EXH. GA-3 DOCKETS UE-240004/UG-240005 2024 PSE GENERAL RATE CASE WITNESS: GILBERT ARCHULETA

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION,

Complainant,

v.

PUGET SOUND ENERGY,

Respondent.

Docket UE-240004 Docket UG-240005

SECOND EXHIBIT (NONCONFIDENTIAL) TO THE PREFILED DIRECT TESTIMONY OF

GILBERT ARCHULETA

ON BEHALF OF PUGET SOUND ENERGY



REQUEST FOR PROPOSAL

FOR

VIRTUAL POWER PLANT ("VPP")

AUGUST 13, 2021

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PART 1: INTRODUCTION & GENERAL PROVISIONS

1 INTRODUCTION

1.1 General Description of Request

The intent of this Request for Proposal (RFP) is to facilitate Puget Sound Energy to receive proposals from participating suppliers regarding their Virtual Power Plant (VPP) software offerings and enable Puget Sound Energy to make a final selection for a VPP. The information contained within this RFP is meant to provide adequate information to Vendors regarding PSE's business goals, the expected platform functionality and potential future state architectures such that the Vendors can provide business, technical and cost proposal responses.

Please note that the high-level architecture diagrams shown in this proposal represent PSE's vision for what a VPP system could look like in their technology ecosystem, but PSE expects the VPP participating supplier to provide their own proposed high-level architecture and design. PSE realizes that to determine a final configuration of a VPP platform, it will require collaboration with the supplier. PSE's desire is to work with a VPP supplier to ultimately determine the optimal architecture that would enable DER acquisition for PSE.

1.2 About Puget Sound Energy ("PSE")

Puget Sound Energy, a subsidiary of Puget Energy, is Washington State's oldest local energy company, providing electric and natural gas service to homes and businesses primarily in the vibrant Puget Sound area. PSE serves approximately 1.1 million electric customers and more than 790,000 natural gas customers in 10 counties. PSE meets the energy needs of its customers, in part, through cost-effective energy efficiency, procurement of sustainable energy resources, and far-sighted investment in the energy-delivery infrastructure. PSE employees are dedicated to providing great customer service and delivering energy that is safe, dependable, and efficient.

Please visit the company website at www.pse.com for more detailed information. A service area map depicting PSE's service coverage area as well as other pertinent company information may be found under the "About PSE" tab.

The terms "Puget Sound Energy" and "PSE" shall be interpreted to mean Puget Sound Energy, Inc. The term "Vendor" or "Supplier" shall mean any person or company receiving this RFP.

1.3 PSE Core Values

PSE is committed to its core values of safety, honesty, responsibility, and integrity and has specific expectations of entities with which we do business. As such, PSE expects all Suppliers to comply with all applicable laws and regulations, such as those pertaining to the environment, safety and employment, discrimination, and labor laws.

For more information, please review PSE's Responsible Contractor Guidelines and Corporate Ethics and Compliance Code:

- http://pse.com/aboutpse/VendorsSuppliers/Pages/Supplier-Contractor-Guidelines.aspx
- http://www.pugetenergy.com/pages/codeethics.html.

1.4 PSE Representative

The PSE Representative(s) for all correspondence related to this RFP is as follows:

Name	Jeritt Venable & Katelyn Gates
Email	Jeritt.Venable@pse.com
	Katelyn.Gates@pse.com

To ensure timely and adequate consideration of your proposal, Suppliers are asked to limit all contact pertaining to this RFP to the designated PSE Representative listed above. Suppliers who are currently engaged with PSE as part of their existing services are instructed to limit communication with PSE to existing services. Any communication to other PSE individuals with regards to this RFP may immediately disqualify Supplier.

Vendors may submit required documents and questions through Ariba. No phone calls, please.

1.5 Project Scope & Objectives

PSE is interested in a VPP that will provide PSE with the ability to integrate, track, monitor, and control Distributed Energy Resources (DER) that are accounted for in their Integrated Resource Plan (IRP). PSE's VPP core priority and top consideration is to select a Vendor that has experience and is best suited to interface with a wide variety of DER Aggregators for market dispatch. The VPP will be required to receive available dispatch capacity, forecasts, costs and to send a dispatch command to DERs / Aggregators. A secondary priority and consideration are for the VPP Vendor to meet requirements around directly controlling DER assets. PSE has also included future considerations as part of this RFP to learn about Vendor's experiences that they may consider growing towards into the future. PSE's preference is to deploy this solution as a SaaS product, however, will accept proposals for an on-premise solution as well.

After selecting a VPP Vendor, PSE will solicit bids to acquire DER resources which will be integrated into the VPP platform. These resources are critical to helping PSE achieving its clean energy targets in support of the Washington Clean Energy Transformation Act. This will fall under a separate DER RFP which is targeted to be released in early 2022.

PSE will only consider bids from Vendors proposing a Virtual Power Plant platform and technology solution. PSE does want to learn of Vendor experiences with respect to DERs, but Vendor proposals should not include any costs to procure DER assets or manage DER programs as this will fall under the DER RFP.

Interested Vendors are to use this document to prepare bids to provide a VPP system that satisfies PSE's requirements identified in the sections below. Please see Section 10 for the list of documents provided by PSE as part of this RFP.

1.6 RFP Timeline

The following dates have been established as milestones for this RFP. PSE reserves the right to modify or change this timeline at its sole discretion. Suppliers must prepare their correspondence with PSE in accordance with these milestone dates. The deadline for Vendor submission to bid on the PSE VPP Request for Proposal is: **SEPTEMBER 13, 2021**

--TIMELINE IS ON THE FOLLOWING PAGE—

F	RFP TIMELINE
Activity	Due Date (5PM PST, unless otherwise noted)
Publish RFP and Related Attachments	August 13, 2021
Intent to Bid Form returned	August 20, 2021
Pre-Bid Conference Call	August 25, 2021
Questions Due from Vendors	August 30, 2021
PSE Responds to Vendor Questions	September 7, 2021
Proposals Due	September 13, 2021 (12 PM PST)
PSE internal review and evaluation of proposals.	September 13, 2021 – September 22, 2021
PSE develops shortlist and invites finalists to demo VPP system	September 23, 2021
Vendor Demos Monday through Friday (4 hour time block to be scheduled with Vendor)	October 4, 2021 – October 8, 2021
PSE Stakeholder Final Review	October 15, 2021
PSE notifies winning Vendor	TBD
Contract Negotiations and final Statement of Work detail	TBD
External Supplier Selection/Contract Execution	TBD

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Notice to Proceed (optional)	TBD

1.7 Pre-Bid Meeting

The Pre-Bid Conference will be held via Microsoft Teams. Vendors will be sent a link to the Team's meeting. The call-in audio can be seen below. This will be an Introduction of the RFP Team, High Level RFP review, and an opportunity for Suppliers to ask questions live. All questions should also be submitted via Ariba and noted for the distribution to all Vendors.

Conference Bridge: 323-484-5815; 515193007

Date and Time: Wednesday August 25, 2021 10:00 AM – 11:00 AM PST

ATTENDANCE IS NOT MANDATORY.

2 RFP GENERAL PROVISIONS

2.1 Statement of Confidentiality

This document may contain proprietary and confidential information. All data submitted is provided in reliance upon the supplier's agreement not to use or disclose except in connection with its business dealings with PSE. The recipient of this document agrees to inform its present and future employees who receive or have access to the information contained in this document of its confidential nature, and to instruct each employee that he or she must not disclose any information concerning this document to others except to the extent that such matters are generally known to, and are available for use by, the public. The recipient of this document agrees that it will not duplicate or permit others to duplicate any material contained herein except for its own internal use.

BY ACCEPTING THIS DOCUMENT, SUPPLIER AGREES TO BE BOUND BY THE FOREGOING STATEMENT.

2.2 Disclaimers

This RFP shall not be construed in any manner to create an obligation on the part of PSE to enter into any contract or serve as a basis for any claim whatsoever for reimbursement of costs for efforts expended. Furthermore, the scope of this RFP may be revised at the option of PSE at any time, or this RFP may be withdrawn or canceled by PSE at any time. PSE reserves the right to waive formalities and to add, modify, or delete items, requirements, terms or conditions prior to making the award whenever it is deemed to be in PSE's best interest. PSE reserves the right to engage in parallel negotiations with some or all of the Suppliers that respond to this RFP. PSE reserves the right to amend the schedule of RFP activities, as it deems necessary.

PSE reserves the right to verify all information provided by Supplier via direct contact with the Supplier's prior clients and prior personnel, and the Supplier must agree to provide and release necessary authorizations, if required, for PSE to verify any of the Supplier's previous work and the Supplier's qualifications to perform this work. Misstatements of experience, qualifications and scope of prior work may be grounds for disqualification of the Supplier. Bids will be opened privately, and PSE reserves the right to keep any and all responses confidential.

