Exhibit B

Project Description and Schedule

Wagon Trail Solar Project
January 2022

Prepared for

NextEra Energy Resources

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Acronyms and Abbreviations

AC	alternating current
Applicant	Wheatridge East Wind, LLC c/o NextEra Energy Resources, LLC
ASC	Application for Site Certificate
CFR	Code of Federal Regulations
DC	direct current
Council	Energy Facility Siting Council
EPA	U.S. Environmental Protection Agency
Facility	Wagon Trail Solar Project
HV	high voltage
I-84	Interstate 84
kV	kilovolt
Li-ion	lithium-ion
met	meteorological
MW	megawatts
O&M	operations and maintenance
OAR	Oregon Administrative Rule
ORS	Oregon Revised Statutes
PCB	polychlorinated biphenyl
SCADA	supervisory control and data acquisition
SPCC Plan	Spill Prevention, Control, and Countermeasure Plan
Wheatridge Facilities	Wheatridge Renewable Energy Facilities I, II, III, and East

1.0 Introduction

Wheatridge East Wind, LLC c/o NextEra Energy Resources, LLC (Applicant) proposes to construct and operate the Wagon Trail Solar Project (Facility), a solar energy generation facility and related or supporting facilities in Morrow County, Oregon. This Exhibit B was prepared to meet the submittal requirements in Oregon Administrative Rule (OAR) 345-021-0010(1)(b).

The Applicant is requesting to permit a range of photovoltaic and associated or supporting facility technology within a site boundary that provides for micrositing flexibility in consideration of perpetual technological advances and offering maximum efficiency in use of space, providing development flexibility for potential customer's varying market requirements. Therefore, Exhibit B provides a representative description of components and accompanying analysis for the maximum footprint or buildable area (for the solar arrays) within the site boundary, also known as solar micrositing corridors, to address the greatest potential impact. The information summarized in this exhibit and described throughout this Application for Site Certificate (ASC) demonstrates that the Facility, as proposed, can be designed, engineered, constructed, operated, and decommissioned in a manner that satisfies the applicable Energy Facility Siting Council (Council) standards.

Note that the Facility site boundary has expanded by 119 acres (making the site boundary a total of 7,450 acres) since the last issuance of the Applicant's Notice of Intent on June 11, 2021. The Oregon Department of Energy has confirmed that this addition will not require an amended Notice of Intent; thus, this change is reflected herein and in subsequent exhibits of this ASC (see Attachment B-1). This new area intersects the Wheatridge Renewable Energy Facilities I and II (both operational) and the Wheatridge Renewable Energy Facility III (under construction; see Exhibit C for the Facility location).

2.0 Description of the Proposed Facility

OAR 345-021-0010(1)(b) Exhibit B. Information about the proposed facility, construction schedule and temporary disturbances of the site, including:

(A) A description of the proposed energy facility, including as applicable:

(i) The nominal electric generating capacity and the average electrical generating capacity, as defined in ORS 469.300.

The Facility will be a photovoltaic solar energy generation facility with a nominal and average generating capacity of up to 500 megawatts (MW), as defined in Oregon Revised Statutes (ORS) 469.300(4)(c). The Facility will generate electricity using solar panels wired in series and in parallel to form arrays and connected to electrical infrastructure. The Facility will also include a battery energy storage system for stabilizing the solar resource with up to 500 MW of storage capability.

2.1 Major Components, Structures, and Systems

(ii) Major components, structures and systems, including a description of the size, type and configuration of equipment used to generate electricity and useful thermal energy.

The solar energy will be generated by using multiple arrays of solar panels connected to electrical infrastructure. (The term "array" refers to solar panels wired in series and in parallel.) Solar panels generate electricity by means of a photoelectric effect, whereby the materials in the panels absorb the sun's energy in the form of photons and release electrons. The capture of these free electrons produces an electrical current that can be collected and supplied to the electrical power grid. The solar panels, known in the industry as modules, will be installed to form module blocks. Attachment B-2 provides a diagram of how a solar facility works and an example pictures of module blocks.

The solar arrays will be composed of a combination of solar modules, tracker systems, posts, and related electrical equipment. These components are combined to form a solar array. The layout of the solar array can vary depending on project size, technology, topography, and other constraints. Therefore, the Applicant seeks to permit a range of technology to preserve design flexibility. The solar modules and associated equipment, and precise layout of the solar array and related or supporting facilities, have not yet been finalized. Because technology is changing rapidly, this ASC analyzes impacts associated with the largest anticipated solar array footprint, or about 3,641 acres within a 7,450-acre site boundary (see Exhibit C). The solar array area is considered all permanent impact (see Exhibit C for an impact analysis).

During final design, the Applicant will consider all micrositing factors and solar technology available at that time to design the most efficient and effective solar array layout. At this time, the Applicant will specify the precise details of the energy generation and related or supporting facilities equipment and layout in accordance with reporting requirements to the Oregon Department of Energy. However, the actual solar array equipment and layout selected will not exceed the impacts analyzed. Therefore, the following description of major components is based on the best available design information at this time and largest anticipated footprint but may not reflect the final design or equipment used.

The Applicant proposes to construct the Facility in phases with each phase being constructed over the course of approximately a single year (see Section 7.0). The impact analysis presented in this ASC represents the fully built-out scenario of 500 MW.

2.1.1 Solar Modules and Racking

Solar modules use mono- or poly-crystalline cells to generate electricity by converting sunlight into direct current (DC) electrical energy. The electrical generation from a single module varies by module size and the number of cells per module. The dimensions of each module will be approximately 6 feet long and 3 feet wide. The crystalline cells are contained within antireflective glass panels and a metal frame and linked together with factory-installed wire connectors. The modules will be connected in series to form long rows. The rows of modules are then connected via combiners, cables, and switchboards. The configuration of multiple rows (also referred to as an "array") can vary depending on the module technology, spacing, mounting equipment, and other design criteria, which are subject to change during final design. Each row will be spaced approximately 24.67 feet.

Exhibit C, Figure C-2 depicts the solar layout developed for purposes of analyzing impacts, using approximately 965,007 modules (each approximately 320 watts) in strings of 27 modules per string for 35,741 strings. The actual number of modules will vary depending on the module technology, energy output, spacing, mounting equipment, phase of the Facility, and other design criteria, which are subject to change during final design. Impact assumptions are based on this use of 965,007 modules for the 500-MW solar array and that all areas within the site boundary will be permanently impacted by construction of the Facility. See Exhibit C for temporary and permanent impact calculations.

2.1.2 Tracker Systems

Strings of solar modules will be mounted on single-axis tracker systems that optimize electricity production by rotating the solar modules to follow the path of the sun throughout the day. The length of each tracker row may vary by topography and the number of modules that the tracker can hold. The actual number of tracker systems and modules will depend on the system selected. The depicted layout in Figure C-2 assumes approximately 54 modules per rack. The drive unit for the tracking system can control a single row or multiple rows of modules through a series of mechanical linkages and gearboxes. As the solar modules tilt throughout the day, the height of their top edges will shift accordingly (i.e., up to 16 feet high). Each set of approximately 54 racked modules will be mounted approximately 5 feet off the ground on a single-axis tracker that rotates 60 degrees to the east and west. The tracker system, and associated posts, will be specifically designed to withstand wind, snow, and seismic loads anticipated at the site.

2.1.3 Posts

Each tracker will be supported by multiple steel posts, which could be round hollow posts or pile-type posts (i.e., H-pile, C-pile, S-pile). Post depth may vary depending on soil conditions, but the posts are typically installed 5 to 20 feet below the surface and protrude approximately 5 feet above grade. Posts at the end of tracker rows are usually installed to greater depth to withstand wind uplift. In some soil conditions, concrete backfill is required for each post. For the purposes of this ASC, the Applicant assumes that approximately 213,585 posts will be installed and that all posts will use concrete foundations. The actual number of posts and foundation method may vary depending on the final tracker system, ground coverage ratio, topography, height of the solar modules, and site-specific geological conditions. Post locations will be determined by the final layout of the tracker system and geotechnical investigations of the site boundary.

2.1.4 Cabling

The electrical current produced by solar modules is in the form of DC voltage. Cables collect and aggregate the DC before it is converted to alternating current (AC) and sent to the Facility substations. Low-voltage cabling will connect the solar modules of each tracker string in series and combine two strings to a single combiner box. Cabling from multiple combiner boxes will connect to a single inverter, which will convert the DC to AC and connect to the buried collection system. For example, the cabling system for the site plan shown on Exhibit C, Figure C-2 connects 27 modules in series per string, 54 modules (two strings) per tracker rack, with a single pad-mounted combiner box per rack, for a total of 17,870 combiner boxes. A larger DC cable will run between each combiner box and then to the module block inverter. This cable will hang underneath the modules. Cabling can be mounted to the tracker system, placed in cable trays, or buried. The majority of buried cable associated with the solar array will be located within the site boundary and included in the estimated total permanent impact associated with the solar array (i.e., no temporary impacts are calculated for buried cable inside the site boundary).

2.1.5 Inverters

The solar modules will be arranged into blocks, with each block connecting via collector lines to a modular inverter enclosure. In order to be sent to the electrical grid, the DC collected from the solar modules via combiner boxes must be converted into AC before connecting to the collector substations. Inverters serve the function of converting DC power supply to an AC power supply in accordance with electrical regulatory requirements. The conversion is accomplished by rapidly switching the DC power supply; by varying the length of time that the switch is on, as well as the polarity, the inverter creates the positive and negative swells of an AC wave. This waveform is then smoothed with an output filter. Inverters employ several advanced control systems, switching algorithms, and ancillary services for both the input and output stages. For the input stage, the inverters can manipulate the DC voltage to ensure maximum power harvest of input, and on the output various sensors ensure that AC power production is in accordance with regulatory requirements. Low-voltage cabling will link each solar module to inverters to convert panel output from 400-watt DC to 1,500-volt AC. For example, Figure C-2 in Exhibit C depicts a solar site plan with 142 inverter/transformer stations to convert the DC from the modules to AC (51 inverter/transformers in the northern portion of the site boundary and 91 in the southern portion of the site boundary). The final number of inverters will vary depending on the actual generation output of the solar array. While Figure C-2 depicts inverters co-located with transformers on the same concrete slab, string inverters may also be used. The inverter specification will comply with the applicable requirements and standards of the National Electric Code and Institute of Electrical and Electronics Engineers standards.

