



California ISO  
Your Link to Power

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**Proposal to**

**Remove Barriers to  
Efficient Transmission  
Investment**

**CAISO White Paper -- Revised  
September 21, 2006**

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## **1 EXECUTIVE SUMMARY**

Many CAISO stakeholders have identified the initial assessment of costs for transmission facilities as a significant barrier to the development of generation that is inherently constrained by the nature of its technology or energy resource. Most obviously, the production of electricity through wind, solar, biomass and other technologies is limited to certain geographical regions with very little nearby load but vast potential for renewable energy supply. Power plants in these remote regions typically require long, high voltage transmission lines to interconnect to the high-voltage transmission grid, so costs are considerably greater than the shorter generator tie-lines necessary for generators that are closer to the CAISO grid. Moreover, renewable generation development typically is added in relatively small increments of generation capacity with several developer parties involved over a period of time.

The assessment of construction costs before interconnection for a large-sized line that could efficiently handle the output from multiple power plants that are likely to be developed in these regions often proves too great a financing hurdle for the first generation developer(s). Generator financing of the line would become manageable as expected additional generation is developed in the region over time. The assessment of the full costs of the facilities to the first generation to be developed in the region results in foregoing economies of scale and the development of these resources in less than optimal regions in an effort to mitigate the up-front transmission costs.

The CAISO believes the current interconnection policies governing the assessment of transmission costs may be diminishing prospects for the efficient development of locationally constrained generating resources, and that consideration of new mechanisms to promote construction of transmission facilities is warranted.

To that end, the CAISO proposes a general framework for new evaluation criteria for certain transmission projects that currently are not considered “network” facilities. The CAISO also proposes alternative treatment for the costs associated with this type of transmission project.

This alternative treatment would assess the costs for these facilities on interconnecting generating resources, which is similar to the current policy reflected in the CAISO tariff. However, the PTO would finance the costs initially through its FERC-approved revenue requirement, and generators would take over their share of these annual payments as they come on line and use the facilities.

Thus, the most significant difference between this proposed alternative cost treatment and current practice is the allocation of the cost of the transmission facilities to multiple generators connecting to the same large interconnection facilities over a long period of time.

The CAISO’s proposal is designed to address a market failure that imposes barriers to the efficient development of renewable generation facilities. Under the current two category FERC structure (network and generation-intertie facilities) for transmission expansion projects, development of renewable generation regions is often not pursued due to the combination of the high initial cost of transmission facilities necessary to connect the region to the grid and the incremental nature of renewable generation development. Under the current structure, the

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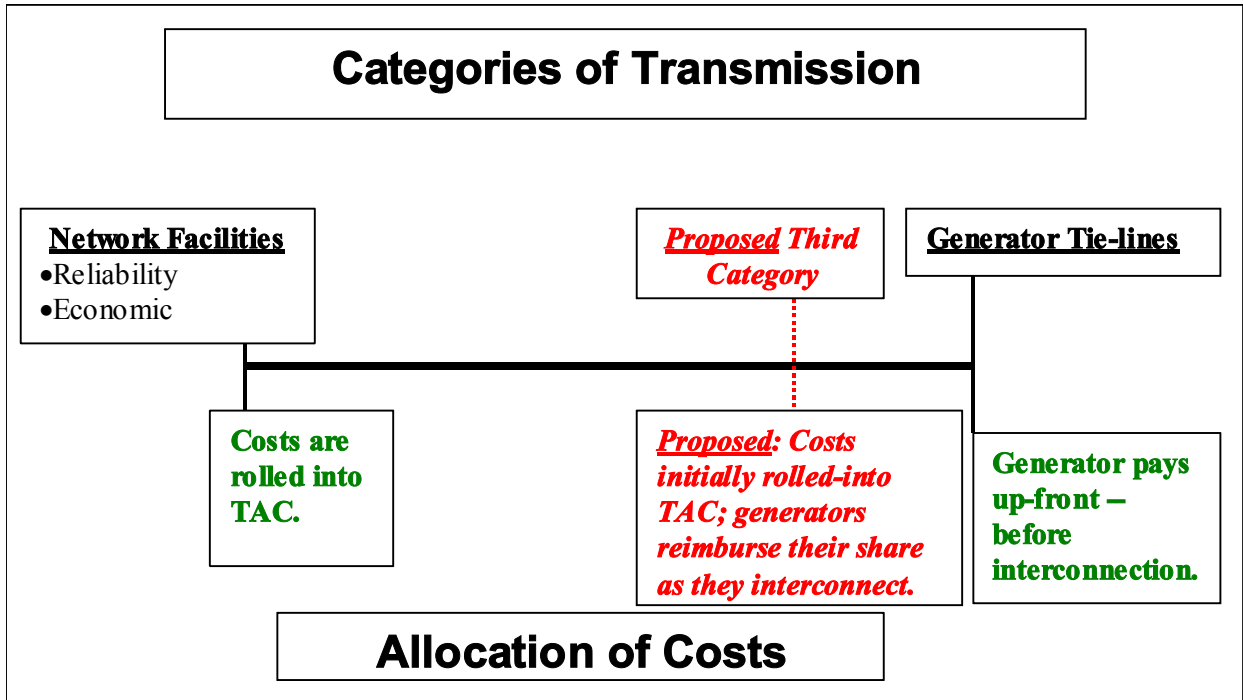
entire cost of the transmission facilities must be paid initially by the first increment of renewable generation, although the cost of network facilities will be paid back over a five-year period after the facilities are energized. This requirement for upfront financing creates a “chicken and egg” problem for smaller project developers who have no choice where to locate their generating resource. It is difficult for these smaller project developers to join together to finance large transmission projects that would interconnect remote regions to the grid. The difficulty arises from the fact that renewable generation projects generally do not proceed without a contract in place for their energy output due to their relatively higher cost. This results in renewable generation resources being developed in step to meet renewable energy demand levels, which, under an RPS requirement based on load levels, will increase relative to the overall increase in energy demand levels. Therefore, a region with significant expected renewable energy development potential may not be fully developed for several years.

