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Exhibit B. Proposal Requirement Forms (applies to Category A: Turnkey Resource Acquisition)

Instructions for Bidders

The Proposal Requirement Forms enclosed (Exhibit B) are designed to capture the minimum information necessary for PSE to perform its preliminary review of the RFP proposals. Respondents should plan to provide all relevant information necessary to assess their proposals. PSE may also send additional data requests to respondents on an as-needed basis during the RFP process.

1 **To be eligible to participate in this RFP, the respondent must fully complete and include an Excel copy of the Exhibit B forms enclosed.** A downloadable copy of the forms template can be found at http://www.pse.com/RFP.

2 Complete a separate Exhibit B for each proposal submitted. Additional offers need to be submitted in a separate Exhibit B for each alternative offer.

For the purposes of this RFP, a proposal is defined as a bid for a specific type of resource or combination of resources which broadly fall under three categories- distributed solar, Battery Energy Storage System (BESS), and demand response (DR). Proposals are not mutually exclusive, meaning that more than one proposal can be selected from the same respondent.

For the purposes of this RFP, an offer is defined as an option tied to a proposal for the same resource, or combination of co-located resources (e.g., solar and BESS). The initial resource along with the terms provided is known as the base offer. A respondent may submit additional offers for the same resource or combinations of resources. Those offers may vary options such as capacity (MW), term, start or end dates, pricing structure, transmission delivery point, some combination of co-located resources, or other proposal elements.

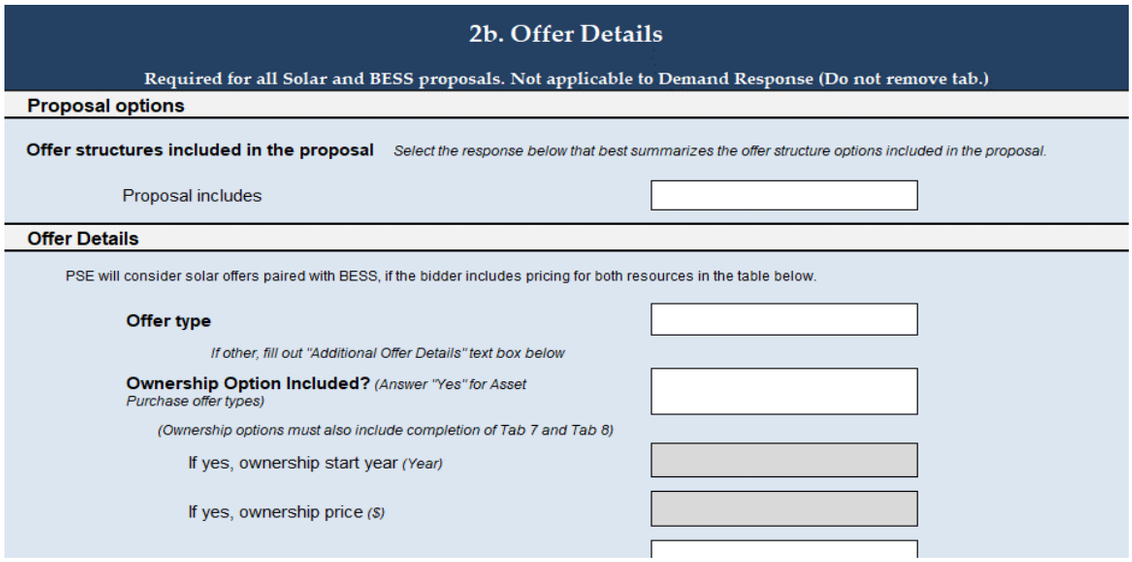
3 Respondents may not modify any part of the Exhibit B forms. PSE has designed this Excel file to be a key input to PSE's DER RFP proposal database and models. PSE will reject Exhibit B forms, if respondents add, remove or modify tabs in the file. Any changes to the integrity, or failure to complete the required fields, of the Exhibit B file will result in an validation error response and the web platform will not accept the proposal until the error is corrected.

4 Respondents who do not fully complete the Exhibit B forms or who return a modified Exhibit B that is no longer functional as an input to our proposal database and models will not meet the minimum requirements of this DER RFP. If a proposal does not meet the minimum eligibility requirements of the RFP (see Section 5 of the DER RFP) the bidder will be notified and will have three (3) business days to remedy the proposal.

5 Respondents are encouraged to follow file naming guidance where provided in Exhibit B to submit additional documentation as required herein or to provide additional detail to support a response. Guidance can typically be found where respondent would indicate whether additional material has been provided.

6 The Exhibit B form utilizes conditional formatting throughout the sheet to help guide respondents to ensure that the appropriate information is submitted. Fields that are required to be completed are white with a black outline. When utilizing the form, certain responses to questions will result in additional fields becoming visible. This is to communicate that additional fields are required to be completed. The form is meant to be reactive, such that respondents will only provide the information required for their bids. Optional fields are shaded gray, and should be completed if applicable to the bid. Respondents are

required for their bids. Optional fields are shaded gray, and should be completed if applicable to the bid. Respondents are encouraged to fill out the gray shaded fields, if applicable, to limit the need for data requests. Fields shaded light blue (the same color as form background) with no outline are not applicable to the bid, based on responses provided by the bidder, and they do not need to be completed. The following field and color guide should help clarify the visual differences between the three field types used in the form:



7 PSE has undertaken a significant automation effort to help improve the efficiency and accuracy of the RFP process. Exhibit B is the primary input to this process. The automation project is currently in the testing phase, with efforts ongoing to support a successful and satisfactory user experience when completing the Exhibit B bid forms and submitting proposal materials. If technical issues are identified during testing that may negatively impact the user experience, the Exhibit B file will be corrected and an update will be provided on PSE's RFP website (http://www.pse.com/rfp) and in the WUTC docket. PSE will notify stakeholders of any updates to the Exhibit B forms. To be added to the RFP stakeholder distribution list, contact DERRFPmailbox@pse.com.

To avoid system errors during proposal submission caused by version inconsistencies, respondents should download the current version of Exhibit B from PSE's RFP website (http://www.pse.com/rfp) or WUTC Docket once the final DER RFP is formally issued on February 7, 2022. PSE will provide clear proposal submittal instructions on its website in February after the DER RFP has been issued.

8 Have questions about the form? Contact us at DERRFPmailbox@pse.com.

1. Proposal Content Checklist

Required for all RFP proposals submitted under Category A: Turnkey Resource Acquisition (Do not remove tab.)

Proposal element	Required for	Section	Select response from drop-down list
Required proposal contents	**All proposals**	**Exhibit B**	
Proposal Content Checklist	All proposals	Tab 1	1
Commercial Details	All proposals	Tab 2a	2
Offer Details	Proposals including Solar and BESS; Not applicable to Demand Response	Tab 2b	3
Facility	Proposals including Solar and BESS; Not applicable to Demand Response	Tab 3	4
Solar	Proposals including Solar	Tab 3a	5
Battery Energy Storage System (BESS)	Proposals including BESS	Tab 3b	6
Demand Response	Proposals including DR	Tab 3c	7
IT/OT Requirements	All Proposals	Tab 4	8
Energy Output (8760)	Proposals including Solar	Tab 5a	9
Solar Irradiance (8760)	Proposals including Solar	Tab 5b	9
Interconnection	Proposals that include Schedule 152 interconnection	Tab 6	10
Development - Projects Detail	Development or construction project proposals	Tab 7	11
Ownership - Capital Costs	Proposals including asset sale offers	Tab 8	12
Ownership - Operating Costs	Proposals including asset sale offers	Tab 9	13
Bid Certification and contacts	All proposals	Tab 10	14
Mutual Confidentiality Agreement	All proposals	Exhibit D	15
Prototype Term Sheet (by offer structure)	All proposals	Exhibit F, G and H	16
PSE Customer Consent Letter	Proposals for projects with a pending request for or agreement for PSE distribution interconnection	Exhibit P	17

Proposals must be substantially complete consistent with the requirements of this RFP.

Proposals that do not provide sufficient information to substantiate a project or offer will not be considered in this RFP.

