THE STATE OF CALIFORNIA
BEFORE THE
CALIFORNIA ENERGY COMMISSION

In the Matter of:	)	
	)	
Preparation of the	)	Docket No. 08-IEP-1B
2008 Integrated Energy Policy Report	)	
Update and the 2009 Integrated	)	
Energy Policy Report	)	

POST WORKSHOP COMMENTS OF THE CALIFORNIA MUNICIPAL UTILITIES ASSOCIATION, IMPERIAL IRRIGATION DISTRICT, LOS ANGELES DEPARTMENT OF WATER AND POWER, AND THE SACRAMENTO MUNICIPAL UTILITY DISTRICT

Pursuant to the Notice of Staff Workshop on Transmission Issues for 33% Renewables by 2020, the California Municipal Utilities Association and certain of its member utilities, the Imperial Irrigation District ("IID"), Los Angeles Department of Water and Power ("LADWP"), and the Sacramento Municipal Utility District ("SMUD") (collectively "Joint Commentors"), respectfully submit these Post-Workshop Comments on issues regarding transmission infrastructure development to meet renewable energy goals.

CMUA is a statewide organization of local public agencies in California that provide water, gas, and electricity service to California consumers. CMUA membership includes 43 electric distribution systems and other public agencies directly involved in the electricity industry.[1] CMUA members, including those listed above, own and operate

[1] CMUA electric utility members include the Cities of Alameda, Anaheim, Azusa, Banning, Burbank, Cerritos, Colton, Corona, Glendale, Healdsburg, Lodi, Lompoc, Los Angeles, Needles, Palo Alto, Pasadena, Rancho Cucamonga, Redding, Riverside, Roseville, Santa Clara, and Vernon, as well as the Imperial, Merced, Modesto, Turlock Irrigation Districts, the Northern California Power Agency, Southern California Public Power Authority, Transmission Agency of Northern California, Lassen Municipal Utility District, Power and Water Resources Pooling Authority, Sacramento Municipal Utility District, the Trinity and Truckee Donner Public Utility Districts, the Metropolitan Water District of Southern California, and the City and County of San Francisco, Hetch-Hetchy.

significant local and interregional transmission facilities for the benefit of their customers and all of California. In total, CMUA members provide electricity to approximately 25-30 percent of the population in California. IID, LADWP, SMUD and other CMUA members (the Northern California Power Agency, the Southern California Public Power Authority, and the Transmission Agency of Northern California) are actively involved in state and regional coordination of transmission planning, including efforts to facilitate transmission development to renewable resources. Notably, all of the above entities are actively involved in the Renewable Energy Transmission Initiative ("RETI").

CMUA members have a long history of successfully developing interregional transmission facilities to serve their customer-owners. Many of these projects include participation by non-CMUA members and are jointly-owned with other transmission owners in California and other parts of the West:

- California Oregon Transmission Project (COTP) – this 500 kV line is part of the three-line California Oregon Intertie interconnecting the Pacific Northwest and its significant resources to Northern and Central California;
- Pacific DC Intertie (PDCI) – the PDCI is a 3100 MW, 871-mile high voltage direct current transmission system connecting the Bonneville Power Administration system in Oregon with the Sylmar substation in Southern California; and
- Southern Transmission System (STS) – jointly owned by several CMUA members, the STS interconnects Desert Southwest and Rocky Mountain resources to Southern California.

The ability of CMUA members to get transmission built in the past was recognized at the Workshop. Building on that success, it is clear that additional cost-effective transmission investment is essential to meet California's renewable energy goals, and to ensure cost-effective and reliable electric service into the future.

II. COMMENTS ON ISSUES RAISED AT THE WORKSHOP

A. Careful Study of Transmission Requirements to Meet 33% Renewable Energy Targets is Needed.

Two studies, one performed by the California Independent System Operator Corporation ("CAISO") and one by the Electric Power Group, were summarized during the Workshop. The studies attempt to answer a similar question: "What transmission infrastructure investment will be needed to achieve 33% renewable energy targets?" CMUA recognizes that these are preliminary studies: the CAISO study is labeled as such, and the full study report performed by the Electric Power Group has not yet been released. Yet, fundamental questions arise from an initial review of the study summaries provided at the Workshop. Most notable is the conclusion by the CAISO that roughly 9600 MWs of additional renewable generation must be added to meet the 33% goal. The Electric Power Group study concludes that a range of 23,000 to 40,000 MWs of additional renewable resources are necessary. Given that transmission additions are driven in part by the number of MWs of generation added, getting some agreement on this issue would appear to be necessary in order for the Integrated Energy Policy Report ("IEPR") record to be accurate and complete. Since the IEPR will likely make recommendations and conclusions on the effect and cost of the 33% RPS goal, this is a fundamental fact that must be clarified.

On a related point, CMUA agrees with certain conclusions in the Electric Power Group presentation, namely that upgrades to in-basin transmission, the gateways to load centers, and transmission upgrades necessary to relieve operational constraints (nomograms), must be considered as part of the upgrades necessary to reach 33%

renewable resource targets. CMUA looks forward to further explication of that issue and the attendant costs as this IEPR process unfolds.

B. Regional Transmission Planning Should be Accomplished Through the Western Electricity Coordinating Council.

CMUA and its members have long supported a regionally-coordinated transmission planning process, with subregional coordination underneath a regional umbrella. It was observed by many Workshop participants that numerous groups are performing the work related to planning transmission to reach renewable resources, including the identification and ranking of areas in which renewable resources look promising (commonly referred to as Renewable Energy Zones, or REZs). These groups include the Department of Energy/Western Governors Association initiative, RETI, the CAISO, the CPUC through rulemakings, and the CEC. CMUA recognizes that removing barriers to renewable energy development is a high priority for California. However, it is reasonable to conclude that these efforts, while intended to be complementary, in fact have the potential to work at cross-purposes or, at a minimum, duplicate efforts and delay resolution of key issues.

