

2018 All Resources RFP:

Exhibit B. Proposal Requirements

EXHIBIT B. PROPOSAL REQUIREMENTS

Proposal Requirements

This exhibit outlines the minimum requirements for submitting a proposal in response to PSE's All Resources RFP. This information will be used to evaluate incoming proposals using the evaluation criteria described in **Exhibit A**. During the course of the evaluation, respondents may be asked to clarify proposal details or to supply additional information needed to provide a thorough due diligence review. A list of sample data requests is posted online at <http://www.pse.com/RFP>.

Mutual Confidentiality Agreement

Submit two signed copies of the Confidentiality Agreement (**Exhibit C**) by August 3, 2018.

Proposal Requirements

PSE requests that respondents submit their proposals in the format shown in **Table 1**. Proposals are due to PSE by August 17, 2018.

1. Proposal Requirements: Table of Contents

Section	Table of Contents	Page
	Summary Data Form (Exhibit D), http://www.pse.com/RFP	Exhibit D
1	Description of offer	B-2
2	Capital costs, pricing and delivery	B-2
3	Summary commercial offer term sheet	B-5
4	Description of project and project status	B-5
5	Technical and operations	B-6
6	Fuel supply	B-8
7	Interconnection and transmission	B-8
8	Legal and financial	B-9
9	Additional information for development project	B-9
10	REC-only product	B-11
11	Additional requirements described in Section 4 of the RFP document, including: <ul style="list-style-type: none"> • Signatures and certifications • Tax-incentive risk and environmental attributes • No assignment • Eligibility and conflict of interest disclosure • Validity, deadlines and regulatory approval 	Section 4, page 9
	List of attachments	

EXHIBIT B. PROPOSAL REQUIREMENTS**Summary Data Form**

Complete the Summary Data Form (**Exhibit D**) and return a live copy of the Excel form as part of your electronic proposal (on USB flash drive). This form is an input to our proposal database and should not be altered. Attach a printed copy to your proposal submission. The downloadable form is available online at <http://www.pse.com/RFP>.

Proposal Data

Please provide the following information, as applicable to your proposal. This list is designed to be a guideline and form of proposal to help ensure that PSE has the minimum information necessary to perform its preliminary review of proposals. Bidders should plan to provide all relevant information necessary to assess the Additional data requests may be submitted to bidders on an as-needed basis during the RFP process.

Section 1. Description of offer

- Project name
- Proposed commercial arrangement (as described in Section 2 of the RFP document, pages 6-7)
- Offer capacity (MW); for storage resources, include also MWh storage
- Offer timing:
 - For projects, identify energy delivery start date.
 - For PPAs, provide duration, beginning and end dates.
 - For PPAs, include seasonal shape, as applicable.
- Project owner and other projects completed to date
- Project developer and other projects completed to date

Section 2. Capital costs, pricing and delivery**PSE ownership**

- For the purchase of an existing plant (in service), specify asset purchase price.
- For the purchase of development assets, specify development assets purchase price. Specify total capital cost to project build-out (exclude development assets). Please provide, separately, the financing costs if included in the total capital cost. PSE may prefer to finance the construction, provide the estimated payment schedule dates.

EXHIBIT B. PROPOSAL REQUIREMENTS

- Include major project capital and operating expenses, and documentation to support the reasonableness of the projections discussed below. This should include an itemized budget with a breakdown of projected capital costs, operating and maintenance costs, all costs associated with site acquisition and improvement, permitting, project construction, testing and commissioning, compliance with environmental and other applicable regulations (federal, state and local), and security. Project costs must be provided in an electronic Excel spreadsheet with formulas intact (with detail generally in the form set forth in **Exhibit F**).

Purchased power agreements

- Start and ends dates (as applicable)
- If a temporal exchange offer, include start and end dates for delivery to PSE, start and end dates for delivery returned by PSE, energy volume (MWh) and price per MWh. Indicate if price includes operating reserves, emission costs and/or transmission to PSE's system.

For power purchase agreements ("PPAs") or tolling offers, respondents should provide the following information by month, at a minimum, as applicable.