The CAISO proposal includes a new third category of transmission asset in which the cost for the unsubscribed portion of these facilities is collected through the Transmission Access Charge (TAC), rather than assigning all of the cost to the initial increment of renewable generation facilities. As more generation is developed in the area, the revenue requirement for the facilities would be transferred from TAC to the generation facilities until the entire cost of the facilities is covered by the generation resources in the area, similar to the cost treatment of generation intertie facilities.

The CAISO believes that this will help to facilitate more economical development of renewable generation resources needed to meet State and local RPS and fuel diversity goals and result in lower costs for meeting these objectives.<sup>1</sup> The following diagram illustrates how the new proposed third category of transmission facilities would fit within the current structure.

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<sup>1</sup> FERC has also recognized that “[t]he development of renewable sources of energy, including wind resources, brings benefits to energy customers by providing environmental benefits and supports increased reliability by increasing the diversity of energy supplies. Wind energy can satisfy certain federal and state-mandated programs for the development of renewable energy.” (*Imbalance Provisions for Intermittent Resources*, “Notice of Proposed Rulemaking,” Docket No. RM05-10-000 (April 14, 2005) at P53.)



## **2 INTRODUCTION**

This Revised White Paper clarifies and modifies the concepts proposed in a June 28<sup>th</sup> White Paper and discussed with stakeholders at a public meeting on July 7<sup>th</sup>.

This proposal addresses a barrier to transmission development where the nature of the technology requires certain resources to be sited in remote areas. For example, generating plants that utilize wind, solar, biomass and other renewable sources are limited to specific locations where it is possible to capture their energy resource consistently over extended periods of time. Recently adopted standards for renewable generation by state and local legislative bodies will significantly increase the amount of energy procurement from renewable resources in the coming years.

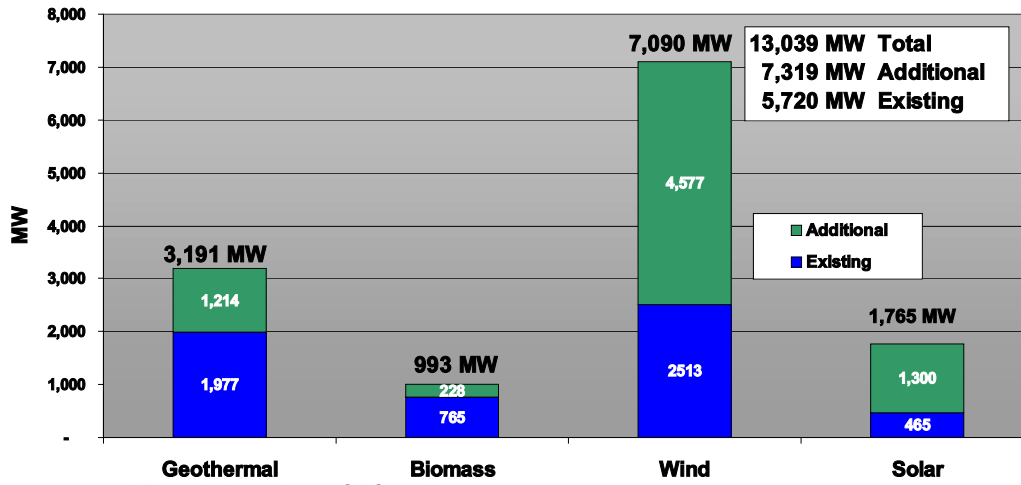
The unique, location-specific nature of these resources frequently creates different transmission needs compared to other generation sources. Locationally constrained resources are usually located in areas remote from load centers and distant from the existing grid. Transmission facilities required to interconnect these resources are typically 500 kV facilities that can span over 100 miles.

