BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Integrate and Refine Procurement Policies and Consider Long-Term Procurement Plans.	Rulemaking No. 12–03–014 (Filed March 22, 2012) Rulemaking No. 13–12–010 (Filed December 19, 2013)

Comments of The Nevada Hydro Company On Workshop Materials and Overall Treatment of Advanced Pumped Storage

David Kates
The Nevada Hydro Company
3510 Unocal Place
Suite 200
Santa Rosa, CA 95403
(707) 570-1866

Dated this 8th day of January, 2014

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Integrate and Refine Procurement Policies and Consider Long-Term Procurement Plans.	Rulemaking No. 12–03–014 (Filed March 22, 2012) Rulemaking No. 13–12–010 (Filed December 19, 2013)

Comments of The Nevada Hydro Company On Workshop Materials and Overall Treatment of Advanced Pumped Storage

Pursuant to the Rule 6.2 of the Rules of Practice and Procedure of the California Public Utilities Commission ("Commission") and the Administrative Law Judge's directives in emails of December 19, 2013 in the Long-Term Procurement Plan ("LTPP") proceeding R.12–03–014, The Nevada Hydro Company ("Nevada Hydro") herein submits its Comments on two related issues: First, and as requested, on the materials provided for the December 18, 2013 Workshop in proceeding R.12–03–014 and second, on the Commission's overall treatment of advanced pumped storage in this proceeding and in the closely related energy storage proceeding in Rulemaking 10–12–007.[1] With the opening on the new LTPP proceeding R.13–12–010, the Commission has the means to correct its past (mis)treatment of advanced pumped storage as discussed herein.[2]

1. Introduction

With these workshop documents, the Commission continues down a path that ignores the elephant in the room: advanced pumped storage ("APS"). The Commission brushed APS aside in the Storage Rulemaking to make room for the "market transformation" the Commission envisions:

[1]/ Order Instituting Rulemaking Pursuant to Assembly Bill 2514 to Consider the Adoption of Procurement Targets for Viable and Cost-Effective Energy Storage Systems, Rulemaking 10–12–007 ("Storage Rulemaking").

[2]/ As directed in Section 4 of the Order Instituting Rulemaking for Rulemaking 13-12–010, Nevada Hydro will file comments specific to that rulemaking by the required February3, 2014 deadline.

SB_GT&S_0332754

> *We are sympathetic to parties' arguments that pumped storage complies with storage definitions under AB 2514. However, the sheer size of pumped storage projects would dwarf other smaller, emerging technologies; and as such, would inhibit the fulfillment of market transformation goals.*[3]

As both the State of California and the Federal Government have mandated the consideration of APS, Nevada Hydro is at a loss to understand why the Commission continues to insist that the state's path to reliability of its electric system apparently includes all types of generation and storage technologies–except APS.

With APS excluded from consideration, first in the Storage Rulemaking allocation and now in the workshop documents, the Commission is apparently willing to evaluate all forms of generation, demand response and storage to fill needs identified in these proceedings except for APS. By excluding only APS from consideration, without any justification or rationale for this exclusion, the Commission is arbitrarily denying APS resources access to the market it is considering allocating to all other forms of generation and storage. In Nevada Hydro's view, this type of discrimination may violate Federal law and policy and so the Commission must remedy this oversight promptly.

As requested, Nevada Hydro has reviewed the workshop materials and provides its comments in Section 4. However, as these materials exclude consideration of APS from this proceeding, in Section 2, Nevada Hydro briefly reviews state and federal mandates requiring that APS at least be considered, and respectively reminds the Commission in Section 3, that it pointed to this LTPP proceeding when it excluded APS from consideration in the Storage Rulemaking. Finally, illustrating the difficulty of trying to wedge APS into this LTPP proceeding when the Commission seems to want it excluded, Section 5 briefly describes the rejection by Southern California Edison ("SCE") of an offer Nevada Hydro submitted for its Lake Elsinore Pumped Storage ("LEAPS") facility under a process mandated in this LTPP proceeding.

Having pushed APS aside in the Storage Proceeding and now lining up to "kick the can down the road" again by excluding APS from consideration in this proceeding, the Commission has clearly excluded APS from any consideration, discriminating against this form of storage and

---

[3]/ "Decision Adopting Energy Storage Procurement Framework and Design Program", Proposed Decision of Commissioner Peterman, Rev. 1, Rulemaking 10-12-007, Proposed Decision Mailed September 3, 2013, Agenda ID #12370 (Rev. 1), 10/17/13, ("Storage ACR"), at page 34.

SB_GT&S_0332755

the only APS project that may conceivably meet the reliability concerns set forth in this proceeding caused by the shutdown of the San Onofre Nuclear Generating Station ("SONGS"). That project is the 500 MW LEAPS facility (FERC Project Number P-14227) and the related Talega-Escondido/Valley-Serrano 500-kV Interconnect ("TE/VS Interconnect")[4]. These projects are located roughly ten to twenty miles from SONGS, and provide not just the megawatts on which the Commission seems here focused, but also the voltage support, other ancillary services and flexibility from within the load pocket[5] that the CAISO clearly requires to meet the mandates of the North American Electric Reliability Corporation[6].