- Provide a flat or escalating price per MWh for energy and environmental attributes produced.
- Include a fixed or escalating demand price in \$/kW month, start charges in \$/start, and contract heat rate, if applicable.
- State whether the price offer includes environmental attributes, operating reserves, and whether respondent assumes all environmental risk. If available as separate options, specify the price of each option.
- Attest that the proposal complies with existing local, state and federal environmental laws and regulations.
- State whether the price includes transmission to PSE's system. If a wind project, state whether the seller will provide all scheduling, and state whether the seller will be responsible for all balancing charges and/or all wind integration costs for the project.
- Include respondent's fixed annual or monthly payments associated with operation, maintenance and ownership costs.
- For project PPAs, state respondent's underlying fixed and variable cost of production.
- Propose a combination of the above or other suitable alternatives, as applicable.
- All other things being equal, PSE prefers a pricing structure that closely mirrors the actual cost structure of the project. In this way, the developer's and PSE's interests with respect to scheduling and dispatch would be aligned.

EXHIBIT B. PROPOSAL REQUIREMENTS

- PPA price offers must be provided in an electronic Excel spreadsheet with formulas intact. Respondents must provide a separate Excel spreadsheet for each offer, if multiple offers are proposed.

As an option, respondents are requested to include a proposal wherein the respondent to fully assume the present and future costs of continued compliance with existing or future local, state, or federal environmental law and regulation. If provided, such proposal should specify the environmental risks that the respondent is assuming and the cost for assuming each one. Any such environmental risk provisions should be optional, to be included at PSE's election.

Respondents should be aware that the quantitative cost screening of proposals received in response to the RFP will include costs associated with delivering the energy to PSE's system as well as the costs associated with financial and accounting regulations. An imputed debt component will be calculated for all PPAs pursuant to the methodology of Standard and Poor's rating agency, as described below:

Calculating imputed debt for PPAs

The debt rating agencies view long-term purchased power agreements (PPAs) as creating fixed, debt-like financial obligations that act as substitutes for capital investment in generation capacity. Adjusting financial measures to incorporate PPA fixed obligations allows greater comparability to self-build generation. As a result, in the evaluation of PPAs in the RFP, PSE takes into account the cost of rebalancing the capital structure to maintain its credit rating. PSE's imputed debt calculation is based on S&P's methodology.

defined demand payments or a 50 percent factor applied to energy only PPAs, representing the implied capacity payment of the product. This yearly fixed obligation is then multiplied by PSE's risk factor (25 percent) as defined by S&P. The imputed debt is calculated based on present value of the future stream of risk-adjusted fixed obligations in any given year, discounted at 7 percent. In theory, to offset the imputed debt, more equity would be added based on the approved equity percentage in the capital structure, which is 45 percent. The added cost of the additional equity is the pre-tax cost of equity at 12 percent less the 7 percent for the implied cost of debt, which equals 5 percent.

Sensitivity of imputed debt cost

The cost impact of imputed debt on PPAs varies with the term of the contract, the proportion of the PPA associated with demand payment, and with the escalation of the PPA rate or demand payments. Assuming a flat, unescalated PPA rate, the imputed debt cost will increase the levelized cost for the demand portion of the PPA by approximately 1.1 percent on a 3-year PPA, 1.7 percent on a 5-year PPA, 3.0 percent on a 10-year PPA and 4.8 percent on a 20-year PPA. For energy only PPAs the impact is half of what is listed above.

EXHIBIT B. PROPOSAL REQUIREMENTS***Section 3. Summary commercial offer term sheet***General terms and conditions

Provide a summary commercial offer term sheet. See ***exhibits H, I and J*** for prototype ownership agreement, natural gas tolling and wind PPA term sheets. Respondents should be aware that the prototype term sheets may be the basis for any potential Definitive Agreement with PSE; however, the Company reserves the right to modify the outlined terms.

Include the following items, as applicable:

- Description: structure, product, type of service, underlying facility, etc.
- Seller
- Term and delivery periods
- Transmission: interconnection, delivery point, ancillary services, line losses, etc.
- Capacity/Quantity
- Price
- Fuel supply arrangements: supplier, delivery point, etc.
- Operating characteristics and limits: minimum run time, maximum starts, planned outages, etc.
- Scheduling coordinator/Imbalance charges
- Guaranteed heat rate
- Guaranteed availability/Volume
- Force majeure
- Credit support

Section 4. Description of the project and project status

- Project location: city, county and state.
- Provide general description of project and project site, and describe key project components. Provide a map showing the project area and neighboring parcels. Show anticipated layout of all project facilities including transmission tie lines and natural gas laterals, solar arrays or turbine strings if applicable, substations, roads, collection systems, met towers for wind resources, and service buildings. Indicate the location of the transmission line with which the project will interconnect.