2.1.6 Transformers

The AC from the inverters will be routed to transformers that will increase the output voltage from the inverter (1,500 volts) to the desired substation feed voltage (34.5 kilovolts [kV]). For the purposes of analysis, the site plan on Figure C-2 shows 142 inverters/transformer stations. The transformers are anticipated to be mounted on concrete pads. From the inverters, the AC electricity is aggregated via an underground 34.5-kV cables to the collector transmission lines, which will be underground (see discussion below). Transformers will be non-polychlorinated biphenyl (PCB) oil–filled types.

2.1.7 Collection System

The transformers will connect the generation output of the solar array to the 34.5-kV collector lines, which will be underground. Underground AC electrical cables will be buried to a minimum of 3 feet. These cables will be located underground to the extent practicable. In this maximum footprint layout for analysis, approximately 67.9 miles of underground 34.5-kV collector lines will be installed (see Exhibit C, Figure C-2). No overhead collector lines are proposed.

2.2 Site Plan and General Arrangement

(iii) A site plan and general arrangement of buildings, equipment and structures.

The Facility is located entirely on private land. The number, size, and actual layout of the Facility infrastructure has not yet been determined. Facility components proposed include a battery storage system, collector substations, electrical collection systems connecting the solar arrays, 230-kV transmission line connecting to the existing Blue Ridge Substation, an operations and maintenance (O&M) building, meteorological (met) stations and tower, some new private access and service roads, gates and security fencing, temporary construction areas, and a supervisory control and data acquisition (SCADA) system. Figure C-2 in Exhibit C shows the site boundary and an overview of the Facility. The Facility will overlap with portions of the Wheatridge Facilities[1] (see Exhibit C, Figure C-2).

The Facility layout with the general arrangement of buildings, equipment, and structures is shown on Figure C-2 of Exhibit C. Preliminary site plans for the Facility are also provided as part of Figure C-2. Note that the Facility will either utilize the existing Wheatridge Facilities O&M building or construct a new O&M building. As noted above, these site plans are provided for the purposes of the ASC analysis; although the final Facility design may differ from the preliminary site plan provided, the actual solar array equipment and layout selected will not exceed the impacts analyzed. The Applicant seeks micrositing flexibility within the site boundary for the layout of the solar fields and related and supporting facilities, as well as flexibility to develop the Facility in phases and to subsequently divide the overall Facility into separate energy facilities (with separate site certificates) to provide for the maximum efficiency of space and available technology while also providing for the maximum flexibility of potential customers. Prior to each phase of construction,

[1] Wheatridge Renewable Energy Facilities I, II, III, and East

the site plan will be submitted to the Morrow County Planning Department for the zoning permits, Public Works Department for the access permits, and Building (City of Boardman) Department for the building permits.

2.3 Fuel and Chemical Storage

(iv) Fuel and chemical storage facilities, including structures and systems for spill containment.

The Facility does not require fuel or chemicals for the generation of electricity. The primary chemical storage will be transformers that use oil for cooling. Transformers for the solar array and battery energy storage system will be ground-mounted units constructed on concrete pads with secondary spill containment traps designed to minimize the possibility of accidental leakage. The concrete catchment system is sized to contain approximately 1.25 times the amount of oil inside the transformer. Transformers typically use mineral oil or seed oil that is considered nontoxic. Transformer coolant does not contain PCBs or compounds listed as extremely hazardous by the U.S. Environmental Protection Agency. The small quantity and nontoxic nature of the oils combined with the fact that the transformers will be included in secondary containment on concrete pads will minimize risk effects of potential spills on soils. In the unlikely event of a spill, the Applicant will follow response measures outlined in its construction or operations Spill Prevention, Control, and Countermeasure Plan (SPCC Plan) as required under 40 Code of Federal Regulations (CFR) 112. As part of this plan, equipment containing oil or hazardous materials will be regularly monitored for leaks, and measures will be put in place if any are found to quickly control and remove spills.

Small quantities of lubricants, degreasers, herbicides, or other chemicals may be stored in the O&M building. Storage of these chemicals will follow label instructions. No underground storage tanks will be installed at the O&M building. No extremely hazardous materials (as defined by 40 CFR 355) are anticipated to be produced, used, stored, transported, or disposed of at this Facility during operations.

During construction, on-site fuel storage may be placed in designated areas within the temporary construction areas (aboveground 1,000-gallon diesel and 500-gallon gasoline tanks). Secondary containment and refueling procedures for on-site fuel storage will follow the contractor's SPCC Plan.

The battery energy storage system (see Section 3.1) may contain chemical electrolyte. Lithium-ion (Li-ion) battery systems are modular systems that contain multiple smaller battery cells. The cells are the primary containment for the gel or liquid electrolyte materials. The module containing the cells is relatively small, generally about the size of a desktop computer processer, and serves as leak-proof secondary containment. Modules are placed in anchored racks within the steel containers. Although leaks from the modules are very unlikely because any leak will require failure of the individual cells as well as the sealed module, any material that might leak from the cell into the module and then to the floor of the container will be contained within the container. Note that used Li-ion batteries are not considered hazardous waste by the U.S. Environmental Protection Agency (EPA).

2.4 Fire Prevention and Control

(v) Equipment and systems for fire prevention and control.

Solar facility do not pose a significant fire risk, but the greatest risk of fire will occur during construction of the Facility, when welding and metal cutting for foundation rebar frames will take place, and vehicles and construction equipment may be used in areas of tall, dry grass. In order to prevent fires from occurring, the construction contractor will implement a number of systems and procedures. These will include requirements to conduct welding or metal cutting only in areas that are graveled or cleared of vegetation, and to keep emergency firefighting equipment on-site when potentially hazardous operations are taking place. Employees will be required to keep vehicles on roads and off dry grassland during the dry months of the year, unless such activities are required for emergency purposes, in which case fire precautions will be observed. On-site employees will also receive training on fire prevention and response. In the rare event of an electrical fire in the solar module blocks or collector substations, Facility staff will monitor and contain the fire, but not try to extinguish it.

The Facility equipment will meet the standards of the National Electrical Code and the Institute of Electrical and Electronics Engineers, and will not pose a significant fire risk. Facility roads will be sufficiently sized for emergency vehicle access. Specifically, internal roads at the solar array sites will be approximately 12 feet to 20 feet wide, depending on location, with an internal turning radius of likely up to 28 feet. These roads will also have less than a 10 percent grade, or a similar profile, depending on exact siting. Vegetation will be cleared and maintained along perimeter roads to provide a vegetation clearance for fire safety. Road cross sections consist of 6 inches of compacted gravel supported on 6 inches of compacted native dirt.

The solar array will have shielded electrical cabling, as required by applicable code, to prevent electrical fires. In addition, the collector system and substations will have redundant surge arrestors to deactivate the Facility during unusual operational events that could start fires. The collector substations will have sufficient spacing between equipment to prevent the spread of fire. All electrical equipment will meet National Electrical Code and Institute of Electrical and Electronics Engineers standards and will not pose a significant fire risk.

Smoke/fire detectors will be placed around the site that will be tied to the SCADA system (see Section 3.8) and will contact local firefighting services. The O&M building will have basic firefighting equipment for use on-site during maintenance activities, such as shovels, beaters, portable water for hand sprayers, fire extinguishers, and other equipment. The construction contractor will be trained in fire prevention awareness and have on-site fire extinguishers to respond to small fires. In the event of a large fire, emergency responders will be dispatched.

At the beginning of Facility operations, a copy of the site plan indicating the arrangement of the Facility structures and access points will be provided to the Heppner Volunteer Fire Department and the Ione Rural Fire Protection District, which are the local fire districts (see Exhibit U). Exhibit U provides additional information regarding local public service providers.

Where the ground is relatively level and grading is not required, the area where the solar array, roads, and other site facilities are sited will be left intact but brush-free and mowed to a non-combustible height.

2.4.1 Battery Energy Storage System

The Facility may use Li-ion batteries to store up to 500 MW of the energy generated by the solar arrays. Section 3.1 provides a detailed description of the selected battery storage option. The following paragraphs summarize the information pertinent to fire prevention and control for the battery energy storage system.

The chemicals used in Li-ion batteries are generally nontoxic but do present a flammability hazard. However, Li-ion batteries are susceptible to overheating and require cooling systems, especially at the utility scale (LAZARD 2016). The gas released by an overheating Li-ion cell is mainly carbon dioxide. The electrolyte solution, usually consisting of ethylene or propylene, may also vaporize and vent if the cell overheats (Battery University 2019).