For the long-term, and the long-term is not far off, CMUA supports coordination of transmission planning efforts under a regional umbrella organization. Based on the planning structures currently in place, that umbrella organization should be the Transmission Expansion Planning Policy Committee ("TEPPC") under the Western Electricity Coordinating Council ("WECC"). TEPPC is the regional entity which coordinates transmission planning within the WECC. The Western Renewable Energy Zone process is contemplated to feed results into the TEPPC efforts over the course of this year and the next. California will need access to renewable resources throughout the

West to meet renewable and Greenhouse Gas goals. It is simply common sense to utilize TEPPC and subregional planning efforts. It makes little sense and will be counterproductive over the long term to recreate planning processes that already exist.

C. Joint Ownership

The issue of joint ownership of transmission facilities, specifically among POUs and IOUs, was raised at the Workshop and has arisen in other forums. Joint Commentors have attached a White Paper (as Appendix A) entitled "Experiences with Joint Transmission-Project Development in the West," authored by the IID, LADWP, SMUD, the Turlock Irrigation District, and the Western Area Power Administration. This White Paper sets forth an excellent history of joint ownership of transmission throughout the West. The White Paper illustrates the long and successful practice of jointly developing the long lines necessary to connect resources to load in the West. The White Paper also sets out some of the obstacles to joint participation for transmission owners that are Participating Transmission Owners and bound by the CAISO Tariff and Transmission Control Agreement, and those outside the CAISO. Joint Commentors attach this White Paper and ask that it be made part of the record in the IEPR proceeding.

It is desirable that obstacles to joint transmission ownership be overcome. It makes sense to "right-size" facilities and garner all needed and interested participation in transmission facilities. It is makes sense to facilitate transmission siting by taking advantage of the fact that local public agencies may have existing rights of way or legal tools to site needed transmission that are not available to CPUC-jurisdictional entities.

Currently, some of the legal and market obstacles to joint ownership include:

- Joint Commentors and POUs in general require durable transmission arrangements in order to support investing large sums of customer-owner capital. Durable transmission arrangements can be accomplished through binding bilateral contracts. In contrast, service under the CAISO Tariff is changeable, and terms of transmission arrangements can be modified by legal filing at the Federal Energy Regulatory Commission. These Tariff modifications occur frequently, and therefore the Tariff-based arrangement does not have the durability of a bilateral contract;

- The CAISO is moving to a market design based on Locational Marginal Pricing ("LMP") which utilizes "financial rights" rather than firm physical rights. The financial nature of service under the CAISO Tariff treats transmission rights as financial hedges against delivered energy price risk, rather than physically firm transmission service. Holding the rights, termed Congestion Revenue Rights ("CRRs"), can be risky and speculative;

- Incentives to build transmission under the CAISO Tariff are lacking for POUs. Under the coming CAISO market design, a transmission owner will either get CRRs to hedge potential congestion costs, or a rate of return on the new the transmission investment. POUs do not build transmission as a rate-of-return "profit center" but instead to serve their customer-owners. Many POUs are not willing to build simply to receive a CRR of uncertain value for the life of the transmission facility; and

- Current CAISO Tariff provisions require the CAISO to have Operational Control of the facility that is jointly owned. CMUA understands that this provision of the current CAISO Tariff is being interpreted to bar joint ownership unless the line is within the electric footprint of the CAISO Balancing Authority.

Despite these obstacles, Joint Commentors believe joint transmission ownership is desirable and possible. As described in the White Paper, there are many examples where transmission lines are jointly owned by Participating Transmission Owners in the CAISO and non-PTOs. Examples include the COTP and the PDCI. These examples can serve as a template for future development, but the CAISO must be willing to make that policy determination. To date, it is CMUA's understanding that the CAISO is unwilling to use

the existing examples of co-existence on jointly owned lines to be a model for future transmission development.

III. CONCLUSION

Joint Commentors appreciate the opportunity to provide these Post-Workshop Comments and look forward to continued participation in the IEPR process on these important issues.

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Respectfully submitted,

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ATTACHMENT A

Imperial Irrigation District

Los Angeles Department of Water & Power

Experiences with Joint Transmission-Project Development in the West

Executive Summary:
This paper has been prepared by the Imperial Irrigation District (IID), Turlock Irrigation District (TID), Los Angeles Department of Water and Power (LADWP), Sacramento Municipal Utility District (SMUD) and Western (WAPA), in aggregate referred to herein as California public power (CPP). The purpose of this document is to inform regulators and policy makers of the growing concern in developing jointly owned transmission projects between the CPP and the California independent system operator (CAISO). Our objectives are to lay out the issues, address the concerns and propose collaborative solutions that are mutually beneficial to all ratepayers.

There have been serious concerns raised in the development of California's transmission infrastructure in response to the increasing demand and the urgency of integrating renewable development into the grid. These growing concerns have risen specifically with the joint transmission development between CPP and the investor owned utilities (IOU's) subject to the CAISO tariff. Recently two significant joint transmission projects have stalled. This is not due to the difference between public power and IOU needs or operational requirements, but rather to the CAISO's ever-shifting business modalities. The key consideration is the CAISO tariff design vis-à-vis the other 33 western balancing authorities that conduct their business based upon bilateral contracts. In fact, a public power entity and an IOU – IID and Arizona Public Service (APS) - have recently announced a large joint transmission project linking Arizona and California.

Recently, the CAISO has adopted stringent criteria where any joint development of transmission infrastructure with any of the CAISO's participating transmission owners (PTOs) must (1) be operated by CAISO, and (2) once in service, all operational costs, planning, and expansion must comply with the CAISO Tariff regardless of the agreed upon terms and conditions between the various owners of the line.

The CAISO operates under a FERC-approved tariff and, therefore, entities that tender their projects under that tariff are subject to frequent and unexpected modifications to the CAISO tariff. It's imperative to make the CAISO tariff and contract-based paradigms compatible with one another. It should be clear that 42 percent of the transmission infrastructure in the western interconnection is owned and operated by public power, and approximately 9 percent of the transmission is owned by the CAISO member IOUs. Furthermore, two-thirds of the load served in the West use contract-based transmission. We believe that a collaborative process between the tariff and contract-based paradigms is the only recipe to successfully develop jointly owned transmission projects.

