Exhibit W

Generation of Solid Waste and Wastewater

West End Solar Project
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Prepared for
EE West End Solar LLC

Prepared by

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Table of Contents

Acronyms and Abbreviations

Applicant	EE West End Solar LLC
BMP	best management practice
NPDES	National Pollutant Discharge Elimination System
OAR	Oregon Administrative Rules
Project	West End Solar Project
SEIA	Solar Energy Industries Association
SPCC	Spill Prevention, Control and Countermeasure

1.0 Introduction

EE West End Solar LLC (Applicant), a subsidiary of Eurus Energy America Corporation, proposes to construct the West End Solar Project (Project), a solar energy generation facility and related or supporting facilities in Umatilla County, Oregon. Exhibit W was prepared to meet the submittal requirements of Oregon Administrative Rules (OAR) 345-021-0010(1)(w), including providing evidence that the Project complies with the Waste Minimization approval standard in OAR 345-022-0120 which states:

OAR 345-022-0120 Waste Minimization

(1) Except for facilities described in sections (2) and (3), to issue a site certificate, the Council must find that, to the extent reasonably practicable:

(a) The applicant's solid waste and wastewater plans are likely to minimize generation of solid waste and wastewater in the construction and operation of the facility, and when solid waste or wastewater is generated, to result in recycling and reuse of such wastes;

(b) The applicant's plans to manage the accumulation, storage, disposal and transportation of waste generated by the construction and operation of the facility are likely to result in minimal adverse impact on surrounding and adjacent areas.

(2) The Council may issue a site certificate for a facility that would produce power from wind, solar or geothermal energy without making the findings described in section (1). However, the Council may apply the requirements of section (1) to impose conditions on a site certificate issued for such a facility.

(3) The Council may issue a site certificate for a special criteria facility under OAR 345-015-0310 without making the findings described in section (1). However, the Council may apply the requirements of section (1) to impose conditions on a site certificate issued for such a facility.

2.0 Description of Solid Waste and Wastewater Generation – OAR 345-021-0010(1)(w)(A)

OAR 345-021-0010(1)(w) Information about the applicant's plans to minimize the generation of solid waste and wastewater and to recycle or reuse solid waste and wastewater, providing evidence to support a finding by the Council as required by OAR 345-022-0120. The applicant shall include:

OAR 345-021-0010(1)(w)(A) A description of the major types of solid waste and wastewater that construction, operation and retirement of the facility are likely to generate, including an estimate of the amount of solid waste and wastewater.

2.1 Solid Waste

2.1.1 Solid Waste Produced During Construction

During construction, nonhazardous waste will be generated. Main sources of waste will include general construction debris, such as scrap metal, wood, glass, plastics, cardboard, waste concrete, and excavated soil. Other materials, such as packaging from the solar photovoltaic modules and associated equipment, as well as erosion control materials (e.g., silt fencing and straw wattles), may also be generated during construction. The nonhazardous waste produced during construction will be transferred off-site by a local commercial waste hauler. The estimated volume of construction waste is anticipated to be one 40-cubic-yard roll-off per week during active construction, which is estimated to be approximately 12 months.

Hazardous materials generated during construction and operation would be minimal and would include paint, spent lubrication oils, solvents, and pesticides. The hazardous materials required for Project construction and maintenance would be stored in accordance with U.S. Environmental Protection Agency and U.S. Occupational Safety and Health Administration regulations as they apply. Safety data sheets will be stored onsite. Project personnel will be given guidelines and will be trained on the handling, storage, transport, and disposal of hazardous materials.

Contractors for the Applicant will be required to maintain a Spill Prevention, Control and Countermeasure (SPCC) plan as discussed in Exhibit G. Hazardous materials shall be properly stored, and hazardous material containment and cleanup kits will be maintained and available on-site to minimize the impact resulting from a spill. See Exhibit G for more details.

2.1.2 Solid Waste Produced During Operation

The primary waste generated during operations will be solid waste from maintenance activities. Disposal of materials for routine maintenance, such as lubrication oils, will be managed according to the relevant regulations and guidelines as outlined in Exhibit G. An estimate of 2 cubic yards of solid waste per month will be generated during operations.