The Applicant will implement the following fire prevention and control methods to minimize fire and safety risks if Li-ion batteries are used for battery storage:

- The batteries will be stored in completely contained, leak-proof modules.
- Ample working space will be provided around the battery energy storage system for maintenance and safety purposes.
- Off-site, 24-hour monitoring of the battery energy storage system will be implemented and will include shutdown capabilities.
- The Emergency Response Plan will have response procedures specific to the battery energy storage system in the event of an emergency, such as a fire.
- Transportation of Li-ion batteries is subject to 49 CFR 173.185 – Department of Transportation Pipeline and Hazardous Material Administration. This regulation contains requirements for prevention of a dangerous evolution of heat; prevention of short circuits; prevention of damage to the terminals; and prevention of batteries coming into contact with other batteries or conductive materials. Adherence to the requirements and regulations, personnel training, safe interim storage, and segregation from other potential waste streams will minimize any public hazard related to transport, use, or disposal of batteries.
- Design of battery energy storage system will be in accordance with applicable Underwriters Laboratories (specifically, 1642, 1741, 1973, 9540A), National Electric Code, and National Fire Protection Association (specifically 855) standards, which require rigorous industry testing and certification related to fire safety and/or other regulatory requirements applicable to battery energy storage at the time of construction.
- Additionally, the Applicant will employ the following design practices, as applicable to the available technology and design at time of construction:

- Use of Li-ion phosphate battery chemistry that does not release oxygen when it decomposes due to temperature;
- Employment of an advanced and proven battery management systems;
- Employment of Fike fire control panels with 24-hour battery backup at every battery container;
- Installation of fire sensors, smoke and hydrogen detectors, alarms, emergency ventilation systems, cooling systems, and aerosol fire suppression/extinguishing systems in every battery container;
- Installation of doors that are equipped with a contact that will shut down the battery container if opened;
- Installation of fire extinguishing and thermal insulation sheets between each individual battery cell;
- Implementation of locks and fencing to prevent entry of unauthorized personnel;
- Installation of remote power disconnect switches; and
- Clear and visible signs to identify remote power disconnect switches.

3.0 Related or Supporting Facilities

OAR 345-021-0010(1)(b)(B) A description of major components, structures and systems of each related or supporting facility.

Related or supporting facilities consist of the battery energy storage system, collector substations, 230-kV transmission line, O&M building, met stations and tower, access roads and security infrastructure, temporary construction areas, and a communication and SCADA system. As noted earlier, the Applicant is requesting micrositing flexibility for the solar modules and associated equipment, as well as the layout of the solar arrays and related or supporting facilities. Therefore, the following descriptions are based on the best available information at this time and consider the potential for various phases of development.

3.1 Battery Energy Storage System

The Applicant proposes the option to construct up to two AC coupled battery storage sites within the site boundary (Exhibit C, Figure C-2). The battery energy storage system will be capable of storing and later deploying approximately 500 MW of energy generated by the Facility or other sources connected to Blue Ridge Substation. One of the AC coupled battery storage sites will consist of up to 182 battery storage units and will be located adjacent to the proposed northern substation, occupying approximately 10 acres. The second of the two AC coupled battery storage sites will consist of up to 422 battery storage units and will be collocated with the proposed southern substation, occupying approximately 25 acres. Both sites will be fenced separately from the solar array. See Attachment B-3 for a typical NextEra battery energy storage system arrangement. The system as a whole will use a series of self-contained containers located within a fenced area, or within a single warehouse-type enclosure of a similar scale and size. For purposes of the analysis presented in this ASC, containers are assumed because they will generally have a greater potential impact from a noise and visual perspective, and a similar disturbance area. If developed, the warehouse-type enclosure will be designed generally consistent with the character of similar buildings and painted in a low-reflectivity, neutral color to blend with the surrounding landscape. The enclosure will be constructed in compliance with State of Oregon structural and electrical code requirements, to the extent applicable, and in compliance with applicable site certificate conditions.

Additionally, the Applicant proposes to maintain flexibility to have DC coupled distributed battery storage sites as an additional option to the AC coupled battery storage sites. These DC units would have comparable characteristics to the AC units except that the DC units would be distributed and collocated with the solar array inverters/transformer stations, located within the solar array area fence line. Thus, for purposes of the analysis, AC units are assumed because they will have a larger disturbance area since they are not contained within the footprint of the solar array area and will generally have a greater potential impact from a noise and visual perspective.

Each container will be placed on a concrete foundation, measuring 9.5 feet wide, 20 feet long, and 8 feet tall. Each container holds the batteries, a supervisory and power management system, and a fire prevention system. See Section 2.4.1 for fire prevention and control methods as they relate to the battery energy storage system. Li-ion battery systems are modular systems in which each module contains multiple smaller battery cells, each measuring up to 3.2 by 7 centimeters. The cells are the primary containment for the gel or liquid electrolyte materials. The module containing the cells is relatively small, generally about the size of a desktop computer processer, and serves as leak-proof secondary containment. Modules are placed in anchored racks within the concrete containers; typically, each rack houses 8 to 15 battery modules along with a switchgear assembly depending on the configuration chosen. Cooling units will be placed either on top of the concrete containers or along the side.

Li-ion batteries are the most common type of utility-scale battery energy storage system technologies at this time, although other technologies are used and are being developed. Li-ion batteries are a type of solid-state rechargeable battery where lithium ions, suspended in an electrolyte, move from negative to positive electrodes and back when recharging. A variety of chemistries fall under the “Li-ion” term, each with varying performance, cost, and safety characteristics (Energy Storage Association 2020). Li-ion batteries have a typical lifespan of 5 to 10 years and will experience a consistent degradation of performance over that time. Li-ion batteries are generally used in utility-scale applications when rapid, short-term (minute) deployments of power are needed. For example, Li-ion batteries can smooth the fluctuating generation from solar arrays, which can vary based on time of day and cloud cover, to deliver consistent and predictable power to the grid.

3.1.1 Battery Energy Storage System Equipment

The battery storage design will include the following elements:

- Battery storage equipment, including batteries and racks or containers, inverters, isolation transformers, and switchboards;
- Balance of plant equipment (more advanced systems required for Li-ion); medium-voltage and low-voltage electrical systems; fire suppression; heating, ventilation, and air-conditioning systems; building auxiliary electrical systems; and network/SCADA systems;
- Cooling system (more advanced systems required for Li-ion), which may include a separate chiller plant located outside the battery racks with chillers, pumps, and heat exchangers; and
- High-voltage (HV) equipment, including a step-up transformer, HV circuit breaker, HV current transformers and voltage transformers, a packaged control building for the HV breaker and transformer equipment, HV towers, structures, and HV cabling.

The battery technology will be placed in concrete containers on concrete slabs. Each container holds the batteries, a supervisory and power management system, and a fire prevention system. Cooling units will be placed either on top of the concrete containers or along the side. By connecting multiple containers, the battery energy storage system can be scaled to the desired capacity. Containers may be stacked up to two levels with an estimated maximum height of approximately 20 feet.

3.1.2 Battery Energy Storage System Operations and Maintenance

The batteries and other materials for the battery energy storage system will be manufactured off-site and transported to the Facility by truck. As applicable, defective or decommissioned parts will be disposed of or recycled in compliance with 49 CFR 173.185, which regulates the transportation of Li-ion batteries.

The O&M activities will mainly consist of minimal procedures that do not require tampering with the battery cell components. Li-ion systems will require replacement of the batteries every 5 to 10 years.

The battery energy storage system will be stored in completely contained, leak-proof modules. The modules will be stored on a concrete pad to capture any leaks that may occur. O&M staff will conduct inspections of the battery energy storage systems according to the manufacturer's recommendations, which are assumed to be monthly inspections.

As described in Section 2.3, an SPCC Plan will be developed to manage, prevent, contain, and control potential releases, with provisions for quick and safe cleanup of hazardous materials. An Emergency Response Plan will also be developed with response procedures in the event of an emergency, such as a fire (Section 2.4).

3.2 Collector Substations

The up to two collector substations will combine and step up the voltage of energy generated by the Facility to the desired transmission voltage. Prior to construction, any new substation sites will be cleared and graded, with a bed of crushed rock applied for a durable surface. The southern collector substation will be located on an approximately 5-acre site and the northern collector substation will be located on an approximately 11-acre site, enclosed by a locked 6- to 8-foot-tall wire mesh fence; both areas will be fenced separately from the solar array areas (Exhibit C, Figure C-2). Additional substation equipment may include circuit-breakers and fuses, power transformer(s), bus bar and insulators, disconnect switches, relaying, battery and charger, surge arresters, AC and DC supplies, control systems, metering equipment, grounding, and associated control wiring. Any additional equipment will be located within the fenced substation areas. Transformers will be non-PCB oil–filled types.

3.3 230-kV Transmission Line

The Facility will require construction of an associated transmission line that will connect the southern solar array areas to the regional grid. The associated transmission line, in and of itself, is not a transmission line within the meaning of Council jurisdiction (see Section 5.0 below). The associated transmission line will be approximately 0.6 miles of 230-kV overhead line, running east along Strawberry East Road to connect the southern collector substation to the existing Blue Ridge Substation (Exhibit C, Figure C-2). The 230-kV overhead line will be supported either by H-frame structures with two galvanized steel or wood poles, or by galvanized steel or wood monopole structures. The structures will rise to a height of approximately 70 to 180 feet above grade depending on design and terrain. The transmission line will be within the site boundary but outside the solar array fence line. The northern substation (and in turn the northern solar array areas) will interconnect with the existing Umatilla Electric Cooperative/Columbia Basin Electric Cooperative 230-kV transmission line or other planned transmission lines adjacent to the Facility, running north to south through the northern solar array areas.

3.4 Operations and Maintenance Building

The Facility may share the O&M building with the Wheatridge Facilities, expand the Wheatridge Facilities O&M building within the existing developed O&M yard, or construct a new O&M building. A new O&M building will be located on up to 0.2 acre, be one-story, prefabricated, and approximately 6,000 to 9,000 square feet in size. The O&M building will include an office, break room, kitchen, lavatory with shower, utility room, covered vehicle parking, storage for maintenance supplies and equipment, and SCADA system. A permanent, fenced, graveled parking and storage area for employees, visitors, and equipment will be located adjacent to the O&M building. The building will be served by an on-site, state-permitted well and septic system (see Exhibit O) and power supplied by a local service provider using overhead and/or underground lines. The O&M building will be within the site boundary but outside the solar array fence line (Exhibit C, Figure C-2).

