# Transmission Expansion Projects for Renewables

Transmission expansion plays a vital role in enabling the interconnection and deliverability of renewable energy to meet the state's Renewables Portfolio Standard (RPS). Advancing renewable energy is a central part of the state's efforts to achieve Governor Brown's Executive Order B-30-15, establishing a statewide goal to reduce greenhouse gas emissions 40 percent below 1990 levels by 2030, which was codified by the Clean Energy and Pollution Reduction Act of 2015 (De León, Chapter 547, Statutes of 2015) (Senate Bill 350).[1, 2] The California Energy Commission conducts strategic transmission planning and corridor designation in coordination with the California Independent System Operator (California ISO), the California Public Utilities Commission (CPUC), and federal agencies.

The California ISO conducts its transmission planning process (TPP) annually to identify system upgrades needed to meet grid reliability requirements, projects that could bring economic benefits to consumers, and projects needed for policy reasons such as to meet California's 33 percent renewables target by 2020.[3] Going forward, Senate Bill 350 establishes targets to increase retail sales of qualified renewable electricity to at least 50 percent by 2030. A core function of transmission planning is developing the transmission system to meet the RPS mandate.

### *Regulatory Process to Approve Transmission*

The first step in the regulatory process to develop new transmission projects is approval by the California ISO in its annual TPP based on findings of need. Next, the CPUC considers the California ISO's approved projects and reviews them for California Environmental Quality Act (CEQA) compliance. The CPUC issues certificates of public convenience and necessity (CPCNs) for transmission lines at 200 kilovolts (kV) and above or permits to construct (PTC) for projects between 50 kV and 200 kV. The CPUC issues a notice of exempt construction (NOC) for the replacement of existing transmission lines, which are exempt from CPUC CEQA review under CPUC General Order 131-D, Section III, Subsections A or B.1.

On July 24, 2012, the Federal Energy Regulatory Commission (FERC) approved the California ISO's revised generator interconnection procedures known as the Generator Interconnection and Deliverability Allocation Procedures (GIDAP). Prior to the GIDAP, both the Generator Interconnection Procedures and the TPP identified large-scale network upgrades. With FERC's approval of the GIDAP, the TPP is now the primary vehicle for identifying the large-scale network upgrades associated with the interconnection of renewable generation necessary to

1 Executive Order B-30-15, http://gov.ca.gov/news.php?id=18938.

2 Public Utilities Code Section 454.52(a)(1)(A) and similar language in 9621(b)(1).

3 In compliance with the FERC Order 1000, the California ISO revised its transmission planning process to consider policy requirements as a potential driver for transmission facilities and to allow both incumbent transmission owners and nonincumbent transmission developers opportunities to compete to build new transmission facilities for reliability, policy, or economic reasons.

achieve the RPS. The Large Generator Interconnection Agreement (LGIA) projects identified in the following table were approved by the California ISO through the Generator Interconnection Procedures prior to the GIDAP.

The Governor's Clean Energy Jobs Plan[4] noted that planning and building new transmission in California is a lengthy process that "can take 6 to 8 years" and "should be dramatically reduced." Although some progress has been made to improve the efficiency of transmission planning and permitting, President Picker of the CPUC requested that the Governor's Office of Business and Economic Development (GO Biz) examine and recommend options to accelerate the timelines for approving new transmission lines.

### *New Transmission Lines Approved and Long-Range Planning*

The California ISO and other entities have identified and approved many transmission projects that have the potential to support the interconnection of renewable generation, as illustrated in **Table 1** and **Figure 1**. Although some of these projects have been cancelled, suspended, or put on hold, the California ISO's 2015-2016 planning cycle did not identify new projects necessary to meet California's 33 percent RPS, as many previously identified projects have been approved or are in the permitting process at the CPUC. On June 13, 2016, the Energy Commission and CPUC jointly recommended a renewable resource portfolio for the California ISO's 2016-2017 TPP that is consistent with that used in the 2015-2016 planning cycle.[5] Future California ISO planning cycles will focus on moving beyond the 33 percent framework when renewable generation portfolios become available through the process established with the CPUC and Energy Commission.

