

**Stakeholder Comments**

<b>Submitted by</b>	<b>Company</b>	<b>Date Submitted</b>
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**INTRODUCTION**

Duke American Transmission Company (“DATC”) respectfully offers the following comments on the California Independent System Operator’s (“CAISO”) on the draft 2014-2015 Transmission Plan.

At the outset, DATC wishes to make four points clear. First, DATC greatly values its relationship with the CAISO and seeks a collaborative approach not only regarding the San Luis Transmission Project (“SLTP”), but also regarding electric system issues generally. Second, based on extensive discussions with SLTP sponsors, DATC is convinced that they strongly believe the SLTP is in the best long-term interest of federal water customers and their decision to proceed with the SLTP is not dependent upon the CAISO’s decision regarding “right sizing” the project to 500 kilovolts (“kV”). Third, while DATC has shown that the SLTP has both reliability and economic benefits within ten years, DATC agrees that the ten year forecast of reliability and economic needs prepared by the CAISO for the draft plan, which assumes only the scenarios provided by the California Public Utilities Commission (“CPUC”) and California Energy Commission (“CEC”), and no others, does not *by itself* support inclusion of “right sizing” the SLTP in the plan. Finally, DATC’s interest in asking the CAISO to consider “right sizing” the SLTP is not based on any attempt to shift costs or promote unneeded transmission, but rather on a sincere belief that “right sizing” the project will serve the needs of CAISO ratepayers and the state as a whole notwithstanding the conclusion of the 10-year forecast.

Stated simply, where DATC finds fault with the draft plan is this: the plan uses an analysis of need based on the North American Reliability Corporation (“NERC”) minimum ten-year

forecast to determine the need to “right-size” the SLTP. DATC believes that in this case, the minimum 10-year forecast is not sufficient to fully consider all of the planning assumptions relevant to whether the SLTP is needed.<sup>1</sup> Plainly, projects that the forecast finds necessary within 10 years to meet reliability standards or economically relieve congestion are needed. But the opposite is not true. One cannot say that the SLTP is not needed without answering key questions that the minimum reliability forecast simply does not address. These basic questions are these:

- How long will the opportunity to “right-size” the SLTP be available and can a decision be postponed to a future planning cycle?
- What is the potential cost in dollars and environmental impact of failing to “right-size” the SLTP now and needing the capacity later?
- What are the chances that this capacity will be needed over the long term?
- How do the risks of passing on the chance to “right-size” the federal project compare to the cost of doing so?

Saying that the SLTP is “not needed” based solely on the minimum ten-year forecast of average system conditions rather than a robust analysis of multiple scenarios, ignores these fundamental questions and puts CAISO stakeholders at risk of incurring potentially very high costs in the future.

That risk is illustrated by the following hypothetical. Suppose that the answers to the questions above are as follows: 1) the opportunity to “right-size” SLTP will no longer be available in future planning cycles; 2) building the SLTP-equivalent capacity later is either not feasible or involves far higher financial and environmental cost than “right sizing” SLTP; and 3) it is likely that this capacity will be needed for the long term. In this scenario, the prudent planning decision is to seize the opportunity to “right-size” the SLTP now to avoid the likelihood of much higher costs and impacts later. *This is true even if the project is not required to meet the minimum ten-year forecast.*

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<sup>1</sup> Arguably, a needs analysis based on the minimum ten-year forecast is too short to evaluate all of the benefits of many major transmission projects, let alone one like the SLTP where a decision cannot be deferred. A major new transmission line in California can take ten years or longer to plan, permit and construct. Moreover, it will provide benefits for several decades past the ten year horizon. Thus, a ten-year horizon risks capturing all or most of the costs and only a fraction of the benefits. That is why any project found needed in such a forecast plan is needed, but the opposite is not true. Projects not found needed in that time may still be prudent; that fact is the reason the NERC ten-year horizon is a *minimum* planning requirement and not a mandatory period. It is why major transmission planning entities such as MISO, PJM and the Southwest Power Pool use forecasts of 15 or even 20 years. And it is why the CAISO tariff authorizes including in the plan policy-driven projects that are not otherwise needed according to the minimum forecast.

These comments will show that there is good cause to believe that all of these hypothetical answers are true for the SLTP. If, in the CAISO’s expertise and judgment, the answers to these questions do not support inclusion of “right sizing” the SLTP, that would resolve the matter for DATC and other stakeholders even if we disagree. But currently the draft plan does not address these questions. By these comments, DATC seeks a more collaborative relationship with the CAISO that seeks objective answers to these questions.

Specifically, DATC urges the CAISO to take the following specific actions:

- Commit to making by the end of this year a long-term decision regarding whether to “right-size” the SLTP;
- Work with the CEC to develop information comparing the costs, environmental impacts and permitting issues attendant to “right sizing” the SLTP to developing equivalent capacity along the same path later;
- Analyze the likely long term need for the SLTP capacity in a manner consistent with the CAISO’s Transmission Economic Assessment Methodology (“TEAM”) and Brattle Group concepts (discussed below) by developing a forecast of twenty years that considers the Governor’s 50% renewable energy goal by 2030, significant likely development of solar energy in the San Joaquin Valley, and the potential need to transfer significant amounts of energy between northern and southern California to address planning uncertainties; and
- Based on the foregoing, objectively assess whether the approximately \$300 million cost of “right sizing” the SLTP is warranted to avoid the cost of developing equivalent capacity in a new corridor with significant additional right-of-way requirements later.