In addition, the capacity of an individual generation project often will be much smaller than the capacity of the tie-line required to optimally and efficiently connect all expected locationally-constrained generation (typically renewables) in the region to the networked grid. In these circumstances, developers maintain they are unable to finance the totality of the costs associated with the Interconnection Facilities sized to accommodate the anticipated quantity of generation in the region and less optimal options may be pursued.

In contrast, generation interconnections for fossil fuel generation resources tend to be much lower cost, as they are typically 60 kV facilities that are less than five miles in length. Therefore, the percentage of generation to transmission cost of a typical renewable generator is dramatically higher than that of a fossil fuel plant.

The severity of this market failure is heightened by the obligations for most California Load-Serving Entities, including municipally owned electric systems, to meet challenging renewable portfolio standards (RPS) goals such as acquiring 20% of their electricity production from renewable resources by 2010. These preferences for renewables have been mandated by state law or, in some cases, by policies established by municipal officials. The following chart shows the amount of current and additional renewable generation expected to meet the State's RPS goal by 2010.

**Existing California Renewable Generation  
and Possible Additions to meet the 20% RPS Goal by 2010\***



In recognition of the inevitable need to connect transmission to alternative energy sources, the CAISO proposes modest changes to its existing policy for assessing costs for certain eligible transmission facilities that are currently not recoverable through the CAISO's TAC. This conceptual proposal is not intended to favor one generation technology over another; it is meant to promote efficient transmission development that recognizes significant generation preferences already imposed through mandated RPS and other requirements.

Under this proposal, when a generator requires a new high voltage transmission line for Interconnection that would not qualify as a Network Upgrade, or when the CAISO determines such a line is necessary for the economic development of large amounts of generation in a particular region, the line would be sized to accommodate anticipated Interconnections using the line.

The costs for such a line would initially be rolled into the CAISO's TAC, and generation developers would reimburse their share of these costs as they become operational. Thus, each Generator would be responsible for the going-forward costs of the line in proportion to the capacity required for its Interconnection.

The CAISO believes the principles explained within this Revised White Paper are generally consistent with current FERC policy and fit within the current construct for assessing costs of transmission projects. By pursuing FERC policy guidance and possibly proposing a tariff amendment, the CAISO seeks to solve a transmission problem that is likely to intensify as requirements for locationally constrained generation such as renewables are expanded.

### **3 REQUEST FOR ADDITIONAL STAKEHOLDER COMMENTS AND PROCESS GOING FORWARD**

Following the June 28<sup>th</sup> posting of the first White Paper on this issue and a July 7<sup>th</sup> stakeholder meeting, the CAISO received written comments from ten entities which are posted at: <http://www.caiso.com/1816/1816d22953ec0.html>

The comments from the American Wind Energy Association, California Energy Commission, National Grid, Pacific Gas & Electric Company and Southern California Edison generally supported the “third category” concepts and efforts to amend eventually the CAISO’s tariff as it relates to bulk transmission projects. The comments from the California Department of Water Resources/State Water Project, California Municipal Utilities Association, California Wind Energy Association, Metropolitan Water District, and Northern California Power Agency either generally opposed or raised specific concerns about the concepts for alternative treatment of certain transmission facilities.

This Revised White Paper seeks to address many of these stakeholder comments and clarify, where possible, the general criteria for a possible third category of transmission expansions, or a subcategory of Interconnection Facilities, specifically for high-voltage, bulk-transfer generation intertie lines serving multiple Generators (often renewable Generators), that would be eligible for alternative cost recovery.

The CAISO welcomes additional stakeholder comments to this Revised White Paper, and requests that written comments be submitted to [DWithrow@caiso.com](mailto:DWithrow@caiso.com) by close of business on Thursday, October 5th.

The CAISO plans to use this Revised White Paper and further stakeholder comments to finalize a set of principles for the alternative treatment of certain transmission facilities that, if approved by the CAISO Board at its meeting scheduled for October 19<sup>th</sup>, will be incorporated into a petition to FERC seeking a declaratory order.

Such an order from FERC would provide clear policy direction for a foundation of changes to the CAISO tariff that, subject to the approval of the CAISO Board of Governors, might be filed at FERC later in 2006 or early 2007. In fashioning a proposal for this type of Transmission, the CAISO recognizes that FERC ultimately will resolve the policy questions related to the criteria for eligibility and the wholesale rate treatment for recovering permissible costs related to these transmission assets.

