, as previously noted; reduce output at fossil generating stations and air emissions in that part of the State with its poor air quality and high concentrations of overburdened communities.
- Logically, it is anticipated that the economic modeling analyses that will ultimately be performed by PJM and the BPU will show that the Outerbridge NJ proposal avoids significant curtailments of OSW, given the locational advantages noted above. The Project's fit between the location of injection and the ability of loads to absorb supplies will mean that it will result in less likelihood of wind curtailments, thus increasing the potential for the delivery of more total megawatt-hours per MW of offshore wind. Fewer curtailments translates into production of more offshore wind renewable electric supply and more ORECs, more downward pressure on the price of other RECs, and increased progress for New Jersey in accomplishing its statutory mandate to reduce the State's greenhouse gas emissions by 80 percent by 2050.[32] Fewer curtailments also leverage the original capital investment in offshore wind production and delivery facilities, effectively lowering the per-MWh cost of delivered power.
- [redacted]

[32] The Global Warming Response Act was signed in 2007 and updated in 2019. https://www.nj.gov/dep/climatechange/docs/nj-gwra-80x50-report-2020.pdf

[redacted]

New Jersey's Clean Energy Act of 2018 calls for the State to have 2000MW of battery energy storage by the year 2030. The selection of the battery option outlined in Additional Offer C in combination with any of the Outerbridge transmission options will help the State move forward towards meeting this goal with Outerbridge NJ's construction of the largest Battery Energy Storage System in New Jersey. Furthermore, the Outerbridge NJ proposal capacity value is expected to be higher than other base case scenarios since it delivers offshore wind generation capacity into New Jersey utility service territories that are capacity constrained regions, thereby also putting downward pressure on capacity prices.

4.7. CAPACITY AND ENERGY MARKET EFFICIENCY BENEFITS AND OTHER BENEFITS

The Outerbridge Project will help to enable New Jersey electric customers to realize lower power-production costs. The Project will deliver offshore wind power into northern New Jersey's densely populated counties that historically experience relatively high wholesale power market prices. Delivering offshore wind generation, with its nearly zero variable cost electric energy directly into high-priced electrical regions will push down wholesale power market prices in northern New Jersey counties and the surrounding areas. Moreover, delivery of zero-emission offshore wind generation reduces New Jersey's reliance on fossil fuel-fired electric generation and lowers air pollutant emissions. Outerbridge NJ's proposal ensures that New Jersey electric consumers enjoy the key wholesale power cost reduction benefits that offshore wind generation provides. Additionally, Outerbridge NJ studies show that the Outerbridge Proposal provides the State of New Jersey between 400MW and 800MW of additional offshore wind generated power injection capacity when compared to PJM's BPU Scenario 1.

4.7.1. Energy Market Benefits

Outerbridge NJ's Offers deliver offshore wind energy into the New Jersey electric utility service territories that serve most of New Jersey's consumer electric load. The geographic location of the Outerbridge Project will inject generation into delivery points within the PSE&G and [redacted] service territories in northern New Jersey. The PSE&G and [redacted] service territories include most of New Jersey's consumer electric load. PSE&G serves the heavily populated northern half of New Jersey and provides over 56% of retail sales to New Jersey electric consumers. [redacted] serves 28% of the State's electricity sales. Together, they provide the vast majority of retail electricity in New Jersey. At its highest proposed delivery capability of 3200MW, the Outerbridge Project can deliver up to 14,000GWh of offshore wind energy annually into northern New Jersey, which would amount to approximately 20% of projected consumer energy consumption in the PSE&G and [redacted] service territories.

The Outerbridge Project's delivery of incremental offshore wind power supply will put downward pressure on electricity prices in areas of New Jersey where wholesale electric energy prices are highest. As Table 4-2 illustrates, wholesale prices to PSE&G and [redacted] in northern New Jersey are higher than those for ACE in southern New Jersey. PSE&G customers, accounting for more than half of the retail electricity sales in the State, consistently experience the highest wholesale market prices. Outerbridge NJ's Proposal, at its highest injection of 3200MW, will deliver over 14,000GWh of nearly zero-cost electric energy into the high-priced PSE&G region (whose overall retail sales totaled approximately 40,000GWh as of 2019).[33]

As a result, New Jersey consumer wholesale electricity prices are expected to decline, and the injection of offshore wind into northern New Jersey via the Outerbridge Project will relieve price pressure in the part of the State that experiences the highest electricity prices.[34]

Table 4-2 — Average Annual Wholesale Electric-Energy Market Prices: PSE&G, [redacted] and ACE Service Territories ($/MWh)

Time of Day	Year	PSEG	JCPL	AECO
On Peak	2019	27.50	27.08	27.01
	2020	20.65	20.44	20.36
	2021	30.69	29.26	29.08
Off Peak	2019	21.01	20.91	20.82
	2020	16.12	15.99	15.95
	2021	24.67	23.35	23.33

Source:
[1] Hitachi ABB Velocity Suite (calculated using data from PJM).

Notes:

1. PJM hourly day-ahead location marginal prices are used to calculate average values.
2. The small northern New Jersey load of RECO (Rockland Electric Company) is not included in the analysis.
3. 2021 data is from January to June.

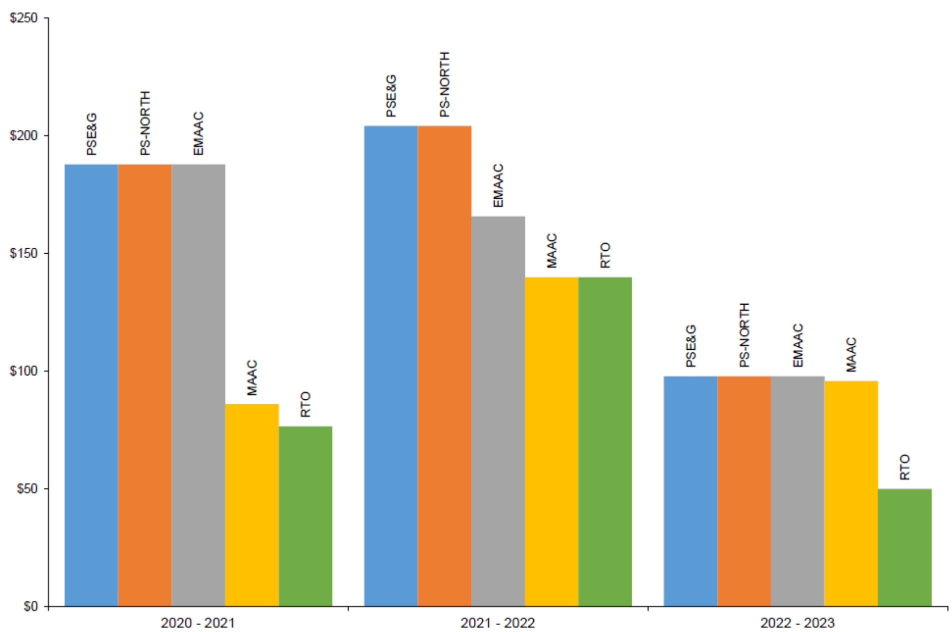
4.7.2. Capacity Market Benefits

The Outerbridge Project will deliver new offshore wind capacity into the New Jersey regions where PJM electric capacity prices, and capacity value, are highest. As Figure 4-7 shows, PSE&G's recent PJM capacity market auction prices are consistently higher for the PSE&G and Eastern Mid-Atlantic Area Council

33 EIA 861 data for 2019.
34 While wholesale electricity prices decline for all electric consumers in the region, a positive net-cost of OSW generation remains that will be collected from elected consumers; however, the New Jersey BPU applies an overall cost-benefit analysis that requires OSW projects to meet specific thresholds for approval.

(EMAAC) regions when compared to other PJM geographic regions.[35] Capacity prices in the PSE&G and EMAAC zones are higher because these regions are transmission "constrained" such that generation capacity located elsewhere in the region cannot be fully delivered and available to loads in these regions and therefore capacity that is located within these regions is more valuable. The higher value of capacity is shown in Figure 4-7 where the price difference between PSE&G and regional transmission operator (RTO) varies from about $50/MW-Day to just over $110/MW-day. Because Outerbridge NJ's proposal will deliver OSW generation capacity into New Jersey utility service territories that are capacity constrained regions, its capacity value is expected to be higher.

Figure 4-7 — Capacity Market Clearing Prices in PJM Base Residual Auction



Source:
[1] PJM BRA Scenario Analyses, 2020-2021 to 2022-2023.

Specifically, the Outerbridge Project is expected to deliver up to 720MW of capacity value into the PSE&G service territory where PJM's most recent capacity auction results show only 4400MW of intra-region capacity cleared.[36] Thus, Outerbridge NJ's Proposal can increase PSE&G regional capacity supply by up to 16%. The Outerbridge Project is also expected to deliver up to 2400MW of capacity into [redacted]

[35] Includes PSE&G, PS-North (northern portion of the PSE&G service territory), EMAAC (portion of PJM and includes New Jersey, Delaware, and portions of Eastern Pennsylvania), MAAC ("Mid-Atlantic Area Council," includes, in addition to EMAAC, Maryland, the District of Columbia, and most of Pennsylvania), and RTO (geographic regions served by PJM's capacity market that do not face capacity price premiums).

[36] This assumes that 30% of the 2,400MW that Outerbridge NJ's proposal could deliver into the PSEG region is counted as capacity. PJM 2022/2023 RPM Base Residual Auction Results, Table 4 –RPM Base Residual Auction Clearing Results in the LDAs, https://www.pjm.com/-/media/markets-ops/rpm/rpm-auction-info/2022-2023/2022-2023-base-residual-auction-report.ashx, accessed August 10, 2021.

[redacted] (30% of the 800MW that could be delivered to Werner). In total, Outerbridge NJ's proposal will add almost 1000MW of electric generation capacity into PJM's capacity constrained regions, helping lower electricity prices for New Jersey electric consumers.

4.7.3. BESS Ancillary Services and Demand Response Benefits

The 91MW BESS proposed in Additional Offer C will not only be the largest Battery Energy Storage System in the State of New Jersey, but also will yield very significant market benefits, especially when paired with offshore wind and the capability of the Outerbridge Project to transfer grid power from the [redacted] to the 230kV Werner system. Table 4-2 below provides a summary of the analysis that has been performed on the BESS Ancillary Services and Demand Response. Further details on the benefits of the BESS can be found in Appendix I.

Table 4-3 — BESS Ancillary Services and Demand Response

Services	Description	Benefit
Capacity for PJM Peak	Provides capacity for PJM demand during the peak load hours.	Per PJM's 10-hour peak reduction test, a 91MW 4hour rated BESS can provide 36MW continuously for 10 hours during peak load conditions. This can provide 364MWh of energy with a peak reduction of 36MW to 56MW.
Emergency Reserve Response	Provides reserve transmission capacity for the contingencies until other resources can be started to supplement the reliability of system during contingency state.	BESS can be scheduled to discharge for 4 hours of emergency reserve service of 18MW to 72MW. However, the BESS can provide periods of full commitment at 91MW for 4 hours for emergency reserve purposes.
Frequency Smoothing Dynamic Response	Rapid charges or discharges for frequency smoothing or regulation which corrects for short-term changes in frequency that might affect the stability of power system.	With the annual BESS limit of 350 cycles, the average throughput with the PJM RegD signal is 120,000MWh which allows 20MW of frequency regulation with a BESS of 91MW x 364MWh.
Load Shifting for Transmission Overloads	Charges and discharges to reduce congestion of the transmission network.	Total energy charging to provide congestion relief is about 73,700MWh over a year for 7294 charging hours for on average approximately 10MW congestion reduction. 91MW congestion reduction can be provided for some of those hours.
Voltage and Reactive Power	Capable of providing voltage and reactive power services.	91MVA reactive compensation capability with circular reactive capability curve for assistance in voltage setpoint control, transient voltage correction, power factor correction, and flicker damping.
Optional Service: Least Cost State of Charge (SoC) Management	Least cost state of charge management control to facilitate optimal transmission performance.	BESS can be configured to incrementally charge and discharge to maintain state of charge for providing reliability services as least cost. The BESS efficiency would exceed 85% where costs of losses would be minimized as well with least cost state of charge management.

4.7.4. Emissions Reduction Benefits

The Outerbridge NJ proposal will enable New Jersey to reduce the emissions of greenhouse gases (GHGs), other air pollutants, and electric generation resource fuel costs. For example, the BPU reports that estimated average GHG reductions from the addition of new OSW generation resources is 0.5 short-tons CO_2/MWh.[37] Thus, by enabling annual delivery of up to 14 million megawatt-hours of OSW energy, Outerbridge NJ's proposal will annually reduce millions of tons of GHG emissions. In addition, the emissions of nitrogen oxides, sulfur dioxide, and particulate emissions associated with fossil-fuel generation resources that are no longer needed to service electric consumers are avoided and the costs of fossil-fuel and emission allowances needed to produce the electricity are also avoided. Outerbridge NJ's proposal will help reduce air pollutant emissions and fossil fuel consumption, lowering electricity production costs.

4.8. ECONOMIC DEVELOPMENT AND SOCIETAL BENEFITS

The Outerbridge Project will assist the State of New Jersey in achieving its goals related to offshore wind supply chain and associated economic development. The Project will fund new programs that support workforce development, community development and local manufacturing to help New Jersey achieve its nation-leading renewable energy goals while also fostering the growth of a local offshore wind supply chain and workforce that will grow the State's economy.

4.8.1. Competitive Edge Workforce Development Program

Rise Light & Power, the parent of Outerbridge NJ, has a strong track record of working closely with communities to ensure that residents benefit from its initiatives. The company supports a wide range of education and skills training efforts, including programming and career development opportunities for STEM students and partnerships with local institutions and community colleges. During the COVID-19 pandemic, Rise Light & Power offered sponsorships and supported community programming, and provided food and much needed PPE for public housing residents. Outerbridge NJ's commitments to local community partnerships and investments, and to advancing the renewable energy in New Jersey to advance a just transition to the green economy will be fundamental to this project, if awarded. These will take the form of investments in New Jersey's labor force.

If awarded, Outerbridge NJ will, following a Financial Close, partner with Joseph Jingoli & Son, Inc. to institute a Competitive Edge program for the Project. This program has had long standing success in New Jersey and has been able to provide recruitment, training and apprenticeships to some of the State's most

[37] Based on the most recent BPU Clean Energy Order (BPU Clean Energy Order, Docket No. QO20080555 and QO21050824, Agenda Item 8A - 1, June 30, 2021, at 16 and 25), a 1500MW OSW facility will generate 6,181GWh of ORECs annually and avoid 2.97 million short-tons of CO2 emissions which is about a half short-ton of CO2/MWh.

disadvantaged communities, including people in recovery. The Competitive Edge program has been used to provide classroom and hands-on based training to communities all over New Jersey. Subject to an award, and following a Financial Close, Outerbridge NJ will work with the Competitive Edge Program and its union partners to provide the training and career pathways to ensure that disadvantaged New Jersey communities are afforded the opportunity to participate in the Project.

4.8.2. Community College Labor Training Program

Achieving New Jersey's nation-leading climate goals will require an unprecedented mobilization of its workforce for construction of renewable energy generation and transmission, operations and maintenance, and supply chain manufacturing. Additional investments in training are necessary to ensure the State's workforce is prepared to meet this challenge. The need for additional workforce training is exacerbated by the COVID-19 public health crisis, which has upended New Jersey's economy and left its building and construction sectors reeling.

In order to meet the needs of the growing New Jersey-based renewable energy industry, Outerbridge NJ will, if awarded, provide multi-million dollar funding to establish the Climate Leadership Labor Training Center to be hosted at a Community College in New Jersey. Funding will commence promptly following a Financial Close. Once established, the Climate Leadership Labor Training Center shall be governed by a board of trustees consisting of, among others, representatives of the utility sector of New Jersey's labor organizations. By working together, labor organizations, industry, academia, and non-governmental organizations can not only retrain New Jersey workers for emerging green energy technologies but also to ensure the recovery from COVID-19 is equitable by expanding access to labor apprenticeships in disadvantaged communities that have suffered a disproportionality higher levels of unemployment.

Specifically, this fund would go towards:

- **Executive Leadership.** Recruiting and hiring a well-qualified chief executive who will be tasked with hiring and managing senior staff, administering programs, and raising additional funds, as necessary.
- **Needs Definition.** Recruiting and hiring a staff person to interface with American developers and Global suppliers to determine the needs for local skills training.
- **Curriculum Development.** Co-develop curriculum for labor apprenticeships and academic training programs that identifies skill gaps, provide online and virtual training, and accelerates career pathways in green energy jobs.
- **Training and Retraining.** Provide clean energy job training to veterans, women, unemployed, low-wage workers, and individuals with disabilities to eliminate barriers to accessing good quality green jobs that will result from New Jersey's renewable energy transformation.

- **Equitable Recruitment.** Attracting members of the trades and developing apprenticeship programs with a focus on outreach to disadvantaged communities.

4.8.3. [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted] [redacted]

[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

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1. [redacted]
2. [redacted]
3. [redacted]
4. [redacted]

5. PROPOSAL COSTS, COST CONTAINMENT PROVISIONS, AND COST RECOVERY

5.1. OVERVIEW OF PROPOSAL COSTS

In preparing this Proposal, Outerbridge NJ undertook an exhaustive process to identify the most cost-effective solutions for delivering offshore wind to New Jersey, accounting for practical constraints and the State's policy objectives. The Outerbridge Proposed Offers were built upon the breadth of experience of the LS Power group, as well as the extensive local market knowledge Joseph Jingoli & Son, Inc. For each Proposed Offer, Outerbridge NJ developed a comprehensive Level I expenditure estimate, which has been included in this Proposal. Table 5-1 below provides the capital expenditure estimate for each of the twelve Proposed Offers, including the Cost Containment Commitment for each, in 2021 dollars.

[redacted]

[redacted]

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[redacted]

6. PROJECT RISKS AND MITIGATION STRATEGY

6.1. INTRODUCTION

The Outerbridge Project is a commonsense solution that can deliver offshore wind to New Jersey, cost-effectively, and with less risk than Option 2 and Option 3 solutions. The “last mile” overland cable routing (from landfall to substation), which is necessary to deliver energy generated offshore to the Bulk Transmission System onshore, is one of the most significant risks confronting the feasibility of offshore wind projects, and by extension, the success of New Jersey’s offshore wind program. Offshore wind developers in the Northeast United States have experienced significant delays due to opposition to cable landfall locations, as noted below. Conversely, in the European markets that have experimented with third-party offshore collection systems (analogous to the NJBPU’s Option 2 and Option 3), Project-on-Project risks have led to significant delays, material additional costs for ratepayers, and high levels of risk aversion from offshore wind developers. The Outerbridge Project has been carefully designed to mitigate both Last Mile risks and Project-on-Project risks, as further detailed in this section. Additionally, Outerbridge NJ’s control of critical real estate, its robust stakeholder engagement program, investments in maturing permitting and entitlements, proven approach to procurement and construction, and avoidance of offshore activities makes the Project a low-risk option for the NJBPU and New Jersey’s ratepayers.

6.1.1. The Last Mile is the Hardest

Nearly every offshore wind project in America has faced significant challenges related to cable landfalls and overland cable routing. Some examples of these challenges include:

- New York’s first offshore wind project, located off of Jones Beach, secured a contract with LIPA but failed after years of protests due, in part, to its proposed cable landfall at a popular public beach.
- In Massachusetts, the Cape Wind project invested years in fighting local opponents. Among its most significant delays was securing the required easements for its onshore cable route.
- Bluewater Wind was rejected from two separate beachfront communities in Delaware, resulting in delay that resulted in termination of the project and sale of its BOEM lease and other assets to Deepwater Wind.
- The Block Island Wind Farm, America’s first offshore wind farm, was delayed for more than a year when the municipality of Narragansett, RI denied its application to land its cable at a town beach.
- Edgartown, MA denied a permit for cables that would pass through the Muskeget Channel for the Vineyard Wind I project.

Here in New Jersey, residents in the Ocean City have already begun raising significant opposition to Ørsted’s plans to route multiple cables under their beaches and through their municipal roads. This opposition is to be expected, as its human nature to be concerned about routing high voltage power cables under beaches where children play. New Jersey beachfront communities are major sources of economic State and local benefits, providing $46.4 billion in visitor spending in New Jersey.[38] If New Jersey elects to proceed with proposals that route more cables under beaches, more opposition can be expected, as can an erosion of public support for the State's Offshore Wind program. As subsequent offshore wind developments route export cables further inland for feasible points of interconnection, the State will likely be forced to confront stakeholders with local control of cable rights-of-way.

6.1.2. Third-Party Offshore Collectors Have Extremely Costly Project-on-Project Risk

Many offshore wind developers have testified publicly, in New Jersey and elsewhere, to their significant risk aversion towards third-party offshore collectors, like those contemplated in the NJBPU's Option 2 and Option 3. This risk aversion is warranted based on both the unsuccessful and costly history of third-party offshore collectors, and the fundamental challenges associated with introducing third-party ownership of a vital component of a project.

When Germany endeavored to create an offshore grid for wind developers to connect with, delays in the availability of that third-party offshore collector system cascaded into delays for a number of offshore wind developers, including Ørsted, RWE, and EnBW. As a remedy, the German federal government required ratepayers to subsidize 90% of the developer revenues *they would have earned* without the delays caused by Project-on-Project risk[39]. If New Jersey were to proceed with an Option 2 or Option 3 proposal, it is highly likely that offshore wind developers would require an assurance similar to that of Germany's. Given that the balance sheet(s) of a third-party offshore collector(s) would be only a fraction of that of the Interconnecting Offshore Wind Project, it would be impossible for the transmission entity to credibly fund such an obligation, and thus would require New Jersey's ratepayers to bear the risk of paying for energy they did not receive due to delays in offshore transmission.

6.1.3. Outerbridge Addresses Both Last Mile Risk and Project-on-Project Risk

The Outerbridge Project offers lower costs and less Last Mile risk than radial transmission. It also offers lower costs and less Project-on-Project risk than that of a third-party offshore collector.

Outerbridge is superior to radial transmission in three key ways. First, it will allow New Jersey to procure up to 3.2GW of offshore wind without impacting any of New Jersey's beachfront communities and tourism

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[38] Tourism Economics; "Economic Impact of Tourism in New Jersey 2019." Available: https://visitnj.org/sites/default/files/2019-nj-economic-impact.pdf
[39] EWEA. "Is German Offshore Wind under Thread?" 10 APR 2013. Online. Available: http://www.ewea.org/blog/2013/04/is-german-offshore-wind-under-threat/

economy, based on all cables coming ashore at the Werner Site. Second, it will allow for greater resiliency and redundancy by delivering the output of one or more Interconnecting Offshore Wind Projects into two different parts of the PJM Bulk Transmission System, via the interconnections with the 230kV Werner Substation and [redacted] Third, it offers economies of scale by cost-effectively moving a large volume of power through the Conrail ROW rather than on locally controlled roads.

Outerbridge is also superior to a third-party offshore collector in three different ways. First, it is more cost-effective since the majority of the wind energy areas expected to be leased by BOEM in the NY Bight can connect to the Werner Site using conventional AC cabling. Doing so avoids the need for a bespoke offshore HVDC converter station, which is much more costly than an onshore HVDC converter station. Second, it can be constructed more quickly, based on both the more limited permitting envelope, and the avoidance of the long lead-times and supply chain risks of bespoke offshore converter stations. Third, because of its faster development timeline and its connections into two different networks, and because onshore HVDC equipment can be constructed and repaired much more quickly than offshore equipment, it avoids the Project-on-Project risk that would likely require New Jersey's ratepayers to financially backstop a third-party offshore collector.