1. The Growing Concern of Joint Transmission Development

Introduction:
The State of California has five major grid operators (balancing authorities): the CAISO, LADWP, SMUD, IID and TID. They coexist in an era when new transmission development is lagging behind the growing demand for electricity and an ever-increasing need for renewable power. There are new regional planning organizations that have identified the long-term need for transmission development between and amongst the balancing authorities in the western grid. A recent and growing impediment to joint transmission development in the West is the difficulty in structuring agreements with the CAISO. Since 1998, joint-transmission development between the CAISO and the other balancing authorities has been limited to only one project, the Path 15 Upgrade.

Prior to the Path 15 Upgrade and pre-CAISO, there was a long-standing tradition of collaborative planning, development and joint funding/ownership of major transmission lines in the West. This includes participation of many FERC non-jurisdictional public power utilities as well as jurisdictional IOUs. Projects built as a combined undertaking typically include a contract percentage allocation of the ownership rights and responsibilities, including the incremental transfer capability to each participant based on relative capital input. Upgrades to jointly held project facilities are treated in the same way. As noted earlier, approximately 42 percent of the transmission system in the western interconnection is owned and operated by public power entities that favor long-term contracts for transmission and energy. The benefit is grid reliability, greater economies of scale, minimum environmental impact, and most important to public power organizations – price certainty and predictability.

CPP believes that regulators and policy makers need to examine the road block issues that have surfaced concerning joint-transmission development between the CAISO and other balancing authorities. By utilities discussing and sharing their recent experiences and/or concerns, one can more easily identify mutually agreeable terms necessary to meet the need for new joint-transmission projects. In this report, CPP will share some of the recent experiences it has had with neighboring grid operators in California, the Pacific Northwest and Arizona to expedite the development of transmission projects that would greatly aid the development of renewable energy.

Generally, the challenge in joint-transmission development with the CAISO is tariff-related. Additional concerns are found in the "Green Path Transmission Projects" section found below. Of the 34 balancing authorities in the western grid, only the CAISO balancing authority uses a tariff-based rate – all others use contract-based transmission rates. Existing bilateral contracts between joint-development transmission partners have an element of certainty regarding terms and conditions that cannot be matched in the ever-changing rules embedded in a living tariff.

2. The Green Path Transmission Projects Challenges

In the late 1970s and early '80s, there was a boom in developing renewable-energy projects. The boom in renewable led to the development of geothermal fields primarily in Imperial and Napa counties. As a result of the boom, IID built over 250 miles of 230 kV networks that span from Highline (south of the Salton Sea) to the vicinity of the Devers substation in Riverside County. The double-circuit line was built with a capacity of up to 1600 MW. Unfortunately, only 550 MW of geothermal power was developed and IID's new 230 kV transmission system was greatly underutilized. Currently, IID has hundreds of MWs of transmission capacity available from Highland to Midway and to the Coachella Valley in Riverside County. IID had visions of being a major hub for geothermal energy back then; the district retains the vision of being a major hub for geothermal and solar energy—two essential renewable resources necessary for California to achieve its current renewable portfolio standard target of 20 percent in 2010, and its proposed target of 33 percent in 2020. With over 1800 MW within its queue today (and thousands more expected), IID is prepared to meet its obligations as a balancing authority. Obviously, IID is cautious not to repeat the previous overbuild of transmission in the latest cycle of renewable-energy development. The IID Green Path transmission projects are designed to respond to a need for renewable-energy export that is timely and economically effective to all ratepayers in the western grid – including California. The Green Path projects represent a coordinated set of transmission system additions and upgrades that IID undertook with neighboring balancing authorities. Green Path transmission project development stems from IID's belief that parties should utilize existing transmission infrastructure coupled with targeted and strategic investment in new transmission rather than overbuilding and duplicating facilities in order to export renewable energy from the Imperial Valley.

The Green Path transmission projects are designed to: utilize existing rights-of-way, use existing capacity, optimize the utilization of the IID transmission system, join with other entities to build transmission, and benefit from the resulting economies of scale. The highlights of the Green Path transmission projects include a new 500 kV line through the southern portion of IID's service territory, and a 200-mile upgrade to existing 230 kV transmission facilities owned by IID. In addition, LADWP and IID plan to build a new 500 kV line connecting LADWP and IID balancing authorities, thus providing several new interconnections with the California ISO. The projects will also provide benefits to the previously announced west of Devers upgrades proposed by Southern California Edison. The projects, when developed, will permit a significant increase of renewable energy from the Imperial system. This will occur quickly and at the lowest cost to all ratepayers.

In addition to the CAISO tariff issues, IID is concerned about the CAISO's potential ability to unilaterally build transmission into a neighboring balancing authority's area using its locational constrained resource interconnection facility tariff provisions. This recent FERC-approved tariff provision allows CAISO to build transmission into transmission-constrained locations in order to access renewable resources and socialize the cost of such transmission across all CAISO ratepayers. IID submits that while such a policy may be applicable to remote renewable resource areas such as Tehachapi, it ***does not apply to*** IID's balancing authority area. IID has significant transmission infrastructure with unused transmission capacity available to all. Any attempt by the CAISO to unilaterally build a

trunk line into IID's ***balancing authority area*** would simply duplicate IID's existing transmission, cause environmental havoc and put IID at risk of stranded investment.

Joint transmission projects have proven to be an effective means to avoid stranded investment. Since it is it own tariff that makes it difficult for the CAISO to partner with non-CAISO transmission owners on joint-transmission projects, it would be patently inefficient to allow the CAISO to build a transmission project into another balancing authority's area that would result in stranded cost for that neighboring balancing authority and vice versa.

It should be noted that renewable integration will be a difficult issue to tackle. Pumped-storage facilities such as the 1000 MW project proposed by TID, and the 400 MW project proposed by SMUD are effective solutions, however integrating renewable energy into the grid will need more joint-transmission projects than ever before.