EXHIBIT B. PROPOSAL REQUIREMENTS

- Describe the project size (in acreage) and the land area controlled relative to project facilities. If the project can be expanded, describe the potential scope and conditions for additional development at the site.
- Provide a list of leases, easements, and/or other ownership documents demonstrating that the respondent has control of the intended project properties and the legal rights to construct, interconnect, operate and maintain the project as described throughout the life of the project.
- Project status: construction, development or operating, and status of all development and construction work completed to date. Provide commercial online date. Provide construction start date, as applicable. Development status should include the following information:
 - List of permits obtained and status of permits in progress
 - Identify transmission and integration secured, or pending requests
 - Identify status of any fuel supply agreements in place or in progress
 - Studies completed or in progress
- Facility nameplate capacity and any incremental capacity new and clean at ISO conditions, or specify temperature and elevation.

Section 5. Technical and operations

- Identify resource and technology type. Specify make, model, number of units and MW/unit. If solar, specify DC panel capacity and AC inverter output, degradation by year (typically not linear) and panel orientation (degrees from south facing).
- Identify facility and unit nameplate capacity (MW) and, if applicable, project heat rate (HHV) at ISO conditions, or specify temperature and elevation. For storage proposals, identify both MW capacity and MWh storage. Identify amount and duration of rated discharge (e.g., X MW for Y hours).
- Identify average December temperature for project location and the corresponding capacity rating (MW) at that temperature.
- Include O&M costs (\$/MWh, variable in operation as applicable). See **Exhibit F**.
- Facility outage/availability information: expected annual forced outage rate¹ (%), expected average annual planned maintenance requirements (days per year), expected timing of planned outages (for seasonal resources). Include the estimated annual unit availability, and any guaranteed minimum annual availability and level of production.

¹ The “annual forced outage rate” should represent the expected annual forced outages excluding planned maintenance.

EXHIBIT B. PROPOSAL REQUIREMENTS

- Facility operating characteristics and limits: minimum run time (hours), minimum down time (hours), minimum operating load (MW), minimum operating load allowable by permits (if applicable), heat rate when operating at minimum load or minimum load allowable by permits (if applicable), maximum starts (per day or other applicable timeframe), full lifetime cycle limits (as applicable and available), etc. Indicate whether facility is ten-minute start capable. Identify ramp rate, up and down if asymmetrical. For storage proposals, describe cycling limitations (e.g., cycle limit per day or other timeframe as applicable, full lifetime cycle limits as available).
- As applicable, provide facility start up time for hot, warm and cold starts (hours), specify amount of fuel (MMBtu) and electricity (MW) consumed during start-up cycle.
- Facility generation information for must-run and must-take resources, and intermittent resources (including biomass, wind, hydro, solar and geothermal proposals):
 - Estimated net annual capacity factor (%); indicate whether this is a year 1 estimate or an average lifetime estimate accounting for degradation over time
 - Provide the projected average net output in MWh in an Excel 12x24 matrix (**Exhibit E**); that is, for each hour of each month, indicate the number of MWh expected to be generated in a typical hour.
 - Provide five-minute dispatch data streams (at least one year). Provide a spreadsheet similar to Exhibit E, but for 365x288 data points.
 - If solar, identify irradiation data source.
- If resource will be shaped, either by another balancing authority area (BAA) in region or with local batteries, provide a brief description of the shaping arrangement. If plant will automatically shape, provide data and details for how the five-minute dispatches result in shaped power (e.g., via both five-minute dispatch data and respective 15-minute or hourly dispatches, or specify other timescale to which power is shaped).
- For storage proposals:
 - Identify projected lifetime of energy storage media and capacity degradation from new to end-of-life condition.
 - Identify facility's minimum state of charge (SOC) or impoundment of energy in percent of maximum SOC or impoundment.
 - Identify net electric round trip efficiency at both beginning of life and end of life for the storage medium, given a full charge/discharge or impoundment/withdraw cycle from minimum SOC to maximum SOC and back.
- For battery hybrid proposals:
 - Does the plant need a schedule for state of charge?
 - Is resource intended to time-shift for peak capacity, and if so, how is this controlled?