6.1.4. Outerbridge is a Low-Risk Project

In addition to the foregoing, the Outerbridge Project also offers New Jersey a matured, de-risked project that can give both the State and Interconnecting Offshore Wind Projects confidence that it will be available on time and on budget to deliver offshore wind from the next procurement. As further detailed in the balance of this Section 6, Table 6-1 summarizes the Outerbridge Project risk analysis and mitigation approach.

Table 6-1 — Project Risk Analysis and Mitigation Approach

Potential Risk	Risk Mitigation Approach
Site Control	Outerbridge NJ either already has rights to real estate (i.e., the Werner Site and the BESS Site) or is in the process of obtaining rights to use third-party properties (e.g., the Conrail ROW; [redacted]). The Project requires only four pieces of real estate, which have hosted infrastructure facilities and/or are zoned for industrial uses, and as such are likely to face less opposition and/or permitting challenges (see Section 6.2 for more detail).
Public Support	The Project's avoidance of sites that currently are in non-utility or non-industrial uses lessens the likelihood of unexpected adverse environmental or community impacts. The Project will implement its Stakeholder Engagement Plan to continually work with Community, State, and other stakeholders to ensure collaboration in resolution to any issues that may arise throughout the Project's development and execution (see Section 6.3 for more detail).
Permitting and Entitlements	Outerbridge NJ's site control and relatively low permitting challenges lessen the likelihood of project delays (see Section 7 for more detail).

Potential Risk	Risk Mitigation Approach
Procurement and Construction	The Project's costs are low relative to other potential alternatives on a $/delivered MW of OSW, with certain elements of total project cost (e.g., converter terminals) well established in the industry and not as subject to uncertainty as costs to site, permit, construct AC transmission lines (see Section 3 for more detail).
Project on Project Risks	The Outerbridge NJ proposal's modularity gives the BPU the option to assemble a diverse portfolio of projects. The Project can accommodate multiple offshore wind projects and offshore delivery projects as they may evolve over time. These attributes in turn lessen the risks for OSW project developers who may be justifiably concerned about or affected by adverse delays in delivery projects.

6.2. PLAN FOR ACHIEVING REQUIRED SITE CONTROL

6.2.1. Overview

The Outerbridge Project requires rights to only four pieces of real estate. Outerbridge NJ has invested very significantly to mature its site control. This includes acquiring the Werner Site and securing an option agreement to purchase the BESS Site. For the Conrail ROW [redacted], Outerbridge is in discussions with Conrail [redacted], respectively, both of whom have represented a willingness to enter into binding agreements to convey the required parcels subject to an award in this process and no critical technical flaws. Significant site investigation work has been performed (including field visits with Conrail on the Conrail ROW) and Outerbridge NJ is highly confident that no critical flaws exist. These four properties are aligned in an unbroken chain that is capable of connecting energy from offshore wind facilities to the PJM Bulk Transmission system. This simple alignment allows the Outerbridge Project to avoid beach communities, public real estate or roads, and thus mitigates the local opposition experienced by other offshore wind cable landing solutions. Additionally, use of these industrially zoned, previously disturbed properties greatly reduces risk to securing required permits.

6.2.2. Werner Site

An affiliate of Outerbridge NJ has acquired the 26-acre land parcel located in South Amboy, New Jersey, which is the site of the retired Werner Generating Station and the 230kV and 138kV [redacted] Werner Substation. This site will be the location of the new Outerbridge Collection Station(s), the new HVDC Converter Station(s), and the reconstructed Werner Substation. Rise is currently completing a Remedial Work Action Plan through the Industrial Site Recovery Act process, which began after the prior owner demolished the Werner Generating Station facilities, providing for suitable construction areas throughout the site. The site's industrial waterfront location along the Raritan Bay (which also includes approximately 26 acres of Riparian rights), with access to the Atlantic Ocean and proximity to the New York/New Jersey Bight Wind Energy Areas makes it an ideal interconnection point for offshore wind facilities.

6.2.3. BESS Site

Outerbridge NJ has executed an option to purchase the parcel of land adjacent to the south side of Werner Substation where the 91MW/364MWh BESS system will be constructed. The option to purchase the property will be exercised following selection of Additional Offer C by the BPU.

6.2.4. Conrail ROW

An existing rail ROW owned by Conrail will provide for an [redacted] for the buried HVDC cable systems that will connect the Werner Site in South Amboy to [redacted]. The HVDC cable systems will be installed underground in the ROW, adjacent to the railroad tracks, to maximize reliability while minimizing environmental and aesthetic impact.

The construction of the [redacted] transmission line will require obtaining rights from Conrail for a sufficiently sized construction and maintenance easement, including the right to use various construction techniques such as trenching, pitting, horizontal directional drilling (HDD) and jack and bore, depending on site conditions and potential underground impediments. Site control will be acquired through Conrail's standard Application for Occupations on Conrail Property. Outerbridge NJ is currently working with Conrail to complete the application process and is providing all engineering plans and drawings that accompany the underground transmission line, which are in full compliance with Conrail's engineering specifications.

[redacted]

6.2.5. [redacted]

[redacted]

[redacted]

6.3. PLAN FOR OBTAINING REQUIRED BOEM AUTHORIZATIONS

The Outerbridge Project does not require any authorizations from BOEM. As contemplated in Section 3, the Interconnecting Offshore Wind Project developers will be responsible for securing rights to run their cables to the Werner site in connection with the permitting of their generation project(s). This not only allows the Outerbridge Project to be developed more quickly, but also entails much less Project-on-Project risk than a third-party offshore collector, which would require BOEM approvals.

6.4. PLAN FOR STAKEHOLDER ENGAGEMENT

6.4.1. Approach to Stakeholder Engagement

Outerbridge NJ recognizes that developing large energy infrastructure projects in the public trust requires a thoughtful and engaged community and stakeholder outreach process that is informed by experience and anchored in empathy and engagement. Outerbridge NJ also recognizes the need to be aware of, and understand, community concerns, which requires being present and listening. Outerbridge NJ understands the importance of transparency and keeping the public informed of the Project plans and benefits as early as possible in the Project development phase. By engaging community stakeholder groups and implementing an educational and marketing strategy, the Project will build its credibility and support in the community, be positioned for long-term success, and help avoid misinformation that could lead to delays or opposition. Outerbridge NJ is committed in all phases of the Project to use the best available science, listen to all stakeholder perspectives to arrive at appropriate decisions and be transparent and open with the public at all times. Outerbridge NJ has been working for several months to engage critical stakeholders in New Jersey and local communities, including leading NGOs; state, county, and municipal officials; state agencies; and others as detailed below.

6.4.2. Engagement with Government Bodies

As a major property owner in South Amboy, Outerbridge NJ has been engaged with the local municipality for many months. Outreach to other government bodies is underway, with Outerbridge NJ reaching out to jurisdictional state and federal agencies, and local government officials in the municipalities along the route to the HVDC line [redacted]

As a result of the meetings, discussions, and information exchanges that have taken place to date, Outerbridge NJ's proposal has received letters from municipal officials in South Amboy and other community leaders, all enthusiastically supporting the Project's innovative solution and intended benefits to the communities and state that it will serve. Letters of support are provided in Appendix D.

6.4.3. Engagement with Overburdened Communities

Outerbridge NJ shares in New Jersey's commitment to uphold the principles of environmental justice and will take steps necessary to protect the environment, and the health and economic wellbeing of people who live in overburdened communities within the boundaries of the Project. We acknowledge the need to work closely with those communities to promote understanding of the Project and to provide all services that might be necessary to mitigate any inconvenience.

6.4.4. Engagement with the General Public

A key aspect of the Project's development plan is to facilitate early, frequent, and inclusive communication with a diverse range of stakeholders, thereby fostering collaboration during development and execution. Outerbridge NJ intends to share information in a variety of ways—through open house events, opening a local Project office in New Jersey accessible to the public, and creating print/video/digital and other media platforms. Outerbridge NJ also intends to solicit comments and input on the design of public-facing structures and site parameters, as well as attain feedback on the design and execution of the Project. The Outerbridge NJ team is also exploring the feasibility of creating a public access walkway/sitting area along the waterfront side of the Werner Site. Through these efforts and others, Outerbridge NJ intends to work with the public and key stakeholders to garner the support needed for an efficient and timely permitting process and subsequent project completion.

Outerbridge NJ is dedicated to meaningful engagement with communities throughout the State. The Communities Engagement Plan implementation will be guided by four overarching principles with focused goals that provide a framework for the selection and application of outreach and engagement tactics. They are:

- Transparency
    - Effectively communicate the primary purpose and benefits of the Project to the communities.
    - Use methods and processes to enable two-way flow of information between key stakeholders and the Project, specifically highlighting how this feedback is used to inform decision making.

- Inclusivity
  - Provide consistent and accessible information across numerous platforms.
  - Foster community support by maintaining regular contact with stakeholders, community leaders, and the general public to build positive, long-term relationships.
- Accessibility
  - Provide information in understandable terminology and offer language services (i.e., translation and/or interpretation) at meetings.
  - Provide written materials in languages spoken in the communities within the project area, among which some of the most common other than English are Portuguese, Spanish, Arabic, Chinese, Polish, and various languages of India.
  - Host events in locations that are ADA accessible and use technology accessible to the intended audience.
- Responsiveness
  - Discuss topics that are relevant to the needs, values, and concerns of each community.
  - Establish clear methods of communication with the community, listen to input, and respond to concerns or opposition respectfully.

6.4.5. Engagement with Fisheries Stakeholders

Because of the Outerbridge Project's location in the lower Raritan River-Raritan Bay area, fishing and environmental organizations in this geographic area will have a particular interest in any dredging, cabling routes, and other potential impacts. Outerbridge NJ is committed to working with recreational and commercial fishing groups to address concerns about the Project throughout its development and construction. The Outerbridge Project includes a plan specifically to address fisheries stakeholder concerns that is detailed in Appendix P.

As outlined in the appended Fisheries Protection Plan, Outerbridge NJ will assemble a Fisheries Communication Team which will include representatives from the local fishing community and will designate a Fisheries Liaison Officer. The Fisheries Liaison Officer will be responsible for communicating the plans for Project activities during each phase of development that might impact the fishing industry and for making recommendations to address stakeholder concerns that are communicated throughout the Project development process. Additionally:

- Outerbridge NJ is taking a locally focused approach to community, environmental and fisheries stakeholders in its outreach program. For example, Outerbridge NJ is making Clean Ocean Action, NY-NJ Baykeeper, Raritan Riverkeeper, and Lower Raritan Partnership environmental groups a top priority.

- Outerbridge NJ is applying this strategy to fisheries and boating stakeholders, seeking to meet with Jersey Coast Anglers Association, Belford Seafood Co-op, Raritan Bay Anglers, Perth Amboy Yacht Club and others, and maintaining open communications lines with such regional groups as RODA and ROSA.
- The outreach program includes one-on-one phone calls, video panel presentations to the Energy Foundation's "table" of New Jersey offshore wind environmental groups, and small-group presentations where possible.
- In terms of reporting, Outerbridge NJ will encourage sign-ups to a newsletter, publish marine warnings before starting survey work, maintain a construction progress report page on its website, including a Fact Sheet and FAQs. Public questions and concerns will be captured on this page, with responses from Outerbridge NJ.

Outerbridge NJ will employ numerous stakeholder outreach strategies, which will include:

- Establishing a webpage for the fishing community with the latest Project information and providing contact information for providing feedback and any concerns
- Distributing Project update notices to an established list of fisheries stakeholders
- Holding regular meetings and open houses to share Project updates and solicit public feedback
- Publishing announcements of major Project activities that may impact fishing activities with online industry publications and local news outlets
- Establishing a 24-hour hotline to address any real-time conflicts or safety concerns
- Issuing Local Notice to Mariners prior to any planned offshore activities as required

6.5. PLANNED CONSTRUCTION TECHNIQUES

Risks associated with the station construction are fundamentally limited by the optimal selection of the two sites proposed for the Outerbridge Project. For [redacted] thereby reducing outage requirements at those stations and risks in the Project's construction. Furthermore, since the site is already occupied by and zoned for utility infrastructure, no zoning variances will be required. For the Outerbridge Substation, the Werner Site presents an ideal location, as has been noted, by its frontage with the Raritan Bay allowing for unincumbered access to offshore infrastructure. The reuse of this former Werner Power Station site also allows for the renewable repurposing of legacy fossil infrastructure located on an otherwise underutilized parcel in South Amboy, New Jersey. The strategy to use the Werner Site for the Outerbridge Project avoids complexity in the permitting process and any disturbance to other shoreline points of the Jersey Shore and its communities.

The transmission system between the Werner and [redacted] has been designed as a DC underground transmission system following the Conrail ROW to which both Werner and [redacted] have ease of access. This design limits the risks associated with obtaining public ROWs across multiple jurisdictions or seeking ROW's on private property. The transmission system has gone through a detailed design process identifying locations for open trench, jack and bore and horizontal directional drill. These methods will be deployed where applicable to limit disturbance to the rail system and impact to neighboring public roadways.

With respect to the Conrail ROW, Outerbridge NJ and its consultants maintain regular correspondence with Conrail and have shared detailed transmission system design information with them. Outerbridge NJ's civil, electrical, environmental and project engineers have already held a field meeting with Conrail to conduct on-site review of ROW areas of interest and existing railway infrastructure to initially assess constructability. Initial comments and observations from Outerbridge NJ's consultants in the field and in coordination with Conrail representatives note that the planned installation routing and access to install the new circuits in the existing Conrail ROW is feasible from routing and constructability perspectives. No critical flaws were identified.

To mitigate the risks associated with the aforementioned construction, the Outerbridge NJ team will work closely with Conrail to coordinate the scheduling of all required construction sequence efforts, allowing for the time required for Conrail to assess the Outerbridge Project plan and timeline. Assuming such rights can be obtained, then judicious use of these techniques must be applied to minimize construction costs and schedules, and environmental and traffic impacts of the Project's construction. Impediments to a seamless construction process that will be carefully evaluated and addressed include:

- encroachments
- underground obstructions
- rail schedules and onsite support (Flagger availability)
- rail setbacks and other construction requirements

6.6. TIME-OF-YEAR CONSTRUCTION RESTRICTIONS

There are no known critical flaws with respect to transmission system time-of-year or Conrail operating restrictions on the expected construction of the Project. The Project has accounted for the known peak summer electrical outage restrictions and Conrail operations. Although Conrail may limit construction windows from time to time based on deviations from its normal operation, field observations on train traffic have determined that it is unlikely that construction windows will be impacted beyond known operational restrictions. Both transmission system and Conrail schedule constraints have been accounted for in the construction schedule. Additionally, the Project will perform an assessment of all endangered species along the Project area and adapt the construction schedule accordingly to ensure conformity with any corresponding time-of-year constraints.

6.7. CONSTRUCTION-RELATED OUTAGES ON PJM TRANSMISSION FACILITIES

There are seven major outages that will be required to accommodate the construction of the Project. Reviewing all known information gathered from neighboring utilities, the following outages and durations have been identified.

At the Werner Site:

1. 230kV Werner–Raritan line outage to install foundations
    a. 1 week dead-end foundations
    b. 2 weeks various foundations
2. 115kV Werner–Raritan line outage to install foundations
    a. 1 week dead-end foundations
    b. 2 weeks various foundations
3. Various 34.5kV outages to install foundations
    a. 3 weeks
4. Outage on 230kV Werner–Raritan line and 230/34.5kV transformer to isolate line from transformer.
    a. Assumptions
        i. 230/34.5kV transformer is connected directly to the line
        ii. 230/34.5kV transformer can be fed from the 115kV Werner–Raritan line No relay changes needed for 115kV line to pick up 34.5kV load
        iii. 34.5kV network can handle load, need to be in a low load time of year
    b. 1 day—The 230/34.5kV transformer will be returned to service but the 230kV Werner–Raritan line will remain out of service under Step 5.
5. Outage on 230kV Werner–Raritan line to cutover to new GIS and relay work at Raritan. Energize new 230kV GIS, 230/115kV transformer with no load, 230/34.5kV transformer with no load, 34.5kV switchgear with no load. Assumes 34.5kV network can handle load, need to be in a low load time of year.
    a. 1 month
6. Outage on 115kV Werner–Raritan line and 230/115kV transformer to cutover line to the new 230/115kV transformer. This includes the relay work at Raritan. May need to cut over some of the lines before moving 115kV Raritan, depending on the 34.5kV requirements.

a. 2 weeks

7. Cutover 34.5kV lines to new switchgear—may require cutover of some of the lines before moving 115kV Werner–Raritan line to the new GIS.
   a. 1 week per line (assuming 5 lines, may require 5 weeks)

At [redacted]

1. [redacted]
   a. [redacted]
2. [redacted]
   a. [redacted]

6.8. SUPPLY CHAIN CONSTRAINTS

Outerbridge NJ has been designed to allow for significant vendor diversity. No components are limited to less than three providers and the majority of the key components have greater than four qualified suppliers. This vendor diversity significantly limits the risk associated with supply chain constraints. The Outerbridge Project is also designed in a manner to allow flexibility in construction sequencing as a further mitigation tool to limit the risk of schedule delays driven by supply chain constraints. In addition to Outerbridge NJ's resilient design, the Project's schedule prioritizes the equipment specification and design phase of engineering, establishing a significant float path (15–18 months) between completion of these activities and when key contracts for equipment need to be in place to support project execution. This vendor diversity significantly limits the risk and impact of schedule delays and cost overruns by creating competition between vendors and reducing the likelihood of vendor overburden.

6.9. PROJECT-ON-PROJECT RISKS

Project-on-Project risk has two dimensions:

- The risk that offshore wind developers refuse to accept the BPU's SAA Transmission Project(s) (whether an Option 1b, Option 2 or Option 3 project) and instead insist that their project(s) interconnect to the Bulk Transmission System using facilities other than the BPU's SAA Transmission Project(s), resulting in stranded costs; and
- The risk that one of the BPU's SAA Transmission Project(s) or an Interconnecting Offshore Wind Project(s) is behind schedule and results in adverse knock-on effects to the other(s).

As detailed in Section 6.1, the BPU is very likely concerned about wind developers accepting third-party offshore connectors for both of these reasons. Conversely, the Outerbridge Project has been designed to mitigate these issues.

6.9.1. Wind Developer Acceptance/Stranded Costs

Offshore wind developer acceptance is undoubtedly a key consideration by the NJBPU for the reasons described in Section 6.1. Outerbridge NJ has carefully crafted its project design to be highly attractive to offshore wind developers and, based on consultations with many offshore wind developers and the reasons described in Section 6.1, is highly confident that if the Outerbridge Project is selected, wind developers will choose to make use of it. Project-on-Project risk is further reduced by the SAA Services Agreement that PJM will enter into with the NJBPU. This agreement will provide the BPU with SAA Capability, which refers to all transmission capability created by the SAA Project(s), which may become CIRs through the PJM interconnection process, and may be assigned and reassigned to the offshore wind project(s) of the BPU's choice. To the extent SAA Capability is not completely used by off-shore wind project(s), NJBPU may use them for other BPU-selected Public Policy Resources.[40] In this respect, Outerbridge offers a unique advantage that third-party offshore connectors cannot—the NJBPU could use the Outerbridge facilities to connect proximate onshore Public Policy Resources.

6.9.2. Knock-On Effects

The modularity of Outerbridge NJ's proposal allows for the construction of Base Offer 1 or Base Offer 2 with the construction of the Additional Offers selected to follow, according to PJM's and the BPU's optimal schedule. Additionally, the option to select Base Offer 1 with the option to expand that Offer in the future to 2400MW allows PJM and the NJBPU to gradually build up to an optimal injection size based on system conditions or other parameters, as they may occur. The Outerbridge Project's approach to flexibility and phasing in its schedule provides the BPU with the ability to minimize schedule related risk or cost exposure to ratepayers for assets constructed that are not used and useful.

6.10. PROJECT SCHEDULE GUARANTEES

If selected under the PJM administered State Agreement Approach solicitation, Outerbridge NJ will become a Designated Entity and will enter into a Designated Entity Agreement ("DEA") with PJM, which is a pro forma agreement previously approved by the Federal Energy Regulatory Commission.

[40] Refer to https://www.pjm.com/-/media/committees-groups/committees/pc/2021/20210914/20210914-nj-offshore-wind-saa-term-sheet.ashx, PJM State Agreement Approach and New Jersey Offshore Wind, Special Planning Committee Meeting, September 14, 2021.

Schedule C to the DEA is a required set of standard Milestones and Milestone Dates that will be identified at the time of signing the DEA.

Section 4.1.0 of the DEA provides that the Designated Entity "shall meet the milestone dates" in Schedule C, which dates can be extended by PJM in writing. Specifically, the "Transmission Provider reasonably may extend any such milestone date, in the event of delays not caused by the Designated Entity that could not be remedied by the Designated Entity through the exercise of due diligence."

With respect to the Project activities that are under the control of Outerbridge NJ, liquidated damages and other incentives will be included in contracts for equipment, construction, and services to align contract schedules with Schedule C.

However, because it is not known i) what the BPU's anticipated offshore wind development projects and schedules will be or ii) what the schedules for completion of necessary development activities by existing Transmission Owners will be, the Project in-service date could be delayed by these and other activities that are outside the control of the Designated Entity. Delays of this nature as well as force majeure would require a reasonable extension of the in-service date of the Project.

The Initial Target In-Service date for the project is January 1, 2028, subject to the following conditions:

- Receipt of a BPU order by or before September 30, 2022 and
- Receipt of all major permits referred to in the Proposal by September 30, 2024.

To the extent there are delays to these intermediate milestone dates the Initial Target In-Service date will be tolled day-of-day (Tolled Target In-Service Date). In addition, if there are no other force majeure events that delay the In-Service date, the Guaranteed In-Service date is the later of, one year from the Initial Target In-Service date, or one year from the Tolled Target In-Service date.

6.11. ADDITIONAL RISKS

The following addresses the three additional risks identified for the Outerbridge Project and the planned response strategies for each.

6.11.1. Compensatory Mitigation Estimates for Wetland Impacts

Outerbridge NJ conducted a desktop analysis of the areas to be impacted by the Project and found that the potential wetland impacts from the Project will be well below any applicable state or federal thresholds at which compensatory mitigation would be required. Field studies will be conducted to delineate the areas where potential Project wetland impacts may occur. If necessary and where possible, the Project design will be modified to further avoid or minimize any potential wetland impacts. If unanticipated compensatory mitigation is required, Outerbridge NJ will work with all appropriate permitting agencies to identify the extent of the compensatory mitigation and the availability of wetland credits.

6.11.2. Battery Energy Storage System Risks

For the BESS project (Additional Offer C), current supply chain challenges related to the high demand for lithium- (Li-) based energy storage systems worldwide will be managed in the Project's execution process. The raw mineral, cell manufacturing and system packaging subsectors are facing an increasing backlog, and subsequent increased lead time for components. Additionally, the recent chip shortage demonstrated the challenge of the electronic device manufacturing sector to address supply chain disruptions. The mitigation strategy to ensure availability and timeliness of the required components includes the following key elements:

1. Prioritizing rapid completion of the design phase and moving into the procurement phase with significant (6–12 month) float in the overall project schedule. This will allow securing the spot in the manufacturing queue and absorbing any unexpected delays.
2. Designing the BESS facility in a manner that allows switching the BESS OEM during the design phase. If specific supply chain concerns arise during design, several alternative designs using similar equipment from different manufacturers can be prepared. This will allow flexibility in making the final selection of the BESS OEM based on the lead time offered at the start of the procurement phase of the project.
3. Leveraging long-term, well-established existing relationships with several major BESS OEMs.
4. The price risk for the BESS project is minimal due to a historically steady decrease in the energy storage pricing on the cost per MWh basis, which is expected to continue well into the future, even in the face of the current and projected production backlog.

