Attachment 10

Prebuild Infrastructure Requirements

List of Acronyms and Defined Terms:

Definitions below are limited to the purpose of explaining concepts in Attachment 10 only. Other terms are as defined in the SGD.

Circuit, the set of power cables used to deliver a Qualified Project's power to the POI.

Conduit (or Cable Conduit), the pipes which contain cables that are pulled through from end to end. Also called cable duct, or Duct Bank for multiple conduit/cable sets.

Corridor, the cable route from the landfall location on the shoreline to the POI into the regional electric grid.

Horizontal Directional Drilling ("HDD"), a trenchless method of installing Conduits for underground cables with limited above ground disruptions between the locations of the drilling equipment. Also called "directional boring."

High Voltage Alternating Current ("HVAC").

Maximum Power Delivery, the amount of power, measured in MW, expected to be delivered from a Qualified Project's HVDC system as measured at the alternating current ("AC") POI.

Point of Demarcation, location where the change of ownership occurs between owning entities for an electrical line and/or supporting ancillary infrastructure. Conceptually, this location represents the terminus of the Prebuild Infrastructure, which will be at or near the LCS. The current coordinates for this location, and additional details, are located in the Route Details – Larrabee Collector Station Section herein.

Right of Way ("ROW"), a proposed right to make way over a certain portion of land or in offshore waters.

Transition Vault, the larger underground vault structure used at the shore crossing at the Sea Girt NGTC to facilitate transitions between land cables and submarine cables. Also called transition splice/joint bay.

Prebuild Overview

In the SAA Order, the Board found the Larrabee Tri-Collector Solution to be the most desirable SAA solution at this time.[1] The Larrabee Tri-Collector Solution provides a single point of interconnection for Qualified Projects selected as part of the Third Solicitation and a portion of other future offshore wind solicitations needed to reach 7,500 MW of Qualified Projects. The Board's selection of the Larrabee Tri-Collector Solution enables the potential for consolidation of shore crossings and onshore cable routes for Qualified Projects to interconnect to the AC grid operated by PJM. The SAA Order further requires implementation of the Prebuild concept in the Third Solicitation, which means that a single Qualified Project may construct the necessary Duct Banks and access Cable Vaults for itself as well as for the other additional Qualified Project(s) needed to fully utilize the Larrabee Tri-Collector Solution. This consolidation approach will minimize community disruptions, permitting risks, and adverse environmental impacts.[2] Applicants are encouraged, but not required, to explore partnerships with non-affiliated transmission developers in support of offering creative organizational and financial structures.

In accordance with the SAA Order, and unless otherwise specified, each Project submitted in response to the Third Solicitation must plan to utilize the SAA solution. Each Project must also include an option for construction of the Prebuild Infrastructure from the Sea Girt NGTC, the point at which the transmission cables from the Qualified Project make landfall and cross the shore, to the Point of Demarcation that meets the requirements listed herein. The Prebuild Infrastructure involves only the necessary infrastructure to house the transmission cables, and does not include the cables themselves.

Note, the SAA Project may be modified to include the Prebuild infrastructure – Board Staff, PJM, and the SAA Project are exploring this option. If the SAA Project is so modified, Applicants must similarly utilize the Prebuild infrastructure developed by the SAA Project. The Board and Board Staff will notify Applicants, as early as possible, if the SAA Project is chosen to develop the Prebuild infrastructure. At this time, Applicants should develop their proposals under the expectation that the Prebuild infrastructure will be developed and awarded through the Solicitation 3 process, as directed by the SAA Order and as explained below.

An Applicant selected as a Qualified Project in this solicitation will construct and own the Prebuild Infrastructure. Ownership of the Prebuild Infrastructure may subsequently be transferred to another entity, subject to Board approval. Any future owner(s) of the Prebuild Infrastructure will be subject to all terms and conditions set forth in any Board award. While transfer of ownership or co-ownership will be allowed, because the Prebuild Infrastructure will be solely funded through OREC payments to the originally-awarded developer, it may not be leased to other developers utilizing the specific circuits, unless for a nominal payment or otherwise specified by the Board.

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[1] The Larrabee Tri-Collector Solution is a "tri-collector" transmission solution that distributes up to 4,890 MW from the LCS to three existing points of interconnection on PJM's grid, specifically, the Smithburg 500kV substation, the Larrabee 230 kV substation, and the Atlantic 230 kV substation, using JCP&L's existing transmission rights of way.

