
2018 All Resources and Demand Response RFP Bidder Conference



July 9, 2018

Agenda

1 Welcome and Introductory Remarks
Presenter: Roger Garratt

2 RFP Schedule and Resource Need
Presenter: Cindy Song

3 All Resources RFP

Proposal Requirements and Qualitative Evaluation
Presenter: Ryan Sherlock

Quantitative Analysis
Presenter: Bob Williams

Break (15 minutes)

4 Demand Response RFP
Presenter: Kiley Faherty

5 Contact Information and Q&A
Presenter: Edward Park



1

Welcome and Introductory Remarks

Presenter: Roger Garratt

2

RFP Schedule and Resource Need

Presenter: Cindy Song

RFP proposals are due August 17

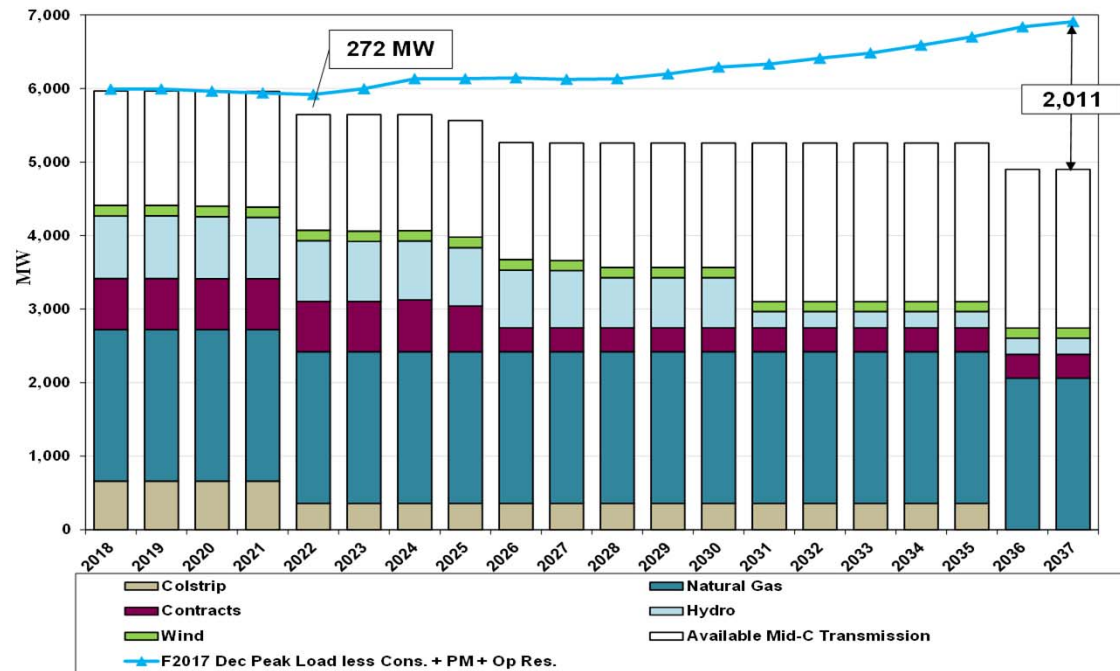
✓	March 29, 2018	Draft RFP filed with WUTC
✓	May 29, 2018	Public comment period closed
✓	June 14, 2018	WUTC held open meeting to discuss draft RFP
✓	June 28, 2018	WUTC decision to approved draft RFP
✓	July 3, 2018	Final RFP released
✓	July 9, 2018	PSE hosts RFP bidder conference
	August 3, 2018	Mutual Confidentiality Agreements due to PSE For demand response proposals, intent to bid forms also due
	August 17, 2018	Proposal offers due to PSE
	January 2019	Phase 1 screening completed; status update to respondents
	Late Q1 2019	Phase 2 evaluation completed; short list selected; status update to respondents
	To follow	Post-proposal negotiations

*RFP updates will be posted online at <http://www.pse.com/RFP>.



PSE seeks 272 MW of capacity by end of 2022

- Target online date by 2022*
- Products that fill winter need while minimizing surpluses in other parts of the year will evaluate more favorably
- Market PPAs must be delivered to BPAT.PSEI**