Nevada Hydro believes that if the Commission continues down the path it is on, the State's utilities will be unable to procure APS resources, and the grid manager, ratepayers, and Nevada Hydro's shareholders will not be able to realize the benefits APS or LEAPS offer. While it is clear that Nevada Hydro's investors will lose the millions they have invested in permitting the project as well as any profits they may have expected, ratepayers will also not be able to benefit from the nearly $200 million in annual benefits the CAISO identified LEAPS would bring well before the SONGS outage.[7]

2. Both the State and Federal governments have mandated and encouraged consideration of APS, yet the Commission continues to apparently ignore these mandates

The Legislature and the Federal government have seen the benefits of storage, including APS. This section summarizes these mandates and policies that encourage the proper evaluation and deployment of APS.

---

[4]/ Nevada Hydro has described these projects, their permit path forward and some of the benefits the projects can provide specifically in light of the needs now identified in this proceeding in, "Reply Comments of The Nevada Hydro Company on ALJ Gamson's Policy-Related Questions Presented at the September 4, 2013 Prehearing Conference," R. 12–03–014, filed October 11, 2013.

[5]/ Nevada Hydro has published a Whitepaper and has produced a series of power flow diagrams documenting the benefits of LEAPS and the TE/VS Interconnect. Copies are included in Attachments 1 and 2.

[6]/ The North American Electric Reliability Corporation ("NERC") is the not-for-profit entity whose mission is to ensure the reliability of the Bulk-Power System in North America. NERC develops and enforces Reliability Standards and is the electric reliability organization for North America, subject to oversight by the Federal Energy Regulatory Commission and governmental authorities in Canada. Entities under NERC's jurisdiction are the users, owners and operators of the Bulk-Power System.

[7]/ See for example, Economic Benefits Assessment of the LEAPS Project; CAISO, Regional Transmission South, September 19, 2006, page 32, finding annual benefits of $175 million. These benefits are likely far greater today.

SB_GT&S_0332756

2.1. AB 2514 does not exclude APS, and in fact mandates its consideration

Just as AB 2514 does not exclude APS or single it out for special treatment, it does require that APS be considered equally with other storage resources. Nonetheless, the Commission chose to exclude APS from consideration in Rulemaking 10–12–007. Nevada Hydro asks, if APS is not to be considered in this LTPP proceeding, where does the Commission intend to honor the mandate of the Legislature?

For example, Section 1(f) of AB 2514 notes:

> *"There are significant barriers to obtaining the benefits of energy storage systems, including inadequate evaluation of the use of energy storage to integrate renewable energy resources into the transmission and distribution grid through long-term electricity resource planning, lack of recognition of technological and marketplace advancements, and inadequate statutory and regulatory support."*

While this provision could apply to any storage technology, it clearly does apply to APS. Further, in its description of what a storage system is, AB 2514 requires that such technology be "commercially available"[8] and "cost effective".[9] Only APS is today clearly commercially available, with a number of major companies supplying APS technology to facilities worldwide.[10] While Nevada Hydro understands that some have questioned the "cost effectiveness" of APS, Nevada Hydro has advised that it "will use this Commission's [Certificate of Public Convenience and Necessity "CPCN")] process to demonstrate the cost effectiveness of LEAPS."[11] Unfortunately, it is only by excluding APS from consideration and acting in advance of a decision on this CPCN application that the Commission can claim that other technologies meet this test.

Finally, AB 2514 defines an "energy storage system" as using "mechanical" processes to store energy.[12] Certainly, APS uses a mechanical process (pumping water to a higher elevation) to store energy.

---

[8]/ AB 2514, at Section 2835(a)(1).

[9]/ AB 2514, at Section 2835(a)(3).

[10]/ See for example, Voith Hydro's web page at http://voith.com/en/products-services/hydro-power/pumped-storage-plants-551.html.

[11]/ Opening Brief of The Nevada Hydro Company,Order Instituting Rulemaking to Integrate and Refine Procurement Policies and Consider Long-Term Procurement Plans, R.12–03–014, November 25, 2013 ("Opening Brief of Nevada Hydro") at page 8.

[12]/ AB 2514, at Section 2835(a)(4)(A).

SB_GT&S_0332757

While Nevada Hydro is sympathetic to the language the Commission quotes from AB 2514 that the Commission feels allows it to differentiate APS from other storage technologies,[13] Nevada Hydro does not believe the Legislature intended that the Commission put aside proven, "commercially available" and "cost effective" technology that is available today for the speculative benefits other technologies may bring, and bring at unknown cost and timeframe to ratepayers. One needs only to look at the difficulties the Federal Government faced by using federal taxpayer dollars to benefit certain companies and technologies that the market proved ill considered. Simply, there is no justification for differentiating APS from other forms of storage under the AB 2514 mandate.

As the Commission chose to exclude APS from the procurement mechanism it set up in favor of other storage resources in the Storage Rulemaking, Nevada Hydro contends that it must now here provide the same consideration for APS in this LTPP proceeding.

2.2. Federal Initiatives

The Federal government has passed two laws that encourage the use of APS. First and most recently, on August 9, 2013, the "Hydropower Regulatory Efficiency Act of 2013" was signed into law. This act, among other things directs the Federal Energy Regulatory Commission ("FERC") to investigate the feasibility of a 2-year licensing process for closed-loop pump storage projects. LEAPS is a closed loop pumped storage project. In passing this act, Congress took a major step to encourage the development of APS by moving to shorten the permit process drastically. Further, on January 6, 2014, FERC invited closed loop pumped storage projects to test the 2 year licensing process.[14] Nevada Hydro will submit LEAPS to this pilot program.