3.5 Meteorological Stations and Tower

The Facility will have approximately up to four permanent met stations. Each permanent met station will be made up of a met sensor support tower, support enclosure, datalogger enclosure (mounts above support enclosure), AC/ethernet pull box, soiling station, and met station pull box. Each permanent met station will be installed on a met station pad, which will be approximately 8 by 8 feet and will have a minimum thickness of 6 inches. The height of each permanent met station will be approximately 8.5 feet at the tallest point (met sensor support tower). The met stations will each require a 30- by 30-foot temporary disturbance area.

Up to one temporary met tower may also be utilized. The temporary met tower will disturb a fenced, 30- by 30-foot area and have a maximum height of 7 feet. Eighteen-inch stakes will be used to secure each foot of the temporary, tripod met tower and a 24-inch anchor will be used to secure the center of the temporary, tripod met tower.

All permanent met stations and the temporary met tower will be within the solar array fence line (Exhibit C, Figure C-2).

3.6 Site Access, Service Roads, Perimeter Fencing, and Gates

The Facility will utilize existing access roads to the extent practicable. Primary transportation corridors to the Facility include Interstate 84 (I-84) and Oregon Route 207. Other major county and state roads that will be heavily utilized include Bombing Range Road, Strawberry East Road, and Oregon Route 320. Approximately 47 miles of new roads will be constructed to access Facility infrastructure in areas not previously reviewed through the Council. Exhibit C, Figure C-2 depicts the Facility layout. Existing roads are not anticipated to require improvements or alterations.

All newly constructed roads will be graded and graveled to meet load requirements for all equipment. Service roads, approximately 12 feet wide, will be constructed within the solar array fence line, to facilitate access for construction and maintenance purposes. Approximately 20-foot-wide service roads will be constructed outside the solar array fence line to reach the separately fenced substations. Vegetation will be cleared and maintained along service roads to provide a vegetation clearance area for fire safety. Service roads will be all-weather, compacted soil or gravel, with an internal turning radius of 28 feet. Vegetation maintenance along service roads will include mowing as needed for fire safety requirements. Use of the roads may continue after construction, or new roads may be removed and the land reclaimed to pre-construction conditions.

The locations of specific access points and gates will depend on the final configuration of the solar array and related infrastructure. Chain-link perimeter fencing, 6 to 8 feet in height, will enclose the solar arrays, O&M building, and the battery storage system; the substations will be enclosed by a 6- to 8-foot-high wire mesh fence. The total fenced area is approximately 3,692 acres. The perimeter fencing will have lockable vehicle and pedestrian access gates.

3.7 Temporary Construction Areas

During construction, up to four temporary construction areas (laydown areas) will be used to support construction, store supplies and equipment, and facilitate the delivery and assembly of materials and equipment. The construction areas will be up to 10 acres each. These construction areas may contain temporary storage of diesel and gasoline fuels, located in an aboveground 1,000-gallon diesel and 500-gallon gasoline tanks, within designated secondary containment areas. The temporary construction areas will be within the site boundary, both inside and outside the solar array fence line (Exhibit C, Figure C-2). The construction areas will consist of a crushed gravel surface that will be removed following construction.

3.8 Communication and SCADA System

A SCADA system will be installed to collect operating and performance data from the solar array. The SCADA system provides for remote operation of the Facility from the O&M building.

Fiber optic cables for the SCADA system will be installed with the collection system (Section 2.1.7). In areas where the collection system is buried, the fiber cables will be installed in the same trench. Where the collection system is above ground, the fiber cables will be mounted on overhead poles along with conductors.

4.0 Dimensions of Major Structures and Features

> *OAR 345-021-0010(1)(b)(C) The approximate dimensions of major facility structures and visible features.*

The most notable features of the Facility are: (1) the various components of the solar array; (2) the battery energy storage system; (3) the substations; (4) the collector lines; (5) the 230-kV overhead transmission line; (6) the O&M building; (7) the met stations and tower; and (8) the temporary construction areas. The estimated dimensions of the major Facility structures, as currently available, are summarized below. Dimensions included in the descriptions are for representative purposes only. The vendor, size, number, and arrangement of the solar modules (as arrays) and other Facility features have not yet been determined. Ultimately, the solar modules will not be higher than 16 feet at full tilt and will at maximum occupy the full site boundary (see Exhibit C, Figure C-2). All fenced areas amount to approximately 3,692 acres (solar array areas, O&M building, substations, battery storage system). Attachment B-2 provides pictures of existing NextEra solar arrays to provide examples of how solar arrays generally appear in scope and size. Additionally, Attachment B-3 provides pictures of an existing NextEra energy storage system.

4.1 Solar Array Dimensions

The solar array will comprise linear rows of modules within the perimeter fence line depicted in Exhibit C, Figure C-2. The solar modules will be grouped in blocks approximately 3 feet wide by 6 feet long; this will be a targeted standard dimension, with variations at each block due to micrositing considerations. The maximum height of the solar array will be 16 feet when the modules are tilted on the tracker system. Chain-link perimeter fencing, 6 to 8 feet in height, will enclose the solar arrays. The exact number and size of modules, layout, and associated equipment specifications will be determined during micrositing; however, as noted earlier, the actual solar array equipment and layout selected will not exceed the impacts analyzed.

4.2 Battery Storage Dimensions

The Facility as a whole will include up to 604 battery units, to be contained within up to two AC coupled battery storage sites. The two AC battery storage sites will be located adjacent to the proposed northern and southern substations, occupying areas of approximately 10 and 25 acres, respectively. These areas will be fenced separately from the solar array. The Li-ion battery technology will be placed in concrete containers on concrete slabs. Each individual container will include a concrete container housing, with each container measuring up to 9.5 feet wide, 20 feet long, and 8 feet tall. Each container holds the batteries, a supervisory and power management system, and a fire prevention system. Cooling units will be placed either on top of the concrete containers or along the side.

By connecting multiple containers, the battery energy storage system can be scaled to the desired capacity. Containers may be stacked up to two levels with an estimated maximum height of approximately 20 feet.

The entire footprint of the battery storage sites is assumed to be permanently disturbed by placement of containers, cooling systems, transformers, and cabling (see Exhibit C). During final design, the Applicant may decide to use an unstacked battery container layout, which will be located within the same permanently disturbed areas. As described earlier, the Applicant may also decide to enclose the battery energy storage system in a warehouse-type structure of similar scale and size. However, as containers will generally have a greater potential impact from a noise and visual perspective, and a similar disturbance area, containers are assumed for the purposes of this ASC. Similarly, the Applicant may also decide to use DC coupled distributed battery storage sites as an additional option to AC coupled battery storage sites. Nevertheless, AC units are assumed for the purposes of this analysis due to having a larger disturbance area (i.e., not contained within the solar array area footprint) and generally having a greater potential impact from a noise and visual perspective.

4.3 Substation Dimensions

The two Facility collector substations will be situated on one 5-acre and one 11-acre site, locked and within the Facility site boundary but fenced separately from the solar array areas. The substations will be approximately 10 feet tall.

4.4 34.5-kV Underground Collector Line Dimensions

The medium-voltage conductors will run underground for improved reliability. The approximately 67.9 miles of collector lines will be directly buried at a depth up to 3 feet.

4.5 230-kV Transmission Line Dimensions

The 230-kV line will be supported either by H-frame structures with two galvanized steel or wood poles or by a galvanized steel or wood monopole structure. The structures will rise to a height of approximately 70 to 180 feet above grade, depending on the terrain. The transmission line corridor is approximately 1,000 feet in width. The 230-kV lines will generally have 850-foot-long spans between structures; however, spans may be shorter or longer depending on the terrain. Approximately 0.6 mile of 230-kV transmission line will be used.

4.6 O&M Building Dimensions

If a new O&M building is constructed, the building will be a one-story structure located on up to 0.2 acre with an area of approximately 6,000 to 9,000 square feet. A permanent, fenced, graveled parking and storage area for employees, visitors, and equipment will be located adjacent to the O&M building. The O&M building will be approximately 20 feet high feet.

4.7 Meteorological Stations and Tower Dimensions

The four permanent met stations will each occupy an 8- by 8-foot area and will have a maximum height of approximately 8.5 feet. The met stations will each require a 30- by 30-foot temporary disturbance area. The temporary met tower will disturb a fenced, 30- by 30-foot area and have a maximum height of 7 feet.

4.8 Temporary Construction Areas Dimensions

The four construction areas will occupy up to 10 acres each and may contain temporary aboveground 1,000-gallon diesel and 500-gallon gasoline tanks.

5.0 Transmission Line Corridor

> *OAR 345-021-0010(1)(b)(D) If the proposed energy facility is a pipeline or a transmission line or has, as a related or supporting facility, a transmission line or pipeline that, by itself, is an energy facility under the definition in ORS 469.300, a corridor selection assessment explaining how the applicant selected the corridor(s) for analysis in the application. […]*

As noted above, the transmission line is not an energy facility as defined in ORS 469.300 because it does not cross more than one city or county. The associated transmission line will be approximately 0.6 miles total of 230-kV overhead line to connect the southern Facility collector substation to the existing Blue Ridge Substation, entirely within the unincorporated areas of Morrow County. Therefore, a corridor selection assessment is not required.

6.0 Description of Transmission Line

OAR 345-021-0010(1)(b)(E) If the proposed energy facility is a pipeline or a transmission line or has, as a related or supporting facility, a transmission line or pipeline of any size:

[…]

As noted above, the transmission line is not an energy facility as defined in ORS 469.300 because it does not cross more than one city or county. The associated transmission line will be approximately 0.6 miles total of 230-kV overhead line to connect the southern Facility collector substation to the existing Blue Ridge Substation, entirely within the unincorporated areas of Morrow County. Therefore, a corridor selection assessment is not required.

7.0 Construction Schedule

OAR 345-021-0010(1)(b)(F) A construction schedule including the date by which the applicant proposes to begin construction and the date by which the applicant proposes to complete construction. Construction is defined in OAR 345-001-0010. The applicant shall describe in this exhibit all work on the site that the applicant intends to begin before the Council issues a site certificate. The applicant shall include an estimate of the cost of that work. For the purpose of this exhibit, "work on the site" means any work within a site or corridor, other than surveying, exploration or other activities to define or characterize the site or corridor, that the applicant anticipates or has performed as of the time of submitting the application.