All responses are subject to further negotiation.

All RFP documents shall remain the property of PSE.

2.3 Eligibility and Transfer

This RFP is intended for the sole use of the recipient to which it is addressed. Please notify the PSE Representative immediately if you are not the intended recipient of this RFP, and do not distribute, or take action relying on it. Only those individuals, companies, and corporations having received this RFP document directly from PSE are eligible to submit a response. The invited party may not transfer its right, nor transfer this RFP document, to any other individual, company, corporation, or subsidiary without prior notification to, and expressed consent of, PSE.

2.4 Multi-Award

This project has the potential of being a multi-award contract. PSE reserves the right to split the award between participating suppliers.

2.5 Qualification of Personnel

Subject to and in accordance with applicable law, Supplier shall have, prior to assigning an individual as Supplier personnel or a subcontractor and at Supplier's sole expense, appropriately verified, represent and warrant to PSE, that the personnel or subcontractors proposed in response to this RFP, performing the Services or providing the Deliverables, have the requisite qualifications, education, technical certifications and education degrees to perform the Services and provide the Deliverables in a competent, workmanlike manner in accordance with the applicable standards relevant to the Scope of Work described herein.

2.6 Reservation of Rights

This is a request for proposal and is in no way to be construed as a commitment to purchase goods or services on the part of PSE.

PSE reserves the right in its absolute discretion to select the successful Supplier for award, to reject any proposal as unsatisfactory or non-responsive, to award a contract to other than the lowest priced proposal, to award multiple contracts, or to not award any contract as a result of this RFP. PSE shall not incur any liability whatsoever by reason of such withdrawal, rejection, or acceptance.

2.7 Errors and Omissions

Should the Supplier discover any material ambiguity, conflict, discrepancy, omission, or other error in this RFP, please immediately notify the PSE Representative in writing of such discovery with a request of modification or clarification of this RFP and cite the specific paragraph in question.

PSE solely reserves the right to determine the materiality of such discovery or question. If, in the opinion of PSE, such discovery or question may cause an ambiguity in the bid responses, PSE shall issue an Addendum to amend the RFP, extend the RFP due date if necessary, and/or provide answers to questions received in writing or clarifications to remove the ambiguity.

2.8 Competitive Bidding

PSE encourages free and open competition among Suppliers; therefore, each Supplier must guarantee that its quoted prices have been established without collusion with other Suppliers or informed parties and without any effort to preclude PSE or its affiliates from obtaining the lowest possible competitive price. Whenever possible, specifications, bid invitations and conditions are designed to accomplish this objective, consistent with the necessity to satisfy the needs of PSE and the accomplishment of a sound economical operation. At no time shall PSE be considered to be under any obligation or commitment to purchase any products or services from any Supplier to the RFP until after a contract has been signed. The award, if any, will be made to the Supplier whose overall proposal is determined to be the most advantageous to PSE.

2.9 Code of Ethics

Upon receipt of the RFP through the final selection by PSE, the Supplier shall not engage in any conduct that could be seen as improperly influencing PSE's decision. The exchange or offering of any money, gift item, personal service or unusual hospitality by either party is expressly prohibited. This prohibition is equally applicable to either party's officers, employees, agents or immediate family members. Failure to comply with this policy will disqualify a Supplier from participation.

2.10 Preparation & Presentation Costs

Supplier shall be solely responsible for all costs and expenses incurred in the preparation and presentation of its response to this RFP, including without limitation market research and attendance at meetings.

2.11 Subcontractors

PSE reserves the right to accept or reject any subcontractor the Supplier may include in its proposal. The prime contractor and all subcontractors and related services must be clearly identified in the Supplier proposal.

Bid documents will be furnished only to selected Supplier(s). PSE will not provide any bid documents to any proposed or potential subcontractor.

2.12 Publicity

Any publicity, announcement or other disclosure regarding this RFP, Supplier's response, or subsequent communications with PSE shall not occur without the prior written consent of PSE. Neither this RFP nor any subsequent agreement shall confer on any Supplier the right to use the name "Puget Sound Energy" or "PSE" (either alone or in conjunction with or as part of another word or name), or any other name or designs of any of its subsidiary or affiliated companies (a) in any advertising, publicity or other disclosures, (b) to express or imply any endorsement of Supplier's products or services, or (c) for any other purpose or in any other manner.

2.13 Compliance with Applicable Laws

Submission of a response to this RFP shall constitute Supplier's acknowledgment and acceptance of all of its provisions, including a warranty that such response and any contract negotiations will comply with all laws as well as judgments, orders, decrees or consent agreements with any governmental agency or court relating to the manufacture, promotion, advertising, marketing, sale or pricing of any product or service to be furnished to PSE or its affiliates.

2.14 Substitute Terms and Conditions

Supplier shall not substitute, nor use a pre-printed reference to Supplier's general terms and conditions in lieu of PSE's Contract. Any proposal received with such substitution will be deemed non-responsive and is subject to rejection.

2.15 Questions and Answers

The release of this RFP begins a quiet period for Suppliers participating in this project.

All questions shall be submitted in the Ariba sourcing event message board. Oral questions or questions proposed outside of the tool will not be answered.

Questions received after the due date will not be answered.

Answers to all questions will be provided simultaneously to all Suppliers via addendum or post within the Ariba platform.

2.16 Substitutions

To obtain approval of substitutions, Suppliers shall submit a written request. The request shall be submitted no later than five (5) business days prior to the proposal due date. PSE will respond to the request in the form of addenda.

PSE reserves the right to withhold its approval of any or all substitutions proposed by Suppliers.

2.17 Financial Information

Prior to award, PSE reserves the right to request any or all Suppliers to submit data which will be used to make a determination of financial capability to perform on any resultant Contract. Such data may include, however not be limited to, current annual reports, lines of credit with financial institutions and suppliers, and/or any other such data as may be required to make a determination of the Contractor's financial capabilities.

2.18 Contract Execution

If requested by PSE, the successful Supplier shall assist and cooperate with PSE in preparing the formal contract. Within five (5) days after presentation of the formal contract, the successful Supplier shall duly execute the same and return it for execution by PSE. No binding contract will exist between the successful Supplier and PSE until they have each executed a written formal contract. PSE reserves the right to withdraw this RFP at any time before a written formal contract has been executed.

2.19RFP Evaluation Criteria

2.19.1 Basis of Contract Award - Best Value

The following factors will be used during the RFP response evaluation process. This list is not intended to be a comprehensive criteria list of any specific order. PSE reserves the right to modify this evaluation criteria at any time. The relative weights and importance of each evaluation will not be disclosed any further than identified in the RFP to the Vendors.

Award may be made to the Supplier submitting the best proposal in which both cost/price and other specifically defined factors will be the basis of award as seen below.

- Compliance with RFP instructions contained in this document
- Financial strength of Vendor company for the last 3 years as determined by completion of Attachment D PSE VPP Vendor Financials Worksheet
- Overall estimated Total Cost of Ownership of solution, based on insight provided on Attachment C - PSE VPP Cost Proposal Worksheet
- Proposed implementation approach & plan provided in the Technical Proposal in Section 4.5
- Proposed solution's alignment with PSE's VPP vision and strategy goals
- Proposed solution's technical fit with PSE systems covered in the Technical Proposal in Section 4.5

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- Proposed solution's compliance to PSE requirements in Attachment A PSE VPP Requirement Compliance Matrix and use cases described in Section 4.3
- Vendor experience and references provided in Attachment B PSE VPP Vendor References and Experience Worksheet
- Vendor familiarity and understanding of PSE systems, people, and processes
- Vendor alignment with existing PSE systems / environments
- Existing Vendor partnerships with DER aggregators

2.20 Complete Proposal

Each Supplier's proposal will be evaluated on the completeness of the information provided. For full consideration, each proposal must respond to all mandatory requirements below or it may be deemed non-responsive.

All submittals and correspondence shall be by email only. PSE will not accept hard copies of proposals. In the event you are unable to submit a response via email (due to size limitations), please notify the designated PSE Representative *immediately*. PSE is not responsible for technical issues that cause proposals to be misdelivered, late, or non-responsive.

Please also be advised that the PSE Representative cannot download RFP packages from external web services such as Google Drive, Dropbox, etc., due to corporate spam filters. It is the Supplier's responsibility to confirm alternative arrangements well in advance of the proposal due date.