Minimum qualifying criteria for all proposals (as defined in RFP Section 5)	Select response from dropdown list
Does the bidder confirm that the respondent currently owns or has legally binding rights to devleop or market the project(s)?	1
Does the bidder acknowledge that PSE disclaims and shall not assume any risk associated with any applicable federal or state tax incentives or other programs meant to support a relevant resource?	2
Can the resource be interconnected to the distribution system, per PSE's interconnection requirements and technical specifications?	3
Is the resource located within PSE's service area?	5
Is the project operational, under construction, or in development? (Applicable to Front of The Meter (FTM) Solar and BESS Resources)	6
All else equal, PSE prioritizes operational projects/programs first, projects under construction second, and projects//programs in development third. PSE will not consider conceptual projects in this RFP. Market or energy transfer projects, etc., should select "operational".	
If development or construction, please answer the following:	
Did respondent include an overall project schedule for meeting the commercial operation date?	7
Does the proposal demonstrate site control for the project and any other project-related infrastructure (e.g., generation tie-line, etc.) consistent with guidance in the non-price scoring matrix in Exhibit A?	8
At a minimum, does the proposal include non-binding letters of intent for the site?	9
Has the bidder identified required permits and approvals and their status, and provided a schedule for completion as part of the overall project schedule? *See Tab 6*	10
Has the bidder started the permitting process?	11
Has the bidder demonstrated progress toward completion of a habitat study?	12
Does the proposal describe the respondent's labor plan (including family-level wages, benefits and opportunities for local workers and businesses)?	13
Has the bidder provided a project map, sketch or drawing that meets the minimum qualifying requirements specified in Section 5 of the DER RFP? (applies to FTM solar and BESS resources) *Must identify the geographical boundaries of the overall project and depict all property ownerships within those boundaries.*	14
Has respondent provided a CETA Equity plan consistent with the requirements of RCW 19.405.040(8)? *See Tab 2a*	15
If yes, bidder may also provide a separately submitted written diversity commitment, policy, or plan in addition to their responses on Tab 2a.	16
Respondent agrees to adhere to all applicable safety laws, guidelines and industry practices.	17
Does the proposal comply with all existing local, state and federal laws, regulations, and executive orders, including environmental laws? (e.g., Wash. state's emissions performance standards, RCW 80.80 and rules set forth in WAC 173-407)	18
Respondent has read Sections 5 and 6 of the RFP and acknowledges that the respondent will be responsible for meeting all contractual milestones as scheduled and may be required to pay liquidated damages if they are missed. PSE may also impose credit requirements based on the respondent's credit rating.	19
Respondent agrees that definitive agreements and obligations thereunder shall not be sold, transferred, assigned, or pledged as security or collateral for any obligation, without the prior written permission of PSE.	20

Additional minimum qualifying criteria for ownership proposals (as defined in Section 6 of the DER RFP document): applicable to FTM solar and BESS proposals with ownership transfer to PSE	Select response from dropdown list
In addition to the minimum qualifying criteria required for all proposals (above), PSE has identified the following additional criteria for ownership proposals / ownership options.	

Revised language from “customer benefit plan” to “CETA Equity plan” regarding requirements of bidder to provide details related to RCW 19.405.040(8).

Is ownership transfer proposed to occur before, on, or after COD?	1	
Respondent has read Section 5 of the DER RFP and acknowledges that if selected, PSE will require comprehensive engineering design documents and drawings well in advance of project construction, and that projects will be required to meet all PSE requirements and specifications.	2	
Respondent attests that all proposed design engineering firms and project constructors will have proven expertise and experience in projects of similar scope and size.	3	
Proposal includes descriptions of the manufacturer warranties / guarantees for major equipment and the GSU / step-up transformers, and the maintenance requirements to maintain manufacturer warranties.	4	

2a. Commercial Details

Required for all RFP proposals. (Do not remove tab.)

Respondent Summary

Respondent *seller/owner/developer*

Is the bidder a subsidiary or affiliate of PSE? *see RFP Section 5*

If yes, please specify the subsidiary or affiliate

Examples of affiliates include, but are not limited to: *PSE (aka. "self-build"), British Columbia Investment Management Corporation (BCIMC), Alberta Investment Management Corporation (AIMCO), Canada Pension Plan Investment Board (CPPIB), Ontario Municipal Employees Retirement System (OMERS), Dutch pension fund manager PGGM, or any of their affiliates and subsidiaries.*

Briefly describe any prior experience working with PSE
e.g., prior RFPs, prior projects/contracts, existing contracts

Experience, qualifications and company policy

Resource Type

If other, describe.

Is the respondent the owner of the facility? (applies to FTM Solar and BESS resources)

If not, specify owner.

Describe owner's experience and specify other projects completed to date.

Is the respondent the developer of the facility? (applies to FTM Solar and BESS resources)

If not, specify developer.

If developer is different from owner entity above, describe experience and specify other projects completed to date.

Please submit a summary CV for all key team members
(include "Summary CV" in filename of submitted document)

Please submit a Corporate Safety Plan, and Drug and Alcohol Plan
(include "Safety Plan" in filename of submitted document)

Please submit a Continuity of Business Plan
(include "Continuity of Business Plan" in filename of submitted document)

Legal and financial

Submit a deal diagram attachment that shows all contractual parties, listed by their legal names, and their relationship with the project.
(include "deal diagram" in filename of submitted document)

Is the project dependent on another entity?

If yes, please describe.

Does the project have any known legal issues?

If yes, please describe. Include suits, disputes, administrative investigations, permitting issues, les pendens, apparent or known property boundary ambiguities, trespasses, or encroachments, and any other pertinent legal issues.

In the past five years, has the bidder filed for bankruptcy, been determined to be insolvent or been forced into receivership?

In the past five years, has the bidder or any of its executive officers been convicted of a felony?

Please provide a description of all material litigation to which bidder has been a party at any point in the past five years, including a summary of its resolution or current status. For purposes of this question, "material" means all claims in excess of $5 million.

Does the bidder have CPA certified or independently audited financial records for the previous 5 years?

If yes, please submit previous 2 years of information. *(include "Financial Records" in filename of submitted document)*

Does the bidder have a corporate credit rating by a credit rating agency?

If yes, please describe.

If the project is a development project, how does the respondent plan to finance the project? (applies to FTM solar and BESS resources)

2b. Offer Details

Required for all Solar and BESS proposals. Not applicable to Demand Response (Do not remove tab.)

Proposal options

Offer structures included in the proposal *Select the response below that best summarizes the offer structure options included in the proposal.*

Proposal includes

Offer Details

PSE will consider solar offers paired with BESS, if the bidder includes pricing for both resources in the table below.

Offer type

If other, fill out "Additional Offer Details" text box below

Ownership Option Included? *(Answer "Yes" for Asset Purchase offer types)*

(Ownership options must also include completion of Tab 7 and Tab 8)

If yes, ownership start year *(Year)*

If yes, ownership price *($)*

Resource Type

If other, describe.

Offer capacity *(MW at POI)*

2023	(MW)	
2024	(MW)	
2025	(MW)	
2026	(MW)	
2027	(MW)	
2028	(MW)	
2029	(MW)	
2030	(MW)	
2031	(MW)	
2032	(MW)	

Commercial Operation Date *(mm/dd/yyyy)*

Term start *(mm/dd/yyyy)*

Term end *(mm/dd/yyyy)*

Pricing

Describe pricing

Pricing type

(PSE preference is fixed price and uses a 6.8% discount rate to compare different offers)

If fixed price *(PSE preference)*

Capacity *($/kW-year)*

Energy *($/MWh)*

If escalating price

1st year capacity price *($/kW-year)*

Annual escalation *(%)*

1st yr energy price *($/MWh)*

Annual escalation *(%)*

If market index premium / discount

Mid-C spread *($/MWh)*

If other, describe below

Other charges *(If yes, please explain in additional offer details field, below)*

Additional offer details

Use the text field below to describe other relevant details about the offer that are not already specified in the table.

For PPAs, also include bidder's underlying fixed and variable cost of production. In PSE's view a pricing structure that closely mirrors the actual cost structure of the project aligns the Respondent's and PSE's interests with respect to scheduling and dispatch. For temporal exchange agreements, 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.

Proposals containing one or more ownership options (e.g., existing resource, turnkey, development assets) must also complete Tab 8. Project Capital Costs and Tab 9. Operating Cost. Specify below any financing costs and the associated estimated payment schedule dates, if included in the total capital cost (Tab 8). PSE may prefer to finance the construction.

Proposals for dispatchable resources must provide detailed event performance measurements and specify what M&V and baseline capabilities they have.

Respondents are requested to include information on how they have handled prior non-performance penalties.
Respondents are requested to provide regression-based and time-based DER growth and availability models for a 2 year time period.

Does pricing of this project assume the use of tax incentives?

If pricing is contingent upon receiving tax credits, specify the tax credits.

Investment tax credit (%)

Method of qualification for safe harbor and description of the work

If utilizing safe harbor equipment:

What is the qualifying year of the equipment? qualifying year (yyyy)

When does the safe harbor provision for the equipment expire? expiration year (yyyy)

(i.e., date project must be online to receive them)

If pursuing safe harbor based on start of construction:

Project start year to qualify for renewable tax credit qualifying year (yyyy)

Target completion date to qualify for the renewable tax credit completion date (yyyy)

Does pricing above include all current and future environmental attributes?

3. Facility Detail

Required for all FTM Solar and BESS proposals; not applicable to BTM resources, including Demand Response (Do not remove tab.)

Resource information summary

Complete this tab to provide general information about the project. Provide additional project details on the relevant tab(s) listed below.

Tab 3a. Solar
Tab 3b. Battery Energy Storage System (BESS)
Tab 3c. Demand Response (DR)

Please ensure that the Tab 5. Energy Output (8760) is also completed as noted / required.

Please complete all individual resources tabs (3a,3b, and 3c) as needed, as well as Tab 6. Interconnect & Transmission, if applicable.

General facility information (applies to FTM Solar and FTM BESS only; not applicable to BTM resources, including DR)

Project/Facility name *(proposal name)*

Resource Type

If other, describe

Resource location

City / Town

County

State / Province

Latitude *(use Decimal degrees formatting, i.e. 47.610378)*

Longitude *(use Decimal degrees formatting, i.e. -122.200676)*

Real estate (applies to FTM Solar and FTM BESS only; not applicable to BTM resources, including DR)

Project size (in acreage) acres

Submit a map showing the project area and neighboring parcels.