The Applicant anticipates that Facility construction may begin as early as Winter 2023 (see Table B-1). The Facility may be constructed in phases. The size and construction schedule for each phase (and various solar array areas) will depend on market demand. Table B-1 provides an example phasing schedule. Construction of full-build out of the Facility, over all phases, will be completed by the end of 2029 unless the Applicant seeks an amendment to extend the construction deadline. The Applicant proposes findings and conditions throughout this ASC to allow phasing during Facility design and construction. Phasing Facility design and construction allows the Applicant the ability to tailor delivery of power for a particular customer, depending on market demands. The Applicant may own and operate the entire Facility or the Applicant may seek to transfer one or more portions of the Facility to a new owner/operator (see Exhibit A). In accordance with ORS 469.300(6), preconstruction conditions may be satisfied for the applicable facility, facility component, or phase, as applicable, based on final design and configuration.

Table B-1. Example Construction Schedule

Year	Activity
Winter 2023	Issuance of Wagon Trail Solar Project Site Certificate
Phase 1, 2023/2024	Phase 1 Begin and Complete Construction – ~200-MW Development
Phase 2, 2024	Phase 2 Begin and Complete Construction – ~150-MW Development
Phase 3, 2025	Phase 3 Begin and Complete Construction – ~150-MW Development
Winter 2029	Construction Completion Deadline for All Phases

8.0 Submittal Requirements and Approval Standards

8.1 Submittal Requirements

Table B-2. Submittal Requirements Matrix

Requirement	Location
OAR 345-021-0010(1)(b) Exhibit B. Information about the proposed facility, construction schedule and temporary disturbances of the site, including:	–
(A) A description of the proposed energy facility, including as applicable:	Section 2.0
(i) The nominal electric generating capacity and the average electrical generating capacity, as defined in ORS 469.300.	Section 2.0
(ii) Major components, structures and systems, including a description of the size, type and configuration of equipment used to generate electricity and useful thermal energy.	Section 2.1
(iii) A site plan and general arrangement of buildings, equipment and structures;	Section 2.2
(iv) Fuel and chemical storage faculties, including structures and systems for spill containment	Section 2.3
(v) Equipment and systems for fire prevention and control.	Section 2.4
(vi) For thermal power plants: (i) A discussion of the source, quantity and availability of all fuels proposed to be used in the facility to generate electricity or useful thermal energy. (ii) Process flow, including power cycle and steam cycle diagrams to describe the energy flows within the system; (iii) equipment and systems for disposal of waste heat; (iv) The fuel chargeable to power heat rate.	N/A
(vii) For surface facilities related to underground gas storage, estimated daily injection and withdrawal rates, horsepower compression required to operate at design injection or withdrawal rates, operating pressure range and fuel type of compressors.	N/A
(viii) For facilities to store liquefied natural gas, the volume, maximum pressure, liquefaction and gasification capacity in thousand cubic feet per hour.	N/A
(B) A description of major components, structures and systems of each related or supporting facility.	Section 3.0
(C) The approximate dimensions of major facility structures and visible features.	Section 4.0

Requirement	Location
(D) If the proposed energy facility is a pipeline or a transmission line or has, as a related or supporting facility, a transmission line or pipeline that, by itself, is an energy facility under the definition in ORS 469.300, a corridor selection assessment explaining how the applicant selected the corridor(s) for analysis in the application. In the assessment, the applicant shall evaluate the corridor adjustments the Department has described in the project order, if any. The applicant may select any corridor for analysis in the application and may select more than one corridor. However, if the applicant selects a new corridor, then the applicant must explain why the applicant did not present the new corridor for comment at an information meeting under OAR 345-015-0130. In the assessment, the applicant shall discuss the reasons for selecting the corridor(s), based upon evaluation of the following factors:	Section 5.0
(i) Least disturbance to streams, rivers and wetland during construction.	N/A
(ii) Least percentage of the total length of the pipeline or transmission line that would be located within areas of Habitat Category 1, as described by the Oregon Department of Fish and Wildlife.	N/A
(iii) Greatest percentage of the total length of the pipeline or transmission line that would be located within or adjacent to public roads, and existing pipeline or transmission line rights-of-way.	N/A
(iv) Least percentage of the total length of the pipeline or transmission line that would be located within lands that require zone changes, variances or exceptions.	N/A
(v) Least percentage of the total length of the pipeline or transmission line that would be located in a protected area as described in OAR 345-022-0040.	N/A
(vi) Least disturbance to areas where historical, cultural or archaeological resources are likely to exist.	N/A
(vii) Greatest percentage of the total length of the pipeline or transmission line that would be located to avoid seismic, geological and soils hazards.	N/A
(viii) Least percentage of the total length of the pipeline or transmission line that would be located within lands zoned for exclusive farm use.	N/A
(E) If the proposed energy facility is a pipeline or transmission line, or has, as a related or supporting facility, a transmission line or pipeline of any size:	Section 6.0
(i) The length of the pipeline or transmission line.	N/A
(ii) The proposed right-of-way width of the pipeline or transmission line, including to what extent new right-of-way will be required or existing will be widened.	N/A
(iii) If the proposed transmission line or pipeline corridor follows or includes public right-of-way, a description of where the transmission line or pipeline would be located within the public right-of-way, to the extent known. If the applicant proposes to locate all or part of a transmission line or pipeline adjacent to but not within the public right-of-way, describe the reasons for locating the transmission line or pipeline outside the public right-of-way. The applicant must include a set of clear and objective criteria and a description of the type of evidence that would support locating the transmission line or pipeline outside the public right-of-way, based on those criteria.	N/A
(iv) For pipelines, the operating pressure and delivery capacity in thousand cubic feet per day and the diameter and location, above or below ground, of each pipeline.	N/A

Requirement	Location
(v) For transmission lines, the rated voltage, load carrying capacity, and type of current and a description of transmission line structures and their dimensions.	N/A
(F) A construction schedule including the date by which the applicant proposes to begin construction and the date by which the applicant proposes to complete construction. Construction is defined in OAR 345-001-0010. The applicant shall describe in this exhibit all work on the site that the applicant intends to begin before the Council issues a site certificate. The applicant shall include an estimate of the cost of that work. For the purpose of this exhibit, "work on the site" means any work within a site or corridor, other than surveying, exploration or other activities to define or characterize the site or corridor that the applicant anticipates or has performed as of the time of submitting the application.	Section 7.0

8.2 Approval Standards

OAR 345 Division 22 does not provide an approval standard specific to Exhibit B.

9.0 References

Battery University. 2019. BU-304a: Safety Concerns with Li-ion. Last Updated April 2019. http://batteryuniversity.com/learn/article/safety_concerns_with_li_ion. Accessed October 2020.

Energy Storage Association. 2020. *Lithium Ion (LI-ION) Batteries*. http://energystorage.org/energy-storage/technologies/lithium-ion-li-ion-batteries. Accessed October 2020.

LAZARD. 2016. Lazard's Levelized Cost of Storage—Version 2.0. December 2016. https://www.lazard.com/media/438042/lazard-levelized-cost-of-storage-v20.pdf

Attachment B-1. Oregon Department of Energy Correspondence – Site Boundary Expansion

From: Gulick, Kristen
To: Gulick, Kristen
Subject: FW: Wagon Trail Solar Project: Additional Site Boundary Area
Date: Tuesday, October 26, 2021 10:21:05 AM
Attachments: image002.png
image003.png
image005.png
image006.png
image007.png
image008.png
image009.png

From: ESTERSON Sarah * ODOE <Sarah.ESTERSON@energy.oregon.gov>
Sent: Wednesday, August 18, 2021 6:40 AM
To: Konkol, Carrie <Carrie.Konkol@tetratech.com>; MCVEIGH-WALKER Chase * ODOE <Chase.MCVEIGH-WALKER@energy.oregon.gov>
Cc: Powers, Christopher <Christopher.Powers@nexteraenergy.com>; Lawlor, David <David.Lawlor@nexteraenergy.com>; Solsby, Anneke <Anneke.Solsby@nexteraenergy.com>; Curtiss, Sarah Stauffer <SSCURTISS@stoel.com>
Subject: RE: Wagon Trail Solar Project: Additional Site Boundary Area

Good morning,

We apologize for the delayed response – Chase and I have reviewed the information below and concur with your description of the process. Keep us posted on timing of pASC submittal.