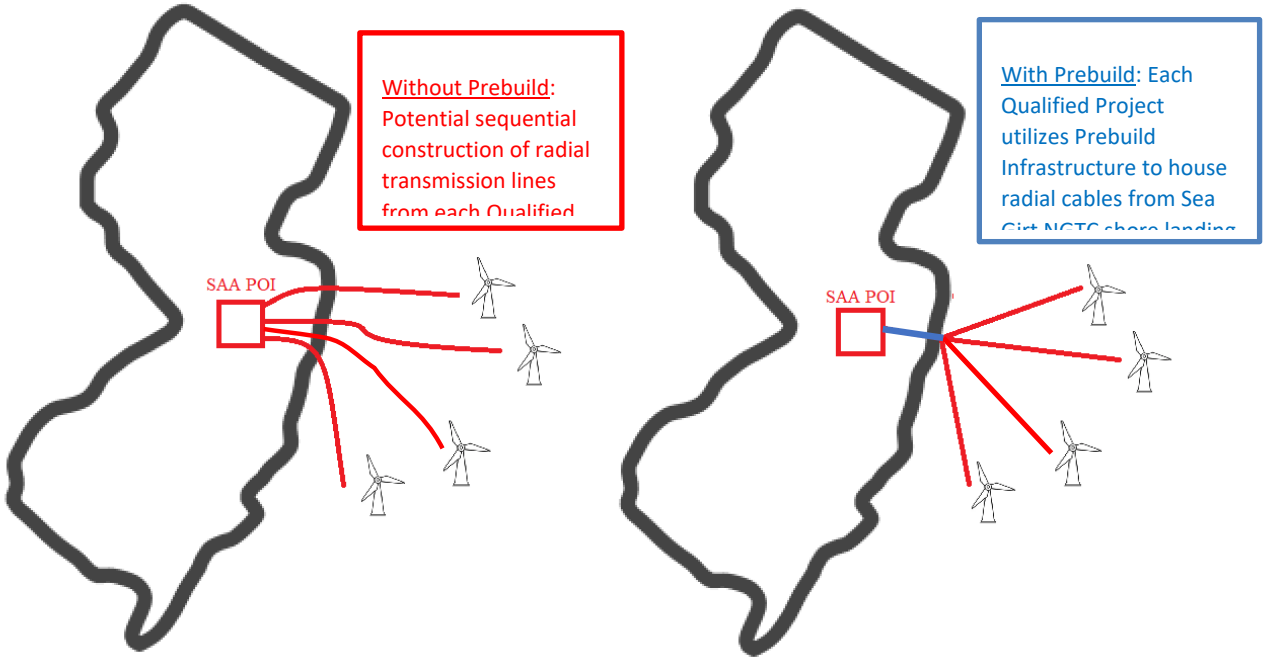
[2] Other benefits ascribable to Qualified Projects using the Prebuild infrastructure from the Sea Girt NGTC to the LCS include the reduction of cost overrun risks associated with project delay(s) and anticipated OREC price benefits. Absent utilization of the Prebuild Infrastructure, separate sequential construction efforts would result in higher community impacts, along with inefficiencies and redundancies regardless of cable routes being in one corridor or separate corridors.

The Prebuild Infrastructure owner (the original developer, or a third party in the event of a Board-approved transfer) will be solely responsible for operating and maintaining the Duct Banks and Cable Vaults to set performance criteria, as directed by the Board, including readiness for installation of future cables, unless another Board-approved agreement is in place delineating these responsibilities from Prebuild Infrastructure owner to another entity or entities. The Prebuild owner will provide timely certification of the integrity, based on standard industry requirements, of the Duct Banks and Cable Vaults prior to the utilization by another developer. This will require formal engineering documentation and certification by a third-party engineer to be arranged and delivered by the Prebuild owner to developers who will utilize the Prebuild Infrastructure.

Applicant shall ensure that environmental impacts from the Prebuild, to the greatest extent practicable, are avoided, minimized, or mitigated and all required permits are included in the permitting plan (see Section 3.14 of the SGD). The description of all environmental impacts on environmental resources shall be included in the EPP (see Section 3.10 of the SGD), FPP (see Section 3.11 of the SGD) and permitting plan (see Section 3.14 of the SGD).

The Prebuild concept is depicted in the simplified diagram shown in Figure A10-1.

Figure A10-1. Conceptual Diagram of Qualified Project Connections to POI With and Without Prebuild



In accordance with the Third Solicitation's Prebuild Infrastructure requirements, a single Qualified Project will construct a transmission corridor containing the Prebuild Infrastructure, from the Sea Girt NGTC to the Point of Demarcation. The Prebuild Infrastructure will consist of Duct Banks and Cable Vaults to accommodate the transmission cable(s) for the Qualified Project(s) selected in the Third Solicitation and future solicitations, allowing for four (4) total Circuits. The Prebuild Infrastructure must accommodate a total of four (4) Circuits for Qualified Projects.

Construction activities and sequencing will have the following general requirements:

- Each Qualified Project will construct its own offshore facilities including, but not limited to, wind turbines, intra-array cables, offshore substation(s) and radial cable to shore.
- The Prebuild Infrastructure to accommodate HVDC cables for four (4) total Circuits may be constructed by a Qualified Project selected in the Third Solicitation. The Prebuild Infrastructure will include the HDD bores under the shoreline interface from offshore cofferdams to Transition Vaults at the Sea Girt NGTC landfall. Consistent with the capacity injection rights that will be made available at the LCS through the SAA, the total capacity to be delivered via the Prebuild Infrastructure to the LCS is expected to be approximately 4,000 MW. However, the Prebuild Infrastructure should be designed to accommodate up to 6,000 MW (up to 1,500 MW in each of the four (4) Circuits).
- Each Qualified Project utilizing the Prebuild Infrastructure will construct its own HVDC converter station on land specifically allocated to each Qualified Project, located at or near the LCS.
- Each Qualified Project utilizing the Prebuild Infrastructure will pull its onshore HVDC cable(s) through its allocated onshore Duct Banks and Cable Vaults inside the Prebuild Infrastructure to its designated Direct Current ("DC") converter station located at or near the LCS without additional onshore landing, trenching and drilling. Only the cable pull-through effort will be required using the previously constructed Duct Banks and Cable Vaults.