Response to this RFP should be uploaded digitally to PSE's Ariba portal by the response submission deadline and contain the following documents:

- Vendor Business Proposal as described in Section 4.1 and 4.2 (.pdf, .doc or .ppt)
- Vendor Technical Proposal as described in Section 4.3, 4.4, and 4.5 (.pdf, .doc, or .ppt)
- Vendor Cost Proposal Summary as described in Section 6.1 (.pdf, .doc, or .ppt)
- Proposal Attachment A: Vendor Completed Requirement Compliance Matrix Worksheet (.xlsx)
- Proposal Attachment B: Vendor Completed Vendor References and Experience Worksheet (.xlsx)
- Proposal Attachment C: Vendor Completed Cost Proposal Worksheet (.xlsx)
- Proposal Attachment D: Vendor Completed Financials Worksheet (.xlsx)
- Proposal Attachment E: Vendor Proposed Architecture Diagrams (.pdf)
- Proposal Attachment F: Vendor Proposed Statement of Work (.doc)
- Proposal Attachment G: Example Maintenance Agreement (.doc or .pdf)
- Proposal Attachment H: SOC 2 Type II Auditor Report (.pdf) (if not already on file and Vendor proposing a solution that is not fully on-premise)
- Proposal Attachment I: Vendor Completed Redline of Master Services Agreement
- (Optional) Proposal Attachment(s) J: Optional Scope Proposals (.pdf, .doc or .ppt)
 - Attachment J: Optional Integration Scope
- (Optional) Proposal Attachment K: Supplemental Materials (various as desired)

Throughout this document, the PSE team has requested specification "Clarifications" for Vendor response. PSE asks Vendors to include any clarifications with a reference to the unique identifier (<Section #><Letter>) of that clarification in their proposal response. This can occur either with the proposal sections or as an attachment containing answers to all requested clarifications in response to the RFP, which can be sent as part of the Vendor Technical Proposal.

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Any proposals submitted outside of the Ariba system will not be considered for PSE's selection process.

2.21 Validity of Proposal

Due to the duration of the evaluation, approval, and procurement processes at PSE, proposals are required to be valid for a minimum of ninety (90) days following the deadline for a submission of the proposal. A proposal may not be modified, withdrawn, or canceled by the Supplier during this period of time. The Supplier agrees to this condition by submission of a proposal.

2.22 Certification & Authorized Agent

Supplier certifies that he/she is authorized to act as agent for their organization in tendering this RFP response

Supplier agrees to comply with the RFP process, including, without limitation, all attachments

Supplier and its agents agree that they have read the RFP for which this Proposal and/or response is being submitted, that they understand such RFP, and that this Proposal is responsive to, and complies with the instructions and conditions to the RFP

By submitting a Proposal, Supplier represents and warrants that it is fully capable and willing to provide the Products or Services and performance levels detailed, and agrees that it will be bound by its responses to this RFP, including the Proposal, and any modifications to such responses as agreed upon in writing by both parties

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PART 2: SUPPLIER RESPONSES

3 SUPPLIER INFORMATION

3.1 Contact Information

Please provide your basic company information:

Legal Company Name:

Form of legal entity under which business is conducted:

Physical address for the legal entity identified:

Address (City, State and Zip):

Country:

Phone:

Please provide the following information for your primary company contact for the purposes of this RFP response and future communication regarding this business:

Contact Name:

Contact Title:

Contact email address:

Direct Line: Mobile:

Fax.

3.2 Vendor Qualifications

PSE is looking for a Vendor with the following qualifications:

- Three (3) or more years of Vendor experience deploying or supporting Virtual Power Plants or Distributed Energy Resource Management System (DERMS) systems at similar utilities. In some cases, PSE may verify this information by observing demonstrations of Vendor's system solutions.
- At least three (3) reference utilities with a production implementation of a VPP for market dispatch and peak load management, preferably one that has integrated with various aggregators
- Vendor must provide a SOC 2 Type II auditor's report of the hosted application. PSE requires that the software application must be audited, not just the data center or cloud service provider hosting the application.
- If proposing a SaaS solution, Vendors' proposed solution must rely only on US-based data centers.

As part of the full evaluation of Vendor proposals, PSE will perform additional analysis of Vendor experience based on response to Attachment B - PSE VPP Vendor References and Experience Worksheet. Vendors are also expected to provide the SOC 2 Type II report for PSE review for any cloud-based application in Proposal Response Attachment H.

3.3 Company Financial Information

Enter your companies audited financial statement results in Attachment D - PSE VPP Vendor Financials Worksheet

and submit as part of the RFP response.

In addition, please provide the following information in the Business RFP response:

- List all major investments in the last two years relative to asset acquisitions, capital infrastructure upgrades, etc., as it relates to the scope of this RFP.
- Litigation History (pending lawsuits and number of lawsuits in the history of the company)
- Indicate any involvement in any sale, merger, or acquisition activity. If any, please explain.
- Does Supplier grant PSE permission to utilize the company information provided to request a Financial Health Rating (FHR®) from RapidRatings, if available? (Yes/No) If No, please explain.

3.4 References

Suppliers shall furnish at least three (3) references for previous and/or current projects or customers similar to this scope. Vendor shall provide reference information in Attachment B - PSE VPP Vendor References and Experience Worksheet.

All rights reserved. Information and descriptions contained herein are the property of Puget Sound Energy. Such information and descriptions may not be copied or reproduced by any means or distributed without express prior written permission and standard non-disclosure agreements by all parties.

4 BUSINESS AND TECHNICAL REQUIREMENTS

4.1 Business Objectives of VPP Implementation

In response to the Washington Clean Energy Transformation Act (CETA), PSE will file a Clean Energy Implementation Plan (CEIP) in 2021 to act as a four-year roadmap that will guide PSE's clean energy investments for the years 2022-2025. The 2021 IRP outlines PSE's pathway to achieve the CEIP targets and requires aggressive DER capacity additions that will require centralized dispatch capabilities. To meet these goals, PSE is soliciting a VPP that enables PSE to dispatch aggregated DERs of varying technologies to achieve IRP goals.

PSE's primary objective for procuring a VPP platform is to register, track and report metrics on clean energy resources while giving PSE the ability to control and monitor DERs that have been identified in the 2021 IRP. As part of achieving this objective, PSE intends to utilize the VPP to enable the following DER use cases: Load and Generation Forecasting, System Peak Load Management, Local Peak Load Management, Market Dispatch, and Event Evaluation, Measurement & Validation (EM&V).

PSE believes that the quickest way to acquire DER resources to achieve these targets will be utilizing Aggregators to perform these use cases and thus will prioritize VPP vendors who have the capability to meet the Aggregator requirements described in the sections below. PSE has created secondary and future priorities and use cases that they also will put into consideration in evaluating a VPP platform to provide direct control of customer/third-party DER and Utility DER. A diagram of that can be seen in Figure 1.

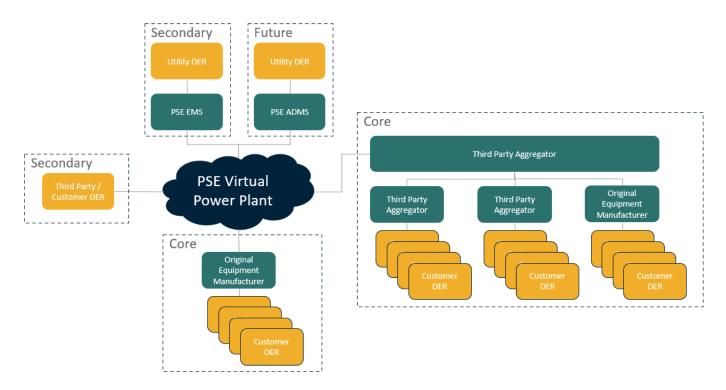


Figure 1: PSE VPP Prioritization Diagram

In proposal responses, PSE asks Vendors to describe how their solution will position PSE to achieve the above business benefits as effectively and affordably as possible.

4.2 Instructions for Business Proposal Response

Vendor is to provide an executive summary detailing Vendor background and experience with VPP technology, including but not limited to past project experience and vision for VPP. Each Vendor is expected to complete and return Attachment B - PSE VPP Vendor References and Experience Worksheet and Attachment D – PSE VPP Vendor Financials Worksheet

Please provide your response to the following in the Business Proposal Response:

(1) Business Proposal (.pdf, .doc or .ppt)

- Provide a Vendor company overview
- Provide an executive summary of proposed solution
 - Specifically speak to how the Vendor's proposed solution will help PSE realize and / or exceed its expected benefits
- Provide a description of Vendor Experience & Similar Projects
- Provide a 5-year roadmap for proposed solution, covering specific functionalities in development along with expected version/release schedule

(2) Attachment B (.xlsx)

- Complete Attachment B PSE VPP Vendor References and Experience Worksheet
 - Within Attachment B, there are two tabs: (1) Application Deployments, and (2) References.
 Vendors should complete Attachment B to the best of one's ability to provide an accurate representation of industry expertise and relevant experience.

