UNITED STATES DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION

PacWave
Power Purchase Agreement

Bonneville Power Administration
Record of Decision

Summary

The Administrator of the Bonneville Power Administration (BPA) has decided to enter a Power Purchase Agreement (PPA) with Oregon State University (OSU) to purchase up to twenty (20) megawatts (MW) per hour of test energy output and associated environmental attributes from the PacWave Project (Project)[1] for an initial term of five (5) years. The Project is an open ocean wave energy testing facility located seven miles off the Pacific coast between the cities of Newport and Waldport, Oregon. The Project can accommodate up to four clients, selected and managed by OSU, which will operate and test their specific ocean wave generation technology in a real-world environment. BPA will purchase the unscheduled intermittent electrical energy at a point of delivery within a Central Lincoln Public Utility District-owned distribution facility. Given the experimental nature of the PacWave facility, the purchase price (cost) will be calculated as seventy-five percent of the agreed upon market index price at the time the energy is delivered and received, subject to a price cap and a price floor. BPA and OSU expect the Project to begin generating in the spring of 2026.

BPA has determined that the Project is "an experimental, developmental, demonstration, or pilot project of a type with a potential for providing cost-effective service to the region," and has included the Project as a line item in its annual budget submittal to Congress.[2] Having completed those steps, BPA is acquiring this resource pursuant to its authority under section 6(d) of the Northwest Power Act (16 U.S.C. 839d(d)).

FOR FURTHER INFORMATION CONTACT: Mark Miller, Bonneville Power Administration PTL; phone number 503-230-4003; email memiller@bpa.gov. For copies of this ROD, please call BPA's toll-free document request line at 1-800-622-4520.

[1] The Project in this instance refers only to the South Test Site of the PacWave Project. OSU is currently in the process of developing and permitting a North Test Site, the future output of which is not subject to this acquisition.

[2] BPA FY 2023 Congressional Budget Justification, available at: https://www.energy.gov/sites/default/files/2022-04/doe-fy2023-budget-volume-3-pma-v2.pdf.

Supplementary Information

This Record of Decision (ROD) explains the rationale for BPA's decision to execute a Power Purchase Agreement (PPA) with OSU to purchase up to 20 MW per hour from the Project for an initial term of 5 years at a purchase price of seventy-five percent of the agreed upon market index price,[3] and subject to a price cap and floor.[4]

I. BPA BACKGROUND

BPA is a self-financing Federal power marketing agency, within the United States Department of Energy, with statutory responsibility to supply electricity at wholesale to firm power customers in the Pacific Northwest.

Section 6 of the Pacific Northwest Electric Power Planning and Conservation Act (Northwest Power Act) authorizes the BPA Administrator to acquire resources (output) on a short-term or long-term basis after determining that such energy and/or capacity is necessary to meet firm contractual load obligations.[5] Once BPA has identified that it has such a need, it may acquire resources that are consistent with the Northwest Power Planning Council's (Council) plan or, if no plan is in effect, resources that are consistent with sections 4(e)(1) and (2), all as determined by the Administrator. Accordingly, these resource acquisitions must be "cost-effective" and consistent with the resource priority scheme outlined in section 4(e)(1).[6] Section 6(d) of the Northwest Power Act, however, authorizes BPA to acquire certain resources irrespective of need and without making the consistency determinations described above.

Specifically, section 6(d) authorizes BPA "to acquire a resource, other than a major resource, whether or not such resource meets the criteria of section [4](e)(1) of this title and the considerations of section [4](e)(2) of this title but which [it] determines is an experimental, developmental, demonstration, or pilot project of a type with a potential for providing cost-effective service to the

[3] The market index price will be the California Independent System Operator's Western Energy Imbalance Market Hourly Real-Time Load Aggregation Point Price.
[4] The price cap will be $200/MWh and the floor will be $0/MWh.
[5] 16 U.S.C. §§ 839-839h. Section 6 is codified at 16 U.S.C. § 839d.
[6] 16 U.S.C. § 839b(e)(1). The Northwest Power Act defines the term "cost effective" in this context to mean " forecast… to be reliable and available within the time it is needed, and… [to meet demand] at an estimated incremental system cost no greater than that of the least-cost similarly reliable and available alternative measure or resource, or any combination thereof."
The resource priority scheme in 4(e)(1) states: "Priority shall be given: first, to conservation; second, to renewable resources; third, to generating resources utilizing waste heat or generating resources of high fuel conversion efficiency; and fourth, to all other resources."