Prebuild Infrastructure Specifications

Reliability Considerations

Design of the Prebuild Infrastructure, as well as the entire HVDC transmission system between the offshore platforms and the LCS, will need to ensure that each individual transmission Circuit can be installed, operated, and maintained independently. There cannot be a single or common point of failure that would result in an outage of more than one Circuit at one time for a single event.[3] This aspect of the Prebuild design is of critical importance.

Basic HVDC System Characteristics

The Third Solicitation requires HVDC-based cable and converter technology. Future solicitations for Projects that will utilize the Prebuild Infrastructure will also require HVDC technology. The technical and thermal limitations of HVAC-based technology at the intended target Project sizes, therefore, preclude use of HVAC technology for the proposed Prebuild concept design.

Additionally, the Applicant should consider HVDC technology deployment possibilities for the proposed Prebuild design that will enable easy integration of other Qualified Projects utilizing the Prebuild Infrastructure. The duct banks should be able to accommodate HVDC cables from all major vendors, in addition to all available voltage levels.

Applicants are encouraged to consider the future proof nature of their proposed design.

[3] Please reference the NERC Category P7 contingency, which deals with "common structure" outages, for more information. See https://www.nerc.com/pa/Stand/Reliability%20Standards/TPL-001-5.pdf.

Maximum Power Delivery (MW) at POI

The Qualified Project responsible for constructing the Prebuild Infrastructure will only install its own Circuit to support its own Project in the Prebuild Infrastructure. Applicants are, however, required to include thermal ampacity/total power capacity assumptions for the other Qualified Projects' respective Circuits that also will utilize and share the Prebuild Infrastructure. Each Circuit is required to be electrically independent from all other Circuits in the shared Prebuild Infrastructure, with limited thermal interference from one Circuit to another that could reduce any of these Projects' applicable Maximum Power Delivery target when all Circuits are operating at up to 1,500 MW.

Applicants are encouraged to exercise professional judgment in order to formulate a "lowest common denominator" approach. The Board recognizes that it will be difficult for Board Staff to evaluate all permutations of potential Duct Bank and Cable Vault requirements across an array of potential HVDC technology, voltage, and vendor choices. Under "a lowest common denominator approach," Applicants should delineate power cables sizes, types, and ratings for their Circuits, which may involve larger diameter cables or, in the alternative, may involve the use of other voltages that can be accommodated in Applicant's proposed Prebuild design. For purposes of targeting Maximum Power Delivery, Applicants should consider a target nameplate of up to 1,500 MW for each Circuit, with a voltage of 400 kV, or, perhaps, 525 kV, as a technical proxy specification to support flexibility going forward. Applicants are free to define relevant scenarios for the assumed future Project Circuits under a range of existing or future HVDC technologies. Applicants should assume the most limiting location of the Prebuild approach, for example, a deep drilling location, if applicable.

Each Circuit should be structured to accommodate 3 cables needed for 525 kV cable sets, plus a smaller fibrotic control conduit. These Circuits should be downward compatible, as in, 525 kV design should also be able to handle lower voltage cables.

Number of Qualified Projects Accommodated

Board Staff will evaluate the (de)merits and limitations of all Project scenarios and route alternatives. Subject to the Maximum Power Delivery target, the proposed routes which demonstrate maximum flexibility to accommodate four (4) Circuits in the Prebuild Infrastructure for a single ROW design would be evaluated favorably. Applicants are encouraged to identify limitations, conflicts, or constraints that can be mitigated to reduce both technology design risk and operating risk during the OREC term. Applicants submitting a Prebuild design with four (4) total Circuits that demonstrates high risk that cannot be mitigated or otherwise meet minimum SGD requirements are encouraged to consider a split route design accommodating four (4) Circuits around the identified constrained location(s) (not necessarily for the entire route).[4] The Board will evaluate all Project proposals based on the collective merits of each Project scenario and/or alternative route as it relates to the goals of the Third Solicitation and the schedule for subsequent solicitations.[5]

[4] See Figure A10-4 herein for an illustrative example of a split route.

[5] MAOD intends to purchase, subdivide and potentially lease parcels at or near the LCS site to Qualified Project to accommodate their DC converter stations. MAOD currently assumes that it will be responsible for general site maintenance and upkeep, thereby keeping the parcels accessible and usable for Qualified Projects.

Route Details – Sea Girt NGTC Landfall

Similar to the Prebuild requirements for the onshore cable route, the Applicant must consider landfall approaches at Sea Girt NGTC. Identification of likely directional drilling/boring at landfall for a total of four (4) parallel Conduits where drilling may be needed to accommodate the other Qualified Projects' access to the Prebuild Infrastructure is a required part of the Applicant's proposed Prebuild design.

