

# TRANSMISSION AGENCY OF NORTHERN CALIFORNIA

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March 16, 2009

## DOCKET

09-IEP-1D

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California Energy Commission  
Docket Office  
Attention: Docket 09-IEP-1D  
1516 Ninth Street, MS-4  
Sacramento, CA 95814-5512

Subject: California Energy Commission's Request for Electric Transmission-Related Data

In response to the California Energy Commission's (CEC) request for electric transmission-related data to support the 2009 *Integrated Energy Policy Report* and the 2009 *Strategic Transmission Investment Plan*, I am hereby submitting the enclosed information on the Transmission Agency of Northern California (TANC) transmission expansion plans. The information submitted herein by TANC provides project-level data on new transmission facilities currently under consideration or under development by TANC as a joint powers agency. The transmission projects or transmission expansion plans of the individual TANC members that are outside the boundaries of TANC will be provided to the CEC by the individual TANC Members.

As the CEC reviews TANC's transmission information, it is important to note that the development of these projects is ongoing and subject to change. As such, the transmission information submitted by TANC with regard to its potential development of transmission infrastructure represents our best information at this time. As we continue to further develop our transmission plans, we are certainly available to discuss with the CEC specific aspects of our transmission projects as they become better known. TANC will also attempt to keep aspects of our transmission projects updated on our website, <http://www.tanc.us>, in timely manner.

In the meantime, if there are any questions with respect to the information provided in this response to CEC's request, please do not hesitate to contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read 'James W. Beck', is written over a large, stylized blue 'H' or checkmark symbol.

James W. Beck  
General Manager

Enclosures

## **The Transmission Agency of Northern California's (TANC) Strategic Transmission Investment Plan Data Submissions for the California Oregon Transmission Project (COTP) and TANC Transmission Project (TTP)**

In accordance with the California Energy Commission's (CEC) request for data in preparation of the Strategic Transmission Investment Plan (STIP) under Docket # 09-IEP-1D, TANC hereby submits its bulk transmission resource and proposed transmission project information. TANC fully supports the CEC's efforts to ensure grid reliability, increase access to renewable energy, relieve transmission congestion, and meet future load growth projections, and is pleased to contribute to the development of the STIP.

Established in 1984, TANC is a joint exercise of powers agency organized under the provisions of California law governing the joint exercise of powers<sup>1</sup> and is comprised of 15 local governmental utilities<sup>2</sup>. The Mission of TANC is to assist its publicly owned utility Members in providing cost-effective energy supplies to their customers, through long term ownership of essential high-voltage transmission lines within California and the western United States.

TANC is the majority owner and project manager for two major transmission projects: The existing California-Oregon Transmission Project (COTP); and the planned TANC Transmission Project (TTP). As such, TANC is submitting data for both projects on behalf of its Members for these projects and is not responding on behalf of its Members with regards to their own transmission systems. Data provided for the TTP is subject to change due to the transitional nature of the transmission planning process. The most recent data available for both projects was used in this report.

This submittal includes a description of current facilities owned by TANC, a proposed upgrade to the current transmission network owned by TANC and an update on the TTP, which includes new transmission lines, substations and upgrades to current transmission facilities. This submittal does not purport to represent a transmission plan and is thus limited to the general information provided herein. The data submitted relies upon publicly available information. For more information about TANC, specifically about ongoing progress with the TTP, please visit our website at [www.tanc.us](http://www.tanc.us).