EXHIBIT B. PROPOSAL REQUIREMENTS

- Can the batteries provide up/raise ancillary services, and if so, how is this controlled?
- Can facility be curtailed via PSE's Energy Management System (EMS) or by CAISO Dispatch Operating Targets (DOTs)?
- Describe any known or likely operating limits due to permitting, legal, aesthetic, wildlife or other reasons.
- Describe how the underlying facility or contract meets the obligations of Washington's Emissions Performance Standards (WAC 173-407).
- Provide facility air emissions data for greenhouse gases, nitrogen oxides, sulfur, and particulate matter in tons/GWh or lb/MMBtu or as otherwise applicable.

Section 6. Fuel supply

- Specify primary fuel type; specify backup fuel type and storage capacity on-site, if applicable. Indicate whether fuel supply has been secured.
- Identify the maximum hourly and daily gas requirements of the plant at its rated capacity, with and without duct firing, if applicable.
- Indicate fuel transportation method and whether transportation has been secured.

Section 7. Interconnection and transmission

- Identify point of interconnection, point of receipt (if different from interconnection) and point of delivery. For the purposes of this RFP, the term "interconnection point" shall refer to the point at which the project is connected to the high voltage transmission system. Project must meet all required interconnection standards.
- Identify transmission provider(s). Has transmission been secured? Provide request queue number, if applicable.
- Identify interconnection provider. Has interconnection been secured? Provide request queue number, if applicable.
- Date of LGIA signing or expected signing.
- Expected date of interconnection capitalization.
- Are transmission and interconnection studies available, if requested? List studies available. List the status of all pending studies.
- Identify construction plans for any required interconnection facilities, and include status and schedule.

EXHIBIT B. PROPOSAL REQUIREMENTS

- Identify all long-term, firm, point-to-point, third-party transmission service arrangements that are in place or will be in place to facilitate the delivery of the electricity to PSE's transmission system.
- Specify the balancing authority area in which the project will reside.
- Provide all costs related to transmission services (including losses) and delivery of electricity to the point of delivery.
- For projects outside PSE's balancing authority area, describe the plan for supplying the following: operating reserves, resource integration (wind or otherwise), scheduling, regulating reserves, generation imbalance and any other required ancillary service.
- If the proposal does not include long-term firm delivery to PSE's system, the respondent should explain the following: the steps taken to obtain long-term firm transmission delivery to PSE's system and the expected timing of long-term firm transmission delivery. The respondent is also encouraged to discuss any alternate solutions to firm the delivery of energy and capacity to PSE's system over the term of the proposal.
- If proposing a qualifying renewable resource that is located outside the Pacific Northwest as defined for the Bonneville Power Administration in Section 3 of the Pacific Northwest Electric Power Planning and Conservation Act (94 Stat. 2698; 16 U.S.C. Sec. 839a), describe how the electricity from the facility will be delivered into Washington state on a real-time basis without shaping, storage, or integration services.
- Does the owner/developer plan to pursue eligibility through the Public Utilities Regulatory Policies Act and/or the Energy Facility Site Evaluation Council (EFSEC)?

Section 8. Legal and financial

- Describe any dependence on another entity (e.g., a fuel supplier or a steam host).
- Provide a deal diagram that shows all contractual parties, listed by their legal names, and their relationship with the project.
- Describe any pertinent legal issues, such as suits, disputes, administrative investigations or permitting issues.

Section 9. Additional information for development projects**Schedule**

- Provide in a format, such as a Gantt chart, the most accurate schedule estimates available on the various project activities covering the period from the initiation of development activities through the project's proposed commercial operation date. Include a schedule item for each significant activity including:
 - project development

EXHIBIT B. PROPOSAL REQUIREMENTS

- permitting
- interconnection
- engineering
- construction
- startup
- testing
- commissioning
- Include any additional timelines applicable to the project that will demonstrate its status and plans.
- Indicate all actions taken to ensure the schedule is met (such as placing orders for equipment with long lead times) and potential opportunities to improve the schedule.

Site Control

- Provide a list of leases, easements, and/or other ownership documents demonstrating that the respondent has control of the intended project properties and the legal rights to construct, interconnect, operate and maintain the project as described throughout the life of the project.

