

**BEFORE THE WASHINGTON STATE  
UTILITIES AND TRANSPORTATION COMMISSION**

In the Matter of the Washington Utilities and  
Transportation Commission's Investigation  
into Energy Storage Technologies.

DOCKETS UE-151069 AND U-161024

**COMMENTS OF THE NORTHWEST AND INTERMOUNTAIN  
INDEPENDENT POWER PRODUCERS COALITION  
REGARDING THE UTC'S DRAFT POLICY STATEMENT  
ON THE TREATMENT OF ENERGY STORAGE TECHNOLOGIES**

The Northwest and Intermountain Independent Power Producers Coalition ("NIPPC") respectfully submits this filing in response to the Notice of Opportunity to File Written Comments issued in this docket on March 6, 2017. NIPPC strongly supports many elements of the Draft Report and Policy Statement on Treatment of Energy Storage Technologies in Integrated Resource Planning and Resource Acquisition (the "Draft Policy Statement"), issued by the Commission on March 6. In particular, NIPPC supports: (1) the Commission's strong endorsement of competitive procurement for energy storage resources; (2) its willingness to identify and remedy regulatory barriers that retard the adoption of energy storage technology in Washington; and, (3) its intention to anticipate the development of important new energy technologies and to adopt the regulatory system to allow the proliferation of those technologies, rather than allowing regulation to stand as a barrier to technological progress. NIPPC offers these comments to encourage the Commission to follow its present course and, in addition, to strengthen the Draft Policy Statement.

## **I. ABOUT NIPPC**

The Northwest and Intermountain Power Producers Coalition ("NIPPC") is a Washington nonprofit corporation. NIPPC is a coalition comprised of thermal and renewable independent power producers, power marketers, and independent transmission companies, located in the Pacific Northwest and Intermountain West. NIPPC members collectively have invested billions of dollars in over 4,000 MW of generation resources. NIPPC members also have an estimated 1,000 MW of new generation under advanced development in the Pacific Northwest. A complete list of all of NIPPC's members can be found at [www.nippc.org/about/members/](http://www.nippc.org/about/members/).

## **II. NIPPC'S COMMENTS**

### **A. Competitive Acquisition Of Energy Storage Resources.**

NIPPC strongly supports the Commission's endorsement of competitive procurement.<sup>1</sup> Competitive procurement is the only effective method yet identified to overcome the utility "self-build bias" inherent in a regulatory system that provides utilities with a rate of return on utility-owned assets that are included in rate base. We agree whole-heartedly that competitive procurement of energy storage resources, if properly implemented, will best serve Washington consumers by overcoming self-build bias and by identifying the least-cost, least-risk energy storage resources. We emphasize, however, that the self-build bias, and the desirability of competitive procurement, extends to all utility infrastructure, not just energy storage. Hence, we urge the Commission to carefully evaluate its competitive procurement policies regarding acquisition of generation and transmission infrastructure as well as energy storage assets.

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<sup>1</sup> Draft Policy Statement at ¶¶ 58, 60.

Our experience also validates the Commission’s caution that requests for proposals (“RFPs”) must be technologically neutral and must clearly identify the services the utility expects energy storage to provide and the value of those services.<sup>2</sup> Likewise, it is essential for the RFP to include clear information about additional costs independent energy storage producers might face, including transmission and interconnection costs, and the IRP planning and modeling assumptions underlying the RFP.

We caution the Commission that it must carefully review and evaluate all proposed utility RFPs for hidden biases that favor utility acquisition. Otherwise, Washington may end up in the same position as Oregon, where, despite the expenditure of considerable time and resources by the Oregon Public Utility Commission to develop a balanced competitive procurement process, Oregon’s investor-owned utilities have nonetheless won 97% of competitive procurements. The result has been to stifle competition in Oregon’s generation sector and to allow debacles like Portland General Electric Company’s flawed acquisition of the Carty generation project, which suffered both substantial delays and huge cost overruns, placing Oregon ratepayers at significant risk.<sup>3</sup>

#### **B. Improving the Integrated Resource Planning (“IRP”) Process.**

NIPPC commends the Commission for anticipating the emergence of energy storage as a major factor in the electric industry and for proactively identifying regulatory barriers that may retard the growth of energy storage in Washington. We share the Commission’s view that energy storage is likely to be transformative by allowing greater penetration of renewable

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<sup>2</sup> Draft Policy Statement at ¶ 58.

