

**Pathfinder Renewable Wind Energy, LLC and Zephyr Power Transmission, LLC  
Comments on the Renewable Portfolio Assumptions used for the CAISO 2012-2013  
Transmission Planning Process**

Pursuant to the California Independent System Operator's ("CAISO's") March 12, 2012 Market Notice, Pathfinder Renewable Wind Energy, LLC ("Pathfinder") and Zephyr Power Transmission, LLC respectfully submit these comments on the CAISO's renewable portfolio assumptions for the 2012-2013 transmission planning process ("TPP").<sup>1</sup>

**I. Introduction and Summary**

Pathfinder is in the development stages of a large-scale wind generation project with an active Interconnection Request pending in the CAISO's Queue Cluster 4. Pathfinder's wind project is located in southeast Wyoming and will interconnect to the CAISO Balancing Authority Area ("BAA") at the Eldorado Substation via a high-voltage direct current ("HVDC") transmission line being developed by Zephyr Power Transmission, LLC ("Zephyr Project"). The CAISO staff is currently considering and analyzing the Zephyr Project's direct interconnection with the CAISO BAA and its associated reliability impacts.

It is essential that the CAISO's TPP provide stakeholders with a meaningful opportunity to review and comment on the renewable portfolios and development assumptions recommended by the California Public Utilities Commission ("CPUC") and the California Energy Commission ("CEC") (collectively, "CPUC/CEC"). The CPUC/CEC recommended scenarios and assumptions are a key part of the TPP, and the CAISO process must provide for a sufficient review and comment opportunity, particularly where significant changes have been made to prior

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<sup>1</sup> The CAISO Market Notice is available at <http://www.caiso.com/Documents/2012-2013TransmissionPlanningProcess-RenewablePortfolioAssumptionsMeeting4212.htm>.

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recommendations and assumptions. To the extent the newest scenario iteration departs significantly from prior assumptions, those changes should be clearly explained.

With respect to the CPUC/CEC recommendations, specific inputs to the recommendations must be updated to reflect recent data and characteristics for out-of-state renewable facilities. Furthermore, certain assumptions behind the current recommendations are fundamentally flawed, resulting in over-reliance on certain technologies and geographic areas to the long-term detriment of California's ratepayers.

Finally, it is of utmost importance that the CAISO consider multiple generation scenarios and seek to develop a robust and flexible transmission system to ensure reliability at the lowest total cost to ratepayers. In fact, a failure to account for stakeholder input through an open and transparent planning process is a violation of Federal Energy Regulatory Commission ("FERC") Order 890 transmission planning principles and CAISO OATT Attachment K implementing those principles. By using a single portfolio scenario developed without stakeholder input and that utilizes significant assumptions about the future transmission system to create that portfolio the CAISO is circumventing the open and transparent process provided by its tariff. The generation portfolio assumptions used to develop the CAISO transmission plan are among the most important elements of transmission planning, and development of those assumptions without full stakeholder input and discussion would make the principle of open and transparent transmission planning a façade.

In addition to potentially violating Order 890, such a process results in reliance on a narrow set of scenarios or a single scenario as well as an effort to "minimize transmission" investments that will significantly increase risks and costs to all California customers and does not advance the public interest. It also fails to take into account the potential benefits of

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competition for new power supplies and therefore violates core principles underlying FERC policy. In fact, the CAISO has been formed for the very purpose of advancing the goal of robust competition for new power supplies. Accordingly, the CAISO should seek to minimize overall risk and costs by evaluating multiple scenarios, encouraging competition, and advancing a robust and flexible transmission system.

The CAISO's objective should be to promote interstate competition for wholesale power in order to produce the lowest delivered cost of power consistent with California's environmental objectives that include the use of renewable sources of power. This objective comports with FERC policy and with Constitutional principles under the Commerce Clause that are designed to ensure open and fair interstate competition for goods and services, including electricity.

## **II. Stakeholder Input is Vital to the Transmission Planning Process**

### **A. A Meaningful Review and Comment Opportunity on Generation Scenarios and Portfolio Recommendations is Essential**

The CAISO TPP lacks appropriate information and processes to ensure broad stakeholder involvement in the creation of one of the most important assumptions used as an input into the modeling process: selection of renewable generation types, amounts, and locations. Specifically, the generation scenarios and portfolios recommended by the CPUC/CEC were not available prior to the deadline for comments on the CAISO Draft 2012/2013 TPP Unified Planning Assumptions and Study Plan ("Draft Study Plan").<sup>2</sup> Because of this flaw, Pathfinder, Zephyr Power Transmission, LLC, and other stakeholders were unable to comment on the CPUC/CEC recommendations until now. Pathfinder reiterates concerns raised at the February 18, 2012

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<sup>2</sup> The Draft Study Plan is available at <http://www.caiso.com/Documents/2012-2013ISOTransmissionPlanningProcessDraftStudyPlan.pdf>.

