

**EXHIBIT NO. ___(MM-10HC)
DOCKETS UE-17___/UG-17___
2017 PSE GENERAL RATE CASE
WITNESS: MICHAEL MULLALLY**

**BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

**WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,**

Complainant,

v.

PUGET SOUND ENERGY,

Respondent.

**Docket UE-17___
Docket UE-17___**

**NINTH EXHIBIT (HIGHLY CONFIDENTIAL) TO THE
PREFILED DIRECT TESTIMONY OF**

MICHAEL MULLALLY

ON BEHALF OF PUGET SOUND ENERGY

**REDACTED
VERSION**

JANUARY 13, 2017

Appendix 1 – EPC Selection Criteria

Energy Storage EPC Scoring Matrix - Clean Energy Fund Proposal (October 2014)

RESULTS SUMMARY	Total Score	Battery Storage Experience	Technology Selection Experience	O&M Services	Open-Book or Cost-Plus Contracting	Vendor Partnerships	Warranty, Perf. Guarantee	References	Relationship	Local Partners	Misc/ Bonus Points
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Battery Storage Experience	Score	Comments
[REDACTED]	[REDACTED]	Large and successful company, deep experience with power systems. Relatively new entrant into the battery storage space. [REDACTED]
[REDACTED]	[REDACTED]	Large and successful company, deep experience with power systems. Strong experience with battery storage engineering. Does not have appeared to have completed an EPC project, but has [REDACTED]
[REDACTED]	[REDACTED]	Has provided many MW's of PCS equipment for various energy storage projects. With such involvement, it probably has gained substantial experience with batteries. But it has not completed a fully EPCd battery storage system.
[REDACTED]	[REDACTED]	[REDACTED] has recently moved into energy storage but is quickly developing a resume. [REDACTED]

Technology Selection Experience	Score	Comments
[REDACTED]	[REDACTED]	Has performed interoperability tests with several technologies, but extent of technical due-diligence on battery vendors is unclear from their response.
[REDACTED]	[REDACTED]	Seems to have strong experience. "Regularly query OEMs for updates on products. Relies on primary sources for information to categorize and evaluate the suitability of different technologies for a variety of applications and to update our database. Using a standardized data request form, we gather info regarding battery technologies including: cycle life information, efficiencies, response times, discharge duration capabilities, operations and maintenances requirements, product safety information, operating temperatures, and demonstrated and test experience." Does not mention performing site visits with ES providers.
[REDACTED]	[REDACTED]	Presentation mentions that it is an expert in li-ion battery systems, but provides little support for this statement.
[REDACTED]	[REDACTED]	Strong response to this question. Claims to have evaluated over 120 technologies across a wide range of technology types. Has up to date pricing on most technologies.

REDACTED
VERSION

Appendix 1 – EPC Selection Criteria

O&M Services	Score	Comments
[REDACTED]	[REDACTED]	Can provide a comprehensive service contract. Seems like a credible plan to provide O&M. No specific mention of local providers. "As part of [REDACTED] maintenance & service offering, we can provide: 1. 24/7 Hot line and technical support, on site response time, corrective maintenance, spare parts storage 2. Preventive support: Annual Preventive Maintenance, Refurbishments, Spare parts management and obsolescence management 3. Remote Management to anticipate failures: Remote monitoring system to collect data and remote engineering"
[REDACTED]	[REDACTED]	[REDACTED] is capable of providing operations and maintenance services during the post-COD warranty period and beyond. Remote monitoring may be available. Site inspections and maintenance services would be most cost effectively provided by PSE, but with appropriate coordination with [REDACTED] and our suppliers of major equipment where repairs or replacements are required.
[REDACTED]	[REDACTED]	[REDACTED] provides a vague response that indicates that preventive maint. And services agreement would be available.
[REDACTED]	[REDACTED]	[REDACTED] would perform major O&M maintenances bi-annually, including full inspection and testing procedures, and maintenance of the few parts that require it, such as replacing fan filters. Remote monitoring is included. It is expected that this maintenance will be contracted through [REDACTED] because it has a local company identified to perform the maintenance.

Open-Book or Cost-Plus Contracting	Score	Comments
[REDACTED]	[REDACTED]	Open to, and has experience with similar arrangements with customers in North America.
[REDACTED]	[REDACTED]	[REDACTED] utilizes various contracting approaches to execute large power projects.
[REDACTED]	[REDACTED]	Not in accordance with [REDACTED] corporate policy.
[REDACTED]	[REDACTED]	[REDACTED] and would consider doing part of the project under an open book arrangement.