(include "Project Map" in filename of submitted document)

Show anticipated layout of all project facilities. If possible, include two identified roads and the desired point of interconnection on the map.

Does the project have all necessary leases, easements or other ownership documents to operate the facility throughout the life of the project? *PSE may request this documentation, if the project advances to the second phase of the RFP.*

Describe the land area controlled relative to project facilities.

Provide additional detail below, submit supporting documentation as needed

Additional detail submitted?

(include "Land Area" in filename of submitted document)

Provide a general description of project and project site, and describe key project components.

Provide additional detail below, submit supporting documentation as needed. As applicable, project site information should include railroads, wetlands, state and county roadways, airports, protected waterways and species, archaeological, Tribal lands, transmission lines, etc.

Additional detail submitted?

(include "Project Description" in filename of submitted document)

Can the project be expanded?

If yes, include a description of the potential scope and conditions for additional development at the site.

Site control (applies to FTM Solar and FTM BESS only; not applicable to BTM resources, including DR)

List percentage of total site (including dedicated feeder if applicable) under executed land agreements. (%)

PSE may request this documentation, if the project advances to the second phase of the RFP.

Describe the type of land agreements (e.g. deeds, leases, easements, options, or rights of first refusal to construct, etc.) and/or other ownership documents demonstrating that the respondent has or can administratively gain 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.

If proposal is selected for Phase 2 (due diligence) evaluation, PSE will request copies of these documents for review.

Provide additional detail below, submit supporting documentation as needed

Additional detail submitted?

(include "Land Agreements" in filename of submitted document)

Permitting (applies to FTM Solar and FTM BESS only; not applicable to BTM resources, including DR)

Submit a permitting checklist for all permits and authorizations required to build and operate the project and, if applicable, the associated dedicated feeder.

(include "Permit Checklist" in filename of submitted document)

Include all project permits and any other local, state or federal government approval applications or authorizations required to build and operate the project and generation tie-line. Place special emphasis on key discretionary permits (such as a CUP, site cert and major air, wastewater and/or waste permit). Indicate the status and agency with jurisdiction for each permit or authorization required. For permits and approval applications planned or in progress, include the expected completion dates.

Does respondent have all discretionary permits required to begin construction on the facility?

Discuss the current status of applications and proceedings, and the schedule and approach to obtain the necessary permits and approvals.

Provide additional detail below, submit supporting documentation as needed

Additional detail submitted?

(include "Permit Status" in filename of submitted document)

Is the project located in an area that is ceded land, may have been historically used by a Native American Tribe, and/or that may impact tribal interests?

If yes, has the Tribe been consulted about the project?

Provide details in the space provided below. If the Tribe has not been consulted, state why not and describe any such consultation plans for the future.

Is the respondent aware of any required tribal notifications, permit conditions or costs associated with any tribal agreement or promise?

If yes, please describe in the space below.

Environmental siting (applies to FTM Solar and FTM BESS only; not applicable to BTM resources, including DR)

Are there any known environmental issues relative to the development and construction of the project?

If yes, briefly explain below and describe mitigations to be employed. Include 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.

Provide additional detail below, submit supporting documentation as needed

Additional detail submitted?
(include "Environmental Issues" in filename of submitted document)

Have any environmental studies or assessments been performed related to the site and project?

If yes, are the studies available, if requested?

Are any additional environmental studies or assessments in progress?

Submit a list of environmental studies completed, in progress and planned.

(include "Environmental Studies" in filename of submitted document)

Include 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, and any other relevant studies.

Include in the list the status of each study, the person(s) or firm(s) responsible for conducting and completing the work, and their methodologies. For planned or in progress, describe the scope and schedule for completion.

Does respondent have a plan to engage the community and environmental stakeholders to support the proposed project?

Discuss the plan and any ongoing community relations and environmental stakeholder relations.

Provide additional detail below, submit supporting documentation as needed

Additional detail submitted?
(include "Community Plan" in filename of submitted document)

Public engagement

Is respondent aware of any community or environmental stakeholder concerns associated with the facility?

Discuss ongoing community relations and environmental stakeholder relations. Include any known public support for the project.

Provide additional detail below, submit supporting documentation as needed

Additional detail submitted?

(include "Community Relations" in filename of submitted document)

Development projects, see also Tab 7. Development - Detail, subparts Environmental Siting and Permitting (applies to FTM Solar and BESS only; not applicable to BTM Solar and BESS and to DR)

3a . Facility Detail for Solar

Required for all solar proposals. (Do not remove tab.)

Solar Resource Summary

		Offer
Solar Resource		
Resource status		
If operating, remaining useful life.	*(years)*	

Solar Characteristics

		Offer
Describe the solar offer		
Solar panels		
Manufacturer(s)		
DC capacity (MW) (Plant or Aggregated)		
2023	MW	
2024	MW	
2025	MW	
2026	MW	
2027	MW	
2028	MW	
2029	MW	
2030	MW	
2031	MW	
2032	MW	
Annual degradation	%	
Array Azimuth (with direct south = 0)	*degrees*	
Primary racking type (standalone resources only)		
Inverter		
Manufacturer(s)		
Efficiency	%	
Inverter Loading Ratio	#	
AC nameplate capacity (Plant or Aggregated)		
Maximum (MW)		
2023	MW	
2024	MW	
2025	MW	
2026	MW	
2027	MW	
2028	MW	
2029	MW	
2030	MW	
2031	MW	

Revised language from “(from facing south)” to “(with direct south =0)”. *B-14*

2032	MW	

Maximum (MVA)

2023	MVA	
2024	MVA	
2025	MVA	
2026	MVA	
2027	MVA	
2028	MVA	
2029	MVA	
2030	MVA	
2031	MVA	
2032	MVA	

Minimum (MW)

2023	MW	
2024	MW	
2025	MW	
2026	MW	
2027	MW	
2028	MW	
2029	MW	
2030	MW	
2031	MW	
2032	MW	

Ramping control

Ramp up	*MW/min*	
Ramp down	*MW/min*	
Describe		

Energy output

Estimated net annual capacity factor	%	
Nov to Feb capacity factor	%	

Include 8760 data on Tab 5. (If more than one resource -e.g., solar+BESS, use the combined output.)

8760 data source (onsite data, estimated, etc)	
Independent resource assessment completed	
If so, please submit.	

O&M Costs

Variable O&M Costs *assumed included in offer price*	*$/MWh*	
Annual Escalation rate to be used with above	%	

DER Interconnection Details

Voltage level for DER interconnection in kV	

Interconnected DER output capacity in kVA and kW	

Implementation and Customer Acquisition Details

Implementation Plan

Describe implementation plan for deploying distributed solar *(Please refer to Section 2 of the main RFP document for Implementation Plan requirements. Submit separate attachment, if necessary, and include "Solar Implementation Plan" in filename of submitted document).*	
Provide summary of assessment and acquisition plan.	
Submit assessment and acquisition plan if available.	

(include "Solar Assessment and Acquisition Plan" in filename of submitted document)

Provide information on estimated number of acquired sites over a 10-year timeframe and the average capacity per site.

Estimated Number of Acquired Sites

No. of customer sites		
2023	#	
2024	#	
2025	#	
2026	#	
2027	#	
2028	#	
2029	#	
2030	#	
2031	#	
2032	#	
Average AC Nameplate Capacity Per Site	MW	

Customer benefit sharing

Project include customer benefit sharing?	
If yes, please describe.	

If available at the time of bid submittal, provide a comprehensive engineering design documents and drawings well in advance of project construction. If available, bidders should also provide one-line diagrams, three-line schematics, communication plans and protocols used, and a list of tags and alarms used. Communication plan and protocol are not applicable for BTM solar resources <0.5 MW. Please also include the following:
-Type of anti-islanding scheme (active or passive)
-Proposed control scheme (fixed power factor, volt/VAR, watt/VAR, etc.)
-Slope of positive sequence dynamic reactive-current injection characteristic (used in ASPEN short circuit model)
-Slope of negative sequence dynamic reactive-current injection characteristic, if applicable (used in ASPEN short circuit model)
-If not user-programmable, voltage levels at which the resource will shut down (self-protect)

If unavailable at the time of bid submittal, PSE will request this information during the evaluation or negotiation process. Projects will be required to meet all PSE requirements and specifications.

Engineering documentation submitted	

(include "Engineering Documentation" in filename of submitted document)

Ownership Options

For offers that include ownership options for solar, please complete the following additional tabs:

Tab 8. Ownership - Capital Costs
Tab 9. Ownership - Operating Costs

3b . Facility Detail for Battery Energy Storage System (BESS)

Required for all BESS proposals. (Do not remove tab.)

BESS Summary

		Offer
BESS Resource		
BESS Resource type		
If other, describe.		
Standalone or paired with solar?		
Resource status		
If operating, provide remaining useful life.	(years)	
Source for charging storage system		
If offsite, describe.		