6.11.3. Risk of Inflation and/or Escalation

Given that the development and construction of any SAA Transmission Project will require multiple years, all proposals have an implicit exposure to risk of inflation and/or escalation. Outerbridge NJ is mitigating this risk for the NJBPU and New Jersey's ratepayers by providing a Cost Containment Commitment on the majority of the Project's Capital Expenditures (CapEx) and limiting escalation to the applicable Handy-Whitman index.

7. ENVIRONMENTAL IMPACTS AND PERMITTING

7.1. APPROACH TO ENVIRONMENTAL PROTECTION AND PERMITTING

Protecting New Jersey's natural resources and valuable coastal economies is a top priority in the planning and execution of the Outerbridge Project. Outerbridge NJ is highly confident that the Project can be executed without significant impacts to applicable environmental, socio-economic, cultural or alternate use factors for the following reasons:

- Outerbridge has a small physical footprint onshore, impacting only [redacted] properties;
- Its above-ground infrastructure is located exclusively on previously developed industrially-zone properties, minimizing potential impacts to commercial, residential and recreational facilities;
- Its underground HVDC cable is located in an existing railroad ROW, avoiding impacts to local roads and ultimately, minimizing impacts to traffic;
- Its cable landfalls will take place exclusively at the Werner Site, avoiding impacts to New Jersey's beaches and protecting the State's $46.4 billion annual tourism spending;[41]
- Its only owned infrastructure in the water will be the conduit to pull-in cables to the Werner Site, minimizing the scope of the offshore permitting work to be undertaken;
- While the scope of Outerbridge Project ends at the HDDs, and the scope of the Interconnecting Offshore Wind Project includes submarine cables routed to the Werner Site, the attached Cable Route Feasibility Study (see Appendix K) shows that a sufficient number of submarine cables to reach 3.2 GW, can be feasibility, practically and safely routed to the site.

Given the foregoing, the Outerbridge Project is expected to result in fewer total environmental impacts than other solutions for delivering comparable volumes of offshore wind energy, especially those not utilizing previously disturbed rights-of-way and industrial use properties. These limited impacts are expected to result in a lower risk, schedule enhanced project that will mitigate Project-on-Project risk with respect to offshore wind generation developments (see Section 6 for further discussion of this).

Outerbridge NJ is thoroughly qualified to make these assessments. Through the development of the Block Island Wind Farm, the South Fork Wind Farm, the Skipjack Wind Farm and Revolution Wind, Rise Light & Power's management team has gained uniquely applicable experience in submarine and terrestrial transmission delivering offshore wind energy. Additionally, Outerbridge NJ benefits from the experience of the LS Power Group, which is currently in the Permitting, Engineering and Procurement stage for three large-scale transmission projects: (1) LS Power Grid New York Segment A in NYISO; (2) LS Power Grid

[41] Tourism Economics; "Economic Impact of Tourism in New Jersey 2019." Available: https://visitnj.org/sites/default/files/2019-nj-economic-impact.pdf

California Gates; and (3) Round Mountain. LS Power Group's success in the permitting and development (as well as financing and construction) of major transmission facilities is summarized in the following table.

Project / LS Power Subsidiary	Project Scope	Status	Location
Texas CREZ Cross Texas Transmission, LLC	~ 240 miles double circuit 345kV line, substations and series compensation		ERCOT
One Nevada Transmission Line Great Basin Transmission South, LLC	~ 235 miles 500kV line, 8 miles 345kV line, 500/345kV substation	Operating	NV Energy System
Limestone to Gibbons Creek Cross Texas Transmission, LLC	~ 67 miles of new double circuit 345kV transmission		ERCOT
Duff to Coleman Republic Transmission, LLC	~ 30 miles of 345kV transmission		MISO
Harry Allen to Eldorado DesertLink, LLC	~ 60 miles of new 500kV transmission	Operating	California ISO
Artificial Island Silver Run Electric, LLC	~ 5 miles of 230kV transmission (~ 3 mile underground), 230kV substation		PJM

Building on these experiences, Outerbridge NJ has developed a comprehensive plan for securing all required approvals on schedule and without controversy. As is evidenced by the Environmental Protection Plan (Appendix N), Permitting Plan (Appendix O), and Fisheries Protection Plan (Appendix P), Outerbridge NJ is committed to executing the Outerbridge Renewable Connector Project in an environmentally responsible and sustainable manner, fitting for its purpose - to transmit clean offshore wind generation to the PJM Bulk Transmission System.

7.2. ENVIRONMENTAL PROTECTION PLAN

Because the Outerbridge Project has a small physical footprint, impacting only four previously developed industrial properties, the scope of its potential environmental impact is similarly quite small. The properties are described in Section 6.2.

Attached as Appendix N is an Environmental Protection Plan for the Project, which includes all of the elements requested by the BPU in its "Offshore Wind Transmission Proposal Data Collection Form." The Environmental Protection Plan describes the potential environmental impacts associated with all phases of the Project on existing physical, biological, cultural, and socioeconomic resources, and the plan to avoid, minimize, or mitigate those impacts.

As described in the Environmental Protection Plan, while there will be temporary environmental impacts from the Project during its construction, those impacts will be minimized using industry standard best practices for construction activities. Once constructed, the environmental impacts from the Project will be minimal and mitigated to the greatest extent practicable during the environmental permitting review process for the Project.

Although there will be air emissions during Project construction from construction equipment and from vehicles supporting construction activities, these will be temporary and within what local standards required. Emissions occurring during maintenance and operation of the converter stations in South Amboy and [redacted] will also be temporary and transient in nature and will have negligible impact on the air quality in the Project area.

Potential environmental impacts from the Project will be countered by the beneficial “renewable repowering” of an existing site, which is undergoing final remediation. The former coal-fired power plant site will be transformed into a clean renewable energy hub and offshore wind energy will be transmitted to the PJM Bulk Transmission System via HVDC cables installed in an existing railroad right-of-way. These deliveries of significant volumes of clean energy will provide direct and indirect environmental and economic benefits to the Project’s neighboring communities, as detailed in Section 4.6.

7.3. BENEFITS RELATIVE TO ALTERNATIVE SOLUTIONS

7.3.1. Outerbridge is Superior to Radial Lines

The Outerbridge Project is superior, from a permitting perspective, to radial lines in the terrestrial (onshore) environment, at the landfall and in the marine (offshore) environment. First, onshore, the Outerbridge Project avoids the need to use public roads by siting its cable infrastructure in a railroad ROW, which will minimize disruptions to local communities. It will also consolidate onshore infrastructure on two industrially zoned properties, which is better land use than spreading infrastructure from multiple wind farms around.

Second, at the landfall, Outerbridge will make use of a waterfront power plant site, avoiding the need to bury cables under New Jersey’s beaches. Not only does the use of the Werner Site provide more physical space and fewer constraints than drilling under a beach, but it also is expected to be met with much less, if any, opposition. Indeed, the Mayor of South Amboy is supporting the Proposal.

Third, in the marine environment Outerbridge has identified a single corridor, detailed in Appendix K, through which all cables can be routed to its site, which is expected to dampen opposition from other maritime uses, such as commercial fishing interests, who have previously objected to a large number of un-coordinated cables routes.

7.3.2. Outerbridge is Superior to Offshore Collectors

The Outerbridge Project is superior, from a permitting perspective, to third-party offshore collectors because it can start the permitting process sooner than a third-party offshore collector and participate in a shorter Federal review.

Outerbridge will require at least one Federal approval and thus will be subject to review under the National Environmental Policy Act ("NEPA"). However, unlike a third-part offshore collector, that is subject to BOEM's jurisdiction, Outerbridge's required NEPA clearance review is expected to be straightforward and streamlined based on the scope and scale and likely minimal environmental effects of this low impact designed project. Because of its low impact siting and design, industrial land repurposing and the use of existing upland rights of way for this point-to-point transmission facility, it is anticipated that the Project will be subject to a more succinct Environmental Assessment (EA) review. The EA will provide a brief summary of the Project's purpose and need, any alternatives, and a succinct review of the environmental impacts, and is expected to conclude with the issuance of a Finding of No Significant Impact as conditioned by the federal review agencies.

Conversely, BOEM may be unable to commence the review of a third-party offshore collector until the wind farm(s) connecting it have been identified and their associated impacts accounted for. Additionally, the scope of a third-party offshore collector will almost certainly trigger a full Environmental Impact Statement, which is a longer process.

Given the foregoing, Outerbridge is highly likely to be able to be in service in advance of the offshore wind project(s) procured by the NJBPU in their next solicitation, whereas a third-party offshore collector is much less likely to be in-service before the wind farm(s).

7.4. FISHERIES PROTECTION PLAN

With the exception of the temporary coffer dams to support HDD cable landfalls, all of the Project's infrastructure is land-based and therefore is not expected to have direct impacts to fisheries. The Fisheries Protection Plan provided in Appendix P as part of this submittal addresses the potential fisheries impacts associated with the temporary coffer dams that will allow one or more offshore wind developer(s) installing subsea cables through the Raritan Bay to interconnect with the Outerbridge Project at the Werner Substation. Although the Project requires only minimal in-water construction activities in the nearshore tidelands, for purposes of this response, Outerbridge, LLC has prepared an illustrative Fisheries Protection Plan that not only addresses proper mitigation for the Project's limited in-water nearshore work at the Werner Site, but also confirms that the expected impacts to offshore and nearshore fisheries or seabed habitat associated with the offshore approaches of the OSW's subsea export cable systems are temporary and not material. The ability to provide this early determination of minimal fisheries impacts by the Project clearly demonstrates the full feasibility of the Project from its offshore interconnection to its land-based connection to the PJM Bulk Transmission System in New Jersey.

7.5. STAKEHOLDER IDENTIFICATION AND COMMUNICATION

Please refer to Section 6.4, which describes Outerbridge NJ's comprehensive plan for stakeholder engagement, and to the Permitting Plan and Fisheries Protection Plan, attached as Appendix O and Appendix P, respectively, which provide further context for stakeholder communications.

7.6. IMPACT TO OVERBURDENED COMMUNITIES

New Jersey has one of the nation's most comprehensive environmental justice laws. Outerbridge NJ shares this commitment to the principles of environmental justice and will take necessary steps to protect the health and environmental and economic wellbeing of people who live in overburdened communities within the boundaries of the Project. Applying the definitions established in New Jersey's Environmental Justice Law, N.J.S.A. 13:1D-157, Outerbridge NJ has found that the following municipalities within the Project boundaries contain overburdened communities: [redacted]

[redacted]

[redacted]

The impacts of the Outerbridge Project on overburdened communities is expected to be temporary and not material, as it will make use of an existing railroad ROW and the HVDC cables will be installed underground outside of public roads. Unlike projects that use local roads, for Outerbridge, traffic will be only temporarily inconvenienced during construction only at certain grade crossings. Noise and airborne emissions will be minimal and mitigated. Therefore, while there are overburdened communities within and around the Project area, these areas are not expected to experience any adverse environmental or health impacts from the construction of this Project. Outerbridge NJ will also be establishing direct and indirect environmental and economic benefits to overburdened communities, which are detailed in Appendix M.

7.7. PERMITTING PLAN

Attached as Appendix O is a Permitting Plan for the Project, which includes all elements requested by the BPU in its “Offshore Wind Transmission Proposal Data Collection Form.” The Permitting Plan identifies all of the local, state, and federal permits and approvals required to build and operate the Project, and the applicable federal and state statutes and regulations and municipal code requirements, with the names of the federal, state, and local agencies to contact for compliance. The Permitting Plan also outlines the consistency of the proposed Project activities with the zoning laws in each local jurisdiction and the properties that will be part of the Project. To date, no permit applications have been submitted for the Project. Because the Project will require at least one Federal approval, for example, a Section 10 Rivers and Harbors Act Individual Permit from the United States Army Corps of Engineers (USACE), the Project will be subject to federal agency review clearance under the National Environmental Policy Act (NEPA).

APPENDIX A. DEFINED TERMS

Acronym/Abbreviation	Definition/Clarification
Core Entities	
BPU	New Jersey Board of Public Utilities
Light & Power	Light & Power Development, LLC *A direct wholly owned subsidiary of Rise.* *Outerbridge NJ and 135 Main ST SA, LLC are direct wholly owned subsidiaries of Light & Power.*
LS Power	LS Power Group *A leading national independent energy asset manager and developer of large-scale power generation and energy infrastructure, entities of which are the sole owner of Rise.* *Rise is a wholly owned, independently operated, indirect subsidiary of entities of LS Power.*
Outerbridge NJ	Outerbridge New Jersey, LLC *Designated entity (or the "Developer") submitting the Proposal and the entity undertaking any and all action in connection with this Proposal.* *It is a direct wholly owned subsidiary of Light & Power and an indirect wholly owned subsidiary of Rise.*
PJM	PJM Interconnection LLC *The regional transmission organization that is part of the Eastern Interconnection grid operating the electric transmission system that serves several states, including New Jersey.*
Rise	Rise Light & Power, LLC *Rise will fund development and construction activities associated with Outerbridge NJ's Project(s) through either retained earnings and/or additional subscriptions of equity from current and/or potentially new investors.* *Rise is to be referred to only as the owner of Outerbridge NJ, which is an indirect wholly owned subsidiary.* *Rise is a wholly owned, independently operated, indirect subsidiary of entities of LS Power.*

Acronym/Abbreviation	Definition/Clarification
Other Entities	
ACE	Atlantic City Electric Company
BOEM	Bureau of Ocean Energy Management
Conrail	Consolidated Rail Corporation *Owns and operates rail right-of-way on which the Project proposes to install HVDC Line(s).*
EMAAC	Eastern Mid-Atlantic Area Council
[redacted]	[redacted]
PSE&G	Public Service Electric & Gas *A Public Service Enterprise Group* [redacted]
Projects	
BPU's SAA Transmission Project(s)	The State Agreement Approach project or projects selected by the NJBPU in this solicitation. It is anticipated that, for its future offshore wind energy procurement solicitations, the NJBPU will identify such project(s) and direct respondents to such solicitation to design their Interconnecting Offshore Wind Projects to interconnect with such project(s).
Outerbridge Project	Outerbridge Renewable Connector Project *The Project for which Proposals are being submitted, which is owned by Outerbridge NJ, and intended to construct on-shore facilities that will connect the PJM Bulk Transmission System with one or more Interconnecting Offshore Wind Project.*
Project	
Interconnecting Offshore Wind Project(s)	An offshore wind power generating facility, selected by the NJBPU through an offshore wind energy procurement solicitation, that will interconnect with the BPU's SAA Transmission Project(s) and have responsibility for the development, construction and operations of all infrastructure necessary for connecting the offshore wind turbines to the BPU's SAA Transmission Project(s).

Acronym/Abbreviation	Definition/Clarification
Solutions	
Proposal	This document—the "Outerbridge Renewable Connector Project: New Jersey Board of Public Utilities Offshore Wind Transmission Proposal"—that details Outerbridge NJ's Proposed Offers.
Proposed Offer(s)	Base Offer and Additional Offers that will be included in Outerbridge NJ's Proposal for evaluation and potential selection (as described below in Proposed Offers overview).
Base Offer 1 (PJM Proposal ID 2021-NJOSW-582)	Construction of infrastructure, including the Outerbridge Onshore Collector Station #1, Outerbridge HVDC Converter Station #1, HVDC Transmission Line #1, [redacted] to facilitate injection of 1200MW of energy and capacity from one or more Interconnecting Offshore Wind Projects.
Base Offer 2 (PJM Proposal ID 2021-NJOSW-490)	Construction of infrastructure, including the Outerbridge Onshore Collector Station #1, Outerbridge Onshore Collector Station #2, Outerbridge HVDC Converter Station #1, Outerbridge HVDC Converter Station #2, HVDC Transmission Line #1 and HVDC Transmission Line #2, [redacted] to facilitate injection of 2400MW of energy and capacity from one or more Interconnecting Offshore Wind Projects.
Additional Offer A (PJM Proposal ID 2021-NJOSW-376)	Construction of infrastructure including additional AC onshore Collector Station and upgrades to Werner Substation to facilitate an additional injection of 400MW of energy and capacity from one or more Offshore Wind Projects. Contingent on the selection of either Base Offer 1 or Base Offer 2.
Additional Offer B (PJM Proposal ID 2021-NJOSW-171)	Construction of infrastructure including additional AC onshore Collector Station and upgrades to Werner Substation to facilitate an additional injection of 800MW of energy and capacity from one or more Offshore Wind Projects. Contingent on the selection of either Base Offer 1 or Base Offer 2.
Additional Offer C (PJM Proposal ID 2021-NJOSW-21)	Constructs a 91MW/364MWh BESS on property adjacent to the new Outerbridge Onshore Collector(s). The proposed BESS facility will be interconnected at the Werner Switching Station. Contingent on the selection of either Base Offer 1 or Base Offer 2 with or without any combination of Additional Offer A and Additional Offer B.

Acronym/Abbreviation	Definition/Clarification
Real Estate	
BESS Site	The 4-acre parcel of property adjacent to the south side of the Werner Site on which Additional Offer C will construct a BESS This parcel is classified as Class 1, vacant land. Outerbridge NJ has attained an option to purchase this property should Additional Offer C be selected.
Conrail ROW	The ROW along the rail system owned by Conrail on which the Project proposes to install one or both of the buried HVDC line(s).
[redacted]	[redacted]
Werner Site	The 26-acre parcel in South Amboy, New Jersey which is the site of the retired Werner Generating Station and hosts the Werner Substation. The parcel will contain the equipment and structures detailed in Base Offer, Base Offer 2, Additional Offer 3, and Additional Offer 4. The site is owned by 135 Main ST SA, LLC. Outerbridge NJ has full rights to the site. 135 ST SA, LLC and Outerbridge NJ are wholly owned subsidiaries of Light & Power and indirect wholly owned subsidiaries of Rise.
Existing Infrastructure	
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
PJM Bulk Transmission System	Interconnected high-voltage transmission facilities and control systems overseen by PJM as the independent system operator.

Acronym/Abbreviation	Definition/Clarification
Werner Substation	Existing 230kV and 138kV substation at the Werner Site owned and operated by [redacted] As part of the construction of either Base Offer 1 or Base Offer 2, this Substation will be razed and reconstructed on the Werner Site utilizing GIS technology and will include additional positions on the ring-bus to allow points-of-interconnection for Additional Offer 3 or Additional Offer 4 and/or BESS.
New Infrastructure/Project Components	
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
HVDC Transmission Line #1	The first HVDC transmission line that will run from the Werner Site to [redacted] as part of Base Offer 1 or Base Offer 2.
HVDC Transmission Line #2	The second HVDC transmission line that will run from the Werner Site to [redacted] as part of Base Offer 2.
Outerbridge HVDC Converter Station #1	The first converter station at the Werner Site encompassing capacity for 1200MW required for the construction of Base Offer 1 or Base Offer 2.
Outerbridge HVDC Converter Station #2	The second converter station at the Werner Site required for the construction of Base Offer 2.
Outerbridge Onshore Collector Station #1	The first AC collector station to be located at the Werner Site, corresponding to Base Offer 1 or Base Offer 2, which will serve as the point-of-interconnection for one or more Interconnecting Offshore Wind Project(s)s having up to 1200MW capacity.
Outerbridge Onshore Collector Station #2	The second AC collector station to be located at the Werner Site, corresponding to Base Offer 2, which will serve as the point-of-interconnection for one or more Interconnecting Offshore Wind Projects having 2400MW capacity.
Werner BESS Facility	The newly constructed 91MW/364MWh grid-connected battery energy storage facility including a 230kV overhead connector that comprises Additional Offer C.

Acronym/Abbreviation	Definition/Clarification
Project Plans	
Cost Containment Commitments	The voluntary restrictions on cost recovery, which include an aggregate construction cost cap for certain defined capital expenditures, a cap on the equity component of its regulated capital structure and a cap on its regulated return on equity, that Outerbridge NJ will accept and honor in connection with an award for the Project.
Environmental Protection Plan	A plan that describes the potential environmental impacts associated with all phases of the Outerbridge Project on existing physical, biological, cultural, and socioeconomic resources, and the plan to avoid, minimize, or mitigate those impacts.
Fisheries Protection Plan	A plan that describes the marine resources, including biota and commercial and recreational fisheries, that exist in the Project area, the potential Project impacts to those marine resources, and the plan to avoid, minimize, and/or mitigate those potential impacts.
Permitting Plan	A plan that identifies all of the local, state, and federal permits and approvals required to build and operate the Project, and the applicable federal and state statutes and regulations and municipal code requirements, with the names of the federal, state, and local agencies to contact for compliance.
Community/Public Engagement Plan	Plan that outlines the actions, meetings, information dissemination, and other outreach communications that will engage stakeholders during the Project's development ensuring appropriate collaboration, and ensure appropriate notice and communication throughout the Project's execution.
Other	
BESS	Battery Energy Storage System
Financial Close	Refers to the date upon which Outerbridge NJ has entered into definitive debt or other agreements for the provision of an aggregate amount of committed funds for the Project, which are sufficient to pay all expected costs through the commencement of commercial operations for the development, design, engineering, construction, start-up and testing of the Project, and each of the conditions precedent under the financing documents has been satisfied or waived, and the initial draws thereunder to be made at the commencement of construction (or prior thereto) have been made.
HDD	horizontal directional drilling
HVDC	high-voltage direct current

Acronym/Abbreviation	Definition/Clarification
LMP	locational marginal pricing
OREC	offshore wind renewable energy credit
OSW	offshore wind
POI	point of injection
REC	renewable energy credit
RPS	Renewable Portfolio Standard
RTO	regional transmission operator
ROW	right-of-way
SAA	State Agreement Approach

APPENDIX B. PROJECT TEAM RESUMES & ORG CHART

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

APPENDIX C. PROJECT CONTRACTORS

C.1. SARGENT & LUNDY

Sargent & Lundy is one of the oldest and most experienced full-service architect engineering firms in the world. Founded in 1891, the firm is a global leader in power and energy with expertise in grid modernization, renewable energy, energy storage, nuclear power, and fossil fuels. Sargent & Lundy delivers comprehensive project services—from consulting, design, and implementation to construction management, commissioning, and operations/maintenance—with an emphasis on quality and safety. The firm serves public and private sector clients in the power and energy, gas distribution, industrial, and government sectors.

C.2. JOSEPH JINGOLI & SON, INC.

Joseph Jingoli & Son has been a nationally ranked 100% Union contractor and construction manager servicing the power, industrial, healthcare, gaming, and educational industries since 1922. Joseph Jingoli & Son has a family of companies that bring a multi-faceted dynamic approach that allows self-contracting for numerous projects of all sizes on time, and within budget. As a New Jersey based company, Jingoli has a strong focus on New Jersey with a demonstrated background of successful execution of construction management, construction services, material management, and infrastructure services within the State. Jingoli's self-perform division in excels in the safe execution of underground utility work, concrete placement, site work, interior renovations, mechanical piping, and electrical work.