Applicants must design a route with plans for Project sequencing to accommodate future cables which will avoid future conflicts or constraints. Applicants must provide any known limitations related to the order of installation for each Qualified Project in the respective Circuits when developing the Prebuild design. The Prebuild Infrastructure must include the Transition Vaults for cable splicing and HDD for Conduits/pipe at landfall for a total of four (4) Circuits. For the Prebuild Infrastructure, Conduits shall be sized sufficiently to encompass the assumed cable diameter for a minimum of two (2) cables per Circuit plus a potential spare Conduit and Conduit for a metallic return cable for a bipolar design. Additional Conduits should also be included and sufficiently sized for installation of redundant communication cables.

Each Circuit will require an independent Transition Vault. Each Transition Vault will need to be accessed and maintained by an individual Qualified Project. The additional Prebuild Transition Vaults and associated equipment at landfall must be installed with appropriate access and physical separation between Transition Vaults. The Prebuild must include the HDD Conduit installation from the Transition Vaults out to the cofferdams where the future cable installation will proceed via jet plow.[6] Reliability considerations will require independent HDD bores for each Circuit as part of the Prebuild installation to prevent impacts from adjacent Qualified Projects during normal and emergency O&M activities. Future Qualified Projects utilizing the Prebuild Infrastructure will be required to pull their respective HVDC cables through the allocated Prebuild Conduits and Transition Vaults at landfall, so that they extend from the cable installed in the seabed by each Qualified Project through the Transition Vaults, and continue through the Prebuild Infrastructure to the LCS.

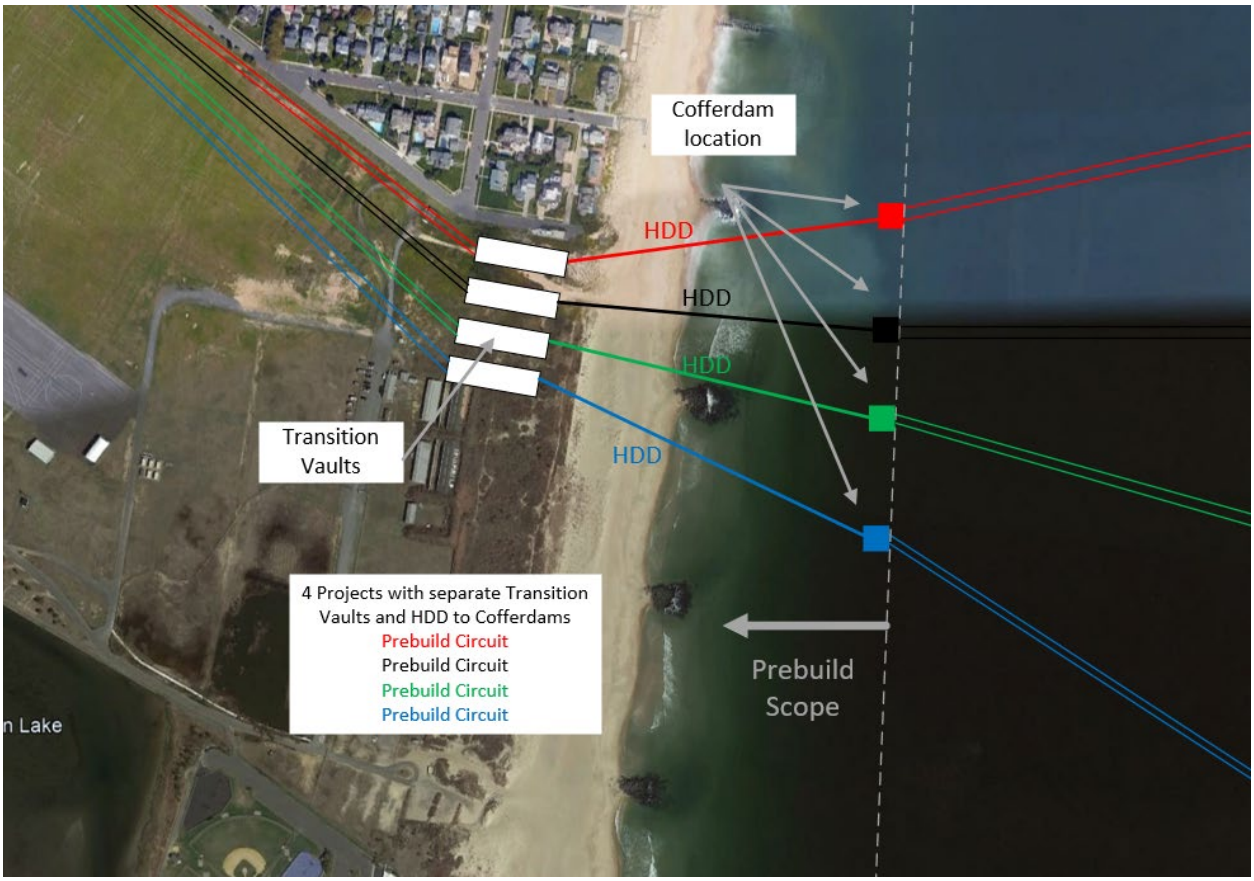
Landfall Construction Specification

The parallel HDD bores should be installed as appropriate to maintain adequate separation. The Qualified Project that constructs the Prebuild Infrastructure will be required to keep the Conduits accessible and maintained until such time that they are transferred to or accessed by each Qualified Project that will install cables therein. See Section 3.13 of the SGD for additional requirements.