Additionally, solid waste will be generated when batteries are replaced in the energy storage system. Lithium-ion batteries will be changed out periodically (estimated approximately every 10 years) for the life of the Project. The self-contained battery components will be removed and disposed of or recycled by a qualified vendor.

2.1.3 Solid Waste Produced During Decommissioning

Waste produced during decommissioning will be similar to the waste generated by construction and operation of the Project, as discussed above in sections 2.1.1 and 2.1.2. The anticipated working lifespan of the Project is 30 years, during or after which, the Project's lifespan may be extended, repowered, or decommissioned. In the event the Project were decommissioned and the site restored to a useful, non-hazardous condition for other planned uses, the amount of solid waste can be inferred from the Materials Inventory provided in Exhibit G. Should the Project be decommissioned, all the solar array and energy storage systems would be removed, all above-ground electrical components would be removed, and concrete foundations would be cut and removed to a minimum depth of 3 feet below ground. Underground cables would typically be left in place, as removing them would cause unnecessary habitat disturbance. Metals and electrical components are expected to be recycled as scrap rather than disposed of in a landfill wherever possible. The portions of concrete foundations that are removed would be disposed of as construction waste. Transformers and other substation equipment would be removed to be reconditioned for use elsewhere or recycled as scrap metal. The operations and maintenance enclosure would be sold or demolished and disposed of in an appropriate facility. None of these materials are considered hazardous. Waste will be disposed of at the Columbia Ridge or Finley Butte landfills. Any hazardous material would be handled by a qualified contractor and adhere to applicable regulations for transport and disposal, including but not limited to 49 Code of Federal Regulations 173.159. The decommissioning of the energy storage system, if used, will involve disposing of battery components at an off-site facility approved for disposal or recycling of batteries. Battery disposal or recycling will be similar to the protocol described above for operations.

2.2 Wastewater

2.2.1 Sanitary Wastewater

Sanitation during construction will be addressed through the provision of portable toilets located throughout the Project site at locations that will be determined prior and during construction. Portable toilets will be provided by a licensed subcontractor, who will be responsible for servicing the toilets at regular intervals and disposing of wastewater in accordance with local and jurisdictional regulations. The construction contractor will ensure that a sufficient number of toilets are provided, and that the licensed subcontractor complies with applicable regulations, including the use of holding tanks for biological waste that conform to OAR Chapter 340, Division 72 and transportation of waste in accordance with Oregon Revised Statutes 466.005.

During operation and maintenance of the Project, portable toilets will be available and will, similarly to construction, be serviced by a licensed subcontractor. The portable toilets will be located near the operations and maintenance enclosure.

2.2.2 Other Wastewater

Construction activities may generate small amounts of wastewater that can be allowed to infiltrate on-site, according to the terms of a National Pollutant Discharge Elimination System (NPDES) Permit to be issued by the Oregon Department of Environmental Quality. Project construction will not generate substantial amounts of wastewater that will need to be treated as effluent. The nature of the Project is such that it will not produce industrial wastewater.

During construction, a small amount of wastewater may also be generated by the washing of vehicles and construction equipment to prevent the spread of weeds. Vehicle and equipment washing will occur at the construction yards and will be covered by a NPDES Permit 1200-C stormwater permit. The estimated amount of wastewater for vehicle and equipment washing is anticipated to be minor compared to the overall Project water use. Water will be sprayed onto disturbed areas during construction for dust control. The amount of water used for dust control will be relatively small and will not create runoff, but instead will seep into the ground.

During operations and maintenance, wastewater may be generated periodically from washing panels. As confirmed by the Oregon Department of Environmental Quality during its recent review of the Application for the Site Certificate for the Madras Solar Energy Facility, General Water Pollution Control Facilities (WPCF) 1700-B permits are no longer being issued for solar panel washing because panel washing is considered a *de minimis* wastewater. As discussed in Exhibit O, the solar panel wash water will consist of no added cleaning solvents generated; therefore, no WPCF 1700-B permit is required.

Wastewater generated during decommissioning activities will be covered by a general NPDES Permit, which will be issued by the Oregon Department of Environmental Quality.

3.0 Description of Waste Management and Disposal Structures, Systems and Equipment – OAR 345-021-0010(1)(w)(B)

OAR 345-021-0010(1)(w)(B) A description of any structures, systems and equipment for management and disposal of solid waste, wastewater and storm water.