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stakeholder meeting and in its March 13, 2012 comments<sup>3</sup> that based on experience in the last planning cycle and the work plan's schedule, this comment opportunity may not truly allow for meaningful amendment of the portfolios, because either the CAISO believes it is bound by them as recommended by the CPUC/CEC or because there is insufficient time under the work plan to develop and consider amendments.

The CAISO process is further flawed because the CPUC/CEC recommendations suggest a renewable portfolio scenario outcome, without allowing for stakeholder feedback on the inputs used to develop that recommended outcome. The CAISO process is also inconsistent with the principle that generation outcomes are expected, pursuant to FERC policy, to result from robust competition at the wholesale level. The CAISO must therefore provide for a meaningful comment opportunity by providing a work plan that allows for the possible amendment of the renewable portfolio assumptions along with a willingness on behalf of the CAISO to consider such amendments. The CAISO should not automatically endorse generation and planning scenarios provided by the CPUC/CEC, even when the recommended scenarios are based on the CPUC's Long-Term Procurement Plan ("LTPP") proceeding that includes stakeholder input. This is particularly true for the current CPUC/CEC recommendation where the CPUC/CEC recommended generation scenario was developed without stakeholder input.<sup>4</sup> Relying on dated assumptions and without the benefit of stakeholder input, CPUC/CEC recommendations may not reflect appropriate generation scenarios.

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<sup>3</sup> Pathfinder and Zephyr's March 13, 2012 comments are available at <http://www.caiso.com/Documents/PathfinderZephyrComments-Draft2012-2013StudyPlan.PDF>.

<sup>4</sup> At the February 28, 2012 stakeholder meeting, Keith White from the CPUC stated that the CPUC has not had an open stakeholder process on the CPUC's recommended generation scenarios since the input to the last transmission planning process and has not proposed a major change in the generation portfolio from last year.

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Since the CPUC's LTPP process is not employed specifically for the transmission planning process, but is rather designed to approve plans for utilities to purchase energy in an amount adequate to meet the demands of customers, the CAISO should not automatically endorse the CPUC/CEC recommended base case generation scenario. To this end, the CAISO should also review and include all LTPP planning scenarios in its transmission planning process as well as additional reasonably foreseeable scenarios, not just the base case scenario recommended by the CPUC/CEC, and allow an adequate process to ensure meaningful stakeholder review and comment on each of those scenarios. Many other regional transmission organizations ("RTOs") use a similar, transparent approach so that multiple input assumptions are used when developing transmission plans.

**B. Stakeholders Have Not Had an Adequate Opportunity to Fully Review the Assumptions and Methods Underlying the Recommended Scenarios**

The CAISO has an established and accepted stakeholder process that is regularly implemented for other stakeholder initiatives. Typically, a draft CAISO straw proposal or whitepaper is issued for stakeholder feedback, from which the CAISO develops a draft proposal. The draft proposal is once again posted for stakeholder review and comment before the CAISO develops a final proposal. Other ISOs typically use an even broader process, including multiple rounds of workshops addressing the specific details of various inputs used for generation sensitivity scenarios. For the renewable portfolio assumptions used in the 2012-2013 TPP, however, the CAISO is simply relying on the CPUC/CEC recommendations published on March 12, 2012 and updated on March 23, 2012. Prior to those recommendations being submitted to the CAISO, the CPUC/CEC recommended scenarios were not subject to stakeholder review. Accordingly, only one opportunity to comment on the recommended scenarios, the current

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opportunity, exists before the CAISO develops its base case and alternative scenarios for the TPP. This abbreviated review and comment period is completely insufficient to adequately review, consider, revise, and ultimately adopt the appropriate assumptions for the TPP, particularly for a topic as important as the renewable portfolio scenario and assumptions. The clear deficiency of the review and comment period for the recommended generation scenarios and assumptions is compounded by the fact that there have been significant changes in the scenario assumptions compared to the assumptions used last year.

**C. There Are Very Significant Changes in the Scenario Assumptions Compared to Prior Cycles That Have Not Been Fully Explained or Vetted by Stakeholders**

Currently, the CAISO's TPP process provides for an abbreviated review and comment period for the CPUC/CEC recommended renewable portfolio assumptions. Without providing a significant or sufficient stakeholder review and comment opportunity on the recommended assumptions, the CAISO cannot properly prepare for the future as it will be relying upon assumptions that have not been fully vetted by stakeholders. The recommended portfolios rely in part on outdated data from the CPUC's two-year 2010 LTPP process. There has not been an opportunity for a comprehensive review of the methodology and assumptions for developing the resource portfolios for the 2012/2013 TPP, or on the efforts to update those portfolios from those used for the 2010 LTPP. The CPUC hosted a workshop on April 11-12 to gather suggestions and input from participants concerning scenario planning, but that workshop expressly excluded any discussion of the portfolios developed for the 2012/2013 TPP. The input received in the workshop will only be used in connection with scenario planning for the 2012 LTPP and the 2013/2014 TPP.