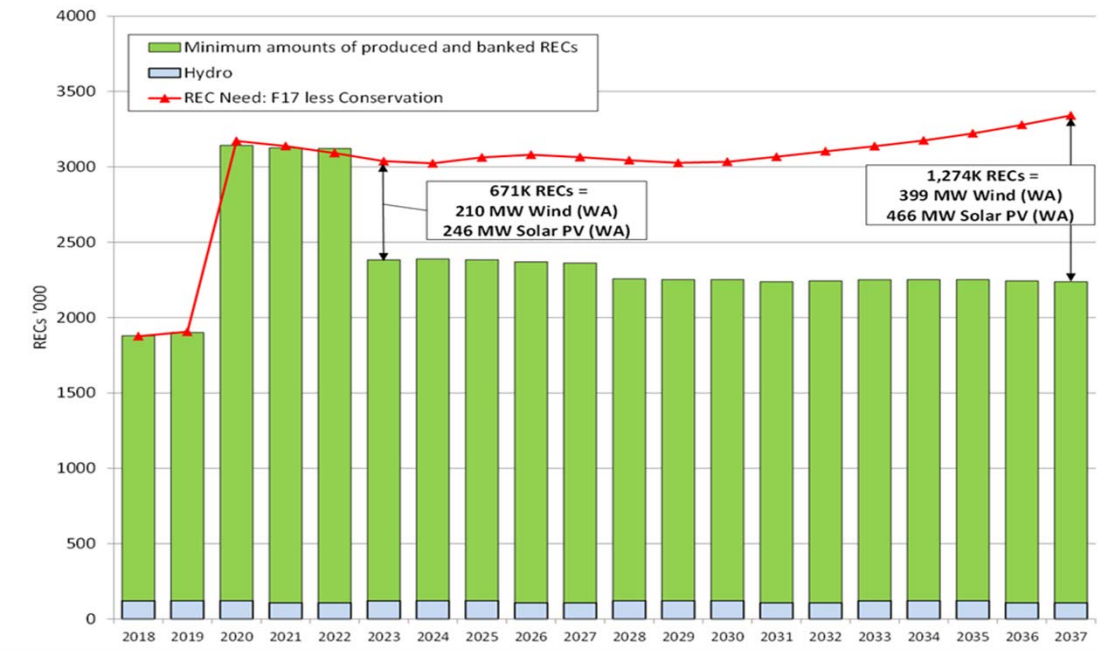


*Target online date is based on earliest need, but will not disqualify long-lead resources.

**Market / Non-unit contingent PPAs delivered to Mid-C or anywhere outside PSE's system are not eligible for this RFP.

Projected need to meet the RPS is 671,000 RECs 2023

- REC need is driven by the increase in the RPS from 9% to 15% in 2020
- PSE has inventory of banked RECs that delays need until 2023
- PSE will consider early delivery dates to take advantage of tax incentives prior to phase out
 - PSE will evaluate the tradeoff between capturing the benefit of a higher tax incentive and the carrying cost of acquiring early
- A renewable resource may count toward peak capacity need based on coincident winter peak production
 - PSE will engage reputable consultant for resource due diligence and to develop synthetic distributions for peak capacity calculation
- Proposals which demonstrate that they qualify for Washington state apprenticeship labor credit will add 1.2x multiplier to REC output



* If proposing a qualifying renewable resource located outside the Pacific Northwest as defined for the Bonneville Power Administration in Section 3 of the Pacific Northwest Electric Power Planning and Conservation Act (94 Stat. 2698; 16 U.S.C. Sec. 839a), describe how the electricity from the facility will be delivered into Washington state on a real-time basis without shaping, storage, or integration services.

3

All Resources RFP

Presenters: Ryan Sherlock, Bob Williams

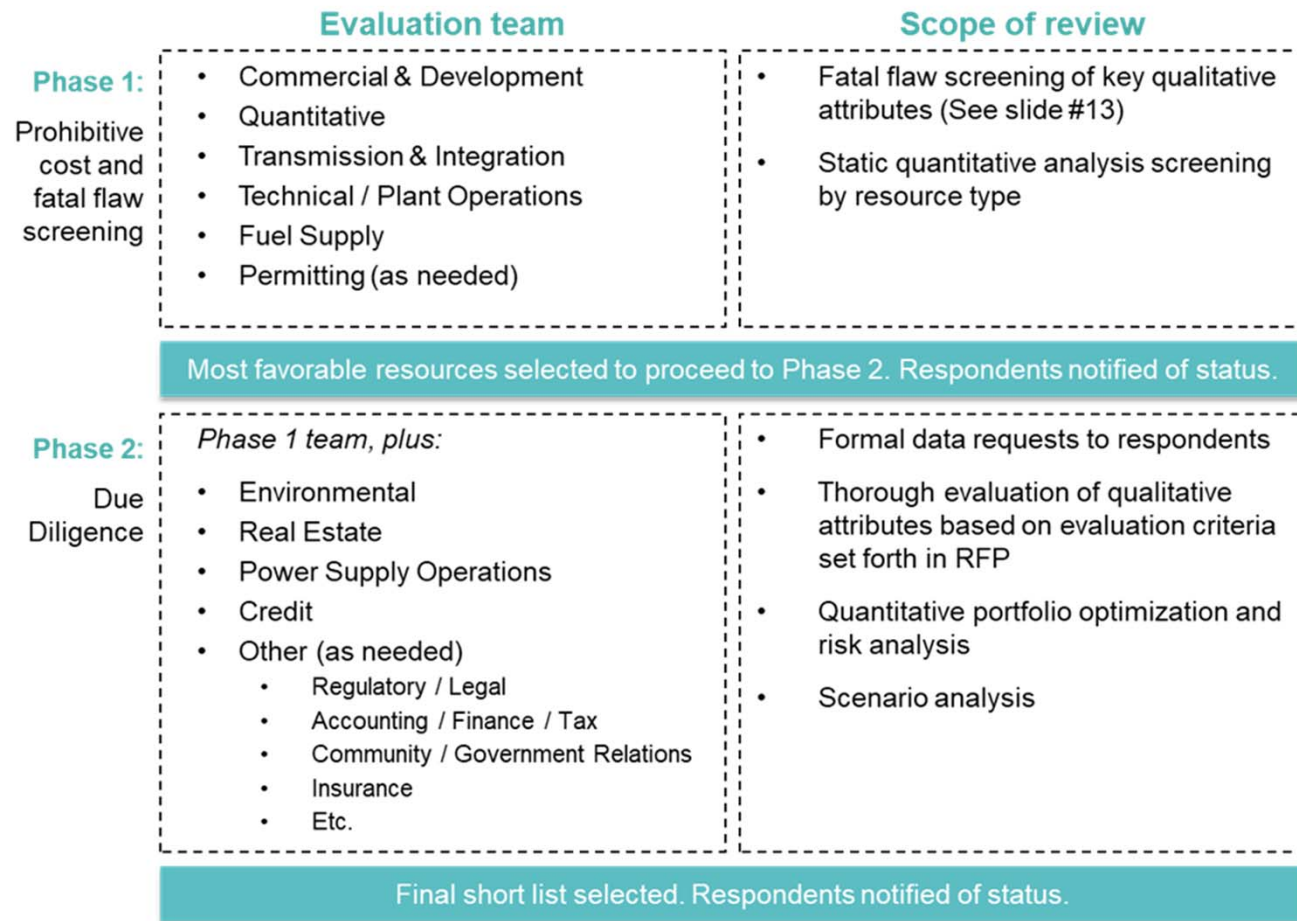
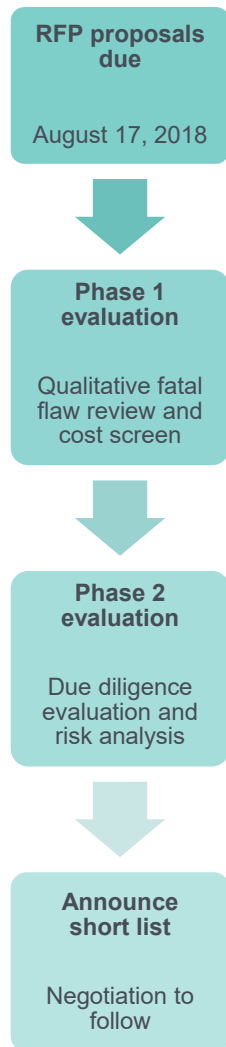
All Resources RFP casts a wide net to meet renewable and capacity resource needs