The CAISO acknowledges the strong interest among some stakeholders to move immediately to a stakeholder process for a detailed tariff filing. However, in light of concerns raised by other stakeholders, the CAISO reiterates its commitment to seek as much consensus as possible, while avoiding further delay to work out certain details that are not necessary for the filing of the petition for declaratory order. Many issues will be refined in greater detail later through the stakeholder process for developing a tariff amendment. Although some stakeholders have commented that resolution of certain details is critical for their support of the declaratory order petition to FERC, the CAISO management believes it serves the interests of all interested parties to seek FERC’s policy guidance soon at the conceptual level, and then focus on details that are more appropriate for a tariff filing.



Thus, the CAISO reiterates its intention to move forward through a two-step process: 1) a petition to FERC for a declaratory order, and then, 2) a stakeholder process for a detailed tariff filing if there is reasonable assurance that FERC would accept the principles and conceptual policies that support such a filing.

## **4 RECENT REGULATORY DEVELOPMENTS**

### **4.1.1 Background on Previous Petition to FERC for Declaratory Order**

On March 24, 2005, Southern California Edison Company (SCE) petitioned FERC for a declaratory order related to the “Antelope Project,” three transmission segments needed to interconnect future wind projects in the Tehachapi Mountains area of California.<sup>2</sup> SCE categorized segments 1 and 2 as high-voltage “network upgrades” and segment 3 as a high-voltage, bulk transfer generation intertie line. In its petition, SCE sought (1) rolled-in rate treatment for costs incurred for all three segments, (2) full recovery of all prudently-incurred costs for each segment, regardless of whether the wind generation develops or SCE abandons the projects, (3) the creation of a new category of transmission facility, “trunk lines” that would allow rolled-in rate treatment, and (4) authority to place segment 3 under the CAISO’s operational control. Over 25 parties intervened and submitted comments both supporting and opposing the SCE petition.

On July 1, 2005, FERC rejected rolled-in rate treatment for segment 3 of SCE’s proposed transmission project and denied SCE’s request to establish a new category of transmission facilities.<sup>3</sup> In doing so, FERC refused to alter its traditional treatment of generation-tie facilities with respect to rate treatment. FERC deferred on the issue of advance prudence with regard to the appropriate sizing of segments 1 and 2. However, FERC modified its prior precedent for limiting recovery of abandoned or cancelled projects to 50% of the prudently incurred investment. In this case FERC granted SCE’s request to allow it to recover 100% of the prudent costs of segments 1 and 2 even if the facilities are abandoned or cancelled.

### **4.1.2 California Public Utilities Commission “Backstop” Proceeding**

Section 399.25 of the California Public Utilities Code was enacted as part of California’s renewable portfolio standards (RPS) legislation. That section directs the California Public Utilities Commission (CPUC) to find that transmission facilities necessary to facilitate achievement of the State’s RPS goals “needed” for the purpose of siting approval. In addition, Section 399.25 requires the CPUC to establish a “backstop” cost mechanism allowing utilities to recover through retail rates any costs of such needed transmission facilities that are not approved by FERC for recovery through transmission rates and therefore collected through the CAISO’s TAC.

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<sup>2</sup> Docket No. EL05-80-000

<sup>3</sup> *Southern California Edison*, 112 FERC ¶ 61,014 (2005), rehearing denied in [get cite].

On June 15, 2006, the CPUC issued a decision addressing specific policies and procedures to implement the cost recovery provisions of Section 399.25.<sup>4</sup> The decision finds, among other things, that retail cost recovery provisions extend to high-voltage, bulk-transfer transmission facilities, whether classified as network or Interconnection Facilities so long as they are designed to serve multiple-RPS eligible Generators and that the amount of added transmission capacity will likely be utilized by RPS eligible Generators within a reasonable period of time.

The decision further states that it is the CPUC's intent to allocate the backstop costs to the ratepayers of all jurisdictional utilities, and not merely to the customers of the utility constructing the transmission facilities. However, revenues received from Generators as they take service from the constructed transmission facilities would offset the costs borne by retail ratepayers.

The CPUC's approval for cost recovery of certain facilities under Section 399.25 is viewed by a number of stakeholders as a "last resort" that, while helpful, establishes an inconsistent framework among federal and state regulators that could delay development of renewable generation. In addition, the CPUC cost recovery mechanism is limited to CPUC jurisdictional entities and may not equitably allocate the costs of these facilities to all that could potentially benefit by having greater access to renewable resource development regions and more efficient renewable energy markets.