For illustrative purposes only, Figure A10-2 below indicates the general concept for arrangement at the landfall point. It is not intended to indicate specific design requirements or locations of equipment.

[6] Jet plowing is a method used to bury the submarine export cables in the seabed between the cofferdams and the offshore platforms.

Figure A10-2. Illustrative Example of General Arrangement at Landfall



Route Details – Land Cable

Applicants are asked to provide proposed route(s) to deliver, through the Prebuild Infrastructure, the set of cables from landfall at the Sea Girt NGTC to the Point of Demarcation. The Prebuild Infrastructure will be used to accommodate a total of four Circuits. Applicants can, and are expected to, provide alternative routes so long as the proposed routes are capable of accommodating four (4) Circuits in total.

Applicants that can show routes that minimize land use constraints will be viewed favorably. However, Board action in this proceeding shall not be construed as providing approval for the proposed route(s). The Board is not responsible for obtaining any required property rights or permitting obligations, including any rights associated with landfall at Sea Girt NGTC.

For illustrative purposes, Board Staff shows general concepts defining common corridor and split route alternatives for the Prebuild route in Figure A10-3 and Figure A10-4, respectively.

Figure A10-3. Illustrative Example of Prebuild Route using a Common Corridor (Single ROW)

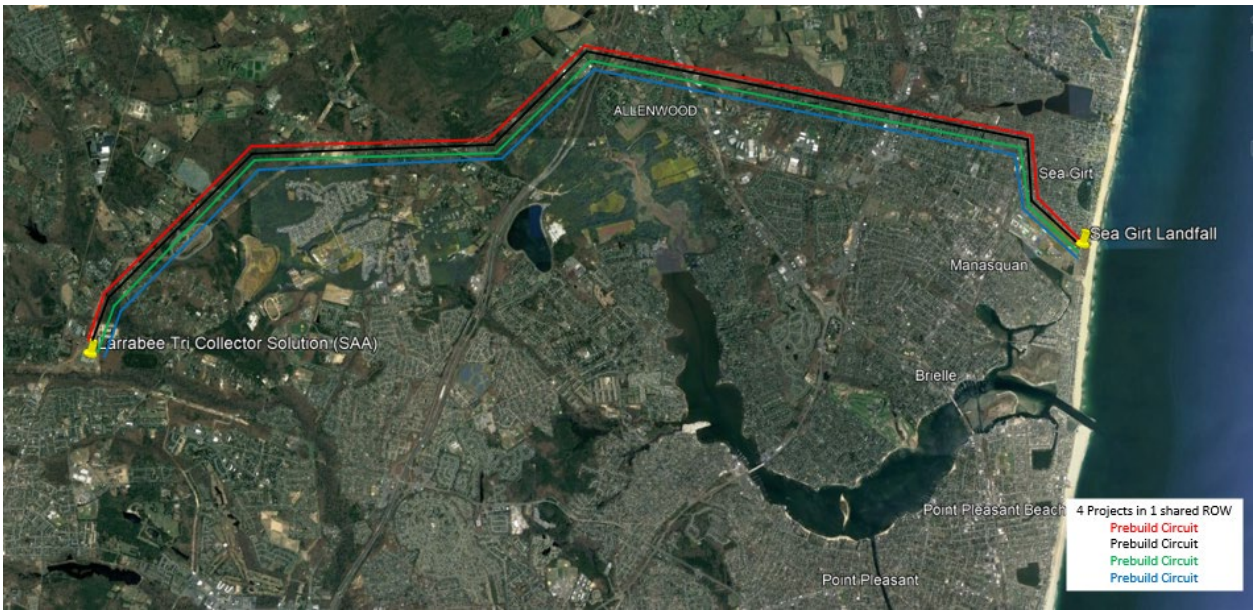


Figure A10-4. Illustrative Example of Prebuild Route using a Split Route (Separate ROWs)

This proposed generalized design will accommodate installation and maintenance by different Qualified Project cable owners. Duct Banks must be designed to accommodate the thermal loading created by transmitting the targeted Maximum Power Delivery through each of the cables utilizing the Prebuild Infrastructure.

Special Cable Vaults, Duct Bank Cross Sections, and Crossings

Consistent with the Prebuild Infrastructure design requirements herein, Applicants must ensure that each future Qualified Project that utilizes the Prebuild Infrastructure has its own independent Transition

Vault and Cable Vault access areas, even for special installations at areas of constraints or where HDD is required for each Circuit to prevent impacts from adjacent Qualified Projects during normal and emergency O&M activities. Each of the Circuits (or future Circuits) in these special Duct Bank or Conduit sections is required to be electrically independent from the others as well as having limited thermal interference (not impacting the target Maximum Power Delivery for each Project Circuit).[7] Eventually, the cables installed in the Duct Banks and Cable Vaults in these areas of constraints or design deviations from what is found along the majority of the route will be installed and maintained by different Qualified Projects.