### **SLTP BACKGROUND**

The SLTP is a 62-mile transmission project that will consume the last remaining existing transmission corridor space between Los Banos and Tracy. It is proposed by the Western Area Power Administration (“Western”) to serve the approximately 400 megawatt (“MW”) water pumping load of federal Central Valley Project, operated by the U.S. Bureau of Reclamation (“USBR”). That load has, until now, been served by a contract for power with Pacific Gas and Electric (“PG&E”) that expires in 2016.<sup>2</sup> The SLTP can meet federal needs at 230 kilovolt (“kV”) without “right sizing” to 500 kV. Building the SLTP at 500 kV, however, would as much as quadruple its transmission capacity (to 1600 MW) with little additional environmental impact.

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<sup>2</sup> See, the San Luis Transmission Project Environmental Impact Statement/ Environmental Impact Report Project Fact Sheet.

Financially, this quadrupling of capacity would come at only twice the cost, thereby creating a classic “win-win” opportunity. Thus, DATC’s proposal to the CAISO is that it would receive approximately 1200 MW of backbone transmission capacity for approximately \$300 million (assuming the cost is shared with Western in proportion to the capacity received).<sup>3</sup>

The SLTP is currently under environmental review by the Western Area Power Administration (“Western”) in both 500 kV and 230 kV configurations. The preferred option, and that put forward for consideration by the CAISO, is to “right-size” the project at 500 kV. Western’s schedule calls for completion of the environmental review and issuance of a record of decision by next February.

### **DISCUSSION**

The CAISO has the discretion to look beyond a 10-year planning horizon in its transmission planning process. (Indeed, as discussed in section 3.d below, pursuant to the CAISO’s TEAM approach, it arguably has an obligation to do so.) Currently, the CAISO tariff employs a minimum 10-year planning horizon in considering and approving transmission solutions, stating:

[T]he CAISO will develop the annual comprehensive Transmission Plan and approve transmission solutions using a Transmission Planning Process . . . .<sup>4</sup> The Transmission Planning Process shall, at a minimum . . . reflect a planning horizon covering *a minimum of ten (10) years* that considers previous approved transmission upgrades and additions, Demand Forecasts, Demand-side management, capacity forecasts relating to generation technology type, additions and retirements, and such other factors as the CAISO determines are relevant.<sup>5</sup>

The tariff specifies that this ten-year planning horizon is merely a minimum.<sup>6</sup> In Order 1000, the Federal Energy Regulatory Commission (“FERC”) affirmatively declined to establish minimum planning horizons on transmission planning authorities such as the CAISO, choosing instead to provide transmission providers flexibility to determine the most appropriate manner, in

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<sup>3</sup> That cost is much less than other CAISO-approved projects such as the Sunrise Powerlink, Tehachapi or Devers-Colorado River which are roughly two to four times as costly on a per MW or per mile basis.

<sup>4</sup> CAISO Tariff § 24.2.

<sup>5</sup> CAISO Tariff § 24.2(b)(emphasis added).

<sup>6</sup> See, FERC Order 1000 P 157, <http://www.ferc.gov/whats-new/comm-meet/2011/072111/E-6.pdf> (emphasis added).

consultation with stakeholders, “requirements that work for [the] transmission planning region.”<sup>7</sup> Similarly, while NERC’s reliability standards make clear that the CAISO should evaluate transmission solutions across a ten-year planning horizon, the CAISO generally interprets NERC’s reliability standards, including the 10-year planning horizon standard, to be a minimum threshold.<sup>8</sup>

The CAISO’s Planning Standards identify the NERC Transmission Planning (“TPL”) standards and Western Electricity Coordinating Council (“WECC”) Regional Criteria as minimum standards that the CAISO needs to follow in its planning process unless NERC or WECC formally grants an exemption or deference.<sup>9</sup> Specifically, the CAISO implements its Planning Standards to complement the NERC and WECC reliability standards “where it is in the best interests of the security and reliability of the ISO controlled grid”.<sup>10</sup> The CAISO’s Planning Standards “establish planning guidelines and standards *above* those established by NERC and WECC, and interpret the NERC Reliability Standards and WECC Regional Criteria specific to the ISO Grid.”<sup>11</sup> DATC believes that California’s policies to maximize use of existing transmission corridors, reduce greenhouse gas emissions and potentially push to achieve a 50 percent penetration of renewables warrant consideration of need for the SLTP beyond a 10-year planning horizon. The SLTP will provide flexibility and a hedge against uncertainty in generation location, demand growth, and will provide access to renewable energy development in the Fresno/Kern area, which is also an area in need of economic stimulation. Thus, consistent with past practices, the CAISO should look beyond a 10-year planning horizon to consider whether there is a longer term need for the SLTP.<sup>12</sup>

If the CAISO does not look beyond the 10-year forecast in considering the SLTP, key questions regarding the need for the SLTP will go unanswered. As shown below, it is likely that an objective assessment of these issues will conclude the following:

- That the decision whether to “right-size” the SLTP cannot be deferred to future planning cycles;

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<sup>7</sup> See, FERC Order 1000 P 157, <http://www.ferc.gov/whats-new/comm-meet/2011/072111/E-6.pdf> (emphasis added).