### **Existing Transmission - California-Oregon Transmission Project**

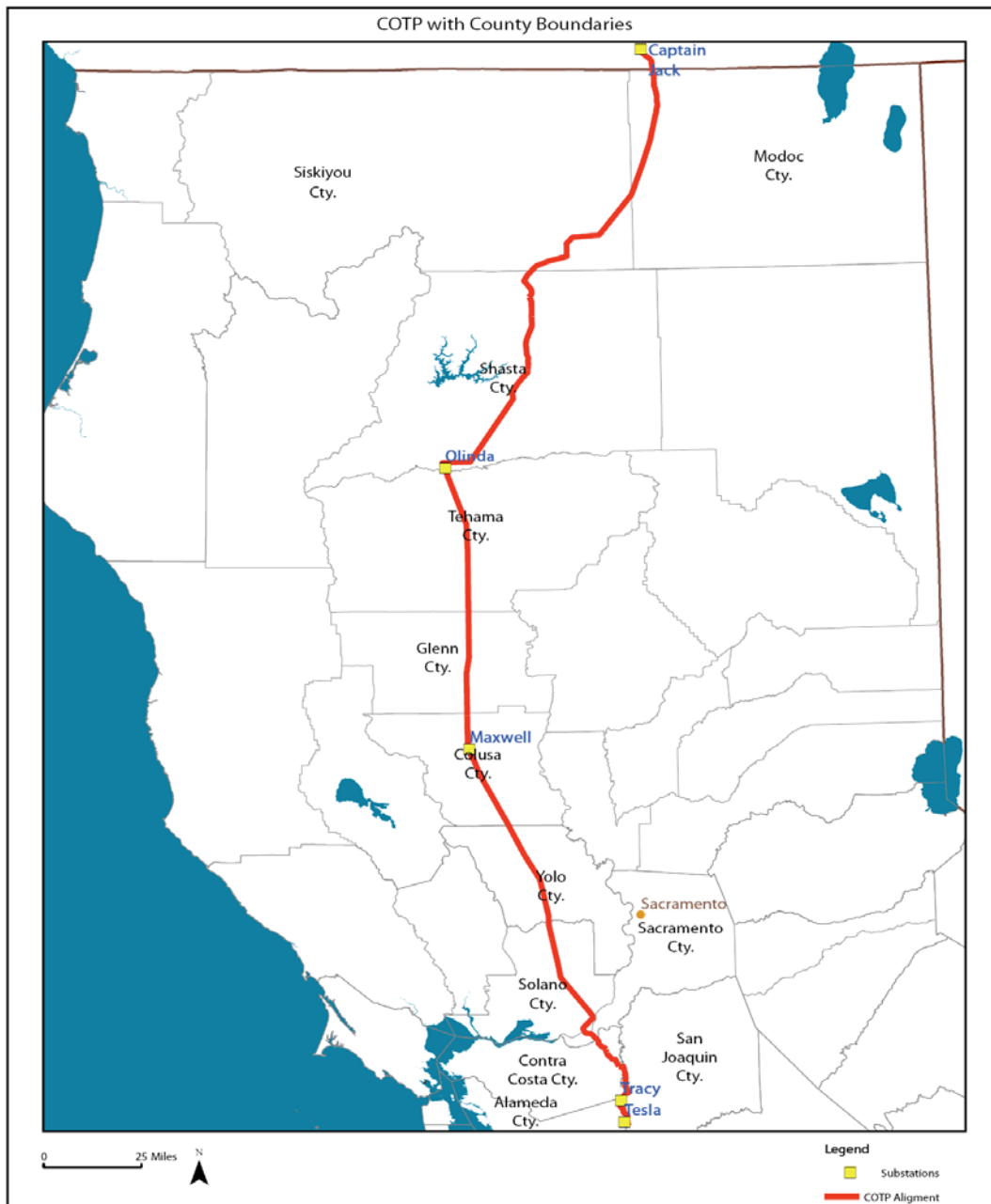
TANC files this information using guidance from form CEC-100-2008-012-CTF.

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<sup>1</sup> Chapter 5, Division 7, Title 1 of the Government Code of the State of California

<sup>2</sup> Members include the Cities of Alameda, Biggs, Gridley, Healdsburg, Lodi, Lompoc, Palo Alto, Redding, Roseville, Santa Clara, and Ukiah; the Plumas-Sierra Rural Electric Cooperative; the Sacramento Municipal Utility District; the Modesto Irrigation District; and the Turlock Irrigation District

TANC is the majority owner and project manager for the COTP. Energized March 17, 1993, the COTP consists of 340 miles of 500-kV transmission line that interconnects with the Bonneville Power Administration (BPA) at the Captain Jack Substation in Southern Oregon, and with Pacific Gas and Electric Company's (PG&E) transmission lines adjacent to its Tesla Substation, near Tracy, California.



Under the Owners' Coordinated Operations Agreement (OCO), the COTP is allocated one-third or 1600 MW of the California-Oregon Intertie (COI) rating of 4800 MW. There are

two substations (Olinda and Tracy), and one series-compensation station (Maxwell) that are part of the COTP. The Olinda Substation, near Redding, California includes facilities to interconnect COTP to the 230-kV transmission system through an 850 MVA transformer bank. At Tracy, there are 2 similar transformer banks, each of which has a capacity of 850 MVA. TANC and TANC Members participate in activities to study and enhance the capability of the COI.