Proposed Cable Vault Locations and Configuration

The Duct Bank and Cable Vault system for each Qualified Project is required to be independent from those utilized by the other Qualified Projects. There may be special considerations, however, that cover the planning, positioning, and sequencing of Cable Vault installation along the Prebuild ROW to gain the benefits of a common corridor approach. Emphasis on the avoidance of conflicts with local communities is required. When there is sufficient room in the proposed Prebuild ROW, the Cable Vaults for each Circuit should be slightly offset from one another so the overall width of the Prebuild Infrastructure can remain within the public ROW.[8]

As discussed previously herein, if there are other utilities in the street (or other bottle necks) which prevent the installation of the Cable Vaults necessary for installing multiple Project Circuits in a common ROW, it may be necessary to use two adjacent streets (e.g., for up to two Circuits each). Different route alternatives could be proposed with associated Cable Vault details.

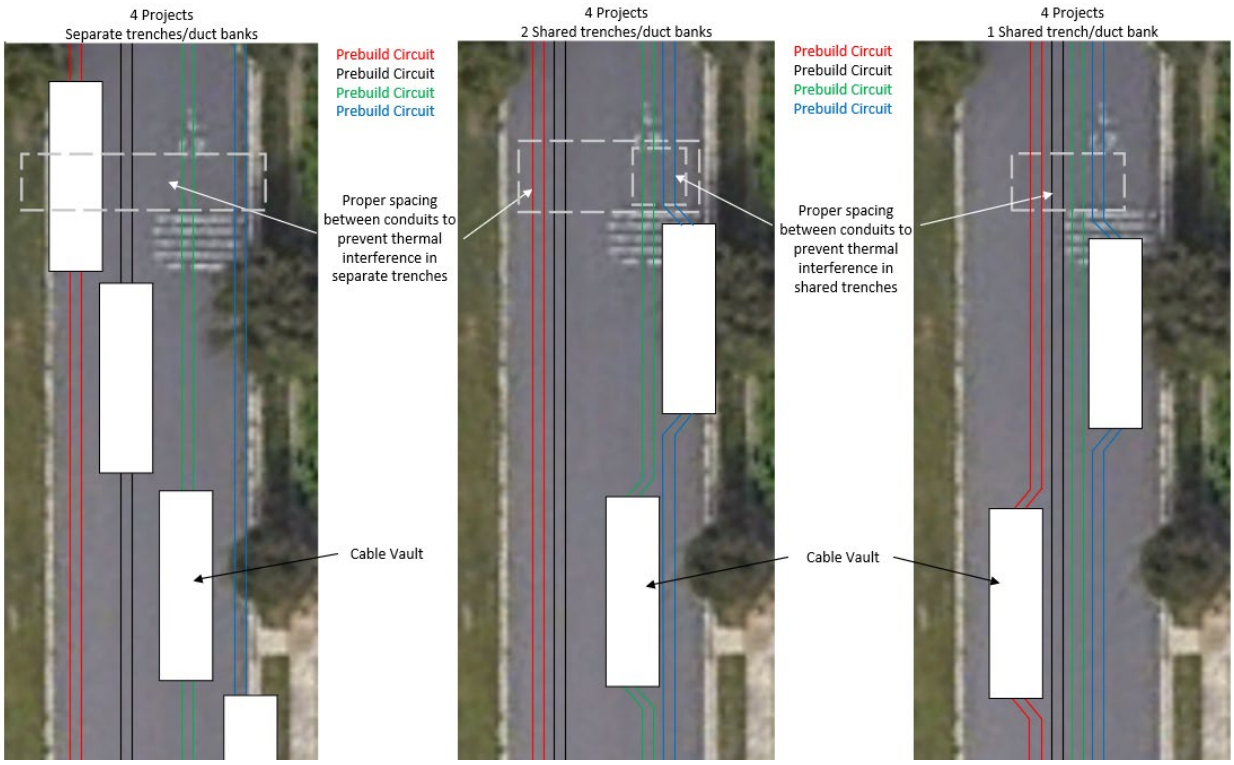
Board Staff recognizes that the conditions between the Sea Girt NGTC and the Point of Demarcation may challenge the ability to install independent Cable Vaults and Duct Banks for four (4) Circuits in a common ROW. In certain narrow sections of the ROW, it may be necessary that Cable Vaults be installed with additional space between them, most notably at areas where there is a bend or at turns. Board Staff encourages Applicants to consider viable alternatives.

For illustrative purposes only, Figure A10-5 indicates the general concept and is not intended to indicate specific design requirements or location of specific equipment.

[7] Conduits and Cable Vaults must be sized appropriately, with room for at least two (2) power cables plus a spare duct or metallic return cable and redundant communication ducts.

[8] For ROWs that allow for a wider cross section width to work, Cable Vaults may be positioned next to one another or offset adjacent to one another to minimize the locations where there is significant excavating activity.

Figure A10-5. Illustrative Example of Duct Bank and Cable Vault Layout for a ROW Section



Board Staff encourages Cable Vault design optimization. Prebuild designs must clearly support future constructability and demonstrate that the proposed Prebuild design can accommodate four (4) independent Circuits for Qualified Projects.