3. Historical Bilateral Contract Principles

Historically, bilateral contracts have used the following general principles:

1. Transmission lines are owned by the participants as "tenants in common" with each participant owning a pro rata share of the land and common facilities;
2. All costs, such as development and construction, and liabilities are shared by the participants in proportion to their ownership percentage.
3. After the line is in service, all operational costs in the form of line losses and balancing authority charges are fixed for the life of the line.
4. All other costs such as O&M and upgrades are shared based on each participant owning a pro rata share of the land and common facilities.
5. One of the owners typically acts as operating agent and takes direction from other owners;
6. Various administrative committees ensure all owners are appropriately involved in the oversight and administration of the project;
7. Pre-established voting processes are used for approval of budgets, major expenditures and significant operational matters;
8. Modifications to the joint ownership agreement must be approved by all owners;
9. Owners indemnify each other and the operating agent;
10. Owners have reasonable rights to approve assignment of another owner's share to a third party.

4. Projects that have employed the historical contract principles

There are several examples of jointly owned transmission projects that have played a vital role in the ability of many utilities in the western grid to serve rapidly growing customer loads for over 50 years. The result is a highly integrated transmission system that has fostered cooperation and economic coordination among the owners. Jointly owned

transmission facilities are viable solutions for multiple utilities to deliver power to their native load customers.

A. Southwest Power Link (SWPL)
A prime example of joint ownership is the 500 kV transmission lines from Phoenix to San Diego known as the South West Power Link (SWPL) where APS, IID and SDGE own the line and all arrangements are addressed in a bilateral contract between the parties. CAISO has grandfathered the IID and APS rights on the line. Over the last 20 years the parties have shared the cost of significant capacity upgrades for purposes of mutually beneficial load growth.

B. The Navajo South Transmission Line
Another prime example is the Navajo South transmission line that runs from the Navajo plant to the Moenkopi[1] switching station, which is owned by the six owners of the plant: SRP, APS, LADWP, the U.S. Bureau of Reclamation ("USBR"), Tucson Electric Power Co. and Nevada Power Co. Three of these utilities (Nevada Power, USBR and LADWP) built the Navajo West system that runs west from the plant.

C. Path 15 Upgrade
Path 15 is located in the southern portion of Pacific Gas and Electric Company's service area and in the middle of the CAISO's balancing authority. The project was financed substantially with non-federal funds. Project participants under this public-private partnership were Western Area Power Administration (a federal agency), Pacific Gas and Electric Company and Trans-Elect New Transmission Development. The upgrade has relieved a significant transmission constraint on Path 15 in the south to north direction. This project was a model for how effective joint transmission projects can be beneficial to all ratepayers and relieve a major reliability problem.

The process under which the line was built was a bit unusual but it worked very well. Due to excessive congestion on Path 15, on May 17, 2001, the National Energy Policy Report recommended that President George W. Bush direct the secretary of energy to authorize WAPA to explore ways to relieve the Path 15 bottleneck through transmission expansion[2]. Through a public process, WAPA solicited proposals from non-federal entities to participate in the construction and ownership of Path 15 upgrades. WAPA ultimately selected Trans-Elect and PG&E. The Path 15 participants agreed to build a new 500 kV transmission line increasing Path 15 transfer capability from 3900 MW to 5400 MW for northbound power deliveries. The project increased transfer capability for southbound deliveries as well.

WAPA owns the most significant part of the new 500 kV transmission line and land associated with the transmission upgrade, while PG&E performed upgrades to preexisting substations and 230 kV transmission facilities. The letter agreement also provided that

[1] Both Palo Verde and Moenkopi are scheduling points with multiple entities, including the CAISO, SDGE and SCE as CAISO participating transmission owners (PTO)

[2] http://www.wapa.gov/sn/ops/transmission/path15/FERCapproval/Path15FERCAccept.pdf

Trans-Elect, PG&E and WAPA each received an entitlement to the transmission system rights (TSRs). Initially, Trans-Elect received 72 percent, PG&E received 18 percent and WAPA received 10 percent of these TSRs. The final allocation of TSRs was based on the ratio of the contribution[3] made by a participant to the project, either in terms of funding or actual work performed. However, in no event will WAPA's share drop below 10 percent. The cost of the project was $306 million.

This bilateral agreement was adopted in the CAISO tariff without modification. CAISO indicated that the Path 15 situation was done under very unique circumstances and should not be seen as the model that CAISO would use for future joint transmission projects.

The Path 15 upgrade was completed in record time and placed into operation by the end of 2004.

D. California-Oregon Transmission Project (COTP)

The COTP is a project that is jointly owned by the Transmission Agency of Northern California (TANC), Western and PG&E. This is a 500 kV line that serves as one of the three California-Oregon interties and connects Captain Jack Substation in Oregon and Olinda Substation in California. This is managed under the historical contract principles with the SMUD/Western balancing authority operating the line, the PG&E portion scheduled under the CAISO tariff and the remaining portion scheduled under a bilateral contract arrangement.

E. Pacific DC Intertie (PDCI)

The PDCI is another good example of a transmission system jointly owned by the CPP and entities controlled by CAISO. It is a 3100 MW high voltage direct current (HVDC) transmission system with converter stations at both ends, the northern terminal called the Celilo Converter Station is located in the Bonneville Power Administration (BPA) system in Oregon and the southern terminal called the Sylmar Converter Station is located in the LADWP system. The PDCI transmits DC power at +/- 500 kV DC over an 871-mile transmission line from the Pacific Northwest to Southern California. The original station was commissioned in 1970 with an initial capacity of 1440 MW, and was later expanded in various phases to the present capacity of 3100 MW.

The PDCI is a jointly owned transmission system by BPA, SCE, LADWP, Pasadena, Glendale and Burbank. Currently only SCE and Pasadena are CAISO PTOs. The line's operational control is divided between the BPA balancing authority in the north and LADWP balancing authority in the south at the Nevada Oregon Border (NOB). LADWP is the operating and maintaining agent and the manager for all work at the Sylmar Converter Station and on the DC line up to the NOB.