Thanks,
Sarah

OREGON DEPARTMENT OF ENERGY

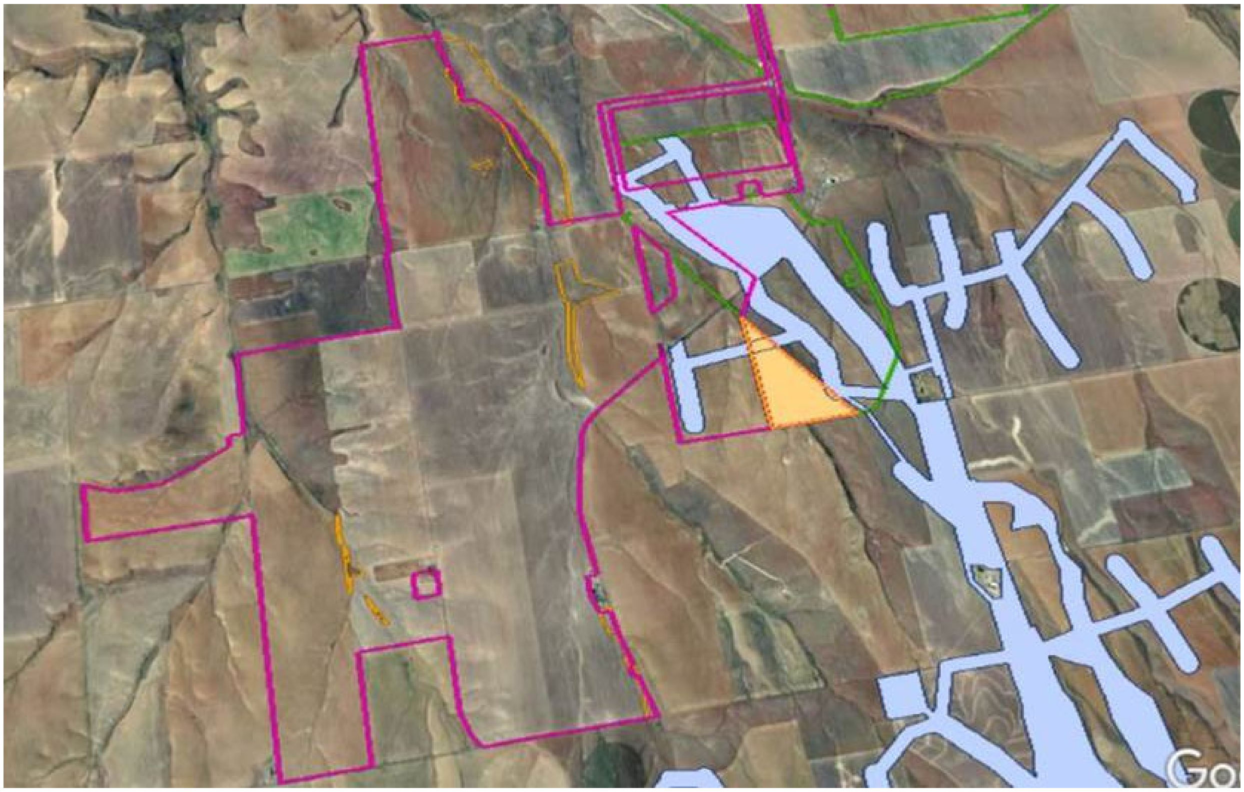
Sarah T. Esterson
Senior Policy Advisor
550 Capitol St. NE | Salem, OR 97301
P: 503-373-7945
C: 503-385-6128
P (In Oregon): 800-221-8035
Stay connected!

From: Konkol, Carrie <Carrie.Konkol@tetratech.com>
Sent: Friday, July 30, 2021 8:48 AM
To: ESTERSON Sarah * ODOE <Sarah.ESTERSON@energy.oregon.gov>; MCVEIGH-WALKER Chase * ODOE <Chase.MCVEIGH-WALKER@energy.oregon.gov>
Cc: Powers, Christopher <Christopher.Powers@nexteraenergy.com>; Lawlor, David <David.Lawlor@nexteraenergy.com>; Anneke.Solsby <Anneke.Solsby@nexteraenergy.com>; Curtiss, Sarah Stauffer <SSCURTISS@stoel.com>
Subject: Wagon Trail Solar Project: Additional Site Boundary Area

Hello Sarah,

Thank you for your time last week to discuss the proposed ~119-acre additional area to the Wagon Trail Solar Project site boundary. More details about this new area are below:

- See screen shot pasted below of ~119-acre triangular area (orange)
- The updated site boundary total is 7,449.49 acres
- This new 119-acre area is on 2 taxlots (01N26E000003502 and 01N26E000003500)
- The 2 taxlots have the same land owners (RJK Family, LLC)
- Both of these taxlots intersect the existing WREFII (blue) and WREFIII (green) site boundaries and the proposed Wagon Trail Solar (pink) site boundary



Per our conversation, the Applicant will incorporate this new 119-acre area into the site boundary proposed in the pASC and will highlight that this new area was not included in the original (Nov 2020) or amended (June 2021) Notice of Intent. If after receipt of the pASC, ODOE determines a need to update the Project Order with anything specific to this new additional area, ODOE would amend the Project Order accordingly.

Please let us know if we have a correct understanding of next steps.

Thank you,
Carrie

Carrie Konkol | Senior Project Manager
Pronouns: she, her, hers
Direct **(503) 721-7225** | Mobile **(503) 830-8587** | carrie.konkol@tetratech.com

Tetra Tech | Complex World, Clear Solutions™ | CES
1750 S Harbor Way | Suite 400 | Portland, OR 97201 | tetratech.com

Attachment B-2. NextEra Energy Resources, LLC Solar Energy Booklet

NEXTera ENERGY RESOURCES

Our Solar Energy Business

Our **Business Operations**

Based in Juno Beach, Florida, NextEra Energy Resources, LLC, is the competitive energy subsidiary of NextEra Energy, Inc., a Fortune 200 company and a leading clean energy provider with consolidated revenues of approximately $17.2 billion in 2017.

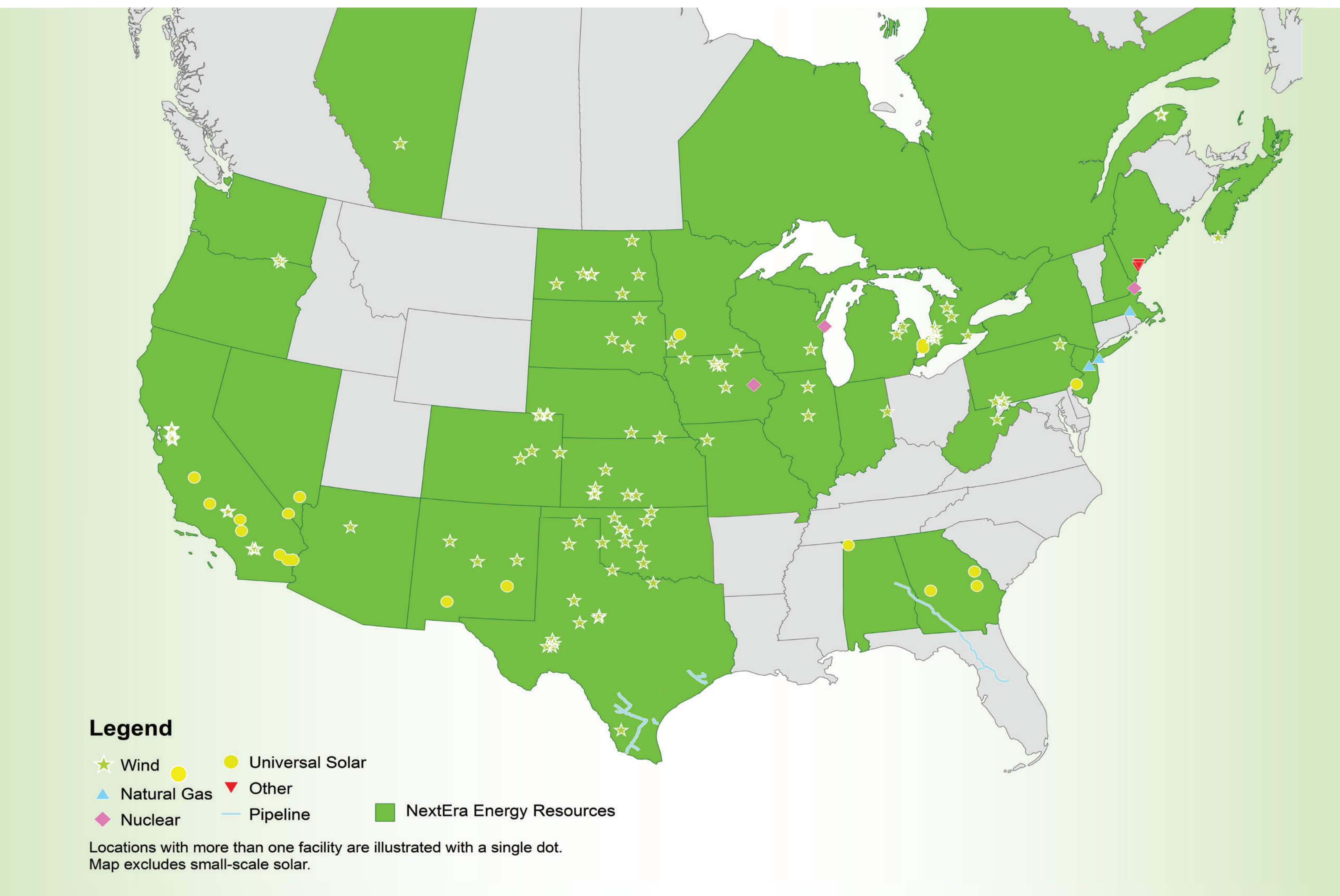
NextEra Energy Resources is primarily a wholesale power generator, operating power plants and selling the output to utilities, retail electricity providers, power cooperatives, municipal electric providers and large industrial companies.

Nationally recognized as a leading clean energy provider, NextEra Energy Resources has a portfolio of facilities, totaling more than 19,000 net megawatts (MW) of generating capacity in the United States and Canada. In 2017, nearly all of the electricity we generated was derived from clean or renewable resources, including wind, solar, natural gas and nuclear energy.

NextEra Energy Resources' operations are diversified not only by fuel sources, but by geographic regions. This helps us manage our power generation business more efficiently and economically, especially in today's volatile energy markets.

NextEra Energy Resources **Generation Facilities in Operation**

(As of 12/31/17)



Provider of **Energy Services**

NextEra Energy Resources has established a strong reputation based on outstanding performance at every level. We continue to solidify our position as one of the nation's leading energy providers by focusing on:

Development, construction and operation

NextEra Energy Resources is a world leader in the development, construction and operation of wind energy centers. Standardized processes, best practices and superior execution have earned us the top position in the field.

We are also experienced in other areas of power generation, including solar, nuclear energy and fossil fuels. Given our experience in these areas, NextEra Energy Resources is uniquely suited to continue developing and acquiring power plants to meet the nation's growing energy needs.