The Energy Policy Act of 2005 (PL 109-58) 119 Stat. 594, 946-951 (2005) (16 U.S.C. § 824p) ("EPAct"), "encourages deployment of transmission technologies and other measures to increase the capacity and efficiency of existing transmission facilities and improve the operation

---

[13]/ In the Storage ACR, at page 35, the Commission points to Section 2836(a) as allowing the Commission to "consider a variety of possible policies to encourage the cost-effective deployment of energy storage systems." The Commission further notes that the definition of energy storage system under Section 2835(a) encompasses a variety of technologies, not just pumped storage.

[14]/ Federal Energy Regulatory Commission, Notice Soliciting Pilot Projects To Test A Two-Year Licensing Process, Docket No. AD13-9-000, January 6, 2014.

SB_GT&S_0332758

of the facilities." Under Section 1223(11), "pumped storage" is classified as an "advanced transmission technology," defined as a technology that increases the capacity, efficiency, or reliability of an existing or new transmission facility.[15] In Order No. 679,[16] the FERC stated that the list of advanced transmission technologies found in Section 1223 of EPAct was "illustrative of the kinds of technologies that Congress sought to encourage." On November 17, 2006, FERC explicitly identified LEAPS as an "advanced transmission technology."[17]

Section 1221(a) of the EPAct also has relevance to Nevada Hydro's projects as it required that the Secretary of Energy identify "any geographic area experiencing electric energy transmission capacity constraints or congestion that adversely affects consumers" as a National Interest Electric Transmission Corridor. On August 6, 2006, the United States Department of Energy ("DOE") issued a preliminary National Electric Congestion Study, designating the southern California region as a "critical congestion area" under Section 1221 of the EPAct. Although the Court of Appeal on unrelated procedural grounds ultimately overturned this designation, the underlying reliability challenges to the Southern California grid, as well as DOE's conclusions as to the critical congestion in the region, still describe the on–the–ground reality. Particularly telling is the fact that Nevada Hydro's projects are located squarely in the center of this identified area. Of course, DOE reached this conclusion while SONGS was still operating.

In addition to these Federal mandates, the FERC has taken a number of steps to modernize the grid, particularly by better integrating variable energy resources with modern grid management tools. While none of these rules was exclusively focused on APS, each illustrates the position of FERC, at least, that APS should be one tool available to grid managers. These mandates include:

- Order No. 755,[18] which modernized the provision of frequency regulation in wholesale power markets.

---

[15]/ Section 1223(11), Federal Energy Policy Act of 2005 (PL 10958).

[16]/ Federal Energy Regulatory Commission, Promoting Transmission Investment through Pricing Reform, Docket No. RM06-4-000; Order No. 679, 116 FERC ¶ 61,057, at P. 290.

[17]/ Federal Energy Regulatory Commission, Order on Rate Request, Issued November 17, 2006, Docket Nos. ER06-278-000 et seq., at P. 12.

[18]/ Federal Energy Regulatory Commission, Frequency Regulation Compensation in the Organized Wholesale Power Markets, Docket Nos. RM11-7-000 and AD10-11-000; Order No. 755, 137 FERC ¶ 61,064, Issued October 20, 2011.

SB_GT&S_0332759

- Order No. 764,[19] which addressed integration of variable energy resources.
- Order No. 784,[20] which revised rules governing the sale of ancillary services take into account the speed and accuracy of regulation resources. The rule also revised other requirements to better account for and report transactions associated with the use of energy storage.

Finally, FERC Order 1000[21] promotes competition in regional transmission planning processes to support efficient and cost effective transmission development. Among its many elements, the order requires that transmission providers participate in a regional transmission planning process that satisfies Order No. 890[22] principles including coordinated, open and transparent regional transmission planning processes to address undue discrimination against non–incumbent companies to ensure that transmission services are provided on a basis that is just, reasonable and not unduly discriminatory or preferential. As Congress has determined that APS is a transmission resource[23] and as FERC has concluded LEAPS meets this standard,[24] Nevada Hydro believes that the provisions in Order 1000 prohibiting discrimination against non–incumbent companies apply to LEAPS.

Finally, Section 206 of the Federal Power Act (16 U.S.C. § 824e) and FERC Rules (18 CFR §385.206) provide a venue in which issues identified in this filing may be addressed federally. For convenience, Exhibit 1, (attached) summarizes these issues as discussed herein.

3. APS was excluded from consideration in the Storage Rulemaking and so must be included in this LTPP Proceeding

When the Commission opened Rulemaking 10–12–007 "to Consider the Adoption of Procurement Targets for Viable and Cost-Effective Energy Storage Systems", Nevada Hydro was eager to participate to help the Commission assess and value the benefits to the grid and to

---

[19]/ Federal Energy Regulatory Commission, Integration of Variable Energy Resources, Docket No. RM10-11-000; Order No. 764, 139 FERC ¶ 61,246, Issued June 22, 2012.

[20]/ Federal Energy Regulatory Commission, Third-Party Provision of Ancillary Services; Accounting and Financial Reporting for New Electric Storage Technologies, Docket Nos. RM11-24-000 and AD10-13-000; Order No. 784, 144 FERC ¶ 61,056, Issued July 18, 2013.

[21]/ Federal Energy Regulatory Commission, Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities, Docket No. RM10-23-000; Order No. 1000, 136 FERC ¶ 61,051, Issued July 21, 2011.