C.3. WSP GLOBAL, INC.

WSP provides flexible, customer-focused advisory support that can interpret current trends and anticipate future requirements with the aim of creating deliverable projects. WSP regularly carries out technology reviews and has been in contact with the leading storage technology suppliers as part of the energy storage work completed for clients. From experience supporting energy storage market players such as developers, grid operators, utilities, and equipment suppliers, WSP has developed a strong knowledge of the possibilities, drawbacks, and specific requirements of energy storage from technical, commercial, and stakeholder management points of view. The firm regularly tracks market trends, including commercially available technology options, applications, ratings, and prices.

C.4. ESS GROUP, INC.

ESS is widely recognized for its reputation as a best-in-class provider of power and renewable energy, coastal engineering, and water resource management consulting services. ESS delivers technically innovative environmental and regulatory solutions to solve the critical business needs of our clients and colleagues around the globe. The firm is known for unparalleled planning, detailed project management, and end-to-end service. From planning to permitting, design, construction and compliance, ESS's portfolio includes a wide range of projects delivered with the expertise and excellence clients and colleagues expect.

C.5. TAFT COMMUNICATIONS

Taft Communications is a communications consultancy with nearly 40 years of experience in New Jersey and beyond. Through strategic communications and leadership development, Taft guides clients to meaningful expressions of purpose to drive positive impact—for all stakeholders, including their customers, employees, shareholders, communities, and the earth and environment. Taft's team for this Proposal is co-led by Jayne O'Connor, vice president, and former press secretary for Governor Christie Todd Whitman and Jon Shure, senior director, who worked as director of communications for Gov. Jim Florio.

C.6. ANALYSIS GROUP, INC.

Analysis Group is one of the largest economics consulting firms, with more than 1,000 professionals across 14 offices in North America, Europe, and Asia. Since 1981, Analysis Group has provided expertise in economics, finance, health care analytics, and strategy to top law firms, Fortune Global 500 companies, and government agencies worldwide. The firm's internal experts, together withitsr network of affiliated experts from academia, industry, and government, offers clients exceptional breadth and depth of expertise.

APPENDIX D. LETTERS OF SUPPORT

JOSEPH F. VITALE
SENATOR
569 RAHWAY AVE.
WOODBRIDGE, NJ 07095

YVONNE LOPEZ
ASSEMBLYWOMAN
211 FRONT STREET
PERTH AMBOY, NJ 08861

President Joseph L. Fiordaliso
44 S. Clinton Avenue
Trenton, NJ 08625

RE: Letter of Support for the City of South Amboy Proposal to host the Outerbridge Renewable Connector

Dear President, Fiordaliso,

Senator Vitale and Assemblywoman Lopez write to you in strong support of the City of South Amboy's proposal for the Outerbridge Renewable Connector as a means of facilitating the delivery of offshore wind energy.

As the State Representatives for the City of South Amboy, Senator Vitale and Assemblywoman Lopez applaud the City's interest in being an integral part of New Jersey's clean energy future and support the BPU's offshore wind program efforts.

The City of South Amboy has the unique opportunity to become a vital piece of the offshore wind program as a site in the former Werner Generation Station that can accommodate the necessary infrastructure for energy generation. Repurposing this site would allow the community to become a hub for clean energy and a valued contributor of clean energy across the State of New Jersey.

Now more than ever we understand the importance of the climate change crisis and the Outerbridge Renewable Connector offers a clean energy solution. Moreover the project will serve as an economic engine in South Amboy creating good-paying jobs for residents and contributing tax revenue for the City.

We believe this project is in the best interest of the South Amboy community and offer our strong support for its development and completion.

Thank you and please do not hesitate to contact us with any questions or concerns.

Sincerely,

Joseph F. Vitale
Senator
19th Legislative District

Yvonne Lopez
Assemblywoman
19th Legislative District

City of South Amboy
140 North Broadway • South Amboy, New Jersey 08879
Phone: (732) 727-4600 Fax: (732) 727-6139

September 17, 2021

Board of Public Utilities
ATTN: President Joseph L. Fiordaliso
44 S. Clinton Avenue
Trenton, NJ 08625

RE: South Amboy support for Outerbridge Renewable Connector

Dear President Fiordaliso:

I write to express the support of the City of South Amboy for the Outerbridge Renewable Connector proposal, which I understand the BPU is considering as a means of facilitating the cost-effective and publicly acceptable delivery of offshore wind.

The City of South Amboy recognizes our state's need to transition to a cleaner energy future and applauds the BPU's nation-leading offshore wind program as an important part of that transition. But we also recognize that not all projects are created equal. After observing the public opposition to offshore wind cables landing in Ocean City, I thought it appropriate to bring to your attention that our community has a site that is ideally suited to connect New Jersey's abundant offshore wind resources to the power grid.

The site of the former Werner Generating Station (now retired) is an industrial-zoned waterfront location that, I have been advised, can accommodate the landing of multiple submarine cables without crossing under any public beaches or otherwise adversely affecting waterfront public access or use.

After reviewing plans for the Outerbridge project, which would use this site, I feel confident that it can be executed with the highest possible levels of public support. This is an exciting project for South Amboy. It presents a tremendous opportunity for our community to repurpose the site of a former coal-fired power station into a hub of clean energy that will be a valuable contributor to our community. In addition to helping New Jersey's progress to a clean energy future, the proposed project would turn a derelict eyesore of a bygone era into a state-of-the-art clean energy facility.

This developer has proven itself to be a transparent, responsible community partner who engaged local officials and the community early in the process to inform us of the proposal and seek our feedback. Their engagement with my office and me demonstrated their commitment to robust outreach. **This is the kind of partner any community wants to have.**

As our community recovers from the economic impacts of COVID, the Outerbridge Renewable Connector has an important role to play in South Amboy. It is a clean energy solution, and more: a major economic generator that will create good-paying local jobs and contribute much-needed revenue to City government. As a major new local property taxpayer in South Amboy, the project will be a sustainable funder of critical services and help fund municipal government without consuming services.

Additionally, we appreciate that this project will create quality jobs because the developer has committed to construct the Outerbridge Renewable Connector with union labor.

Perhaps most importantly, our community is willing to say YES in our backyard.

New Jerseyans rightfully take immense pride in our Shore. One of the most important features of this project is that it poses no threat to the aesthetic or economic attributes of the waterfront space it would occupy. The Werner site is industrial zoned, with no nearby recreational beaches, beach communities, or wildlife preserves. There is an existing substation located on the site with high-voltage transmission already connecting it to the rest of the electric network.

We hope BPU approves the Outerbridge Renewable Connector; our City looks forward to a longstanding relationship with this company.

Fred Henry

Mayor Fred Henry
City of South Amboy

CC: The Honorable Phil Murphy, Governor
The Honorable Craig Coughlin, Speaker, New Jersey General Assembly
The Honorable Stephen Sweeney, President, New Jersey State Senate

Ronald G. Rios
County Commissioner Director

Shanti Narra
Deputy Director

Claribel A. Azcona-Barber
Charles Kenny
Leslie Koppel
Chanelle Scott McCullum
Charles E. Tomaro
County Commissioners

MIDDLESEX
COUNTY • NJ

John A. Pulomena
County Administrator

Amy R. Petrocelli, RMC
Clerk of the Board

BOARD OF COUNTY COMMISSIONERS

September 15, 2021

To Whom it May Concern,

On behalf of Middlesex County and the Board of County Commissioners, I am pleased to offer the County's support for the offshore wind transmission line project proposal being submitted by Rise Light & Power, a wholly-owned subsidiary of LS Power.

Middlesex County stands with the State of New Jersey and the Board of Public Utilities in its commitment to renewable and clean energy sources, such as offshore wind. The County is committed to working closely with partners across all levels of government, and the private sector, to achieve Governor Murphy's goal to generate 7,500 MW of offshore wind to provide clean power to New Jersey by 2035.

Our County is committed to ensuring that sustainable energy transmission projects occurring within our community are deliberate in minimizing their impact on our environment, on public roads and private properties. To that end, Rise Light & Power's project will revitalize the fully remediated brownfields site of a long-time coal- and oil-fueled power plant on the Raritan Bay as well as utilize underground transmission lines with minimal impact to the community by utilizing an industrial rail corridor.

Furthermore, we look forward to working with Rise Light & Power, as well as any other partners designated by the Board of Public Utilities, to minimize the collective environmental impact of all selected projects on our community.

Should the Board of Public Utilities select this proposal, the County is willing and able to explore a partnership on this important clean energy project and looks forward to working collaboratively with Rise Light & Power for the benefit of our County and our State.

Sincerely,

Ronald G. Rios

Ronald G. Rios
Director

CC:
John A. Pulomena, County Administrator
John Carroll, Director, Public and Government Affairs

75 Bayard Street, New Brunswick, NJ 08901
Phone: 732-745-3080
www.middlesexcountynj.gov

COUNTY OF MIDDLESEX

ENVIRONMENT NEW JERSEY

ENVIRONMENT NEW JERSEY

Clean Air. Clean Water. Open Space.

Board Secretary Aida Camacho-Welch
New Jersey Board of Public Utilities
44 South Clinton Avenue
Trenton, NJ 08625

Dear Board Secretary Camacho-Welch: September 17, 2021

I am writing to express our organizational support for Rise Light & Power's Outerbridge Renewable Connector (ORC) project to NJBPU as part of the ongoing offshore wind transmission joint solicitation process with PJM regarding the State Agreement Approach (SAA).

Environment New Jersey has been a leading voice urging leaders, state decision-makers and stakeholders to "Go Big on Offshore Wind" for more than 15 years. We applauded Governor Murphy's historic commitment to New Jersey's clean, renewable energy future, including adding 7,500 MW of offshore wind to the State's (and region's) electric grid by 2035. In fact, this is just the fraction of the benefit we can achieve from offshore wind as has documented by the National Renewable Energy Laboratory (NREL) and released in reports from our organization. The winds that blow off our Atlantic Coast could provide 40% of the electricity Americans use today and are a critical element of how we can ultimately achieve 100% clean, renewable energy.

The linchpin of harnessing the benefits of offshore wind is finding responsible and environmentally friendly interconnection points with public support and which minimize or eliminate other environmental tradeoffs. Simply put, if we cannot bring the power onshore and connect it to the grid, offshore wind will never meet its true potential.

That is why the ORC is an ideal solution for New Jersey. It is directly on the waterfront but does not involve recreational beaches, has direct access to a nearby substation and will be a key part of South Amboy's redevelopment of its waterfront. As importantly, it maximizes existing rights of way and builds toward a future where New Jersey could maximize the amount of potential offshore wind power from the New York Bight.

Along with other stakeholders, we have met with Rise Light & Power, the developer of this site, and are impressed by their commitment to community outreach, environmental mitigation and environmental equity, and creating a clean energy economy. This is the kind of developer who will make a strong partner for New Jersey and allow us to achieve our offshore wind goals and our mandated Renewable Portfolio Standard.

Part of Environment New Jersey's approach to achieve clean energy is to think big and act boldly, but recognize that progress comes one step at a time. In this case, no matter how big New Jersey's renewable goals are, progress can only come from finding things like good interconnection points to feed offshore wind into the grid.

The Outerbridge Renewable Connector is an ideal connection point which will quickly and efficiently make the benefits of clean, cost-effective offshore wind energy available to New Jersey residents. Environment New Jersey strongly urges the NJBPU to approve the Outerbridge Renewable Connector.

Sincerely,

Doug O'Malley
State Director
Environment New Jersey

domalley@environmentnewjerssey.org
Cell: 917-449-6812

NEW BRUNSWICK DEVELOPMENT CORPORATION

A CITY IS NEVER FINISHED

September 17, 2021

Board of Public Utilities
ATTN: President Joseph L. Fiordaliso
44 S. Clinton Avenue
Trenton, NJ 08625

RE: Support for Outerbridge Renewable Connector

Dear President Fiordaliso:

Please accept this letter in support of the Outerbridge Renewable Connector project, which I understand has been proposed to the BPU by Rise Light & Power (a wholly-owned subsidiary of LS Power), with the support of Jingoli Power as a means of facilitating the cost-effective and publicly-acceptable delivery of offshore wind.

Based on the experience explained below, I am especially pleased to learn that the Competitive Edge program will be built into the Outerbridge project. This shows a commitment to help local residents through deployment of a proven workforce development program.

The New Brunswick Development Corporation (Devco) is a non-profit real estate development company that works building public-private partnerships in several sectors of the economy throughout New Jersey, with an emphasis in Middlesex County. Currently, we are developing 1.2 million square feet of healthcare, educational, energy, parking, and research infrastructure that represents nearly $1.1 billion of investment in the City of New Brunswick.

JINGOLI and DCO Energy, both affiliated companies of Jingoli Power, are critical partners in this initiative. JINGOLI is the Construction Manager and General Contractor on both the Rutgers Cancer Institute of New Jersey (RCINJ) and the New Jersey Technology HUB (Innovation HUB). RCINJ is a 530,000 square foot addition to RCINJ New Jersey's only National Cancer Institute designated center. This initiative will result in the New Jersey's only stand-alone cancer hospital. The building will house 10 additional research teams and include 98 oncology patient rooms, 9 operating and procedure suites, both radiology oncology and diagnostic radiology suites, and out-patient treatment and clinical space. Middlesex County is a partner in the project, providing $25 million in support for the building of curriculum at the County level to ensure that training and educational experiences are maximized at Middlesex College and secondary schools throughout the county.

120 ALBANY STREET., TOWER 1, 7TH FLOOR, NEW BRUNSWICK, NJ 08901 T: 732.249.2220 F: 732.249.4671 W: DEVCO.ORG

In partnership with JINGOLI, DCO Energy and Devco, we are building a Co-Gen Plant that will provide both electricity and thermal to the RCINJ facility. The plant will ensure both redundant and resilient thermal and electricity that will allow the RCINJ building to act as an Island Operation.

A significant component of our partnership with JINGOLI and DCO is full deployment of the JINGOLI Competitive Edge Program. This program includes training-to-hire initiatives that will afford local individuals the ability to break into the construction industry and actually work on the project - a robust effort that recruits minority, women, and veteran owned companies to participate as sub-contractors on the project, and a community-based leadership program for teenagers that provides summer employment based around a social justice and community engagement curriculum.

The Training-to-Hire program has graduated its first cohort of 11 individuals that were recruited in partnership from both faith-based organizations and the Administrative Office of the Courts' returning citizens job initiative. We anticipate that all 11 graduates will be working in construction related positions within the next several weeks.

In partnership with a local youth focused non-profit, we currently have 20 teenagers from the community completing an 8-week program that provided them with a summer job focusing on community service projects tied to health related topics.

In connection with the demolition work completed in Phase 1 of the RCINJ project, 31% of the project's subcontractors and vendors were considered minority business enterprises, 40% were considered women owned business enterprises, and 21% were considered small or disadvantaged businesses. With respect to the workforce in Phase 1, 62% of the workforce hours were performed by minorities and 5% of the workforce hours were performed by women.

Based on this experience, we offer our highest recommendation for this project team and are confident that making Competitive Edge part of the Outerbridge project will be a huge help in launching the careers of young people who will get valuable training and guidance, just as they have through the JINGOLI-Devco partnership.

If you have any questions or would like any additional information, please contact me directly at cpaladino@devco.org or 732-249-2220. Thank you for your consideration.

Sincerely,

Christopher J. Paladino
President

Ms. Aida Camacho 9/15/21
Secretary of the Board
New Jersey Board of Public Utilities
P.O. Box 350
Trenton, NJ 08625-0350

Dear Ms. Camacho:

I am writing to express our support for Rise Light & Power's Outerbridge NJ Renewable Connector (ORC) project under consideration by the New Jersey Board of Public Utilities.

I am writing on behalf of GreenFaith, an interfaith coalition for the environment founded in New Jersey. We work with houses of worship, religious schools, and people of all faiths to help them become better environmental stewards and have long supported the development of clean energy, including wind power, in our state. The ORC will provide a critical link in helping New Jersey achieve its climate emission reduction goals. Wind power will play a vital part in moving New Jersey to renewable energy and away from fossil fuels. The ORC project provides an ideal connection point between offshore wind farms and the energy grid, creating a modern renewable energy hub at the site of a former fossil fuel plant. It does this without disrupting environmentally-sensitive areas like beaches, wildlife preserves, or environmental justice communities.

A primary reason we are supporting this project is that it will not only responsibly deliver offshore wind energy directly to the state's electric grid but will also invest significantly in local job creation among underserved communities. The project will support the growth of a greener economy in New Jersey by investing in infrastructure, logistics, and manufacturing jobs to support the transmission of offshore wind power. If awarded the bid, Rise Light & Power is committed to partnering with local institutions serving communities of color and low and moderate income communities and community colleges to support a wide range of workforce development efforts. Rise Light & Power has a strong track record of working closely with communities to ensure that residents benefit from its initiatives, including providing career opportunities for STEM students, and is working with a range of stakeholders to ensure this project brings significant economic benefits to the region.

We urge the BPU to approve the Outerbridge NJ Renewable Connector and look forward to a continued dialogue with Rise Light & Power.

Sincerely,

Rev. Fletcher Harper, Executive Director

greenfaith
+1 917-997-8783
info@greenfaith.org
greenfaith.org
1216 Broadway
Floor 2 Rm 1005
New York, NY 10001

September 17, 2021
Board of Public Utilities
ATTN: President Joseph L. Fiordaliso
44 S. Clinton Avenue
Trenton, NJ 08625

Dear President Fiordaliso:

As a recreational fisherman and local fishing charter business owner, I am writing to express my support for the Offshore wind transmission connection system proposal, which I understand the BPU is currently considering as a means of facilitating the cost-effective and publicly acceptable delivery of offshore wind.

I recognize our state's need to transition to a cleaner energy future and applaud the BPU's nation-leading offshore wind program as an important part of that transition. But I also recognize that not all projects are created equal. After observing the public opposition to offshore wind cables landing in Ocean City, I thought it appropriate to bring to your attention that the west end of Raritan Bay has a site that is ideally suited to connect New Jersey's abundant offshore wind resources to the power grid. As someone that has fished and guided in this EXACT area for decades, I am excited to think about it being revitalized and becoming a hub for renewable energy from the offshore wind turbines.

The site of the former Werner Generating Station (now retired and demolished) is an industrial-zoned former working waterfront location that, as I understand, can accommodate the landing of multiple submarine cables without crossing under any public beaches or otherwise adversely affecting waterfront public access or use.

After reviewing plans for this, which would use this site, I feel confident that it can be executed with the highest possible levels of public support. This is an exciting project for the communities around Raritan Bay. It presents a tremendous opportunity for them to repurpose the site of a former coal-fired power station into a hub of clean energy that will be a valuable contributor to our community. In addition to helping New Jersey's progress to a clean energy future, the proposed project would turn a derelict eyesore of a bygone era into a state-of-the-art clean energy facility.

As our local communities recover from the economic impacts of COVID, this proposed system has an important role to play in South Amboy. It is a clean energy solution, and more: a major economic generator that will create good-paying local jobs and contribute much-needed revenue to local municipalities. The bid winners will become major new local property taxpayers in the region, the project will be a sustainable funder of critical services and help fund municipal government without consuming services.

Additionally, I feel that this project will create quality jobs because the developer has committed to construct the system with union labor. New Jerseyans rightfully take immense pride in our Shore. One of the most important features of this project is that it poses no threat to the aesthetic or economic attributes of the waterfront space it would occupy. The Werner site is industrial zoned, with no nearby recreational beaches, beach communities, or wildlife preserves. There is an existing substation located on the site with high-voltage transmission already connecting it to the rest of the electric network. Additionally, rumor has it that there will be improved waterfront access or even a new waterfront park that we can all enjoy.

Sincerely,

Paul Eidman

Capt. Paul Eidman
Owner & operator,
Reel Therapy light tackle fishing charters
Tinton Falls NJ

APPENDIX E. PROJECT PHOTO SIMULATIONS

Aerial Rendering

VP3 – VIS – 9570 – Original

VP3 – VIS – 9570 – Simulation

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

APPENDIX F. [redacted]

[redacted]

[redacted]

APPENDIX G. PROJECT EXECUTION PLAN

Project Execution Plan

EXAMPLE – September 2021

Note on PEP Development:

The Project Execution Plan (PEP) is a template and example of the outline Rise Light & Power will follow through the project execution phase. Rise Light & Power, as a subsidiary of LS Power, as well as their assembled team of consultants and contractors, have execution experience, and are familiar with the risks, challenges and know-how to successfully manage the construction scope.

This document will evolve throughout the project development phase subject to project configuration awarded, permit conditions, technology selection, detailed design, lender/insurance requirements and other management direction.

Revision Log

Version	Revision Date	Revised By	Description of Revision

Reviewers

Version	Approval Date	Approved By	Comments

Table of Contents

Initial Table of Contents draft – to be further refined through project development

1 PROJECT OVERVIEW

TBD – this section is to be completed in a second PEP draft to be prepared following the Project's selection for an offtake agreement. The following sections will be included:

1.1 Project Description

1.2 Project Objectives

1.3 Project Assumptions and Constraints

1.4 Project Governance

1.4.1 Project Charter

1.4.2 Project Phase Deliverables

1.4.3 Lessons Learned

2 PROJECT EXECUTION MODEL

Rise recognizes that regional expertise, experience and established project delivery experience within the electrical transmission industry is critical to support their internal team and schedule objectives.

Rise plans to employ a Multiple Primes project execution model, under which implementation of the Project is divied into a limited number of discrete contracts that can be executed by contractors that are experts in their respective fields. Rise anticipates that the the discrete work packages will include:

(1) Civil Works, including Converter Station Site Prep and Duct Bank Construction
(2) Converter Station Supply & Install
(3) DC Cable Supply & Install
(4) AC Yard and Attachment Facilities EPC
(5) Program Management
NOTE: Example only

For the purpose of planning project delivery, Rise separates a project into two distinct phases:

- <u>Project Development Phase</u> – defined as all project activities preceding the Financial Close. This includes project planning, conceptual design, regulatory application preparation, business development activities and other initiation tasks
- <u>Project Execution Phase</u> – defined as project activities following Financial Close. This includes full notice to proceed on large material and construction contracts and construction project execution.

During the early portions of the development phase, Rise will also be comparing the pros and cons of implementing other models. Traditional EPC, EPCM, Program Management and Owner's Engineer models will be evaluated, along with a hybrid approach given the large and diverse nature of the project scope.

Rise has contracted with several nationally recognized engineering and construction firms with local New Jersey / New York experience to provide preliminary input on technology considerations, budget development, constructability and other consulting services. Rise will continue to evaluate delivery models with the intent on awarding a contract to a Program Manager/ Owner's Engineer as well as multiple turnkey EPC agreements (to be managed by the Program Manager / Owner's Engineer) as further defind in the procurement strategy section of the PEP.

In the role of Program Manager / Owner's Engineer, services being provided include overall project management and project delivery responsibilities, and includes the collaboration of a large project team with multiple development partners. In early project phases (pre-construction), focus will be on the development of a complete project execution plan and the implementation of a full suite of project controls. Other services provided include safety management, project management, procurement management, environment permit management, field service coordination, and cross-functional coordination. The Program Manager / Owner's Engineer scope of work will evolve as the project team continues to grow to support the needs of the project. This will be documented in later drafts of this PEP.