Transmission facilities

Power plants are only part of the energy equation. As additional power generation facilities become operational, we need to move this power from the generation sites to where it is needed. To do that, the electric transmission system must be improved, and NextEra Energy Resources is doing its part. Although we own transmission lines across the country, we are pursuing additional large-scale opportunities to develop, build and operate new transmission facilities through an affiliate company, NextEra Energy Transmission.

Renewable energy expertise at WindLogics

WindLogics, one of our subsidiaries based in St. Paul, Minnesota, provides renewable energy consulting services, using industry-leading scientific analysis for planning, siting and forecasting renewable energy projects. Besides being the lead wind and solar advisor to NextEra Energy Resources, WindLogics also serves the renewable energy and electric utility industries throughout North America and around the world. The company employs meteorologists, computing experts and other industry specialists.

Energy marketing

NextEra Energy Marketing (NEM), LLC, a subsidiary of NextEra Energy Resources, is one of the top ten marketers of power in the nation. NEM buys and sells wholesale energy commodities, such as natural gas, oil and electricity; manages all the fuel needs of NextEra Energy Resources' power generation fleet; and markets the output to customers across the country.

Renewable energy market

NEM markets the largest renewable energy portfolio in the country. NEM provides custom renewable energy solutions for customers with specific needs, from meeting regulatory mandates associated with a renewable portfolio standard to working with businesses to meet their goals on renewable energy generation or carbon emissions management.

Distributed or private generation

Our distributed generation (DG) team tailors solar solutions that enable customers to generate clean, reliable energy from their rooftops, parking structures and open land. DG develops, builds, finances and operates the systems for commercial, institutional, utility and public power customers, helping them to control costs and make a meaningful impact on their renewable energy goals.

Retail energy

NextEra Energy Resources entered the retail market in 2005. NextEra Energy Services and Gexa Energy serve customers in numerous U.S. retail markets and manage the related billing, customer service, collections and remittance services to residential and commercial customers.

Energy storage

Our team of specialists has spent years researching energy storage technologies. Today, we have more than 100 megawatts of operational energy storage and a pipeline of development projects across the U.S. and Canada. With our best-in-class development skills, we are positioned to be a leader in the energy storage market.

The 250-megawatt Silver State South Solar Energy Center in Nevada.

Investment in **Energy Infrastructure**

The 119-megawatt Bluff Point Wind Energy Center in Indiana.

Long before clean energy became a popular choice in the United States, NextEra Energy Resources has been leading the way in using clean fuels to produce electricity that is environmentally friendly.

Our renewable or clean energy mix includes:

Wind

NextEra Energy Resources remains the world's largest operator of U.S. wind-generating facilities. We have approximately 120 wind facilities in operation in North America capable of producing more than 13,000 MW of electricity.

NextEra Energy Resources' wind facilities have enabled our customers, who have purchased renewable attributes, to reduce emissions that would have otherwise been released into the atmosphere from other sources of power generation.

In the coming years, NextEra Energy Resources plans to continue the aggressive expansion of its wind business.

Solar

NextEra Energy Resources is also a leading operator of solar energy. We generate solar energy at nine sites in California, as well as sites in Alabama, Georgia, Minnesota, Nevada, New Jersey, New Mexico and Canada. The company operates more than 2,000 MW of solar generation.

Natural gas

We have incorporated the cleanest burning fossil fuel into our portfolio with natural gas-fired facilities in three states. We often install combined-cycle technology that uses waste heat to drive an additional power generator for increased energy efficiency and lower emissions than conventional fossil-fueled units. This type of plant is about 30 percent more efficient than a traditional steam plant.

Nuclear energy

NextEra Energy Resources also incorporates clean nuclear energy into the fuel mix through Seabrook Station in New Hampshire, Duane Arnold Energy Center in Iowa and Point Beach Nuclear Plant in Wisconsin. Nuclear power plants produce virtually no air emissions during operation, representing a responsible energy choice for the future as global warming and climate change concerns intensify. All three NextEra Energy Resources' nuclear power plants have excellent safety records and are focused on reliable operation.

Bringing **Solar Energy** to Market

Solar energy benefits

Solar plants operate when energy consumption needs are at their highest, effectively matching energy supply and demand. Solar energy is cost effective. The cost of large, universal solar installations has dropped significantly in recent years due to advances in technology and design of solar panels. It has reached parity with natural gas in certain markets.

The other benefits of NextEra Energy Resources' photovoltaic (PV) solar portfolio are considerable, including:

- » Creates no greenhouse gases or other air pollutants;
- » Uses no water resources to generate electricity;
- » Provides a renewable fuel supply;
- » Creates no waste byproducts for disposal;
- » Results in no hazardous cleanup at the end of a project's productive life; and
- » Is a completely silent operation.

Our solar expertise

NextEra Energy Resources entered the solar generation business in 1989 through its interest in Solar Electric Generating System (SEGS), one of seven solar thermal projects sited in Kramer Junction and Harper Lake, California.

Since then, the company has significantly expanded its solar development to approximately 2,000 MW of operating assets.

Vital landowner relationships

PV solar facilities require a large area for development. Our general rule of thumb is that each MW of power will require five to eight acres of land to support the solar equipment, as well as easements for power line infrastructure. For example, a 20 MW facility will require about 100 to 160 acres.

We generally aim to site a project as close as possible to existing electrical transmission or distribution infrastructure. We try to avoid too much land variation, extreme terrain and trees when siting a project because such characteristics can cause shading, reducing the project's electrical production.

A solar PV project only requires water during construction for dust control, as well as infrequent panel cleaning during operations.

If an area is promising after our initial assessment, NextEra Energy Resources will enter into a purchase or lease option agreement with landowners, which provides additional time for further evaluation of the property.

Landowners receive option payments based upon the final agreed dollar-per-acre value of the property. Throughout the option period, landowners are able to continue to conduct business as usual on their land. Landowners are not the only beneficiaries. Their decision to help develop a solar project in their community brings additional jobs to the area, increased tax revenue and our purchases of local goods and services.

Solar and Storage

When paired with an energy storage system, solar offers an attractive combination. Together, they can improve the operation of the electrical grid, reduce the need for additional generation and provide additional options to meet peak energy demands.

Environmental stewardship

- **» NextEra Energy Resources works closely with federal, state and local environmental organizations.**
- **» Environmental assessments determine suitability of prospective solar sites.**
- **» Land and wildlife are respected and protected during construction and operations.**
- **» Land is restored after construction.**

A solar technician inspects the panels at the Blythe and McCoy Solar Energy Centers in California.

Extensive **Construction** Experience

Siting a solar project

Siting a solar project is challenging work and includes finding the right combination of solar conditions, power transmission lines and land. In addition to working with landowners to familiarize them with the process and what to expect, our developers are busy on a wide range of issues related to developing a solar site, including:

- Meeting with and providing information to local officials on project progress;
- Conducting environmental assessments;
- Completing historical and archaeological reviews;
- Arranging to connect to the local power grid;
- Securing customers for the site's generated electricity;
- Attending public meetings to gain approval for construction;
- Permitting and land use zoning, as applicable; and
- Procuring equipment.

Construction is carefully planned

NextEra Energy Resources' construction team is experienced in building solar PV plants. When all approvals are in place and landowners have signed their contracts, construction can begin. Our construction managers and engineers oversee and are responsible for all work and all contractors at a construction site. They, and often their families, live in the community during construction.

Approximately 90 to 120 contractors can be involved in a typical solar construction project. Our goal is to hire as many workers from the area as possible, including heavy equipment operators, electricians, laborers, security and others.

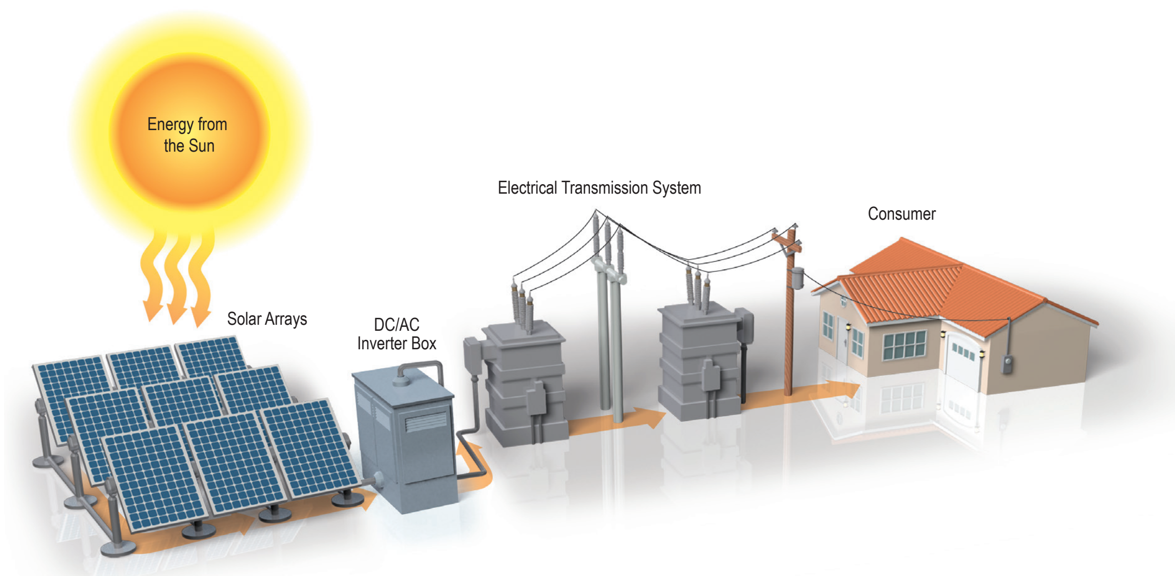
Construction typically takes between six and 12 months. Our construction manager and staff stay in close contact not only with landowners, but also with local government, to keep interested parties apprised of progress and to ensure adherence to all local building code requirements.