[22]/ Federal Energy Regulatory Commission, Preventing Undue Discrimination and Preference in Transmission Service, (Docket Nos. RM05-17-000 and RM05-25-000; Order No. 890, Issued February 16, 2007.

[23]/ Discussed at footnote 15.

[24]/ Discussed at footnote 17.

SB_GT&S_0332760

State ratepayers of energy storage systems like APS. First, it filed to be a party after publication of the Order Instituting Rulemaking ("OIR"), noting that as, "NHC's ability to construct and operate LEAPS may be dependent on the findings, policies and conclusions of this proceeding, NHC has a particular interest in assuring that the Commission properly understands the costs, value and benefits of advanced pumped hydro facilities like LEAPS".[25]

Nevada Hydro also described some valuation conclusions drawn by the CAISO in connection with their 2008 analysis of LEAPS[26] and addressed some of the conclusions of the Commission's white paper that gave rise to the OIR in this proceeding.[27] Notably, and from the perspective of the Commission decisions to date, neither the white paper nor the OIR contemplated excluding APS from consideration in the proceeding.

With release of the June 10, 2013 "Assigned Commissioner's Ruling Proposing Storage Procurement Targets And Mechanisms and Noticing All-Party Meeting" ("Storage ACR"), Nevada Hydro noted, following the directive from the Legislature in passing AB 2514, that

> *the Commission would chart a path for all types of storage, and particularly, large, grid connected storage facilities like LEAPS. Nevada Hydro was surprised and disappointed, therefore, to see that the Commission has excluded from consideration for inclusion in the proposed Energy Storage Procurement Targets[28] the most efficient form of storage, namely, pumped hydro storage. In the ACR, the Commission notes that, "All third-party owned energy storage resources as defined by law, except for pumped hydrological resources, would be eligible to bid into the energy storage reverse auctions."[29] [Emphasis added.] Particularly as AB 2514 places no such limitation on pumped storage, Nevada Hydro sees no basis for Commission's apparent choice to utilize this proceeding to encourage development of markets for smaller and less proven distribution and customer side technologies while excluding pumped storage.[30]*

Nevada Hydro noted further that

> *The Commission may choose, for its own policy reasons, to exclude such large projects from the proposed Procurement Targets set forth in the ACR, apparently to facilitate the commercial development of smaller scale, dispersed storage*

---

[25] "Comments of The Nevada Hydro Company" submitted in Storage rulemaking, January 20, 2011, at page 2.

[26]/ *Id.*, at page 16.

[27]/ *Id.*, at Section 5 on page 18.

[28] Storage ACR at page 8.

[29]/ Storage ACR at page 17.

[30]/ "Comments of The Nevada Hydro Company on Assigned Commissioner's Ruling Proposing Storage Procurement Targets and Mechanisms", July 3, 2013, at page 2.

SB_GT&S_0332761

technologies. However, AB 2514 requires that the Commission must, at the same time, clearly delineate how it will consider the large grid-scale projects.[31]

Nevada Hydro saw a glimmer of hope when the Commission noted in the Storage ACR that

. . . We emphasize that our decision to limit the size of pumped storage projects in the decision is not to discourage large-scale pumped storage projects. On the contrary, these types of projects offer similar benefits as all of the as all of the emerging storage technologies targeted by this program; it is simply their scale that is inappropriate for inclusion here. We strongly encourage the utilities to explore opportunities to partner with developers to install large-scale pumped storage projects where they make sense within the other general procurement efforts underway in the context of the LTPP proceeding or elsewhere. Commission staff may hold a workshop to further explore the operational characteristics and uses for pumped storage projects.[32] *[Emphasis added]*

Nevertheless, simply concluding that APS is somehow "inappropriate" for consideration in the Storage Rulemaking does not excuse the Commission from considering APS fully as required by AB 2514. Nevada Hydro does not believe "encouraging" the utilities "to explore" APS opportunities meets the mandate of AB 2514. Further, the suggestion that the Commission may consider APS in this LTPP allows the Commission to kick consideration of APS down the road to some undefined future if it now chooses to ignore APS in this proceeding. APS and LEAPS specifically may provide real and substantial operational and economic benefits to ratepayers that the Commission cannot ignore, and which it must consider in accordance with AB 2514, particularly in light of the demise of SONGS. These include the following requirements that, in Nevada Hydro's view, the Commission has not met as applied to APS:

1. Section 2836(a)(1), requires that the Commission consider a variety of possible policies to encourage the cost-effective deployment of energy storage systems, including refinement of existing procurement methods to properly value energy storage systems. As the Storage ACR excluded APS from its procurement targets, the Commission now must refine existing procurement methods to properly value APS. Without determining how to value APS, the utilities have no way "to explore" whether APS opportunities "make sense" for them or their ratepayers. As mentioned at footnote 11, Nevada Hydro

[31]/ *Id*., at page 4.
[32]/ Storage ACR, at page 36.

SB_GT&S_0332762

will file an application for a CPCN for LEAPS to demonstrate the value of LEAPS to the Commission and to state's ratepayers. Nevada Hydro trusts that the Commission will allow this demonstration to occur before it allocates other resources to fill the need that LEAPS may meet sooner and more economically.