(3) Attachment D (.xlsx)

Complete Attachment D – PSE VPP Vendor Financials Worksheet

4.3 VPP Technical Requirements

This section provides a high-level grouping and description of the functional requirements and use cases included in the RFP compliance matrix. The intent is to provide insight to Vendors on PSE's intentions for each category as well as any clarifications that PSE requires a Vendor to respond to. PSE asks each Vendor to review the description and associated group of system use cases and functional requirements, address answers to each Clarification Requested question in its proposal, as well as complete the requirement matrix for each section.

If a Vendor does not provide a function as part of its VPP solution or does not comply with a requirement, it is required to answer as such in one's response and requirements matrix.

PSE is interested in the implementation of a solution that meets its objectives described above. It is PSE's current strategy that an integrated VPP solution meeting its current use cases with the ability to scale and add new use cases from a single Vendor would be the best-fit system.

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PSE has prioritized use cases and requirements into Core, Secondary and Future categories. The scoring of the RFP responses will favor Vendors who can better meet the needs of the Core priorities as compared to the Secondary and Future priorities.

Please review each section and respond to associated requirements in Attachment A - PSE VPP Requirement Compliance Matrix.

4.3.1 VPP Program Management

This section covers all requirements determined by PSE Subject Matter Experts to ensure that the VPP can meet all the DER Program Management needs. This will allow PSE to track different VPP participants and centrally store program information in the VPP. This also allows PSE to manage the different participants in VPP.

Accordated Poquiromente	1_30
Associated Requirements	1-38
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Clarifications Requested

Clarification 4.3.1A	Core Priority	Vendor shall specify if they have any preferred partners for integrating different aggregators
Clarification 4.3.1B	Secondary Priority	Vendor shall specify if they have any preferred partners for integrating DERs

4.3.2 Event Management and Notifications

This section covers all requirements associated with Event Dispatch, Grouping, Optimization, Scheduling and Event Notifications. PSE wants to learn the Vendor capabilities and experiences that they have with respect to dispatching real-time and scheduled events across the different use cases with an additional added focus of dispatching aggregators. In addition, PSE is looking to understand the Vendor capabilities with respect to dispatch optimization and how notifications are managed.

4.3.2.1 Event Management

This section covers the specific requirements for Event Dispatch, Grouping, Optimization and Scheduling. As mentioned above, PSE wants to learn about the Vendor experiences and solutions that can be offered to dispatch a wide variety of DER aggregators and gain insight as to how the VPP can dispatch DERs directly. Additionally, PSE wants to learn about the Vendor experiences with respect to Dispatch Optimization, the different objectives the Vendor can optimize against, what inputs would be needed and any details showing the success of optimizations.

Associated Requirements	39-71

Clarifications Requested

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Clarification 4.3.2A	Core Priority	Vendor shall provide different methodologies for optimizing assets and manage resources that is fair to the downstream customer

4.3.2.2 Event Notifications

This section covers the specific requirements for Event Notifications. It is assumed that the VPP will have capabilities and the Vendor will have experience around sending notifications of events to Aggregators and Direct Control DER customers. It is the intent to learn of these capabilities although most of them might not be implemented in the initial release of VPP.

Associated Requirements	70-85

4.3.3 Event Evaluation, Measurement & Validation

This section describes the requirements VPP must meet with respect to evaluating, measuring, and validating a dispatch event. The purpose of these requirements is to determine the VPP capabilities around these functions so that when an event is called VPP has their own method of externally validating the results and can compare it to the reported results from the Aggregator.

Associated Requirements	86-100

Clarifications Requested

Clarification 4.3.3A	Core Priority	Vendor to specify the amount of time needed to complete an event validation
Clarification 4.3.3B	Core Priority	Vendor to provide detailed explanation/workflows on how VPP is capable meeting of Event EM&V requirements as set by PSE
Clarification 4.3.3C	Secondary Priority	Vendor shall provide explanation of experiences participating in CAISO EIM events

4.3.4 Monitoring & Control

This section describes the requirements VPP must meet with respect to monitoring and control Aggregators and Direct Control DER assets. It also provides some details on requirements that PSE might require into the future to provide some insight on the full VPP capabilities.

Associated Dequirements	101 110
Associated Requirements	101-112
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4.3.5 User Interface

This section describes the requirements VPP must meet with respect to the Operator User Interface. These requirements will allow the VPP operators to interact with the system in an easy to use, simplistic manner. It is intended that the core way of operating the VPP will be through the User Interface.

Associated Requirements	113-175

4.3.6 User Management

This section describes user management requirements and functions for the VPP and include managing user permissions and areas of control.

Associated Requirements	176-179

Clarifications Requested

Clarification 4.3.6A	Core Priority	Vendor shall comply with User Management security requirements identified in Section 4.3.12

4.3.7 Reporting

This section describes required reporting capabilities for the VPP including generating reports internally.

Associated Requirements	180-193

4.3.8 Load and Generation Forecasting

This section describes the forecasting capabilities for the VPP. Forecasting is broken apart into two different sub-sections: Load Forecasting and Generation Forecasting. The core functionality of VPP is intended accept load forecasting from an external source and can accept a generation forecast from an Aggregator. As a secondary priority, VPP Vendors should provide information regarding their load and generation forecasting and any additional integrations or costs associated with it.

Associated Requirements	194-212

Clarifications Requested

Clarification 4.3.8A	Secondary Priority	Vendor shall provide any experiences importing CAISO loa
		forecasts directly into VPP

Ī	Clarification 4.3.8B	Secondary Priority	Vendor shall specify any required external inputs to	successful
			execute forecasting	

4.3.9 System Environments

Figure 2 below depicts a conceptual diagram of PSE's suggested environments for VPP. PSE welcomes feedback from the VPP Vendor as to the typical environment landscape used at existing utility customers with similar needs to PSE and PSE requests that Vendors use this suggested approach as a reference when proposing the architecture and cost proposal for their solution. For on-premises solutions, components in the primary region would be implemented in PSE's Snoqualmie data center and components in the secondary region would be implemented in PSE's Cascade data center; cloud-based solutions will require the same level of redundancy and resiliency as noted here.



Figure 2: Conceptual VPP Environment Diagram

See below for more details about each of the environments depicted above. Vendors should assume these environments will be required for the solution and should include any licensing/hosting/etc. costs as needed. If Vendors typically see different environment configurations (e.g., collapsing development/testing workloads into the Quality Assurance environment, adding a training/simulation environment), vendors should include these perspectives in their responses with any licensing/hosting/etc. costs as needed. Additionally, if Vendors typically see utility clients purchase additional types of licenses, Vendors should include these perspectives in their responses.

While PSE's mantra is to prioritize cloud-based and SaaS solutions first, on-premises solutions will also be considered for this RFP. Additionally, PSE has an approved architectural blueprint and associated standards for AWS-based solution that would form the foundation of the solution architecture for AWS-based Vendor solutions. Vendors with primarily on-premises solutions shall include details on their roadmap for cloud service expansion and growth.

- 1. Primary Production Environment
 - a. Includes Active/Active hot standby environment within the same region
- 2. Disaster Recovery / Failover Environment
 - a. Replica of production with appropriate reliability assurances per PSE's standards for real-time systems, typically manual failover to secondary region from primary
 - b. Note: PSE prefers this in a geographically diverse region. Cloud-based Vendors should include details about what options are available for secondary regions to host PSE solution components
- 3. Quality Assurance Environment
 - a. Used for testing of major releases. Vendors should include details in their response about the typical cadence for major releases that would require client validation
 - b. This environment shall mimic all aspects of the production environment and be used for critical testing purposes to ensure ability to cover any unique test case needed for the production environment.
- 4. Development/Testing Environment
 - a. Used for testing minor patches

Clarifications Requested

Clarification 4.3.9A	Core Priority	If proposing a SaaS solution for VPP, Vendor shall provide information on the solution's backing cloud environment
Clarification 4.3.9B	Core Priority	Vendors with primarily on-premises solutions shall include details on their roadmap for cloud service expansion and growth.
Clarification 4.3.9C	Core Priority	Vendors should include details in their response about the typical cadence for major releases that would require client validation

Associated Requirements	211-219

4.3.10 System Software & Hardware

PSE does not intend to be prescriptive as to Vendor software platform capabilities and development practices in this RFP. However, PSE does have certain general software-related requirements and seeks to understand key aspects of the proposed software platform. In addition, PSE requests that the Vendor provide any recommended hardware if required for the solution implementation. If an on-premise solution is proposed, the recommended hardware should align to the configuration described in Section 4.3.9.

Lastly, PSE is looking to learn information about how the software configuration is deployed and how new Aggregator/DER are configured in the system.