- RFP is open to all commercially available generation, storage and REC-only offers
- All proposals must comply with Washington’s Emissions Performance Standards*
 - The source must be identified for any product over 5 years and meet the emission requirements
- PSE will consider the following acquisition mechanisms:
 - Ownership arrangements, including co-ownership arrangements in which PSE retains adequate dispatchability and rights of control
 - Power purchase agreements of varying lengths
 - Temporal exchange agreements
 - REC-only product agreements
- PSE’s preference is for longer term resources, but will consider short-term unit contingent PPAs (3-5 years)

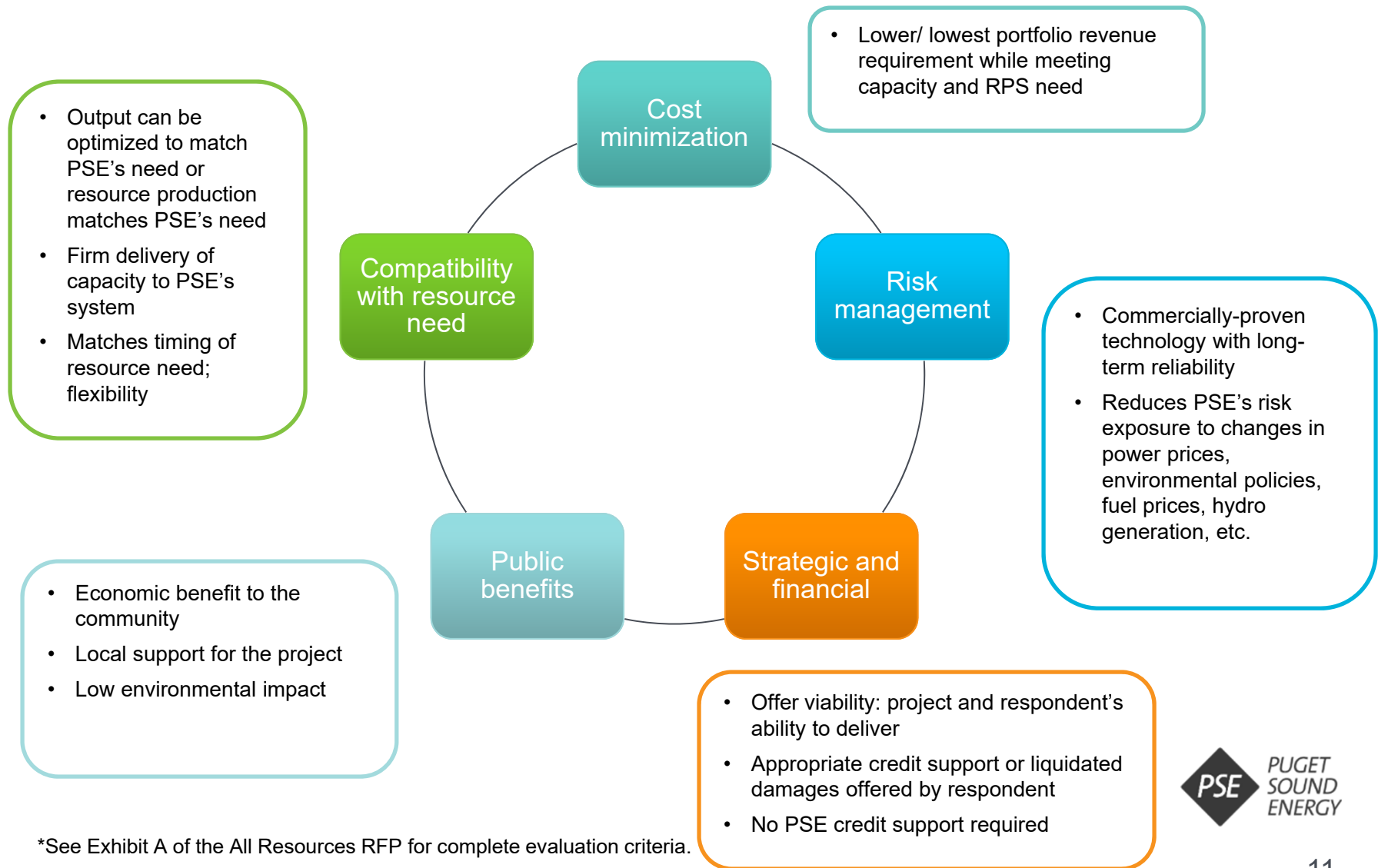
*Washington’s Emissions Performance Standards (EPS) (WAC 173-407, last updated March 24, 2018) require new and modified baseload electric generation to meet a greenhouse gas limit of 970 pounds per megawatt hour (lbs/MWh).