2. Section 2836(a)(4) notes that, "Nothing in this section prohibits the commission's evaluation and approval of any application for funding or recovery of costs of any ongoing or new development, trialing, and testing of energy storage projects or technologies outside of the proceeding required by this chapter." As noted previously, Nevada Hydro will file an application for a CPCN for LEAPS. As such the Commission must detail now how it will consider the benefits of LEAPS in a CPCN application outside of the findings and conclusions drawn in the Storage Rulemaking and this LTPP proceeding.
3. Section 2836.2(c) requires that the Commission "consider the integration of energy storage technologies with other programs, including demand-side management or other means of achieving the purposes identified in Section 2837 that will result in the most efficient use of generation resources and cost-effective energy efficient grid integration and management". Again, as the Commission excluded APS from the Storage ACR mandates, it must include APS in its conclusions and decisions relative to how these findings and decisions "will result in the most efficient use of generation resources and cost-effective energy efficient grid integration and management".
4. Section 2836.2(c)) requires that the Commission ensure "that the energy storage system procurement targets and policies that are established are technologically viable and cost effective". Nevada Hydro contends that this analysis must include consideration of APS, and cannot arbitrarily exclude APS for the benefit of other storage technologies.
5. Finally, Section 2836.6 requires that the Commission assure that "All procurement of energy storage systems by a load-serving entity or local publicly owned electric utility shall be cost effective." Again, this analysis cannot arbitrarily exclude APS for the benefit of other storage technologies.

SB_GT&S_0332763

4. Workshop materials systematically exclude APS from consideration

The ALJ's December 19, 2013 email provided copies of materials related to the December 18, 2013 LTPP workshop. Included was a Word document "attachment", titled, "Planning Assumptions and Scenarios for use in the CPUC 2014 Long-Term Procurement Plan Proceeding and CAISO 2014-15 Transmission Planning Process" ("Planning Assumptions"). Also provided were two Excel spreadsheets: the "2014 LTPP Scenario Matrix" and "SummaryofRPSPortfolioExcel122613update.xlsx" ("RPS Portfolio Spreadsheet"). Finally, the email included a copy of a document titled: "Key Technical Question for Parties in Response to December 18th, 2013 Workshop on Planning Assumptions and Scenarios for use in the CPUC 2014 Long Term Procurement Plan Proceeding and the CAISO 2014-2015 Transmission Planning Process" ("Technical Questions").

Though these documents do address "storage", as required by AB 2514, specific consideration of APS is missing. This omission is in contravention to State and Federal law and policy, clearly discriminates against APS generally, and LEAPS specifically, and must be remedied before decisions on procurement allocation are made in this proceeding.

4.1. The "Guiding Principles" in the "Planning Assumptions and Scenarios" attachment encourage consideration of APS

The Commission describes the "Guiding Principles" used "for developing assumptions to be used and scenarios to be investigated in the upcoming 2014 LTPP Rulemaking build upon the 2012 LTPP" in section 2 of the Planning Assumptions. Number 2B requires that "Assumptions should reflect real-world possibilities, including the stated positions or intentions of market participants." As a market participant, Nevada Hydro has made clear on numerous occasions its intention to complete permitting and construct LEAPS for the benefit of ratepayers. Further, LEAPS has queue number 72 in the generation queue of the California Independent System Operator ("CAISO").[33] Nonetheless, neither APS generally nor LEAPS specifically were included in these Workshop documents.

In addition, number 2D, requires that, "Scenarios should inform the transmission planning process and the analysis of flexible resource requirements to reliably integrate and deliver new

[33]/ See, http://www.caiso.com/Documents/ISOGeneratorInterconnectionQueue.pdf

SB_GT&S_0332764

resources to loads." Clearly, APS is perhaps the premier resource to provide the flexibility to manage effectively large amounts of system resources, while meeting State greenhouse gas reduction goals (Guiding Principle 2E). Nonetheless, neither APS generally nor LEAPS specifically were included in these Workshop documents.

4.2. Section 4 of the Planning Assumptions purport to address storage, but omit consideration of the unique attributes of APS.

The Commission describes in its Planning Assumptions, energy storage as both a demand–side assumption, in Section 4.1.8, and as a supply–side assumption, in Section 4.2.4.

As a demand side resource, the Commission dismisses these benefits with the statement that "there is no expectation that distribution and customer sited storage will be deployed and operated in a manner that provides premium capacity value at times of system stress, nor is there any information about where these resources will be deployed."[34] By limiting demand–side storage resources to consideration of only "distribution and customer–side storage", ignoring grid–connected storage, the Commission overlooks the fact that all storage, APS or otherwise, may be considered a demand–side resource depending upon the charging cycle required. As it is precisely the flexibility of APS to provide the full range of Premium Capacity[35] benefits to the system, particularly in times of stress, that Nevada Hydro views this artificial construct to limit the consideration of APS is unsupportable.

Then, as a supply–side resource, the Commission here references the Storage ACR that explicitly excluded APS as support for its decision here that again excludes APS from consideration. To be perfectly clear, the focus of D.13–10–040 on "market transforming" goals over the practical benefits to ratepayers of APS, and its reference that APS may be considered in this LTPP proceeding[36] is not sufficient justification to now overlook APS in this proceeding when AB 2514 requires that it be considered. The workshop the Commission has scheduled to

---

[34]/ Planning Assumptions, Section 4.1.8, at page 11.

[35]/ "Premium Capacity" or "fast response capacity" is described in "Research Evaluation of Wind Generation, Solar Generation, and Storage Impact on the California Grid", California Energy Commission PIER Final Project Report, CEC-500-2010-010, Prepared by KEMA, Inc., June 2010. It refers to high value capacity provided by APS that is able to respond rapidly to changing conditions, particularly brought about by intermittent resources, and differs substantially from "capacity" provided by fossil generation. The KEMA Report is included as Attachment 3.

