

PMEC INTERCONNECTION STRATEGY

May 1, 2013

Please reference the PMEC 'Project Description' document (dated April 1, 2013) for specific details regarding the overall project. This document provides an overview of the interconnection process.

Interconnection Utilities

Given the Newport site location for the Pacific Marine Energy Center (PMEC), the project will be electrically connected, or integrated, into the existing distribution owned by Central Lincoln PUD (CLPUD). Even if the project site moves north or south of the currently proposed location, it will still integrate into the CLPUD system.

CLPUD's system, and therefore the PMEC project, is part of the Bonneville Power Administration Balancing Authority. The Balancing Authority, as the entity that manages real-time operations of the electrical system, has interconnection guidelines so that they can effectively manage and balance the overall electrical grid.

All interconnection activities will involve these 2 entities.

- **Central Lincoln PUD** – PMEC will be integrated into CLPUD's existing distribution system. Bonneville considers CLPUD to be the "host utility."
- **Bonneville Power Administration (BPA)** – PMEC will need to meet BPA interconnection guidelines. As the entity, or Balancing Authority, responsibility for assuring real-time balance loads and resources, they will identify information and system needs associated with the resource.

Interconnection Strategy

- Based on the proposed PMEC site location, CLPUD suggested and evaluated 4 different interconnection sites. Two sites are near Yaquina Head. The other two sites are south of Yaquina Head along Highway 101.
- Preliminary evaluations of property ownership and cost indicate that connecting to CLPUD 12.5kV line that runs parallel to Highway 101 is the most cost effective approach.
 - Undersea cable will be horizontally directionally drilled under the beach and make landfall near Highway 101 south of Newport.
 - The existing 12.5kv line has at least 15 MW of existing capacity available for the PMEC project output (no more than 10 MW).
- PMEC is currently working with local parties (e.g. Oregon Undersea Cable Committee, and others) to determine the most appropriate cable route from the project site to land. Therefore, the exact landfall site is not yet known by PMEC.
- Once the exact landfall site is identified:

- More detailed integration costs can be developed;
- It can be determined whether land easements are required; and
- The BPA Interconnection Process can be initiated.

Studies and Process Required to Support Interconnection

- BPA has a well-defined Interconnection Process that is initiated with a Generation Interconnection Application (see Appendix B: BPA Interconnection Process).
- Once the Application has been filed BPA will:
 - Hold a scoping meeting with PMEC, Central Lincoln and appropriate BPA staff. This is an opportunity to ask clarifying questions and identify if additional information is needed.
 - Once BPA has sufficient information, BPA will conduct 3 studies:
 - Feasibility Study
 - System Impact Study
 - Facilities Study
 - The studies are used to determine if any system additions or upgrades are needed prior to interconnection.
- BPA and the project proponent complete the process by entering into a Construction Agreement.
- This process is estimated to take 1-2 years.

System Additions, Upgrades or Interconnection Concerns

- CLPUD has not identified any required system additions, upgrades or interconnection concerns.
- Additions or upgrades required by BPA will not be known until the Interconnection process described above is initiated.
- BPA has indicated that they will require some method of isolating PMEC generation from the rest of the Central Lincoln system in the event there is instability in the system. The methods for achieving this will not be known until the interconnection process is initiated.