Evaluation process is cross-functional and thorough



Evaluation criteria help identify proposals with lowest reasonable cost and risk*



*See Exhibit A of the All Resources RFP for complete evaluation criteria.



Qualitative evaluation asks key questions designed to identify proposal benefits and risks*

 <ul style="list-style-type: none"> ✓ Are the offer terms acceptable? ✓ Is project operating or likely to meet proposed commercial operation date? ✓ What is the nameplate capacity of the project? Sized appropriately to help meet need? ✓ Where is the project located? Benefits/risks? ✓ Does project have site control? ✓ What is the permitting status? ✓ Status of transmission and interconnection? ✓ What is the selected technology? History of reliable operation? ✓ What is the useful life of the project? ✓ Does the project have community support? ✓ What is the status of all relevant agreements? Examples: key component supply contracts (e.g. wind turbines), service and maintenance, EPC contract, BOP, interconnection, transmission, permits, site control, etc. 	 <ul style="list-style-type: none"> ✓ Project output? ✓ Net capacity factor (NCF)? ✓ Degradation? ✓ Eligible for tax incentives? 	 <ul style="list-style-type: none"> ✓ Capacity (MW) and duration (MWh)? ✓ Roundtrip efficiency? ✓ Degradation / augmentation? ✓ Flexibility and T&D benefits?
 <ul style="list-style-type: none"> ✓ Fuel supply and transportation secured? If not, status? ✓ Operational characteristics? ✓ Emissions? Permitting risks? If operating, compliance history? 	 <ul style="list-style-type: none"> ✓ Project output? ✓ Net capacity factor (NCF)? ✓ Eligible for tax incentives? 	



*This list is illustrative only. It does not reflect all eligible resource types or a complete list of criteria considered in the All Resources RFP evaluation. For more detail, see RFP Exhibit A (Evaluation Criteria) and Exhibit B (Proposal Requirements).

Examples of fatal flaws

- Significantly higher cost than alternatives
- Proposal fails to provide sufficient information to substantiate a viable project
- No transmission secured and no available transmission between the project and PSE's system
- Insufficient fuel supply or fuel transportation to generation project
- Commercially unproven technology
- Unable to obtain necessary permits to execute the project
- Excessive counterparty risk likely to cause counterparty to be unable to complete the project or meet contractual obligations to PSE
- Regulatory or legal risks associated with non-compliance or other obligations that could adversely impact PSE

Projects are evaluated on a cost and risk basis delivered to PSE's load

Off PSE's system

1. Delivery to PSE's system (e.g. BPAT.PSEI, etc.)

- Developer provides transmission solution to PSE's load center
- Risk analysis: Is there ATC? Are ancillary services included in price? Is transmission long-term firm? Does it include rollover rights?

2. Delivery to Mid-C

- Developer provides transmission solution to PSE via Mid-C
- PSE applies cost to use PSE's existing transmission and integration costs
- Risk analysis: Does developer have long-term firm transmission to Mid-C? If not, is there ATC? Are ancillary services included in price?

3. Delivery to project busbar

- Leaves transmission solution to PSE
- PSE applies cost of transmission from project to PSE's load (inc. ancillary services and any cost to use existing PSE transmission)
- Risk analysis: Is long-term firm ATC available? Rollover rights?

On PSE's system

1. On system

- Project interconnects within PSE's service territory
- PSE applies integration costs
- PSE evaluates transmission solution (and all applicable costs) to PSE's load
- Risk analysis: Is resource interconnection ERIS or NRIS? Is there ATC? Is transmission long-term firm? Does it include rollover rights? Are ancillary services included in price?

Notes:

Available Transmission Capacity (ATC)

Energy Resource Interconnection Service (ERIS)

Network Resource Interconnection Service (NRIS)



Commonly asked transmission questions

What information should I provide in my proposal?

- Interconnection:
 - Service provider
 - Point of interconnection
 - Status of LGIA
 - Queue number
- Transmission:
 - Service provider
 - Point of receipt
 - Point of delivery
 - Product (firm, conditional firm, etc.)
 - Status of transmission service request
 - TSR number(s)
- Who provides...?
 - Balancing
 - Firming and shaping
 - Reserves
 - Integration
- If a PPA, what costs are included in price?

Is firm transmission required?

No. Intermittent resources may benefit from proposing a creative transmission solution (e.g., conditional firm, etc.). Resources proposed to meet capacity need alone will likely evaluate more favorably with firm transmission.

Will PSE accept proposals that assume use of Colstrip transmission once Units 1&2 shut down?

Yes. PSE will evaluate the total cost of energy delivered to PSE's system, including any use of existing Colstrip transmission rights.