3.1 Solid Waste Management and Disposal

Construction waste minimization practices will be implemented to minimize the amount of solid waste generated. These practices will include implementing a detailed material usage estimating and procurement system to minimize the amount of excess materials ordered.

Solid waste generated during construction and operations will be hauled away for recycling or disposal, as appropriate. Paper products and other materials, such as batteries, glass, metals, and plastic, will be recycled when practicable. As disposal and recycling containers reach capacity, they

will be removed to disposal facilities that can handle these materials, and the containers will be replaced with empty units. Removal of the waste to appropriate disposal facilities will be done by a licensed waste hauler, under contract to the construction contractor. Licensed waste haulers must comply with OAR 340-093-0220 for transportation of wastes. The closest landfill is Finley Buttes located approximately 19.5 miles from the Project site in Boardman, Oregon.

Solar panels that are nonfunctional or are retired will be recycled to the maximum extent feasible through the Solar Energy Industries Association (SEIA) National PV Recycling Program (SEIA 2021). The purposed of this program is to combine services offered by recycling partners in order to provide cost-effective and environmentally responsible end-of-life management solutions (SEIA 2021). SEIA is sponsoring this program and research and development that could make the entire industry landfill free.

Lithium-ion battery modules will require replacement periodically as the modules lose their effectiveness through repeated charge/discharge cycles. The frequency of replacement will depend on operational parameters that are not yet fully designed. The following procedures will be implemented:

- The Project operator will disconnect and de-energy battery systems prior to removal from the installed racks and package the batteries for transport to a licensed facility.
- At the recycling facility, the qualified contractor will dismantle the battery modules and prepare individual cells for metals recovery.
- Individual cells will be processed in a furnace to recover metals. Recovered metals may include aluminum, calcium, lithium, and a metal alloy comprising cobalt, copper, nickel, and iron.
- Recovered metals will be recycled or separated to recover individual metals where economically viable.

Waste minimization during decommissioning of the Project will consist largely of the same measures employed during construction of the Project. To the extent practicable, the Project components will be sold for reuse or scrap, which will minimize the amount of waste requiring disposal at a solid waste facility. Similar best management practices (BMPs) will be implemented to protect stormwater quality.

The energy storage system will require disposal of the metal container structures housing the batteries and their constituent parts. With the use of lithium-ion technology, batteries will be disposed of at retirement in the same manner described above for operational replacement.

3.2 Stormwater Management and Disposal

During construction, several BMPs will be implemented to prevent erosion and control sedimentation. As described in Exhibit I, construction of roads, foundations, and vegetation clearing will be regulated by an Erosion and Sediment Control Plan and a 1200-Constuction Stormwater National Pollutant Discharge Elimination System Permit (to be obtained prior to construction) that

will require BMPs to minimize possible impact from erosion and other impacts to soils. The BMPs that will be implemented during the construction of the Project are as follows:

- **Preserve Existing Vegetation –** To the extent practicable, existing vegetation will be preserved. Where vegetation clearing is necessary, root systems would be conserved if possible.
- **Erosion Control Measures** – During construction, the Applicant will implement BMPs for erosion, including perimeter controls (e.g., silt fence), soil stabilization (e.g., mulching or tackifiers), and dust control as outlined in the project specific Erosion and Sediment Control Plan and the 1200-C Construction Stormwater Discharge General Permit (to be obtained prior to construction).
- **Revegetation –** The Applicant will provide long-term soil stability by reseeding disturbed areas to reestablish vegetation. Temporarily impacted areas that are reseeded will be monitored for restoration success according to the Project's Erosion and Sediment Control Plan and the 1200-C Construction Stormwater Discharge General Permit (to be obtained prior to construction).
- **Pollutant Management –** During construction, source control measures will be implemented to reduce the potential of chemical pollution to surface water or groundwater during construction. SPCC plans for construction and operation will be prepared for each phase of the project that outline the site-specific handling and reporting measures (see Exhibit G).

4.0 Actions or Restrictions to Reduce Consumptive Water Use – OAR 345-021-0010(1)(w)(C)

OAR 345-021-0010(1)(w)(C) A discussion of any actions or restrictions proposed by the applicant to reduce consumptive water use during construction and operation of the facility.