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The inadequacy of the review and comment timing is heightened by the significant changes made to some of the inputs underlying the recommended portfolios. *There has been no justification of explanation for why certain model updates were made while others were ignored or overlooked.* For example, assumed capital costs for solar photovoltaic projects were reduced by 30 percent from previous values, yet other generation technology types and other resource cost assumptions were not changed. Many of the unchanged assumptions, particularly those for out-of-state resources, were developed in 2009 as part of the Western Governors' Association's ("WGA") Western Renewable Energy Zones ("WREZ") initiative. In fact, a March 2012 WGA report titled Renewable Resources and Transmission in the West: Interviews on the Western Renewable Energy Zones Initiative ("March 2012 WREZ Report") provides updated assumptions for out-of-state resources that were not incorporated into the recent CPUC/CEC recommendation.<sup>5</sup> The March 2012 WREZ Report identifies reductions in the cost for wind integration and capital costs, increases in wind capacity factors, and an improved approach to modeling wind resources. The report states that these changes tend to benefit wind to the detriment of solar. It is unclear why many assumptions developed in 2009 by the WREZ initiative were unchanged in the development of the recent CPUC/CEC recommended portfolio and why the assumptions that were changed are not consistent with the findings provided in the March 2012 WREZ Report.

Without explaining such significant changes to the underlying assumptions used behind the renewable portfolio recommendations, stakeholders need additional time to review and then provide meaningful input to the CAISO. Furthermore, the fact that the CPUC/CEC

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<sup>5</sup> The March 2012 WREZ Report is available at <http://www.westgov.org/reports>.

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recommendations vary so drastically in such a short timeframe highlights the importance for a transparent, robust and flexible TPP. Designing the transmission system around a single recommended renewable portfolio scenario, especially when the definitions and weightings of the scenario have changed from previous versions of the scenario, is not the proper approach to ensure reliability and provide ratepayers with the lowest priced renewable options and lowest overall costs, and may run afoul of FERC's Order No. 890. Accordingly, as described in greater detail below, the CAISO must ensure that the TPP accounts for a variety of scenarios and provides for flexibility to meet different scenarios should the CPUC/CEC recommendations be incorrect.

### **III. Comments on Modeling Inputs**

#### **A. Flaws with the Renewables Portfolio Standard Calculator**

The renewables portfolio standard ("RPS") Calculator is intended to provide stakeholders with detailed information and visibility into the calculations that shape and influence the procurement process for the LTPP, as well as the development of resource portfolios for the CAISO's TPP. As a result of the limited functionality of the current RPS Calculator, particularly as certain elements of the RPS Calculator are no longer operational, the CPUC has cautioned users about changing assumptions and relying on the results of the RPS Calculator to develop alternative resource portfolios. This raises questions on the credibility of the RPS Calculator and jeopardizes stakeholders' ability to thoroughly test the accuracy of the RPS Calculator in arriving at the current resource portfolio scenarios. Moreover, since the CPUC is questioning the veracity of its own RPS Calculator, it is prudent for the CAISO to ensure that the TPP results in a robust and flexible transmission system to account for a wide range of generation scenarios.

**B. Assumptions Underlying Distributed Generation Facilities are Flawed**

**1. The Recommended Portfolios Result in Double Counting of Distributed Generation Benefits by Discounting for Transmission Avoidance while also Charging Competing Generation for Transmission**

As discussed at the April 2, 2012 CAISO stakeholder meeting, the CPUC/CEC recommended renewable portfolios are flawed because they effectively double count distributed generation (“DG”) benefits. Not only do DG facilities receive a preference based on the presumption that a DG facility will not require new transmission, but this preference is doubled by simultaneously assigning non-DG facilities costs for transmission. If a facility avoids new transmission, it will have a transmission cost of zero, which will be reflected in the project evaluation. Therefore, a preference or advantage over facilities requiring new transmission is already established through that excluded cost. It is improper to confer an additional preference for avoided transmission by assigning both a cost for additional transmission as well as a separate discount for avoided transmission since this is the same cost element. To properly compare the potential transmission avoidance benefits of renewable facilities, the CAISO should instead evaluate only the transmission costs required for a facility without conferring an additional discount for avoided transmission. This avoids the problem of assigning twice the transmission avoidance properties to those facilities that do not require additional transmission.

**2. The Recommended Portfolios Fail to Account for Distribution Costs of Distributed Generation Resources**

The CAISO should recognize that while certain DG facilities may avoid transmission, those same DG facilities often require distribution upgrades and costs. Therefore, any inputs and factors used to evaluate DG facilities must account for distribution-related cost impacts rather than simply presuming no distribution system impacts.