Environmental Siting

- Discuss known environmental issues relative to the development and operation of the project, including impacts to air, water, flora and fauna, energy and natural resources, environmental health, shoreline use, housing, aesthetics, recreation, historic and cultural preservation, transportation, public service and utilities. Describe measures that will be taken to mitigate all impacts of the project.
- Describe all wildlife or other environmental studies and assessments that have been performed related to the site and the project, including but not limited to wildlife monitoring reports, biological assessments, environmental assessments, environmental impact statements, environmental media sampling reports (air, soil or groundwater), flood control measures or other risk mitigations identified at the site.
- Describe methodologies for such studies and identify the person(s) or firm(s) who conducted and completed the work. If such studies are planned or in progress, describe the scope and schedule for completion, identify the person(s) or firm(s) performing the studies, and identify the methodologies to be employed. Describe measures that have or will be taken to mitigate all impacts of the project.

EXHIBIT B. PROPOSAL REQUIREMENTS

- Discuss plans to engage community and environmental stakeholders to support the proposed project or existing projects. Discuss ongoing community relations and environmental stakeholder relations.

Permits

- Identify project permits and any other local, state or federal government approvals or authorizations required to build and operate the project, as well as all permit or other government approval applications and requests with special emphasis on the key discretionary permits (such as a conditional use permit, site certificate and major air, wastewater and/or waste permits).
- Discuss the current status of applications and proceedings, the schedule and the approach to be used to obtain necessary permits and approvals.
- If the project is located in an area that is ceded land, may have been historically used by a Native American tribe, or if the project may impact tribal interests, specify whether the tribe has been consulted about the project.
 - If so, describe the consultation, including the names and phone numbers of those contacted, and the tribe's position on the project. Also specify any plans for further consultation with the tribe in future.
 - If not, indicate why the tribe has not been consulted and describe any plans to consult the tribe in future.
 - Is the respondent aware of any required tribal notifications, permit conditions or costs associated with any tribal agreement or promise? If so, please describe.

Construction

- Describe arrangements and commitments (contracts, letters of intent, and memoranda of understanding) that have been made, if any, for the construction of the project.
- Describe the contractual structure (including any existing agreements or forms of agreement) proposed for project design, procurement, and construction (e.g., turnkey; engineering, procurement and construction; multiple lump-sum purchase, etc.). For any approach other than turnkey, provide information on the organization and individual responsible for project management during this phase. If construction is completed, identify all open warranty issues.

Section 10. REC-only products

Any proposal for a REC-only product should provide the following information:

- Product must meet the requirements of RCW 19.285 (the Energy Independence Act), which include but are not limited to the following:

EXHIBIT B. PROPOSAL REQUIREMENTS

- RECs must be sourced from a facility that meets the definition of an “eligible renewable resource” and that comes from a “renewable resource” as defined in RCW 19.285.
- The facility must commence operation after March 31, 1999. Alternatively, for incremental generation produced from hydroelectric projects as a result of efficiency improvements to units owned by a qualifying utility and located in the Pacific Northwest or to hydroelectric generation in irrigation pipes and canals located in the Pacific Northwest (where the additional generation in either case does not result in new water diversions or impoundments), such improvements must be completed after March 31, 1999.
- The facility must be located in the Pacific Northwest as defined in RCW 19.285.
- REC-only product must comply with the definition of “renewable energy credit” in RCW 19.285.
- State whether the volume of RECs will be a fixed quantity or tied to the actual output of the facility. The minimum quantity that will be considered is 25,000 RECs per year.
- State the term for REC purchases offered in the proposal. All else equal, PSE prefers longer-term offers for REC-only products. PSE is interested in RECs produced from year 2022 or later.
- All RECs must be fully transferable via WREGIS to PSE, free from any rights of others.
- The provider will be responsible for covering all expenses associated with registering the eligible renewable resource with the Western Renewable Energy Generation Information System (WREGIS), or its successor, and in addition, the WREGIS certificate creation and transfer fees.
- Describe the source of the RECs, whether from market purchases and contracts or from owned or shared generation resources.
- Identify the facility(ies) from which the RECs will be sourced, including renewable resource type, commercial operation date, and facility location. Briefly describe the facility(ies), including how it meets the requirements of RCW 19.285.
- PSE is receptive to offers containing varying term lengths, quantities, and pricing options.