Decommissioning Plan LSE Hydra LLC – Solar Project

44 North Carver Road

Wareham, Massachusetts

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1.0 INTRODUCTION

Lodestar Energy, by and with its partner Entero Energy LLC, is proposing to construct a 990 kW/AC ground mounted solar photovoltaic electric generating facility at property located at 44 N Carver Rd in Wareham, Massachusetts through their joint venture LSE Hydra LLC. The "Site" consists of three parcels in Wareham known as assessor's parcel #104-1046, 104-V/B, and 104-V/C.

The Site comprises approximately 45.7± acres, of which approximately 33 acres are already disturbed. The first, northernmost array area is approximately 2.5± acres of previously wooded land containing mature white pine and oak trees, many of which were suffering from gypsy moth damage. The second site is a 2.7± acre upland cranberry bog that has been historically unproductive. The third, southernmost is a 4.5± acre decommissioned U-pick blueberry patch. The project maintains a 50 ft non-disturbance buffer from any wetlands and a 100 ft vegetated buffer from the river high water mark. The electricity generated at the Site, which is the purpose of operations at the subject project site (the "Project"), will be transferred via a combination of underground conduits and poles with overhead wires to connect to the existing distribution lines at N Carver Rd.

The Decommissioning Plan (the "Plan") provides a description of the decommissioning and restoration phase of the Project. The Plan is applicable given the realization of a set of conditions described here within, including premature termination of the Project or when the Project reaches full maturity. The Plan seeks to remove solar system components, restore and revegetate the Site's land and environment to current conditions, and implement best practices that ensure adequate and responsible use of equipment and resources recovered from the system. As such, the Plan is an integral component of the Project.

Aerial Photograph of Site Location: The proposed Project Site is located at 44 N Carver Rd, North of State Route 495 (Blue Star Memorial Highway), adjacent to the Weweantic River, and several lots east of an unnamed pond.

1.1 SOLAR SYSTEM COMPONENTS

The Project's major equipment is expected to consist of:

- (8) SunGrow SG125HV inverters
- Approximately 3,374 solar panels
- Fixed-tilt racking system from RBI Solar
- Interior gravel access road
- Utility pads
- Electrical conduit and conduit supports
- Electrical poles and overhead wire
- Security fencing

2.0 EVENTS TRIGGERING DECOMISSIONING

Throughout the life of the Project, it is paramount to the integrity of Project undertakings that its managers maintain active and quality engagement with stakeholders, especially those processes including premature and mature decommissioning.

2.1 PREMATURE DECOMMISSIONING

If the Project does not generate electricity in excess of (6) months, the Site will be decommissioned, as stated in local zoning law. Within the bounds of safety and efficiency, it is the full intention of LSE Hydra LLC and its parent organizations to avoid and mitigate risks that would contribute to the realization of the Project's premature decommissioning. In the event premature decommissioning is realized, the subsequent decommissioning sequence and corresponding processes will remain unaltered from those planned and scoped for the mature decommissioning date, unless factors unknown to Project stakeholders at the time of this document's publishing are introduced – which may warrant modification of the Plan in a reasonable way.

2.2 MATURE DECOMISSIONING

Mature decommissioning is defined as the decommissioning of a Project's Site under normal circumstances, which is set to occur on a predetermined date, at which the Project will terminate operations due to full use of originally allocated resources. This Project's mature decommissioning date is 25 years following completed construction of solar system and electricity generation at the Site. At this time, the Project will either be refurbished, in which a partial decommissioning may occur, or the Project will no longer continue actively generating electricity beyond this date, and the decommissioning process will begin. Factors impacting this decision include the available equipment at the time and the expected revenue profile. For the purposes of local regulatory review and the establishment of a decommissioning bond, refurbishment would occur at the full

expense of the of the project owner. It is the full intention of LSE Hydra LLC and its parent organizations to begin decommissioning no sooner than this date. To remove all associated components of the solar facility, approximately 8 weeks is required to perform the work.

3.0 DECOMMISSIONING SEQUENCE

The decommission process will include the de-energization of the solar facility, revegetation of the Site, and the removal of photovoltaic modules, photovoltaic module steel racking system driven steel foundations, concrete pads, all buried conduit and conductors, inverters, transformer, vista, security fencing, and access roads. All aspects of the decommissioning process will be in accordance with local permitting requirements as well as all applicable federal, state and local laws. An onsite manager will be designated to the decommissioning process. The onsite manger will be responsible for the successful completion of the decommissioning process as well as the safety of the workers, public health, and environment of the project site for the duration of the work.

3.1 OVERVIEW OF DECOMISSIONING PROCESSES

Mobilization

The decommissioning process will require the mobilization of construction equipment, tools, trash containers and material transportation trucks.

Module and Rack Disassembly

The first component to address in the decommissioning process is the photovoltaic array and its associated racking structure. Certified electricians will de-energize the circuits and confirm the array is safe for disassembly. Modules will then be removed individually and temporarily stored onsite. The modules will be assessed for value at the time of decommissioning and either recycled or transported to an appropriate disposal facility.