Resource Costs

PSE uses three models to analyze resource costs and characteristics

PSM*

Fixed costs

- Capital costs
 - Return on capital (rate base)
 - Depreciation
- Fixed O&M
- PPA pricing
- Transmission
- Avoided T&D costs
- Pipeline costs
- Property taxes
- Insurance
- Federal income tax
 - Tax incentives (PTC & ITC)
 - Tax depreciation
 - Deferred taxes

Aurora

Variable costs

- Fuel costs
- Variable O&M
- Variable transmission
- Carbon pricing
- Startup costs
- Plant technical information
 - Capacity (ISO & 23^o)
 - Heat rates
 - Forced and planned outages
 - Renewable output
 - Emissions

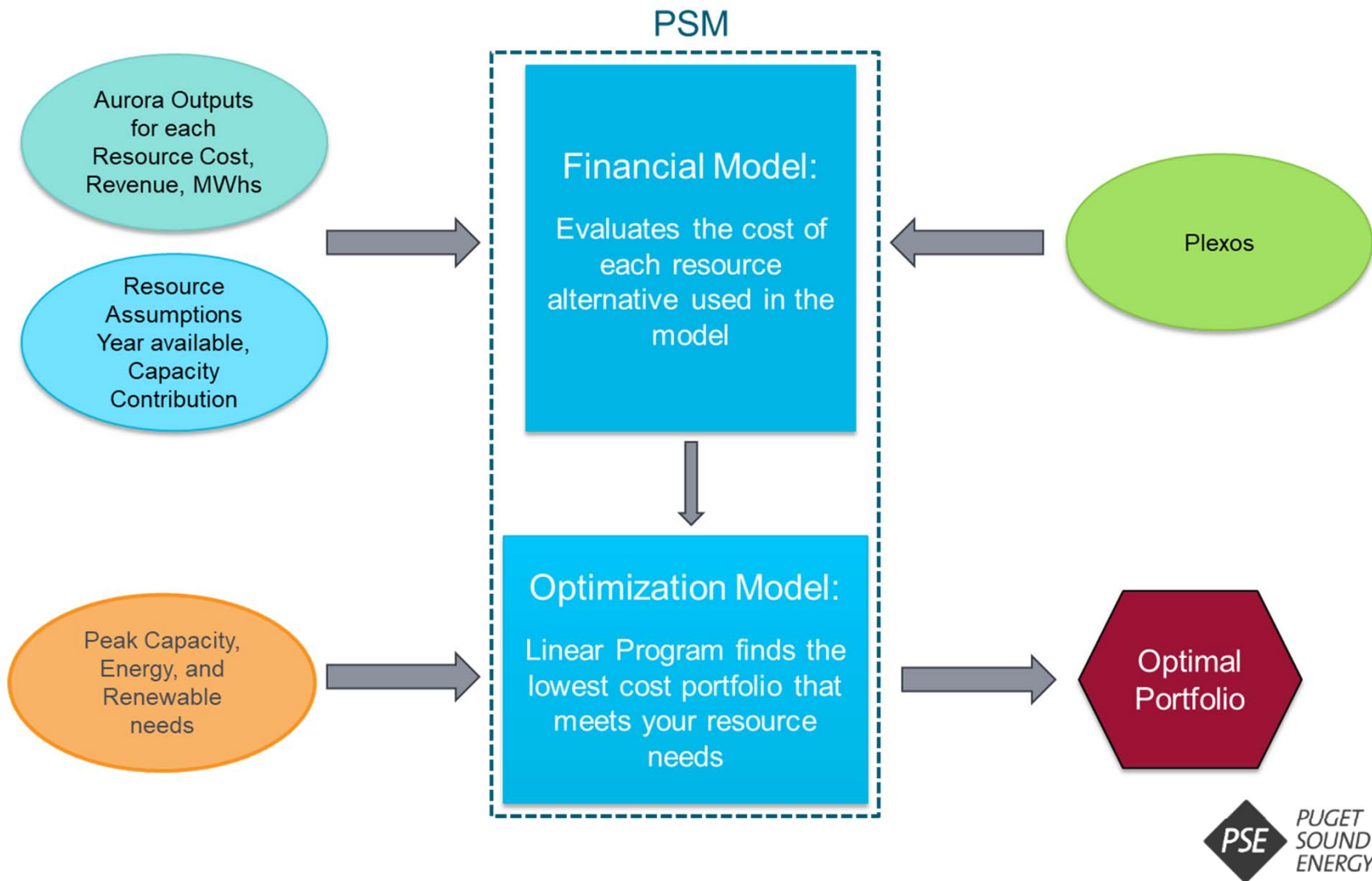
Plexos

Flexibility

- Regulation up-down
- Balancing
- Reserves
- Arbitrage

*Portfolio Screening Model (PSM)

PSM Optimization Process



Quantitative screening metrics allow PSE to compare resources with different characteristics and capacities

Portfolio benefit (\$)

Useful for comparing projects with the same winter capacity value

Difference between net present value portfolio revenue requirement of proposed project (replaces a generic resource), and the net present portfolio revenue requirement of the generic portfolio strategy.

Levelized cost (\$/MWh-REC)

Useful for comparing projects with the same or similar operating characteristics

A resource's net present value revenue requirement of the 20-year period with end effects, divided by the net present value generation.

Portfolio benefit ratio

Useful for comparing projects with the same or similar operating characteristics; removes size bias

Portfolio benefit divided by the net present value of the proposed revenue requirement. Allows projects of different capacities to be compared by eliminating bias for size.

Net cost/peak capacity credit (\$/kW)

Useful for comparing cost of peak capacity credit across technologies

Present value of the cost less the market value of the energy divided by peak capacity credit.