[36]/ Storage ACR at page 36: "We strongly encourage the utilities to explore opportunities to partner with developers to install large-scale pumped storage projects where they make sense within the other general procurement efforts underway in the context of the LTPP proceeding or elsewhere."

SB_GT&S_0332765

"explore the operational characteristics and uses for pumped storage projects" is too little too late if the Commission fixes its procurement decisions in this proceeding and makes no allowances for APS to provide energy, Premium Capacity, ancillary services, flexibility or other benefits in this proceeding.

4.3. Comments on RPS Portfolio Spreadsheet

Nevada Hydro understands that energy storage is a different beast, as it does not produce energy (it merely stores it, loses a little, and then returns it to the system), but can be used for providing capacity and, if from APS, Premium Capacity. Storage has many values that CAISO will need, but energy production seems to be the focus of this proceeding. The CAISO is going to have to operate the system to assure that the energy produced is able to get to the load when needed. This will require a lot of new transmission and a means to manage the various resources (load following, fast response to outages, quick start, black start, etc.). These renewable resources are widely diverse in the time and location of their energy production.

A review of the Renewable Net Short Calculation in the RPS Portfolio Spreadsheet[37] shows that 87,317 GWh is required to meet the RPS. The already defined resources of 42,909 GWh are coming from within the state, 10,639 GWh are coming from out of state and the rest from unknown location of 3,957 GWh. This adds up to a total defined supply of energy of 57,504 GWh. This leaves the state 29,813 GWh sort of the required goal.

Nevada Hydro has also reviewed the "MW_Summary_CREZ" tab in the RPS Portfolio Spreadsheet, which shows the same Net Short of 29,813 GWh[38] as described in the previous paragraph. Then the sheet jumps to a megawatt value for each CREZ. The total 11,534 MW at a capacity factor of slightly over 28% will produce the needed 29,813 GWh.[39] Nevada Hydro is troubled (but not surprised) that of the CREZ locations shown, only three are in the L.A. Basin and San Diego load area:

1. Distributed solar - SCE,
2. Distributed solar – SDG&E, and
3. San Diego South.

[37]/ From column "E" RPS Portfolio Spreadsheet.
[38]/ See cell D4.
[39]/ 11.534 GW X 8760 hours X about .28 = 29813 GWh

SB_GT&S_0332766

Together, these three add up to 708 MW of the 11, 534 MW needed. Thus, about 6% of the total needed is available in the local areas. Nevada Hydro believes that the ratio seen here of how much generation is inside the local area of interest compared to the total needed is true for the already assumed 57,504 GWh. Thus, the need for energy delivery is going to be largely from outside the L.A. Basin and San Diego, rather than produced inside. As a result, the capacity for all RPS energy production will be about 35,000 MW to provide the 87,317 GWh for RPS required for the entire state. So, about 10,000 MW of renewable energy capacity is needed to meet SCE's and SDG&E's energy requirements in the L.A. Basin and San Diego. Of this 2,000 MW or so will be in the area. The rest has to be imported.

Nevada Hydro has also reviewed the "MW_Summary_Tech&Transmission" tab. Nevada Hydro notes that of the 11,534 MW of generation of all types,[40] 8,347 MW is coming from "sunup to sundown" solar, about 72% of the total.[41] This type of solar has a capacity factor of about 23-24%. The biogas, biomass, geothermal and solar thermal capacity totals about 1,846 MW, with a capacity factor of perhaps about 75%. Wind will provide roughly 1,323 MW of the total, and typically has a capacity factor of about 25%. Again, Nevada Hydro stresses that almost all of this capacity is outside the area and must be imported. Once again, APS is excluded as a technology to be considered.

By 2022, all of the OTC generation will be retired. Nevada Hydro has noted the CAISO's acknowledgement of the roughly 9,000 MW reduction of generating capacity in the area.[42] Nevada Hydro notes that the renewable energy requirement for supply to the L.A. Basin and San Diego load area and the loss of generation nearly match. The import of about 10,000 MW into the area is needed. In addition, some process of energy balancing is also needed. The commission has not adequately addressed these critical issues in these materials.

Nevada Hydro again points out that its LEAPS and TE/VS Interconnect, plus a lot more, can solve all these problems. Other parties have suggested DC lines and undersea cables to meet the need in place of Nevada Hydro's projects. However, Nevada Hydro has concluded that all of these projects will be needed, with the TE/VS Interconnect and LEAPS being the first in line,

---

[40]/ See cell C8.

[41]/ Cell C14 + C15.

[42]/ Opening Brief Nevada Hydro, at page 11, describing Testimony provided by Mr. Sparks (Track 4 Testimony of Robert Sparks on Behalf of the California Independent System Operator Corporation) at page 11.

SB_GT&S_0332767

both in capability and time. By 2022, the system needs to be able to deliver about 10,000 MW, of which it has shown the ability to handle about 1,500 MW of that need so far. With the highest rating for a 500 kV line being about 3,440 MW, at least three new 500 kV lines are needed in the area for reliable supply! While Nevada Hydro's TE/VS Interconnect may be the most well defined and least costly, other new and as-yet poorly defined major transmission additions are also needed. And all this by 2022! The physical and economic requirements for this import and system balancing, and the impact on ratepayers is missing from the Commission's analysis, and must be included before the Commission reaches to allocate resources as part of this proceeding.