region."[7] BPA can acquire such resource after its inclusion in the annal budget that BPA submits to Congress. To summarize, the four conditions that must be met for BPA to acquire a resource under section 6(d) are:1) the resource must be a non-major resource, i.e., smaller than 50 aMW or acquired for a period less than five years; 2) BPA must determine that the resource is "an experimental, developmental, demonstration, or pilot project;" 3) BPA must determine that the resource is "of a type with a potential for providing cost-effective service to the region[;]" and 4) BPA must include the resource in its annual budget submittal to Congress.

BPA is acquiring the Project as a section 6(d) resource as explained below.

II. PROJECT BACKGROUND AND PPA KEY TERMS

The overarching purpose of the Project is to foster the nascent wave energy industry by offering "an integrated test center for wave energy testing clients to evaluate performance and ecosystem effects of a utility-scale [wave energy capture] or small arrays."[8] OSU developed the Project with funding from the U.S. Department of Energy and the state of Oregon to offer clients a site and support to test and demonstrate their wave energy capture technologies in a real-world, grid-connected environment. The Project is pre-permitted for most types of wave energy converter technology, including point absorbers, attenuators, oscillating water columns and hybrid devices.[9] OSU will select and manage up to four clients at a time, and provide each with access to an offshore testing berth with a 5 MW-capable power and data cable connection to the shoreside grid connection facility.[10]

OSU has submitted a small generator interconnection application, G0505 on January 12, 2015, in order to interconnect the Project as a new generation facility in BPA's Balancing Authority Area (BAA). BPA's Transmission Services has worked with the project to ensure all interconnection requirements for new generation in the BPA Balancing Authority Area (BAA) have been met. BPA will install metering and communications necessary to support reliable operations, monitoring and settlement functions.

To support OSU's testing and demonstration objectives, BPA will purchase and take delivery of the full energy output of the Project on an intermittent, unit-contingent basis with no scheduling requirements and subject to no minimum

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[7] 16 U.S.C. § 839d(d). The Northwest Power Act defines "major resource" as a resource larger than 50 average megawatts (aMW) and for a period greater than five years. § 16 U.S.C. § 839a(12), so resources that BPA acquires under its section 6(d) authority must be either smaller than 50 aMW or acquired for a period shorter than five years.

[8] https://pacwaveenergy.org/faq/.

[9] *Id.*

[10] https://pacwaveenergy.org/south-test-site/.

delivery obligations. OSU will notify BPA at least thirty days prior to the forecast Project energization date. Once the Project is online, BPA will take ownership of the energy at a point of delivery located within a Central Lincoln Public Utility District-owned distribution facility, as defined in the PPA.

Under the terms of the PPA, BPA will purchase up to 20 MW per hour from the Project. Project output will vary depending on several factors, including whether all four testing berths are occupied, the number, type and capacity of technologies being tested, and the state of the wave energy resource; OSU expects that the Project will generate less than 1 MW per hour during the early stage of its operation. No minimum quantity is required under the PPA.

The initial term of the PPA will run for five years, with options to extend the term for an additional five years up to four times (for a total of up to 25 years) by mutual agreement. OSU requested this term structure to align with the other agreements underpinning the Project.

BPA will purchase the energy output from the Project at a formula price calculated as 75% of the California Independent System Operator's (CAISO) Western Energy Imbalance Market (WEIM) Hourly Real-Time Load Aggregation Point (LAP) Price at the time of delivery. The purchase price will be subject to a cap ($200/MWh) and floor ($0/MWh). Included in this purchase price, BPA will receive the environmental attributes associated with the energy output from the Project.

III. APPLICATION OF STATUTORY REQUIREMENTS AND OTHER CONSIDERATIONS

BPA is exercising authority under section 6(d) of the Northwest Power Act to acquire the Project output. BPA's decision to acquire this resource satisfies the statutory requirements of section 6(d) and is supported by other relevant considerations.