<sup>8</sup> See e.g. CAISO Planning Standards, Effective September 18, 2014 to March 30, 2015 at p. 3, [http://www.aiso.com/Documents/FinalISOPlanningStandards-September182014\\_v2.pdf](http://www.aiso.com/Documents/FinalISOPlanningStandards-September182014_v2.pdf).

<sup>9</sup> *Id.* at p. 3.

<sup>10</sup> *Id.* at p. 3.

<sup>11</sup> *Id.* at p. 3 (emphasis added).

<sup>12</sup> CAISO Tariff § 24.2(b).

- That the environmental and economic cost of failing to “right-size” the SLTP is potentially very high and that failure to avoid such costs is inconsistent with statutory policies regarding transmission planning in California.
- That it is likely that the capacity resulting from “right sizing” the SLTP will be needed to support: 1) the Governor’s announced goal of achieving 50% renewable penetration by 2030; 2) development of preferred solar energy sites in the San Joaquin Valley; and 3) to provide flexibility and a hedge against major planning uncertainties that potentially threaten reliability and economic development in the long term.
- That the approximately \$300 million cost of “right sizing” the SLTP is a prudent expenditure compared with the likely much higher costs and risks of failing to do so.

The importance of each issue is addressed below to demonstrate to the CAISO the need to conduct its own objective assessment of these questions.

### **1. The Decision Whether to “Right-Size” the SLTP Cannot be Deferred.**

Western and the other federal entities involved in supplying electricity to the CVP pumps have been actively developing a plan to replace the expiring PG&E contract for nearly ten years. Those efforts have included serious negotiations with PG&E on a replacement contract, careful consideration of taking service from the CAISO, and consideration of transmission alternatives including the SLTP. A key consideration for these entities has been cost certainty in the long term. Based on this and other factors, they have concluded that the SLTP provides them the greatest certainty and is the preferred option.

While it must complete and consider its on-going environmental review, Western does not need approval from the CAISO to proceed with the SLTP. Nor is their decision to proceed with the project financially dependent on the CAISO’s decision regarding ‘right sizing’ the SLTP. Western’s seriousness in pursuing the SLTP is reflected in the on-going environmental review, which has to date cost more than four million dollars and is proceeding to a record of decision next February. Western’s decision regarding the voltage of the project will need to be made in that timeframe. Once Western has committed to constructing the project at 230 kV, the opportunity to “right-size” the SLTP will be lost.<sup>13</sup> Absent a change in the SLTP schedule, that commitment will occur prior to completion of the next CAISO planning cycle.

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<sup>13</sup> Some have raised the question of why these federal entities should not be the ones to “right-size” the SLTP pursuant to the Garamendi Principles rather than the CAISO. There are multiple self-evident reasons why it would be imprudent for them to do so. First, with a relatively certain 400 MW pumping load, they have far less uncertainty regarding their future load than does the CAISO and no obligation to account for meeting the state’s GHG and RPS goals. Thus, the many reasons set forth herein regarding the need for the additional capacity

Thus, statements in the draft plan (and at the stakeholder workshop) that there is time to reconsider right sizing the SLTP in next year's 2015-16 planning cycle do not accurately reflect Western's stated schedule for proceeding with the SLTP.

**2. The Environmental And Economic Cost Of Failing To “Right-Size” The SLTP Is Potentially Very High, And Failure To Avoid Such Costs Is Not Consistent With Statutory Policies Regarding Transmission Planning In California.**

As noted above, regardless of its voltage, the SLTP will be constructed within the existing high voltage transmission corridor between Los Banos and Tracy. Once it is constructed, however, there will be no remaining space in the corridor. Additional future capacity will have to either expand the corridor in some way, or require the development of an entirely new corridor. This will have to occur in an area with prime agricultural land, significant endangered species issues, competition for available land (including from solar projects as discussed below) and many other permitting and land acquisition challenges. Expanding the corridor or creating a new one is likely to be significantly more costly, more time consuming and difficult, and more environmentally harmful than “right sizing” the SLTP in the existing corridor. Indeed, given the history of challenges to siting major new transmission corridors in California, it is conceivable that it is simply not feasible to replicate the capacity of “right sizing” the SLTP in the future.

The CAISO has generally relied upon the CEC to assess the impacts and permitting issues for transmission projects being considered in its planning process. However, the draft plan includes no such analysis of the cost, impacts and feasibility issues related to the SLTP and alternatives to it.<sup>14</sup> To pass on the opportunity to “right-size” the SLTP based on a minimum 10-year horizon forecast without any consideration of the consequences should that capacity be needed later is not prudent, and the planning process should accurately capture and address such issues.