3 PROJECT ORGANIZATION

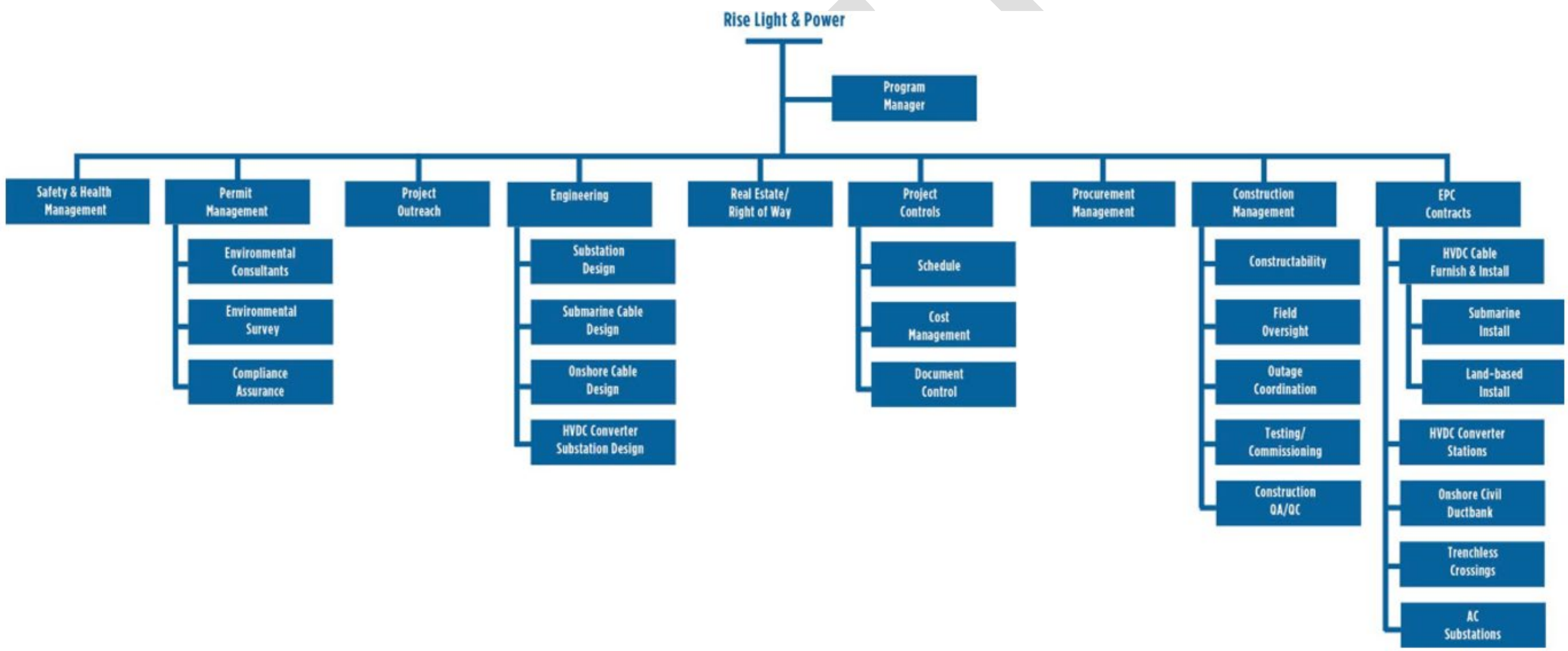
3.1 Resource Strategy, Staffing and Onboarding Plan

TBD – this section is under development and will included in a future PEP draft.

3.2 Project Team and Organization Chart

The following is an outlined organizational structure by functional areas and construction project execution packages to delivery the [Enter Project Name]. Consistent with the previous Section 2, Rise plans to use a Program Management model, along with multiple well-defined EPC contractors or suppliers for the major equipment, materials and construction services required for the Project scope.

Rise Light and Power – Project Execution Organizational Chart



3.3 Project Team Roles and Responsibilities (RACI)

TBD – a project RACI will be developed with roles/responsibilities further defined as the project lifecycle progresses and contracting strategies and scope are matured.

4 PROJECT MANAGEMENT PLANS

4.1 Project Controls Plan

4.1.1 Schedule Management

4.1.1.1 Schedule Work Breakdown Structure (SWBS)

Using scheduling software such as Primavera P6 the following would be a typical WBS detailing each of the following project disciplines, with key milestones and logic ties to support project delivery objectives.

Work Breakdown Structure (WBS) Section	Description
Major Milestones	Key project milestones are listed to achieve targeted commercial operation, which are supported by activities in subsequent schedule WBS sections
Financial Plan	The Applicant's internal financial governance milestones
Offtake Agreements	
Permitting and Licensing	A description of the identified regulatory process including federal, state, local permits. This includes necessary survey and environmental assessments to prepare Applicant-submitted permit applications, regulatory review periods, and completion of Environmental Assessments and Impact Statements.
Real Estate / Rights of Way	Activities associated with identified temporary easement and permanent land acquisition to support the Project
Interconnection	A description of the anticipated system planning and interconnection agreement processes. including estimated durations the for System Reliability Impact Study and Facilities Study
Engineering	A description of the field survey and design process from concept through detailed design
Procurement	Identification of the major procurement packages and the estimated lead times to support construction. This includes EPC contracts for long lead time components such as HVDC cable and converter stations.
Construction	Estimated durations for each project component and segment
Testing and Commissioning	Estimated duration and process for the testing and commission of project components
Project In-Service	The targeted project commercial operation in-service date
Project Closeout	Project financial and contract close, turnover packages to O&M, and other project due diligence and documentation completion

Given the scope of the [Enter Entity], before construction can begin an approval from the [Enter Entity] must be received, consistent with [Enter Jurisdictional / Regulatory orders and requirements the project is bound by].

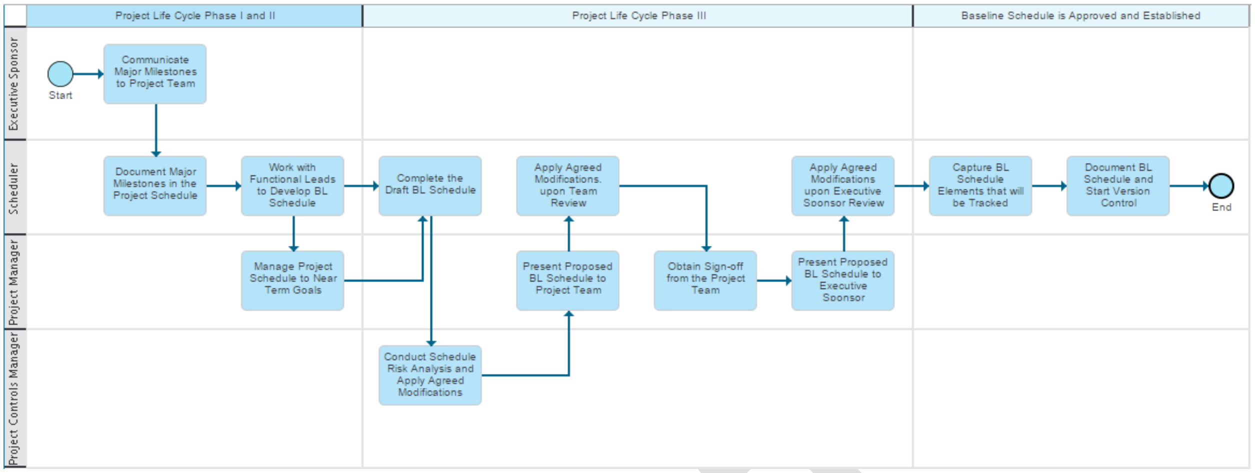
4.1.1.2 Baseline Schedule Development

A Baseline Schedule is an important tool that reflects the Project team's "plan" at the earliest point in time when sufficient information is known about the Project. At this point, the team is able to present to the executive management how the schedule objectives of the Project will be met. It is understandable that this point in time coincides with the approval of the Control Budget since cost and schedule cannot be considered separately.

In line with the same thought process, diversions from the Baseline Schedule are taken seriously by the Project team and will be reported to the executive team along with an analysis including a recovery plan as needed.

In addition to the primary use described above, the Baseline Schedule also helps the Project team in determining the schedule requirements that will be included in the materials and construction requests for proposals ("RFPs"). This practice helps all vendors and contractors to work toward common goals in line with the Baseline Schedule. The objectives of this process are as follows:

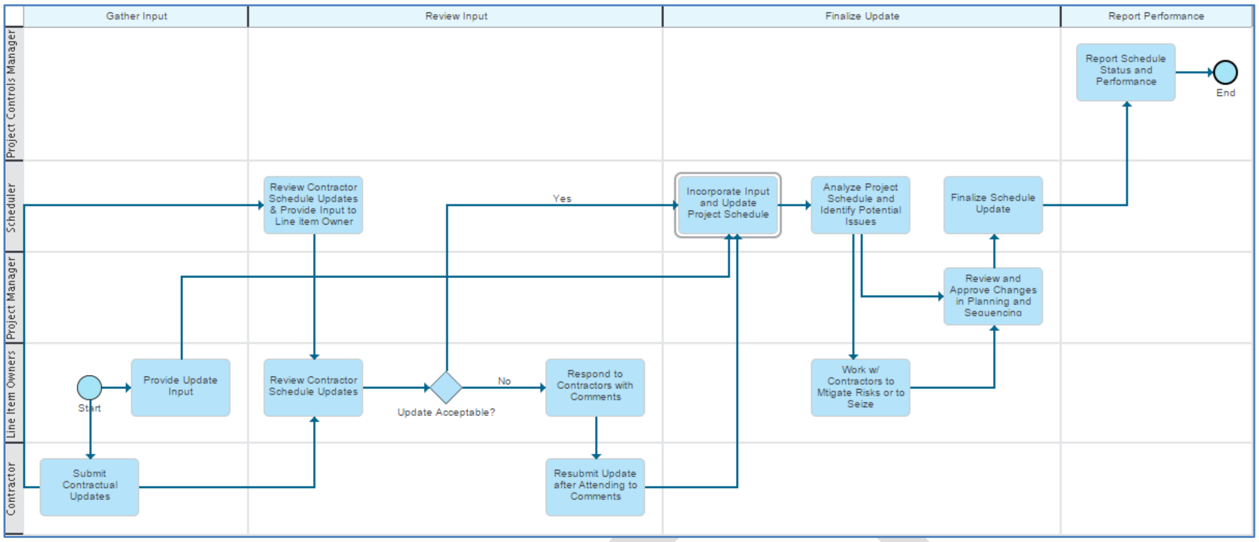
1. To determine the schedule milestones that will be used for comparison between the Baseline Schedule and each update of the schedule throughout the Project life cycle. Common attribute of these milestones is the fact that the baseline dates associated with them are key to the success of the Project. Similarly, not meeting the baseline dates will raise a flag threatening the success of the Project.
2. To obtain information from line item owners and functional leads to arrive at a schedule sequence that meets the baseline dates associated with the key milestones.
3. To obtain approval from all line item owners, functional leads, and executive management on the proposed baseline.
4. To document the baseline schedule for future reference and performance measurement.



4.1.1.3 Schedule Updates and Maintenance

This process depicts how the Project Schedule will be updated and maintained upon issuing the formal Project Baseline Schedule. The process for performing schedule updates before that period is covered in the Baseline Schedule Development Process. The objectives of the process are as follows:

a. To update and show progress status for the activities in the Project Schedule;
b. To compare the latest progress of the Project against the approved baseline schedule and explain what the plan was and what transpired instead;
c. To focus on the plan for the remaining scope and to identify potential risks and opportunities to increase the chances of meeting the Project's schedule objectives;
d. To review contractor schedule updates for compliance with respective contract terms and conditions and to establish a positive culture where schedule is used as a planning tool instead of a tool to formulate claims;
e. To incorporate contractor schedule updates into the Project Schedule and manage the inter-dependencies between various contractors in line with the Project's schedule objectives; and
f. To inform the Project team and senior management about schedule status through dashboard based reporting.



4.1.1.4 Schedule Reporting

Throughout the process of building the Project Schedule, various reports (summarized in the following table) will provide consistent layouts of schedule information for specific purposes. Each schedule report will be formulated as specified in the table below upon the completion of each weekly update (or other specified frequency), on the data date for that period, occurring each Wednesday.

Specific phases within the Project lifecycle are indicated for each report to identify those reports that will automatically be developed during each cycle. However, it is important to note that any of the reports can be run upon request, regardless of the Project lifecycle phase. In addition, there will be various ad hoc reports that are set up and run in coordination with functional area leads or subject matter experts ("SMEs") on an as-needed basis.

Project Schedule Reports

Name	Applicable Frequency	Purpose	Notes
3-Week Look Ahead	Weekly	This layout is used to track against shorter term milestones. Used during Weekly Team Meeting	This report is uploaded to the SharePoint Project Documents Library.
12-Week Look Ahead-Preconstruction	Weekly	Utilized for review of imminent activities to track against longer term milestones. Used during Weekly Team Meeting.	This report is uploaded to the SharePoint Project Documents Library.
12-Week Look Ahead-Construction	Monthly	Utilized for the review of construction schedule progress	Schedule updates will be completed bi-weekly to allow time for coordination with Construction Contractors. The

Name	Applicable Frequency	Purpose	Notes
		and the tracking against longer term milestones.	report will be issued monthly, allowing QC and verification time.
Baseline Schedule	Each Baseline Completed	Utilized to document the Baseline Schedule upon the completion of the Baseline and any subsequent re-Baselines.	After completing the Baseline Schedule, this layout is uploaded to the Project Documents Library.
Milestone Report	Weekly	Utilized for Executive Level Reporting to Identify Major Milestones identified for the Project. The report includes past milestones as well as projected milestones.	This report is uploaded to the SharePoint Project Documents Library.
12-Week Baseline Variance Report	Weekly	Similar to the 12-Week Look Ahead with a comparison variance between the Baseline and Current schedule update.	Even though this report is not officially in effect until after baselining, this report can be used for unofficial baselines set for various performance measurement timeframes.
Milestone Baseline Variance Report	Weekly	Similar to the Milestone Report, with a comparison between Baseline and Current schedule update.	Even though this report is not officially in effect until after baselining the Project, this report can be used for unofficial baselines set for various performance measurement timeframes.
All Activities Report	Monthly	Layout showing all schedule activities in an effort to archive the Project Schedule in non-P6 format for future reference.	This report will be uploaded to the SharePoint Project Controls Schedule documents after each occurrence of the report.
Schedule Analysis Report	Monthly	Report will provide a Critical Path Analysis, Key Milestone and Activity Variance analysis, Schedule Risks, Any current “what-if” scenarios being conducted, etc.	This report will be uploaded to the SharePoint Project Controls Schedule documents after each occurrence of the report.

All of the reports will be saved in .pdf file format. In addition to recording and storing of all reports for future reference, the P6 schedule will be backed up in .xer form and saved in a Project Dashboard for the purpose of archiving and future turnover to Rise for records keeping upon completion of the Project.

4.1.1.5 Schedule Progress Measurement (Rules of Credit)

In line with the Project Performance Measurement Plan, schedule progress will be measured applying budgeted cost as the common denominator for the weighting of one activity's percent complete in relationship to others in contributing to the overall project percent complete. Schedule activities that capture the detail and duration for a specific deliverable or task and containing corresponding cost and schedule objectives will form the deepest level of detail in in the model, rolling up eventually to the overall project's progress. Groups of these tasks will combine to complete a particular commitment level (SRO, PO, or non-commitment line item), to Level 4 Cost WBS, then through the Level 3 Cost WBS, and finally in order to report percent complete for the entire project.

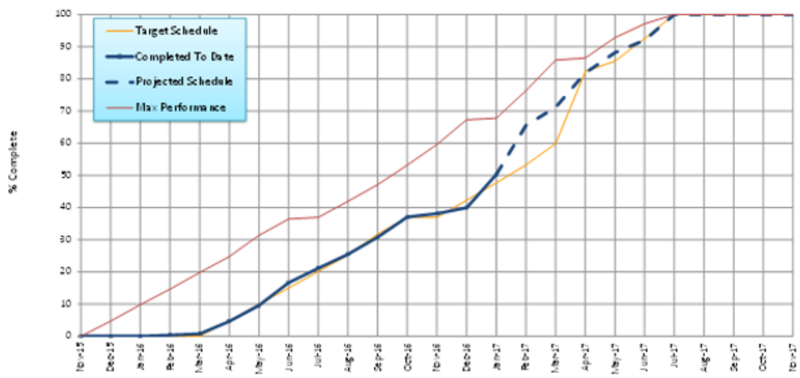
To compare actual progress against the original plan, the baseline plan must be assembled utilizing the rules of credit that will be utilized consistently throughout the project. A schedule of values will be set up to define the planned schedule dates (from the project baseline schedule) as well as the assigned budgeted cost amount for each task. Using this data, a planned curve will be assembled utilizing the weighting of each activity with regard to the overall cost. In addition, the total percent complete of the activity will be spread incrementally between the start and finish dates of the activity. Combining all of the activities' schedule dates and durations, and their individual weighting compared to the whole, will produce a planned curve in which any point in time looking into the future, the planned percent complete can be determined at the task, WBS (including work order), or Project level.

As the project is executed, the consistent rules of credit used to formulate the plan will be employed to report schedule progress. Actuals will provide the basis for actual costs on a monthly basis and can be organized by WBS, by commitment, or by work order. For each of the tasks (the lowest level of detail), physical percent complete will be measured where applicable (e.g., number of feet of pipe installed), or otherwise reported by the functional lead/line item owner. Duration percent complete will be used as the basis for verification only where the ability to measure physical percent complete is possible. For level of effort tasks or others where physical percent complete is not possible, duration percent complete will be used. During each monthly cycle when the actual costs and percent complete is updated, the team will also query the latest schedule start and finish projections and compare that against the plan. Using this gathered actual data, combined with the same calculations utilized for the planned data, it is possible to show the actual percent complete at any given time in relation to the plan. Figure 4.1.1.5-1 shows how this information comes together.

Finally, using the same methodology as that used to formulate the plan and actuals, a projected curve can be created (shown as dashed above) with the use of projected schedule and cost forecasting data.

Phase:	Engineering 1 of 1
Report for the month of:	January-17
Schedule Data Date:	31-Jan-17
KPI Baseline Date:	1-Dec-15
KPI Revision Date | By:	N/A

		Max Performance Schedule 12/1/2015		Target Schedule		Current Schedule Date's Data Date: 1/31/2017			
Assigned Percentage Of Total	Activity ID	Early Start	Early Finish	Late Start	Late Finish	Start Date	Finish Date	% Complete Of Activity To Date	Weighted Percentage Subtotal
14.0%	1	3-Dec-15	3-Jul-16	1-Apr-16	31-Oct-16	1-Feb-16	1-Sep-16	100.00%	14.01%
10.5%	2	2-Aug-16	31-Dec-16	30-Nov-16	30-Apr-17	1-Oct-16	1-Mar-17	40.00%	4.20%
7.4%	3	31-Jan-17	2-Apr-17	31-May-17	31-Jul-17	1-Apr-17	1-Jun-17	0.00%	
[illegible]4%	4[illegible]	2-[illegible]-17	3-Jul-[illegible]	[illegible]0-Aug-[illegible]	[illegible]-Oct-1[illegible]	1-[illegible]-17	1-S[illegible]-17	0.00[illegible]	
[illegible]1%	[illegible]	2-[illegible]-17	3-Ju[illegible]	[illegible]0-Aug[illegible]	[illegible]-Oct-1[illegible]	[illegible]-17	1-[illegible]-17	0.0[illegible]	
0.3%	52	16-Nov-16	30-Dec-16	16-Mar-17	29-Apr-17	15-Jan-17	28-Feb-17	50.00%	0.17%
0.3%	53	17-Dec-16	14-Jan-17	16-Apr-17	14-May-17	15-Feb-17	15-Mar-17	0.00%	
0.0%	54	2-May-17	3-Jul-17	30-Aug-17	31-Oct-17	1-Jul-17	1-Sep-17	0.00%	
0.0%	55	2-May-17	3-Jul-17	30-Aug-17	31-Oct-17	1-Jul-17	1-Sep-17	0.00%	
100.0%									50.17%



CM - Critical Milestone
- Complete As Scheduled
- Challenged Milestone
- Missed Milestone

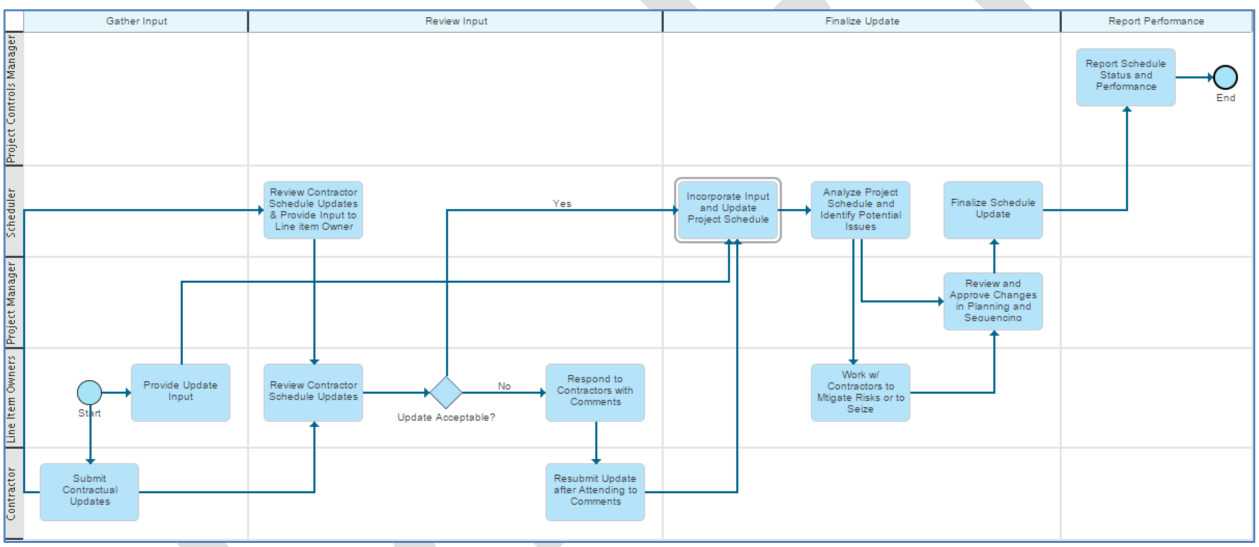
KPI Number	Change	Date

4.1.1.6 Contractor/ Vendor Schedule Coordination

This process depicts how the Contractor/Vendor Schedule will be reviewed for conformance to the specifications. There will be milestones and summary activities used to mirror the contractor progress in the “program schedule”. The objectives of the process are as follows:

1. Contractor schedule shall be submitted for review by Owner in accordance with Scheduling requirements. Construction means and methods shall be by contractor.
2. Within ten days of Contract Award, or otherwise as agreed, Contractor shall submit its full Progress Schedule for review, upon acceptance of which, will form the Baseline Schedule of Record.
3. A Narrative describing the Contractor’s approach to executing the Work shall be included in the ten day submittal addressing items such as:
    a. planned sequencing and phasing of design/procurement/construction (as applicable to the Work of this Contract);
    b. planned workforce and crew sizes including a labor allocation summary report
4. Schedules to be developed in sufficient detail to determine bidding requirements for monitoring contractor progress for each path. Conduct work sessions with construction managers developing schedule detail and reflecting planned project execution throughout construction. Display quantities, notes and drawings as backup to construction execution sessions.