To spur renewable generation development, help market participants more efficiently meet renewable energy goals and clarify the wholesale treatment of certain transmission facilities needed for renewable development in other states, the CAISO (through the proposal and process outlined in this White Paper) seeks to develop a mechanism that allows recovery of a portion of the costs at the wholesale level until the renewable generation is fully developed.

## **5 CURRENT TREATMENT OF NEW TRANSMISSION FACILITIES WITHIN THE CAISO CONTROL AREA**

Transmission facilities generally fall into three broad categories: (1) network transmission facilities, (2) Interconnection Facilities, i.e. Generator intertie-lines<sup>5</sup> and (3) local distribution facilities. Currently, neither local distribution facilities nor Generator intertie-lines are eligible for CAISO operational control.<sup>6</sup> As noted above, the purpose of this White Paper is to outline and seek comments on a potential alternative approach under which certain facilities that attach multiple Generators would receive initial financial support from Transmission customers to remove barriers to the development of renewable generation resources.

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<sup>4</sup> See *Interim Opinion on Procedures to Implement the Cost Recovery Provisions of Public Utilities Code Section 399.25*, Investigation 05-09-005 (June 15, 2006).

<sup>5</sup> Under FERC policy, a facility is not a Generator tie-line, but rather a Network Facility, if it serves any network function.

<sup>6</sup> See, e.g., Sec. 4.1.1 of the Transmission Control Agreement ("TCA"). Section 4.1.1 of the TCA provides, in pertinent part, that "directly assignable radial lines and associated facilities interconnecting generation" and "lines and associated facilities classified as 'local distribution' facilities" are deemed not to form part of a PTO's transmission network subject to CAISO operational control. The CAISO believes that, to the extent a third category of transmission facility is sanctioned by FERC, the TCA would not require modification because the new category of facility would not be by definition a "directly assignable radial line."

The CAISO identifies and evaluates new transmission facilities through its coordinated transmission planning process. Only network transmission facilities that either promote economic efficiency or maintain system reliability in accordance with the CAISO's Applicable Reliability Criteria<sup>7</sup> can be recommended and approved by the CAISO and placed under its operational control. Any entity may submit a proposal for a new network transmission facility. However, the CAISO, in coordination with its Participating Transmission Owners, is under an express obligation to identify network transmission additions or upgrades, as well as alternatives to transmission, needed to maintain Applicable Reliability Criteria. As such, reliability related projects are generally proposed by Participating Transmission Owners or the CAISO through the CAISO's annual Grid Plan. Similarly, transmission projects that promote economic efficiency are frequently identified through the outcomes of CAISO studies related to reliability (such as RMR or LCR studies) or congestion.

Another way that transmission projects are identified is through the Interconnection process for new Generators, which should be viewed as a subset of the CAISO's transmission planning process. "Interconnection Customers" sponsor transmission projects that are necessary to safely interconnect their generating plant to the CAISO Controlled Grid, or might facilitate the delivery of power that comes from that new generating plant. These projects can be either "Interconnection Facilities" or "Network Upgrades." The nature of and cost treatment of these different classifications of Interconnection-related transmission projects are discussed further below.

## **5.1 INTERCONNECTION FACILITIES**

In Order No. 2003<sup>8</sup> and its progeny, which set forth standard Interconnection procedures and agreements for the Interconnection of large Generating Units (i.e., generators > 20 MW), FERC utilized the term "Interconnection Facilities." Interconnection Facilities include all transmission facilities and equipment necessary to physically and electrically interconnect the Large Generating Facility to the ISO Controlled Grid. Interconnection Facilities are "sole use" facilities and do not include Network Upgrades described below. This definition of Interconnection Facilities is roughly equivalent to and replaces the prior term Direct Assignment Facilities, which was used by the CAISO prior to its compliance with Order No. 2003.

## **5.2 NETWORK UPGRADES**

This category includes any addition, modification, and/or upgrade to the ISO Controlled Grid required at or beyond the first point of Interconnection necessary to accommodate the Interconnection of a new generating facility to the ISO Controlled Grid. Network Upgrades consist of Delivery Network Upgrades and Reliability Network Upgrades.

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<sup>7</sup> Under the CAISO Tariff, Applicable Reliability Criteria are "[t]he reliability standards established by NERC, WECC, and Local Reliability Criteria as amended from time to time, including any requirements of the NRC." (CAISO Tariff, Appendix A, Master Definitions Supplement.) Local Reliability Criteria are those "Reliability Criteria unique to the transmission systems of each of the PTOs."

<sup>8</sup> *Standardization of Generator Interconnection Agreements and Procedures*, Order No. 2003, Stats. & Regs. ¶ 31,146, 68 Fed.Reg. 49,846 (2003); *Order on Rehearing*, 106 FERC ¶ 61,220 (2004) ("Order No. 2003-A").