Moreover, such a decision is not consistent with applicable state law and policy. Section 24 of the CAISO Tariff provides that transmission solutions needed to meet state, municipal, or federal

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simply do not apply to them. Second, with only a 400 MW load, the additional cost of “right sizing” would have a far greater impact on them than upon the CAISO's much larger TAC rate base. Finally, the Garamendi Principles are a state law that does not bind them in the same manner as the CAISO. Stated simply, the CAISO system can support and will need the additional capacity; such is simply not the case for Western and the federal CVP entities.

<sup>14</sup> At the February 17th Stakeholder Meeting on the plan, CAISO staff confirmed that no such analysis has been done to date by the California Energy Commission or CAISO staff.

policy requirements or directives identified in the transmission planning process will be evaluated by the CAISO.<sup>15</sup>

Pursuant to section 24 of the CAISO Tariff, any planning process that considers relevant policies must start by strictly applying California statutes that expressly address transmission planning. California law provides that to “promote the efficient use of the existing transmission system” and to avoid new rights of way that “may impose financial hardships and adverse environmental impacts on the state and its residents” the CAISO should “encourage the use of existing rights of way, the expansion of existing rights of way, and the creation of the new rights of way in that order...”<sup>16</sup> The right sizing of the SLTP is consistent with this policy, as it maximizes the use of right of way space available for high-voltage transmission to provide transmission capacity to California residents more economically and with fewer adverse environmental impacts relative to the construction of upgraded or new transmission projects at a later date.

The right sizing of transmission projects “intended to maximize project value and minimize the financial and environmental impact associated with building new transmission capacity” is a policy supported by the California Energy Commission and state and congressional legislators.<sup>17</sup> The right sizing of projects, such as the SLTP, “maximize[s] the value of land associated with already necessary transmission investment while avoiding future costlier upgrades to accommodate additional needed development”, in addition to environmental benefits such as “minimizing the biological resource impacts of ground disturbance.”<sup>18</sup>

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<sup>15</sup> See, CAISO Tariff §§ 24.3.2(i) and 24.4.6.6.

<sup>16</sup> See, Garamendi Principles, §(b), Senate Bill 2431, Stats. 1988, Ch. 1457; 20 C.C.R. § 2320(b)(1); and see Senate Bill 1059, available at [http://www.leginfo.ca.gov/pub/05-06/bill/sen/sb\\_1051-1100/sb\\_1059\\_bill\\_20060929\\_chaptered.html](http://www.leginfo.ca.gov/pub/05-06/bill/sen/sb_1051-1100/sb_1059_bill_20060929_chaptered.html).

<sup>17</sup> Letter from California Energy Commission Chair Robert E. Weisenmiller and Commissioner Karen Douglas to Mr. Keith Casey, Vice President, CAISO Market & Infrastructure Development, dated January 16, 2015; Letter from Representatives Jim Costa, Devin Nunes, Sam Farr, Jeff Denham, Zoe Lofgren, and David Valadao to Steve Berberich, CAISO President and CEO, RE: San Luis Transmission Project Support (December 15, 2014); Letter from Senators Jean Fuller, Tom Berryhill, Andy Vidak, Anthony Cannella, Cathleen Galgiani and Assemblymembers Kristin Olsen, Adam Gray, Henry T. Perea, Jim Patterson, Rudy Salas Jr., Shannon Grove, Devon Mathis to Steve Berberich, CAISO President and CEO, RE: San Luis Transmission Project (January 22, 2015).

<sup>18</sup> Letter from California Energy Commission Chair Robert E. Weisenmiller and Commissioner Karen Douglas to Mr. Keith Casey, Vice President, CAISO Market & Infrastructure Development, dated January 16, 2015.

**3. It Is Likely That The Capacity Resulting From “Right Sizing” The SLTP Will Be Needed To Support: 1) The Governor’s Announced Goal Of Achieving 50% Renewable Penetration By 2030; 2) Development Of Preferred Solar Energy Sites In The San Joaquin Valley; And 3) Providing A Hedge Against Major Planning Uncertainties That Potentially Threaten Reliability And Economic Development In The Long Term.**

The SLTP lies on the backbone of the California high voltage grid. It is essentially a northern extension of Path 15 along the main north-south artery of the CAISO system. Thus, the capacity that right sizing would create directly enhances the ability of the CAISO to move power between northern and southern California. In other words, the location of the SLTP is the polar opposite of the proverbial “bridge to nowhere”; it would reinforce service to all of California and beyond. In a state with a growing and shifting population, a major move to electrify transportation, and a major move to rely on more renewable generation, the notion that the SLTP capacity will not be valuable over the long term is fraught with risk. As shown in this section, a closer look confirms that this capacity is needed for multiple reasons.

**a. The SLTP offers near-term and longer reliability and economic benefits**

On October 15, 2014, DATC submitted information during the reliability open window demonstrating the near-term and longer term reliability and economic benefits of the SLTP.<sup>19</sup> We summarize below the crucial components of that information, and request that the need for the SLTP be reconsidered in light of this information.