Associated Requirements	220-223

Clarifications Requested

Clarification 4.3.10A	Core Priority	Vendor shall provide details on how a new aggregator program or participant would be configured and integrated within VPP.
Clarification 4.3.10B	Core Priority	Vendor shall provide details on how it manages system deployment and VPP configurations. Vendor shall include under what circumstances the VPP would require a system deployment or new configuration.
Clarification 4.3.10C	Core Priority	Vendor shall include all recommended hardware for VPP system implementation (if required)
Clarification 4.3.10D	Core Priority	Vendor shall provide details on the type of aggregators and/or DER devices they can integrate with.
Clarification 4.3.10E	Core Priority	Vendor shall provide details on any partnerships that they have with specific DER vendors or aggregators and types of DER under control

4.3.11 System Performance

PSE recognizes that system performance can be measured differently across different applications. The VPP will be expected to meet the scaling needs to meet the IRP Clean Energy Resource commitment.

Accordated Dequirements	224-227
Associated Requirements	224-221
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Clarifications Requested

Clarification 4.3.11A	Core Priority	Vendor shall identify the typical and maximum number of configured devices able to receive control commands in an operational setting
Clarification 4.3.11B	Core Priority	Vendor shall identify the maximum number of forecasts their system can handle in real time and identify if it has been field validated.
Clarification 4.3.11C	Core Priority	Vendor shall provide latency information regarding receiving field data, sending dispatch commands to a fully connected asset and any associated assumptions with the provided latency
Clarification 4.3.11D	Core Priority	Vendor shall specify typical performance measures that would be important to consider for VPP.

4.3.12 System Infrastructure and Cybersecurity

4.3.12.1 Cybersecurity, Application Security and Compliance

PSE considers a cybersecure implementation of VPP to be critical to the success of its VPP project. PSE expects any viable system to be capable of meeting all the PSE security requirements identified in this section. In addition, the Vendor will be expected to agree to PSE's security addendum as seen in Attachment G – PSE Addendum to Services Agreement for Information Security Requirements and additional security requests and requirements in Attachment E – PSE RFP Architecture Questionnaire.

Associated Descriperants	200 250
Associated Requirements	228-256

Clarifications Requested

Clarification 4.3.12.1A	Core Priority	Vendor shall identify if they use offshore services as a support mechanism and if so, where are they geographically located
Clarification 4.3.12.1B	Core Priority	Vendors should include detail for their data segregation strategy and how the solution handles multi-tenancy, if applicable.
Clarification 4.3.12.1C	Core Priority	If Vendor "connectors" are required to be installed on-premises at the utility for the purposes of sending/receiving data with components outside of PSE's network (e.g., cloud-hosted APIs), the vendor shall provide approaches for securely handling the transfer of data while minimizing latency. Vendors should include details about any such connectors and the architecture employed at other customers to help ensure secure and performant connections.

4.3.12.2 Application/System Integration

This section is used for VPP requirements and associated clarifications for Application and System Integration.

Associated Requirements	257-258

Clarifications Requested

Clarification 4.3.12.2A	Core Priority	PSE prefers to use MOVEit Managed File Transfers to export data files to a location on the DMZ network accessible by the Vendor for processing. Vendors should include details with using MOVEit for file transfers for similar purpose, as applicable.
Clarification 4.3.12.2B	Core Priority	Vendors should provide details on any RESTful API suites, web services, and other like integration approaches supported by the platform, as well as any licensing costs/details for using such functions to accomplish integrations with the platform.

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		1 4 5 2 0 01 11
Clarification 4.3.12.2C	Core Priority	For clarity, PSE uses SAP PO/PI and micro-services to accomplish integrations. Vendors should include details and/or case studies with using these and similar approaches/technologies at other utility clients for similar purposes, as applicable. If differing approaches are required for Vendor's solution, Vendors should provide such details. Finally, Vendors should provide information about the types of service bus integrations typically used/provided by the Vendor's platform.
Clarification 4.3.12.2D	Future Priority	Vendor shall provide any experiences interfacing with other utilities' ADMS and/or EMS
Clarification 4.3.12.2E	Core Priority	Vendor shall provide details on any experiences integrating with utility systems identified below in Section 4.3.13.

4.3.12.3 Data Conversion & Modelling

- 1. The proposed approach shall account for the mapping of the Vendor platform's data needs to PSE's data to inform data conversion strategy for historical data elements.
 - a. Note: PSE is currently standardizing the data mapping/translation process so that this can accelerated for the VPP implementation. This standardization process will be complete prior to the VPP implementation beginning.
- 2. There may be multiple systems that can satisfy a given data need for VPP. As a result, the design phase of the implementation shall include a rationalization of whether the system of record for a specific data element shall provide the data for VPP, or if systems of reference may be better suited.
- 3. PSE wants to ensure that the Vendor platform's data model helps ensure scalability to updated/new device types in the future. Vendors should include detail about how the platform's data model is standardized and governed as well as how utility-specific changes are accommodated to the data model.

Clarifications Requested

Clarification 4.3.12.3A	Core Priority	Vendors should include detail about how the platform's data model						
		is standardized and governed as well as how utility-specific changes are accommodated to the data model.						

4.3.13 System Integrations

The purpose of this section is to provide a conceptual integration architecture to help inform the Vendor's proposed system integration plan and associated proposal costs. Other than alignment to PSE's preferred tools and industry best practices for integration, PSE is not prescribing a specific integration approach. Specific integration details will be determined during the design phases of the implementation project. Vendors shall provide details on system integration capabilities and experiences deploying their platform. Vendor responses should also include integration implementation methodology details (e.g., traditional waterfall approaches, iterative Agile approaches, etc.).

For a project of this size, PSE will solicit system integration services from a supplier. If the Vendor provides such integration services during the implementation, please include details about these services. Alternatively, if there

is a preferred system integrator for working with Vendor's VPP, please include details about such system integrator. Additional information on Optional Scope can be seen in Section 4.3.17.1.

Integrations will be divided across two phases. Phase 1 of integration will occur during the initial VPP deployment/implementation and comprises such systems that are critical to creating the foundation for VPP. See Figure 3 below for a high-level conceptual integration diagram of anticipated system integrations for Phase 1.

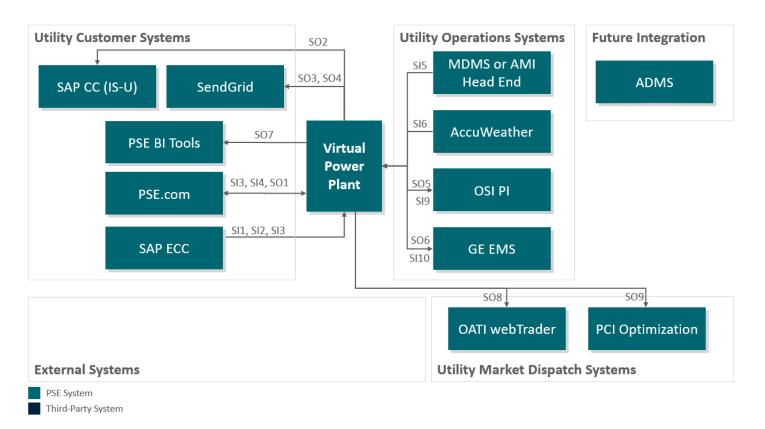


Figure 3: High-Level Conceptual Integration Diagram – Phase 1

After the deployment of VPP is complete, PSE will solicit bids for third-party aggregators, independent power producers, and like DER providers to engage with PSE and bid to be included as controllable dispatch through the VPP and part of PSE's DER programs. As a result of this RFP, PSE anticipates additional integration needs for Phase 2 – the interconnection of DERs with the VPP. See Figure 4 below for a high-level conceptual integration diagram of anticipated system integrations for Phase 2.

PSE intends the selected VPP solution will facilitate interconnection of future DERs, like those shown in the figure below, with minimal or no support from technical/IT resources. The VPP should enable future aggregator and/or DER integration with limited support from applications engineers supporting SAP, MDMS, EMS, or other application/system.

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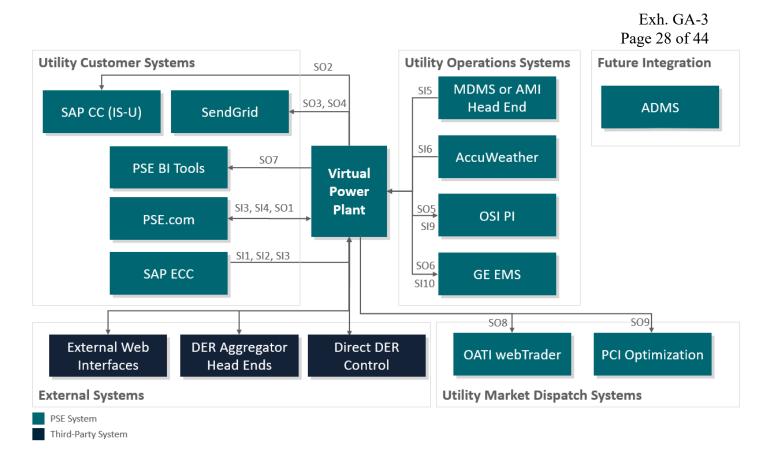


Figure 4: High-Level Conceptual Integration Diagram – Phase 2

Integration Inventory

Table 1 below depicts the anticipated data flows into the VPP solution from other PSE systems per the conceptual diagrams above. The Vendor shall include their "Response Consideration" responses for the table below in their Technical Proposal Response as identified in Section 4.5.

