Energy Storage Association

1155 15th Street NW | Suite 500 | Washington, DC 20005

**VIA ELECTRONIC DELIVERY**

September 25, 2015

TO: Mr. Steven V. King
Executive Director and Secretary
Washington Utilities and Transportation Commission
1300 South Evergreen Park Drive
Olympia, WA 98504-7250

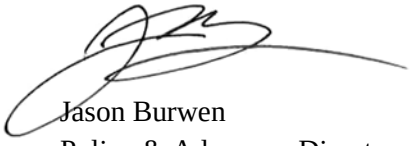
RE: Comments on Docket UE-151069, Modeling Energy Storage in Integrated Resource Planning

Dear Mr. Steven V. King —

Attached please find comments from the Energy Storage Association ("ESA") to the above-referenced Docket UE-151069 before the Washington Utilities and Transportation Commission ("Commission"). ESA is pleased to have the opportunity to comment on the issue of modernizing the energy delivery system in Washington.

I encourage you to contact me should you have any questions about this filing. ESA looks forward to serving as a resource to the Commission on issues related to the electric grid in Washington.

Cheers,



Jason Burwen
Policy & Advocacy Director
Energy Storage Association
202.580.6285
j.burwen@energystorage.org

CC: Active Parties

**BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

Comment Opportunity

Considerations for Docket UE-151069

**COMMENTS OF THE ENERGY STORAGE ASSOCIATION**

Pursuant to the Comment Opportunity in the Washington Utilities and Transportation Commission ("Commission") Docket UE-151069, the Energy Storage Association ("ESA") appreciates the opportunity to submit the following comments and information for the Commission's consideration.

## I. ABOUT THE ENERGY STORAGE ASSOCIATION

ESA's mission is the promotion, development and commercialization of competitive and reliable energy storage delivery systems for use by electricity suppliers and their customers. ESA represents electric utilities that actively seek to incorporate energy storage into their asset portfolio. In addition to electric utilities, ESA's membership comprises a diverse group of electric sector stakeholders, including energy service companies, independent power producers, technology developers -- of advanced batteries, flywheels, thermal energy storage, compressed air energy storage, supercapacitors, and other technologies – component suppliers, and system integrators. ESA's membership also includes entrepreneurs and researchers developing the state-of-the-art in energy storage solutions and advanced grid operations. A full list of the approximately 200 ESA members is available on our website.[1] The opinions stated in this filing represent ESA and are not necessarily the views of any individual member of the association.

[1] See http://energystorage.org/

ESA's member companies have expertise in transmission- and distribution-level grid operations relevant to energy storage, as well as firsthand knowledge of the regulatory challenges to financing and operating commercial energy storage facilities to realize full system benefits. ESA is looking forward to serving as a resource to the Commission in this proceeding and related cases.

## II. ESA COMMENTS

ESA applauds the Commission for undertaking this proceeding to investigate modeling energy storage in utility integrated resource plans ("IRPs"). ESA members participated in the Commission's August 25, 2015 energy storage workshop. ESA members, along with our colleagues at Renewable Northwest, agree that modeling of the potential costs and benefits of energy storage technologies can and should be improved. ESA appreciates the Commission's interest in and activities aimed at ensuring that the full suite of values energy storage can offer are appropriately accounted for in utility IRPs.

ESA would first like to recognize and echo comments submitted by Renewable Northwest in this Docket. ESA and its members were active in informing specific recommendations made in Renewable Northwest comments regarding potential uses and benefits of storage, current modeling practices available to better account for storage values, and methods and examples for incorporating storage in to IRPs.

Energy storage technologies provide myriad services and can be cost-effective and viable alternatives to investments in traditional generation, transmission, and distributions assets.

Indeed, storage already provides wholesale services for clearly established ancillary services, peak shifting services to manage growing demand charges for commercial and industrial customers, and other concrete, monetized benefits that drive clear value propositions for energy storage deployments. However, as resource planners and regulators undertake planning processes for generation, transmission, and distribution systems, many additional services and benefits that storage technologies offer can be difficult to fully value, both operationally and financially. These benefits, such as the ability to defer transmission and distribution investments, provide backup power for critical loads, and offer flexibility to make distribution investments incrementally, are much more difficult to value since they can be complicated to calculate and are generally part of planning processes, rather than bought and sold in a market setting. Even some values that can be monetized fairly simply, such as avoided start-up costs to generators, are not currently given consideration. Moreover, energy storage technologies can provide many of these services simultaneously, either as a single asset or as an aggregated group of storage resources. The ability of storage to provide these many values make it a critically important resource for consideration by system planners and regulators.