The SLTP addresses specific reliability issues that may occur within the 10 year planning horizon, as well as issues that are likely to occur in the future beyond 10 years. During off-peak summer hours in 2024, initial simulations with transmission planning models indicate that there may be significant base case and N-1 reliability violations using normal seasonal ratings on the transmission system. Specifically, during this time normally scheduled maintenance outages will result in overloading of Midway-Los Banos, Los Banos-Tesla and Los Banos-Tracy transmission lines. These reliability events become more severe with anticipated renewable energy development in the San Joaquin Valley. Given the growing interest in solar development in the San Joaquin Valley and California’s movement towards achieving 50 percent renewable

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<sup>19</sup> Apparently due to size constraints on its email system, CAISO staff did not receive this submission. DATC did not receive any notification that the submission had been rejected and was unaware that the files had not been received by the CAISO until the February 17, 2015 Stakeholder meeting. DATC regrets the confusion as it believes that the information provided relevant details relating to the reliability benefits offered by the SLTP and because it may have contributed to an impression by some CAISO staff that DATC was not properly engaged in the CAISO planning process.

penetration, the development of 1,000 MW (or more) in the valley is a reasonable assumption. Utilizing CAISO transmission planning tools, initial model runs indicate that the SLTP 500 kV option eliminates these reliability concerns by providing additional 500 kV transmission pathways for power to flow from south to north during these summer off-peak periods. The proposed new SLTP 500 kV transmission line between Tracy and the Los Banos area solves this reliability event and ensures that the system is flexible and robust for the future.

Further, as can be seen from the 2011 California Transmission Planning Group (“CTPG”) Statewide Transmission Plan and previous CAISO studies, under certain situations the SLTP would be an effective way to mitigate identified reliability issues. Specifically, the CTPG found that for high south to north flows during periods of low load (typically fall), additional bulk facilities would be needed to allow power generated from renewables in southern California to flow to load centers in northern California. As discussed above, DATC’s own studies using CAISO’s current off peak case shows similar needs as more generation is added south of Los Banos. DATC will gladly make these studies available to the CAISO.<sup>20</sup>

**b. The SLTP will likely be needed to support the Governor’s announced goal of achieving 50% renewable penetration by 2030**

The 2014-15 ten-year forecast and the resulting draft plan do not take into consideration the Governor’s recent announcement that the state will seek to achieve 50 percent renewable energy penetration by 2030.<sup>21</sup> State legislators are already acting to achieve this goal.<sup>22</sup> However, as presented at the February 17<sup>th</sup> Stakeholder Meeting, the CAISO’s 2014-2015 forecast was developed based on a 33 percent Renewables Portfolio Standard (“RPS”).<sup>23</sup> DATC encourages the CAISO to reevaluate the forecast and transmission needs based on California’s GHG reduction policies and any new policy to achieve a greater level of renewable generation.<sup>24</sup>

DATC recognizes and shares the near-term “duck curve” concerns regarding integration of new renewable resources. However, the Governor’s announced goal considered these concerns, and

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<sup>20</sup> See Attachment F “Pre-Project and Post-Project Results and Attachment G PSS Data.”

<sup>21</sup> A transcript of Governor Brown’s January 5, 2015 inaugural address is available at: <http://www.gov.ca.gov/news.php?id=18828>.

<sup>22</sup> See, Assembly Bill 645, introduced by Assembly Members Williams and Rendon on February 24, 2015, available at [http://www.leginfo.ca.gov/pub/15-16/bill/asm/ab\\_0601-0650/ab\\_645\\_bill\\_20150224\\_introduced.pdf](http://www.leginfo.ca.gov/pub/15-16/bill/asm/ab_0601-0650/ab_645_bill_20150224_introduced.pdf).

<sup>23</sup> See, CAISO Presentation- Draft 2014-2015 Transmission Plan Stakeholder Meeting- February 17, 2015, slide 5.

<sup>24</sup> DATC recognizes that the details of the new policy have yet to be resolved and that legislation to do so is pending. However, for the limited purpose of assessing the long term need for the SLTP within the window available for that decision, the CAISO (in consultation with the CEC and CPUC) can do an assessment making reasonable assumptions regarding the likely locations and amount of new generation the policy will require. While not perfect, it would certainly be more accurate than not considering the policy at all.

nonetheless concluded that it is in the public interest to significantly increase the penetration of new renewable energy facilities, including new solar resources. This is unquestionably a policy that the CAISO will need to recognize in evaluating policy driven projects going forward.

One objective measure of the impact of the Governor’s policy is the E3 *California GHG Scenarios & Policy Framework Work Product for California Energy Agencies*, commissioned to determine an achievable 2030 GHG reduction target. That study concludes that achieving GHG emissions reductions of 25 to 36 percent below 1990 levels requires significant continued renewable energy development beyond the 33% RPS goal considered by the CAISO’s 2014-15 planning assumptions.<sup>25</sup> Specifically, E3 concluded that 56 to 76 gigawatts (“GW”) of renewable capacity from utility-scale facilities and installation of rooftop photovoltaic systems will be needed.