**C. The Recommendations are Based on an Improper Assumption That Low Cost Non-California Resources Will First Be Allocated To Home State RPS Requirements Rather Than California**

At the April 2, 2012 stakeholder meeting, the CPUC/CEC indicated that out-of-state renewable resources are less desirable as the output from such facilities will first be allocated to the state where the facility is located. This is factually incorrect and misstates the nature of the regional market for incremental renewable generation and must not be accepted as fact by the CAISO in developing the TPP. In fact, it implicitly assumes that each State has preferential access to in-state renewable generation, which is inconsistent with both FERC policy on interstate competition and with the Constitutional principle of non-discriminatory interstate commerce. Although Senate Bill (“SB”) 2 (1X) imposes a preference for renewable procurement from facilities located within a California BAA and out-of-state facilities that can deliver into a California BAA, California load-serving entities (“LSEs”) have the flexibility and authority to contract with both in-state and out-of-state resources, including and up to the entire output of a facility. In many cases out-of-state generation can be permitted much more quickly and at lower costs than similar in-state facilities. Moreover, the geographic or geologic conditions that may make for rich renewable resource areas do not simply stop at state boundaries, so it is illogical to simply presume that those resource development opportunities should be ignored. Furthermore, it is incorrect to presume that out-of-state resources are developed to serve local markets. The CAISO interconnection queue provides direct evidence of a large number of out-of-state projects seeking to deliver into California and serve those loads. Projects will seek to sell generation to the best market and have no obligation to serve the local market. Throughout the western region, it is California’s market that is the most desirable based on the state’s aggressive renewable goals. Accordingly, the CPUC/CEC recommendations do not accurately reflect the existing

regional marketplace for renewables, nor the flexibility or discretion that California LSEs have to contract for renewable resources that best fit their RPS procurement requirements.

**D. Failure to Account for Increased Permitting/Development Costs for In-State Resources Versus Out-Of-State Resources**

It is common knowledge that the permitting and development process for renewable resources in California is much slower and more expensive than in other states.<sup>6</sup> The CAISO's TPP must consider the impacts of longer and more costly generation permitting and development costs and how such costs will impact the overall costs of generation.

**E. The CPUC/CEC Recommendations Must be Updated to Reflect More Accurate Cost Information and Performance Characteristics of Wyoming Wind Resources**

According to the March 2012 WREZ Report:

For the 2020 study year, [the Western Electricity Coordinating Council] WECC analyzed two “aggressive” wind cases, replacing 25,000 GWh of the lowest-ranked renewable generation designated to serve California (including some out-of-state resources) with wind in Wyoming or Montana.

...

Potential capital cost savings are large. Even including system-wide production costs, savings can be significant. For example, relocating 25,000 GWh of resources to Wyoming and adding the TransWest Express line results in about a 45 percent reduction in capital costs and roughly \$1.3 billion less in total costs, including production costs, in the year 2020 – about a 6 percent cost reduction overall.<sup>7</sup>

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<sup>6</sup> For example, the Lawrence Berkeley National Laboratory September 2011 report Tracking the Sun IV – An Historical Summary of the Installed Cost of Photovoltaics in the United States from 1998 to 2010 (“Report”), shows that Arizona, New Mexico, Nevada, Oregon, and Texas all have lower average installed costs of behind-the-meter photovoltaic compared to California. (Report, Table 2, p. 21, available at <http://eetd.lbl.gov/ea/EMP/reports/lbnl-5047e.pdf>.)

<sup>7</sup> WREZ Report, p. 23.

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The March 2012 WREZ Report shows Wyoming wind resources on a much more unbiased basis than the data reflected in the RPS Calculator. The CAISO must take this accurate information into account when considering renewable generation scenarios, particularly as WREZ data from 2009 is already represented as a data source in the existing RPS Calculator. Similarly, the CPUC/CEC recommendations must be updated to reflect the fact that large quantities of renewable energy from Wyoming and other states is available via HVDC transmission lines to achieve low costs, high reliability, and reduced environmental impacts.

**IV. The TPP Should Consider Multiple Generation Scenarios and Seek to Develop a Robust and Flexible Transmission System to Ensure Reliability at the Lowest Total Cost to Ratepayers**

**A. The CAISO Should Not Confine its TPP to a Narrow Set or Single Scenario for Resource Development**

The CAISO is ultimately responsible for the portfolio assumptions that are included in the 2012/2013 TPP. To ensure that the TPP provides for the necessary flexibility in transmission planning and can accommodate the uncertainty that is inherent in the development of new generation resources, the CAISO should not confine its TPP to a narrow or single scenario for resource development as represented in the base case scenario. More specifically, the TPP must be expanded to consider variations in the current recommended resource mix. The CPUC/CEC recommendations will not determine actual future procurement, so the CAISO should not design its transmission system rigidly around those recommendations. Instead, the CAISO should plan prudently and include resources that are not represented in the base case, providing for a greater level of out-of-state resources, including Wyoming wind resources, as an alternative to primary reliance on in-state resources.