In light of these challenges to fully account for values energy storage technologies can offer, new modeling tools have been developed. The Battery Storage Evaluation Tool ("BSET") developed by Pacific Northwest National Lab ("PNNL") optimizes energy storage value streams and identifies preferred location, size, and technology to meet a specified utility need. For system-level modeling, production cost models like PLEXOS[2] fully account for the values storage can offer versus other traditional generation assets. PLEXOS is particularly notable among

[2] http://energyexemplar.com/software/plexos-desktop-edition/

production cost models for including sub-hourly dynamics of electric grid, which are critical to energy storage valuation. As also noted in the Renewable Northwest comment filing, these grid simulation tools can complement market price-based analysis, which is limited in its ability to value the full benefits of storage on the system, by calculating the total cost of system operation and compare production costs with and without potential new generation options.[3] Traditional capacity expansion models used by utilities generally do not have the level of granularity necessary to capture the benefits provided by energy storage devices (i.e., such as failing to include sub-hourly modeling). ESA recommends that modeling tools like BSET and PLEXOS are transparently used by utilities when evaluating all potential value stream storage can offer.

Additionally, ESA encourages the Commission to consider energy storage as an option for all utility needs in future IRPs. As noted previously, the ability of storage technologies to provide such a diverse array of benefits beyond conventional energy resources can make it difficult to evaluate in IRPs for utilities. Nevertheless, IRPs offer a unique opportunity for utilities to evaluate all potential resources for a given electric grid need, and these efforts can ultimately inform RFP design and offer ranking. Storage technologies should be modeled against conventional technologies in IRPs, using modeling tools noted previously, to ensure that storage is valued for its ability to provide the identified grid need along with additional value and revenue streams the storage can offer.

[3] NREL's 2013 "The Value of Energy Storage for Grid Applications" study offers additional background on the ability of production cost simulation tools to more accurately value storage resources as alternatives to traditional generation resources. http://www.nrel.gov/docs/fy13osti/58465.pdf

Other utilities around the country have begun to successfully value and cost-effectively deploy storage systems using just such a process. Southern California Edison ("SCE") announced the procurement of 264 MW of storage capacity in late 2014, 100 MW of which will be deployed in a grid-interconnected installation.[4] SCE noted that the procurement was over and above any statutory requirement for storage procurement, as storage resources were cost-competitive when compared with a traditional gas peaking plant, in addition to their ability to provide a cleaner and superior service to a gas facility. Washington IOUs have also identified a need for over 700 MW of peaking resources in the coming years,[5] and storage should be considered as a potentially superior alternative to conventional generation capacity. In addition, in light of Washington IOU and Commission concern over commodity price risk around securing access to natural gas supply, energy storage can aid in diversifying fuel mix and mitigate against commodity price risk as a part of gas-electric coordination.

Finally, ESA believes it is of critical importance for the Commission and IOUs to account for values storage can offer as a distribution and transmission asset, in addition to generation services as noted immediately above. When considering investments in infrastructure across the grid, storage can be a viable alternative even in an application where its primary application is as a capacity asset. We urge the Commission to ensure modeling tools are used to account for all of these potential services storage can offer in transmission or distribution system planning processes, as well as in IRPs.

[4] http://newsroom.edison.com/releases/sce-unveils-largest-battery-energy-storage-project-in-north-america
[5] http://pse.com/aboutpse/EnergySupply/Documents/DRAFT_IRP_2015_Chap1.pdf

## IV. CONCLUSION

ESA commends the Commission for its leadership in ensuring innovative technologies like storage are being appropriately valued for the services they can offer the grid. We, alongside our colleagues at Renewable Northwest, look forward to serving as a resource to the Commission on IRPs and any other proceedings where storage can promote the reliability, affordability, and sustainability of the Washington electric grid.

RESPECTFULLY SUBMITTED this 25th day of September, 2015.

By _____

Jason Burwen
Energy Storage Association
1155 15th Street NW, Suite 500
Washington, DC 20005
Phone: 202.580.6285
Email: j.burwen@energystorage.org

CC: Active Parties