[3] Contributions are not always in the form of financial contributions

5. Projects that are implementing the Historical Contract Principles

A. PV-North Gila Transmission Project

On January 14, 2008, the Arizona Corporation Commission (ACC) approved a new 500 kV transmission line from the Palo Verde Hub to the North Gila Substation near Yuma, Arizona. This 117-mile transmission line is a joint project between IID, APS, Salt River Project and Wellton Mohawk Irrigation and Drainage District and will be capable of transporting up to 1200 MW of energy. It has an expected in-service date of 2013. Some of the parties negotiating this development have expressed an interest in expanding the PV-North Gila project an additional 110 miles from North Gila to IID Highland Substation, which is a major renewable hub just southeast of the Salton Sea. This connection between Highland and N. Gila utilizes 600 mw of available capacity from IID Midway Substation located in the heart of the renewable resources to Highland Substation.

B. Green Path North (Between public power)

The second joint transmission project that is moving ahead is Green Path North. In the fourth quarter of 2005, a joint venture of two public power balancing authorities, LADWP and the IID, SCPPA and a nonprofit corporation, Citizens Energy Corporation, announced an agreement to undertake the Green Path project. Its purpose is to increase access to over 2,000 megawatts of geothermal and renewable resources in the Imperial Valley, and to eliminate existing transmission constraints in the southern region of California.

After three years of negotiations mostly over operational control of the line, and several issues that are incompatible with the CAISO tariff, the project is moving ahead but without the participation of the CAISO. Here again, identical issues faced in the GPSW appeared in the Green Path North project and remain unresolved.

C. TANC Alpha, Delta, and Zeta Transmission Projects (between public power)

This is a new transmission project being undertaken on behalf of several TANC members. It involves both 230 kV and 500 kV sections in the general Northern California area. This project will both access renewable energy supplies in Northeastern California as well as provide reliability improvements for the Northern California grid. Participation by PG&E using the existing contract arrangements with TANC could be beneficial to all California parties.

6. The CAISO Joint Transmission Model Principles

The CAISO tariff specifies the required terms and conditions for PTOs such as PG&E, SCE, SDG&E or any other entity wishing to become a PTO.

The list below is a summary of the CAISO model:

1. Must sign a PTO agreement with the CAISO to place its assets under CAISO operational control
2. Two or multiple bilateral transmission agreements would not "override" the CAISO tariff
3. Transmission rate for the entity that signed a PTO agreement will be modified without approval from the owners of the assets consistent with the CAISO tariff.
4. CAISO fees and market charges will apply to the PTO
5. The PTO is subject to CAISO tariff. The tariff can be changed without the explicit approval of the PTO
6. The CAISO tariff is approved by the FERC
7. All planning, upgrades and expansion of the assets are approved by the CAISO
8. All applicable transmission cost are recoverable through the CAISO

The CAISO tariff also has provisions to include specific transmission asset(s) to be operated by the CAISO without becoming a PTO. This feature is called transmission ownership right (TOR), where the owner of the assets is subject to most of the above requirements.

Recently, the CAISO has adopted stringent criteria in which any joint developments of transmission infrastructure with the CAISO requires (1) the asset to be operated by the CAISO and (2) once in service, all operational cost, planning and expansion must comply with the CAISO tariff regardless of any contractual agreements between the various owners of the line.

7. Problems With the CAISO Joint Transmission Principles

It's our understanding that the CAISO tariff specifies the financial and operational arrangement around a new participating transmission owner (PTO) joining the CAISO. Any transmission owner could provide the CAISO with access to long-term transmission capacity in return for full payment of fixed and operating expenses, including a fixed profit for the life of the project. The CAISO will accept new capacity as long as it is needed for reliability and provides an economic benefit to the ratepayers. The CAISO collects a charge[4] from the ratepayers to compensate the transmission owner. The PTO agreement with the CAISO specifies the financial arrangement between the two parties.

[4] Transmission line users pay tariff access charges such as transmission access fees, GMC fees, etc. per mega watt hour per month.

Conceptually this would appear doable; however, there have been recent proposed joint transmission projects involving the CAISO that have not been able to come to fruition.

Two Recent Joint-Development Challenges:

A. Green Path Southwest (GPSW)

The three parties engaged in the GPSW were IID, Citizens Energy Inc. and San Diego Gas & Electric (SDG&E) to build a 500 kV line between IID and SDG&E. The principle motivations for the joint development were:

- Utilize existing rights of way
- IID would lease to Citizens Energy Inc. the use of 95 percent of the transfer capability of IID's 500 kV line from the Imperial Valley Substation to a new substation in Imperial County northwest of the IV Substation in the vicinity of San Felipe,
- Citizens would request PTO status from the CAISO, which would involve Citizens turning over operational control of its share of the line, and recovering the costs of its entitlement in the line through a transmission access charge (TAC) paid by all CAISO load per the CAISO's tariff.
- The GPSW portion of the line would run through the IID service area and would be 100 percent owned by IID
- SDG&E would have greater access to renewable power to meet its state-mandated renewable portfolio standard.
- IID customers would receive low-income assistance from Citizens Energy.
- Despite the enormous benefits to all three parties, the negotiations were terminated. Talks occurred through 2006 and 2007. IID and SDG&E could not reach an agreement over several aspects of the project; among them, the appropriate route for the Imperial Valley portion of GPSW, operational control, stranded investment risks, generation interconnection to the GPSW and cost certainty. The negotiations were terminated and SDG&E has determined that it will continue its pursuit of its preferred route.

