

A map of the southwestern United States, including California, Nevada, Arizona, and parts of Oregon, Idaho, and Utah. The map is light yellow with black outlines for state boundaries. The background is light blue.

Southwest Transmission Expansion Planning

STEP

*Armando J. Perez
California ISO
July 30, 2003*



CALIFORNIA ISO

STEP Participants

California Independent
System Operator

- American Design, Inc.
- Arizona Corp Commission Staff
- Arizona Power Authority
- Arizona Public Service Company
- Arizona Independent Scheduling Association
- Aspen Environmental Group
- Black & Veatch
- Burns & McDonnell
- Caithness Energy
- California Department of Water Resources
- California Energy Commission
- California ISO
- California Public Utilities Commission
- California Public Utilities Commission, Office of Ratepayer Advocacy
- Calpine
- CFE Mexico
- Citizens
- City of Anaheim Public Utilities Department
- City of Chula Vista
- City of Riverside
- City of San Diego
- City of San Marcos
- City of Vernon
- Cleveland National Forest
- Constellation Power Source, Inc.
- Coral Energy



CALIFORNIA ISO

STEP Participants (cont'd)

California Independent
System Operator

- Coral Power LLC
- David Mark & Company
- Desert Energy LLC
- Desert SW Transmission Project
- Dine Power Authority
- Desert Southwest Power
- Duke Energy
- Electricity Oversight Board
- Energy Consulting Group
- ENPEX Corporation
- Entergy Koch Trading
- EPG, Inc.
- Exponent
- Federal Energy Regulatory Commission
- Flynn Resource Consultants, Inc.
- FPL Energy
- Gateway Science and Engineering
- Green Party
- Greenpeace Clean Energy Now
- Henwood Energy Services
- Imperial Irrigation District
- Independent Energy Producers Association
- Industrial Power Technology
- KR Saline & Associates
- Kritikson & Associates
- LBL
- Los Angeles Department of Water and Power
- Malcolm Pirnie, Inc.
- Martinez and Curtis



STEP Participants (cont'd)

- Mirant
- Mohave Electric Cooperative and Navopache Electric Cooperative
- MWD of Southern California
- Navigant Consulting
- NPC
- NRG Energy
- Panda Energy International, Inc.
- PG&E National Energy Group
- Pinnacle West Energy
- Power Technologies
- Power Up Corporation
- Private Citizens
- R. W. Beck
- Reliant Energy
- Sacramento Municipal Utility District
- Salt River Project
- San Diego Association of Governments
- San Diego Gas and Electric Company
- San Diego Regional Energy Office
- Save Southwest Riverside County
- SeaWest WindPower, Inc.
- Sempra Energy Resources
- Shell Trading
- Silvan Power
- Southern California Edison Company
- Southern Nevada Water Authority
- Southwest Transmission Cooperative
- Southwestern Power Group
- State of Arizona
- TANC/WMGF



CALIFORNIA ISO

STEP Participants (cont'd)

California Independent
System Operator

- TECO Power Services
- Tenaska, Inc.
- Trans-Elect, Inc.
- TransEnergie US Ltd.
- Tucson Electric Power Company
- US Bureau of Reclamation
- Utility System Efficiencies, Inc.
- Vulcan Power
- Wellton-Mohawk Irrigation and Drainage District
- Western Area Power Administration
- Western Interstate Energy Board
- Williams
- Xcel Energy Markets