### **5.2.1 Reliability Network Upgrades**

Reliability Network Upgrades consist of any addition, modification, and/or upgrade to the ISO Controlled Grid beyond the first point of Interconnection necessary to safely and reliably interconnect the Large Generating Facility to the ISO Controlled Grid, including those necessary to remedy short circuit or stability problems resulting from the Interconnection. Reliability Network Upgrades also include, consistent with WECC practice, the facilities necessary to mitigate any adverse impact the Interconnection may have on a path's WECC rating.

### **5.2.2 Delivery Network Upgrades**

Delivery Network Upgrades are those transmission facilities, other than Interconnection Facilities and Reliability Upgrades, necessary to relieve constraints on the CAISO Controlled grid and to ensure the delivery of energy from a new Large Generating Facility to Load under peak conditions.

## **5.3 COST ALLOCATION**

Under current FERC policy, costs for Interconnection Facilities are borne solely by the generation developer. The upfront costs to the Generator developer are not subject to reimbursement from Participating Transmission Owners.<sup>9</sup> Generally, Interconnection Facilities are short in distance, not subject to the CAISO's Operational Control and are designed to transmit the output of a single Generating Unit owner. Where there is no reason, economic or otherwise, to size a line in excess of that needed to support the output of a particular known Generator, this policy is unlikely to impose a burden on generation developers.

Network Upgrades, whether Reliability Network Upgrades or Delivery Network Upgrades, are treated differently. Under FERC policy, the interconnecting Generator generally must provide the upfront funding for Delivery Network Upgrades. However, unlike Interconnection Facilities, the costs of Network Upgrades can be "rolled-in" to general transmission rates of the Participating Transmission Owners and recovered through the CAISO's TAC. Under the LGIP, the interconnecting Generator can elect to either receive (1) refunds from the Participating Transmission Owner, with interest, over a five-year period or (2) transmission rights, i.e., Firm Transmission Rights or Congestion Revenue Rights, as applicable. The Participating Transmission Owner may, at its own election, agree to initially pay for the necessary Network Upgrades.

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<sup>9</sup> See CAISO Tariff, Appendix V (Standard Large Generator Interconnection Agreement) at Art. 11.

## **6 PROPOSAL FOR A THIRD CATEGORY OR ALTERNATIVE TREATMENT OF TRANSMISSION FACILITIES**

Numerous parties have asserted that the traditional treatment accorded Interconnection Facilities costs is problematic in instances where (1) the resources must be located remotely from load and the existing transmission grid because of fuel and technology limitations and (2) the optimally sized expansion, based on expectations of future market entry in the region, exceeds the capacity needed to support the known projects that have applied for Interconnection. Under these circumstances, the requirement that the generation developer fund all Interconnection Facilities before interconnection imposes a high hurdle that may be impacting the economic development of renewable generation.

### **6.1 KEY PRINCIPLES FOR ELIGIBILITY**

The CAISO suggests the principles outlined below as the basis for creating a possible distinct category of transmission that encompasses locationally constrained generator supply transmission lines. This distinct category would be defined as “high-voltage transmission facilities necessary to interconnect large concentrations of locationally constrained resources” that are designed to overcome obstacles to the construction of transmission and achieve economies of scale for the development of renewable resources.

Another way to describe this proposal is, essentially, as a subcategory of Interconnection Facilities that would be eligible for alternative cost recovery treatment.

Each of the following principles must be met for proposed transmission expansion projects to be eligible for the alternative cost recovery treatment:

#### **1. The transmission project is not otherwise eligible for rate treatment that allows costs to be incorporated into the Transmission Access Charge (TAC).**

Generally transmission upgrades that have the following basic operational characteristics would be considered “network” facilities:

- High-voltage transmission that is or is expected to be placed under CAISO operational control.
- Transmission facilities with bi-directional power flows, not radial.
- Transmission facilities that will be integrated into the CAISO Control Area transmission system.

Current FERC policy, as reflected in the CAISO tariff, permits costs associated with Network Upgrades to be rolled-into the general transmission rates of the Participating Transmission Owners. These network facilities would not qualify for alternative treatment. This proposal is limited toward facilities whose costs currently are not recoverable through the CAISO’s TAC.

An example of this “non-network” type would be the Tehachapi Segment 3 facility within SCE’s 2005 proposal to FERC. The more recent reconfigured transmission plans for the Tehachapi

area includes segments that provide network benefits and thus would not qualify under this proposed criteria.