To facilitate the long-range transmission planning, interagency coordination, and stakeholder engagement necessary to support California's 2030 climate and renewable energy goals, the California Natural Resources Agency, Energy Commission, CPUC, California ISO, and U.S. Bureau of Land Management California Office initiated the Renewable Energy Transmission Initiative (RETI) 2.0 in September 2015. RETI 2.0 is a proactive, statewide, non-regulatory planning forum intended to identify the constraints and opportunities for new transmission to access and integrate new renewable resources. RETI 2.0 will seek solutions through open and transparent participation from tribal and local governments, public power entities, other western states, regional energy planning bodies, and energy, environmental, and agricultural stakeholders. On May 2, 2016 the RETI 2.0 Plenary Group presented a summary of its work to date and proposed Transmission Assessment Focus Areas for further study.[6] On June 6, 2016, the RETI 2.0 Transmission Technical Input Group released an interim report, the *Existing and*

4 Governor's Office of Planning and Research, Clean Energy Jobs Plan, http://gov.ca.gov/docs/Clean_Energy_Plan.pdf .

5 Letter from CPUC President Picker and Energy Commission Chair Weisenmiller to Steve Berberich, CEO of the California ISO, June 13, 2016. http://docketpublic.energy.ca.gov/PublicDocuments/15-RETI-02/TN211863_20160617T104921_Letter_Re_Base_Case_Renewable_Resource_Portfolio_for_the_CAISO.pdf.

6 http://www.energy.ca.gov/reti/reti2/documents/2016-05-02_workshop/2016-05-02_presentations.php.

*Planned Transmission Capability Information to Support the RETI 2.0 Process.*[7] An initial RETI 2.0 report and recommendations is expected in September 2016.

One transmission project discussed at the May 2, 2016, RETI 2.0 workshop[8] and included in the June 8, 2016 RETI 2.0 Transmission Technical Input Group interim report is the conversion of a portion of the 500 kV Southwest Powerlink from alternating current to direct current, called the Desert Tortoise Expressway, which could increase import capability into the San Diego region. The proposed project is included in the Interregional Transmission Project evaluation process. (Since it is a proposed project, it is not included in **Table 1** below.)[9]

**Table 1: Status of California ISO-Approved and Other California Transmission Projects**

| Transmission Project | Status | | Renewable Potential[1] (MW) | Construction Status | Actual and Expected In-Service Date |
|---|---|---|---|---|---|
| | CAISO | CPUC | | | |
| 1- Sunrise Powerlink 500 kV line | Approved | CPCN Approved | Up to 1,700 | **Operational** | 2012 |
| 14- Imperial Valley-Liebert (formerly Collector) 230 kV line[2] | Approved Policy | N/A | | N/A | N/A |
| 15- Sycamore Canyon-Peñasquitos 230 kV Line | Approved Policy with Reliability Benefits | CPCN[3] | | Planning/Design | 2017 |
| 2- Tehachapi 500 kV line | Approved | CPCN Approved | 4,500 | Construction[4] | 2016 |
| 3- Colorado River-Valley 500 kV line | Approved | CPCN and PTC Approved | 4,000 | **Operational** | 2013 |
| 4- West of Devers 230 kV Reconductoring | LGIA | CPCN Filed[5] | | Development | 2021 |
| 5- Eldorado-Ivanpah 230 kV line | LGIA | CPCN Approved | 1,400 | **Operational** | 2013 |
| 6- South of Contra Costa 230 kV Reconductoring | LGIA | CPCN Approved | 300 | On Hold | 2017 |
| 7- Pisgah-Lugo 500 kV line[6] | N/A | N/A | N/A | N/A | N/A |

7 RETI 2.0 Transmission Technical Input Group, *Existing and Planned Transmission Capability Information to Support the RETI 2.0 Process*, June 8, 2016, available at: http://docketpublic.energy.ca.gov/PublicDocuments/15-RETI-02/TN211758_20160608T153018_TTIG_Interim_Report.pdf. A corrected version of this report dated June 17, 2016 is available at: http://docketpublic.energy.ca.gov/PublicDocuments/15-RETI-02/TN211927_20160621T144839_Revised_Transmission_Technical_Input_Group_Interim_Report.pdf.