**c. The SLTP will likely be needed to support development of preferred solar energy zones in the San Joaquin Valley**

The addition of up to 76,000 MW of renewable energy serving the California market from anywhere will significantly affect the need to transfer power along the Path 15/SLTP corridor, given that this is the major path for transfer of power between northern and southern California. But the impact of the Governor’s announced policy will likely have an even greater impact on the need for the SLTP than these numbers suggest. That is because there is an emerging consensus among policy makers and stakeholders that the Southern San Joaquin Valley should be a focus for new solar development. The San Joaquin Valley is widely viewed by state and federal legislators, California energy agencies, the environmental community, and the agriculture community as being a preferred location for solar generation projects.<sup>26</sup> As noted by the California Energy Commission, the SLTP has the potential to “interconnect[ ] future renewable resource generation, primarily solar, in the San Joaquin Valley that could require additional capacity to deliver the renewable generation to northern California load centers.”<sup>27</sup> The

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<sup>25</sup> E3, *California GHG Scenarios & Policy Framework*, E3 Work Product for California Energy Agencies Final Results, Slide 47 (Dec. 30, 2014).

<sup>26</sup> For example, see Letter from Representatives Jim Costa, Devin Nunes, Sam Farr, Jeff Denham, Zoe Lofgren, and David Valadao to Steve Berberich, CAISO President and CEO, RE: San Luis Transmission Project Support (December 15, 2014); Letter from Senators Jean Fuller, Tom Berryhill, Andy Vidak, Anthony Cannella, Cathleen Galgiani and Assemblymembers Kristin Olsen, Adam Gray, Henry T. Perea, Jim Patterson, Rudy Salas Jr., Shannon Grove, Devon Mathis to Steve Berberich, CAISO President and CEO, RE: San Luis Transmission Project (January 22, 2015); *see also*, Renewable Energy Transmission Initiative, Phase 2B Final Report, (May 2010), available at <http://www.energy.ca.gov/2010publications/RETI-1000-2010-002/RETI-1000-2010-002-F.PDF> and Renewable Energy Transmission Initiative, Map of California Competitive Renewable Energy Zone Conceptual Transmission Segments Phase 2B Final (August 5, 2010), at <http://www.energy.ca.gov/reti/documents/index.html>.

<sup>27</sup> Letter from California Energy Commission Chair Robert E. Weisenmiller and Commissioner Karen Douglas to Mr. Keith Casey, Vice President, CAISO Market & Infrastructure Development, dated January 16, 2015.

Westlands Solar Park, a series of phased projects totaling upwards of 2,400 MWs of solar power located in the Central Valley<sup>28</sup> is just one of the renewable projects for which the SLTP can provide crucial transmission capacity. The CAISO has already analyzed the transmission upgrades necessary to interconnect significant amounts of 3,600 MW of solar resources in the San Joaquin Valley in Cluster 3 of its Generator Interconnection Process. In Cluster 3, the CAISO’s analysis concluded that the SLTP is one of the key elements of the upgrades needed to support the deliverability of power from these facilities.<sup>29</sup>

Given the suitability of areas of the San Joaquin Valley for renewable energy development and California’s new push to achieve 50 percent renewable penetration, it is reasonable to conclude that additional transmission capacity in that region will be needed. Further, the SLTP will bring much needed economic benefits and growth to the San Joaquin Valley.<sup>30</sup> The SLTP will spur the construction of new infrastructure, investment, job creation, and revenue in an area “hard hit by chronic double-digit unemployment and exceedingly high levels of poverty.”<sup>31</sup> The CAISO should examine these new policy considerations when evaluating whether or not the right sizing of the SLTP is needed.

**d. “Right sizing” the SLTP is a prudent action as a long-term hedge against planning uncertainties**

The CAISO Tariff requires that the Transmission Planning Process shall, at a minimum:

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<sup>28</sup> For more Westlands Solar Park information, see <http://www.westlandssolarpark.com/>.

<sup>29</sup> In contrast with the Cluster 3 results, staff has recently stated that 1,500 MW of transmission capacity is available to interconnect projects in the San Joaquin region without any upgrades and greater amounts could be interconnected without the SLTP. The difference is likely due to the different assumptions that drive the TPP forecast versus the GIP studies. If so, that fact illustrates the importance of the assumptions and the uncertainties in forecasting. More importantly, however, significant new solar development in the Southern San Joaquin Valley seeking interconnection would have to be reviewed according to the GIP rules rather than the TPP assumptions. Thus, even if the TPP forecast suggests there is 1,500 MW of available capacity, whether the GIP studies would reach a significantly different conclusion than were obtained in Cluster 3 is unclear. Moreover, even if the 1500 MW figure would be confirmed in a new cluster study, however, the E3 report figures and the current interest in solar projects in the San Joaquin Valley suggest that such development will likely substantially exceed the 1500 MW capacity. These issues are among the several unresolved issues relevant to the need for the SLTP that DATC seeks to collaboratively resolve with the CAISO.

<sup>30</sup> Letter from Representatives Jim Costa, Devin Nunes, Sam Farr, Jeff Denham, Zoe Lofgren, and David Valadao to Steve Berberich, CAISO President and CEO, RE: San Luis Transmission Project Support (December 15, 2014); Letter from Senators Jean Fuller, Tom Berryhill, Andy Vidak, Anthony Cannella, Cathleen Galgiani and Assemblymembers Kristin Olsen, Adam Gray, Henry T. Perea, Jim Patterson, Rudy Salas Jr., Shannon Grove, Devon Mathis to Steve Berberich, CAISO President and CEO, RE: San Luis Transmission Project (January 22, 2015).