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Furthermore, the CPUC's LTPP process is not employed specifically for the CAISO's transmission planning process, but is rather designed to review and approve utility plans to procure resources in an amount adequate to meet the demands of customers in light of other procurement requirements. The LTPP process is separate and distinct from a system-wide transmission planning effort, and should not be afforded unwarranted weight in terms of discerning the CAISO's transmission needs to function well within the regional wholesale marketplace, in which actual generation outcomes are determined from a competitive process that includes in-state and out-of-state resources. The CAISO must evaluate additional elements and scenarios above and beyond the LTPP process, and must consider other portfolios than the CPUC/CEC recommendations.

**1. CPUC/CAISO Memorandum of Understanding for the TPP**

The CAISO is not obligated to solely rely upon the CPUC/CEC recommended portfolios. According to the May 2010 Memorandum of Understanding between the CPUC and the CAISO Regarding the Revised ISO Transmission Planning Process ("MOU"), the "CPUC develops renewable generation portfolio scenarios as part of its Long Term Procurement Plan process that will *assist* the ISO in identifying transmission projects needed under various renewable generation location assumptions and developing a comprehensive transmission plan."<sup>8</sup> The CAISO need not rely upon the CPUC recommendations, but can use such recommendations to assist in the TPP process. The TPP process, however, must provide for adequate participation by stakeholders:

For Phase 2 of the transmission planning process, the ISO will conduct a stakeholder process that complies with Order 890 of the

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<sup>8</sup> MOU, p. 1, emphasis added.

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Federal Energy Regulatory Commission (FERC) and *allows meaningful public participation to ensure that appropriate study assumptions and scenarios are identified to support development of the final Phase 2 plan*. Stakeholders will have opportunities to comment on published drafts of the Phase 2 plan, as well as on the final Phase 2 plan that will be submitted for approval to the ISO Board of Governors. The final Phase 2 plan for the ISO balancing authority area will *reflect the ISO's consideration of all stakeholder comments and recommendations received during the planning process*.<sup>9</sup>

By this passage the CAISO has recognized that, consistent with Order No. 890, it cannot solely rely upon the limited recommendations from the CPUC/CEC and must have its own transparent stakeholder process and consider other stakeholders' comments and recommended generation scenarios.

## 2. CAISO Tariff

The CAISO must consider stakeholder comments and additional generation scenarios in addition to the CPUC/CEC recommendations or risk circumventing the open and transparent process required by its Tariff. Section 24.4.6.6 of the CAISO Tariff provides that input from the CPUC is only one of ten elements the CAISO is required to consider for the TPP. This necessitates that the CAISO cannot overly rely upon the CPUC/CEC recommendations, but must afford weight to comments and recommendations from other stakeholders and generation scenarios as well. This will help ensure that the CAISO TPP will “reduce congestion costs, production supply costs, transmission losses, or other electric costs resulting from *improved access to cost-effective resources*.”<sup>10</sup>

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<sup>9</sup> MOU, p. 2, emphasis added.

<sup>10</sup> CAISO Tariff, § 24.1, emphasis added.

### 3. FERC Order 890

The CPUC/CEC recommended portfolio scenarios were developed without stakeholder input and utilize significant assumptions about the future transmission system, so the CAISO must allow for meaningful stakeholder input consistent with the CAISO Tariff and FERC Order 890.<sup>11</sup> Order 890 requires “coordinated, open, and transparent transmission planning on both a local and regional level.”<sup>12</sup> To meet these requirements, “transmission providers must coordinate with customers, neighboring transmission providers, affected state authorities, and other stakeholders in order to ensure that transmission plans are not developed in an unduly discriminatory manner.”<sup>13</sup> According to Order 890:

This means that customers must be included at the early stages of the development of the transmission plan and not merely given an opportunity to comment on transmission plans that were developed in the first instance without their input.<sup>14</sup>

Order 890 also provides:

In addition, transmission providers will be required to reduce to writing and make available the basic methodology, criteria, and processes they use to develop their transmission plans, including how they treat retail native loads, in order to ensure that standards are consistently applied. This information should enable customers, other stakeholders, or an independent third party to replicate the results of planning studies and thereby reduce the incidence of after-the-fact disputes regarding whether planning has been conducted in an unduly discriminatory fashion.<sup>15</sup>

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<sup>11</sup> FERC Order No. 890 is available at <http://www.ferc.gov/whats-new/comm-meet/2007/021507/E-1.pdf>.

<sup>12</sup> FERC Order No. 890, ¶ 435.