<sup>3</sup> See, e.g., *Portland General Electric’s Double-Down on Gas Raises a Few Questions*, ElectricityPolicy.com (Sept. 7, 2016) (<https://electricitypolicy.com/News/portland-general-electrics-double-down-on-gas-fired-plant-raises-questions>). See also *The Risk Takers: Powering Our Future* (NIPPC film raising questions about Idaho Power’s acquisition of the Langley Gulch gas-fired generation station) (<http://nippc.org/our-movie/>).

resources, reducing the costs of serving peak loads, and relieving stress on overtaxed segments of the transmission and distribution systems. Too often, the regulatory system lags technological developments in the industry and serves to discourage investments in those new technologies. NIPPC fully supports the Commission's efforts to identify regulatory barriers that will discourage emerging energy storage technologies and to remove those barriers before they become a major roadblock to these new technologies.

***1. NIPPC Supports Breaking Down Regulatory Silos In the IRP Process.***

NIPPC shares the Commission's view that utility IRP processes to date have given short shrift to energy storage. We also agree with the Commission that this is largely attributable to the fact that the IRP process is primarily focused on identifying the optimum generation portfolio and treats generation, transmission, and distribution as discrete and unconnected. Because energy storage technologies create benefits that may fall into all three categories, an IRP process that treats generation, transmission, and distribution separately will fail to capture all the benefits that energy storage provides and therefore will artificially discourage the acquisition of energy storage resources.

For these reasons, NIPPC strongly supports the Commission's determination that the IRP process must be reformed so that all benefits of energy storage, regardless of which traditional "silo" they accrue to, must be taken into account in the IRP process. We also support the Commission's determination that these same principles must be carried over into the competitive procurement realm, so that utility RFPs properly reflect all the benefits energy storage can provide, and do not artificially discount energy storage benefits that do not fit neatly into the traditional generation/transmission/distribution silos.

## ***2. NIPPC Supports Sub-hourly IRP Modeling.***

NIPPC strongly supports the Commission's determination that utilities should be required to include sub-hourly modeling in their IRP analyses. This is because many of the products provided by energy storage, such as regulating reserves, renewable energy balancing, and peak shaving, generally occur in a timescale of well less than an hour, often just minutes or seconds. Hence, an IRP process that does not model on a sub-hourly basis will fail to recognize these benefits and will artificially discount the value of energy storage. In addition, NIPPC is concerned that sub-hourly modeling should not simply reflect scheduling parameters. Instead, sub-hourly modeling should be robust enough to provide a reasonable quantification of the full range of energy storage benefits.

In this connection, we urge the Commission to require utilities to adopt sub-hourly modeling, and to acquire the necessary software, as soon as practicable. Based on the experience of NIPPC members, it is already possible to acquire sub-hourly modeling software on the market and, accordingly, Washington utilities should be able to adopt sub-hourly modeling without undue delay. On the other hand, delays could prevent the full evaluation of sub-hourly benefits of energy storage for two or even three IRP cycles, moving objective evaluation of energy storage alternatives years down the road. NIPPC believes such delays are unjustifiable. In addition, NIPPC urges the Commission to require the use of models that are accessible to the public or, at a minimum, that provide public access to the assumptions underlying each model run and allow the public to specify and run models using alternative assumptions. "Black box" software models are a major impediment to transparent analysis and ratemaking, and should be strongly discouraged.

**3. *Analysis of Energy Storage Should Recognize the Broad Range of Available Technologies and the Full Range of Benefits.***

Energy storage includes a broad range of technologies that produce a variety of benefits to the electric system. Technologies range from pumped-storage hydro to various forms of battery and flywheel storage to the coordinated use of consumer products like water heaters and electric vehicle batteries as storage devices. Some of these technologies, like pumped-storage hydro, are well established and widely deployed. Others are now moving into the market, while others are in the research stage. Commission policy should create a level playing field to allow for a diverse range of energy storage options, and to encourage the best technologies to emerge and be widely adopted.