4.4. Response to Technical Questions

Nevada Hydro has reviewed the Technical Questions and was pleased to see that some of the questions (specifically, questions 4, 6 and 7) addressed "storage", although none focused upon the unique attributes of APS.

4.4.1. Question #4: Is the treatment of energy storage for capacity value reasonable?

As discussed herein, Nevada Hydro does not believe the Commission has addressed the Premium Capacity value of APS. By limiting the considering of "energy storage" to either "distribution and customer-connected" or to "transmission connected" storage based on the limited scope of D.13-10-040,[43] by definition, the Commission is excluding APS from consideration. Further, to limit "energy storage" to the 700 MW identified in the Storage ACR, the Commission gives no credence to its own advise that APS be considered in this Proceeding or that the utilities somehow independently "explore opportunities" with APS where they make sense".[44]

As stated herein, the Commission must consider APS on par with other storage technologies and has not done so. Consequently, the "treatment of energy storage for

[43]/ See "Planning Assumptions, Scenarios, and RPS Portfolios for CPUC 2014 LTPP and CAISO 2014-15 TPP", Neal Reardon, Carlos Velasquez & Patrick Young, Generation & Transmission Planning, Energy Division, California Public Utilities Commission, December 18, 2013("Workshop PowerPoint"), slides 9 and 10.

[44]/ See text at footnote 32.

SB_GT&S_0332768

capacity value" is not reasonable, and cannot be until APS is included in the mix of resources available to the Commission to meet the needs identified in this Proceeding.

4.4.2. Question #7: Decision (D.13-10-040) established storage goals for each of three categories – transmission, distribution, and customer-side of the meter, but does not specify the function(s) to be provided. Should storage modeling be focused on deep multi-hour cycling to support operational flexibility or rapid cycling for ancillary services? How should the production profile of each category of storage identified in the CPUC Storage Target Decision be modeled – as a fixed profile or as a dispatchable resource?

Because of the unique characteristics of APS, APS must be considered in this proceeding and that it must be modeled as a provider of Premium Capacity and a dispatchable resource for both procurement (pumping) and sales (generation) in support of both operational flexibility and rapid cycling for ancillary services.

5. SCE Local Capacity Request for Offers

In accordance with Commission Decision 13-02-015 in this proceeding, on September 12, 2013, SCE launched the Local Capacity Requirements Request for Offers ("RFO") for incremental capacity in the West LA Basin and Moorpark Sub-Areas. Products solicited included: Demand Response, Energy Efficiency, "Energy Storage", Renewables, Distributed Generation, Combined Heat and Power, Resource Adequacy and Gas Fired Generation. Nevada Hydro submitted a complete offer to SCE for LEAPS, noting that the project connected to the 500 kV transmission line feeding into the area (SCE's Valley–Serrano line), and so only indirectly connected to the substations identified in the RFO. On January 6, 2014, Nevada Hydro was notified that, "Unfortunately, the proposal is nonconforming because the interconnection is not in the LA Basin or Moorpark area as required by the RFO."[45]

Although deliverability and system studies show that LEAPS can solve the reliability issues identified in this decision, the Commission required that "resources be located in a specific transmission-constrained area in order to ensure adequate available electrical capacity to meet peak demand, and ensure the safety and reliability of the local electrical grid"[46]. Thus, and

[45]/ Email communication from Daniel Walker of SCE to Rexford Wait of Nevada Hydro dated January 6, 2014.

[46]/ Decision Authorizing Long-Term Procurement For Local Capacity Requirements, Order Instituting Rulemaking to Integrate and Refine Procurement Policies and Consider Long-Term Procurement Plans, Rulemaking 12-03-014, Decision 13-02-015, February 13, 2013, at page 2.

SB_GT&S_0332769

although the Commission hoped in the Storage Rulemaking that utilities would use this LTPP process to bring APS on line, the limitations in the order itself served to emphasize Commission bias against larger APS resources like LEAPS which are connected directly to the 500 kV transmission grid.

6. Conclusion

Nevada Hydro's TE/VS Interconnect and LEAPS projects are critical components for solving the immediate capacity need for the Los Angeles and San Diego systems. As mentioned in its previous filings, Nevada Hydro has completed detailed development and environmental work. The TE/VS Interconnect can be in service by the summer of 2016, faster than any other large project or collection of smaller fixes can be implemented. Further, the TE/VS Interconnect and its 500 kV-permitted right-of-way can become the first phase of the solution to the longer-term problem. With ratings of from 2,600 MW to 4,500 MW (depending on coordinated planning choices), the use of 500 kV lines into the area between SCE and SDG&E can be the keystone of a major system upgrade that can provide the transmission capability to meet a large percentage of the replacement needs for generation retirements.

Because of the significant benefits that APS will bring to the system, the Commission -- in this LTPP proceeding -- must allow LEAPS the opportunity to provide the needed resources. As the need identified in this proceeding is so large, the Commission cannot rely on any single resource or resource mix to solve the crisis. Nonetheless, because of the unique characteristics of APS and the unique locational attributes specific to LEAPS, the Commission can no longer ignore the elephant in the room that is LEAPS and must incorporate consideration of it into this proceeding. LEAPS is the optimal resource to meet the needs identified in this proceeding and this need, to comply with AB 2514, must include a procurement component that APS and LEAPS can meet. As the Storage ACR specifically excluded APS from its procurement mandate, the Commission must give priority consideration to it here.