The steel racking structure will be unbolted and disassembled. Steel posts embedded in the ground that support the module racking system will be removed using construction equipment. Since the posts have no concrete foundation, associated holes will be small during the removal process. Any resulting holes will be backfilled with local soil to match existing soil conditions. All steel associated with the module racking structure will be transported to a steel recycling facility.

Electrical Component Removal

Inverters, transformer and vista are located on concrete foundations. Certified electricians will de-energize circuits and confirm the components are safe for removal. The transformer contains an environmentally safe mineral oil which will be contained and recycled separately from the equipment. The equipment will be removed, aggregated onsite and transported to an appropriate electrical recycling facility. The concrete will be demolished using jackhammers and hauled to an appropriate concrete disposal facility.

The electrical conductors/wiring will be removed from above ground and underground locations. Underground conduit is assumed to be excavated to a depth of 3’ below grade. All excavated areas will be filled, compacted and regraded. All electrical conductors and associated conduit will be removed and recycled. The overhead interconnection circuit which connects the solar facility to

the utility distribution circuit on 44 N Carver Rd is owned and operated by Eversource Energy. At the time of decommissioning, the circuit consisting of (3) overhead utility poles may remain in place if the landowner prefers this circuit for future use on the site. If the circuit is not to be used, the associated poles and conductors will be removed.

Perimeter Fence

The 7' steel perimeter security fence will remain in place during the decommissioning process for security and public safety. Once power generation materials have been properly disposed, the security fence will be dismantled. Components will be transported to an appropriate recycling facility.

4.0 RESTORATION OF LAND AND ENVIRONMENT

LSE Hydra LLC and its parent organizations are committed to the restoration of the land and greater natural environment that the Project is sited on and near. The following subsections contain detailed descriptions regarding planned soil rejuvenation, ecosystem repopulation, and surface water control.

4.1 SOILS

During the decommissioning process the gravel access road will remain in place to provide as an access point for equipment and the transportation of system materials. Once associated components and materials have been properly disposed, the gravel access road will be removed. The aggregate base material will be removed and replaced with locally imported soil to match existing soil conditions. The area will be regraded to match pre-existing topography or to conform with any future permitted and allowed uses, such as agriculture. The civil site restoration will target the restoration of the property to pre-project conditions. This includes the replacement of topsoil and modification of topography as needed. Any excavated areas will be backfilled and compacted with local soils to match surrounding topography.

4.2 REVEGETATION AND REPOPULATION OF NATIVE ECOSYSTEM

In LSE Hydra LLC and its parent organizations' ongoing effort to maintain and improve stewardship of the land, associated ecosystems, and the greater biosphere, the Project will not use any nonnative species to revegetate the Site during decommissioning. Instead, beachgrass (a native plant) and other native plants will be used to cover any disturbed soil. These plants will encourage the growth of rich habitats, which in themselves offer high-value ecosystem services through the attraction of populations of pollinators and the retainment of soils to reduce erosion and increase nutrient retention. Aeration, de-compaction, disking and hyrdroseeding processes will be utilized as needed to encourage full vegetative coverage.

5.0 DECOMISSIONING COST ESTIMATE SUMMARY

This section contains a mainly quantitative summary of the Project's estimated decommissioning expenses and revenues, used to estimate net total cost. Approximately 95% of materials are recyclable and will be transported to the appropriate recycling facilities. Any non-recyclable material will be transported to a nearby landfill and properly disposed of in accordance with state and federal law.

5.1 DECOMISSIONING EXPENSES

Activity	**Unit**	**Quantity**	**Cost per Unit**	**Total**
Overhead, management and permitting	Lump Sum	1	$10,000	$10,000
Module disassembly and removal	Per module	3,375	$4	$13,500
Racking disassembly and removal	Per perlin	1,150	$5	$5,750
Steel pile removal	Per pile	350	$10	$3,500
Remove underground conduits	Linear feet	1,400	$0.50	$700
Remove inverters and transformers	Per inverter	8	$1,200	$9,600
Remove equipment pads	Lump Sum	1	$15,000	$15,000
Remove energy storage system	Lump Sum	1	$15,000	$15,000
Topsoil re-coating and regrading	Lump Sum	1	$10,000	$10,000
Fence removal	Linear feet	4,000	$3	$12,000
Total (Present Value)				$95,050

5.3 NET DECOMISSIONING SUMMARY

Based on the calculations herein, LSE Hydra expects decommissioning costs of $95,050, or $28.16 per solar module. This figure is significantly more conservative than several other previous estimates for solar project submitted to the Planning Board, including the $62,850.00 (~ $8.93 per solar module) from the Fearing Hill Road Solar Project or 150 Tihonet Road (~ $5.14 per solar module).

The net cost will be $95,050. Adding 25% as required by the Town of Wareham, the value for the guarantee shall be $118,812.50. The facility owner will be responsible for all decommissioning costs and will obtain all permits or approvals required by the Town prior to commencing decommissioning work.

The project company will provide a decommissioning guarantee as a condition to receive the certificate of occupancy. The decommissioning agreement shall name the Town of Wareham as the beneficiary and will require approval from Town Counsel as to form. The decommissioning costs shall be reviewed every 5 years with a submittal to the Board that shows an updated cost analysis.

Please feel free to Dan Watson of Lodestar Energy at (405) 973-8767 if you have any questions.