Following is a summary of unresolved issues that have caused the termination of the GPSW joint transmission project:

- Even though the plan called for the 500 kV line to be wholly owned by IID (within the IID service area) CAISO insisted not only on having the line under its control but also all individual owner capacity and associated usage be subject to the CAISO tariff. The transmission rates for the IID defined and owned capacity would no longer be under local control but would be subject to the CAISO tariff cost design changes in perpetuity.
- In addition, the CAISO tariff requires that all generation interconnected for the purposes of its PTOs would be under its direction. This prevents the IID, as a balancing authority and a transmission owner from performing cost-effective integrated transmission planning – for its ratepayers, its merchant customers and its neighboring balancing authorities. Any generator interconnection and/or expansion of the 500 kV line within the IID service area conducted under the CAISO tariff may not be in the best interests of ratepayers within the western grid. IID is a renewable

energy hub to multiple balancing authorities with profound interest in its unique geothermal and solar characteristics. To promote efficiencies and minimize environmental impact in exporting renewables as well as serving load, IID, as an owner of the joint transmission line and other transmission lines within its service area, should process all interconnection requests to optimize all of its assets and perform its responsibilities as a balancing authority.

B. Green Path North (between public power and CAISO)

A portion of the GPN project where public power and CAISO share the line capacity is facing many challenges. In the fourth quarter of 2005, a joint venture of two public power balancing authorities, LADWP and the IID, SCPPA and a nonprofit corporation, Citizens Energy Corporation, announced an agreement to undertake the Green Path project. Its purpose is to increase access to over 2,000 megawatts of geothermal and renewable resources in the Imperial Valley, and to eliminate existing transmission constraints in the southern region of California.

After three years of negotiations, mostly over operational control of the line, and several issues that are incompatible with the CAISO tariff, the project is moving ahead but without the participation of the CAISO. Here again, the same issues faced in the GPSW appeared in the Green Path North project and remain unresolved.

8. Renewable Development and Joint Transmission Development

We believe that joint-transmission projects are needed more than ever to ensure load serving entities are achieving their respective mandated renewable portfolio standards (RPS) and in the future the greenhouse gas (GHG) targets. Transmission availability plays an essential role in making the state's renewable policy a reality. The reason is simple: Renewable energy sources (geothermal, wind) are typically localized, as are other energy sources (coal). All in all, higher voltage, joint transmission projects are required to cost effectively move the electrical output of these resources to multiple load-serving entities in the western grid.

We support the WESTERN RENEWABLE ENERGY ZONES PROJECT (WREZ). **We believe the WREZ effort will assist all western states, load serving entities, transmission providers, generation developers and state regulators in making informed decisions about:**

- Joint transmission to allow multiple access to energy sources
- Costs of renewable power;
- Utilize existing right of way and existing transmission capacity
- Optimum transmission needed to move renewable power to consumers;
- Potential partners in developing transmission to access renewable areas; and
- Where renewable energy developers can site their facilities to ensure access to the transmission system and minimize environmental impacts.

Joint -transmission development is essential to promote a regional view of renewable development through collaborative efforts. Regional transmission planning and joint ownership will promote access to renewable resources and pave the way for interstate collaboration on:

- Permitting of multi-state transmission;
- Allocating and recovering cost of new transmission, and
- New approaches to interconnection and transmission service queuing problems.

The 34 balancing authorities within the 11 western states and two Canadian provinces (western grid) should not be perceived as an obstacle (balkanization) in the regionalization of renewable development. The fact that energy has been transacted amongst the 34-plus control areas across the western grid is living proof that regional control areas (now balancing authorities) have worked together without the need for a single or larger footprint of control (RTOs, ISOs). There are several factors in place to ensure the renewable market is not balkanized:

1. WECC regional transmission planning groups are working collectively to build joint transmission
2. The formation of the WERZ
3. The formation of the RETI groups in multiple states
4. The recent 2005 Energy Act regarding NERC reliability standards wherein all balancing authorities have to comply with the same reliability criteria
5. The recent FERC large generation interconnection policies that ensure the same homogenous rules in providing access to the transmission system by all users have been adopted by public power balancing authorities and transmission authorities
6. The fact that public power has adopted, or exceeded, its state's RPS requirements
7. The recent announcement of WestConnect [5] and its co-petitioners to offer customers the option of purchasing hourly non-firm point-to-point transmission service across the transmission systems of multiple participating providers (participants) at a single regional transmission rate, as an alternative to pancaked point-to-point transmission service
8. The sub-regional transmission planning is being performed by Southwest Transmission Planning Group (SWAT), the Colorado Coordinated Planning Group (CCPG) and any other sub-regional transmission planning (STP) groups that form and make up the WestConnect planning area. Annually a 10-year integrated regional transmission plan is derived from their efforts that coordinate all transmission plans across the WestConnect planning area.

[5] WestConnect is an unincorporated, voluntary membership association governed by a memorandum of understanding among its members. The WestConnect membership currently consists of a group of 13 electric utilities providing transmission service in the western interconnection. Its members include investor-owned utilities (collectively, jurisdictionals) and consumer-owned utilities, as well as one federal power marketing administration (collectively non-jurisdictionals). Most of the WestConnect members own and operate a transmission system that is interconnected with the transmission system of one or more of the other WestConnect members such that they form an interconnected grid stretching from Western Nebraska to Southern California, and from Wyoming to the Mexican border.

9. The U.S. Department of Energy and the National Renewable Energy Laboratory (NREL) are commencing the Western Wind Integration Study for several states in the west. The study will examine the operating impacts and mitigation options associated with the variability and uncertainty of wind and solar power on the utility grids. This is the largest regional wind integration study undertaken to date that will investigate significant penetrations of wind and solar on the grid, in line with the Western Governor's Clean and Diversified Energy Initiative target of 30 GW clean energy by 2015 and the president's Advanced Energy Initiative that says wind can supply up to 20 percent of U.S. electricity consumption.

NEEDED ACTION ITEM:
Solutions need to be found for the current deadlock on joint-transmission projects between the CAISO and other balancing authorities in order to facilitate and accelerate California RPS and GHG goals. The first item to overcome is the barrier between CAISO's *tariff* approach and the *bilateral* based contracts utilized by the other western states' balancing authorities.