System design

BESS Characteristics

Technology		
Manufacturer(s)		
Max state of charge	%	
Min state of charge	%	
Capacity (power / energy) degradation impact on cycles	% per cycle	
Define cycles and any additional information on states of charge assumptions.		

DER Interconnection Details

Voltage level for DER interconnection in kV	
Interconnected DER output capacity in kVA and kW	

Inverter (if applicable)

Manufacturer(s)	
Model	

Integration

Name of Integrator	
Describe relevant experience of integrator	

Cooling System

Provide summary description of proposed cooling system.	

Fire Protection System

System addresses fire and explosive gas detection, prevention, and mitigation?	
Provide summary description of fire protection system.	

Added language of unit “% per cycle”.

Capacity

AC nameplate capacity (Plant or Aggregated)

Maximum discharge power (MW)

2023	MW	
2024	MW	
2025	MW	
2026	MW	
2027	MW	
2028	MW	
2029	MW	
2030	MW	
2031	MW	
2032	MW	

Maximum discharge power (MVA)

2023	MVA	
2024	MVA	
2025	MVA	
2026	MVA	
2027	MVA	
2028	MVA	
2029	MVA	
2030	MVA	
2031	MVA	
2032	MVA	

Minimum discharge power (MW)

2023	MW	
2024	MW	
2025	MW	
2026	MW	
2027	MW	
2028	MW	
2029	MW	
2030	MW	
2031	MW	
2032	MW	

Maximum charge power (MW)

2023	MW	
2024	MW	
2025	MW	
2026	MW	
2027	MW	
2028	MW	
2029	MW	
2030	MW	

2031	MW	
2032	MW	

Energy maximum (MWh)

2023	MWh	
2024	MWh	
2025	MWh	
2026	MWh	
2027	MWh	
2028	MWh	
2029	MWh	
2030	MWh	
2031	MWh	
2032	MWh	

Energy minimum (MWh)

2023	MWh	
2024	MWh	
2025	MWh	
2026	MWh	
2027	MWh	
2028	MWh	
2029	MWh	
2030	MWh	
2031	MWh	
2032	MWh	

Augmentation required?		
Describe augmentation schedule		

Control and operations

Ramping control

Ramp up	MW/min	
Ramp down	MW/min	
Describe		

Charging / Discharging

Charge efficiency	%	
Discharge efficiency	%	
Total Round Trip efficiency	%	

BESS control

Does owner control the energy storage?		
Does the BESS need a schedule for state of charge?		
Is the resource intended to time-shift for peak capacity?		
If yes, describe control.		

Can the energy storage provide operational flexibility?	
If yes, describe control, impact of lifespan.	
Can the facility be dispatched by PSE?	

Operations

Forced outage rate	%	
Mean time to repair	(hours)	

O&M costs

Variable O&M costs *assumed included in offer price*	$/MWh	
Fixed O&M *assumed included in offer price*	$/kW-yr	

Annual planned maintenance

Expected average days per year	
Expected timing month/season	
Estimated annual unit availability	

(provide value on % of year basis)

Implementation and Customer Acquisition Details

Implementation Plan

Describe implementation plan for deploying distributed BESS.	
Provide summary of assessment and acquisition plan.	
Submit assessment and acquisition plan if available.	

(include "BESS Assessment and Acquisition Plan" in filename of submitted document)

Provide information on estimated number of acquired sites over a 10-year timeframe and the average capacity per site.

Estimated Number of Acquired Sites

No. of customer sites		
2023	#	
2024	#	
2025	#	
2026	#	
2027	#	
2028	#	
2029	#	
2030	#	
2031	#	
2032	#	

Average AC Nameplate Capacity Per Site (MW)	

<u>Customer benefit sharing</u>

Project include customer benefit sharing?	

If yes, please describe.

If available at the time of bid submittal, provide a comprehensive engineering design documents and drawings well in advance of project

Engineering documentation submitted

(include "Engineering Documentation" in filename of submitted document)

Ownership Options

For offers that include ownership options please include the following:

Expected life span for energy storage system (years)

Describe any additional augmentation and recycling of batteries that are included at end of life span

Describe design engineering firms and project constructors proven expertise and experience in projects of similar scope and size

Proposals should include documentation including system and equipment compliance with appropriate governing agencies and standards including Federal Energy Regulatory Commission (“FERC”), North American Electric Reliability Corporation (“NERC”), Western Electric Coordinating Council (“WECC”), Underwriters Laboratories (“UL”), Institute of Electrical and Electronics Engineers (“IEEE”), National Electrical Code (“NEC”), Industry Foundation Classes (“IFC”), etc., as applicable

Compliance documentation submitted

(include "Compliance Documentation" in filename of submitted document)

For offers that include ownership options for flexible capacity resources, please complete the following additional tabs:

Tab 7. Ownership - Capital Costs

Tab 8. Ownership - Operating Costs

3c . Demand Response Requirements

Required for all RFP proposals including Demand Response. (Do not remove tab.)

	Offer
Please indicate whether Offer includes Demand Response	

Technology Provision

Briefly summarize below and include a separate attachment describing the proposed technologies, associated hardware and software, and any technology-related services. This should describe how the DR Requirements stated in Section 2 of the RFP document will be fulfilled and highlight the unique elements of the proposal. This summary should NOT address Implementation Services, which are covered under a separate item (see "Implementation Plan" below). The technology provision description should cover the following items:

1. System level diagram: Provide a system level diagram of proposed solution including head-end (control) elements, all key interfaces, databases, communication, monitoring, switches, and associated technology to deliver a load shed signal to the customers and end-use equipment (if curtailment is automated), and the return path for communications back to PSE.
2. End-Use Control Devices and Systems: Provide technical descriptions of any end-use devices and systems proposed for customer premises (e.g., gateway devices, load control relays, building energy management control system (EMCS), etc.), as well as the end-uses they might control.
3. Communications Infrastructure: Based on the system-level description, provide a complete description of the communication infrastructure that will be needed and how it will be used.
4. Metering: Describe the type of metering that will be employed and how metering information will be relayed to PSE—frequency, resolution, summary reporting, etc. Also indicate any requirements for PSE's installed metering, or respondent's intended use of PSE meter data.
5. Load Curtailment Mechanics: Describe the approaches, processes, and equipment to be used to execute load curtailment/shifting at customer facilities. Discuss the anticipated actions required of customers (may vary by customer), and any automated load response that may be employed.
6. Requirements for PSE: Describe the expectation of PSE technology infrastructure, including server needs, database requirements and capacities, operating systems, security requirements, file transfer mechanisms, telecom requirements, and any other interfaces, components or software/hardware requirements.

Submit separate document covering all six items listed above.

(include "DR Technology Provision" in filename of submitted document)

Implementation Plan

Briefly summarize below and include a separate attachment describing the implementation plan. This should describe how the proposal plans to fulfill the DR Requirements stated in Section 2 of the RFP document and highlight the unique elements of the proposal. The implementation plan description should cover the following items:

1. Marketing, Customer Recruitment and Retention: Describe the marketing, customer outreach, recruitment and retention plan and include a list of targeted customer classes/segments. Detail the strategy for engaging end-use customers and solicit enrollment in DR and provide details of coordination with PSE account managers in customer outreach and recruitment efforts.
2. Equipment Installation and Enablement: Describe the equipment installation process, current network of equipment installers and/or proposed subcontractors for equipment installation, and other requirements needed to complete installation. Additionally, describe practices for verification and testing to ensure end-to-end communication and control and discuss approach for periodic testing.
3. Data Support: Describe Customer Information System (CIS) and work management software, interface requirements, data sharing and reporting methods/practices, reliability and backup, and testing approach (please refer to Table 6 in "Exhibit J: Demand Response Addendum" for additional details regarding data requirements).
4. Customer Service and Satisfaction: Describe the approach for ensuring customer service and satisfaction, including call center staffing and operations and procedures to measure and report customer satisfaction findings to PSE.
5. Roles and Expectations of PSE: Discuss the role PSE is expected to play and any specific needs/expectations in relation to the implementation activities listed above.
6. Implementation Timeline: Provide a detailed schedule for implementation tasks (after the contract is effective), included but not limited to the following implementation tasks:
--Marketing and Customer Recruitment
--Platform setup, system integration and commissioning
--Site Enablement
--DR Program Operations

End-of-Contract Technology Ownership Terms: Indicate who owns the equipment, and the suggested terms are for ownership of equipment at the end of the contract period, should PSE decide to discontinue services with the respondent at that time. Indicate whether it is possible for PSE buy the equipment and/or acquire a license to operate the head end system at the end of the contract period and provide pricing terms for the ownership transfer or licensing.

Submit separate document covering all six implementation services items listed above, plus end-of-contract ownership terms.

(include "DR Implementation Plan" in filename of submitted document)

Measurement & Evaluation Plan

Submit detailed measurement and evaluation plan if available.

(include "DR Measure and Eval Plan" in filename of submitted document)

Provide summary of measurement and evaluation plan, consistent with Exhibit J.

DR Capacity

In the table below, provide proposed curtailment capacity for winter, summer and shoulder months from 2023 to 2028. The proposed amount indicates what respondent can provide that meets PSE's primary and secondary objectives described in Section 2 of the RFP and conforms to the customer baseline assumptions discussed in Exhibit J.