All Resources RFP bidder checklist

- Confidentiality Agreement (Exhibit C)
 - PSE may retain all proposals and related materials for seven years, or until the company concludes its next General Rate Case, whichever is later.*
 - Two signed copies [due to PSE August 3, 2018](#)
- Proposal Submission includes:
 - Proposal requirements listed in Exhibit B
 - Commercial term sheet (exhibits H-J)
 - Summary data form (Exhibit D)
 - Include a live copy of the Excel form on USB drive
 - One bound execution copy with original signature, one additional bound copy, and 1 electronic copy on USB drive [due to PSE August 17, 2018 by 5 p.m.](#)

*This is a requirement set forth in WAC 480-107-145(1).

Break

15 Minutes

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Demand Response RFP

Presenter: Kiley Faherty

DR resource objectives

Primary Objectives:

- Ensure DR resource is cost effective and is available:
 - November 1 – February 28/29
 - Weekdays, 7 a.m. – 10 a.m. and 5 p.m. – 9 p.m.
- Provide load response with one of the following options:
 - Hour ahead notification,
 - Day ahead notification, or
 - A combination of hour ahead and day ahead notification
- Total event time ≤ 40 hrs per individual product per season

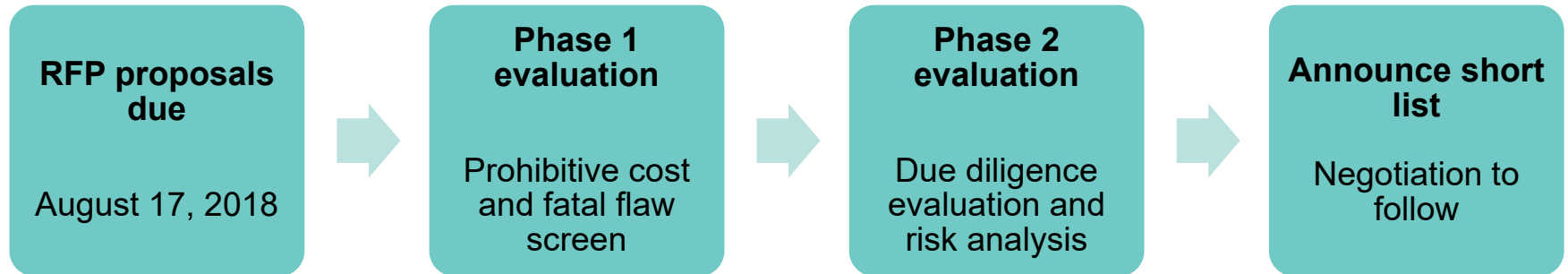
Secondary Objectives:

- Develop flexible DR capability
 - Provide fast response with notification time of ≤ 10 mins

The Demand Response RFP encourages a variety of load curtailment solutions

- The Demand Response and All Resources RFPs have a shared resource need
- The DR RFP is not sector specific
- There is no minimum capacity offer required to bid
- PSE will consider any type of end use control technology, delivery mechanism, or combination of technologies and delivery mechanisms
- PSE's preference is for a 5 year DR resource
 - 2019-2023 contracting period

How will DR proposals be evaluated?



Proposals will be evaluated on a variety of criteria including, but not limited to:

- Demonstrated competence and experience
- Management structure and assigned personnel
- Quality of proposed equipment and services
- Pricing
- Performance guarantees

How will PSE evaluate cost-effectiveness of DR?

PSE will evaluate the cost-effectiveness of proposals in two ways: using the Program Administrator Cost Test (PAC) and Total Resource Cost (TRC) Test

Benefits	PAC	TRC
Avoided Capacity Costs	✓	✓
Avoided Energy Costs	✓	✓
Avoided Transmission & Distribution Costs	✓	✓
Avoided Environmental Compliance Costs	✓	✓

Costs	PAC	TRC
Program Administrator Expenses	✓	✓
Program Administrator Capital Costs	✓	✓
Financial Incentive to Participant	✓	✗
DR Measure Cost: Program Administrator	✓	✓
DR Measure Cost: Participant Contribution	✗	✓
Participant Transaction Costs	✗	✓
Participant Value of Lost Service	✗	✓
Increased Energy Consumption	✓	✓
Environmental Compliance Costs	✓	✓

Source: Demand Response RFP, Exhibit D: Cost-effectiveness Evaluation Criteria, Tables 1 and 2



How will PSE evaluate cost-effectiveness of DR?

Effective Load Carrying Capability (ELCC) Estimates for Various DR Event Parameters						
Event Duration (Hours)	Call Frequency					
	Elapsed Hours After Last Events					Elapsed Hours Since Start of Last Event
	4	6	8	12	24	24
2	63%	61%	57%	49%		
3	80%	77%	77%	59%		
4	90%	85%	80%	65%	53%	58%
5	94%	89%	84%	68%	55%	

Source: Demand Response RFP, Exhibit D: Cost-effectiveness Evaluation Criteria, Table 3



DR bidder's checklist

- Intent to Bid (Exhibit B) and Confidentiality Agreement (Exhibit C) to be submitted electronically to PSE [by August 3, 2018](#)
- Proposal Submission includes:
 - Two (2) hard copies of Technical Proposal with attachments or supplemental materials, and Pricing Proposal (separately bound)
 - Two (2) electronic copies: one in PDF format and one in Microsoft Word. Electronic copies should be organized into the following separate files:
 - Technical Proposal
 - Pricing Proposal
 - Other attachments or supplemental materials
- Due to PSE by [August 17, 2018 by 5 p.m.](#)