**2. The transmission project would permit wholesale transmission access to an area not currently accessible where there is a significant energy resource that is not transportable.**

This proposal would address the current problem encountered by developers who must locate their generating resources in areas far from load or existing transmission lines. The existing policy that requires the developer to pay up-front transmission costs for generation tie lines creates a barrier to entry for generators that must be sited in remote areas due to the nature of their energy resource. Only certain transmission facilities that are necessary to connect these locationally constrained resources would be eligible for this alternative rate treatment.

The CAISO contemplates relying on state entities such as the CPUC or CEC to identify and assess areas where non-transportable energy resources like wind, geothermal and solar present the best opportunities for practical development.

It is expected that most, if not all, generation that must be remotely located would qualify as renewable for the purposes of meeting RPS and other renewable energy requirements. However, it is conceivable that other generation that is sited in these remote regions could connect to the supply transmission line and would be eligible for the alternative rate treatment.

**3. The transmission project will to be turned over to the CAISO's operational control.**

This proposal is targeted toward High-Voltage transmission facilities that are expected to be under CAISO operational control.

**4. The transmission project is designed to serve multiple power plants in areas where the energy resource is non-transportable.**

This proposal is targeted toward bulk-transfer transmission facilities that can efficiently serve multiple generating resources. The renewable resources expected to be developed in these areas would each individually have capacity that is significantly smaller than the total transfer capability of the transmission facilities.

**5. The transmission project is evaluated within a prudent grid planning process involving the CAISO, affected utilities and stakeholders.**

The CAISO expects to finalize a robust and comprehensive transmission planning process in the near future that assesses transmission projects based on cost-effectiveness in connection with surrounding projects and facilities. Transmission projects eligible for this alternative rate treatment would be subject to cost-effectiveness principles adopted as part of this sub-regional transmission planning process. In short, the CAISO will conduct analysis to determine whether

the costs associated with meeting the RPS and other renewable requirements are expected to be lower over time with the project than without.

**6. The transmission project would not increase the annual revenue requirement (TAC rates) by more than 5% annually over a 10-year period.**

Stakeholders have raised concerns that this alternative cost recovery treatment could open a floodgate of expensive projects. To address these concerns, this proposal would apply only to those projects that do not individually impact the TAC by more than 5% annually on average over a 10-year period.

As an example, SCE's 2005 proposal for Tehachapi Segment 3 involved an aggregate cost of approximately \$75 million (for Segment 3 only.) The overall high-voltage TAC collected system-wide on an annual basis by the CAISO is approximately \$540 million. A 5% cap on the annual revenue requirement associated to any one project would be around \$27 million. For renewable generators who would pay the upfront costs of a facility like Segment 3, the annual revenue requirement over a 10-year period would be significantly under \$27 million.

Extremely expensive projects that impact that annual revenue requirement on average by more than 5% would not qualify for this alternative rate treatment and would have to be fully financed by generation developers. TAC rates shall be reduced as new generators come on line and pay back their portion of the project's costs and will be taken into account in determining whether the project meets this requirement.

**7. The transmission project would be able to demonstrate adequate commercial interest among multiple generation developers.**

Stakeholders have also raised concerns about stranded costs resulting from abandoned investments. As an additional safeguard to ensure the viability of transmission projects and to mitigate the risk of stranded costs, a demonstration of commercial interest would be required for this alternative rate treatment.

One suggestion has been a so-called "open season" period whereby developers could qualify for interconnection through a transparent, non-discriminatory solicitation process. The CAISO invites other ideas for satisfying a need to demonstrate commercial commitment, such as a requirement a certain percentage of the line's capacity to be subscribed by contracts, or Interconnection Study deposits, or other demonstrations of commercial interest prior to advancement of funds to interconnect.

## **6.2 PROPOSED COST RECOVERY TREATMENT**

Currently, the costs for building networked transmission facilities, but not gen-ties, are rolled-into the TAC. This reflects the presumption that the networked facilities provide benefits to all users of the Grid.

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As discussed above, application of this general transmission pricing policy can serve as a deterrent to the construction of optimally sized Interconnection Facilities necessary for compliance with State and local RPS. The effect could be mitigated by providing that the costs of eligible renewable generator supply transmission would be initially funded by the Participating Transmission Owner and would be recovered by rolling the costs of such facilities into the CAISO's TAC until qualifying generation developers interconnect and pay the going forward costs of the facilities.

As generation develops and utilizes the facilities, developers will reimburse the Participating Transmission Owner their share of the renewable generator supply transmission line in installments. The reimbursement would flow to ratepayers through the Transmission Revenue Balancing Account (TRBA). This would allow renewable generator supply transmission lines to be built in advance of Generator Interconnection requests, but ultimately be paid by generation developers when generation developers step forward to attach generation resources to the line.