9. Proposed Solutions

California was among the first states to enact a renewable portfolio standard (RPS) and currently has one of the most aggressive portfolio requirements in the country.
The governor and the state's energy action plan have endorsed a further goal of 33 percent renewable by 2020, in part, as a strategy for meeting the greenhouse gas emission reduction requirements of AB 32. Meeting these RPS goals will require a substantial amount of new transmission development, as most large-scale renewable resources are located in remote areas rather than near the state's major load centers. Resolving the joint transmission development issues outlined in this paper is a prerequisite to achieve the objective of the state energy action plan and to ensure the success of initiatives such as the Renewable Energy Transmission Initiative (RETI) and regional planning forum.

a. CAISO Proposed Solution

In early 2007, the CAISO filed and obtained Federal Energy Regulatory Commission (FERC) approval to develop a financing mechanism for the construction of generator interconnection facilities to access location-constrained resources. Location-constrained resources are defined as new generation resources that are typically constrained as a result of their location, relative to size and the immobility of their fuel source. The financing mechanism would initially roll the costs of interconnecting these facilities into the transmission revenue requirement of a (new or existing) participating transmission owner that constructs the facility. The CAISO filing designated IID's Salton Sea area as a location-constrained resource. Although the CAISO proposal would provide incentives to connect renewable resources, it should not be used as an alternative or as a tool to bypass cost-effective joint transmission development between the parties.

b. CPP proposed Hybrid Model:
In order to bridge the differences between the CAISO tariff and a contract-based arrangement, a new framework needs to be adopted to facilitate transmission development. What is lacking are proper incentives for various parties to work together and to leverage their existing infrastructure into new transmission projects. The obstacles that exist today continue to balkanize the grid that, by way of lost opportunity, has an adverse impact upon ratepayers and consumers. Operational and cost certainty are paramount to a successful joint-transmission development; Therefore, CPP proposes that a hybrid model should be adopted with the following principles:

1. **Operational and cost certainty**: Currently the CAISO tariff requires that all assets under its control be subject to CAISO planning, expansion and associated costs. For purposes of joint transmission development with another balancing authority or a non-PTO entity we propose that a tariff amendment be designed such that consideration is given to the other entities concerning commercial issues, generation interconnection, transmission planning and expansion, especially when the assets involved are in the service areas outside of the CAISO. This would provide the same level of price certainty and asset optimization that exists in other bilateral transmission contracts outside of the CAISO. The CAISO tariff needs to recognize the sanctity of these bilateral transmission contracts. Additionally the approved negotiated agreement between PTO and non-PTO entities should be part of the CAISO tariff and should NOT be subject to changes by CAISO or FERC without the mutual agreement of the joint-development parties. Again this promotes the financial certainty that transmission providers are currently seeking.
2. **Costs and liabilities**: All costs and liabilities are shared by the participants in proportion to their ownership percentage;
3. **Operational control:** Day-to-day control should be negotiated by the various parties without any contractual barriers that apply to certain entities based on whether the entity is a CAISO PTO or not.
4. **Ratepayers' benefits:** Any transmission project must be economically justified, taking into account ALL existing planned transmission projects proposed by neighboring balancing authorities, whether the neighboring entity is a CAISO PTO or not. The objective ought to minimize costs to all California ratepayers.
5. **Reciprocity:** Need to consider waiving operational charges on joint transmission projects. Currently joint-transmission projects share the terms and conditions specified in the contractual agreement between parties. In these agreements, balancing authorities waive the day-to-day charges levied upon each other for any operational fees, since the benefits and the burdens are specified in the bilateral contracts. However, this isn't the case when non-PTOs engage with the CAISO. The CAISO is the only BA in the west that charges neighboring BAs for transmission service owned by non-PTOs, but are within CAISO's operational authority.

A collaborative process is crucial to developing consensus and resolves these issues so our efforts are better focused on achieving the state energy objectives

APPENDIX A

Examples of joint transmission lines operated by Balancing Authorities other than the ISO:

A. **Four Corners Project** (generating station, large switchyard, multiple transmission lines and substations) participant ownership by APS, SRP, EPE, PNM, TGE and SCE. SCE as a PTO has 32 percent co-tenancy ownership of the Four Corners 500 kV switchyard, 12 percent in the Four Corners 345 kV switchyard and 48 percent in the Four Corners 345/500 kV bus-tie transformer bank. All these joint assets are operated by APS balancing authority.

B. **The Pacific DC line** from Oregon to Los Angeles is another example of joint development transmission projects between BPA, LADWP, SCE, Pasadena, Glendale and Burbank. Currently only SCE and Pasadena are CAISO PTOs. The line's operational control is divided between the BPA balancing authority in the north and LADWP balancing authority in the south at the NOB.

