California Independent
System Operator Corporation

CAISO South
Regional Transmission Plan for 2006
(CSRTP-2006)

Findings & Recommendation on the Tehachapi Transmission Project

Presentation to the CAISO Board

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January 24, 2007

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Background

- **CAISO was asked to assess three major transmission projects in Southern California**
  - Tehachapi Transmission Project
  - LEAPS Project
  - Sun Path Project: Combination of Sunrise Powerlink and Green Path projects
- **CAISO established the CAISO South Regional Transmission Planning Process (CSRTP-2006) in order to:**
  - Expeditiously assess the need and value for these projects while accounting for their interactions and interdependencies

Status of the CSRTP-2006 Process*

- **CAISO completed the study of the Sun Path Project and presented its finding to the Board on August 3, 2006**
  - The Board approved the Sun Path project
- **Per FERC direction, CAISO is currently managing a stakeholder process to address issues related to the operational control and rate treatment of the pumped storage plant portion of the LEAPS Project**
- **CAISO findings and recommendations for the Tehachapi Transmission Project are the subject of today's presentation**

* Background information on CSRTP-2006 was presented as part of August 3 Board presentation

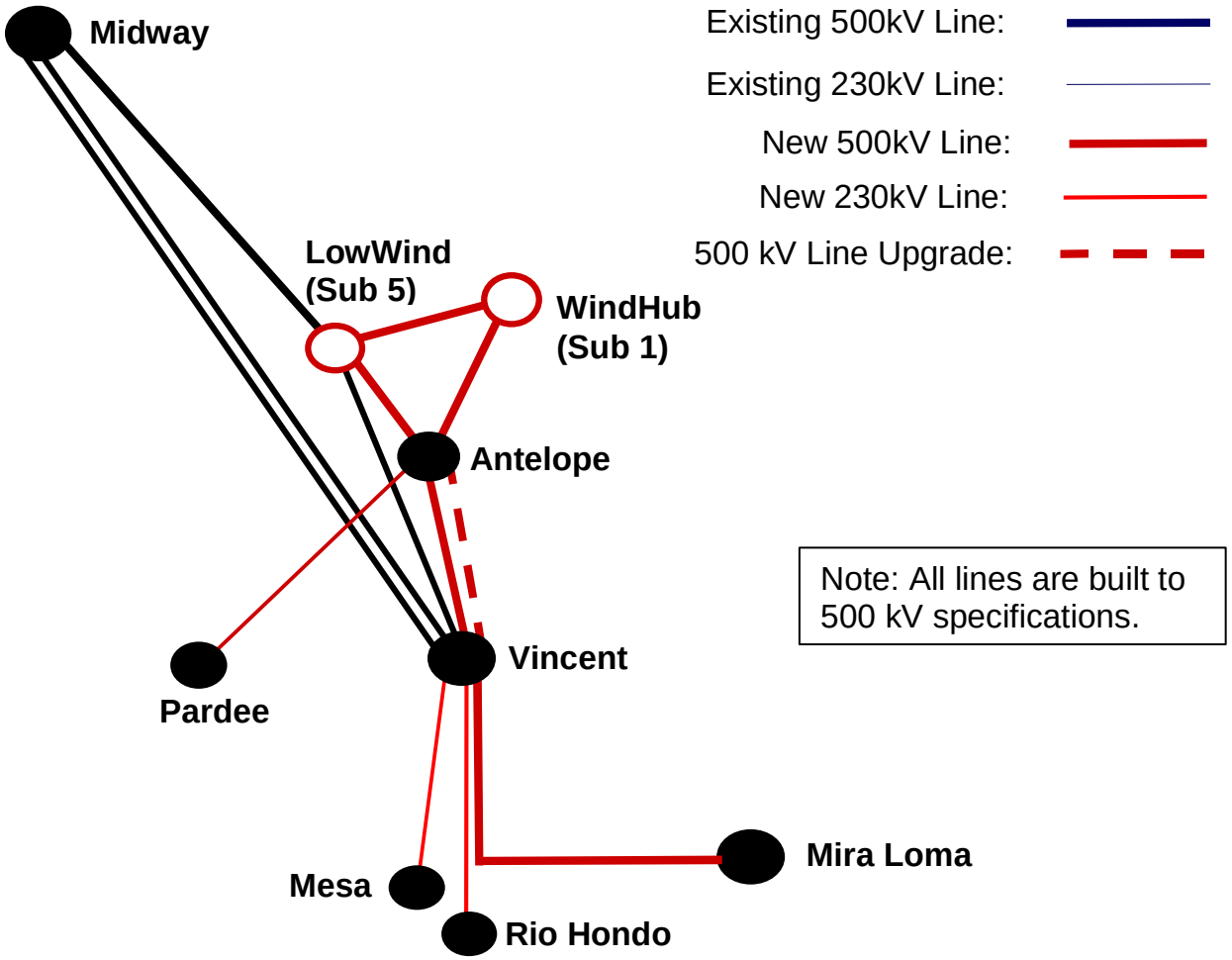
Public Participation in the CSRTP-2006 Process and This Project