Such an approach:

- Provides a mechanism for transmission project developers (Participating Transmission Owners) to obtain full cost recovery for the transmission facilities without unduly burdening the development of renewable generation.
- Benefits prospective multiple facility Interconnection customers by increasing the likelihood that Interconnection Facilities will be in place when they initiate an Interconnection request and ensuring that they do not have to bear the full cost of those facilities up front as a direct assignment charge.
- Benefits electricity consumers by facilitating the most economic development of renewable generating resources through which the policies reflected in the RPS can be advanced.

This approach being considered by the CAISO is consistent with the principles underlying rolled-in rate treatment, *i.e.*, the upgrades provide benefits to all participants in the CAISO markets in the form of greater access to renewable generation and a more diverse portfolio and economic means of meeting the State's RPS, currently 20% by 2010.

Moreover, the inclusion of the costs of eligible renewable generator supply transmission lines in rolled-in transmission rates is temporary because, as new generation is developed that interconnects to the facility, costs will be shifted from transmission customers to generators. In these circumstances, the CAISO suggests that it's appropriate that costs for transmission facilities that facilitate the efficient development of renewable energy resources to meet State and regional policies be initially spread to all transmission customers.

In summary, the CAISO proposes the following principles for cost recovery treatment for transmission line facilities that meet the criteria outlined in this whitepaper:

- **Up-front financing by PTOs of qualifying transmission projects would be recoverable through the Transmission Access Charge (TAC).**



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The up-front costs for the unsubscribed portion of the transmission facilities would be initially covered by the Participating Transmission Owner and rolled into the CAISO's TAC, which is paid by all users of the CAISO Controlled Grid. As additional renewable generation resources are developed in the area and connected to the transmission facilities, cost recovery would be transferred to those generation owners. Once the anticipated generation is fully developed, all of the costs would be borne by the generation resources and none of the costs would be included in the TAC.

- **Upon interconnection, generators begin to pay their “pro-rata share” (capacity ratio) of the going forward costs over the life of the facility.**

These going-forward costs would consist of each generator paying their pro-rata share of the PTO's annual revenue requirement for that transmission project. This would include depreciation, any remaining interest expense on the initial investment, maintenance expenses and other costs associated with a transmission facility that typically flow (with FERC approval) to the annual revenue requirement.

The pro-rata share of costs is conceptually:  $a/b$ ; where “a” represents the physical transmission rights of the generation project in question on the line and “b” represents the full rated capacity of the transmission line under normal operating conditions.

Consider the following simplified example of a project that costs \$1,000,000 and uses straight-line depreciation over its 10-year life. Further assume this project's cost of capital is 10%.

The yearly revenue requirement would be:

	Depreciation Expense	Interest Expense	<b>Revenue Requirement</b>
<b>Year 1</b>	\$100,000	\$10,000	<b>\$110,000</b>
<b>Year 2</b>	\$100,000	\$9,000	<b>\$109,000</b>
<b>Year 3</b>	\$100,000	\$8,000	<b>\$108,000</b>
<b>Year 10</b>	\$100,000	\$1,000	<b>\$101,000</b>

A generator (G1) that interconnects in Year 1 with a 33% percent capacity share of the line would pay 33% of \$110k = \$36,300; the remaining portion (67%) of the revenue requirement (\$73,700) would be covered through TAC.

Another generator (G2) that interconnects to the facilities in Year 3 also with a 33% capacity share of the line would pay 33% of \$108k = \$35,640, which is the same as G1 in Year 3. G2 would not be required to reimburse TAC ratepayers for its share of the Year 1 and Year 2 interest and depreciation expense (\$72,600) in this example.

- **Past carrying costs that reflect the time value of money and the stranded-cost risk will not be assessed to the generation resources.**

Essentially, carrying costs for unsubscribed portions of the transmission facilities will be borne by all CAISO ratepayers through the TAC. By paying these costs, CAISO ratepayers will receive the benefit of having access to the most economical renewable generation resources to meet RPS and other fuel diversity goals.

- **PTOs would retain ownership of the facilities, regardless of whether the transmission line remains radial in nature or evolves into a network facility at a later time.**

Generators could receive transmission rights proportional to their share of the going-forward costs of the radial line. As long as the line remains a non-network facility, these transmission rights should protect against potential congestion costs and allow for scheduling priority.

If the qualifying transmission project evolves into a network facility at a later time, the generators would be relieved of their respective share of the revenue requirement on a prospective basis upon conversion to a network facility.

Any portion of the revenue requirement associated with qualifying transmission facilities that is not recoverable from generators would be borne by all ratepayers through the TAC. Transmission rights for the radial facility would expire, so that transmission rights to the newly upgraded network line would be available with the CAISO's allocation procedures.