		Time ahead	
Winter (Nov.-Feb.) DR capacity by year (MW)		Day	1 Hour
2023	(MW)		
2024	(MW)		
2025	(MW)		
2026	(MW)		
2027	(MW)		

Units for Pricing for Winter Capacity Events and Additional Pricing Element changed from ($/kW-Season) to ($/kW-event).

Units for Additional Pricing Element changed from ($/kW-event) to ($/kWh).

2028	(MW)		

Summer (May-Sept.) DR capacity by year (MW)

2023	(MW)		
2024	(MW)		
2025	(MW)		
2026	(MW)		
2027	(MW)		
2028	(MW)		

Shoulder months (March, April, Oct.) DR capacity by year (MW)

2023	(MW)		
2024	(MW)		
2025	(MW)		
2026	(MW)		
2027	(MW)		
2028	(MW)		

Fast Response (10 minutes or less) Capacity

Fast response is a secondary objective of PSE's and completing this table is optional

In the table below, indicate the available capacity that can respond with 10-minutes or less notification in summer and winter months.

		Summer	Winter
2023	(MW)		
2024	(MW)		
2025	(MW)		
2026	(MW)		
2027	(MW)		
2028	(MW)		

If additional availability can be provided, please describe.

Submit detailed description of the capacity breakdown by combinations of different customer classes/segments and controlled end-use devices.
(include "DR Capacity Breakdown by Customer Segments and End-use Technologies" in filename of submitted document)

Pricing For Winter Peak Reduction

Pricing for Winter Capacity Events

Provide **pricing for winter peak demand reduction** from 2023-2028. Pricing should be in terms of $/kW-event for achieving the winter capacity amounts indicated above and be inclusive of customer incentives.

Year	Unit	
2023	($/kW-event)	
2024	($/kW-event)	
2025	($/kW-event)	
2026	($/kW-event)	
2027	($/kW-event)	
2028	($/kW-event)	

Additional Pricing Element (Optional)

If applicable, indicate proposed additional $/kWh pricing based on the actual energy reduced during DR events.

Year	Unit	
2023	($/kWh)	
2024	($/kWh)	
2025	($/kWh)	
2026	($/kWh)	
2027	($/kWh)	
2028	($/kWh)	

Total Costs

Provide the total costs corresponding to the winter capacity rollout.

Year	Unit	
2023	$1000s	
2024	$1000s	
2025	$1000s	
2026	$1000s	

2027	$1000s	
2028	$1000s	

Estimated Breakdown of Program Costs by Category

Provide an estimated breakdown of annual program costs for providing winter curtailment capacity by category using the tables below. Provided costs are to be provided in the units described below for each program cost catagory.

Program Startup Costs	**Unit**	
2023	($/kW)	
2024	($/kW)	
2025	($/kW)	
2026	($/kW)	
2027	($/kW)	
2028	($/kW)	

Program Administration Costs	**Unit**	
2023	($/kW-year)	
2024	($/kW-year)	
2025	($/kW-year)	
2026	($/kW-year)	
2027	($/kW-year)	
2028	($/kW-year)	

Program Marketing Costs	**Unit**	
2023	($/new participant)	
2024	($/new participant)	
2025	($/new participant)	
2026	($/new participant)	
2027	($/new participant)	
2028	($/new participant)	

Customer Incentives Payments For Winter Peak Events	**Unit**	
2023	($/kW-event)	
2024	($/kW-event)	
2025	($/kW-event)	
2026	($/kW-event)	
2027	($/kW-event)	
2028	($/kW-event)	

Pricing For Additional Products and Services - Optional

All-Inclusive Pricing for Summer Peak Curtailment Capacity

Provide **pricing for summer peak demand reduction** from 2023-2028. Pricing should be in terms of $/kW-event for achieving the summer peak reduction amounts indicated above and inclusive of customer incentives.

Year	**Unit**	
2023	($/kW-event)	
2024	($/kW-event)	
2025	($/kW-event)	
2026	($/kW-event)	
2027	($/kW-event)	
2028	($/kW-event)	

All-Inclusive Pricing for Year Round Curtailment Capacity

Provide **pricing for providing year-round curtailment during winter, summer and shoulder months** from 2023-2028. Pricing should be in terms of $/kW-year for achieving the winter, summer and shoulder peak reduction amounts indicated above and be inclusive of customer incentives.

Year	**Unit**	
2023	($/kW-yr.)	
2024	($/kW-yr.)	
2025	($/kW-yr.)	
2026	($/kW-yr.)	
2027	($/kW-yr.)	
2028	($/kW-yr.)	

Incremental Pricing for Fast Response

Indicate the incremental capacity charge for providing fast response (10-minute or less) capacity indicated above for winter and summer.

Year	**Unit**	**Winter**	**Summer**

	2023	($/kW-event)		
	2024	($/kW-event)		
	2025	($/kW-event)		
	2026	($/kW-event)		
	2027	($/kW-event)		
	2028	($/kW-event)		

Note: not being able to meet the requirements listed below will not automatically eliminate a resp

Resource Description *Select the responses that best describe the control, hosting, and dispatchability of the reso*

What is the resource control method?	
Where is the software hosted?	
Is the resource dispatchable?	

ExK #	Functional Area	Capability	Category	Priority
1.01	Business	Customer	Aggregator	Nice to Have
1.02	Business	Customer	Aggregator	Must Have
1.03	Business	Co-branding	Aggregator	Must Have
1.04	Business	DER Types	All	Must Have
1.05	Business	DER Types	Aggregator	Nice to Have
1.06	Business	Performance	All	Must Have
1.07	Business	Performance	All	Must Have
1.08	Business	Planned outage	All	Must Have
1.09	Business	Planned outage	All	Must Have
1.10	Business	Record maintenance	Aggregator	Nice to Have
1.11	Business	Record maintenance	Aggregator	Must Have
1.12	Business	Record maintenance	Aggregator	Must Have
1.13	Business	Compliance	All	Must Have
1.14	Business	Sale of information	Aggregator	Must Have
1.15	Business	Settlement	All	Must Have

2.01	Engineering	Asset Management	All	Must Have
2.02	Engineering	Asset Management	All	Must Have
2.03	Engineering	Asset Management	All	Must Have
2.04	Engineering	Communications	All	Must Have
2.05	Engineering	Communications	Direct Connect	Must Have
2.06	Engineering	Grid Operation	All	Must Have
2.07	Engineering	Inverter	All	Must Have

3.01	IT	Compliance	Aggregator	Must Have
3.02	IT	Cybersecurity	Aggregator	Must Have
3.03	IT	Cybersecurity	Aggregator	Must Have
3.04	IT	Cybersecurity	Aggregator	Must Have
3.05	IT	Cybersecurity	Aggregator	Must Have
3.06	IT	Cybersecurity	Aggregator	Must Have
3.07	IT	Cybersecurity	Aggregator	Must Have
3.08	IT	Cybersecurity	All	Must Have
3.09	IT	Cybersecurity	All	Must Have
3.10	IT	Cybersecurity	All	Must Have
3.11	IT	Cybersecurity	All	Must Have
3.12	IT	Cybersecurity	All	Must Have
3.13	IT	Cybersecurity	Aggregator	Must Have
3.14	IT	Cybersecurity	Aggregator	Must Have

3.15	IT	Cybersecurity	Aggregator	Must Have
3.16	IT	Cybersecurity	Aggregator	Must Have
3.17	IT	Cybersecurity	Aggregator	Must Have
3.18	IT	Cybersecurity	Aggregator	Must Have
3.19	IT	Cybersecurity	Aggregator	Must Have
3.20	IT	Cybersecurity	Aggregator	Must Have
3.21	IT	Cybersecurity	Aggregator	Must Have
3.22	IT	Cybersecurity	Aggregator	Must Have
3.23	IT	Cybersecurity	Aggregator	Must Have
3.24	IT	Cybersecurity	Aggregator	Must Have
3.25	IT	Cybersecurity	Aggregator	Must Have

3.26	IT	Cybersecurity	Aggregator	Must Have
3.27	IT	Cybersecurity	Aggregator	Must Have
3.28	IT	Cybersecurity	Aggregator	Must Have
3.29	IT	Cybersecurity	Aggregator	Must Have
3.30	IT	Data security	All	Must Have
3.31	IT	Data security	Aggregator	Must Have
3.32	IT	Deployment	Aggregator	Nice to Have
3.33	IT	High Availability	Aggregator	Must Have
3.34	IT	High Availability	Aggregator	Must Have
3.35	IT	Integration	Aggregator	Must Have
3.36	IT	Integration	Aggregator	Must Have
3.37	IT	Integration	All	Must Have
3.38	IT	Offshore	Aggregator	Must Have
3.39	IT	Standards	Aggregator	Nice to Have

3.40	IT	Standards	All	Nice to Have
3.41	IT	Standards	Aggregator	Nice to Have
3.42	IT	Standards	All	Must Have
4.01	Load Office	DER Control	Direct Connect	Must Have
4.02	Load Office	Dispatch	All	Must Have
4.03	Load Office	Forecasting	All	Must Have
4.04	Load Office	Forecasting	All	Nice to Have
4.05	Load Office	Price	Aggregator	Must Have