1. Acquisition of the Project output satisfies the statutory requirements of section 6(d).

As noted above, four conditions must be satisfied for BPA to acquire a resource under section 6(d): 1) the resource must not be a major resource, i.e. it must be smaller than 50 aMW or acquired for a period less than five years; 2) BPA must determine that the resource is "an experimental, developmental, demonstration, or pilot project;" 3) BPA must determine that the resource is "of a type with a potential for providing cost-effective service to the region;" and 4) BPA must include the resource in its annual budget submittal to Congress. If those conditions are met, BPA can acquire that resource irrespective of the statutory

considerations required for other non-major resource acquisitions, i.e. whether it is cost-effective and necessary to meet BPA's contractual load service obligations, among others.[11]

BPA's execution of a PPA to acquire the Project output satisfies these four conditions. First, BPA is acquiring up to 20 MW of energy per hour for an initial five-year term, both of which are below the thresholds in the statutory definition of major resource.[12] Second, the Project is appropriately characterized as "an experimental, developmental, demonstration or pilot project."[13] As explained above, OSU's purpose is to offer Project clients a site and support to test and demonstrate their wave energy capture technologies in a grid-connected environment. The sale of energy and the revenue it generates are secondary outcomes of the Project and not its primary purpose; delivery of energy is important to the Project, in part, because it affords OSU and Project clients the opportunity to gain technical expertise regarding the interaction of wave energy converter technologies with the electrical grid. Third, wave energy has the "potential for providing cost-effective service to the region." Because the wave energy industry is in its early stages, the reliability, availability and economics of the various wave energy converter technologies are currently uncertain. The Project will provide BPA, OSU and the Project clients an opportunity to learn more about the operational characteristics and commercial feasibility of wave energy technologies, which will provide BPA with information regarding the industry's potential cost-effectiveness (as that term is used in the Northwest Power Act). Fourth, BPA described its support for the Project and intent to purchase the Project's energy output in BPA's fiscal year 2023 Congressional Budget Justification.[14]

Having satisfied these conditions, BPA is exercising authority under section 6(d) of the Northwest Power Act to acquire the Project output.

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[11] The "cost-effective" requirement comes from sections 6(b)(2) and 4(e)(1) of the Northwest Power Act, 16 USC §§ 839d(b)(2) and 839b(e)(1). The needs consideration comes from section 6(a)(2)(A), 16 USC § 839d(a)(2)(A).

[12] Bonneville defines average megawatts (aMW) as "The unit of energy output over a year, equivalent to the energy produced by the continuous operation of one megawatt of capacity over a period of time," so 50 aMW is equivalent to 50 MW of energy per hour delivered continuously over the course of a full year (8760 hours in a non-leap year), or 438,000 MWh of energy delivered per year.

Both the terms of the PPA (restricting deliveries to up to 20 MW per hour) and the physical characteristics of the Project (four test bays equipped with cabling to support up to 5 MW each) constrain the Project from exceeding the 50 aMW major resource threshold.

[13] The somewhat redundant terms "experimental," "developmental," "demonstration" and "pilot" are not defined in the Northwest Power Act. It is not necessary in this instance to determine which term applies to the Project; the purpose and characteristics of the Project are such that it could fall within the common definition of any of those terms.

[14] BPA FY 2023 Congressional Budget Justification, *supra* note 2.

2. BPA's decision to acquire the Project output is supported by other considerations.

While BPA's decision to acquire the Project output is based on compliance with the statutory conditions for acquiring a section 6(d) resource described above, at least four other factors weigh in support of this acquisition.

First, a commercially mature wave energy industry could offer BPA (and other utilities) a domestic source of energy production with geographic and resource diversity benefits, and no fuel costs. This aligns with the policy objectives of Executive Order 14154, Unleashing American Energy,[15] which seeks to "encourage energy exploration and production on Federal lands and waters, including on the Outer Continental Shelf, in order to meet the needs of our citizens and solidify the United States as a global energy leader long into the future."

Second, gaining information about the potential commercial feasibility and operating characteristics of the wave energy technologies is of particular interest to BPA given the proximity of its transmission system to ocean resources and its ability to move any energy generated therefrom to serve loads around the region. If the wave energy industry develops cost-effective resources, BPA is well positioned to benefit from those advancements.