The COTP operation is coordinated under the OCOA as part of the COI, with the two 500-kV lines that make up the Pacific AC Intertie, which began operation in late 1967. The combined three-line system capability is managed by the California Independent System Operator (CAISO) as the Path Operator under agreement with the three owners, and the available transfer capability (ATC) is allocated one-third to COTP and two-thirds to the Pacific AC Intertie owners. The operating transfer capability (OTC) limits are reviewed seasonally and approved by the Western Electricity Coordinating Council (WECC) OTC Policy Committee<sup>3</sup>.

#### **Existing Facilities Upgrade - California-Oregon Intertie**

TANC continues to pursue, along with the other COI owners, sponsoring WECC regional planning and rating increase processes for an upgrade of the COI from 4,800 MW to not less than 5,100 MW through increasing the number of series capacitors at either Captain Jack or Olinda Substations, along with shunt capacitors at Tracy Substation. PacifiCorp is also planning to replace its series capacitors at Malin on the Malin-Round Mountain No. 2 500-kV line. These new facilities are expected to provide at least a 300 MW upgrade to the COI. The cost is estimated at approximately \$35 million. No alternatives were considered in the development of this project and no party involved in the WECC regional planning process has offered an alternative project. No major system outages are anticipated. There will be minimal outages to make final connections of the new facilities to the grid. At this time, this project is on hiatus as parties consider its benefits and costs.

#### **New Transmission Projects – TANC Transmission Project**

TANC is providing this information as per the instructions of form CEC-100-2008-012-CTF.

In the 2007 STIP submission, TANC identified and provided information for 5 proposed transmission expansion projects: Alpha, Beta, Delta, Epsilon, and Zeta. Since that filing, Epsilon and Beta have been removed from consideration. TANC currently has 4 segments of the TTP in the planning stages: North, Central, East, and West, as well as a fifth segment that will be owned by Western Area Power Administration (Western). In sum, the projects will add over 600 miles of new 500-kV and 230-kV transmission lines, thereby providing a

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<sup>3</sup> TANC's Member utility, the Sacramento Municipal Utility District (SMUD) has a leadership role in the performance of these studies.

valuable resource for relieving congestion in load constrained areas, improving reliability, and accessing Competitive Renewable Energy Zones (CREZ) identified in the California Renewable Energy Transmission Initiative (RETI) reports.

Western and TANC propose to coordinate development of the proposed TTP, which includes new and upgraded 230-kV and 500-kV transmission lines, substations, and related facilities. The TTP would satisfy Western's and TANC's need to develop new access to renewable energy resources in northeastern California, northwestern Nevada, and the Pacific Northwest; enhance the COI; reduce existing congestion and system losses; increase the load-carrying capability and reliability of northern California's transmission system; improve the reliability of the Balancing Authority Area (BAA), in which Western resides; and relieve certain existing electrical transmission system constraints in northern California.

Details and plans for the proposed TTP and alternatives are still being developed and refinements will continue throughout the public scoping process. TANC would own all facilities of the TTP except for the Federal Transmission System owned by Western and the Sierra Foothills Segment, as noted below. Western's Federal Transmission System ownership includes the land rights, towers, and circuit 1 between Tracy Substation and Livermore Substation. Some of the facilities associated with the proposed TTP may require modifications to and/or interconnections with Western's transmission system.

The proposed TTP would be located entirely in California. The corridor would consist of 5 segments of transmission line that extend from northeastern California through the Central Valley and split westward to the San Francisco Bay area and eastward to the Sierra Foothills. The proposed corridors have been identified to avoid, to the extent possible, residential and known environmentally-sensitive areas, and take optimum advantage of accessible competitive renewable energy zones, as recommended by the State of California's Renewable Energy Transmission Initiative.

North Segment. The North Segment would include 2, new, single-circuit, 500-kV transmission lines, each trending west from a proposed new substation near Ravendale to a proposed substation near PG&E's existing Round Mountain Substation. Three corridor alternatives, each 80 to 100 miles long, have been identified. These 3 alternative corridors would be located generally to the north of Eagle Lake and State Route (SR) 44, and near SR 299. The North Segment would include a new, 1-mile, double-circuit, 500-kV transmission line from the proposed new substation near Round Mountain to PG&E's Round Mountain Substation. The North Segment would continue with a new, double-circuit, 500-kV transmission line that would run 40 to 45 miles southwest to COTP's existing Olinda Substation, south of Redding. Three corridor alternatives have been preliminarily identified for this segment.