CALIFORNIA ISO

New Generation

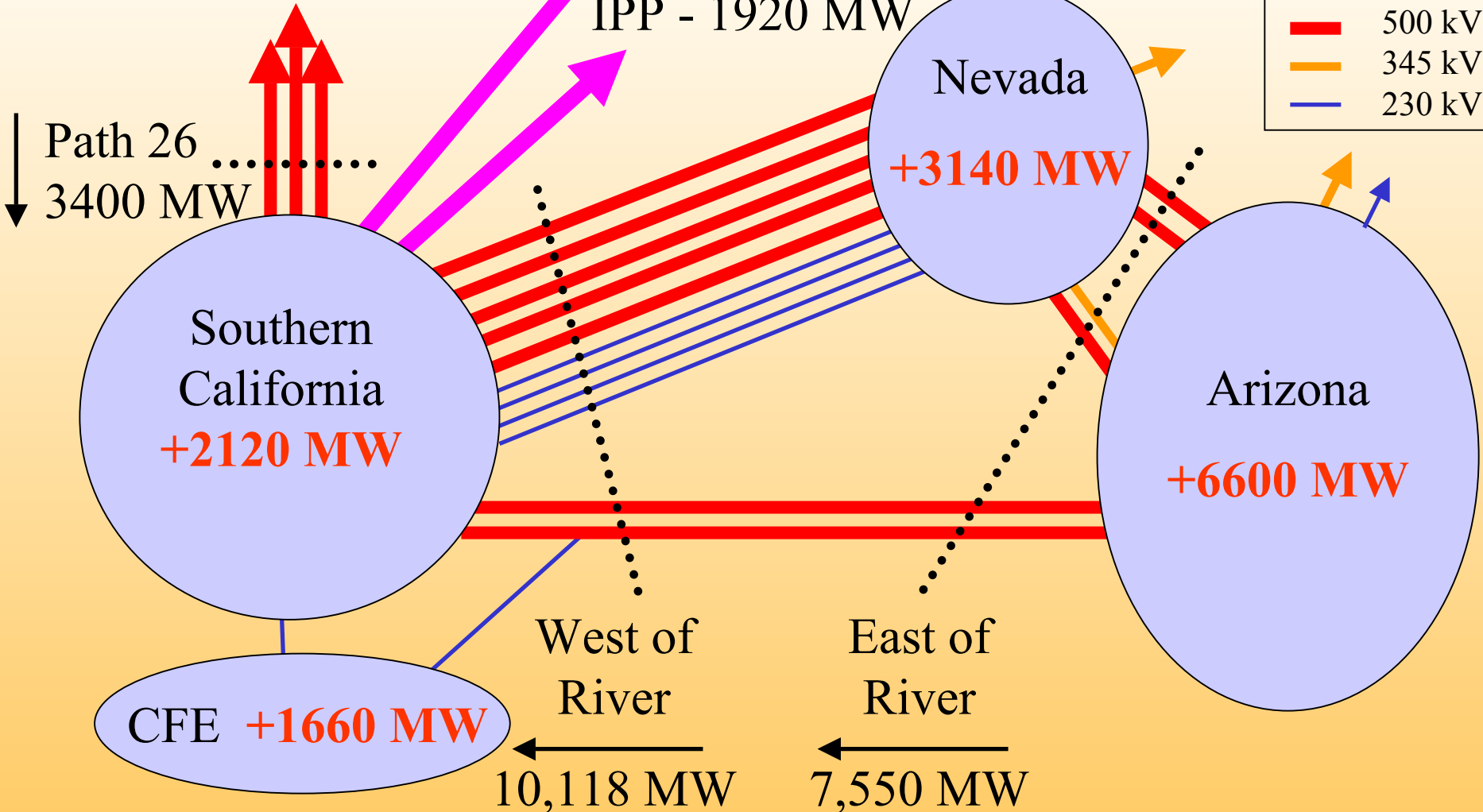
13,520 MW

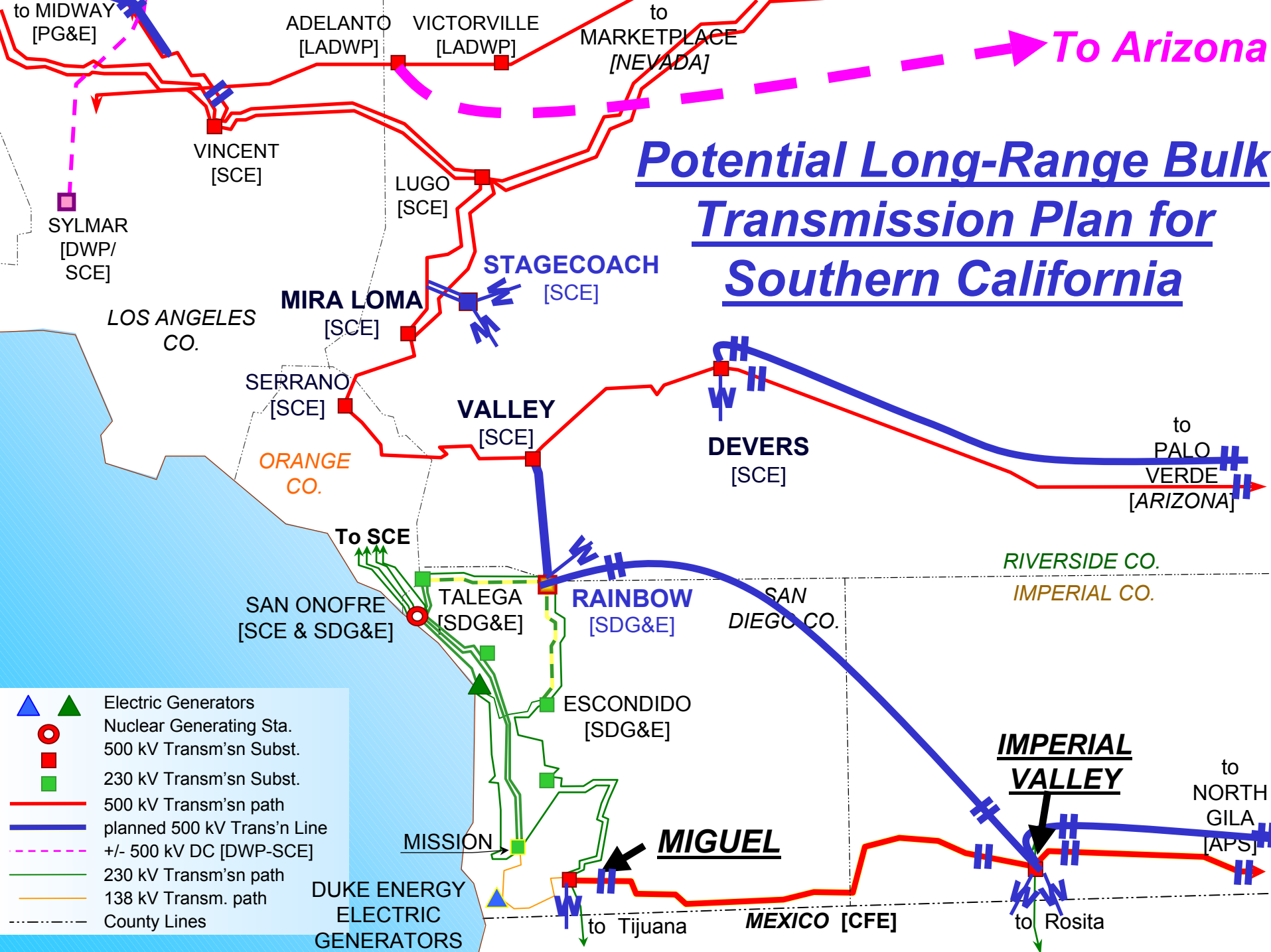
Northern California

PDCI - 3100 MW

IPP - 1920 MW











	DC
	500 kV
	345 kV
	230 kV





Potential Long-Range Bulk Transmission Plan for Southern California

To Arizona

-  Electric Generators
-  Nuclear Generating Sta.
-  500 kV Transm'sn Subst.
-  230 kV Transm'sn Subst.
-  500 kV Transm'sn path
-  planned 500 kV Trans'n Line
-  +/- 500 kV DC [DWP-SCE]
-  230 kV Transm'sn path
-  138 kV Transm. path
-  County Lines

DUKE ENERGY
ELECTRIC
GENERATORS

MISSION

MIGUEL

IMPERIAL VALLEY

to NORTH GILA [APS]

to Tijuana

MEXICO [CFE]

to Rosita

to PALO VERDE [ARIZONA]

to MIDWAY [PG&E]

ADELANTO [LADWP]

VICTORVILLE [LADWP]

to MARKETPLACE [NEVADA]

VINCENT [SCE]

LUGO [SCE]

STAGECOACH [SCE]

MIRA LOMA [SCE]

SERRANO [SCE]

VALLEY [SCE]

DEVERS [SCE]

RAINBOW [SDG&E]

SAN ONOFRE [SCE & SDG&E]

TALEGA [SDG&E]

ESCONDIDO [SDG&E]

ORANGE CO.

RIVERSIDE CO.
IMPERIAL CO.

SAN DIEGO CO.

LOS ANGELES CO.

to Rosita