The Cable Vaults for each Qualified Project must be isolated from one another and contain their own access points and sufficient space for performing necessary cable pulling and joint splicing activity in accord with Good Utility Practice for both safety and reliability purposes, while the other Qualified Projects' Circuits can be in operation at the same time. Applicants are encouraged to include a plan to ensure all other Circuits may be operational during these installation activities. Applicants shall provide a typical layout design for Cable Vaults along the land route. Any special vaults[9] for surface conflicts and constrained or challenging areas, as well as designs for the Transition Vaults at the Sea Girt NGTC landfall location must be designated.

<u>Route Details – Larrabee Collector Station</u>

The LCS will include an AC-based switchyard as well as a preliminary site with HVDC converter land allocations to Qualified Projects utilizing the Prebuild Infrastructure. Board Staff provides Applicants assurance that the land allocated for the installation of the HVDC onshore converters will be adequately

[9] A "special vault" is one that has been specifically configured to avoid a constraint, and which departs from the typical, regular vault configuration.

sized to accommodate a wide array of HVDC vendors and technology. Each of the HVDC converter sites will be independent from one another.[10]

MAOD is currently engaged in design work for the LCS. The coordinates of the Point of Demarcation are: Latitude: 40°6'56.84"N; Longitude: 74°11'24.72"W.

MAOD is currently in the process of acquiring a parcel(s) for the LCS and the DC converter sites, but they are not yet fully acquired, and Applicants should not physically tour this space as they develop their Projects. Applicants will be notified once the parcel(s) becomes available for access.

In the unanticipated event the Point of Demarcation's coordinates change after the Application Submission Deadline, all Applicants will be immediately notified and given an equal opportunity to update their Projects' OREC prices prior to any Board award on the Third Solicitation, solely to accommodate a Point of Demarcation's coordinates change.

Applicants should consider the route and general arrangement of Project Circuits approaching the Point of Demarcation at or near the LCS, along with the consideration of the future sequencing of cables subsequently installed in the Prebuild Infrastructure. The approach to the LCS will have independent, parallel, and separated Duct Banks and Cable Vaults with the appropriate cable installation sequencing considered to minimize future conflicts.

For the Prebuild Infrastructure up to the HVDC converter stations that will be constructed at or near the LCS, each Circuit is required to be electrically independent for the reasons described previously, with room for at least two (2) power cables plus a spare or metallic return along with redundant communication cables installed within each Circuit's independent Cable Vaults. Applicants must design the Prebuild Cable Vaults to each of the allocated HVDC converter station properties.[11]

Applicants must consider the appropriate sequencing of Circuit utilization based on the layout of the HVDC converter station properties, if required, to minimize any conflicts between Qualified Projects.

Interconnection Plan Requirements Related to the Prebuild Infrastructure

The following information must be included in the Interconnection Plan submitted as part of the Application in accordance with Section 3.13 of the SGD:

[10]The HVDC equipment will be owned and maintained by the different Qualified Projects utilizing the Prebuild Infrastructure. The converter site owner will prepare the converter site so that it is ready for construction activities involving the HVDC equipment. Each converter site, including the converter site designated for the Qualified Project that constructs the Prebuild Infrastructure, will have its own access and space for mobilizing equipment as necessary.

[11] This will support bringing the cables into their final termination in the associated HVDC onshore converter station bays, the land areas allotted to a Project at or near the LCS for siting its HVDC converter station. Applicants should assume the HVDC converter equipment and cables for each Qualified Project will be installed and maintained independently.

1. Applicants must demonstrate that the proposed Prebuild technology is technically viable.[12]
2. Applicants should clarify how specific features strengthen grid reliability objectives in regard to safety, resilience, integration, and redundancy.
3. Applicants must address Good Utility Practice in the design of the Prebuild Infrastructure. Applicants should demonstrate due separation and independence of each transmission Circuit and highlight the underlying design attributes.[13]
4. Applicants must set forth potential routes for the Prebuild Infrastructure from landfall at the Sea Girt NGTC to the Point of Demarcation. If more than one Prebuild design is proposed, potential routes must be set forth for each. At a minimum, the overall route diagrams and maps must include the overall land route. To the extent possible, the route diagrams should also include the locations of all Cable Vaults, and the locations of any expected conflicts or constraints. Applicants should exercise reasonable efforts to identify primary obstructions and other underground facilities located along the potential routes in the plans, including any plans for mitigation (e.g., proposed course of action, timing, involved stakeholders, and estimated costs).
5. Applicants are encouraged to provide ample documentation from a technical engineering perspective for all portions of their ROW used in the Prebuild Infrastructure design approach for each scenario and alternative. Emphasis should be placed on safety, reliability, and constructability for four (4) Circuits.
6. Applicants are required to provide details of their submarine cable route approach to landfall and at the Sea Girt NGTC landfall along with installation details of the Transition Vaults, including, but not limited to, the identification of potential approaches and directional drilling/boring locations at landfall for a total of four (4) total parallel Conduits to accommodate other Qualified Projects' access to the Prebuild.
7. Applicants are required to provide the range of expected Circuit capacities that the proposed Prebuild Infrastructure can accommodate under an array of potential scenarios pertaining to the Duct Bank configuration set forth in the Application. The assumptions used in the thermal calculations to determine this range that should be provided include:
    - Cable voltage (kV);
    - Cable ampacity (A);
    - Cable outer diameter (in or mm);
    - Conductor size (kCmil or mm^2) and material;
    - Insulation thickness (in or mm);
    - Other cable construction details (shielding, sheath, outer jacket, armor, bundling);

[12] Technical viability may be demonstrated by showing that the technology is commercially available, is reasonably expected to be commercially available prior to the commencement of Project construction or has been used successfully on other similar projects in commercial operation in the U.S. or elsewhere.