<sup>13</sup> FERC Order No. 890, ¶ 438.

<sup>14</sup> FERC Order No. 890, ¶ 454.

<sup>15</sup> FERC Order No. 890, ¶ 471.

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Therefore, in order to ensure compliance with Order 890, the CAISO cannot solely rely on the CPUC/CEC recommendations but must ensure that stakeholders are provided a meaningful opportunity for input regarding renewable scenarios, including the methodology, criteria, and other inputs for renewable portfolios.

**4. Other Planning Efforts Support Diversified Generation Scenarios Recognizing Out-of-State Renewable Resources**

Other agencies and regional planning organizations have stressed the importance of out-of-state renewable resources for meeting California's RPS goals, a position that the CAISO should adopt for its TPP. For example, both the California Transmission Planning Group ("CTPG") and the WECC Transmission Expansion Planning Policy Committee ("TEPPC") have recognized the importance of out-of-state renewable generation options and have come to a substantially divergent view of Western Interconnection development economics than the CPUC/CEC recommendations. Accordingly, the CAISO should not rely on a narrow or single set of generation scenarios and should not discount the value of out-of-state renewables. In fact, the CAISO should give extra weight to the product of agencies that have followed processes that are held to just and reasonable standards promulgated by a federal agency as opposed to state agencies acting under the laws and regulations of a state that do not necessarily afford the same protections or account for system-wide transmission needs and requirements.

The CTPG issued its 2011 Final Statewide Transmission Plan ("2011 Plan") on February 24, 2012.<sup>16</sup> The 2011 Plan is intended to identify transmission needs, such as the need to

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<sup>16</sup> The CTPG 2011 Plan is available at [http://www.ctpg.us/images/stories/ctpg-plan-development/2012/2012-03-05\\_2011finalstatewidetransmissionplan.pdf](http://www.ctpg.us/images/stories/ctpg-plan-development/2012/2012-03-05_2011finalstatewidetransmissionplan.pdf).

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mitigate thermal overloads on the existing transmission system between two substations. The 2011 Plan concludes:

Based upon study results in Phase 3 and Phase 4 of CTPG's 2010 study work, the Pacific Northwest Corridor the Northwest Nevada Corridor and the Southwest Corridor have been selected as high potential transmission corridors. These corridors are recognized as *potential options for the state of California to import power, including renewable energy to meet the state's RPS goals*. Based on further review in 2011, the CTPG has again selected these corridors as high potential transmission corridors. The corridors were selected for the following reasons:

- i. The recognition by other sub-regional planning groups for study as potential WECC transmission system improvements
- ii. The potential for geographic, weather, and resource diversity for California's renewable resource portfolio beyond that provided by renewable developed primarily in southern California,
- iii. The strong support by federal and state governments required for the completion of the renewable resource projects and transmission improvements that would provide renewable energy throughout the western United States.
- iv. Potential access to entities that are currently planning for the development or renewable energy resources well beyond their own needs for potential import into California.<sup>17</sup>

Additionally, the 2011 Plan provides:

Similar to 2010, the CTPG identified "high potential" transmission corridors that may provide the State with options going forward. The identification of these transmission corridors is intended to provide transmission planning information *to assist the California load serving entities' efforts in identifying viable out-of-state renewable resource projects*. By providing high potential transmission corridor options, CTPG intends *to facilitate a competitive renewable resource development and procurement environment*.<sup>18</sup>

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<sup>17</sup> 2011 Plan, pp. 8-9; emphasis added.

<sup>18</sup> 2011 Plan, p. 11; emphasis added.

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The 2011 Plan clearly recognizes the importance of evaluating out-of-state renewable generation options, as such options are important to provide competitive pricing and a diversity of resources to ensure that LSEs can meet the long-term renewable procurement goals.

The WECC TEPPC made similar findings in its 10-Year Regional Transmission Plan – 2020 Study Report (“2020 Study Report”).<sup>19</sup> Among the scenarios considered in the 2020 Study Report were two involving 25,000 GWh increases in Montana and Wyoming wind production and associated transmission to convey the energy to California. The WECC conclusion on the impact of increasing wind production was:

Based on the capital cost estimates prepared for the aggressive wind cases as shown below in Table 4, all of the aggressive wind cases have a cost benefit compared to the PC1 SPSC reference case. The savings are mostly related to the estimated capital costs of the resources.

A closer review of the 2020 Study Report reveals the magnitude of the identified savings is substantial, in particular for the Wyoming high wind scenario – a scenario similar to Pathfinder’s proposal to deliver wind energy into California. For that scenario, the Report found a net reduction in regional production costs of \$1,556 million per year compared to the base case scenario—the lowest production cost of any of the scenarios studied.<sup>20</sup>

Consistent with the conclusions reached by the CTPG and the WECC TEPPC, the CAISO should not rely on a narrow or single set of generation scenarios, particularly a scenario or scenarios that discounts the value of out-of-state renewable resources. Instead, the CAISO

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<sup>19</sup> The 2020 Study Report is available at <http://www.wecc.biz/library/StudyReport/Documents/2020%20Study%20Report.pdf>.