4.1 Construction

Water will be used on an as-needed basis to construct earthworks and suppress dust on the roads (and other areas disturbed as a result of grading). To reduce the water used for dust suppression during construction, stabilization materials such as mulch, soil tackifiers, and soil binders may be placed on exposed soils to minimize dust generation without the daily use of water.

4.2 Operations

During operation of the Project, water will be trucked on to the site and will be held in a water tank. Water minimization practices and devices will be implemented in order to conserve water.

5.0 Minimization and Recycling Plans – OAR 345-021-0010(1)(w)(D)

OAR 345-021-0010(1)(w)(D) The applicant's plans to minimize, recycle or reuse the solid waste and wastewater described in (A).

Waste generated during construction will be minimized by implementing efficient construction practices and detailed estimates of material needed. Waste generated through construction, operation, and decommissioning of the Project will be recycled as appropriate and feasible. Waste that can be recycled includes metals, glass, paper, and yard debris. Recyclable waste will be sorted, stored in dumpsters or other suitable containers, and then transported to the local transfer station or other recycling facility for recycling.

Wastewater generated during construction and operation will be regularly pumped by a licensed portable toilet subcontractor and sent to a treatment facility. Wastewater generated during operation will be disposed of off-site.

6.0 Waste-Related Impacts

6.1 Impacts of Project Waste – OAR 345-021-0010(1)(w)(E), (F)

OAR 345-021-0010(1)(w)(E) A description of any adverse impact on surrounding and adjacent areas from the accumulation, storage, disposal and transportation of solid waste, wastewater and stormwater during construction and operation of the facility.

OAR 345-021-0010(1)(w)(F) Evidence that adverse impacts described in (D) are likely to be minimal, taking into account any measures the applicant proposes to avoid, reduce or otherwise mitigate the impacts.

A minimal amount of solid waste, wastewater, and stormwater is anticipated to be accumulated, disposed of, and transported during construction and operation of the Project. Waste will be reused or recycled, or when necessary, disposed of at permitted disposal facilities. The estimated volume of construction waste is anticipated to be one 40-cubic-yard roll-off per week during active construction, which is estimated to be approximately 12 months. An estimate of 2 cubic yards of solid waste per month will be generated during operations. Transportation of wastes to landfills or recycling facilities will involve periodic truck trips over public and private roads between the Project and the Columbia Ridge or Finley Butte landfills. Given the low number and frequency of these trips, and the anticipated low volume of waste materials, these trips are not anticipated to have adverse effects on the adjacent or surrounding areas (see Exhibit U for more detail on solid waste management).

An SPCC Plan will be implemented during construction, as described in Exhibit G. The small amounts of wastewater generated will be captured and treated off-site. During construction,

portable toilets will be serviced a minimum of once per week. Wastewater generated during construction will be transported via trucks by a local licensed subcontractor to a treatment facility. Water used for dust suppression will seep into the ground.

Stormwater generated onsite during construction and operation is expected to be minimal. Stormwater controls will be implemented on-site as needed. During operation, the stormwater will infiltrate into the ground.

Because waste generation will be minimal, adverse impacts on surrounding and adjacent areas as a result of the accumulation, storage, disposal, and transportation of solid waste, wastewater, and stormwater during construction and operation of the Project are not anticipated

6.2 Proposed Monitoring Plan – OAR 345-021-0010(1)(w)(G)

OAR 345-021-0010(1)(w) (G) The applicant's proposed monitoring program, if any, for minimization of solid waste and wastewater impacts.

Given the minimal generation of solid waste and wastewater, as well as proposed recycling measures and waste minimization practices, the Project is not expected to incur significant effects on-site or on surrounding and adjacent areas. Therefore, no monitoring program is proposed. Waste management practices will comply with applicable regulations and will be inspected periodically by the Applicant.

7.0 Conclusion

This exhibit provides evidence that the Energy Facility Siting Council's waste minimization standard (OAR 345-022-0120) will be met as the waste from the Project will be minimized, reused, or recycled where feasible and since minimal adverse impacts on the surrounding or adjacent areas will result from the management of waste related to the Project.

8.0 Reference

SEIA (Solar Energy Industries Association). 2021. SEIA National PV Recycling Program. http://www.seia.org/seia-national-pv-recycling-program. Accessed June 2021.