Table 1: Inbound Data Flows to VPP

#	Data	Source	Target	Frequency	Priority	Notes	Response Considerations
SI1	Customer and Aggregator Enrollments	SAP ECC ERP 6.0 EHP7	VPP	Daily	Core	This data includes a flag to signal that a DER has been enrolled in a specific DER program to be enabled by VPP	Vendors shall include any relevant details and experiences integrating their VPP platform with SAP, including any details on pre-built connectors with SAP.
SI2	DER Facility Location, Nameplate, Dispatch costs, etc.	SAP ECC ERP 6.0 EHP7	VPP	Daily	Secondary	This data originates in PowerClerk, but integration of this data to SAP is underway and is expected to be complete prior to VPP	Vendors shall include high-level needs for DER data typically originating from interconnection processing platforms

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#	Data	Source	Target	Frequency	Priority	Notes	Considerations
SI3	Customer Preferences	SAP ECC ERP 6.0 EHP7 PSE.com	VPP	Real-time	Secondary	Communication preferences are maintained in SAP and PSE.com; only one integration will be needed. VPP will need to check customer preferences before sending email/text notifications.	Vendors shall include information about the types of customerfacing communications sent from the platform.
SI4	Customer Requests	PSE.com	VPP	Real-time	Secondary	PSE.com would likely host the VPP customer portal. This would be used for the direct load customers only as the Aggregators will be expected to host their own portal. This may include customer requests for dispatch event status and ability to refuse a dispatch event	Vendors shall include any details with how the platform is integrated with utilities' websites
S15	Customer Loading Data	MDMS / AMI Head End	VPP	TBD depends on VPP needs, real-time preferred	Core	PSE anticipates that customer loading data will be required to validate the Aggregator / DER response to VPP- called events	Vendors shall include details/experiences about integrating with metering systems including need for realtime (and whether MDMS is the typical source or if the AMI head end is required) or if batches are acceptable as this will inform the right data source at PSE.
S16	Weather Forecasts	AccuWeather	VPP	Hourly	Core (Load Forecasting) / Secondary (Generation Forecasting)	Weather forecast data can be provided to VPP to assist with load and generation forecasting capabilities of the VPP (e.g., for planning DER availability and expected outputs) or predicting short term load	Vendor shall include details about how weather data is used within the VPP and what typical data elements are required (e.g., cloud cover, temperature, humidity).
SI7	Short Term Load Forecasts	TBD	VPP	Weekly	Core	N/A	Vendor shall include details about typical load forecast horizons needed to enable VPP capabilities.
SI8	Additional Inputs	TBD	VPP	TBD	Core / Secondary	N/A	Vendor shall include details about any additional inputs that may be required to achieve the desired use cases and their experience integrating with these inputs

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#	Data	Source	Target	Frequency	Priority	Notes	Response Considerations
SI9	Historical Operational Data	OSIsoft PI	VPP	On-Request	Core	PSE is currently migrating to OSIsoft PI Asset Framework	Vendor shall include details about whether a local/internal historian is provided with the VPP platform, any prebuilt connectors for historizing data with OSIsoft PI, and whether such connectors leverage the OSIsoft Asset Framework SDK (including which versions of OSIsoft PI may be required for such connectors). If the Vendor solution requires a historian other than OSIsoft PI internal to the solution, the Vendor shall include specific details about how historized data is mapped to PSE's OSIsoft PI instance via Vendor connectors (with a preference for configuration over custom data mapping development).
SI10	DER Measurement Data	EMS	VPP	Real-time	Secondary	DER measurement data, alarms, feedback, etc. from DERs controlled via the EMS. This data will report back into VPP to be informed of the DER response to an event and utilize DER information for events.	Vendor shall include details/experiences integrating with EMS systems, including any specific details relating to VPP integrations to EMS located in a NERC-CIP Electronic Security Perimeter.

Table 2 below depicts the anticipated data flows out of the VPP solution to other PSE systems per the conceptual diagrams above. The Vendor shall include their "Response Consideration" responses for the table below in their Technical Proposal Response as identified in Section 4.5.

Table 2: Outbound Data Flows from VPP

#	Data	Source	Target	Frequency	Priority	Notes	Response Considerations
SO1	Customer Dispatch Event Details	VPP	PSE.com	Real-time	Secondary	As events are called, high- level information about the events can be shared with customers through PSE.com	Vendor shall include details about what types of VPP event data are typically made available to customers through utility websites
SO2	Customer Event Participation Billing Details	VPP	SAP CC (IS-U)	Weekly	Core	If a DER participated in a VPP-called events, VPP will notify the billing system for calculation of incentives per the DER's agreements	Vendor shall include details about types of EM&V data available to be provided to the billing system for this use case
SO3	Customer Notification Emails	VPP	SendGrid	Real-time	Secondary	Per a customer's preferences, VPP can send notification emails to customers	Vendor shall include details about the typical notifications sent from VPP. Note: while the ultimate integration point is SendGrid for email delivery, PSE prefers email notifications are routed through PSE's standard preferences and email delivery microservices

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#	Data	Source	Target	Frequency	Priority	Notes	Response Considerations
SO4	Customer Notification Text Messages	VPP	SendGrid	Real-time	Secondary	Per a customer's preferences, VPP can send notification text messages to customers	Vendor shall include details about whether other utilities take advantage of text message notifications for VPP use cases
SO5	Historized Data	VPP	OSIsoft PI	Real-time	Core	PSE is currently migrating to OSIsoft PI Asset Framework	Vendor shall include details about whether a local/internal historian is provided with the VPP platform, any pre-built connectors for historizing data with OSlsoft PI, and whether such connectors leverage the OSlsoft Asset Framework SDK (including which versions of OSlsoft PI may be required for such connectors).
SO6	DER Control Commands	VPP	GE EMS	Real-time	Secondary	VPP control commands sent to EMS controlled DER for calling a DR event, dispatching DER and scheduling. This data will allow the VPP to execute events.	Vendor shall include details/experiences integrating with GE EMS systems.
SO7	VPP Event, Historical Vendor Performance, & System Performance Data	VPP	PSE BI Tools	Nightly	Core	Data about VPP events, historical Vendor performance and VPP system performance may be needed in downstream PSE tools for business intelligence and data visualization	Vendor shall include details about how the VPP platform data is typically integrated into common BI and analysis tools like Splunk, Power BI, and Tableau, including any specifics on the frequency of data publication to such tools from VPP
SO8	DER (Aggregated and Local) Forecasted Generation	VPP	OATI webTrader	Nightly	Secondary	Data about generation forecasts that can be used to bid into CAISO EIM market	Vendor shall include details/experiences integrating with OATI webTrader to participate in CAISO Market
SO9	DER (Aggregated and Local) Forecasted Generation Cost	VPP	PCI	Nightly	Secondary	Data about generation costs that can be used to bid into CAISO EIM market	Vendor shall include details/experiences integrating with Power Costs, Inc optimization tools to participate in CAISO Market

Associated Requirements	259-279
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Clarifications Requested

Clarification 4.3.13A	Core Priority	Vendor shall indicate if they have successfully integrated with a requested system or just possess capability to integrate with it.
Clarification 4.3.13B	Core Priority	Vendors to provide information on any third-party / external integrations that may be required to achieve desired VPP functionality including the potential for external connections identified in Figure 4.
Clarification 4.3.13C	Future Priority	PSE is currently in the process of deploying a Schneider Electric ADMS. Vendor to provide any details regarding their experiences successfully integrating with a Schneider Electric ADMS. If no historical integrations exist, Vendor shall indicate experiences with communicating with other ADMS Vendors over ICCP.
Clarification 4.3.13D	Core Priority	Vendor shall respond to requests in Table 1 and Table 2 above.

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Clarification 4.3.13E	Secondary Priority	Vendor responses should also include integration implementation methodology details (e.g., traditional waterfall approaches, iterative Agile approaches, etc.).
Clarification 4.3.13F	Core Priority	Vendor shall describe how their proposed VPP facilitates light-touch technical integration with minimal or no support from PSE technical / IT resources.

4.3.14 DER Communication Standards

This section highlights the VPP requirements to ensure that the VPP is compatible to communicate using standard communication protocols and standards.

Associated Requirements	280-288

Clarifications Requested

Clarification 4.3.14A	Core Priority	The vendor shall indicate their compatibilities around the different
		standards listed in Attachment A - PSE VPP Requirement Compliance Matrix

4.3.15 Historical Data

The Internal Historian will store any local information such as alarms, logs, events history, time series data for use by various applications or use cases such as reporting historical trends and historical operational data.