5.01	Operations	Alarms	All	Nice to Have
5.02	Operations	Control	Aggregator	Must Have
5.03	Operations	Control	All	Nice to Have
5.04	Operations	Control	All	Must Have
5.05	Operations	Data interval	All	Must Have
5.06	Operations	Event response	All	Must Have
5.07	Operations	Event response	All	Must Have
5.08	Operations	Event response	All	Must Have
5.09	Operations	Event response	All	Must Have
5.10	Operations	Event response	All	Nice to Have
5.11	Operations	Ride-through	Direct Connect	Must Have
5.13	Operations	SCADA	Direct Connect	Must Have
5.14	Operations	SCADA	Aggregator	Must Have
5.15	Operations	SCADA	Direct Connect	Must Have
5.16	Operations	SCADA	Direct Connect	Nice to Have
5.17	Operations	SCADA	Direct Connect	Must Have
5.18	Operations	SCADA	Direct Connect	Nice to Have

5.19	Operations	VPP	All	Nice to Have
5.20	Operations	VPP	Aggregator	Must Have
5.21	Operations	VPP	Aggregator	Must Have
5.22	Operations	VPP	Aggregator	Future
5.23	Operations	Maintenance	All	Must Have
6.01	Planning	Forecast	All	Must Have
6.02	Planning	Forecast	Aggregator	Nice to Have
6.03	Planning	Forecast	Aggregator	Nice to Have

4. Proposal Requirements and Details

Required for all RFP proposals. (Do not remove tab.)

ondent. If a requirement cannot be met, provide an explanation in the Vendor Comments secti

urce.

Requirement
Respondent must have a customer consent and authorization process.
Respondent shall specify how event notification will be sent to PSE customers
Respondent must use PSE branding or co-branding when sending notifications to customers for programs with the potential for PSE ownership. For programs that will not be owned by PSE, PSE branding or co-branding is preferred, but if that option is not technically possible please explain alternative.
Respondent must provide CETA compliant resource(s)
Respondent is requested to be able to leverage different DER sub-types to meet commitments. For example, if a Respondent is intending to aggregate batteries PSE requests the Respondent be able to interface with different types of batteries (ex. Tesla, Generac, etc)
Respondents proposing dispatchable resources must provide detailed event performance measurements and perform M&V. Respondent shall specify what M&V and baseline capabilities they have.
Respondent must acknowledge that PSE may implement financial penalties for non-performance of kW / kWh targets
Respondent must provide PSE 7 days advanced notice for any planned DER outage
Respondent must provide 7 days advanced notice for any DER testing
Respondent must have a protocol for managing customer consent, including for how long verifiable proof of consent is retained.
Respondent must have a protocol for managing shared customer information. Ex if a customer leaves the aggregator, how long will their customer information be retained in the aggregator's system.
Respondent must allow customers to be able to revoke authorization/consent and withdraw from participation
Respondent must comply with all applicable laws and regulations. Respondent must ensure that all proposed resources comply with all applicable PSE, WA state, and national safety standards. As applicable, respondent must support PSE's compliance with privacy laws and regulations including WAC 480-100-153 and WAC 480-90-153.
Respondent must not sell any customer information obtained from PSE or from the customer through PSE programs
Respondent must support settlement process with both DER owners and PSE

Respondent must provide the physical location of the DER resource allowing PSE to match it with the distribution feeder it is connected to. It is assumed and expected that the vendor/supplier of the project will provide the GIS data to PSE in electronic form to be consumed or entered into our SAP CIS, GIS, Virtual Power Plant, and SCADA EMS systems.

Respondent must provide DER nameplate, resource availability, response information to PSE. This information needs to be provided at individual DER level for DER > 25kVa and aggregated (at least down to feeder level) for smaller resources.

Respondent must provide PSE with the ability to send dispatch and control commands to individual DERs > 25 kVa and to geographically aggregated resources (at least down to feeder level) for smaller resources

Respondent requested to be capable of communicating using the following:
-Standards and protocols: IEEE 2030.5, DNP3 SCADA protocol devices, Modbus SCADA protocol devices, SunSpec Smart Inverter Profile (Modbus or DNP3), MESA Storage Profile (Modbus or DNP3), ICCP
-Networks: AMI, LTE cellular, Broadband

Respondent requested to describe experience with:
-IEEE 2030.5: Describe communications experience with IEEE 2030.5 and specify equipments (i.e. battery controller, inverter, etc) controlled by the IEEE signal
-LTE Cellular: What cellular carrier is being proposed and what carriers have you used in the past? Where was this done?

Respondent requested to validate that the DER can communicate through LTE cellular or fiber connections using real-time data with IEEE 2030.5 or DNP 3.0 communication standards . Supplier to specify which cellular carrier is being proposed? Please provide what cellular carriers have you used in the past? Where was this done? What PCS (Power Control System) and Inverter equipment did you communicate with (i.e., battery controller, inverter, both) ? Were Watch Dog Timers and diagnostics used if communication failures occured?

Respondent must adhere to all applicable PSE interconnection processes, comply with all applicable PSE technical specifications and open industry communication standards, including the interconnection requirements set forth in:
-PSE's Tariff Schedule 152 - Interconnection with Electric Generators (https://www.pse.com/-/media/Project/PSE/Portal/Rate-documents/Electric/elec_sch_152.pdf)
-IEEE 1547-2018: Standard for Interconnection and Interoperatbility of Distributed Energy Resources with Associated Electric Power System Interfaces (https://standards.ieee.org/products-services/standards-related/pdf/electric-power-systems.html), and
-PSE's Technical Specification and Operating Procedures for Interconnection of Generation Facilities Not Subject to FERC Jurisdiction (https://www.oasis.oati.com/woa/docs/PSEI/PSEIdocs/PSE-ET-160.70_NonFERC_19Aug07.pdf)

Respondent must provide DER inverter specifications to PSE including, but not limited to:
-Rated AC output power, current, and voltage;
-Power factor range of adjustability;
-Available voltage and frequency protective elements;
-Available grid support functions (anti-islanding, voltage ride through, voltage support, etc.);
-Available communication protocols;
-Grid standard (IEEE 1547 and UL1741) compliance information

Respondent must be certified and include proof of a current SOC2 audit for SaaS and Cloud software implementations. On premise Respondents do not need an SOC2 audit. Respondents who are in the process of a SOC2 audit will be considered if a letter is provided from their auditor stating they are in a SOC2 audit and have an estimated completion date by July 1, 2022.
Respondent must meet industry best practices for security standards set by NIST-IR 7628
Respondent must encrypt data in motion using TLS 1.2+
Respondent must encrypt data at rest using AES-256 or better
Respondent must support standard approaches for network connectivity to the Respondent platform, including firewall rules on both sides, IP restrictions to PSE's external IP range, and VPN connectivity for connections back to PSE OT systems, amongst others. Details will be determined during the design phase of the implementation project
Respondent shall provide cyber security features, including but not limited to: authentication, encryption, access control, event and communication logging, monitoring and alarming to protect the system from unauthorized modification or use
Respondent shall verify that the addition of security features does not adversely affect connectivity, latency, bandwidth, response time and through-put (including during the Site Acceptance Testing (SAT) when connected to existing equipment)
Respondent shall remove or disable all software components that are not required for the operation and maintenance of the device prior to the Factory Acceptance Testing (FAT). The Respondent shall provide documentation on what is removed and/or disabled
Respondent shall provide, within a pre-negotiated period, appropriate software and service updates and/or workarounds to mitigate all vulnerabilities associated with the product and to maintain the established level of system security
Respondent shall certify that its systems and products have undergone cyber security testing by leading and independent government sanctioned organizations
After contract award, the Respondent shall provide notification of known security vulnerabilities affecting the Respondent supplied or required operating system, application and critical third-party software within a pre-negotiated period after public disclosure
After contract award, the Respondent shall provide notification of a patch(es) affecting security within a pre-negotiated period, as identified in the patch management process. The Respondent shall apply, test and validate the appropriate updates and/or workarounds on a baseline reference system before distribution. Mitigation of these vulnerabilities shall occur within a pre-negotiated period
After contract award, the Respondent shall provide firewalls and firewall rule sets between network zones or provide firewall rule sets if the firewalls are not provided by the Respondent. The Respondent shall provide firewall rule sets and/or other equivalent documentation. The basis of the rule set shall be "deny all," with exceptions explicitly identified by the Respondent. Note that this information is deemed business sensitive and shall be protected as such
After contract award, the Respondent shall provide detailed information on all communications (including protocols) required through a firewall, whether inbound or outbound, and identify each network device initiating a communication in accordance with the corresponding rule sets

