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Public Utilities Commission of Nevada
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Tesla Inc
BEFORE THE PUBLIC UTILITIES COMMISSION OF NEVADA

Investigation and rulemaking to implement Senate Bill 204 (2017). Docket No. 17-07014

COMMENTS OF TESLA, INC. PROVIDING A RECOMMENDATION FOR THE ESTABLISHMENT OF BIENNIAL TARGETS FOR THE PROCUREMENT OF ENERGY STORAGE SYSTEMS

Tesla, Inc. ("Tesla") hereby submits comments in response to Procedural Order No. 4 in the Public Utilities Commission of Nevada’s ("Commission’s") Docket No. 17-07014 related to the implementation of Senate Bill ("SB") 204 (2017). Tesla appreciates the effort by the Commission and the Governor’s Office of Energy to develop a study, “the Economic Potential for Energy Storage in Nevada” prepared by the Brattle Group (“Brattle Study”), to better understand how energy storage may benefit the state of Nevada. The Brattle Study provides a comprehensive overview of the benefits and costs of energy storage to come to the conclusion that up to 175 megawatts ("MW") of energy storage would likely benefit Nevada ratepayers by 2020 and somewhere in excess of 700 MW to 1000 MW would benefit ratepayers by 2030.1 Given the evidence from the Brattle Study as well as evidence from throughout the Commission’s storage proceedings,2 the Commission should find that the establishment of energy storage procurement targets is consistent with SB 204 and in the public interest.

1 Brattle Study at p. ii.
2 Docket No. 17-07014, “Investigation and rulemaking to implement Senate Bill 204 (2017);” Docket No. 16-01013, “Investigation regarding battery storage technologies.”
I. THE STATE-COMMISSIONED BRATTLE STUDY SUPPORTS THE
ESTABLISHMENT OF STORAGE TARGETS

The Brattle Study explicitly considers most of the benefits and costs listed in Section 7(3) of SB 204 to come to the conclusion that there are near- and long-term opportunities for cost-effective energy storage in Nevada. Of the nine benefits and costs discussed in Section 7(3), the Total System Benefits and Costs analysis in the Brattle Study values all except for three of the benefits. The analysis leaves out the benefits of voltage support (Section 7(3)(f)), line losses (Section 7(3)(b)), and greenhouse gas and local criteria pollutant reductions (Section 7(3)(e)), but it includes all of the costs of energy storage systems. While Tesla understands the complexities of calculating these omitted benefits and why Brattle may have excluded them from the analysis, it is worth noting that these benefits do exist and thus the analysis errs on the side of undervaluing energy storage systems. For example, while the Brattle Study omitted emissions savings from the Total System Benefits and Costs calculation due to the fact that emissions costs are not built into electric rates today, the Brattle Study does in fact calculate net positive greenhouse gas emissions reductions worth $0.7-10.6 million in 2020 and $1.6-27 million in 2030. Even erring on the side of under-valuing energy storage system, the Brattle Study finds that hundreds of megawatts of storage are likely to be cost effective over the next two to twelve years.

The Brattle Study also supports the notion that energy storage should be able to achieve all of the purposes listed in Section 7(2)(a) of SB 204. Various sections of the Brattle Study address each of the bill’s listed purposes as demonstrated in the following table, Table A.

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3 Brattle Study at p. V.
4 Brattle Study at p. V-VI.
5 Brattle Study at p. 16.
6 Brattle Study at p. V.
Table A. Sections of the Brattle Study Demonstrating that Storage Can Achieve the Purposes Listed in Section 7(2)(a) of SB 204.