<sup>31</sup> Letter from Representatives Jim Costa, Devin Nunes, Sam Farr, Jeff Denham, Zoe Lofgren, and David Valadao to Steve Berberich, CAISO President and CEO, RE: San Luis Transmission Project Support (December 15, 2014)

“(a) Coordinate and consolidate in a single plan the transmission needs of the CAISO Balancing Authority Area for maintaining the reliability of the CAISO Controlled Grid in accordance with Applicable Reliability Criteria and CAISO Planning Standards, in a manner that promotes the economic efficiency of the CAISO Controlled Grid and considers federal and state environmental and other policies affecting the provision of Energy; . . .

(d) Identify existing and projected limitations of the CAISO Controlled Grid’s physical, economic or operational capability or performance and identify transmission solutions, including alternatives thereto, deemed needed to address the existing and projected limitations....”<sup>32</sup>

These fundamental goals of the TPP require that the CAISO plan prudently and consider all the relevant facts impacting the future need for electric transmission capacity on the CAISO grid. Two of the most fundamental facts that the CAISO must consider are: 1) planning, permitting and construction of any new high-voltage electric transmission project in California takes many years; and 2) California’s electricity future has never been so uncertain due to multiple and simultaneous upheavals in electric markets.

The first fact is beyond dispute. A review of any recently built or currently planned major transmission project in California will confirm that the time from initial proposal to operation is many years, sometimes a decade or longer. (Even the SLTP, which is well into its environmental review process, is not expected to be operational until 2023.) This means that a failure to plan for future transmission needs cannot be remedied quickly or easily, if it can be remedied at all.

The second fact is equally clear. Planning for California’s future electricity needs must consider the cumulative and interactive effects of all of the following tectonic changes in California’s electricity supply and demand picture:

- A growing population and a rebounding economy;
- The closing of the San Onofre Nuclear Generating Station;
- The effort to reduce GHG emissions and achieve an unprecedented increase in the penetration of renewable generation;
- The closing or repowering of many California power plants that rely upon once-through cooling pursuant to the State Water Resources Control Board’s ban on that cooling system;

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<sup>32</sup> CAISO 2014 Conformed Tariff, Section 24.2 (Emphasis added)

- The effort of air agencies and auto manufacturers to replace gasoline with electricity as the state’s principal transportation fuel and uncertainties regarding the amount and timing of recharging such vehicles will have on increasing electricity demand;
- The state’s efforts to encourage electricity storage and the technical and market success of large-scale electricity storage technologies;
- The state’s efforts to encourage distributed “behind the meter” generation; and
- The impacts of climate change and drought on electric supply and demand.

Any of these changes *alone* would be significant and would introduce uncertainty into the TPP. That all of them are happening at once means that transmission planning must be flexible enough to seize upon opportunities that provide benefits across multiple scenarios and not simply one near-term forecast based on one set of assumptions.

These principles are entirely consistent with the CAISO’s planning policies. In its TEAM, the CAISO has stated:

Decisions on whether to build new transmission are complicated by risks and uncertainties about the future. Future load growth, fuel costs, additions and retirements of generation capacities and the location of those generators, exercise of market power by some generators, and availability of hydro resources are among some of the many factors impacting decision makers. Some of these risks and uncertainties can be easily measured and quantified, and some cannot. There are fundamentally three reasons why we must consider risk and uncertainty in transmission evaluation.

First, changes in future system conditions can significantly affect benefits of a transmission expansion. The relationship between transmission benefits and underlying system conditions is in many cases nonlinear. Thus, evaluating a transmission project based only on assumptions of average future system conditions might greatly underestimate or overestimate the true benefit of the project and may lead to less than optimal decision making. The following figure depicts two examples of the possible relationship between the benefit of transmission expansion and future peak load. If the marginal benefit of a transmission project increases at an increasing rate with an increase in peak load (the left panel), then the evaluation based on average future peak load will underestimate the benefit. Conversely, if the benefit does not increase at the same or greater rate with an increase in peak load, then the evaluation based on average future peak load will overestimate the benefit (the right panel). Similar non-linear relationships may also exist between transmission benefits and other factors. To make sure we fully capture all impacts the project may have, we must examine the value of a transmission expansion under a wide range of possible system conditions.

Second, transmission upgrades are particularly valuable during extreme conditions and major values of transmission upgrade are insurance against extreme events. For example, the California energy crisis might have been avoided had there been a significant transmission capacity between the Eastern interconnection and the Western interconnection. If all of the inexpensive Eastern power could have gotten to the West during that time period, prices would not have risen and the state of California would not have had to assign forward contracts at prices that reflected substantial market power. In addition, it would have perhaps avoided the recent blackout in the eastern U.S. that led to significant economic loss to that area of the country.

Third, transmission upgrades have significant option values and the only way to value these options is to consider probabilities of risk and uncertainty. Option analysis can tell whether projects are really needed, or can be deferred or should be advanced. Decision makers need to consider probabilities to calculate option values. Although our methodology does not focus on option analysis, nevertheless it is an important aspect of risk and uncertainty analysis.