Some of the major steps involved include:

- Erecting a fence for safety;
- Laying high-quality gravel roads to accommodate heavy equipment;
- Constructing a substation, and possibly an operations and maintenance building;
- Installing the solar arrays, which are typically about six to eight feet tall and are erected on steel posts driven into the ground; and
- Testing and commissioning the completed arrays.

When construction is complete and the plant has begun commercial operation, the site is turned over to our operations staff who operate and maintain the solar plant.

How a photovoltaic solar plant works



As sunlight hits the solar panels, the photovoltaic energy is converted into direct current electricity (DC). The direct current flows from the panels through inverters and is converted into alternating current (AC). Finally, the electricity travels through transformers, and the voltage is boosted for delivery onto the transmission lines, so the local electric utility can distribute the electricity to homes and businesses.

Generating **Home-Grown** Solar Energy

The 75-megawatt River Bend Solar Energy Center in Alabama.

NextEra Energy Resources is a leader in solar energy. Lower solar panel costs have greatly improved the economics of solar power, and the benefits are significant. For local communities, it means clean, home-grown energy that also provides much-needed tax income to rural communities—to schools, libraries and other public services, benefiting the entire community.

Highlights of solar operations

» We have more than 90 solar projects with ownership interest with a total net generating capacity of more than 2,000 megawatts of owned solar generation.

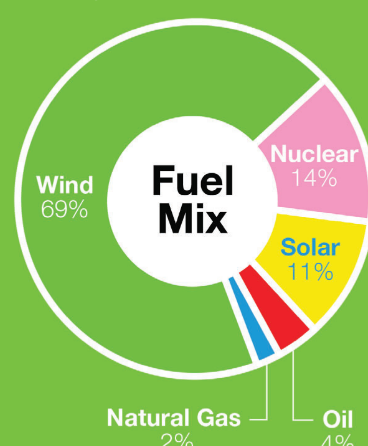
» Thousands more megawatts are in the development pipeline for future construction and operation.

» Solar PV generation does not use water for power generation.

» Solar PV generation is emissions free.

A Diversified Portfolio

Total Net Megawatts: 19,060 (As of 12/31/17)



**Includes megawatts associated with noncontrolling interests related to NextEra Energy Partners, LP.*

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Attachment B-3. NextEra Energy Resources, LLC Energy Storage Booklet

NEXTera ENERGY RESOURCES

Our **Energy Storage** Business

A **Promising Future** For Energy Storage

Technology offers flexibility, value in today's energy market

Meeting today's energy challenges is complicated. The power infrastructure must be able to balance supply and demand instantaneously while taking into account the impacts of intermittent renewable energy. Consumers are also looking for energy services and products that provide flexibility and value in the areas of renewable energy, grid reliability and peaking power.

NextEra Energy Resources is helping meet these needs through battery energy storage technology, which is providing a promising way to store electrical energy so it can be available to meet demand whenever needed. While there are many energy storage technologies, NextEra Energy Resources has focused on the use of batteries as costs have declined, but is continuing to evaluate other storage technologies.

"(Our) company expects to invest more than $1 billion in storage in 2021, which would be the largest-ever annual battery storage investment by any power company in history."

Jim Robo, Chairman and CEO, NextEra Energy, April 22, 2020

Energy storage delivers advantages to the power grid and our customers

What makes energy storage attractive is that it allows energy to be delivered instantly, in the required amount. By doing this, energy storage provides many advantages, such as improving the operation of the electrical grid, integrating renewable resources and helping investment decisions.

» **Grid enhancement.** Energy storage can balance load on the power system grid by moving energy when demands are low to times when demands are high. The technology also allows for a seamless switch between power sources and protects equipment by controlling voltage and frequency.

» **Renewable resources.** Energy storage fills in the gaps resulting from intermittent resources like wind and solar generation. That means operators can more easily bring on and off renewable energy, reducing the need for load balancing services and rapid generation ramping.

» **Electrical system investments.** By reducing the load on congested transmission and distribution systems, energy storage may defer expensive upgrades. In some cases, storage may also reduce new investment in conventional resources, such as adding generating plants to meet systemwide peak load.

In 2018, NextEra Energy Resources' 20-megawatt (MW) Pinal Central Solar Energy Center in Arizona became the company's first project to pair solar energy with an on-site, state-of-the-art 10-MW battery storage system (shown in cover photo, lower right, February 2020). More than 50% of the company's new solar projects in 2019 also included a storage component. Renewable energy projects, coupled with battery storage, provide power to customers long after the sun goes down and demand for electricity goes up.

NextEra Energy Resources employees at the 16.2-MW Casco Bay Energy Storage Facility in Maine (April 2017). The company is developing additional energy storage facilities across North America.

Projects require little land, provide many benefits

Energy storage projects do not require a large area for development, are scalable in size and can be located in many places. NextEra Energy Resources generally seeks to site a project as close as possible to existing electrical transmission or distribution infrastructure and often, close to an existing renewable project.

Other benefits of energy storage include no greenhouse gases or other air pollutants, no use of water to generate electricity, and a renewable supply of energy.

Interest in energy storage is growing

The growing interest in energy storage is being driven by a number of factors, including:

» Reductions in technology costs.

» The rapid development of intermittent renewable energy resources.

» The evaluation of new policy initiatives by states.

» Regulatory changes.

For example, the Federal Energy Regulatory Commission has mandated policy changes in the frequency regulation market that have helped spur the use of energy storage for this purpose. Certain markets are now encouraging utilities to use energy storage to manage the intermittent energy that flows into the grid and to supply the grid with energy during times of peak use.

Costs are expected to decline

While emerging technology costs tend to be higher and therefore less competitive during the early evolution phase, technological efficiencies, improved manufacturing productivity and economies of scale help lower cost over time. As batteries gain wider industry adoption, prices are expected to decrease further.

Energy storage is safe, reliable

Safety is always a top priority in NextEra Energy Resources' operations, and energy storage systems are no exception.

Our energy storage systems are safe and reliable. Overall, energy storage has been a part of the U.S. electric system since the 1930s. Today, it makes up approximately 2% of the nation's generation capacity, according to the Energy Storage Association. The safety record of the industry is similar to or better than other forms of power generation or distribution.

NextEra Energy Resources is experienced in energy storage

Our team of specialists has spent years researching energy storage technologies, applications and use cases, leading to two demonstration projects in 2012 and 2013.

Today, NextEra Energy Resources has more than 145 MW of operational energy storage, including the Lee DeKalb Energy Storage Facility in Illinois and the Blue Summit Energy Storage Facility in Texas. These facilities are being used for frequency regulation. Traditionally, fossil and hydroelectric power plants have been used for frequency regulation. Now, batteries can also accomplish this task more efficiently.

In addition to the growth of operational facilities, the company has a robust pipeline of development projects across the U.S. and Canada.

Batteries are placed into removable racks similar to a computer server. There are also monitoring, control and power conversion systems, as well as cooling and fire suppression systems.

NextEra Energy Resources' Minuteman Energy Storage Facility in Massachusetts went into service in 2019. It provides 5 MW of energy storage.

How energy storage systems work

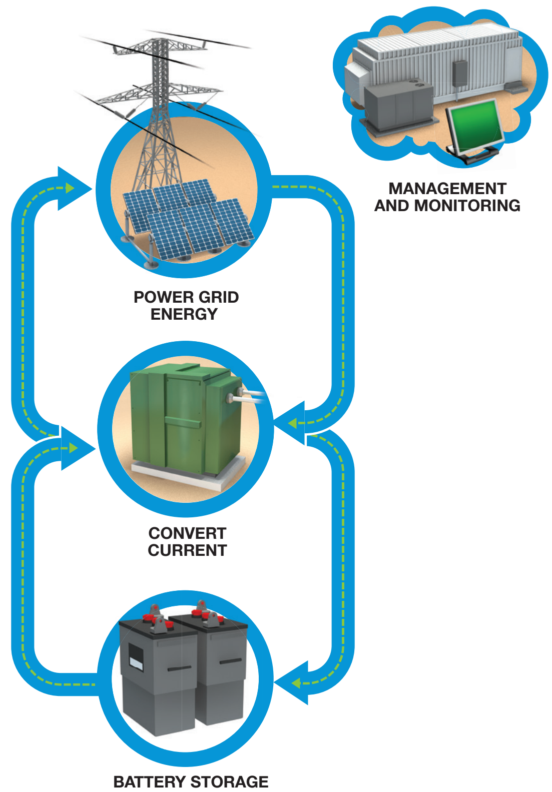
» A battery management system monitors the individual cells and controls the voltage, temperature and current for safe, reliable transfer of energy. The system automatically shuts off if the batteries are operating outside of predefined parameters.

» A computerized monitoring system provides up-to-date weather forecasts, power prices, historical electrical use, the amount of charge remaining in the batteries and when to use the energy storage system.

» Energy from the power grid or from renewable energy sources is delivered via a bidirectional inverter, which converts the energy from alternating current (AC) into direct current (DC). Today's batteries can only store DC. This energy goes into an array of batteries that is typically housed within a battery container or a building structure.

» When the energy is needed on the power system, the inverters are then used again, but this time to convert the DC from the batteries into AC. Once the power has been transformed, it is stepped up in voltage and subsequently sent to an on-site substation or directly to a distribution or transmission line.

» The electricity is then distributed to homes, schools, businesses and other consumers.



NextEra Energy Resources has a proven reputation for excellence

As the world's largest generator of renewable energy from the wind and the sun, NextEra Energy Resources has earned a reputation for excellence. Our scale, size and scope of services allow us to offer innovative energy solutions to customers, and energy storage is a natural extension of our development business.

By working with NextEra Energy Resources, customers can realize the monetary benefits of energy storage while mitigating technology complexity and vendor risk. With our significant purchasing power, we can buy energy storage equipment at the lowest possible costs. With our best-in-class development skills, we can also build customized storage solutions to meet customers' unique requirements.

Energy storage has the potential to be a game changer for the energy industry, and NextEra Energy Resources is a leader in the market.

NextEraEnergyResources.com

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