5. Contractors shall submit a Level 2 Schedule indicating its general approach to the work in order to substantially complete each of the following Milestones, typically with the RFP.
6. Scheduling Guidelines will be provided by the Owner to the Contractor/Vendor following Award, defining formatting requirements such as Work Breakdown Structure ("WBS"), EPS Codes, Activity Codes, Cost Codes, etc., which will be required to be followed to enable the Contractor's schedule to be integrated with the schedules of others and facilitate the Owner's Units of Property asset management needs.
7. The Progress Schedule shall show all activities of the Work in detail and be organized in a manner to enable reporting of the entire Work in Level 1 Summary and Level 3 Detail format time scaled logic format. The Progress Schedule shall show the activities of the work related to the construction, installation, and testing and shall be updated weekly for distribution in advance of the weekly construction meeting.
8. The Progress Schedule shall be sorted and organized using the 'high-level' WBS. Contractor will create lower WBS levels and activity codes as needed.



4.1.2 Cost Management Plan

4.1.2.1 Cost Meetings

Cost meetings that will be scheduled on a recurring basis throughout the project in accordance with the current revision of this document are summarized in the following table:

- **Cost Meeting Summary**

Name	Frequency	Purpose	Required Attendees
Accrual Review Meeting	Monthly; effective immediately	To review all accrual inputs prior to month-end close.	TBD

Cost Forecast & Variance Review	Monthly; effective immediately	To review the updated forecast, including all incurred costs and current cost forecasts to focus on variance analysis	Project Director/Lead Project Manager, Project Manager, Project Controls Coordinator, Project Controls Manager, E&C Cost Lead, Cost Analysts
PFA Funding/Control Budget Review Meeting	Monthly; effective immediately	Occurs following the Cost Forecast & Variance Review to compare the current funding (PFA or Control Budget) against current project financials	TBD
EcoSys Cost Report Review Meeting	Monthly	Corporate 30-minute meeting to present the EcoSys output reports and discuss variances.	Lead Project Manager, Project Manager, Executive Sponsor, Regional Director, Cost Coordinator, Project Controls Coordinator, Project Controls Manager
Contingency Review Meeting	Monthly; effective upon completion of SME contingency input.	To review the remaining contingency budget and planned drawdown curve and make drawdown decisions.	TBD

4.1.2.2 Accruals Process

Accruals are defined as expenditures recognized for completed scope prior to those expenditures hitting the project accounting general ledger (actual costs). This cycle occurs on a monthly basis in an effort to determine the incurred costs for work performed within that timeframe. The objectives of this process are as follows:

a. To properly capture the liabilities of all contracts assigned to the project on a given data date on a monthly and consistent basis.
b. To provide a historical record of the timeframes in which costs were incurred to assist in earned value management.
c. To assist in the monthly cost forecasting process by providing a more definite volume of work performed, irrespective of the invoicing process.

A simple example is as follows: Contractor ABC has submitted invoices through the month of March. They performed $100K worth of work in April (per their contract). They will not be able to submit their invoice until the second week of May. In this case, $100K should be accrued for the corresponding SRO. The basic formula for an accrual is:

(Total Estimated Incurred Costs) — (Actual Cost in the Accounting System).

4.1.2.3 Cost Reporting

Cost reporting will serve an important function to provide the team with metrics necessary to manage the cost objectives of the project. Specific phases within the project lifecycle are indicated for each report to identify those reports that will automatically be developed during each cycle. However, it is important to note that any of the reports can be run upon request, regardless of the project lifecycle phase. In addition, there will be various ad hoc reports that are set up and run in coordination with functional area leads/Line Item Owners on an as-needed basis. Much of the information included in the reports (summarized in the following table) will also be available on the Project SharePoint Site's dashboards and tracking tools.

- **Cost Reports**

Name	Applicable Frequency	Purpose	Notes
Monthly Project Cost Detail Report	Monthly on Working day 7	This layout originates from EcoSys and reports the current overall project forecast against the current project budget.	The current budget will be the seed funding available in phases prior to full funding; variance values and analysis are included.
Monthly Project Cash Flow Report.	Monthly on Working day 7	This layout originates from Ecosys and reports the costs that are expected to hit the general ledger based on the time phased cost forecast, combined with anticipated invoicing timing.	
Cost Forecast Budget Comparison Report.	Monthly on Working day 8	Tabular report of costs for current year forecast (including past actuals), comparing monthly actual costs vs. monthly budget. Report breakdown is by month for current year only.	Budget utilized will be the Annual control budget as approved by the Management Committee. Report will be broken down by Level 3 WBS cost categories.
Cost Forecast vs. Budget Forecast Spend Curve.	Monthly on Working day 8	Graphical report showing the monthly actual costs against the budgeted monthly costs, including a cumulative forecasted cost forecast curve and a cumulative budgeted cost curve.	Budget utilized will be the Annual control budget as approved by the Joint Venture Management Committee. Report will be broken down by Level 3 WBS cost categories
Annual Cost Forecast in WBS Format	Monthly on Working day 8	Shows total incurred and forecast by month for project costs, organized by Level 4 WBS.	This report originates from the Green Sheet Forecasting Tool; WBS Tab
CapEx Analysis Total Economics Report	As Needed by Business Dev't.	Breakdown of costs by Year in service and facility type. Costs are shown in the Cash, Loads and AFUDC categories.	Updated when requested but also any time that the project estimate is revised.

Name	Applicable Frequency	Purpose	Notes
CapEx Analysis Total Project Spend Curve	As Needed by Business Devt.	Shows the data from the CapEx Analysis Total Economics Report in graphical form, showing spend breakdown by quarter, along with a cumulative spend curve.	Updated when requested but also any time that the project estimate is revised.

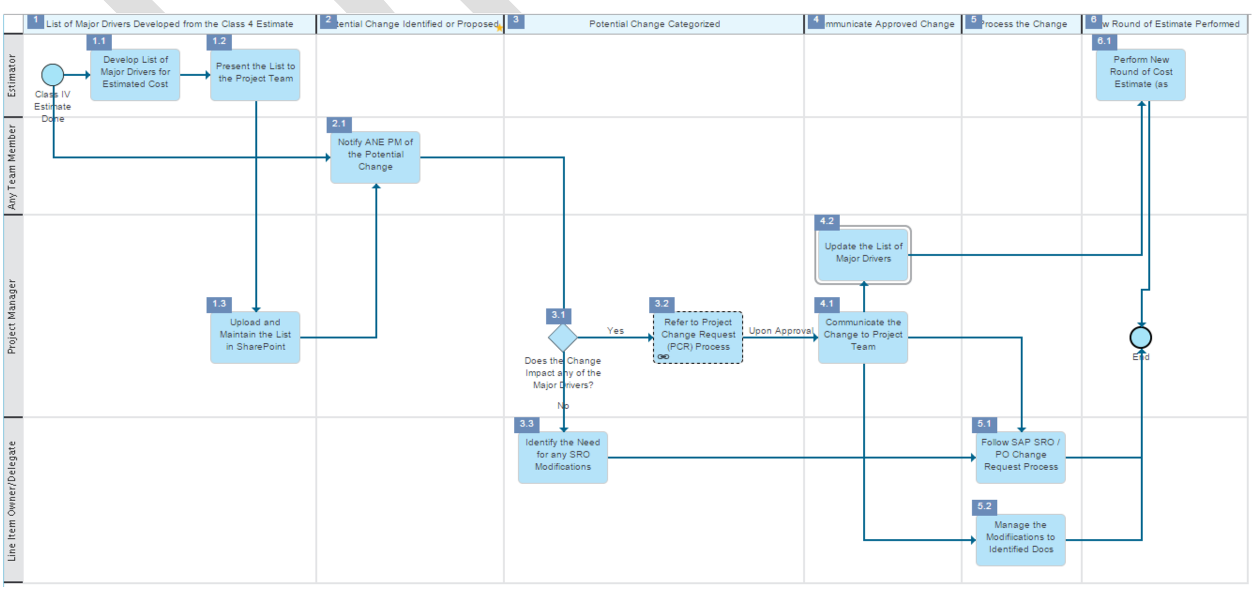
All of the reports shown in the table above will be saved in .pdf file format.

4.1.2.5 Change Management

4.1.2.5.1 Change Management before Budget is Baselined

This process is applicable in the development phase to the progress point when the Project Budget is baselined. If a formal change management process is not implemented until that point, uncontrolled changes to the project scope may render the project based on the cost constraints that the project is under. Specific objectives of this process are as follows:

a. To ensure that identified or proposed changes go through a controlled process before they become part of the project scope
b. To ensure that changes are properly communicated to the project team and to other stakeholders as applicable
c. To ensure that all potential impacts of changes such as cost, schedule, documents, and commitments are captured properly
d. To keep the 'List of Major Cost Drivers' current so that the estimated project cost can be updated as required



4.1.2.5.2 Change Management after Budget is Baselined

This process will be in effect upon the approval of the Baseline Budget. Specific objectives of this process are similar to the change management process that is in effect before the approval of the Baseline Budget. These objectives are:

a. To ensure that proposed changes go through a controlled process before they become part of the project scope;
b. To ensure that changes are properly communicated to the project team and to other stakeholders as applicable;
c. To ensure that all potential impacts of changes such as cost, schedule, documents, and commitments are captured properly; and
d. To keep the 'List of Major Cost Drivers' current.

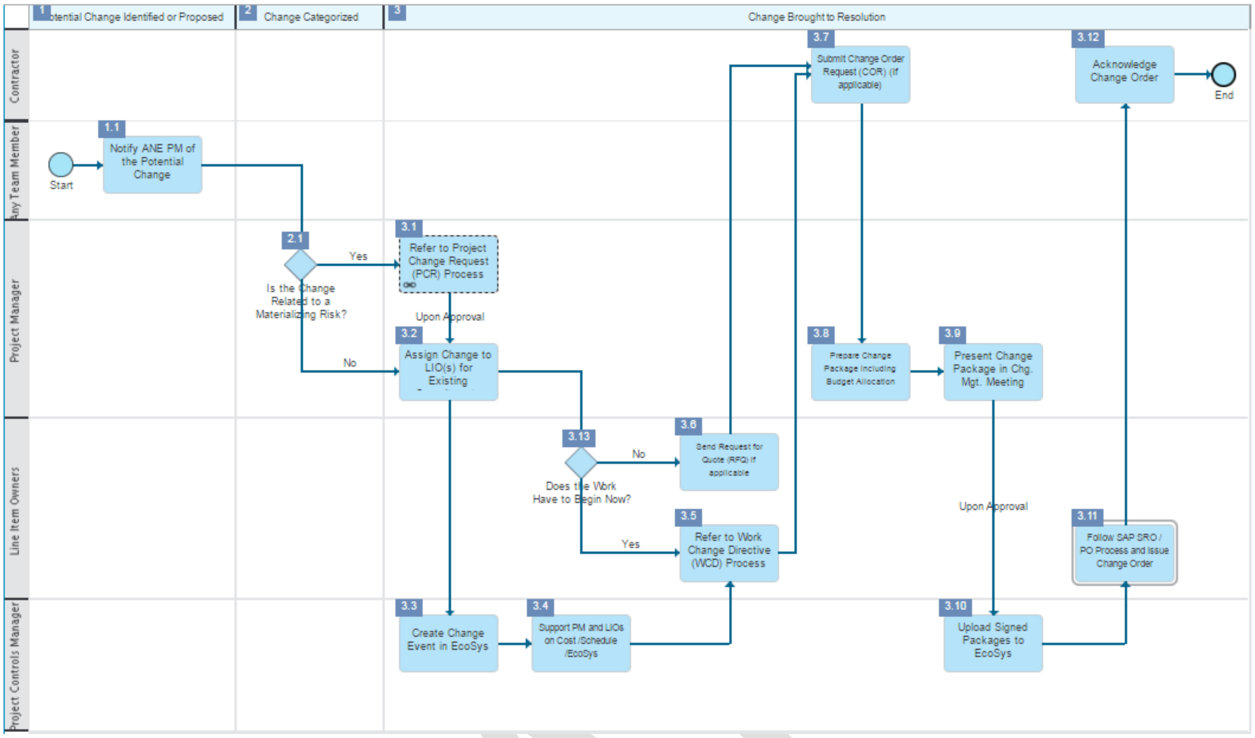
In addition, this process focuses on reconciling the Budget upon each change by reallocating the funds to pay for the change either from "contract contingency" or "project contingency". Most of the change events after the Budget is baselined are expected to affect existing or planned commitments (versus scope revisions). The PM, working with Line Item Owners ("LIO") and with project controls, will develop a change package in EcoSys for each change event that explain the following aspects:

a. Description of the change (What?)
b. Reason for the change (Why?)
c. Cost and schedule impact of the change (How Much?)
d. How the change affects existing or planned contracts (the package may include change order forms that LIOs prepared)
e. How the change will be funded

Change packages will be reviewed and concluded in a dedicated meeting titled "Project Change Management Meeting". The frequency of these meetings will be determined by the PM based on the project phase and the volume of changes. Regular attendees of these meetings will be decision makers that can approve / decline change documents. LIOs and functional leads will be invited as required based on the specific changes in a given time period. LIOs will present change packages in the meeting. Upon discussion, decision makers may approve or decline a package. In case of approval, budget forms (budget allocation forms) and commitment forms (change orders) will be signed directly at the meeting.

Change packages provide a detailed documentation of changes including how the project team resolved them. They will also act as back up in SAP to facilitate approvals as the contracts are formally modified.

Change packages that cannot be resolved at change management meetings are the ones that require higher delegation of authority ("DOA") than the regular attendees of the meeting. An example is when funds are requested from management reserve. The approval of these change packages will be handled outside change management meetings.



<u>4.1.2.5.3 Project Change Requests</u>

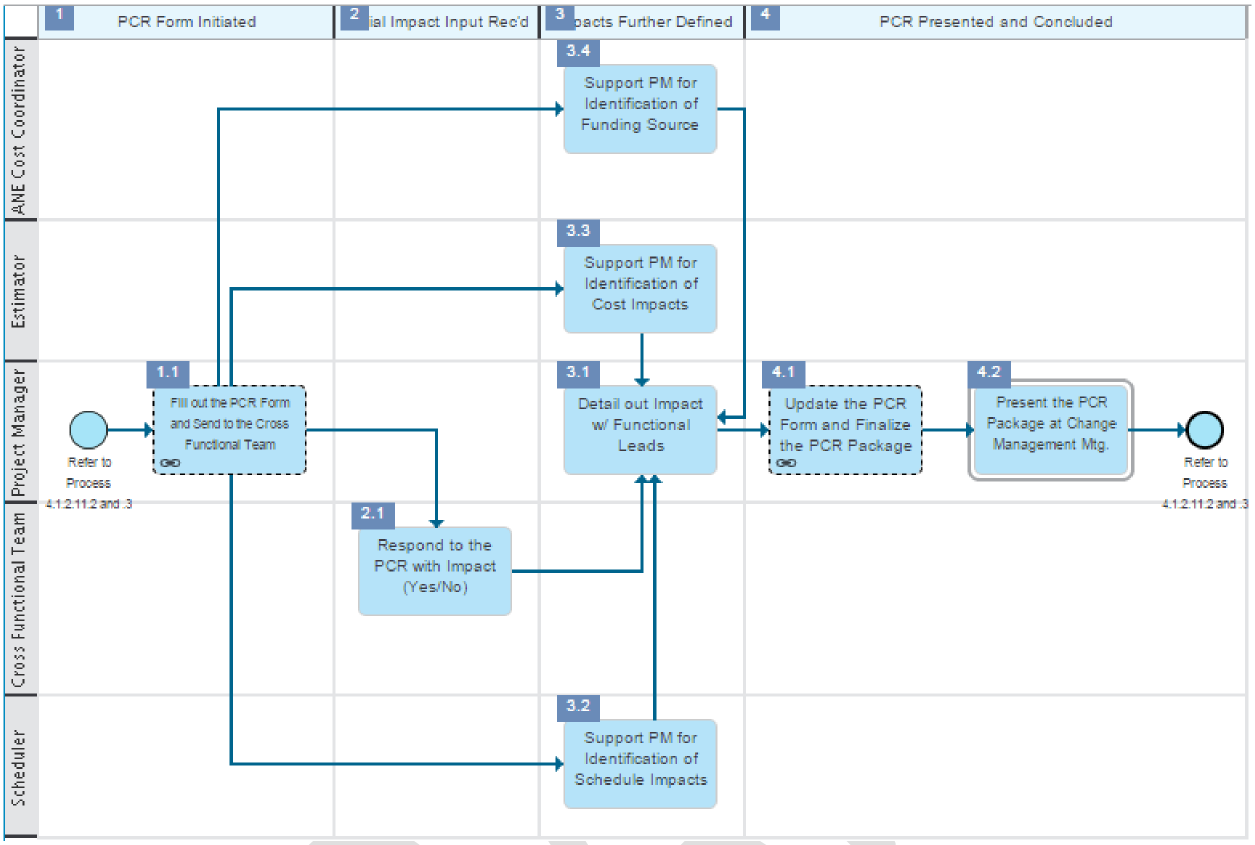
Project Change Requests (PCR) process is a sub-process that is part of two primary processes:

1. Change Management before the Budget is Baselined
2. Change Management after the Budget is Baselined

In either case, the PCR process supports the objectives of the change management process, which are:

a. To ensure that identified or proposed changes go through a controlled process before they become part of the project scope
b. To ensure that changes are properly communicated to the project team and to other stakeholders as applicable
c. To ensure that all potential impacts of changes such as cost, schedule, documents, and commitments are captured properly

The outcome of the PCR process is a clear conclusion (approval or rejection) on identified or proposed changes.



An example Project Change Request Form is included on the following pages. This is a template and an example of the documentation used when a change event is identified and the cross-functional review process which is implemented to understand the implication of a change prior to acceptance.

Project Change Request (PCR) Form

Title:		**PCR#:**
Originator:		**Initiation Date:**

Information about the Proposed / Identified Change:
To facilitate the review, please include 'description of change', 'how it originated', 'benefits of making the change', and 'implications of not making the change'. Attach images if required.

Functional Area Input

Functional Area - Lead	Date	Impact (Y/N)*	Functional Area - Lead	Date	Impact (Y/N)*

The following sections will be populated upon communication with functional leads and line item owners

Major Cost and Schedule Drivers to be Impacted

Description	Existing	Proposed	Variance	Comments

Potential Impact to Project Budget (Attach a separate file if the change requires doing so)

Description	OOM Cost Impact	Comments

Potential Schedule Impact (Attach a separate file if the change requires to do so):
Risk Assessment:
Project Documents to be Modified:
Project Commitments to be Modified:
Proposed Actions post-approval of the PCR:
Attachments and references:

Approvals

4.1.2.6 Budget

4.1.2.6.1 Budget Estimating

Estimating is the process for determining the type, quantities, material, people and equipment to execute each element listed on the Work Breakdown Structure. As the project progresses and more information becomes available, the budget estimate will be refined, and details will be updated for completeness and accuracy.

For the Project, a CBS Summary Estimate and detailed Estimate xls files are required for each project component. These spreadsheets will be consistant with the WBS code defined in "WBS Codes List with Product Categories".

The cost estimate must contain the following fields:

- WBS Elements to Level 3 and 4
- WBS Elements Description
- Scope Description
- Quantity takeoff and units of measure
- Unit Cost
- Total Cost
- ISY (In-serve Year)
- Grand Total

This baseline estimate information will be compiled into a flat database to allow for a wide range of future configurations. As the project plan is developed, including the baseline schedule and contracting strategy, several new fields will be added to the data. At a minimum these fields are as follows:

- Contract Identifier - This field will eventually house Construction, Materials and Services RequestOrder Number (i.e., Prime Contractor contracts do not have SRO numbers), once there is a scope defined and a commitment made. On the outset, however, this will be used as a placeholder to group and sort scope descriptions together appropriate with the contracting strategy chosen and to make sure all scopes are covered. In this way, the data can by pivoted such that any of the fields can be grouped to create defined scopes of work across all of the estimated items.
- Vendor – This field will contain a placeholder based on the contracting strategy chosen and can be utilized in conjunction with the contract identifier field to organize all of the work based on scopes of work to be committed. After the commitments are made, these fields will be filled out with the applicable information specific to the actual commitment.

The following figure shows an example of how this information is combined in database format.

Work Order	L3 WBS	L4 WBS	Scope Description	Takeoff Qty	U/M	Unit Cost	Total Cost	SRO#	Vendor
.002	1	0.01		19,092.00	lf	$87.12	$1,663,333.22	888XXX	TBD Prime Contractor-Lay
.002	1	0.01		6,364.00	lf	$48.33	$307,572.12	888XXX	TBD Prime Contractor-Lay
.002	1	0.01		3.65	lf	$5,000.00	$18,250.00	888XXX	TBD Prime Contractor-Lay

FROM ESTIMATE

ADDED DURING BUDGET ESTIMATING PROCESS

By formulating this structure of scopes of work that can be broken down by i) the cost WBS and by ii) how they are managed, the team has created a system to track contracts and their deliverables, and eventually become the backbone of the Project Performance Measurement model, that provides the ability to track earned value metrics.

4.1.2.6.2 Budget Management Process

The Control Budget is formed when the Baseline Budget is approved (also known as Baseline PFA Approval). This process shows the project team's interaction with the project's Executive Team regarding the status of the Control Budget. The central point of this process is a meeting that the Project Manager will conduct quarterly or upon occurrence of a significant event. This meeting is referred to as 'control budget evaluation meeting'. The project team will continuously monitor and update the Control Budget via the change management, risk management, and forecasting processes. Changes to the Control Budget during project execution will mostly be in the form of reallocation of funds with zero impact to the bottom line Baseline Budget. These changes will be requested and approved using a form type called 'budget reallocation form'. Examples are:

- Upon buyout, the internal not-to-exceed amount (“Internal NTX”) for a contract is set less than the amount in the Baseline Budget. The difference will be returned to Management Reserve.
- For the same contract in the above example, the contractor runs into a utility line that was not identified in the contract documents. A change order will be issued to the contractor and will be funded by the contract contingency, which is part of the internal NTX amount.
- An error is encountered that results in the need to move funds from one WBS number to another WBS number within the Budget.

A potential impact that is beyond the thresholds defined will be considered a 'significant event' and will call for the control budget evaluation meeting without waiting for the specified frequency. This meeting will be the vehicle to compile all relevant information and to present it to the Executive Sponsor.

4.1.2.6.3 Project Contingency Management

"Project contingency" refers to the monetary provision in the control budget and cost forecast to address uncertainties and unforeseen elements of costs within the scope of the project. The funds will be expended to mitigate risks that occur as a result of inaccurate or incomplete project information, project assumptions, and risks that arise out of the manner in which a project is executed. Rise's standard WBS for capital projects designated a Level 3 WBS element to document project contingency as part of the Baseline Budget. The Baseline Budget will contain a line item for Project Contingency.

"Management reserve" is defined as any cost savings or release of project contingency resulting from risk mitigation and/or the non-occurrence of potential milestone events. These are previously forecasted costs that are no longer needed within the scope of the project, therefore they need to be removed from the Control Budget. The intent is to remove these costs from the Estimate to Complete (ETC) forecast in order to more accurately reflect and report future expenditures. The management reserve balance will remain as a component of the approved PFA.