<sup>20</sup> 2020 Report at Table 25, p. 93.

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should carefully consider multiple scenarios assessing the impact of a significant increase in renewable imports.

**B. The Stated Goal of the Renewable Generation Scenarios to “Minimize Transmission” Is Not In the Public Interest**

At the April 2, 2012 stakeholder meeting, a new goal of the renewable portfolio assumptions to “minimize transmission” was expressed. The CAISO should ensure that it does not attempt to “minimize transmission” as part of the TPP, but instead should strive to meet reliability and other policy goals at the least total cost to ratepayers. Minimizing transmission costs alone is not necessarily consistent with minimizing total delivered costs to electric consumers. The CAISO will not succeed at keeping overall costs to the lowest level achievable unless it considers the customer’s entire bill, not simply the transmission portion of it. In fact, transmission is a relatively small portion of the total customer bill compared to generation costs. Nevertheless, transmission can dramatically impact generation costs, availability and reliability, thereby directly impacting customers’ bills overall. For example, transmission can increase generation competition by allowing increased competition between technologies, resource areas, and individual projects, consequently leading to lower bid prices and generation costs. Similarly, transmission development hedges generation risk by providing flexibility to respond to changing costs and environmental impacts, increasing the availability of renewable generation, and allowing retail sellers to procure the most economical generation resources. Finally, as discussed more fully below, even if transmission is “underused” in the near term, that transmission still provides value as a hedge against future load growth.

“Minimizing transmission” and selecting one generation scenario or a narrow set of generation scenarios is not prudent planning. The CPUC/CEC recommended renewable

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portfolio assumptions rank renewable generation options, effectively picking winners and losers based on forecasted prices, permitting, and environmental impacts. These rankings, however, are speculative at best and potentially outright wrong. The assumptions used also favor in-state resources over out-of-state resources, which means the results will not be consistent with providing the lowest cost option for consumers. Though not designed to rely on specific projects, the portfolio assumptions are dependent on specific speculative assumptions regarding technologies, resource area costs, and other factors. Reliance on limited scenarios based on specific assumptions results in a preferred portfolio that fails to hedge against the high probability of forecast and assumption error. Coupled with a design that minimizes transmission, the recommended scenarios imprudently put all of California's eggs in one basket and create undue generation market power that puts ratepayers and the environment at risk.

To illustrate this risk, imagine how reliance on a significant penetration of DG to avoid transmission could result in a scenario where there is insufficient transmission to meet renewable goals without using DG. This would result in dependency on DG to meet renewable goals, even if the DG resources were more expensive and had more negative environmental impacts than other resources that were not considered in the TPP. Similarly, if the CAISO were to rely on in-state renewables, a scenario could develop where California cannot respond to significant changes in the cost, permitting, or environmental impact assumptions of in-state versus out-of-state renewables as the state could be constrained from procuring additional out-of-state generation.

It was suggested at the April 2, 2012 stakeholder meeting that the risk of contract or project failure is mitigated because if a specific project or contract failed that had otherwise satisfied the ranking criteria for the preferred portfolio, that project would be replaced by a

similar project in the same resource area. Such an assumption is incorrect and is inconsistent with the promotion of competition. Just because a contract or project fails, there is no guarantee that the next project in the same resource area will be as environmentally friendly or cost effective as the original project. Additionally, there is no guarantee that a replacement project in the same resource area will be more cost effective than a different resource from another resource area. Put differently, while using a project in the same resource area may hedge against the risk of specific contract or project failure, there is no hedge against failure of the basic assumptions used in the original rankings. Numerous factors could skew these results and cause an uneconomic outcome. For example, if the current assumption about the prices of photovoltaic supplies proves fundamentally wrong,<sup>21</sup> photovoltaic projects may not be as preferential under the current ranking design. Similarly, the current assumptions regarding DG viability and costs could significantly change, perhaps due to distribution costs. Under either of these examples, however, the transmission system would have been designed to rely upon such projects to the detriment of California's ratepayers. To avoid such a result, the CAISO's TPP must account for such uncertainties by designing a robust and flexible transmission system that allows for numerous generation scenarios to be produced from robust competition for new resources.

**C. Rather Than “Minimizing Transmission” to Serve One Forecasted Scenario, California Should Adopt a “Risk Minimization” Strategy that Reasonably Balances the Risks and Rewards of Multiple Scenarios and Encourages Competition and Flexibility**

It is essential that the CAISO seeks to minimize risk by diversifying its transmission system and hedging against uncertainties. Diversification and risk hedging are axiomatic

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<sup>21</sup> For example, photovoltaic technology problems or changes to national or international (e.g., Chinese) subsidies for photovoltaic production could arise, drastically increasing the costs of photovoltaic resources.