8 See May 2, 2016, workshop transcripts, p. 31, and slide 12 of Neil Millar's May 2, 2016, presentation entitled "Update on Existing Transmission Capability for Renewable Resources."

9 Interregional Evaluation Process Plan: AC to DC Conversion Project, June 14, 2016, available at: http://www.caiso.com/Documents/SDGEInterregionalTransmissionProjectEvaluationPlan.pdf.

| Transmission Project | Status | | Renewable Potential[1] (MW) | Construction Status | Actual and Expected In-Service Date |
|---|---|---|---|---|---|
| | CAISO | CPUC | | | |
| 8 Borden-Gregg 230 kV Reconductoring | LGIA | NOC/CPCN TBD | 800 | On Hold | 2018 |
| 9- Carrizo-Midway 230 kV Reconductoring | LGIA | NOC Approved | 900 | **Operational** | 2013 |
| 10- Cool Water-Lugo 230 kV line[7] | LGIA | N/A | N/A | N/A | N/A |
| 11- Path 42 230 kV Reconductoring | Approved Policy | N/A | Up to 1,500 | Construction | 2016 |
| 12- IID: Path 42 230 kV Reconductoring and additional upgrades (Outside of CAISO Grid) | N/A | IID/SCE/BLM Joint Final Mitigated Negative Declaration Adopted | | Construction suspended[8] | N/A |
| 13- LADWP: Barren Ridge 230 kV line (Outside of CAISO Grid) | N/A | LADWP/U.S. Forest Service/BLM Joint Final EIS/EIR Adopted | 1,400 | Construction | 2016 |
| 16- Warnerville-Bellota 230 kV Reconductoring | Approved Policy | NOC Approved | 700 | Engineering/Design | 2018 |
| 17- Wilson-Le Grand 115 kV Reconductoring | Approved Policy | NOC Approved | | Engineering/Design | 2020 |
| 18- Central Valley Power Connect (formerly Gates-Gregg 230 kV line) | Approved Reliability with Policy Benefits | CPCN to be Filed | | Engineering[9] | 2022 |
| 19- Ten West Link 500 kV Transmission Line Project (Delaney-Colorado River 500 kV line) | Approved Economic with Reliability and Policy Benefits | CPCN TBD | TBD | Competitive Solicitation Process[10] | 2020 |
| 20- Harry Allen-Eldorado 500 kV line | Approved Economic with Reliability and Policy Benefits | N/A (line is located entirely in Nevada) | TBD | Competitive Solicitation Process[11] | 2020 |
| 21 – San Luis Transmission Project | N/A | Western/San Luis & Delta-Mendota Water Authority Joint Final EIS/EIR adopted[12] | TBD | Engineering/Design | TBD |

Source: California Energy Commission – Siting, Transmission and Environmental Protection Division, Transmission Evaluation/ Planning Unit

**Table 1 Notes:**

1 *Renewable Potential* is an estimate of the number of MWs that could be interconnected to a transmission project(s).

2 California ISO selected Imperial Irrigation District (IID) as project sponsor. IID is the Lead Agency for CEQA since the project resides within IID's service area. On July 8, 2014, the IID Board of Directors adopted the final mitigated negative declaration. The California ISO received notice from IID on November 24, 2015, exercising its right to terminate the approved project sponsor agreement. As the project depended on IID's participation, the project has been cancelled.

3 California ISO selected San Diego Gas & Electric (SDG&E) and Citizens Energy Corporation as project sponsors. On April 7, 2014, SDG&E filed with the CPUC an application for a CPCN and proponent's environmental assessment (PEA).The CPUC released the Draft Environmental Impact Report (EIR) on September 17, 2015, and the Final EIR on March 7, 2016.