Respondent shall not permit user credentials to be transmitted in clear text. The Respondent shall provide the strongest encryption method commensurate with the technology platform and response time constraints. The Respondent shall not allow applications to retain login information between sessions, provide any auto-fill functionality during login or allow anonymous logins. The Respondent shall provide user account-based logout and timeout settings
Respondent shall provide a configurable account password management system that allows for selection of password length, frequency of change, setting of required password complexity, number of login attempts, inactive session logout and denial of repeated or recycled use of the same password
Respondent shall not store passwords electronically or in Respondent-supplied hardcopy documentation in clear text unless the media is physically protected. The Respondent shall control configuration interface access to the account management system. The Respondent shall provide a mechanism for rollback of security authentication policies during emergency system recovery or other abnormal operations where system availability would be negatively impacted by normal security procedures
Respondent shall provide a system whereby account activity is logged and is auditable both from a management (policy) and operational (account use activity) perspective. The Respondent shall time stamp and control access to audit trails and log files. The Respondent shall ensure audit logging does not adversely impact system performance requirements
Respondent shall provide for user accounts with configurable access and permissions associated with the defined user role. The Respondent shall adhere to least privileged permission schemes for all user accounts and application-to-application communications
Respondent shall verify that a user cannot escalate privileges, under any circumstances, without logging into a higher-privileged role first. The Respondent shall provide a mechanism for changing user(s) role (e.g. group) associations. After contract award, the Respondent shall provide documentation defining access and security permissions, user accounts, applications and communication paths with associated roles
Respondent shall provide a Single Sign-On (SSO) such that Role-based Access Control (RBAC) enforcement is equivalent to that enforced as a result of direct login. This system should be RBAC capable. The Respondent shall provide documentation on configuring such a system and documentation showing equivalent results in running validation tests against the direct login and the SSO. The Respondent shall protect key files and Access Control Lists (ACLs) used by the SSO system from non-administrative user read, write and delete access. Note that SSO must resolve individual user’s logins to each application
The Respondent shall have and provide documentation of a written flaw remediation process for all software they develop. The Respondent shall provide appropriate software updates and/or workarounds to mitigate all vulnerabilities associated with the flaw within a pre-negotiated period.
After contract award, when the Respondent is made aware of or discovers any flaws, the Respondent shall provide notification of such flaws affecting security of Respondent-supplied software within a pre-negotiated period. Notification shall include, but is not limited to, detailed documentation describing the flaw with security impact, root cause, corrective actions, etc. (This language is typically found in a quality assurance document, but is included here for completeness.)
Respondent's aggregation system must track and maintain third-party penetration tests
Respondent's aggregation system must log all events, including security-related event status with an accurate timestamp.

Respondent's aggregation system must not require read/write/execute access to filesystems outside its web root folder and must not execute OS-level commands based off of user input
Respondent's aggregation system must physically or logically separate PSE’s data from other of Respondent’s customers’ data
Respondent's aggregation system must secure API access and system connectivity (e.g., API keys, SSH keys)
Respondent's aggregation system must support single sign-on using SAML 2.0.
Respondent must comply with PSE's Security Addendum (Consultant or Hosted) and ensure data security for all relevant usage, metering, settlement, and customer information.
Respondent must secure customer data and describe the manner in which this data is secured.
Respondent to indicate preferred pattern of solution. PSE's preference is for SaaS solution, but will consider other deployment patterns. If not SaaS, please provide details on architecture.
Respondent must support a high-availability architecture. Please describe your product's architecture to support a high level of reliability. What is your committed level of product up-time? Is your VEN system capable of meeting a 99.9% availability SLA ?
Respondent shall support high availability operations with redundant infrastructure and communications along with continuous automated monitoring, alerting and automated failover
Respondent must have the ability to interface with and be controlled by the PSE VPP. Respondent must support reliable connections to SaaS and cloud-hosted software and support a programmatic interface to the PSE VPP implementation. Please describe best practices for integration of your software to the PSE VPP.
Respondent must be able to integrate DER monitoring, control, and dispatch to PSE VPP using Open ADR 2.0b
For VPP interfacing resources, Respondent is requested to provide a list of presently operational VPP interfaces and a separate list of VPP interfaces that have only been piloted.
Respondent must use datacenters located in the US for SaaS or Cloud
Supplier / Respondent shall be requested that their DER system has the capability to be configured as a OpenADR VEN. PSE's VPP shall act as the VTN Gateway as defined in the OpenADR 2.0b specification. PSE requires to have two way real time data communication between the VPP and Aggregrator plaftorm using OpenADR 2.0b.

Respondent requested that system be capable of fully complying with and capable of communicating to DER (BESS or PV storage system) using a smart inverter with its PCS system. PSE requires that the Smart Inverter incorporate or embed into its controls the SunSpec interoperability standards. These standards and communication protocols shall be as follows: * IEEE 2030.5 * DNP3.0 * Modbus TCP The above communication protocols shall provide open interoperability and real-time communication to the PCS control system and components which the Smart Inverter is part of the controls equipment. Security with the Smart Inverter shall also include: PSE security requirements, TLS, PKI infrastructure, Digital Certificates and authority, encryption (SHA-256), authenication, authorization, indentities, and client identification with the above communications. The Sunspec Standard shall provide a DER and Device Information Data Model to collect, read, and write data to the Smart Inverter. This shall consist of CSIP profile for the inveter, monitoring power production data (kWH, kW, Delivered, Received, charging ramp rates, alarms, chargeing schedules, events, over/under voltage, over/under current, Frequeny, and all power-voltage imbalances). It shall also provide connect and disconnect functions, High/low voltage ride through, Volt-Var, and PF control functions. PSE requires reporting data capabilities as well with Real and Reactive Power, Volts, Amps, Hz, and PF for all 3 phases + Neutral including Averages.
Respondent is requested to have the capability to be dispatched via open standards or non-proprietary protocols. Please describe preferred and outline any other feasible mechanisms for dispatch of DER assets.
Supplier/Respondent must have the ability with their PCS system (Power Control System) to have rate schedules managed by the VPP. The expectation is that system supports both direct and indirect control with rate and charging schedules. This can be managed by an Aggregrator using open protocols such as IEEE-2030.5 or DNP 3.0 but must coordinate and integrate with the VPP via OpenADR 2.0b as a VEN. If direct control is use by PSE VPP/DERMS system then the supplier shall support PSE standards of IT/OT communications direct to the energy storage controller.
Respondent must have the ability to be managed by, interface with, and directly be controlled by the PSE VPP for solar deployments >=0.5MW and <2MW and FOTM BESS <2MW
Supplier/Respondent must have the capability with its DER site controls, communication to aggregrators and VPP to indicate resource availability, readiness, and equipment states of all components at the DER to dispatch the DER resource.
Respondent required to have the capability to provide generation capacity up to 48 hours in advance
Respondent requested to have the capability to provide generation capacity up to 7 days in advance
Respondent must provide price of dispatch with generation forecast

The Supplier/Respondent shall have the ability to provide DER controls which manage all states, alarms and events to the VPP. This shall include watch dog timers for communication, loss of end-points or loss of phyiscal or communication to the site. If the communications is lost the communications shall retry to establish communications. If communications is lost an alert and alarm shall occur. All states and events shall also be managed so that root cause analysis can be determined to what caused the failure.
Respondent must have the ability to be enabled and disabled by the VPP
Supplier/ Respondent shall have the capability to respond to real time control from the VPP (source) to the DER PCS controls (site). Communications shall have the ability to perform read request, respond and write data including all PCS configuration controller data.
Supplier/Respondent must be capable of enabling control of the DER site from the VPP. The interval between control command request and response back to the VPP should be less than 15 seconds. PSE ultimately desires to have 5 second or better response time from request from the VPP to response from the DER.
Supplier/Respondent must be capable of enabling processes for the DER site to be managed from the VPP for all data collection with DER Asset Production Resource data. PSE desires to have 15 second response time from a read request and write from the VPP to the DER. PSE ultimately desires to have 5 second or better response time from read request from the VPP to response from the DER.
Respondent's time window for providing full capacity for a dispatched event, which PSE notifies an hour ahead, is how large (within a minute, five mins, etc…)?
Respondent must be able to provide confirmation of opt-out of events to the VPP
Respondent must be able to receive event notifications from the VPP
Respondent must be able to respond to day-ahead events. Respondent shall describe their notification requirements in order to successfully respond to an event, including minimum advanced notice time interval.
Respondent requested to have the capability to respond to hour-ahead events
Respondent must ensure that inverters ride-through momentary outages according to standard IEEE 1547 -2018, standard CA-21, and standard UL-1741.
Respondent is required, for direct connect DER, to provide interconnection architecture (building upon included diagrams and including more detail) that shows the connectivity with meter, DER, utility service point, transformer highlighting the energy flow, and the communication standards used to communicate between the devices.
Respondent is required, for Aggregated DER, to provide interconnection architecture (building upon included diagrams and including more detail) that shows the connectivity with meter, DER, utility service point, transformer highlighting the energy flow, and the communication standards used to communicate between the devices. Additionally, Respondent is requested to provide integration mechanism and cybersecurity controls around integration to the PSE VPP.
Respondent must provide a persistent connection to DER for monitoring, control, and metering purposes to the PSE SCADA system for DER > 25 kVA
Respondent requested to provide communication status of the DER monitoring, control, dispatch link to the VPP
Respondent must be able to curtail DER when instructed by PSE for DER > 25kVA
Respondent is requested to provide digital and analog points for SCADA connected DER > 25 kVA

Respondent requested to provide DER status, performance, and configuration data to the VPP
Respondent shall have the capability to dispatch an event if communication is lost to VPP
Respondent shall have the capability to issue acknowledgement signals to VPP indicating a certain command or request has been received
Respondent shall specificy their methodology for handling multiple events or how different DERs will be bid for a specific program
For any response with a PSE ownership option, Respondent shall provide equipment maintenance requirements
Respondent shall provide to PSE annually updated 8760 DER forecast and normative load shapes for DERs >=500kVA.
Respondent requested to provide regression-based DER growth models for 2 year time period
Respondent requested to provide a time-based DER growth and availability model for 2 years

on of capabilities.