Associated Requirements	289-308

4.3.16 Training

The Vendor shall be expected to provide documentation and training series on the product. PSE expects that this documentation will be customized to their specific solution versus generic manuals. It is expected that the Vendor will conform to all PSE training standards. Additionally, it is expected the Vendor to help facilitate the transfer of training material into a PSE sustainment after project completion.

PSE requests the vendor support for achieving, at a minimum, the following training objectives:

- 1. System Knowledge Transfer Plan about VPP platform to the IT Technical System Group to support any issues that may arise.
- 2. High-level VPP training session(s) describing what a VPP is, what objectives it is intended to achieve and what the core functionality is

3. End User Training and VPP Operator "Train the Trainer" session(s) showing PSE personnel how to operate the VPP platform software and walk through the different features and functions available to them in the software.

Associated Requirements	309-326

Clarifications Requested

Clarification 4.3.16A	Core Priority	The vendor shall also provide any additional training or documentation they typically use that might not be listed in this section or in Attachment A.
Clarification 4.3.16B	Secondary Priority	The vendor shall provide any additional information around any training platforms or simulators that they may provide and include any associated costs in Attachment C .
Clarification 4.3.16C	Core Priority	Vendor shall describe their qualifications for training development and if it is done internally or through a third party.
Clarification 4.3.16D	Core Priority	Vendor shall provide costs for a System Knowledge Transfer Plan training to the IT Technical System Group and separate costs Content Development costs from Delivery in Attachment C
Clarification 4.3.16E	Core Priority	Vendor shall provide costs for End User Training and separate costs for Content Development and Delivery in Attachment C

4.3.17 Information Request for Optional Additional Scope Items

This section contains several areas of optional additional scope/functionality for which PSE requests Vendors to provide information around their capabilities and budgetary pricing where relevant. These items are not in the scope of PSE's VPP implementation and thus are not reflected in the VPP requirement matrix but reflect potential future scope. Where applicable & desired, Vendors are invited to provide additional attachments with overview information on their current capabilities & product roadmaps in these areas and to provide budgetary pricing in Attachment C - PSE VPP Cost Proposal Worksheet – Optional Scope Tab.

4.3.17.1 Optional Integration Scope

PSE intends for inbound and outbound VPP integrations to leverage PSE best practices, tools, and approaches (e.g., real-time over batch, common information models, consistent data access patterns) where feasible. Further, PSE recognizes that for any integration, there are many end-to-end activities needed to be completed as data flows between layers. Figure 6 intends to delineate what PSE considers required integration scope (depicted in navy) from additional optional integration scope (depicted in yellow) that the Vendor may want to include in their proposal.

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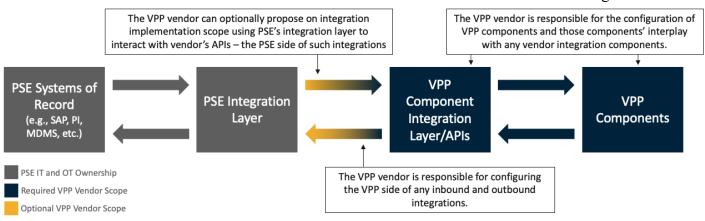


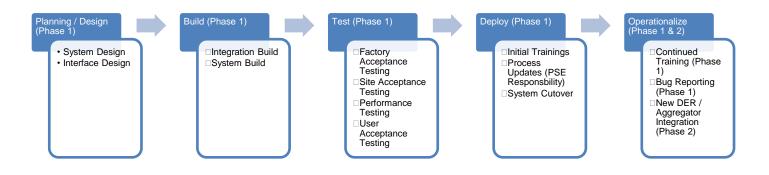
Figure 5: Required vs. Optional Integration Scope

Specifically, PSE assumes that the selected Vendor will be required to configure the VPP system including its various integration touchpoints including, but not limited to RESTful APIs, SOAP web services, message queueing, and/or integration accelerators pre-built by the Vendor. For both inbound and outbound integrations to the VPP system, the Vendor will be required to handle any configuration of components in this integration layer and provide documentation around the usage/interaction with these components (e.g., API documentation, SOAP web service contracts).

Additionally, if Vendor wishes, Vendor can optionally include additional integration scope working directly within PSE's Integration Layer, designing, and developing middleware applications that interact with Vendor's own integration components, transforming data as is required. Vendors should provide details on this optional scope in Attachment C - PSE VPP Cost Proposal Worksheet – Optional Costs Tab and include details in the Attachment J – Optional Integration Scope as part of their response.

4.4 VPP Implementation Approach

PSE has provided an overview of the intended approach to implementation for Vendor review and comment. The scope being requested is focused on implementation of functionality key to meeting the PSE IRP Distributed Energy Resource Targets. During the Planning & Design phase, PSE will determine what additional functionality outside of the Core requirements will be included in the deployment. PSE will want to have the ability to add additional functionality later if PSE so desires. Figure 6 below shows an example of a typical project implementation to inform typical implementation activities, it is not required to follow this approach and PSE is interested in Vendors providing their suggested implementation methodology as part of the proposal.



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Organizational Change Management (Training, Communications, CMO) Project Management (PMO)

Figure 6: Example Implementation Approach

Methodology

PSE intends to work with Vendor during negotiations and planning and detail phase to align on implementation methodology (Agile / Waterfall, etc.). In the Technical Proposal, Vendors should describe the preferred methodology for their solution, as well as an overview of their proposed implementation approach which aligns with this methodology, covering:

- Vendor recommendation on scope to achieve key objectives
- Vendor identification of risks for PSE
- Vendor suggestions on overall timelines

The sections below provide a review of overall scope which will be executed by PSE, as well as identifying the specific activities PSE will require the Vendor to support, which should be included in draft Statement of Work and Cost Proposal. PSE expects the Vendor to explicitly define what would be PSE's responsibility and what would be the Vendors responsibilities. In addition, please identify any suggested additional or alternative scope as part of the Technical Proposal.

PSE Planning / Design:

Overall Phase Scope:

- Development of Business Requirements Document (BRD) and Functional Requirements Document (FRD)
- High Level Solution Architecture Design for full VPP scope
- VPP Environment Design / Build
- · Development of systems integration strategy and standards
- Business Process Design
- Schedule / Roadmap Development

Vendor Activities (should be reflected in proposal response, draft SOW & pricing):

- Provide input to high level designs and integration designs, solution architecture development
- Provide input to detailed product roadmap and schedule development

Build, Test and Deploy

Overall Phase Scope:

- VPP Platform Infrastructure Deployment
- Build critical integrations required for VPP enablement
- Enablement of foundational / core VPP capabilities as identified in this RFP

Vendor Activities (should be reflected in proposal response, draft SOW & pricing):

- VPP Software Licensing
- VPP Detailed Design support

- VPP Hardware Procurement (if required)
- VPP Configuration
- VPP Inbound/Outbound Interface Configuration
- VPP Factory Acceptance Testing at Vendor Location
- Support of Additional Testing Activities at PSE (these activities would be led by PSE/Partner, with support from Vendor)
 - o Operational Readiness Testing
 - Performance Testing
 - User Access Testing
 - System Integration Testing
 - o Point to Point Testing
- Go-Live Support
- End User Training
- System Knowledge Transfer Plan Training

Operationalize

Overall Phase Scope:

- VPP Platform Aggregator Integration
- Continued Testing
- Bug Reporting

<u>Vendor Activities</u> (should be reflected in proposal response, draft SOW & pricing):

- VPP Software Licensing
- VPP Configuration
- VPP Inbound/Outbound Interface Configuration
- System Integration Testing
- Point to Point Testing
- Use Case Testing
- End User Training
- System Knowledge Transfer Plan Training

Ongoing Maintenance

- Please provide "typical" ongoing maintenance / customer support agreement as Proposal Attachment
 G: Example Maintenance Agreement attachment and include pricing as part of the Cost Proposal /
 Attachment C PSE VPP Cost Proposal Worksheet including any different customer support
 mechanisms (i.e. direct point-of-contacts, availability, etc.)
- Include an overview of various "tiers" of support as well for consideration in Technical Proposal or as an attachment
- Include any approach on how Vendor plans to engage aggregators to meet utility requests or troubleshooting for consideration in Technical Proposal or as an attachment
- Please explain your warranty service process and include details on any third parties you contract with.
- Please include details on your escalation plan for problematic items (individuals and/or software)
- Vendor shall confirm how new software development and upgrades will be made available to PSE.