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Contact Information and Q&A

Presenter: Edward Park

Contact information

- PSE web site: www.pse.com/rfp
 - RFP Schedule and updates
 - All Resources RFP
 - Sample data requests (coming soon)
 - Frequently Asked Questions (updated periodically)
 - Bidder conference presentation materials (coming soon)

- Contacts:
 - All Resources RFP
 - Sheri Maynard
 - Energy Resources Analyst*
 - sheri.maynard@pse.com
 - Demand Response RFP
 - demand.response@pse.com

Questions



Appendix

Appendix

- Term sheets
- Montana transmission path
- Imputed debt
- FIN 46
- Revenue requirement

Term sheets

- Term sheets required for all proposals.
- See minimum requirements list in Exhibit B, Section 3.*
- Term sheets may be the basis for any Definitive Agreements; *however, PSE reserves the right to modify outlined terms.*

Minimum requirements (as applicable):

Description:

structure, product, type of service, underlying facility, etc.

Seller

Term and delivery periods

Transmission:

interconnection, delivery point, ancillary services, line losses, etc.

Capacity / Quantity

Price

Fuel supply arrangements:

supplier, delivery point, etc.

Operating characteristics and limits:

minimum run time, maximum starts, planned outages, etc.

Scheduling coordinator/ Imbalance charges

Guaranteed heat rate

Guaranteed availability / Volume

Force majeure

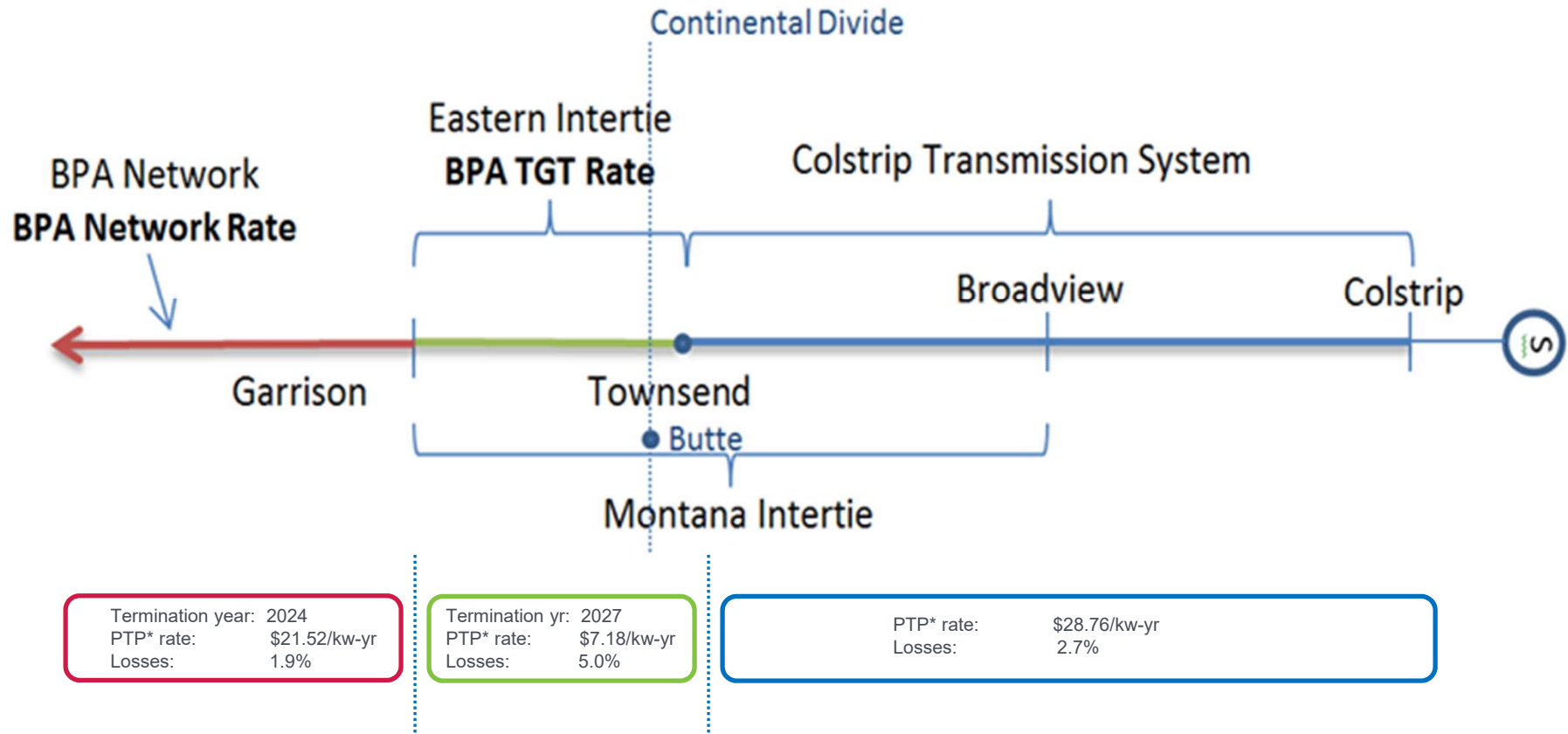
Credit support



*See also prototype term sheets for ownership agreements, gas tolling and wind PPA term sheets (exhibits H-J).