4 On July 11, 2013, the CPUC ordered Southern California Edison (SCE) to underground a portion of transmission lines in Chino Hills. In August 2014, SCE began underground trenching and cable installation with completion slated for 2016. On October 31, 2014, the City of Ontario filed a petition to stop the construction of the overhead lines through Ontario and install them underground instead. On March 6, 2015, the CPUC Assigned Administrative Law Judge (ALJ) issued a proposed decision denying the City of Ontario's petition. On May 7, 2015, the CPUC Commissioners, without the concurrence of President Michael Picker, approved the ALJ proposed decision. On May 15, 2015, President Picker mailed his concurrence approving the ALJ proposed decision.

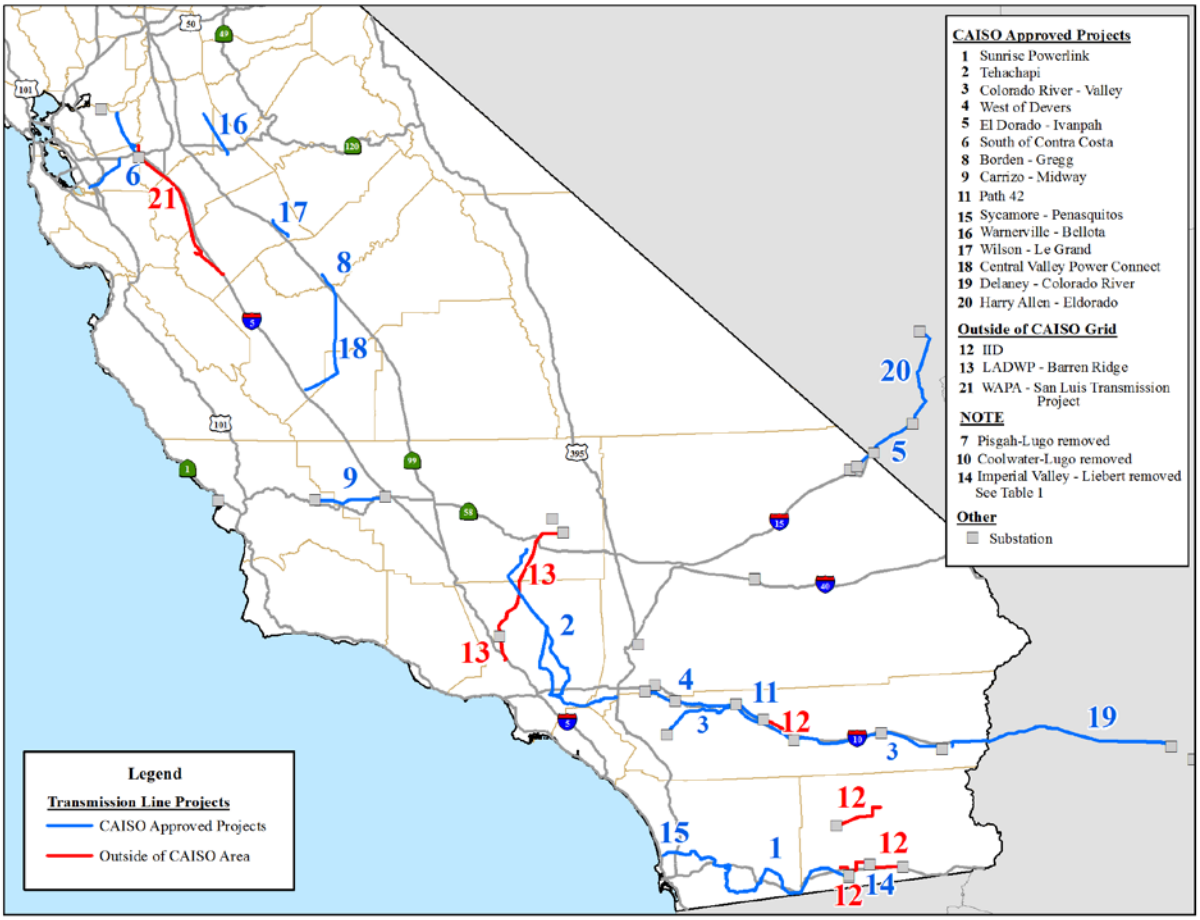
5 On October 25, 2013, SCE filed an application for a CPCN and PEA with the CPUC. On September 11, 2014, the CPUC determined that the application and PEA were complete. The CPUC published the Draft EIR/EIS on August 7, 2015, and the Final EIR for CEQA compliance on December 11, 2015. The BLM requires additional time before releasing the Final EIS for NEPA compliance. The Final EIS is expected in 2016. On April 12, 2016, the CPUC released a Final EIR Addendum concurrently with its Proposed Decision granting a CPCN for the project.