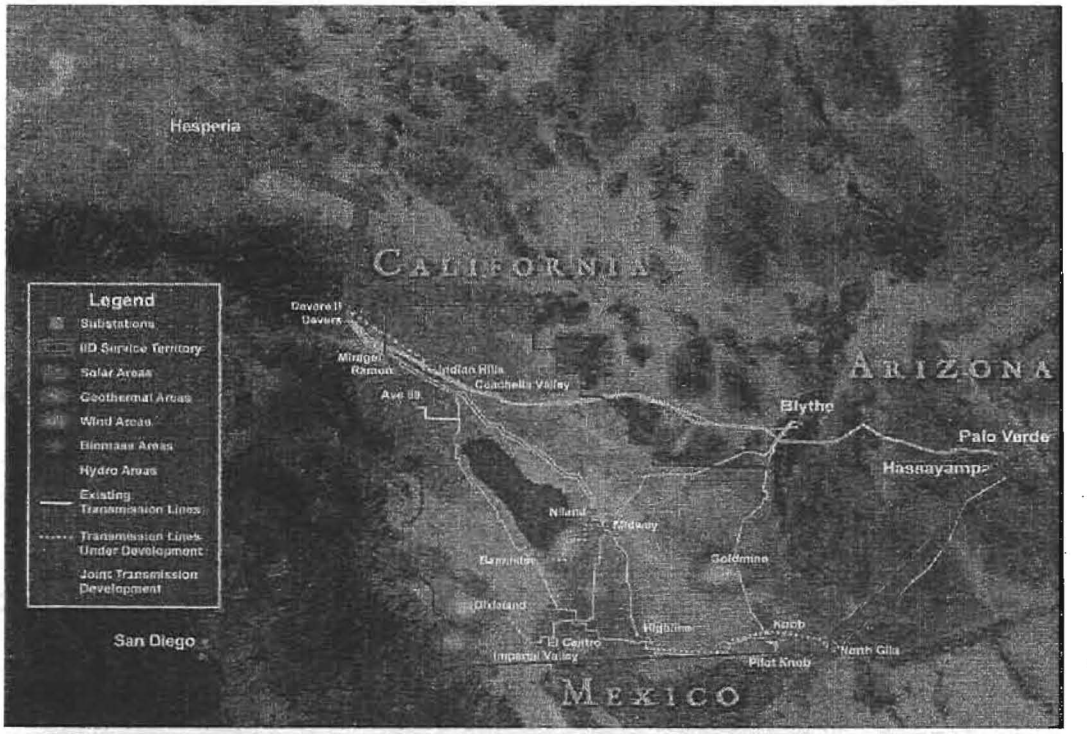
C. **Victorville-Lugo 500 kV Interconnection Agreement:** the line is co-owned between LADWP and SCE, whereby the line operational control is divided between the two parties at the halfway mark.

D. **California-Oregon Transmission Project (COTP) 500 kV** transmission line owned by TANC, PG&E and Western and operated under the SMUD BA/Western Sub-BA

Examples of joint transmission lines operated by CAISO under standard bilateral terms:

E. **The South West Power Link (SWPL):** the line from Palo Verde to Miguel Substation in San Diego is a joint transmission line between SDG&E, IID and APS. SDG&E become a PTO and placed the line under the CAISO BA.
F. **Path 15** is also a joint transmission project where the line is owned by WAPA and operated by CAISO
G. **Eldorado 500 kV system** is owned by SCE, SRP, LADWP and NPC. The lines are operated by CAISO
H. **The Malin – Round Mountain #1 500 kV line** linking Oregon and California is owned by WAPA and operated by CAISO
I. **The Malin – Round Mountain #2 500 kV line** linking Oregon and California is partially owned by PacifiCorp and operated by CAISO

APPENDIX B


Hesperia
CALIFORNIA
ARIZONA
Legend
Substations
IID Service Territory
Solar Areas
Geothermal Areas
Wind Areas
Biomass Areas
Hydro Areas
Existing Transmission Lines
Transmission Lines Under Development
Joint Transmission Development
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Devers
Mirage
Ramon
Indian Hills
Coachella Valley
Ave 58
Blythe
Palo Verde
Hassayampa
Niland
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El Centro
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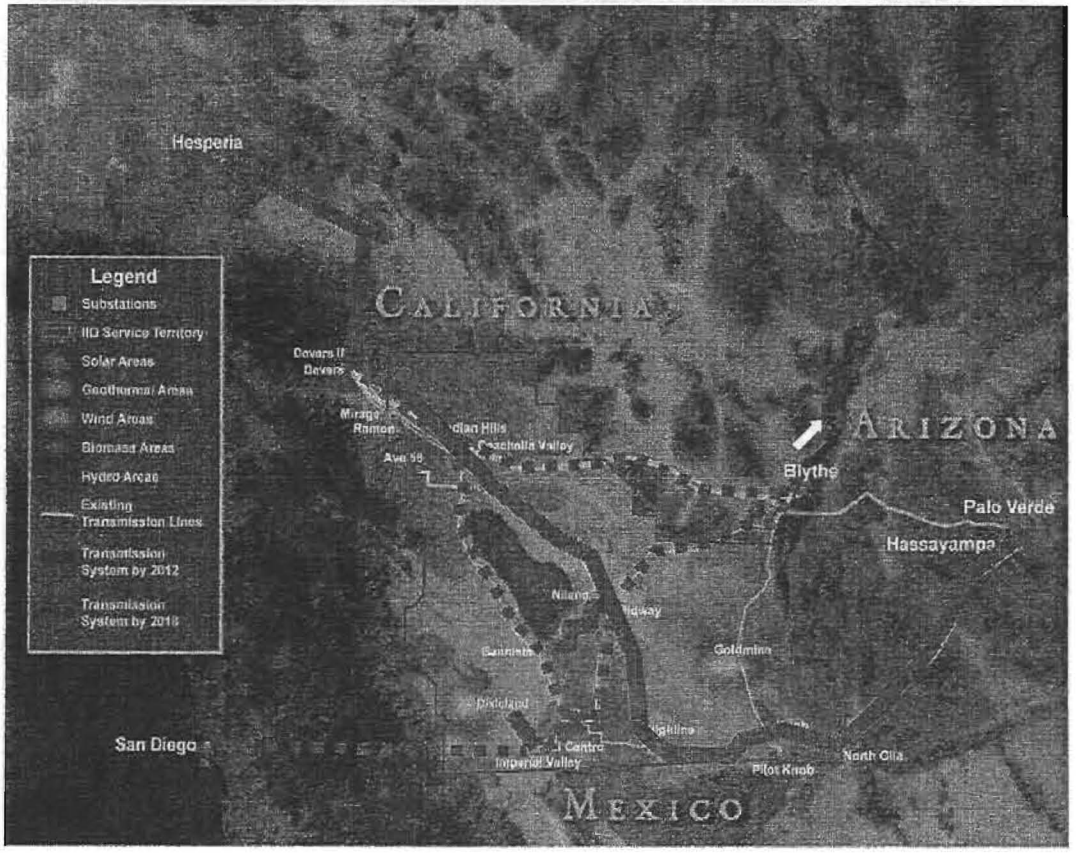
San Diego
MEXICO


Hesperia
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Transmission System by 2012
Transmission System by 2018
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