Estimated Interconnection Costs

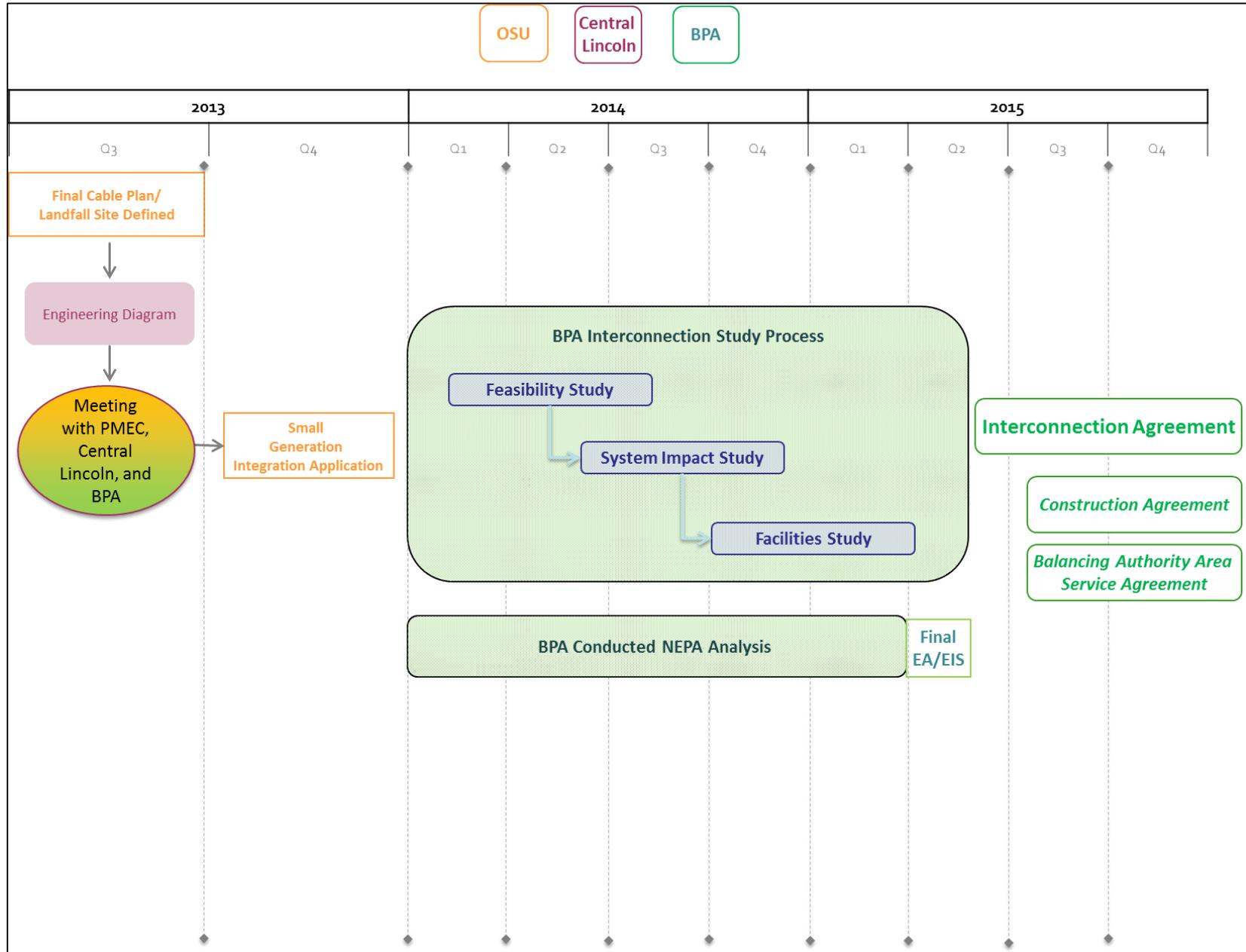
Cost Category	Estimated Cost
Application/Process Fees (paid to BPA)	Minimum of \$22,500
Estimated Interconnection Costs (paid to CLPUD)	<i>Final cost depends on exact landfall.</i> Estimated range of \$50,000 - \$300,00
Additions or upgrades required by BPA (paid to CLPUD and/or BPA)	<i>These estimates are determined through the interconnection process with BPA that cannot be initiated until an exact landfall site is defined.</i>

Process Next Steps (see Appendix A: PMEC Interconnection Roadmap)