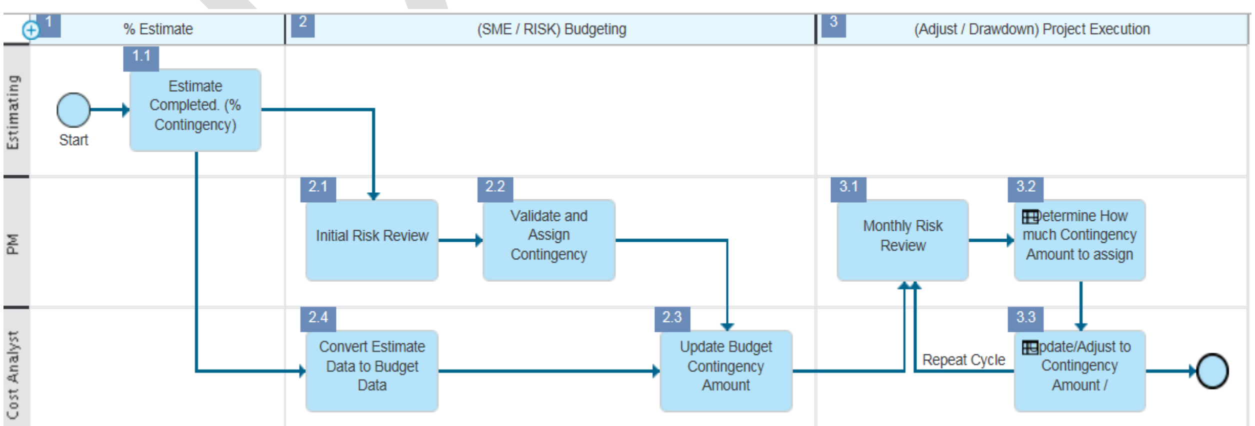
This section explains:

- How and when the project contingency draw down curve will be developed
- How the project team will draw from (or return funds to) the project contingency budget after the budget is baselined
- How the project team will return funds to (and draw from) management reserve
- How the project contingency budget and management reserve will be monitored and adjusted as needed

The objectives are:

- To document the basis behind the development of the project contingency draw down curve
- To establish the methodology for managing the project contingency budget and management reserve throughout the project lifecycle.

The output at the end of the Project will be a complete documentation related to project contingency and management reserve that future projects can take advantage from a knowledgebase standpoint.



4.1.2.6.4 Escalation Management

Escalation refers to the anticipated increase, over a defined period of time, in the cost of materials and labor of a project as a result of market forces. The Baseline Budget will contain a line item for "escalation". The standard WBS for capital projects designated a Level 3 WBS element to document escalation as part of the Baseline Budget. This section explains:

a. How and when the initial escalation draw down curve will be developed
b. How the project team will draw down from the escalation budget after the budget is baselined
c. How the escalation budget will be monitored and adjusted as needed

The objectives are:

a. To document the basis behind the development of the escalation curve
b. To establish the methodology for managing the escalation budget throughout the project lifecycle.

The output at the end of the Project will be a complete documentation related to escalation that future projects can take advantage from a knowledgebase standpoint.

Development of the Initial Escalation Drawdown Curve

The overall escalation budget will primarily be allocated to cost areas that are likely to have the highest cost impact as a result of escalation. These areas will be referred to as EIC (escalation impacted cost) in this document. Considering that engineering / design work will be significantly completed when the budget is expected to be baselined, the EICs that are identified are:

a. Cable Construction
b. Station Construction
c. Cable Materials Materials
d. Station Materials

The allocation is intended to forecast the drawdown of contingency over the timeline for the Project. The amount to be allocated to each EIC will be calculated in line with the weight of each EIC within the overall Baseline Budget.

After calculating the corresponding escalation budget amounts for each EIC, the project team will spread these amounts over the timeline in accordance with the Project Schedule. The initial escalation drawdown curve will be established at the same time as the project scope, schedule and budget baselines.

Draw downs from the Escalation Budget

Draw downs from the escalation budget will follow the change management process. In line with the process, draw down requests will be submitted using a Budget Reallocation Form. Specific details that are applicable to escalation are explained in this section. There are primarily three scenarios that will cause a change to escalation amount within the Control Budget:

1. To increase the applicable WBS elements when budget overruns are realized due to escalation. This typically occurs at the time of contract buyout. If the internal NTX amount for a construction or material contract is set at a higher amount than the budgeted amount, part or all of the variance may be attributed to escalation. Since there is no precise method to prove that argument, the PM will use judgment when determining the amount to draw down from the escalation budget. The justification for the requested amount will be explained on the Budget Reallocation Form as part of the change management process.
2. To reduce the escalation amount within the Control Budget when the conditions that may require draw down from the escalation line item are no longer in place. For example, when a major construction contract is executed with an Internal NTX amount that is under the budgeted amount, part of the return to Management Reserve will include escalation. Since escalation is not budgeted at that level of detail, the PM will use judgment when the determining the amount to return.
3. See Monitoring and Adjusting Escalation Budget section, below.

Monitoring and Adjusting Escalation Budget

Similar to all other line items in the forecasting model (the Green Sheet), a Line Item Owner ("LIO") will be assigned to the "Escalation" line item. The LIO will be a member of the project controls team. As the project progresses, the LIO will update the escalation forecast in line with the remaining scope in the Project Schedule. If the escalation amount within the Control Budget is clearly greater than anticipated impact on the Project, the Project Controls Manager will develop a Budget Reallocation Form in collaboration with the Project Manager to return funds to Management Reserve.

Documents

Documents that will be generated from this PEP section are shown in the following table:

- **Escalation Management Documents**

Document Description	Storage Location	Record (Y/N)	Owner
Document that shows the basis behind the development of the initial escalation drawdown curve	TBD	Y	Project Controls Manager
Initial escalation drawdown curve (unless it is included in the document above)	TBD	Y	Project Controls Manager
Budget Reallocation Forms that show changes to the escalation budget	TBD	Y	Project Controls Manager

4.1.2.6.5 Baseline Budget Approval Process

The objectives of this process are to define and communicate the following key points regarding the establishment of the Baseline Budget:

a. Type of information and level of detail that the project team is targeting to have (readiness) before proposing the Baseline Budget (input to the Baseline Budget). This information and level of detail is not a requirement, but a target to increase the accuracy of the version of the cost estimate that will form the basis for the Baseline Budget.

b. Type of information and level of detail that the project team is targeting to have as part of the proposed Baseline Budget (output of the Baseline Budget)

c. The anticipated timeframe when the project team will have the targeted information and the level of detail

d. The approval process for the Baseline Budget

Input to the Baseline Budget

The project team is targeting to have the following information and level of detail before proposing the Baseline Budget

Output of the Baseline Budget

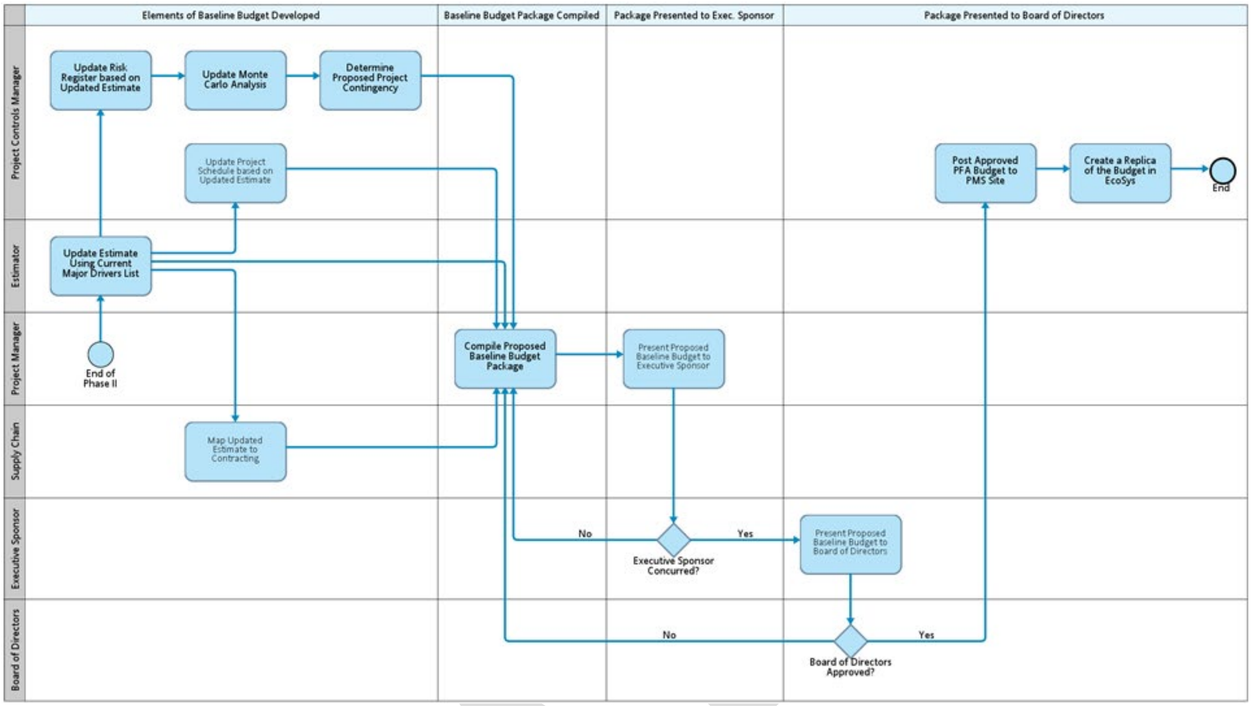
The information listed below will be part of the proposed Baseline Budget package and will facilitate the management of the Budget through the remainder of the project life cycle.

a. Cost Estimate: When the targeted information is available, the cost estimate will be updated. The quantitative part of the estimate will take into consideration the latest 'List of Major Drivers' that reflects the quantity changes as a result of approved Project Change Requests (PCRs). Refer to Chapter 4.1.2.11.2 Change Management (before the Budget is baselined) and Chapter 4.1.2.12.1 Budget Estimating for more information.

b. Risk Register and associated Monte Carlo analysis: Primary input for determination of the project contingency amount will come from the Monte Carlo analysis that uses the latest risk register at the time. Refer to Chapter 4.1.2.12.1 Budget Estimating for more information.

c. Contracting Strategy: Considering that majority of the project scope will be contracted out, a complete contracting strategy is required at this point. Line items of the estimate will be mapped to existing or planned contracts. In that way, the budgeted amount for those contracts can be calculated and used during the buyout process. These line items are also represented in the project's forecasting model (Green Sheet).

Although it is not part of the budget package, it is important to state that the schedule will also be baselined at this time. Refer to Chapter 4.1.1.2 Baseline Schedule Development for more information.



4.1.2.7 Cost Management of Contracts

4.1.2.7.1 Contracting Strategy

TBD – to be discussed in PEP Section 5.2

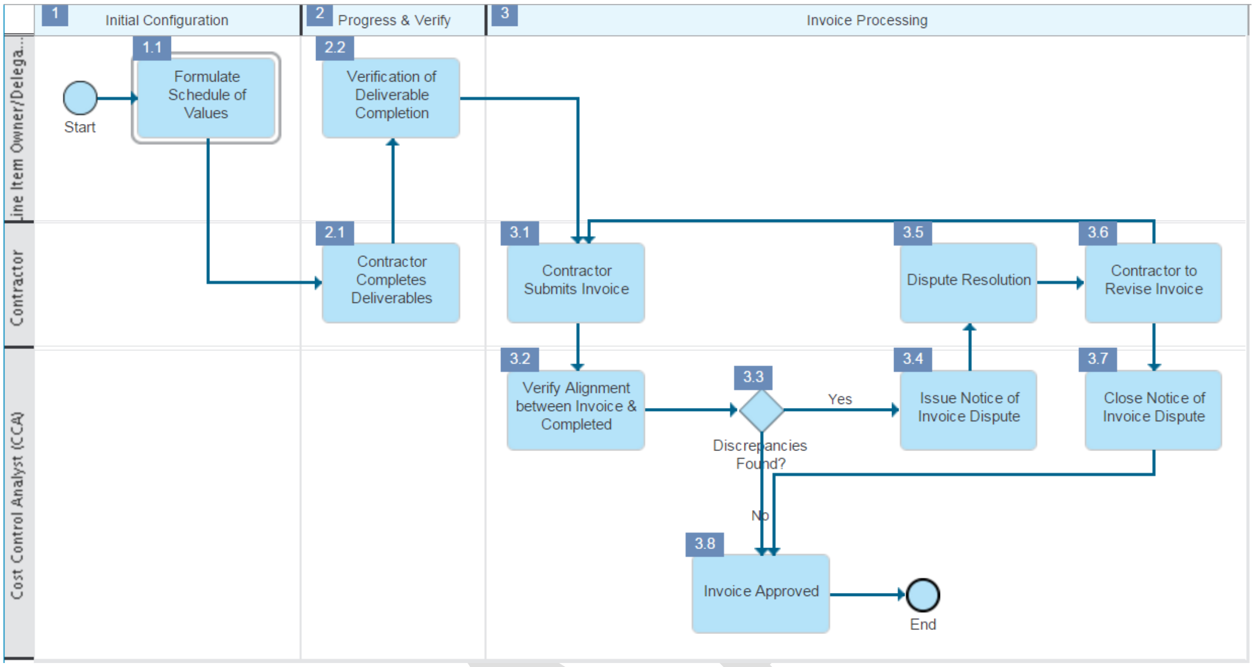
4.1.2.7.2 Contractor / Vendor Invoice Reviews

This section covers the workflow required to complete invoice reviews for contractors and vendors on the Project. During the timeframe in which this section was written, planning was still underway regarding contracting strategies, construction management on the project, as well as the management of the corresponding contracts for the resulting scopes of work. Therefore, this section is intentionally written in a vague format to allow it to be applied to several different contract types until it is determined by the project team that a particular scope of work will be managed differently or more specifically.

The objectives that the accompanying process are looking to accomplish are as follows:

a. To establish the rules of credit for which contractors/vendors will be paid for the scopes of work.
b. To identify who the responsible parties are in the process and the associated handoffs between those responsible parties.
c. To establish a workflow for addressing issues that are found during the review process.

The invoice reviews will be set up in a workflow-based software tool that is yet to be determined. This tool will have the capability of tracking the total value of the scope of work and the associated line items and changes. In addition inovices submitted will be recorded on the dates of their submission and then events along the review/approval process will also be recorded for handoffs and future reference.



4.1.3 Configuration Controls Plan

4.1.3.1 Implementation of Approved Changes

TBD – this section will be included in the next version of the PEP.

4.1.3.2 Distribution and Record Keeping of Construction Documents

TBD – this section will be included in the next version of the PEP.

4.2 Delegation of Authority Plan

TBD – this section will be included in the next version of the PEP.

4.3 Risk Management Plan

Rise will implement Risk, Issue and Opportunity Management Program ("RIO"), utilizing current approved process and related templates and documents.

a. To offer a scalable solution in which the effort and process utilized to manage risk are in alignment with the current Project lifecycle phase.
b. To identify the process by which the RIO is initially configured, followed by the cyclical management of the same, including the project roles and responsibilities.
c. To provide a mechanism at all phases of the project in which the outcome of risk assessment, cost and schedule related, are incorporated into the plan (cost and schedule).

This section refers to all risks, issues, and opportunities, simply as "risks" from here forward, considering the following definititions of each that are a function of the term "risk":

- Risk – An uncertain event that will have a negative impact on the project cost and/or schedule if it should occur.
- Opportunity – An uncertain event that will have a positive impact on the project cost and/or schedule if it should occur.
- Issue – A certain event that will have a negative impact on the project cost and/or schedule. In most cases, these are events that were previously tracked as risks, that are now imminent with regard to their chances of occurrence.

Even though all categories (Risks, Issues, Opportunities) are all referred to as risks here, they will each be tracked on a separate tracking matrix, in accordance with the RIO Program.

The RIO was initiated in the development phase of the project by identifying the high-level risks that were pertinent to the project during the project development timeframe. An outline of how the RIO will be scaled and developed during different phases of the Lifecycle is below.

Pre-Construction / Project Development

a. The Risk Tracker Template will be developed for the project, with the addition of all initial project risks, including input from line item owners/functional leads.
b. Associated costs and schedule impacts added to the tracker will be based on estimates formulated from the information available, but at a minimum utilizing the thresholds identified by the Project Management Team.
c. Identify cost and schedule impact thresholds to correspond with the consequence ranges identified in the Risk Matrix.
d. Qualitative Analysis of current risk characteristics.
e. An initial Monte Carlo analysis will be executed after the initial risks have been identified and qualitatively analyzed.
f. Results of the initial quantitative analysis (Monte Carlo) will be reflected at the L4 Cost WBS within a single contingency line item.
g. The Monte Carlo Analysis for the project schedule will be performed utilizing Primavera Risk Analysis on or about the time the schedule is ready to be baselined. The results will be presented as indicating the likelihood that critical schedule milestones will be met.
h. The documentation that results from this phase of RIO Management, including the Results of the cost and schedule Monte Carlo analysis, will be memorialized in a "Baseline RIO Package". This package will be the basis by which the initial contingency line item of the baseline budget was established.

Construction Phase / Project Execution

a. The Risk Tracker development will be updated on a monthly basis, accompanied by a monthly Risk Review Meeting that will validate existing and new qualitative risk characteristics.

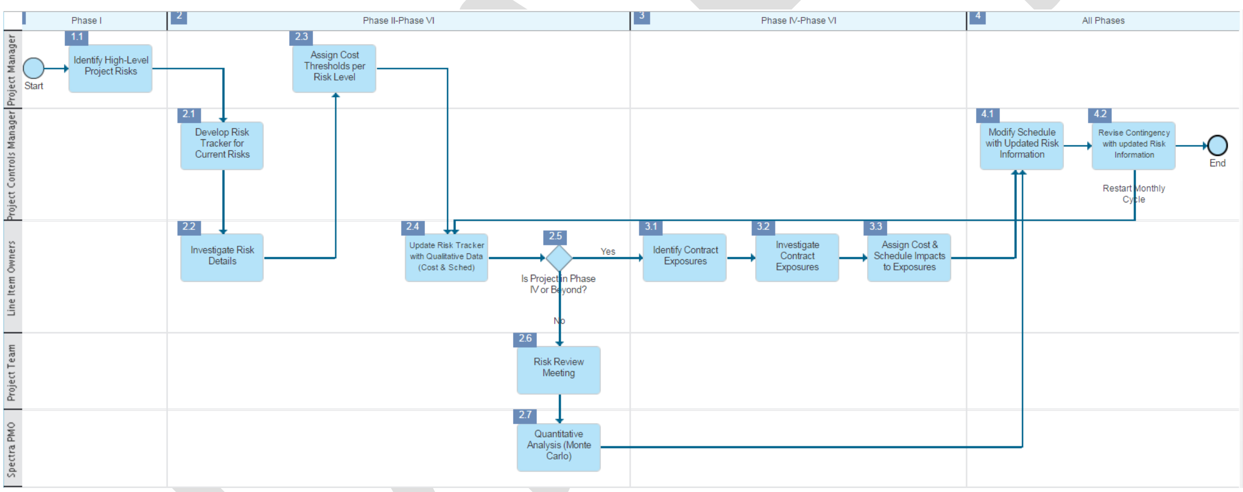
b. In addition to maintaining and updating "Project Level" risks that are applied directly from the impacts of the risk tracker data and corresponding Monte Carlo analysis, risks that apply to individual line items/contract will be introduced.

c. Line item/contract level risks will be defined as exposures against a particular line item/contract. These exposures will be tracked at the line item/contract level and then added to the forecast for that line item. An "Uncommitted Funds Report" will be utilized to summarize all of these types of risks across all line items.

- Documents that will be generated from this PEP section are as shown in Table 4.3-1.

Risks, Issues and Opportunities Management Plan

Document Description	Storage Location	Record (Y/N)	Owner
Project Risk Tracker	TBD	Y	PM
Issue Resolution Log	TBD	Y	PM
Opportunity Log	TBD	Y	PM
Baseline RIO Package	TBD	Y	PM



4.4 Communication Plan

TBD – this section will be included in the next version of the PEP.

4.5 Emergency Notification Plan

TBD – this section will be included in the next version of the PEP.

4.6 Quality Management Plan

TBD – this section will be included in the next version of the PEP.

4.7 Project Performance Measurement

Performance measurement on the Project will be performed using Earned Value Analysis. Earned Value Analysis measures the health of a project by looking at cost and schedule information concurrently to provide metrics to indicate if a project is on schedule and on budget, as well as whether the project is on budget for the amount of work done so far. Cost is the common denominator in establishing the impacts that the performance of one portion of the project relative to other portions, and in order to summarize the overall performance of the project.

The organization and weighting of project information in line with the Project Work Breakdown Schedule ("WBS") allows the model to be scalable and provides end users with the ability to drill down into the WBS for more detailed analysis. The overall objective of Earned Value Analysis is to allow for the monitoring and measurement of leading indicators of performance in relation to the cost and schedule baseline. In doing so, sectors of the project that are underperforming will be more easily identified and have the opportunity to be corrected. To bring it all together into a comprehensive model, small sectors of the Project will roll up to an overall project performance score for each tracking metric as appropriate, based on their proportion of the overall plan (control budget and schedule).

In order for earned value measurement to be meaningful, there must be an established reference point set as a baseline for both cost and schedule. Ultimately, this baseline will be formed by the fully funded project control budget and the approved baseline schedule. However, prior to each of those being established, interim baselines must be established so that performance tracking can begin in advance of setting a control budget. During the project, reference points for cost and schedule will be as follows, depending on the applicability of each:

Cost Baseline:

- Current Project Funding Amount (PFA)
- Control Budget
- Estimate at Completion (EAC)

Schedule Baseline:

- Line Item Schedule dates for deliverables based on contract
- Approved Baseline Schedule

Earned Value Tracking Categories

In order to track performance at the overall project level, while at the same time tracking the smaller parts that contribute to that overall score, an earned value hierarchy set with drill-down capability is defined:

- → Overall Project
    - o Level 3 WBS (Engineering & Design)
        - ▪ Level 4 WBS (Engineering-Design Services)
            - Service Request Order (Engineering Consultant)

- Work Order (xxxxx)
  - Deliverable (xxxxx)

For the purposes of the Project, the term “Line Item” refers to any defined scope that has cost and schedule objectives. Line Items are usually contracts and may contain more than one Level 4 WBS. Line Items can also consist of non-contract scopes, such as internal costs, overheads, and AFUDC.

It is important to identify that measured performance is only one indicator and does not always yield scientifically accurate results. For this reason, it is important to set up Line Items to be tracked according to the benefit the effort is capable of. Therefore, Line Items will be tracked differently depending on the size, complexity, and criticality of the Line Item in relation to the project. The Project Controls manager will coordinate with the team to determine which category is most appropriate. The following types of tracking are as follows:

Category 1 (Detailed)

Deliverable-based model that utilizes the most detailed breakdown of deliverables possible. This type will be represented in the schedule with one schedule activity per each deliverable. Percent complete will be reported by the functional lead based on physical per cent complete (i.e., miles of survey complete/total survey miles on line item). In order to qualify for this model, each deliverable must be able to report baseline and actual data as follows:

1. Schedule Start & Finish
2. Budgeted Cost of the specific deliverable
3. Actual Costs specific to the deliverable

Category 2 (Estimated)

Deliverable-based model that utilizes a higher level breakdown of deliverables than that described in Category 1 for scopes that may not be as rigidly defined as the Category 1 type. While the deliverables are defined by an estimated percentage of the overall project cost on the outset, billing and actual costs are not detailed by each deliverable. Instead, percent complete is estimated by the Line Item owner (i.e., % complete of the P3 design set) during each cycle as a function of the overall billing. In the schedule, there may be several activities that relate to a single activity that serves as the tracking deliverable. Since estimating progress presents a risk to the model, individual tracking items should be as small and defined as possible. In order to qualify for this model, each deliverable must be able to report baseline and actual data as follows:

1. Schedule Start & Finish of the deliverable set
2. Budgeted cost proportion of the Line Item budget for the deliverable set
3. Actual Costs proportion of the Line Item budget for the deliverable set

Category 3 (Level of Effort)

Some Line Items are not deliverable-based, and can be tracked utilizing level of effort over time, instead. These Line Items will be monitored utilizing rates in which costs are occurring in comparison with the plan. Examples of this type of tracking category is service companies and internal labor.