- Vendor shall identify the frequency PSE may choose to upgrade their system as part of the ongoing maintenance / customer support agreement.
- Vendor shall identify if they can support 99.9% or above unplanned outage uptime. If not, please specify your expect application uptime SLA
- Vendor shall be able to guarantee a 2-hour Recovery Time Objective (RTO). If not, please specify your expected RTO
- Vendor shall identify if they can guarantee a 0 Recovery Point Objective (RPO), in the event of an unplanned outage, otherwise meaning no loss of data? If not, please specify your expected RPO.

Summary of Section

Based on the preliminary scope detailed above, please provide a proposed overall project plan & implementation methodology as part of your Technical Proposal, a draft Statement of Work (Proposal Attachment F: Vendor Proposed Statement of Work), example maintenance agreement (Proposal Attachment G: Example Maintenance Agreement), and associated pricing as part of the Cost Proposal / Attachment C - PSE VPP Cost Proposal Worksheet. Please note, that timelines and scope may change during the planning and design phase/negotiations, but for the purpose of this RFP it is intended that Vendors follow the above overall structure in their response. Alternatives and suggestions can be included as additional commentary as part of the Technical Proposal for consideration by PSE.

4.5 Instructions for Technical Proposal Response

Vendor is to provide a technical proposal covering the proposed solution's functionalities and a high-level architecture of the proposed solution described in this section. Vendors are required to complete to the best of their ability and return Attachment A - PSE VPP Requirement Compliance Matrix for PSE's review of the response. The purpose of Attachment A is to assess the Vendor's ability to deliver on each feature included in this RFP, and whether a Vendor complies or does not comply with each requirement.

Please provide your response to the following in the Technical Proposal Response:

(4) Technical Proposal (.pdf, .doc or .ppt)

- Provide any assumptions included in response
- Provide technical overview of proposed solution
- Provide description of proposed solution functionality
- Provide responses to any requested clarifications or information listed in this RFP
- Provide description of proposed System Environments and Architecture
 - o Complete RFP Attachment E PSE RFP Architecture Questionnaire
- Provide Vendor Cybersecurity Overview
 - Review RFP Attachment G PSE Addendum to Services Agreement for Information Security Requirements
- Provide proposed System Integration Plan
 - Include an explanation of integrations, adaptation, and parametrization for current systems with proposed solution.
 - Include details on where the proposed solution has been integrated using PSE preferred approaches and tools (i.e., using SAP PO/PI and micro-services) as applicable

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- Include details on any recommendations for alternate integration strategies and approaches
- Provide proposed overall project plan & implementation methodology
 - o Describe preferred implementation methodology (e.g., waterfall, agile, etc.)
 - o Provide explanation of the envisioned support of Planning/Design activity
 - Provide overview and suggested detailed scope (VPP capabilities needed, Integrations needed, other considerations) to accomplish key business objectives within timeline provided
 - If, based on Vendor experience and platform capabilities, an alternative approach to releases would provide improved benefits to PSE, please provide commentary for future consideration.
 - Provide ongoing maintenance options, with typical support plan details and costs included in proposal
 - Ensure proposed implementation methodology matches cash flow provided in Cost Proposal and provided draft Statement of Work
 - Provide a proposed project team tied into the project schedule with corresponding credentials and resumes
- Provide Proposal Attachment F: Vendor Proposed Statement of Work
- Provide Proposal Attachment G: Example Maintenance Agreement

(5) RFP Attachment A (.xlsx)

- Complete Attachment A PSE VPP Requirement Compliance Matrix
- For each requirement, please answer "Comply" if your proposed solution can meet the requirement
 - For software functions, only answer Comply if the functionality is in the base software version available in the market today
 - Roadmap functions should be answered as "no comply" with a description in the comments detailing future plans to add functionality
 - Custom development (not integration related) would also be a "no comply" with appropriate description
 - For implementation / project requirements, only answer Comply if proposed implementation plan and cost proposal capture the costs/activity required to meet the requirement
- If additional details are required to justify compliance or provide alternative solutions, please feel free to add to Appendix F and note in comment section of .xlsx
- Please ensure document is returned in .xlsx format

5 TECHNICAL AND COMMERCIAL INFORMATION

5.1 Commercial Information

5.1.1 Insurance Certificate in compliance with PSE's Terms and Conditions and Sample Certificate

Your company's certificate must match or exceed PSE's Sample Certificate (see RFP Attachment H) verbatim.

5.1.2 Additional Considerations

Supplier must disclose any potential or actual conflict of interest that it is aware of that could affect or otherwise impair its ability to perform its obligations under any final agreement to provide the services requested hereunder.

6 PRICING

Please be advised that this is the opportunity for Suppliers to provide a competitive bid to the request described herein. Markups are not permitted on travel expenses. If authorized, travel expenses will be reimbursed at actual cost with receipt documentation. In addition, PSE reserves the right to request further cost breakdown and/or clarification regarding cost components and inputs.

6.1 Instructions for Cost Proposal Response

PSE is requesting firm pricing from Vendors for the purposes of final selection for the software, hardware, and services necessary to complete the VPP implementation at PSE and addressing PSE's specifications for technical requirements. PSE has provided RFP Attachment C - PSE VPP Cost Proposal Worksheet template for the Vendor to fill out based on the requested scope and requirements, including optional scope items identified in Section 4.3.17 above. PSE is looking to understand a total cost of ownership for VPP platform for a 5-year contract.

Additionally, all Vendors shall provide a Cost Proposal, which will be a high-level executive summary explaining the overall costs or any specific notations that are included in RFP Attachment C - PSE VPP Cost Proposal Worksheet.

Please provide your response to the following in the Cost Proposal Response:

(6) Cost Proposal (.doc, .ppt or .pdf)

- Provide high-level executive summary explaining the overall costs or any specific notations
- Provide the Warranty and Terms and Conditions for maintenance agreements
- Provide any assumptions needed to complete cost proposal
- Provide any details on PSEs ability to identify cost reduction and it being passed down to the overall
 offering cost
- Provide details on any costs associated with system configuration updates, if not provided in maintenance agreement

(7) RFP Attachment C - PSE VPP Cost Proposal Worksheet (.xlsx)

- o Complete RFP Attachment C PSE VPP Cost Proposal Worksheet
- Vendor should include the core priorities as the base cost for the product. As applicable,
 Vendors should add additional costs to the Optional Scope tab to highlight the additional costs necessary to achieve secondary and future requirements and use cases.
- As desired, include pricing associated with optional scope proposals on the "Optional Scope" tab

7 ALTERNATE PROPOSALS & OTHER CONSIDERATIONS

7.1 Alternate Proposal

Supplier must submit a proposal in full compliance with this RFP. Supplier may also submit an alternate proposal, or propose alternate features, which Supplier believes will meet the basic objectives of this RFP and which is cost-effective for PSE. Such alternate proposal or features must be documented separately so it will not be confused with the base proposal. PSE will evaluate all alternate proposals which it deems to be in its best interest.

8 CONTRACTS

8.1 PSE Contractual Documents

Contracts that result from this RFP, if any, shall be governed by that Contract and its Attachments. Any final written contract will govern all aspects of a relationship between Supplier and PSE, and nothing herein shall be interpreted otherwise. In addition, the Vendor will be required to sign Master Services Agreement (MSA) with PSE. No person has the authority to bind PSE or interpret the rights of prospective Suppliers either through this document or through any oral or written statements not found within the final, written contract.

8.2 Confirmation of Master Service Agreement Review

The Vendor shall review the Master Services Agreement in RFP Attachment **F**. In addition, the Vendor shall propose any redlines needed to the Master Services Agreement and attach their redlines as part of their response

8.3 Revisions/Exceptions to PSE's Contractual Documents

Suppliers should state clearly if they fully agree with PSE's Contract and its Attachments, and any revisions and/or exceptions proposed by Supplier must be clearly stated in the Supplier Contract Comments Summary attachment.

The extent and nature of any exception will be considered in the evaluation process and will be scored accordingly. If the Supplier's response to the agreement indicates a potentially protracted negotiation that may interfere with PSE's timeline, they will be negatively evaluated.

NOTE: Any exceptions to the Agreement submitted by the Supplier after the RFP proposal response deadline will be rejected by PSE, and Supplier's continued insistence on such exceptions may be grounds for Supplier's disqualification.

9 AGREEMENT AND INTENT TO PARTICIPATE

- 9.1 Do you agree with the terms and conditions outlined in this RFP?
- 9.2 Do you intend to respond to this RFP?

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10 LIST OF RFP ATTACHMENTS

- Attachment A PSE VPP Requirement Compliance Matrix
- Attachment B PSE VPP Vendor References and Experience Worksheet
- Attachment C PSE VPP Cost Proposal Worksheet
- Attachment D PSE VPP Vendor Financials Worksheet
- Attachment E PSE RFP Architecture Questionnaire
- Attachment F PSE Master Services Agreement
- Attachment G PSE Addendum to Services Agreement for Information Security Requirements
- Attachment H Sample Certificate of Insurance