<table>
<thead>
<tr>
<th>Purpose Listed in Section 7(2)(a)</th>
<th>Supporting Section of Brattle Study</th>
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<tbody>
<tr>
<td>(1) The integration of renewable energy resources which generate electricity on an intermittent basis into the transmission and distribution grid of the electric utility</td>
<td>Section E, “Renewable Integration and Emissions Benefits,” at p. 29-35.</td>
</tr>
<tr>
<td>(2) The improvement of the reliability of the systems for the transmission and distribution of electricity</td>
<td>Section D, “Customer Outage Reduction Value,” at p. 27-29.</td>
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<td>(3) The increased use of renewable energy resources to generate electricity</td>
<td>Section E, “Renewable Integration and Emissions Benefits,” at p. 29-30.</td>
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<tr>
<td>(5) The avoidance or deferral of investment by the electric utility in generation, transmission, and distribution of electricity</td>
<td>Section C, “Transmission and Distribution Investment Deferral,” at p. 24-27.</td>
</tr>
<tr>
<td>(6) The replacement of ancillary services provided by facilities using fossil fuels with ancillary services provided by the use of energy storage systems</td>
<td>Section A, “Reduction in Production Costs,” at p. 17-22.</td>
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<tr>
<td>(7) The reduction of greenhouse gas emissions</td>
<td>Section E, “Renewable Integration and Emissions Benefits,” at p. 29-35.</td>
</tr>
</tbody>
</table>

Given the net positive evaluation of the costs and benefits of energy storage listed in Section 7(3) of SB 204 as well as the affirmation of the potential purposes for energy storage listed in Section 7(2)(a), the Brattle Study clearly supports the conclusion that setting energy storage procurement targets is prudent per SB 204 and in the public interest.

II. **NV ENERGY’S ANALYSIS AND PROCUREMENT ACTIVITY ALSO PROVIDES EVIDENCE SUPPORTING THE COST-EFFECTIVENESS OF STORAGE IN NEVADA**

In addition to the quite comprehensive Brattle Study supporting the notion that cost-effective storage exists in Nevada, NV Energy’s own analysis and procurement activity supports this as well. As the discussed in Docket No. 16-01013, NV Energy found a battery storage solution
to be the most cost-effective and most timely solution to address a distribution need in Smith Valley in north-western Nevada. Further, more recently, NV Energy signed contracts for 100 MW of battery energy storage as part of its procurement for its Integrating Resource Plan. Based on this activity, it seems undeniable that there are opportunities for cost-effective storage in Nevada.

III. **SB 204 MAKES IT CLEAR THAT BIENNIAL TARGETS FOR THE PROCUREMENT OF ENERGY STORAGE SHOULD BE ESTABLISHED IF EVIDENCE SUGGESTS STORAGE IS COST-EFFECTIVE**

Section 1(3) of SB 204 makes it clear that if an investigation demonstrates that benefits of storage exceeds the costs, then biennial targets should be established:

> “it is in the public interest to remove the barriers to the use of energy storage systems in this State by investigating the costs and benefits of energy storage systems and, if such an investigation indicates that the benefits of energy storage systems exceed the costs of such systems, implementing biennial targets for the procurement of energy storage systems by an electric utility in this State.”

Given the Brattle Study, evidence in the Commission’s storage proceedings, as well as NV Energy’s own analysis and procurement activity related to storage, it is clear that cost-effective storage can be deployed in Nevada. Thus, per SB 204, the Commission should proceed in establishing storage procurement targets.

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9 Docket No. 17-07014, “Investigation and rulemaking to implement Senate Bill 204 (2017);” Docket No. 16-01013, “investigation regarding battery storage technologies.”
IV. PRECEDENT FROM OTHER STATES DEMONSTRATES THAT STORAGE TARGETS ACCELERATE THE DEVELOPMENT OF COST-EFFECTIVE STORAGE

In addition to evidence from the Brattle Study and the Commission’s storage proceedings supporting storage targets, experience from other states supports a determination that storage targets are in the public interest. While storage procurement targets are still relatively new in many states, such as Oregon, Massachusetts, and New York, California has had storage targets since 2013 and thus has had time to demonstrate success. California has procured over 1,500 MW of storage to date, exceeding its ultimate storage procurement target of 1,325 MW over two years ahead of time.10 In 2013, the California investor-owned utilities thought that storage was far from cost-effective but the California Public Utilities Commission’s storage targets pushed the utilities to update their planning, valuation, procurement, operations, and interconnection processes to better account for storage. The storage targets resulted in the California utilities accommodating and accounting for the unique characteristics of energy storage in many of their processes, which then resulted in the utilities finding significant opportunities for cost-effective storage across many applications.