6 SCE's Pisgah-Lugo project was identified by the California ISO as being needed for the interconnection of the 850 MW K Road Calico Solar Project. On June 20, 2013, K Road, LLC filed a request with the Energy Commission to terminate the Calico Solar Project. At this time the Pisgah-Lugo project is not moving forward.

7 On August 28, 2013, SCE filed an application for a CPCN and PEA with the CPUC and BLM. On October 24, 2014, NRG notified the CPUC of its intent to shut down the Coolwater Generating Station on January 1, 2015. On March 17, 2015, the California ISO submitted supplemental comments with the CPUC stating that the Coolwater-Lugo project is no longer needed to interconnect Mojave Solar with full capacity deliverability status. On April 20, 2015, the CPUC Assigned ALJ issued a proposed decision to dismiss SCE's CPCN application (A.13-08-023) without prejudice, or without any loss of rights or privileges. The significant material changes in grid conditions on SCE's application for a CPCN for the Coolwater-Lugo project necessitated this action. On May 21, 2015, the CPUC Commissioners approved the ALJ proposed decision. SCE's application was closed.

8 IID notified the California ISO of its intent to suspend its portion of the Path 42 upgrades (Imperial Valley-Dixieland 230 kV line and the S Line 230 kV transmission line project) in its response to comments from the September 21-22, 2015, California ISO 2015-2016 Transmission Planning Process stakeholder meeting. The California ISO's timeline for that process did not allow for this suspension to be taken into account in its studies. The California ISO is considering this in its 2016-2017 transmission planning cycle, and will coordinate with IID to ensure the use of the best possible and current information at that time.

**Figure 1: Map of California ISO and Outside California ISO Grid-Approved Transmission Projects**




Source: California Energy Commission – Siting, Transmission and Environmental Protection Division, Cartography Unit

## Additional References:

For more information on California ISO Transmission Planning Process and Transmission Plans: http://www.caiso.com/planning/Pages/TransmissionPlanning/Default.aspx

For more information on California ISO Generator Interconnection and Deliverability Allocation Procedures (GIDAP):

1. GIDAP Process Outline and Roadmap with comparison with prior Generator Interconnection Procedures: http://www.caiso.com/Documents/GIDAP-ProcessOutline_Roadmap.pdf

2. FERC Order accepting California ISO's GIDAP tariff filing: http://www.caiso.com/Documents/July242012OrderConditionallyAcceptingTariffRevisions-DocketNoER12-1855-000.pdf

For more information on the California Public Utilities Commission's permitting process: http://www.cpuc.ca.gov/CEQA

Links to specific transmission projects under CPUC environmental review:
Sycamore-Peñasquitos
http://www.cpuc.ca.gov/Environment/info/panoramaenv/Sycamore_Penasquitos/index.html
Tehachapi
ftp://ftp.cpuc.ca.gov/gopher-data/environ/tehachapi_renewables/TRTP.htm
West of Devers
http://www.cpuc.ca.gov/environment/info/aspen/westofdevers/westofdevers.htm

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