Category 4 (Calculated)

These items are tracked for the sole purpose of completing the model in comparison with the baseline. They are items that are calculated based on the costs of all other earned value items being tracked. Examples of these are AFUDC and A&G. Unplanned costs (ROW damages) or one-time expenses will also fall into this category.

Performance Metrics

In order for earned value metrics to be evaluated, cost updates and schedule updates must be synchronized and the model will be run at the common frequency of updates. In most cases, schedule updates are weekly and cost updates are monthly based on the collection of incurred costs within SAP and EcoSys. Therefore, the tracking of the following earned value metrics will be performed on a monthly basis.

4.6.4.1 Actual Percent Complete

At the Line Item level, this will be the calculated proportion or estimated physical percent complete reported by the Line Item owner. From this point working upwards on the hierarchy, percent complete is calculated based on the proportion of the Line Item's budget in relation to the corresponding level of reporting. This important metric forms the basis for the tracking of the schedule based on a set of rules of credit that are defined on the outset and tracked consistently throughout project execution. Refer to Schedule Rules of Credit for information related to schedule progress tracking.

Performance Metrics

Metric Name	Metric	Description	Formula/Value
Control Budget	CB	Baseline cost for the project, plus any approved changes.	N/A
Incurred Cost	IC	Total costs actually incurred so far (actuals + accruals).	N/A
Earned Value	EV	Amount of budget earned so far based on physical work accomplished, without reference to actual costs.	N/A
Planned Value	PV	The budget for the physical work scheduled to be completed by the end of the time period.	N/A
Cost Variance	CV	Measure of cost overrun. The difference between the budget for the work actually done so far and the actual costs so far.	Earned Value–Incurred Cost EV–IC
Cost Performance Index	CPI	Cost efficiency ratio. A CPI of 1.00 means that the costs so far are exactly the same as the budget for work actually done so far.	Earned Value/ Incurred Cost EV/IC

Schedule Variance	SV	Measure of schedule slippage. The difference between the budget for the work actually done so far and the budgeted cost of work scheduled.	Earned Value–Planned Value EV–PV
Schedule Performance Index	SPI	The schedule efficiency ratio. An SPI of 1.0 means that the project is exactly on schedule.	Earned Value/Planned Value EV/PV
Estimate to Complete	ETC	The expected additional cost to complete.	Estimate at Completion–Actual Cost EAC–AC
Estimate at Completion	EAC	Expected total cost based on the current cost efficiency ratio.	Budget at Completion/Cost Performance Index BAC/CPI
Variance at Completion	VAC	Estimated cost overrun at the end of project.	Budget at Completion–Estimate at Completion BAC–EAC
To Complete Cost Performance Index	TCPI	Shows the efficiency at which the resources on the project should be utilized for the remainder of the project.	(Budget at Completion–Earned Value)/(Budget at Completion–Actual Cost) (BAC–EV)/(BAC–AC)

Performance metrics will be tracked down to the Line Item for the defined categories as summarized in Table 4.6-2.

Performance Metric Line Items

	Deliverables	% Complete	EV	PV	CPI	SPI	EAC
Category 1 - Detailed	X	X	X	X	X	X	X
Category 2 - Estimated		X	X	X	X	X	X
Category 3 - LOE		X	X	X	X	X	X
Category 4 - Calculated		X					

4.6.5 Notification/Action Thresholds

An important aspect of tracking earned value is to take advantage of the leading indicators and trending information that results by setting thresholds in which the project team can take action in time to make improvements. It should be noted that no immediate action is recommended for the first small percentage of the performance of the work (in time) to allow for fluctuations that are inherent to the start of an effort. Action thresholds and required corresponding actions are summarized in the following table.

Action Thresholds and Required Actions

	CPI Value Variance from 1.00			SPI Value Variance from 1.00		
	+/- 0.10	+/- 0.15	> +/- 0.15	+/- 0.10	+/- 0.15	> +/- 0.15
No Action Required	X			X		
Variance Explanation Required		X			X	
Detailed Recovery Plan Required			X			X
Recovery Plan after 3 or more Consecutive Cycles		X	X		X	X

Reporting

The primary means of reporting will be utilizing an interactive online dashboard, hosted on the project SharePoint Site. The dashboard will display the critical metrics discussed above for the total overall project, with the capability for the viewer to navigate to display the same metrics for any level or portion of the project desired. Below is an example screen shot of the interactive dashboard. In addition, there will be an Level 4 Earned Value Report showing all these critical metrics for hardcopy or digital printout. These reports will also be stored on SharePoint in the Project Documents/Project Controls Library.

4.8 Document Control

TBD – this section will be included in the next version of the PEP.

5 FUNCTIONAL TEAM STRATEGIES AND PLANS

5.1 ENGINEERING DESIGN PLAN

Including specific workflows on the following engineering sections. A Design Basis Manual will also be prepared, with details on each aspect of the engineering process, with interfaces with the permit and procurement teams. Specific sections will include:

5.1.1 Engineering Design Execution

5.1.2 Support to Construction by Engineering

5.1.3 As-Built Coordination

5.1.4 Owner Engineering Design Resources and Requirements

5.1.5 Engineering Design Schedule

5.1.6 Design Quality Assurance Plan

5.1.7 Constructability Reviews

5.1.8 Engineering Design Firm Performance Monitoring

5.1.9 Testing & Commissioning Plan

5.2 Procurement Management Plan and Sourcing Strategies

5.2.1 Overall Contracting Strategy

The Overall Procurement Management Plan will detail how services and materials will be procured for the Project. An integrated team approach will be used which will include close coordination with Engineering, Procurement, Materials Management, and Construction.

The procurement team, with assistance from the Project Team, shall define the contracting strategy, bidding platform and contents of each services package required to support the Project.

The identified procurement packages and milestones are summarized as follows:

Identification of Procurement Packages

Additionally, preconstruction services, survey, engineering, permitting and other development consultant contracts will be awarded in support of regulatory requirements and other deliverables. This will be further defined in future versions of the PEP.

The Rise team will contact with the intent on leveraging experienced vendors who can optimize local in-state labor, equipment and material, while also providing competive pricing and familiarity with the work scope and work in the New Jersey Area.

Procurement Status Report

The Procurement Status Report will be used to track the contract deliverables and progress, needed to meet the start date of the requirement. The information in this report is incorporated into the project schedule on a weekly basis.

Bidder Qualification Process

Qualification of bidders is necessary to ensure the solicitation and bidding processes are limited to those suppliers who are likely to complete the work in accordance with Rise's quality standards, project schedule, and budget.

The Contract Lead will administer the qualification of prospective bidders and shall coordinate the bidder qualification process with the Project Team.

Qualification factors include, but are not limited to:

- Technical

- Commercial
- Financial
- Environmental
- Safety
- Management
- Quality
- Past Performance

The Contract Lead will coordinate the receipt of all completed qualification documents from proposed bidders and forward copies of the completed documents to the appropriate Project Team members. The appropriate Project Manager will be responsible for evaluating the technical capabilities of the prospective bidder based upon the bidder-supplied information. The Contract Lead will solicit additional information as appropriate to formulate a recommendation for technical qualification or rejection.

RFP Preparation

An RFP shall consist of two major parts:

I. Technical requirements
II. Commercial requirements

Technical Requirements

The Project Team's engineering staff and project team will prepare and submit the technical specifications relative to a particular procurement package. Each technical specification will describe the scope of work and submittal requirements to be provided by the bidder and will include the following elements as appropriate:

1. Detailed description and scope of required services
2. Technical or performance specification documents
3. Drawings
4. Bills of Material
5. Requirements for spare and start-up parts
6. Training, commissioning and field services required
7. Material management responsibilities
8. Engineering drawing review procedures
9. Project Schedule and Schedule Milestones
10. Required delivery / work schedule

Commercial Requirements

A coordinated effort between the PSCM Team and the Project Team will produce commercial documents that are consistently applied to RFPs for procured services, including construction activities. The commercial requirements portion of a resultant RFP may include, as appropriate:

1. Instruction to Bidders
2. Questionnaire
3. Pricing
4. Bid Forms
5. General Terms and Conditions

Instructions to Bidders

The Instructions to Bidders establishes the requirements of the bid process, provides a description of the required format of the bid, defines the rules of communication between Contract Lead and bidder during the bid period, and informs the bidder of the general requirements of the RFP.

Questionnaires, Pricing and Bid Forms

The Questionnaires, Pricing, and Bid Form establishes a common form that must be completed by all bidders responding to a RFP, and may contain the following:

1. Questions concerning specific bid information that will be part of evaluation process
2. Bidder's acknowledgement of the bid requirements
3. Bidder's acceptance of the proposed terms and conditions
4. Bid price(s)
5. Option pricing
6. Change in scope rates
7. Spare parts listing
8. Per diem costs for the bidder's field service representatives, including travel, local transportation, and lodging.
9. Export packing cost/considerations, if required.
10. Costs and conditions for materials and/or equipment transportation to site, if applicable
11. Exceptions/clarifications section, where the bidder can describe all exceptions and/or clarifications, taken to the commercial and technical requirements
12. Proposal validity
13. Price basis
14. Schedule compliance statement
15. Checklist of RFP requirements
16. Bidder's acknowledgement of RFP addenda
17. Bidder's listing of proposed subcontractors

General Terms and Conditions

This section shall define all general contract terms that will be developed by Rise and be in force during the full duration of the Project.

Bidding Strategy

The bid strategy to be employed for obtaining quotations for each of the required RFPs shall be determined by the Project Team. Unless otherwise noted, competitive bids will be solicited and firm, fixed pricing shall be requested.

Competitive Bids

Generally, procurement bid packages expected to exceed $250,000 in value will require that an RFP be issued to a minimum of three (3) qualified, acceptable bidders. Instances may occur where less than three (3) bidders will be pursued. Such cases will be discussed and mutually agreed upon by the Project Team before an RFP process is initiated. All discussions regarding which, and how many, bidders are selected to bid a particular procurement package shall be documented and maintained as part of the project record.

Sole Sourcing

If a sole source is necessary or planned (for an award over $250,000), the Contract Lead will draft a "Single/Sole Source & Premium over low bid – Purchase Request Approval Form" for approval by Rise Management. The Contract Lead will not be permitted to proceed with such a procurement until written authorization is received from Rise Management.

Confidentiality

Bidder lists shall be treated as confidential information for the Project Team's use only.

Bid Package Approval, Issuance and Bidding Period

Once specifications and other bid documents are developed into a specific RFP, it will be formally sent to the appropriate members of the Project Team for review, comment, and approval prior to being issued for bid. A RFP Summary Document will be prepared by the Contract Lead, detailing the process for issuance of the RFP, with approval signatures.

Upon receipt of a signed RFP Summary Document, the Contract Lead shall prepare the necessary copies and issue the RFP to the approved list of bidders. All RFPs will be issued via a transmittal letter indicating:

1. The RFP package name
2. A brief summary notation indicating the project name
3. Important date requirements (e.g. bid due date)
4. The Contract Lead's name, address, telephone, and e-mail address for contact during the bidding period
5. A listing of the RFP documents

All communications from the bidders shall be addressed to the Contract Lead identified in the RFP transmittal letter. Such bidder communication can be via phone, fax, letter, or e-mail, unless otherwise stated in the Instructions to Bidders. Responses to commercial-related issues shall be answered by the

Contract Lead. Technical questions shall be prepared by the Project Manager, and then forwarded to the Contract Lead, for transmittal to the bidders.

All correspondence between the individual bidders and the Contract Lead is confidential and copies shall be maintained within the project files.

RFP Addenda

Revisions to an RFP must be done so in writing and issued prior to receipt of any bids. All RFP revisions shall be assigned a distinct, consecutive addendum number.

The Project Team will prepare the technical part of an addendum and the Contract Lead will prepare the commercial parts of an addendum. The Contract Lead will then assemble the addendum, obtaining review and approval from the Project Team (as required). The RFP addendum will be distributed via a transmittal letter to all bidders who received the original RFP, unless a bidder has formally withdrawn from the RFP process. The Contract Lead is then responsible for documenting the approvals and maintaining a copy of the addendum with supporting documentation in the project file.

Bid Receipt, Bid Opening, and Bid Distribution

All bids will be received by the Contract Lead. Bids will be opened on the bid due date and distributed by the Contract Lead to the bid evaluation team. Based on information provided to the bidder at the time of the RFP, the Contract Lead, in concert with the PSCM Team, has the right to accept or reject any bid that is incomplete, late, or otherwise irregular.

Bid Evaluations

Before an RFP is issued, the Contract Lead and the Project Team will develop bid evaluation criteria that address both the commercial and technical portions of a bidder's proposal. The proposed bid evaluation criteria shall be approved by the PSCM Team (if required). The proposals will be evaluated and ranked based on the two major portions listed below. Bidders with the highest rankings will be selected for clarification and/or negotiations.

1. Qualitative:
    a. Commercial (non-pricing)
    b. Technical
2. Quantitative:
    a. Pricing

A negotiation recommendation package, including the bid evaluation matrix and summary document, will be developed for review, comment, and approval (if required). The Contract Lead shall contact the preferred bidder (or bidders) and set a date, time, and location for contract negotiations with the Project Team.

Negotiations
Prior to negotiations, the Contract Lead will meet with the Project Manager to determine the appropriate contract negotiation team and develop an overall negotiation strategy. Negotiations will then occur with the vendor. If negotiations result in modifications and/or changes to the RFP, the revised language shall be agreed to by both parties during the negotiation meetings.

Once negotiations have been completed, a final recommendation package will be developed, with draft contract. The award recommendation and draft contract will then be forwarded to Project Team for review, comment, and approval.

Supplier Diversity
The PSCM Team will work to assure that Small (SB), Small Disadvantaged (SDB), Women Owned Small Business (WOSB), Veteran Owned Small Business (VOSB), Service Disabled Veteran Owned Small Business (SDVOSB), and HUBZone Small Business concerns collectively referred to as Small Business Concerns (SBC's) are given equitable opportunity to compete for procurements.

Approval for Contract Execution

Prior to abstracting a contract for execution, a Contract Lead will draft the initial Bid Recommendation Letter that summarizes the process at how the determination was made to recommend award to the selected vendor. The Project Execution Team will review and/or revise. The Bid Recommendation Letter will be signed off by the PSCM and the VP for Engineering and Construction.

Contract Lead will prepare the abstract for approval to execute the contract that highlights the process (bidders, cost, and recommendation). This abstract will then be forwarded to subject matter management, construction management and project management for review and approval.

Issuance of Contract and Purchase Order Documents
Based on the negotiation and award process discussed above, final contract documents will be prepared by the Contract Lead. The successful bidder's signature will be secured on three (3) sets of contract documents for execution by the proper Rise representative.

Rise will retain two (2) fully executed sets of the contract documents and will provide the remaining copy of the fully executed contract to the successful bidder. Upon obtaining copies of the fully executed contract, the Contract Lead will issue formal notifications to all responding unsuccessful bidders.

Contract Conformance will also receive an "original" contract set.

5.2.2 Materials Procurement Strategies and Supply Plan

The PSCM Team, with assistance from the Project Team, shall define the materials procurement strategies and materials requirements for project.

Supply Plan
The Supply Plan will be the mechanism for the project team to understand what materials need to be bought for the project. The Supply Plan will list all major equipment and commodities that need to be purchased, will contain detailed lead times based upon commodity type and onsite date required to support construction. Where appropriate, additional time will be built into the Supply Plan to allow for material overage, shortage and damage issues to be resolved by the Materials Group, before the Construction need date.

The Supply Chain Project Coordinator will be responsible, along with the Engineering Managers, for creating a Supply Plan for the project. The Coordinator will work with Construction to determine the date by which each material needs to be available for delivery to the site.

The Project Schedule will be updated based on the Supply Plans. A detailed workflow and Supply Chain plan will be developed and will be added to a subsequent PEP draft with specifics tailored to the team and needs of the project.

Design Manager
The Design Manager is responsible for submitting MLS to procurement for materials purchasing based upon each Supply Plan. The MLS are to have ties back to the Drawing BOM's by use of tag numbers, and/or drawing/item numbers in the line item description of the material being ordered. If corrections or clarifications to the MLS are requested by procurement, the receipt date will be updated based upon a revised submission.

Procurement
The Material Analyst reviews MLS to ensure that each procurement request is correct and that there are no questions regarding what is being bought. Once all corrections and/or clarifications are received, by Design, the MLS will be turned into a shopping cart in the SAP system and forwarded for approvals. Once approvals are received, the shopping cart request will appear in the Buyer's SAP email.

The Buyer coordinates with Engineering for the purchase of major equipment and commodities, possibly requiring advanced RFPs prior to receipt of a shopping cart for purchase order creation. This will be managed by the Supply Plan Coordinator. The Buyer will process a purchase order from the shopping cart ensuring correct descriptions and WBS codes are associated with the order. The Buyer will work to get the best available delivery date and pricing on the order, depending on vendor pricing and start date. Once an order is complete, it will be sent for approvals. The Buyer will forward PO to vendor, MLS requestor, and Expeditor when final approval is received.

Equipment & Material Expediting
The Procurement Expeditor will contact the vendor within 72 hours of award to confirm that the order has been placed in the schedule of the vendor's manufacturing process.

Material expediting activities are executed to confirm and verify various aspects and progress of an order. Expediting visits are made, as required, to selected suppliers to verify actual progress. The need for, and/or extent, of shop visits is determined based on the criticality of on-time delivery to the construction schedule, potential or likelihood of delay, complexity of equipment and/or materials of construction, and prior history of supplier performance. The Expeditor will set up regular meetings with major equipment suppliers.

The expeditor team will be responsible for coordinating source inspections with the vendor via the assigned inspection firm.

Source Inspections
Source inspections will be done by QAE. They will coordinate with the vendor and set up times for inspections based upon manufacturing schedules. The required levels of inspection will be detailed on the material purchase order and tracked on the MSR. The Expeditor will coordinate and manage the source inspection firm.

The Source Inspector will coordinate the material supplier source inspections, shop surveillances, and QC audits with the selected vendors and contractors. The required levels of inspection will be detailed on the material purchase order and added to the Source Inspection Plan as issued. The Source Inspection Plan will detail the individual audits and shop inspections. The Source Inspection Plan establishes the activities related to planning, performing, and documenting Supplier Surveillance of equipment, fabrications, or materials prior to shipment for the Project. The Project Supplier Surveillance Log will be developed to identify equipment and materials requiring inspections and identify resources and forms necessary to perform and document these activities.

5.2b Materials Management Plan

This is a preliminary outline for materials management. Additional detail will be forthcoming in a subsequent version of the PEP.

Materials management will be done by the Materials Management team. They will be responsible for the following:

1. Coordinating large deliveries with Logistics
2. Unloading material
3. Quality inspection
4. Resolution of Overages, Shortages and Damaged materials
5. Assignment to Drawing BOMs
6. Receipt of material in SAP

7. Tracking, staging, and loading on contractor's delivery trucks
8. Evaluation and resolution of surplus and scrap materials

The Construction Contractor will be required to send a material request 72 hours prior to a pick-up at a materials yard. This will give the yard time to stage for the request and be ready to load the Construction Contractor's trucks upon arrival. If no material request has been sent to the Materials Management team and a truck arrives for pickup of materials, the truck may be sent away unloaded.

Construction Contractor

The Construction Contractor is responsible for planning material requirements of their work, to allow the Materials Management team to be most efficient in processing the Contractor's needs. As needed, the Rise Project/Construction Manager is responsible for working with the Construction Contractor to ensure material needs are planned correctly. The Construction Contractor must also have a Materials Manager on site to manage the material requirements of the project.

Contract Closeout Plan

During Closeout, the Contract Conformance Group management (CCGM) will push for closeout of the Agreement. The CCGM shall review the project folder maintained on its SharePoint site as well as working with the Contract Management Lead's project folder on its SharePoint site to ensure that final documents are in compliance with Company's Contract Conformance principles utilizing the Close-Out Checklist. Checklist includes but is not limited to: copy of executed Agreement, meeting notes, NTP letter, logs (correspondence/RFI/CRC/CD/CO), certificates, lien waivers, final invoice and statement reconciling all invoices (progress payments, change orders, and T&M). Additionally, the CCGM shall assess the CCS's (Contract Conformance Specialist) performance criteria and project metrics as they relate to Contract Conformance initiatives on the project. In Closeout, the CCS must manage details of the Contract Close-Out Process in order to protect the Company fully from any undisclosed and unliquidated project issues. Once the CCS has verified that all project Agreement closeout documents have been uploaded into the project folder on the CCG Project Management Site, the CCS will notify the CCGM that the project folder is closed.

5.3 Construction Management Plan

The project's construction phase is anticipated to start in [Enter Month, YYYY], which follows the anticipated receipt of all permit approvals. To organize the construction execution phase, the P6 schedule has been created with sub-sections as follows.

Subsequent drafts of the PEP will include further information on the following construction topics:

5.3.1 Construction Quality Assurance Plan

5.3.2 Contractor Work Plan

5.3.3 Construction Readiness Plan

5.3.4 Survey and Mapping Plan

5.3.5 Soil and Water Disposal Plan

5.3.6 Construction Outage Sequence Management Plan

5.4 Health and Safety Management Plan

TBD – this section will be included in the next version of the PEP.

5.5 Public Outreach Plan

TBD – this section will be included in the next version of the PEP.

5.6 Environmental Permitting Plan

TBD – this section will be included in the next version of the PEP.

5.7 Land Acquisition / Right-of-Way Plan

TBD – this section will be included in the next version of the PEP.

5.8 Regulatory Strategy Plan

TBD – this section will be included in the next version of the PEP.

5.9 External Communications Strategy

TBD – this section will be included in the next version of the PEP.

5.10 Government Relations Strategy

TBD – this section will be included in the next version of the PEP.

5.11 Legal Strategy

TBD – this section will be included in the next version of the PEP.

5.12 Interface Management Plan

TBD – this section will be included in the next version of the PEP.

5.13 Contract Administration and Compliance Plan

TBD – this section will be included in the next version of the PEP.

5.14 Compliance Assurance Plan

TBD – this section will be included in the next version of the PEP.

6 OPERATIONS PLAN

TBD – this section will be included in the next version of the PEP.

6.1 Operations Input

6.2 Operations Readiness

6.3 Transition to Operations

7 PROJECT ADMINISTRATIVE

TBD – this section will be included in the next version of the PEP.

7.1 Project Information Management

7.2 Project Reporting and Controls Requirements

7.2.1 Commitments Report

7.2.2 Risk Tracker Report

7.2.3 Monthly Project Report

7.2.4 Project Dashboard

8 PROJECT CLOSE-OUT

TBD – this section will be included in the next version of the PEP.

8.1 Project Closeout and Turnover Plan

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