- **CSRTP-2006 participation was limited to technical representation from project sponsors, the impacted PTOs, the CEC, and the EOB**
- **At the same time the CAISO provided multiple opportunities for public comment**
  - Sent out notices of events and comment opportunities to more than 3000 stakeholders on lists compiled by the CAISO, CPUC and Southwest Transmission Expansion Plan (STEP)
  - Organized an open house in Tehachapi to communicate the role of the CAISO in transmission projects, the CSRTP-2006 approach, and the Tehachapi Transmission project
  - Shared our study assumptions through publication on the CAISO website
  - Shared our basecases with CSRTP-2006 members and other stakeholders
  - Facilitated the processes to receive comments and suggestions on the study approach and transmission alternatives
  - Presented our approach as well as our findings/recommendations at the STEP open meetings as well as PUC workshops

Tehachapi Transmission Project: Background

- **Tehachapi Transmission Project is intended to provide access to wind generation in Tehachapi Wind Resources Area (TWRA)**
  - The Tehachapi Collaborative Study Group (TCSG) was formed in 2004 by the CPUC to develop a comprehensive transmission development plan for TWRA
- **CAISO was requested to develop the Tehachapi Transmission Project plan as a continuation to the TCSG work**
  - We included the project in the CSRTP-2006 process which started in April of 2006
- **CAISO, in full collaboration with SCE (project sponsor) and other CSRTP-2006 team members, developed the Tehachapi Transmission plan of service in September of 2006 as the:**
  - Network facilities required to interconnect a “cluster” of all generation projects in the Tehachapi Area Generation Queue (TGQ) up to start date of the CSRTP-2006 process (4,350 MW)

Tehachapi Transmission Project: Plan of Service (1)



Tehachapi Transmission Project: Plan of Service (2)

Major Transmission Facilities	Planned In-Service Date
Antelope – Pardee 230 kV Line (500 kV Specifications) & Antelope Substation Expansion	Dec 2008
Antelope – Vincent 230 kV Line #1 (500 kV Specifications)	Mar 2009
WindHub Substation	Mar 2009
Antelope – WindHub (also known as Substation 1) 230 kV Line (500 kV Specifications)	Mar 2009
Antelope – Vincent 230 kV Line #2 (500 kV Specifications)	Mar 2011
LowWind 500/230 kV Substation (also known as Substation 5) with Loop in of Midway – Vincent #3 500 kV line	Aug 2011
Antelope – LowWind 500kV line	Aug 2011
WindHub Substation 500 kV Upgrade	Mar 2011
Antelope Substation 500 kV Upgrade	Mar 2011
Vincent Substation 500 kV & 220 kV Upgrade	Sep 2011
LowWind – WindHub 500 kV line	Oct 2011
Replacement of Vincent – Rio Hondo No. 2 230kV line	Nov 2011
Vincent – Mira Loma 500 kV line	Apr 2012
Vincent – Mesa 500/220 kV Line and Mesa Substation Work	Nov 2013

Tehachapi Transmission Projects: Compliance with LGIP Requirements

- **Recommendation on the Tehachapi Transmission Project primarily based on the CAISO's obligation to identify least-cost transmission solutions to reliably interconnect generation projects in accordance with its LGIP**
- **FERC encourages "clustered" Interconnection System Impact Studies (SIS) under the LGIP to better coordinate Interconnection Requests with transmission planning and to achieve greater efficiency in the design of needed Network Upgrades**
- **CAISO's CSRTP-2006 Study accounted for all LGIP provisions related to a clustered SIS, except**
  - Focused on the network components (Network Upgrades), not and direct assignment components (Interconnection Facilities)
  - Created a retrospective "Queue Cluster Window" of more than 180 days to define clustered SIS. SIS includes all active projects in the TGQ up through the start date of the CSRTP-2006 process (August 19, 2003 through April 11, 2006)
    - CAISO has filed a petition with FERC to approve its Queue Cluster Window on a one-time basis

Tehachapi Transmission Projects: Major Findings

- **The Project is the least-cost solution that reliably interconnects 4,350 MW of generating resources in the Tehachapi Area Generation Queue**
- **The Project also addresses the reliability needs of the ISO Controlled Grid caused by load growth in Antelope Valley area as well transmission constraints South of Lugo**
- **The Project facilitates the ability of California utilities to comply with the state mandated RPS program**
- **The Project makes it possible to expand the transfer capability of Path 26 in the near future with a low cost upgrade of PG&E's portion of Midway-Vincent Line 3**
- **The Project lays the groundwork for the integration of large amounts of planned geothermal, solar, and wind generation**

Tehachapi Transmission Project: Recommendation

- **Pursuant to CAISO's obligation to plan for least-cost transmission solutions to interconnect generation projects, CAISO Management recommends that CAISO Board approve the Tehachapi Transmission Project and direct SCE, as the Project Sponsor, to seek necessary regulatory approvals for project construction**
- **Furthermore, given the CAISO's pending petition before FERC, the CAISO Management recommends that the Board consider the merits of the Project and expressly condition its approval on FERC consent to implement the CAISO's LGIP clustering authority as set forth in the report**