Montana transmission path

PTP = Point to Point transmission rate



Other costs to consider:

- Additional losses from the project to the delivery point
- Renewable integration costs



Imputed debt

- Ratings agencies (Standard & Poor’s and Moody’s) add debt and interest cost to utilities with long-term power purchase agreements
 - Purpose: To make a fair comparison between utilities that buy power and those that own resources
 - Credit rating impact: Less favorable debt to capital ratio and interest coverage ratio
 - S&P methodology (All Resources RFP Exhibit B – Proposal Requirements)
 - Demand charge or 50% of contract payment
 - Discount at 7.0% to PV
 - Multiply by 25% risk factor
 - Calculate equity offset
 - = equity ratio * (imputed debt / (debt ratio))
 - Cost penalty
 - = equity offset * pre-tax ROE
 - Declines each year of forecast as current year of contract payment rolls off

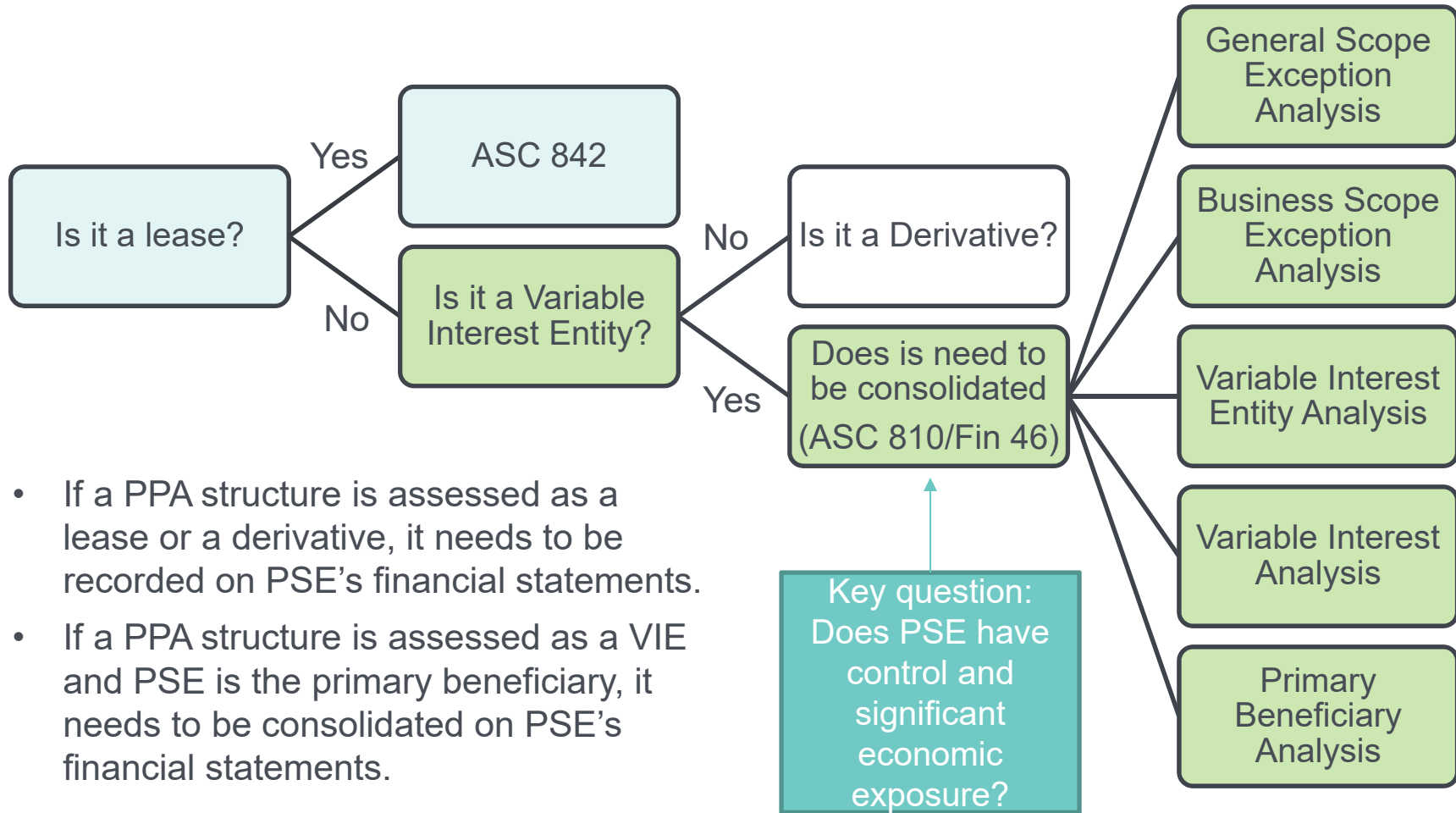
- PSE assumes an imputed debt adder in its analysis*
 - Purpose: To make a fair financial cost comparison between contracting and owning new generation resources

Contract Length	Adder
3 Year	0.6 %
5 Year	0.8 %
10 Year	2.0 %
20 Year	2.4 %

*Table assumes equity ratio of 46% and return on equity of 10.1% and a 6.1% discount rate. Calculation based on flat, fixed price product and capacity payment 50% of total PPA payment.



PSE Contract Assessment under ASC 810 (former Fin 46)



- If a PPA structure is assessed as a lease or a derivative, it needs to be recorded on PSE’s financial statements.
- If a PPA structure is assessed as a VIE and PSE is the primary beneficiary, it needs to be consolidated on PSE’s financial statements.



* References: 1. PSE 2015 Contract Assessment Template
2. PWC 2016 Utilities and Power Companies Technical Guide

Revenue requirement (simply stated)

- PSE's revenue requirement equals the operating expenses plus the cost of capital to finance the Company's investment
- Revenue requirement is the target amount the Company is allowed to collect from customers