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AES Comments on Joint Agency Bulk Energy Storage Workshop

Additional submitted attachment is included below.

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December 18, 2015

Robert Weisenmiller, Chair
California Energy Commission
1516 Ninth Street
Sacramento, California 95814-5512

Michael Picker, President
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, California 94102

Re: Docket No. 15-MISC-05: AES Post Workshop Comments
Joint California Energy Commission and California Public Utilities Commission
Long-Term Procurement Plan Workshop on Bulk Energy Storage

Dear Chair Weisenmiller and President Picker:

AES Energy Storage ("AES") appreciates the opportunity to provide comments on the joint California Energy Commission ("CEC") and California Public Utilities Commission ("CPUC") long-term procurement plan workshop on bulk energy storage ("Joint Workshop").

AES provides affordable, sustainable energy to 18 countries through a diverse portfolio of distribution businesses, thermal and renewable generation facilities, and battery energy storage systems. In California, AES is helping to support a clean, secure grid through the development of a 100 megawatt interconnected battery-based energy storage system, constituting a flexible power resource able to deliver 400 megawatt-hours of energy, and contribute 200 megawatts of flexible capacity considering its instantaneous charge and discharge capabilities.[1] AES was recently ranked as the leading energy storage system integrator,[2] and looks forward to engaging with the CEC, CPUC, and all other stakeholders to develop innovative and creative solutions to secure California's grid reliability.

[1] http://www.aesenergystorage.com/2014/11/05/aes-help-sce-meet-local-power-reliability-20-year-power-purchase-agreement-energy-storage-california-new-facility-will-provide-100-mw-interconnected-storage-equivalent-200-mw/

[2] See, https://www.navigantresearch.com/research/navigant-research-leaderboard-report-energy-storage-systems-integrators.

The issues raised at the Joint Workshop related to renewables integration and overgeneration conditions[3] highlight the ever increasing importance for continued innovation and creative solutions to address California's grid reliability concerns, and the particular role that storage technologies can play as a solution for these concerns. AES encourages the utilization of procurement vehicles to meet bulk energy storage needs, which will encourage competition between both suppliers and technologies, allowing market innovation to drive value for utilities and ratepayers. For the accrual of maximum benefits to utilities and ratepayers, procurement vehicles should not be restricted to specific bulk energy storage technologies, and instead open to all potential solutions that can address grid reliability concerns and other needs.

Moving forward, AES encourages further consideration and discussion of battery energy storage technologies for bulk storages purposes. As demonstrated by AES's 100 megawatt battery energy storage system, battery energy storage is not limited to small scale applications, and is scalable and appropriate for bulk storage applications.[4] It is noteworthy to mention the scale of the planned project at the AES facility in Long Beach. In addition to the 100 megawatt project mentioned above, which has already executed a contract with Southern California Edison, an incremental 200 megawatts has been engineered, designed and being actively permitted. All told, that will result in a 300 megawatt interconnected battery-based energy storage system, constituting a flexible power resource able to deliver **1,200 megawatt-hours of energy** to the grid, and contribute 600 megawatts of flexible capacity to address reliability needs, considering its instantaneous charge and discharge capabilities. As this capacity is located next to load, it also provides local benefits and alleviates system congestion constraints in a densely populated region.

1. **Superior solution and system capabilities.**

The modular architecture of battery storage allows for a wide range of installation, which can be tailored to fit system needs, and minimize the risk of overprocurement. Further, the modular installations allow for a more efficient use of capital, as the systems can be procured and deployed in smaller increments, as compared to pumped hydro and underground compressed air energy storage technologies, which require large scale deployment and cannot be purchased in small increments. Further, battery energy storage provides the instantaneous response which our future grid will rely upon, and which will increase the utilization of existing and future generation resources, including renewables both in front of and behind the meter.

2. **Quick deployment.**

Compared to other bulk storage technologies, battery storage projects have the capability to be deployed much faster, given the short time needed between procurement, construction, and deployment. This allows utilities to better match deployment to near term need, avoiding the need to overbuild for future needs that may or may not be realized.

[3] 11/20 RT 9:22-25; 10: 1-23.
[4] 11/20 RT 132: 1-6.

3. **Cost competitive.**

Not only is battery storage proven and reliable, the technology is superior to other storage technology in terms of both costs and performance. For example, AES's Advancion battery systems have been operating for eight years, providing nearly 3 million megawatt-hours of successful commercial operation - the longest commercial operating history of any battery storage solution available today. Moreover, because battery storage is modular, it can be designed and deployed for the duration needed. In comparison, CAES and pumped hydro are typically quoted in dollars per kilowatt-hour, which understates the cost relative to value of the most valuable hours of capacity.

4. **Flexible siting.**

Battery energy storage systems do not require specific geographic or geologic site conditions, or connections to fuel lines. Battery energy storage systems can be sited where needed; for example in transmission constrained locations to alleviate reliability concerns. This flexibility allows for the efficient use of existing resources, such as transmission infrastructure and power plants. In comparison, other bulk energy storage technologies can be geographically constrained, and may encounter transmission interconnection challenges, or require costly transmission upgrades to facilitate interconnection.

CONCLUSION

AES thanks the CEC and the CPUC for the opportunity to provide comments on this Joint Workshop, and encourages further discussion and consideration of a range of technologies, including battery energy storage, that can provide bulk energy storage capabilities. Please do not hesitate to contact me at 562-493-7750 if you have any questions, or would like additional information regarding battery energy storage solutions.

Thank you.

/s/ *Kate McGinnis*

Kate McGinnis,
Western US Market Director, Energy Storage