We therefore strongly agree with the Commission’s observation that past IRPs have failed by examining only a limited range of energy storage options. We therefore concur with the Commission’s direction that utilities consider the full range of energy storage options and that they obtain measures of the value of these options from objective, independent third parties. The Commission should ensure that all value streams produced by energy storage are recognized and objectively evaluated in the IRP process.

On this score, NIPPC commends to the Commission the recent work of the Pacific Northwest National Laboratory (“PNNL”) which, in conjunction with Sandia National Lab, has produced a comprehensive framework for identifying and evaluating the different values streams offered by energy storage.<sup>4</sup> PNNL has identified eight potential value streams that might be provided by energy storage – peak shaving, frequency regulation, emergency power supply for

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<sup>4</sup> *Protocol for Uniformly Measuring and Expressing the Performance of Energy Storage Systems*, Conover DR, AJ Crawford, J Fuller, SN Gourisetti, VV Viswanathan, SR Ferreira, DA Schoenwald, DM Rosewater. 2016. PNNL-22010 Rev. 2, Pacific Northwest National Laboratory, Richland, WA, available at: <http://energymaterials.pnnl.gov/esp/reports.stm>.

islanded microgrids, smoothing of output from solar photovoltaic systems, grid voltage support, renewable generation firming, power quality, frequency control – and has provided suggested metrics for measuring the value of each of these products. PNNL’s work is a good starting point for the Commission to develop metrics that can objectively, accurately, and transparently value energy storage in IRP and RFP processes.

NIPPC also believes that the Commission should give serious consideration to the Staff’s proposals for monetizing and valuing the economic benefits of energy storage, although we believe Staff’s approach should be expanded to recognize benefits that cannot be categorized as traditional “ancillary services.” Staff suggests an “avoided cost” approach where the various products or value streams provided by energy storage are valued based on rates for ancillary services in the organized markets or on the values the utilities themselves assign to ancillary services in their planning processes.<sup>5</sup> NIPPC believes the approaches suggested by Staff can provide an objective basis for monetizing some energy storage benefits. However, other energy storage benefits do not fit within the accepted ancillary service categories currently identified in FERC-required tariffs. Thus, for example, several of the benefits identified in the PNNL study referenced above are not traditional ancillary services. Peak shaving and emergency power supply for microgrids are two examples. Similarly, energy storage can be treated as a flexible transmission asset, creating benefits well beyond those associated with ancillary services currently identified by FERC.

Similarly, NIPPC strongly encourages the Commission to examine the Staff’s proposal for an “Avoided Ancillary Services Cost” tariff that clearly identifies the costs to each regulated utility of providing ancillary services and sets that as the rate of compensation for energy storage

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<sup>5</sup> Washington Utilities & Transportation Commission Staff, *Modeling Energy Storage: Challenges and Opportunities for Washington Utilities* at 9-10 (May 18, 2015) (“Staff Report”).

projects that interconnect with the utilities and provide ancillary services.<sup>6</sup> For the reasons discussed in the previous paragraph, this approach is not, by itself, sufficient to fully recognize all the benefits of energy storage, but it provides a starting place from which the Commission can build an economic mechanism that creates appropriate incentives for energy storage in our region. In the absence of an organized market that provides clear price signals to energy storage operators – which Staff correctly identifies as a major barrier to the adoption of energy storage technologies in our region<sup>7</sup> -- a tariff of this kind will provide clear market signals of the value of ancillary services and create the economic foundation necessary for independent energy storage producers to gain a foothold in the Pacific Northwest.

Finally, NIPPC concurs with the Commission’s observation that aggregation of behind-the-meter energy storage projects may offer substantial value to the electric system. Indeed, the Pacific Northwest has lead the way with, for example, successful pilot projects using software controls on electric hot water heaters to create meaningful energy storage and demand response. The regulatory landscape, and especially the regulatory landscape surrounding emerging distributed energy storage technologies, needs to adapt so that the full value of these resources is recognized and optimal energy storage solutions are identified and encouraged.<sup>8</sup>

### **C. Prudency Review.**

NIPPC also endorses the Commission’s conclusion that prudency review of utility acquisitions should include an unbiased examination of energy storage as an alternative to those

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<sup>6</sup> Staff Report at 10.