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planning principles in an uncertain world, routinely applied in virtually any long-term planning exercise. The entire insurance industry and financial planning industries are based upon this essential planning principle. By adopting one optimistic scenario explicitly aimed at “minimizing transmission,” California would be rejecting essential planning principles, over-relying on hopeful outcomes while ignoring pessimistic possibilities. This would be the equivalent of supporting and fostering growth and competition of the production and commerce segments of the economy with a planning model that has the primary goal of minimizing the cost of the highway and/or rail systems. Such an absurd conclusion must be avoided by the CAISO when planning for California’s transmission future.

Ensuring for a robust and flexible transmission system will protect against uncertainties, increase opportunities and competition for renewable generation, and reduce overall customer costs all without exposing California to significant risk. While there is a slight risk of “stranded” transmission investment, that risk is minimal compared to the risk of insufficient transmission. First, transmission costs are a small fraction of the customer’s bill compared to generation. Therefore, building a more robust transmission system will provide greater flexibility for the development of competitive generation resources, and provide greater discretion for load serving entities to procure energy and capacity from competitive generation projects. Second, expanding transmission infrastructure and increasing the transfer capability with the rest of the WECC is never “a bridge to nowhere” that will become stranded or go permanently unused. To the contrary, the risk of increased transmission infrastructure is only that it will not be fully utilized as quickly as assumed. Third, “unused” transmission to the WECC will continue to encourage competition and will provide a hedge against future load growth. Fourth, new transmission to other states can likely follow existing transmission corridors, thereby minimizing impacts and

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incremental risks. The impact of such expansion is mainly visual (there is no water use, air emissions, and minimal species impacts compared with generation) and already exists for the most part in existing corridors. Fifth, major wind, solar, and geothermal resource areas are well known and will not move over time. This means that additional transmission to these key resource areas (e.g., Wyoming wind) will almost certainly not result in stranded assets over time. Lastly, transmission will only become increasingly difficult to review, permit, and build in California and the West such that postponing transmission investment will likely increase real development costs or foreclose opportunities altogether. These risks are relatively small, particularly when compared to the alternative of becoming locked into a system with insufficient transmission and limited resource options.

On the other hand, the risk of insufficient transmission is vast when compared to the risk of “stranded” transmission. Insufficient transmission can lead to limited generation options and higher generation prices, thus increasing the bulk of costs, and thereby overall customer bills. Insufficient transmission can also impact reliability, one of the principal goals of the TPP. Unlike the risk of “stranded” transmission, insufficient transmission can lead to reduced availability of renewable generation, therefore resulting in significant environmental impacts from increased reliance on fossil fuels. This, in turn, will impact climate change, air quality, public health, water resources (including once-through cooling impacts), and other key environmental problems. Furthermore, as major transmission projects require long-lead times, frequently requiring years of permitting and development time, it is feasible to scale back planned transmission in future years based on changed circumstances. It is not, however, feasible to quickly respond to changed circumstances by increasing transmission development.

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This is yet another reason why California should adopt a plan that, if anything, includes all reasonably foreseeable transmission needs rather than one that “minimizes transmission.”

Much like California’s transportation infrastructure, history has proven that prudent planning and encouragement of a flexible and robust planning process that promotes transmission development is more beneficial and economical in the long run than an overly optimistic approach that minimizes transmission options. California’s investments in transmission have nearly always proved prudent and have not resulted in “stranded” transmission in the long-term. There are few, if any, examples of California regretting the building of infrastructure that enabled increased delivery of goods and services for California’s expanding population.

For the reasons described above, the risk of under-developing transmission far outweighs the risk of over-development and “stranded” transmission. Accordingly, the CAISO should ensure that its TPP develops a plan that balances a range of reasonably foreseeable generation scenarios, including scenarios with significant renewable imports. A robust and flexible approach will protect ratepayers and hedge against forecast error.

## **V. Conclusion**

Pathfinder and Zephyr Power Transmission, LLC appreciate this opportunity to submit these comments on the CAISO’s renewable portfolio assumptions for the 2012/2013 TPP. For the reasons described above, it is crucial that the CAISO provide stakeholders with a meaningful opportunity to review and comment on the CPUC/CEC renewable portfolios and development assumptions and that the CAISO fully consider those comments before adopting portfolios and assumptions for the TPP. Specific assumptions and recommendations by the CPUC/CEC must

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be updated and revised to more accurately reflect current and existing conditions. Finally, it is essential that the CAISO seek to develop a robust and flexible transmission system to minimize overall risk by evaluating multiple generation scenarios and encouraging competition.

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