[13] Due separation and independence of each Circuit in the context of the Prebuild Infrastructure, where each Circuit involves a separate cable owner, require that the operational activities of any given Circuit do not prevent the ability of other Circuits from operating at their intended design capability. For a Duct Bank and Cable Vault system, the Cable Vaults encompass cable joints and may require de-energizing and grounding of all electrical equipment to meet safety requirements for certain maintenance. Good Utility Practice involves a design with independent physical access limited to a single owner/operator to prevent mutual impacts/conflicts between multiple cable systems. For Duct Banks with Conduits in concrete encasement in a common trench, appropriate separation between transmission Circuits would involve an evaluation of any mutual thermal interference and induced voltage between the Circuits to ensure each Circuit could operate independently without unintended consequences or degradation of operational design capability of any other Circuit from its intended operations or maintenance activities.

- Minimum bending radius; and
- Maximum pulling tension.

8. Applicants are required to provide the following rating scenarios for their proposed Prebuild Infrastructure design to demonstrate Maximum Power Delivery:
    - One (1) Circuit, including short term overload capability (4 hours / 15 minutes);
    - Two (2) Circuits together (lightly loaded / fully loaded);
    - Three (3) Circuits together (lightly loaded / fully loaded);
    - Four (4) Circuits together (lightly loaded / fully loaded);
    - 4-hour overload capability (lightly loaded / fully loaded); and
    - 15-minute overload capability (lightly loaded / fully loaded).
9. To the extent possible, Applicants are requested to provide the following information regarding the estimated landfall configuration:
    - Configuration and submarine cable separation and routing at landfall;
    - Location of Transition Vaults;
    - Design of Transition Vaults (physical dimensions, cable and splicing arrangements within the Transition Vaults, and separation between Transition Vaults and Conduits/pipe);
    - Duct Bank arrangement and route leaving Transition Vaults toward POI (cross section of the Conduit / cable configuration, maximum cable sizes accommodated or assumed, and spare power and/or communication Conduits); and
    - Directional drilling / boring method and details.
10. Applicants are required to provide the following information regarding the configuration of the Prebuild Infrastructure between the Sea Girt NGTC and Point of Demarcation:[14]
    - Typical Duct Bank cross sections (diameters, separation, height, width, and burial depth in various sections) for (i) occupied Conduits, (ii) spare Conduits, (iii) telecommunication Conduits, and (iv) Conduits for cable grounding and bonding connectors;
    - Separation between Duct Banks in separate trenches; and
    - Analysis of thermal interference between Duct Banks, including assumptions used for soil resistivity.
11. To the extent possible, Applicants are requested to provide the following information regarding Cable Vault design layouts:
    - Physical dimensions (size and installation depth) for Transition Vaults and Cable Vaults located along the Prebuild route;[15]
    - Cable Vault spacing along each Circuit;[16]
    - Separation / offset between Cable Vaults for adjacent Circuits;
    - Cable and splicing arrangements within Cable Vaults; and
    - Access and Maintenance assumptions.[17]
12. To the extent possible, Applicants are requested to provide all details for any special Cable Vaults or Duct Bank / Conduit segments including, but not limited to:

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[14] Applicants are encouraged to provide section-based details of their land cable route approach from landfall at the Sea Girt NGTC to the Point of Demarcation.

[15] To allow for the splicing together of cables, each Cable Vault is typically between 6-12 feet wide and 25-36 feet long depending on cable voltage and diameter assumed and the associated splicing space requirements. The Transition Vaults from offshore to onshore are typically larger, up to 40 feet long.

[16] To allow for cable to be pulled through, a Cable Vault may be needed at every 2,000 feet or less.

[17] Each Cable Vault must have its own access point (manhole cover) for reliability, maintenance, safety, and outage planning reasons, allowing each circuit to be operated and maintained by different parties.

- Location and explanation of constraints (tight curves or bending radius issues, narrow ROWs, limitations of cable sizes/types to be pulled, surface constraint requiring drilling, etc.);
- Location and method/technique for mitigation (directional bores or microtunnels, etc.); and
- Separation between Duct Banks of adjacent Circuits, including a review of thermal interference between Duct Banks and assumptions used for soil thermal resistivity at specific locations.

13. Applicants are required to provide the following information regarding the Prebuild configuration at or near the LCS for each potential Prebuild scenario and route alternative:
    - Relative arrangement of Circuit routes;
    - Layout of the Prebuild route into each HVDC converter station termination;
    - Sequencing constraints for Circuit utilization; and
    - Identification of any local limitations, special crossings, or conflicts.