Given the State's exacting clean energy policies, there is an unquestionable need for the electric power system in California to move toward an environmentally sustainable future, while still maintaining highly reliable and efficient service at the least possible cost. Given this

SB_GT&S_0332770

policy imperative, there can be no doubt that APS generally and LEAPS specifically are the very best facilities that could be developed in the region in order to meet the challenges of:

- The ever-increasing need for highly flexible resources;
- The ever-expanding reliance in the region on variable renewable resources;
- The evident and hidden limitations on power flows into the region;
- The long-term imperative for California to move away from carbon-based energy resources; and,
- The permanent shutdown of SONGS.

AB 2514 does not require APS, uniquely, to compete with other generation sources for a seat at this table. Rather it is to be treated equally with other storage resources. Nevada Hydro contends that the Commission must give fair consideration of the benefits APS can provide as compared to other storage resources as required by AB 2514 and Order 1000. The Commission must treat APS the same as it has treated other storage resources. While the Commission seems disinclined to follow this mandate, in Nevada Hydro view, at least, it must.

/s/ David Kates

David Kates
For The Nevada Hydro Company
3510 Unocal Place, Suite 200
Santa Rosa, CA 95403
(707) 570-1866
TNHC@sonic.net

Dated this 8th day of January, 2014

SB_GT&S_0332771

Exhibit 1

Summary of Issues Pertinent to Rule 206 of the Federal Power Act

Section 206 of the Rules of Practice and Procedure of the Federal Energy Regulatory Commission's ("FERC") require that complaints clearly identify certain relevant information. Each of these required items are addressed in turn below, with references to "Comments of The Nevada Hydro Company on Workshop Materials" ("Nevada Hydro's Comments") filed with the California Public Utilities Commission ("CPUC") as the main filing to which this summary is attached.

1. Action or inaction which is alleged to violate applicable statutory standards or regulatory requirements.

The CPUC omitted advanced pumped storage ("APS") from consideration as a storage resource eligible for procurement by public utilities regulated by the CPUC, thereby denying it access to the market the CPUC controls in a discriminatory manner.

Page 2 of Nevada Hydro's Comments summarizes this issue, which is discussed more fully throughout Nevada Hydro's Comments.

2. Explain how the action or inaction violates applicable statutory standards or regulatory requirements.

Although Federal and state laws, policies and regulations encourage the use of APS, the CPUC, without justification or reason, refused to consider APS as an available technology to meet resource needs when it considers every other available technology (storage or otherwise) to meet these needs.

In a proceeding stemming from the passage of a State law aimed at encouraging storage (R. 10–12–007), the CPUC chose to ignore APS in favor of other storage technologies. In this proceeding, the CPUC pointed to a second proceeding (R. 12–03–014) addressing long-term procurement plans ("LTPP") as a potential venue through which it would address APS as a resource. However, in this LTPP proceeding, the CPUC has again excluded APS from consideration. All technologies are being considered except APS. By excluding APS from consideration, it is shutting APS out of the market and foreclosing its ability to compete for market share. This is discriminatory on its face.

Section 2 of Nevada Hydro's Comments describes the state and Federal law and policy that the CPUC has violated in its treatment of APS.

3. Set forth the business, commercial, economic or other issues presented by the action or inaction as such relate to or affect the complainant.

In order to be able to construct its planned APS facility, known as the Lake Elsinore Advanced Pumped Storage ("LEAPS") facility (FERC project Number 14227), Nevada Hydro requires access to the electricity market in order to produce revenue to support construction and operation.

SB_GT&S_0332772

By excluding APS from being eligible for procurement by state utilities to provide resources to meet the state's future energy needs, the LTPP proceeding will allocate resources necessary to meet these needs without APS being considered.

By shunning APS, ratepayers and the CAISO would also not realize the benefits of APS.

This issue is addressed on page 4 of Nevada Hydro's Comments.

4. Make a good faith effort to quantify the financial impact or burden (if any) created for the complainant as a result of the action or inaction.

Nevada Hydro has been working diligently to complete licensing for LEAPS for years, and will lose its entire investment plus future profits from operation if it is denied access to the market controlled by the CPUC. This market includes (i) power purchase agreements from area utilities regulated by the Commission, or (ii) by a obtaining a rate base directly from the CPUC through submitting an application for regulated rates.

As described generally on Page 4 of Nevada Hydro's Comments, Nevada Hydro's shareholders have to date invested more than $26 million in private funds in LEAPS.

5. Indicate the practical, operational, or other nonfinancial impacts imposed as a result of the action or inaction, including, where applicable, the environmental, safety or reliability impacts of the action or inaction.

By denying consideration of APS to meet resource needs identified by the CPUC, the CPUC is denying the flexibility, ancillary and storage services and energy that APS offers the grid manager, the CAISO. This potentially affects reliability, and could lead to increased emissions of greenhouse gasses and other pollutants if the CPUC therefore relies on natural gas fired generation in place of intermittent renewable resources APS could help to manage.

See page 4 and 18–19 of Nevada Hydro's Comments for more detail.

6. State the specific relief or remedy requested, including any request for stay or extension of time, and the basis for that relief.

Fair consideration of the benefits APS can provide as compared to other storage resources as required by AB 2514 and Order 1000 so that APS can compete equally with other storage resources.

SB_GT&S_0332773