<sup>7</sup> Staff Report at 1.

<sup>8</sup> See, e.g., Navigant Research, *Maximizing the Locational Value of Distributed Energy Resources: How Three Utilities Are Using Software to Overcome Distributed Energy Resource Integration Challenges*, published 1Q 2017, available at: [http://info.sunverge.com/whitepaper-der-integration?utm\\_campaign=Navigant%2520Whitepaper%25202017&utm\\_source=email&utm\\_medium=Email%2520Marketing&utm\\_content=PLMA%2520Mailer](http://info.sunverge.com/whitepaper-der-integration?utm_campaign=Navigant%2520Whitepaper%25202017&utm_source=email&utm_medium=Email%2520Marketing&utm_content=PLMA%2520Mailer).

acquisitions. Energy storage provides a new set of meaningful alternatives to building new utility infrastructure, including generation, transmission, and distribution assets. Accordingly, the Commission is right to insist that, before it approves inclusion of any new asset in rate base, the utility seeking rate base treatment must demonstrate that it has meaningfully and objectively considered energy storage as an alternative to the acquisition. This approach will ensure that Washington's electric consumers do not pay unnecessarily for new infrastructure when energy storage offers a more efficient alternative.

**D. New Rate Design Principles.**

NIPPC commends the Commission for being “willing to consider rate design proposals for all customer classes that accurately reflect the cost of serving customers during high demand periods.”<sup>9</sup> We agree that such rate designs will provide more accurate price signals to customers and we further believe they will provide accurate price signals to energy storage entrepreneurs attempting to enter the market, particularly in light of the peak-shaving capability offered by many energy storage technologies. While we recognize that time-of-uses rates and similar rate designs have not fared well in the past in Washington, we agree with the Commission that it may be time to examine new approaches, or reconsider previous approaches like time-of-use rates, that will better reflect the cost of serving peak loads and the value of resources that can reduce those peak loads. Policy innovation in this area is necessary for at least three reasons:

(1) the growth of the “smart grid” in Washington, which greatly improves on the ability of utilities to provide real-time or time-of-use pricing signals to consumers;

(2) the emergence of energy storage technologies that can provide major benefits in the form of peak shaving and need appropriate price signals to enter this market; and,

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<sup>9</sup> Draft Policy Statement at 15.

(3) the anticipated emergence of electric vehicles as a major load in Washington. PNNL has found that "with today's load shape and generation capacity, it should be possible to supply over 70% of the energy" for the country's light vehicle fleet "without building additional generation or transmission."<sup>10</sup> But these results can be achieved only if electric vehicle "charging times are carefully managed to strictly avoid charging during peak load hours."<sup>11</sup> If charging times are properly managed, however, "there is downward pressure on electricity prices because the cost of the existing grid infrastructure is spread over more unit sales of energy," which "will help keep electricity an affordable and viable alternative to gasoline."<sup>12</sup> Substantial expansion of electric vehicles will therefore put a premium on properly pricing peak demand.

For these reasons, NIPPC encourages the Commission to develop approaches to peak pricing that will send price signals appropriately reflecting the cost of providing peak-load energy, both to limit the costs of electric service to consumers and to provide price signals that encourage energy storage providers to provide peak shaving services.

### **III. CONCLUSION.**

NIPPC commends the Commission for taking a forward-looking approach that will help ensure a robust market for energy storage in Washington. Broad deployment of energy storage technologies will help ensure a reliable and robust electric grid, while at the same time improving the ability of the electric system to integrate greater amounts of renewable energy and reducing the costs of electric service to consumers. NIPPC therefore urges the Commission to

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<sup>10</sup> *The Smart Grid: An Estimation of the Energy and CO2 Benefits* (Revision1), at p. 3-25, RG Pratt MCW Kintner-Meyer PJ Balducci TF Sanquist C Gerkenmeyer KP Schneider S Katipamula TJ Secrest, PNNL January 2010

<sup>11</sup> *Id.*

<sup>12</sup> *Id.*

move toward adoption of a final policy governing energy storage that includes the refinements we have suggested in these comments.

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