Central Segment. The Central Segment would begin at the Olinda Substation and trend south, approximately 170 to 190 miles to Tracy. It would include a new, double-circuit, 500-kV transmission line through the Central Valley to a new substation in southern Sacramento County and on to a new substation near COTP's existing Tracy Substation. Three possible alternative corridors have been identified for the Central Segment: the western, central, and eastern alternatives.

The 172-mile western corridor alternative of the Central Segment would lie along the western side of the Sacramento Valley. This alternative would be roughly parallel to and 5 to 20 miles west of the Interstate 5 corridor. It would pass just east of Black Butte Lake and west of the cities of Orland, Willows, and Williams. South of Winters, the western alternative would turn east and cross between the cities of Dixon and Vacaville before continuing east for approximately 35 miles to a proposed new substation in southern Sacramento County, west of SR 99 and south of Elk Grove.

The 167-mile central corridor alternative runs roughly parallel to and 5 to 10 miles west of SR 99 through the Sacramento Valley, just west of the cities of Red Bluff and Chico, then between the Sutter Buttes and Yuba City, and east of the cities of Woodland and Davis. The central alternative would then turn southeast, converging with the western alternative, and interconnect at the proposed new substation in southern Sacramento County.

The 173-mile eastern corridor alternative would be located west of the Sierra Foothills of the Sacramento Valley, roughly parallel to and 5 to 10 miles east of SR 99. This alignment would pass east of the cities of Red Bluff and Chico, through Oroville and east of Yuba City. This proposed alternative would then shift approximately 15 miles to the west and continue southward, just west of the Sacramento Airport and City of West Sacramento to the proposed substation in southern Sacramento County.

From the proposed new substation in southern Sacramento County, each of 3 alternative corridors would continue 40 to 45 miles southwest to a proposed new substation near the COTP's existing Tracy Substation.

West Segment. The West Segment would include 2, double-circuit, 230- kV transmission lines from the Tracy area to the South San Francisco Bay area. The first would include upgrading the existing transmission line from the new substation near Tracy to Silicon Valley Power's existing Kifer Receiving Station (KRS) in Santa Clara. Construction of this transmission line would include upgrading about 13 miles of existing, double-circuit, 230-kV transmission line from the proposed substation near Tracy to Western's Livermore Substation, and building 30 to 40 miles of new, double-circuit, 230- kV transmission line from the Livermore Substation to the proposed substation near the KRS Substation. Up to 7 miles of this segment may be built underground. From the new substation near KRS, an approximate

500-foot, 115-kV transmission tie would be built to KRS. Two possible alternative corridors have been identified for this transmission line.

The second double-circuit, 230-kV transmission line would follow a southwestern path from PG&E's existing Tesla Substation to just south of Livermore and through the cities of Fremont and Newark to PG&E's existing Newark Substation.

*East Segment.* This segment would include building 40 to 45 miles of new, double-circuit, 500-kV transmission line east from the new substation near Tracy, roughly paralleling Interstate 205 and SR 120, to a proposed substation located south of the Oakdale Airport. There are 2 corridor alternatives for the proposed 500-kV transmission line, both of which would run north of the cities of Tracy and Modesto and south of the cities of Manteca, Escalon, and Oakdale. From the new substation near the Oakdale Airport, the East Segment would split into 2 alignments: a 7 to 11 mile, double-circuit, 230-kV transmission line would run southwest to the Modesto Irrigation District's existing Parker Substation in Modesto; and a 15 to 22 mile, double-circuit, 230-kV line would run south to a proposed new substation located just east of Turlock. Three corridor alternatives have been identified for each of the 2, proposed, 230-kV transmission lines.

*Sierra Foothills Segment.* The Sierra Foothills Segment would be built, owned, operated, and maintained by Western. This Segment would include a new, double-circuit, 230-kV transmission line, approximately 28 miles long. It would originate at the proposed substation near the Oakdale Airport and trend northeast, generally along SR 108, through the Sierra Foothills to Western's existing substation at the New Melones Dam. Alternative corridors for this segment have not been identified at this time.

The proposed schedule is:

- Years 2009-2011: Environmental studies, permitting process, and continued public outreach
- Years 2011-2013: Land Acquisition, construction begins
- Year 2014: Targeted initial in-service date

Figure 1