Select: Comply or Not Comply	Vendor Comments

5a. Variable Energy Output Profile for Solar (8760)

Required for all proposals including solar. (Do not remove tab.)

	Solar Offer
Energy Profile Used	
Project capacity at POI (MW)	
Project annual output at POI (MWh)	

* Note the 8760 data should be based on historical data, when possible.
* Offers that include solar plus BESS should submit the combined 8760 output.
* Please format data to at most 4 decimal places (shown in the table below)

Hour ending	Solar Offer POI MW
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Revised language from "w*m^2" to "w/m^2".

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Printed version of Tab 4 shows page 1 only.

5b. Solar Irradiance Input Profile for Solar (8760)

Required for all solar proposals (Do not remove tab.)

	Solar Offer
Irradiance Profile Used	

* Note the 8760 data should be based on historical data, when possible.
* Please format data to at most 4 decimal places (shown in the table below)

	Solar Offer
Hour ending	**Site Irradiance (w/m^2)**
1	
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6. Interconnection

Required for all RFP proposals requiring schedule 152 interconnection. (Do not remove tab.)

Delivery Path

Do interconnection requirements apply to your project?

Please use the following text box to clarify any information with respect to interconnection.

Interconnection

Has an interconnection application been submitted for the project?

Desired date to obtain Certificate of Operation and generate in parallel with the PSE electrical system

List in table below all available or in progress interconnection studies and status.

Study type	Status	Received/ Estimated completion date	Study performed by

If "Other" selected above, describe the study type

Energy Storage - load request

Does energy storage project require a separate transmission or distribution service to charge the device?

If yes, please describe transmission or distribution status required for charging.

7. Development - Details

Required for development and construction projects. Not required for operating projects. (Do not remove tab.)

Schedule

Submit a detailed project development schedule covering the period from the initiation of development activities through the project's proposed COD. *(e.g., Gantt chart)*

Include the most accurate estimates available for each of the following:

Project development	Construction	Include any additional timelines applicable to the project that will demonstrate its status and plans
Permitting	Startup	Include any actions taken to ensure the schedule is met (e.g., long-lead equipment orders)
Interconnection	Testing	Include any potential opportunities to improve the schedule
Engineering	Commissioning	

Construction

Have any arrangements or commitments been made for the construction of the project?
(e.g., contracts, LOIs, MOUs)

Describe the contractual structure proposed for project design, procurement and construction, and any arrangements or commitments for project construction. *(e.g., turnkey; engineering, procurement and construction (EPC); multiple lump-sum purchase, etc.)*

Provide additional detail below, submit supporting documentation as needed — Additional detail submitted?

(include "Development contractual structure" in filename of submitted document)

Describe any arrangements or commitments that have been made for either safe harbored and/or major equipment.

Provide additional detail below, submit supporting documentation as needed — Additional detail submitted?

(include "Development safe harbor and major equipment" in filename of submitted document)

Submit information about the organization and individual responsible for project management during this phase.

(include "Development project management" in filename of submitted document)

Has the respondent established a labor plan?

If yes, please submit the labor plan
(include "Labor Plan" in filename of submitted document)

If yes, is it consistent with RCW 82.08.962 and 82.12.962:

- High standards?
- Family-level wages?
- Benefits?
- Opportunities for local workers and businesses?

Will the project utilize a Project Agreement or Community Workforce Agreement for major construction activities associated with the construction of the project?

Does the respondent agree to make commercially reasonable efforts to ensure that such Project Agreement or Community Workforce Agreement is eligible to be certified by the Washington Department of Labor and Industries under the standards of the Washington State Clean Energy Transformation Act (RCW 19.405)?

Will the project utilize apprenticeship during the construction phase of the project?

If the project is a renewable project that qualifies for a one and two-tenths (1.2) multiplier of the environmental attributes generated from the project, will the additional renewable attributes resulting from the use of apprenticeship accrue to PSE throughout the term of the PPA at the offer price specified in the proposal?

Briefly describe the labor plan.

If construction is completed, are there any open warranty issues?

If yes, submit a list of open warranty issues.

(include "Development warranty issues" in filename of submitted document)

8. Ownership - Capital Costs

Required for Solar and BESS proposals that involve asset sale offers. (Do not remove tab.)

Are costs in nominal dollars or real? | **Assumed escalation rate?**

	A	B	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AC
1	**Project buildout capital costs (as applicable)**		**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**	**2053**	**2054**	Additional Info
2	Land acquisition	$																																	
3	Engineering	$																																	
4	Permitting	$																																	
5	Development fees	$																																	
6	Other development costs	$																																	
7	Generation facility	$																																	
8	OM building	$																																	
9	Project substation	$																																	
10	Generation equipment:	$																																	
12	Solar array(s)	$																																	
14	Batteries	$																																	
15	Power control systems / inverters	$																																	
17	Spare parts	$																																	
21	Other (taxes, insurance, etc.)	$																																	
22	Contingency	$																																	
23	Initial working capital	$																																	
24	Start up power credit: sales of test power	$																																	
25																																			
26	**Ongoing capital costs during project operation (as applicable)**		**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**	**2053**	**2054**	Additional Info
27	Incremental capital needs *(please list)*	$																																	
28	Major maintenance	$																																	
33																																			
34																																			
35																																			
36	**Are sales taxes assumed to be included in each line item?**																																		

9. Ownership - Operating Costs

Required for Solar and BESS proposals that involve asset sale offers. (Do not remove tab.)

Are costs in nominal dollars or real? | **Assumed escalation rate?**

	A	B	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1	**Generation statistics (as applicable per resource type)**		**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**	**2053**	**2054**	Additional Info.
2	Net capacity	MW																																	
3		MWh																																	
6	Annual availability factor	%																																	
7	Net capacity factor	%																																	
8	Net annual generation (AC)	GWh																																	
9																																			
10																																			
11	**Fixed operating expenses (as applicable per resource type)**		**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**	**2053**	**2054**	Additional Info.
12	O&M - general	$/kW-yr																																	
13	Transmission - electric to point of delivery (POD)	$/kW-yr																																	
14	Insurance	$																																	
15	Property tax	$																																	
16	Asset management fee	$																																	
17	Environmental monitoring	$																																	
18	Outside services	$																																	
19	Other	$																																	
25	Service agreements:																																		
28	Capacity payment	$/kW-yr																																	
30	Spare parts	$/kW-yr																																	
31	Parasitic power	MWh / yr																																	
32	Permit requirements	$																																	
34	Development fee	$																																	
35	Land leases	$																																	
36																																			
37																																			
38																																			
39	**Variable operating expense (as applicable per resource type)**		**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**	**2053**	**2054**	Additional Info.
39	O&M - general	$ / MWh																																	
41	Transmission - electric to point of delivery (POD)	$ / MWh																																	
49	Production payments to developer	$ / MWh																																	
50	Landowner royalties	$ / MWh																																	
53																																			
54	**Are sales taxes assumed to be included in each line item?**																																		

10. Bid Certification and Contacts

Required for all RFP proposals. (Do not remove tab.)

Bid certification

The respondent hereby certifies that this proposal is genuine; not made in the interest of, or on behalf of, any undisclosed person, firm or corporation; and is submitted in conformity with any anti-competitive agreement or rules. The respondent has not directly or indirectly induced or solicited any other bidder to submit a false or sham proposal. The respondent has not solicited or induced any other person, firm or corporation to refrain from proposing. The respondent has not sought by collusion to obtain for itself any advantage over any other respondent. False certification will result in disqualification of bid and forfeiture of the bid fee.

Note In addition to providing a fully intact copy of the live Exhibit B forms (in Excel format), bidder must provide a signed copy of Tab 10. A PDF scan of the signed tab must be submitted electronically along with Exhibit B and all other attachments. Please include "Bid Certification Signature" in filename of submitted document.

Proposal name *locked field populates from proposal Tab 3*	
Submitted by *full legal name of entity*	
Name of respondent entity *if different from above*	
Signature of an Officer of respondent entity *or other duly authorized agent*	

(include "Bid Certification Signature" in filename of submitted document)

Name of signatory	
Title of signatory	
Date signed	

Please provide a signed copy of Tab 9 (scanned PDF file), along with the complete live Excel proposal form.

Do not remove Tab 9 (or any other tab) from the Exhibit B proposal file.

Primary contact

Contact name	
Contact title	
Name of company	
Mailing address	
City	
State/Province	
Zip code	

Primary phone	
Email	
Alternate contact (optional)	
Contact name	
Contact title	
Name of company	
Mailing address	
City	
State/Province	
Zip code	
Primary phone	
Email	