Block Island Wind Farm

Decommissioning Plan and Cost Estimate

Rev	Description	by	reviewed	Date
0	Draft	RJB	CvB	Febr 3, 2012
1	Concept Plan	RJB	CvB	Sept 7, 2012
Document no		2012_02_03_BIWF_decom_01_01		

BIWF Decommissioning

Decommissioning of the Block Island Wind Farm will follow the same relative sequence as construction, but will occur in reverse. The WTG components will be removed by a derrick barge and lifted onto a material barge. The material barge will transport the components to a recycling yard where the components will be disassembled and prepared for re-use and/or recycling for scrap steel and other materials. The foundation piles will be cut by an internal abrasive water jet cutting tool at approximately 10 ft (3 m) below the seabed. The balance of the foundations will be removed using 500-ton derrick barges and lifted onto material barges. The submarine cables will be abandoned in place as they are buried below the seabed. When appropriate and necessary, the substations associated with the BIWF will be disconnected, dismantled, and recycled in accordance with applicable permits and regulations. It is anticipated that the substations will remain in service long after the WTG's are decommissioned. A schedule of the project activities is included as Attachment A. This decommissioning plan has been developed by C. van Beek and R.J. Billington and is based on their extensive offshore oil and gas platform decommissioning experience.

Decommissioning Construction Activities

The decommissioning on the Project site involves the following sequence of activities:

- Contracting, mobilization, and verification
- Offshore Construction
    - Mobilization
    - Removal of the WTGs
    - Foundation removal
    - Offshore cable abandonment in place
    - De-mobilization

The following sections provide additional details regarding each of the activities associated with the decommissioning construction of the BIWF.

Contracting, Mobilization, and Verification

Upon receipt of all requisite permits and approvals, Deepwater Wind will finalize contracts with vendors, recycling contractors, and offshore contractors. Deepwater Wind will use the dedicated O&M crewboat to finalize arrangements to support Project activities. Prior to construction, Deepwater Wind will prepare an environmental compliance plan describing all of the environmental and permitting commitments to be carried out during construction. In addition, Deepwater Wind will also employ a third-party environmental inspector to monitor construction activities.

Offshore Construction

This section describes decommissioning of the offshore components of the BIWF based on representative methods, vessels, and equipment. Final detailed construction plans will be developed and vendors and vessels will be procured during the contracting phase following receipt of Project permits.

The proposed construction methods, vessels, and equipment as outlined in the following sections are based on industry knowledge and site conditions at the current time. Changes in technology or regulations at the time of decommissioning may change specific methods utilized at that time. Deepwater Wind will employ techniques that minimize impacts to natural resources and existing human uses to the extent possible.

At each WTG site the following activity sets will be performed. Offshore removal of the jacket foundations will be carried out from 500-ft (152.4-m) derrick barges moored to the seabed by an 8-point mooring system consisting of 10-ton anchors with a maximum penetration depth of 10 ft (3 m).

WTG Removal

The WTG's will be turned off, locked in safe mode and disconnected from the grid, ready for dismantling. At each site the WTGs will be removed first following mobilization of the construction barge to the site and setting up in a location to carry out the work in a safe manner. The WTGs will be removed in sections with the blades or hub and blade assembly lifted first; followed by the nacelle and the tower sections. The pieces will be placed on a transportation barge and secured to be transported to a yard for disassembly and recycling.

Foundation Removal

The derrick barge will remove any equipment from the foundation deck that might need to be secured separately, and prepare the deck for lifting. The deck will be cut free from the foundation using conventional steel cutting methodology and lifted off the foundation. The deck will be placed on a transportation barge and secured for the trip to the recycling yard.

Ladders, boat landings and any other smaller jacket appurtenances will be removed at this time and secured on the transportation barge.

Water jetting equipment will be placed in the open piles (4) and used to evacuate the piles of their soil plug to a depth to allow cutting of the piles 10' below the mud line. The piles will then be sequentially cut by an internal abrasive water jet cutting tool at approximately 10 ft (3 m) below the seabed to free the foundation from its piling.

Once the piles are cut, the foundation jacket may be lifted free of the seabed and placed on a barge, secured and sent to a yard for disassembly and recycling. For most offshore oil and gas platform decommissioning projects the value of the recycled materials is higher then the cost of the disposal yard (cranage, yard transport, cleaning, handling, etc), but to be on the conservative side this has been assumed cost neutral.

Offshore Cable Abandonment

The inter array cables and export cable that were connected to the jackets will be exposed back to a burial depth of 4', cut and removed to a barge. The submerged and buried lengths of cable between each WTG and the first WTG to Block Island will be abandoned in place in accordance with industry standards.

Demobilization

Upon completion of the removal process the seabed will be checked for possible debris and the barge spread demobilized from the project site. All removed equipment, facilities and other items will be transported to the appropriate yard for disassembly and recycling.

Appendix:

Planning and cost estimate decommissioning BIWF (document “decommissioning rev 3”)