Vendor Partnerships	Score	Comments
[REDACTED]	[REDACTED]	Didn't really address the intended question. Obviously they manufacture their own PCS but it's not clear what battery vendors they prefer.
[REDACTED]	[REDACTED]	Does not have a preferred vendor but will help PSE select most appropriate tech for the desired function.
[REDACTED]	[REDACTED]	States that it has a long history of strategic partnerships, but does not mention any specifics.
[REDACTED]	[REDACTED]	[REDACTED] seems to have done in-depth technical analysis and due-diligence and seems to have a partnership with [REDACTED]. The fact that they are [REDACTED] shows that they are putting significant capital at risk with [REDACTED] and highlights [REDACTED] confidence in them.

**HIGHLY CONFIDENTIAL PER
WAC 480-07-160**

**REDACTED
VERSION**

Appendix 1 – EPC Selection Criteria

Warranty, Perf. Guarantee	Score	Comments
[REDACTED]	[REDACTED]	Standard warranty is 24 months. Can also provide a comprehensive extended warranty of the entire BESS together with its battery manufacturer partner in a service contract throughout the lifecycle of the asset. Unclear what the cost would be.
[REDACTED]	[REDACTED]	Typically provides "industry standard" warranties, etc. Seems to put warranty risk onto the customer (PSE). Notes that performance guarantees are not well-defined for the storage industry.
[REDACTED]	[REDACTED]	Standard 3-year warranty on PCS; [REDACTED] with negotiate with customer (PSE) and battery supplier for performance guarantee.
[REDACTED]	[REDACTED]	[REDACTED] can provide a 10 year full repair and replacement warranty for any defect on the [REDACTED] battery system. This will also include 10 years of major (bi-annual) maintenance and 10 years of 24 hour system fault monitoring. In addition, a complete system availability warranty is available, guaranteeing 95% - 96% system availability.

References	Score	Comments
[REDACTED]	[REDACTED]	Currently in the deployment phase of Storage solution for 'grid connected' battery with a first significant successful milestone on [REDACTED] project.
[REDACTED]	[REDACTED]	[REDACTED] is a very strong reference.
[REDACTED]	[REDACTED]	Strong references: [REDACTED] -- all major players in the energy storage industry.
[REDACTED]	[REDACTED]	[REDACTED] will own and operate their grid battery plants under construction and therefore does not have Energy Storage references at this time. The vendor [REDACTED] is proposing for PSE is the same as the vendor that [REDACTED] has selected for its own ownership. [REDACTED] to date and the experience has been very positive from both party's perspectives.

Relationship	Score	Comments
[REDACTED]	[REDACTED]	[REDACTED] Need to check references. Per [REDACTED] we have a good relationship with [REDACTED]. They are dedicated to quality and performance, but don't always move quickly. Large company and tends to be a little slow.
[REDACTED]	[REDACTED]	[REDACTED] Resource Acquisition worked with [REDACTED] on the [REDACTED] project and they deliver high quality, detailed work, but struggle with ambiguity.
[REDACTED]	[REDACTED]	PSE has no previous relationship with [REDACTED].
[REDACTED]	[REDACTED]	[REDACTED] PSE has a very strong and positive relationship with [REDACTED].

**HIGHLY CONFIDENTIAL PER
WAC 480-07-160**

**REDACTED
VERSION**

Appendix 1 – EPC Selection Criteria

Local Partners	Score	Comments
[REDACTED]	1	[REDACTED] Would commit to establishing a setup for supply-chain, assembly, testing, and delivery of containerized PCS systems in Washington.
[REDACTED]	1	[REDACTED] no local vendor partners.
[REDACTED]	1	[REDACTED] no local vendor partners.
[REDACTED]	1	[REDACTED] and has a strong relationship with [REDACTED]

Misc./Bonus Points	Score	Comments
[REDACTED]	1	Will work to comply with, advance, and promote the MESA architecture.
[REDACTED]	1	No special extras. Tend to be extremely structured and need very clear direction. May not do well with uncertainty and the evolving and changing nature of this project.
[REDACTED]	1	No special extras
[REDACTED]	1	[REDACTED] has gone the extra mile to proactively come to meet with PSE, has provided budgetary estimates, and responds quickly to questions. It's clear that [REDACTED] is hungry for this opportunity.

**HIGHLY CONFIDENTIAL PER
WAC 480-07-160**

**REDACTED
VERSION**