Third, several provisions of the PPA mitigate BPA's cost risk associated with the Project: 1) the PPA pricing formula, which is indexed to a market price and discounted by 25%, is subject to a price cap of $200 per megawatt-hour which protects BPA from spikes in market prices; 2) the PPA permits BPA to reopen or terminate the agreement under certain conditions; and 3) the PPA's five-year term (with mutual rights to renew for additional five-year terms) provides BPA an opportunity to periodically reevaluate the acquisition and potentially renegotiate or cease transacting in the event BPA determines that PPA costs outweigh the benefits of the Project.

Fourth, acquisition of the Project output aligns with the Northwest Power and Conservation Council's currently effective 2021 Power Plan, which contemplates the need for utility engagement in research and investment in emerging technologies,[16] and with BPA's internal resource planning. BPA's 2024 Resource

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[15] E.O. 14154, Jan. 20, 2025.

[16] Northwest Power and Conservation Council, 2021 Power Plan at p 11, available at: 2021powerplan_2022-3.pdf.

> The Council recommends that national labs, research institutions, trade allies, and utilities continue to work with developers and manufacturers to research and explore the regional resource potential of supply-side emerging technologies such as offshore wind, small modular nuclear, enhanced geothermal systems, energy storage, [and other resources]. In addition, the Council urges the region to identify potential barriers to

Program projects that BPA will have periodic energy deficits that will generally be met with short-term market purchases;[17] BPA will use energy generated and delivered by the Project on an unscheduled basis to serve its firm contractual load obligations, resulting in a corresponding reduction of these short-term market purchases, specifically imbalance market purchases. BPA expects the magnitude of this acquisition to be small enough that it will not otherwise materially affect either the Council's or BPA's power planning conclusions or analyses.

In summary, the Project provides BPA with an opportunity to support the developing wave energy industry and learn about the operational characteristics of new technologies with minimal cost risk to its customers or impacts on its long-term resource planning analysis.

IV. ENVIRONMENTAL COMPLIANCE

Consistent with the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. § 4321 *et seq.*, as amended, BPA has assessed the potential environmental impacts that could result from entering a PPA with OSU for the generating output from the Project. The NEPA process was conducted concurrently with the development of BPA's PPA.

BPA's proposed action is limited to entering a PPA with OSU to acquire the output from the already-constructed Project using only the existing transmission system infrastructure at a point of interconnection owned by Central Lincoln Public Utility District. BPA will receive up to 20 MW of power generated by the Project on an intermittent, unscheduled basis and transmit it to BPA's customers. BPA does not propose installing new equipment or infrastructure as part of this action, nor will BPA be associated with funding or operating the Project beyond taking the unscheduled power under the PPA.

Accordingly, BPA has determined that entering the PPA with OSU falls within a class of actions categorically excluded from further NEPA review pursuant to U.S. Department of Energy NEPA Implementing Procedures (dated June 30, 2025) and the regulations at 10 C.F.R. Part 1021. More specifically, entering the PPA with OSU falls within categorical exclusion B4.1, which provides for the exclusion from further NEPA review of the "establishment and implementation of contracts, policies, and marketing and allocation plans related to electric power acquisition that involve only the use of the existing transmission system and existing generation resources operating within their normal operating limits." BPA has

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deployment, including costs, transmission, siting, etc., and work together toward solutions when it is in the best interest of the region.

[17] *See, e.g.,* BPA 2024 Resource Program at p. 8, available at: https://www.bpa.gov/-/media/Aep/power/resource-program/2024-rp-document.pdf.

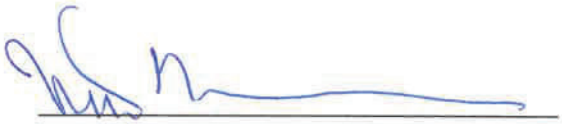
prepared a categorical exclusion determination memorandum that documents this determination, which is publicly available on the BPA website at the following address: https://www.bpa.gov/learn-and-participate/public-involvement-decisions/categorical-exclusions.

V. DECISION

For the reasons stated herein, after consultation with and recommendation from BPA's Power Business Line, BPA is exercising its authority under section 6(d) of the Northwest Power Act to execute the PPA with OSU to acquire up to 20 MW of energy per hour from the Project for an initial term of five years.

Issued in Portland, Oregon, on September 10, 2025.

By delegation of the Administrator:



Nita Zimmerman
Vice President Bulk Marketing, Acting