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Deterministic analysis is performed using point estimates, for example, a single set of assumptions about loads, natural gas prices, and the availability of generating plants to meet customer loads. While a deterministic analysis is useful for understanding a single set of input forecasts, it does not reflect the impact of risk and uncertainty. Deterministic analysis is best used for initial analysis of an expansion proposal. A complete transmission evaluation process should incorporate stochastic analysis or scenario analysis described below.<sup>33</sup>

A report by the Brattle Group on assessment of the benefits of electric transmission (which acknowledges CAISO Vice President Dr. Keith Casey as having played a peer review role) also emphasized the importance of consideration of uncertainties and using a long-term horizon in the evaluation of transmission projects. Summarizing its conclusions, Brattle recommended that transmission planners need to, among other things:

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<sup>33</sup> *Transmission Economic Assessment Methodology*; CAISO; June 2004; at p. 5-1 and 5-2 [emphasis added; graphs and footnotes omitted]

- *Address Uncertainties.* The industry faces considerable uncertainties on both a near- and long-term basis that should be considered in transmission planning. The consideration of near-term uncertainties—such as uncertainties in loads, volatility in fuel prices, and transmission and generation outages—is important because the value of the transmission infrastructure is generally disproportionately concentrated in periods of more challenging, or possibly extreme, market conditions. The consideration of long-term uncertainties—such as industry structure, new technologies, fundamental policy changes, and other shifts in market fundamentals—is important for developing robust transmission plans and investment strategies, valuing future investment options, and identifying “least-regrets” projects. We recommend a more comprehensive planning approach that includes: (1) evaluating long-term uncertainties through scenario-based analyses; and (2) evaluating near-term uncertainties within scenarios through sensitivity or “probabilistic” analyses.

- *Consider Long-Term Benefits.* Several methods exist for comparing benefits and costs in the transmission planning processes. The methods currently used by planners and regulators differ by the number of years analyzed (*i.e.*, planning horizons), how benefits are estimated over the short-term and long-term, whether levelized or present values are used in the benefit and cost estimations, and the benefit-to-cost threshold that projects must clear. After analyzing the various methods currently employed in different planning regions, we recommend that the estimated benefits be compared with estimated project costs—either on a present value or levelized annual basis—over a time period, such as 40 or 50 years, that approaches the useful life of the physical assets. Paying attention to how benefits and costs accrue over time and across future scenarios will also help planners to optimize the timing of transmission investments from a long-term value perspective.<sup>34</sup>

Never has it been more important that the CAISO transmission plan accommodate a wide range of California electricity futures. Taking advantage of a one-time chance to increase the backbone capacity of the CAISO grid at relatively low cost, in addition to meeting the other planning policies set forth above, is fully consistent with CAISO planning policies and meets this goal.

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<sup>34</sup> *The Benefits of Electric Transmission: Identifying and Analyzing the Value of Investments*; July 2013; The Brattle Group; Executive Summary at p. vii (emphasis added). (Note: CAISO Vice President Dr. Keith Casey is acknowledged in this report as having played a major peer review role regarding it. See the section entitled “Summary of Peer Review.”)

## **CONCLUSION**

DATC supports the CAISO's 2014-15 forecasting effort and thanks the CAISO for the opportunity to submit these comments. As shown above, however, there are key unresolved questions regarding the need for "right sizing" the SLTP that the minimum ten year forecast and the current draft plan do not answer. Moreover, there is good cause to believe that the answers are likely to support "right sizing" the SLTP as being in the best long term interest of the CAISO, its ratepayers and the state. DATC continues to believe that proceeding with the draft plan without a credible investigation of these questions is imprudent and would be inconsistent with the CAISO Tariff, the CAISO's planning process as articulated in the TEAM, the Garamendi Principles, and expressed interest of a wide spectrum of interested stakeholders including elected and appointed officials, environmental advocates, energy trade associations and many others.

As the TEAM approach illustrates, the CAISO has an admirable track record of adapting its planning process to address new questions. DATC believes that such adaptation is warranted where, as here, a limited window exists to capitalize on a project that would provide substantial benefits to the state and ratepayers. Specifically, DATC urges the CAISO to do the following:

- Commit to making by the end of this year a long-term decision regarding whether to "right-size" the SLTP;
- Work with the California Energy Commission to develop information comparing the costs, environmental impacts and permitting issues attendant to "right sizing" the SLTP to developing equivalent capacity along the same path later;
- Analyze the likely long term need for the SLTP capacity in a manner consistent with its TEAM and Brattle Group concepts by developing a forecast of twenty years that assumes achieving the Governor's 50% renewable energy goal by 2030, significant development of solar energy in the San Joaquin Valley, and the potential need to transfer significant amounts of energy between northern and southern California to address planning uncertainties; and
- Based on the foregoing, objectively assess whether the approximately \$300 million cost of "right sizing" the SLTP now is warranted to avoid the likely much higher cost of developing equivalent capacity in a new corridor later.

DATC hopes to work collaboratively with the CAISO and all stakeholders to address these unanswered questions in a timely manner.