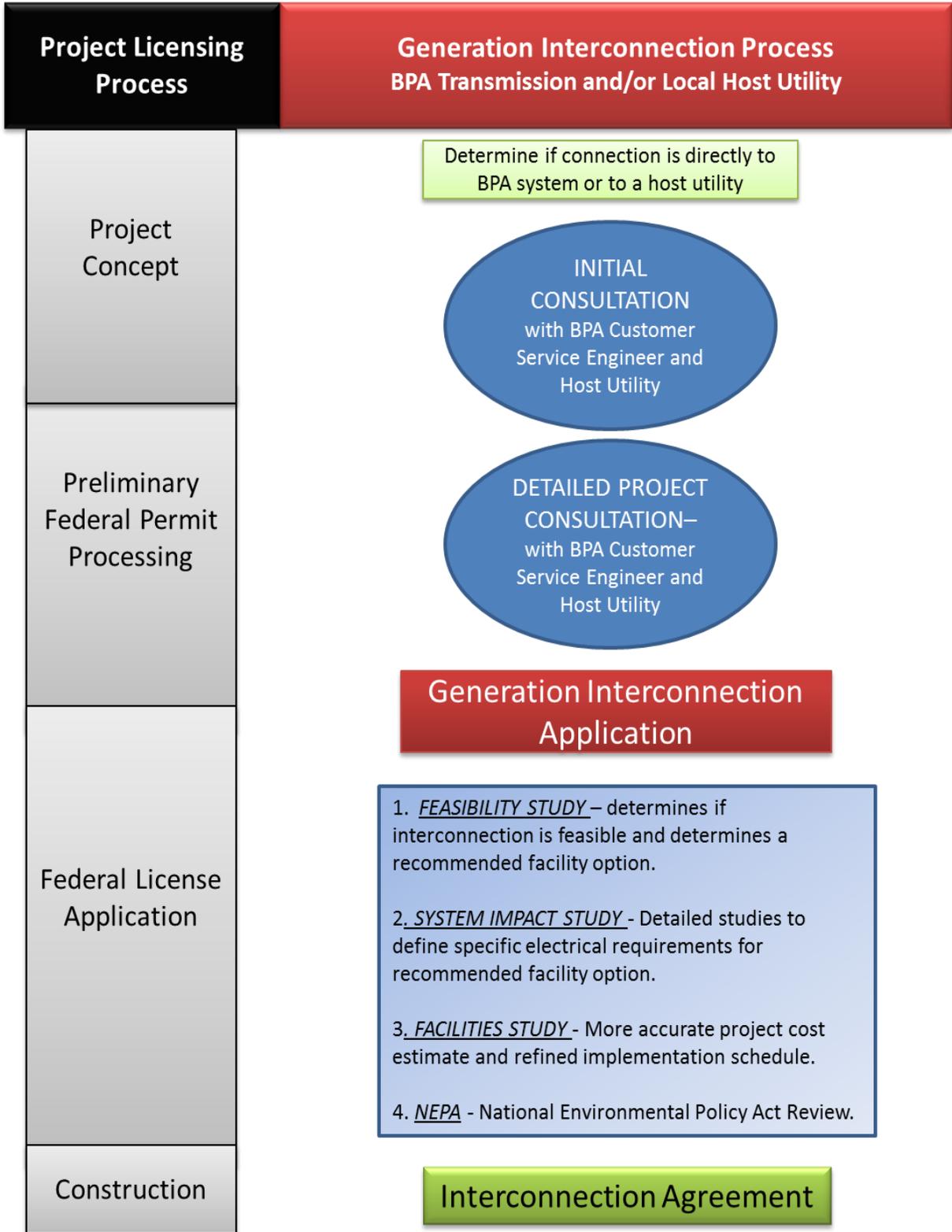
The interconnection process relies on a final landfall location. There are no additional actions that can be taken until the final location is determined. Once the location is determined, the next steps are:

- Central Lincoln PUD develops an engineering diagram of interconnection.
- Central Lincoln PUD provides a refined interconnection cost estimate to PMEC.
- PMEC, with assistance of Central Lincoln PUD, develop and submit a Small Generator Interconnection Request to BPA.
- PMEC, Central Lincoln, and BPA work through Interconnection process.
- Through the interconnection process, the final estimates for additions or upgrades are developed.
- PMEC and BPA sign a Construction Agreement that outlines any additions or upgrades required.

Appendix A: PMEC Interconnection Roadmap



BPA Transmission Interconnection Process Overview*



*BPA Transmission Service is secured through a separate process