Certainly, conditions in Nevada differ from those in California in many ways but the fundamental premise of using storage targets as a tool to encourage utilities to challenge their conventional practices and look for better solutions with this new technology holds true. While NV Energy has made notable progress in updating its processes to accommodate for storage,

there’s certainly more work to be done and storage targets will help ensure that energy storage is maximized to the benefit of Nevada ratepayers.

V. THE COMMISSION MAY WANT TO START CONSIDERING HOW IT WOULD FORMULATE STORAGE PROCUREMENT TARGETS

Tesla understands that the Commission is taking a measured approach by first understanding if storage targets are in the public interest before establishing those targets, however, the Commission may want to start considering how to set targets particularly given the significant evidence in favor of doing so. Establishing storage targets requires substantial deliberation and public input on the characteristics of the targets and related requirements. For example, the Commission must set regulations on the level of the targets, the timing, the eligible technologies, and the compliance mechanisms. To assist the Commission in thinking about what outstanding questions must be answered to develop storage targets, Tesla created a list of “Draft Nevada Storage Target Scoping Questions,” attached hereto as Appendix 1. While the Commission should certainly take feedback from other parties on what questions must be answered to develop storage targets, Tesla hopes that this list may provide a useful starting point.

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VI. CONCLUSION

Tesla appreciates the Commission’s focus on understanding how energy storage can support clean, affordable, reliable energy in Nevada. As is clear from the Brattle Study and other evidence in the Commission’s storage proceedings, there are cost-effective opportunities for storage in Nevada. Given SB 204’s direction to implement biennial storage procurement targets if the benefits of storage are found to exceed the costs, it is prudent for the Commission to affirm that targets are in the public interest and to establish those targets. Tesla looks forward to working with the Commission and other stakeholders to develop storage targets that will provide significant reliability, cost, and health benefits for Nevadans.

Respectfully submitted,

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October 31, 2018
Appendix 1
Draft Nevada Storage Target Scoping Questions
October 2018

*If the Commission determines that storage targets are in the public interest, then it would be useful to consider the following questions related to what storage targets would look like.*

- **Procurement targets** - how should storage targets be set?
  - What are the goals of the storage procurement targets program (e.g. spark the market for storage, reduce barriers to storage in Nevada, reduce emissions, reduce customer costs, etc)?
  - At what level should targets be set (in terms of MW and/or MWh)?
  - Should the targets be broken into different points of interconnection (i.e. transmission-connected, distribution-connected, and customer-connected)? Should there be flexibility in required points of interconnection (e.g. should seek minimum of X% of target in each point of interconnection but the remaining 100-3X% can be in any point of interconnection)?
  - Should the targets increase over time?
  - How far into the future should targets be established?
  - Which commercially available storage technologies should be eligible?
  - How should existing storage projects count towards the targets?

- **Competitive frameworks** - What kind of competitive framework should be in place to ensure multiple applications and ownership structures for storage?
  - What storage ownership models should be enabled in Nevada?
  - If there are storage targets, should there be minimum / maximum targets to encourage different ownership models (e.g. some utility-owned, some third-party owned) and applications (e.g. renewable integration vs T&D support vs peak load reduction)?

- **Planning and procurement opportunities** - What are the expected avenues for utilities to identify and procure storage (e.g. solicitations related to the IRP and distribution planning; demand-side management programs; incentives; etc)?

- **Compliance** - What is the procedure for utilities to comply with the Commission’s plan related to developing the storage market in Nevada (e.g. annual or biennial filings on progress, regular solicitations, and procedures for deferring procurement if necessary)?

- **Barriers** - What barriers (regulatory and otherwise) should be addressed to allow for the proliferation of storage in Nevada? What is the plan for addressing those barriers?
CERTIFICATE OF SERVICE

I hereby certify that I have, on this 31st day of October, 2018, served the copies of the foregoing document in Docket No. 17-07014 upon all parties of record in this proceeding by electronic service to the following:

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Respectfully submitted this 31st day of October, 2018.

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