

California Energy Commission - Notice of Staff Workshop on Transmission Issues for 33 Percent Renewable by 2020

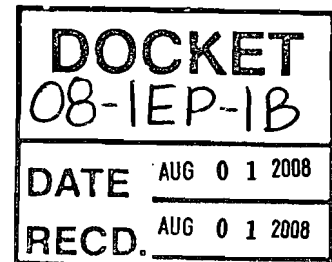
Wednesday, July 23, 2008

What is your role in relation to these and other transmission initiatives to accomplish the 33% renewable goal?

First of all Imperial Irrigation District (IID) appreciates the opportunity to participate in this workshop. IID has been an active participant in the Renewable Energy Transmission Initiative (RETI) and Western Renewable Energy Zones; IID has been and will remain a strong proponent of renewable energy as a means of meeting California's energy needs and preserving our environment. We look forward to work with our neighboring utilities and developers in California. Our aim is to do our part in enhancing the transmission system in order to facilitate the export of renewable energy to the rest of California.

Currently IID has six internal transmission initiatives that will promote the export of renewable and other type of resources connected to IID transmission system. The four projects are:

- a) The addition of a 230kv/92 kV transformer bank at the El Centro substation. This will increase exports to CAISO by 75 mw. The bank will be in operation in early 2009.
- b) The Imperial Valley - Dixieland 230kv line will increase the export capacity to IV Substation (CAISO) by 400 mw by 2010. This project has been approved by IID Board.
- c) The Midway - Bannister 230kv line aimed at initially collecting 600 mw of new renewable energy from the southern Salton Sea area. This project will be prepared for double circuit with an ultimate capacity of 1200MW. The first phase of this project was approved by the IID Board and the planned in-service date is 2012.
- d) The increase of Path 42 rating from 600 to 800 mw at Devers. This joint effort with SCE will increase exports to CAISO by 200 mw and planned to be in service by 2009.
- e) The Coachella Valley - Devers II double circuit 230 kV line. IID has secured a permit for most of this line to be constructed on federal lands and completed the CEQA/NEPA process for the portion of the line that will be on federal lands. The line will interconnect to LADWP's Devers II substation. The Devers II substation will interconnect to LADWP's Hesperia station (Green Path North) and SCE's Devers station. The project will increase IID's export capacity by 1600 mw to other California utilities. The line is planned to be in service by 2013.
- f) The PV-North Gila- Highline Transmission Project. This is a joint transmission project between public power entities (IID, SRP, Welton-Mohawk) and investor owned utilities. It will provide 600 mw of renewable export and will also help reduce congestion into California from the Palo Verde Hub.



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In addition, IID strongly supports initiating a joint transmission project with SCE to re-conductor the existing path 42 and associated facilities. This will provide an additional 800 mw of export capability from IID to the rest of California.

The following figure depicts the projects listed above:

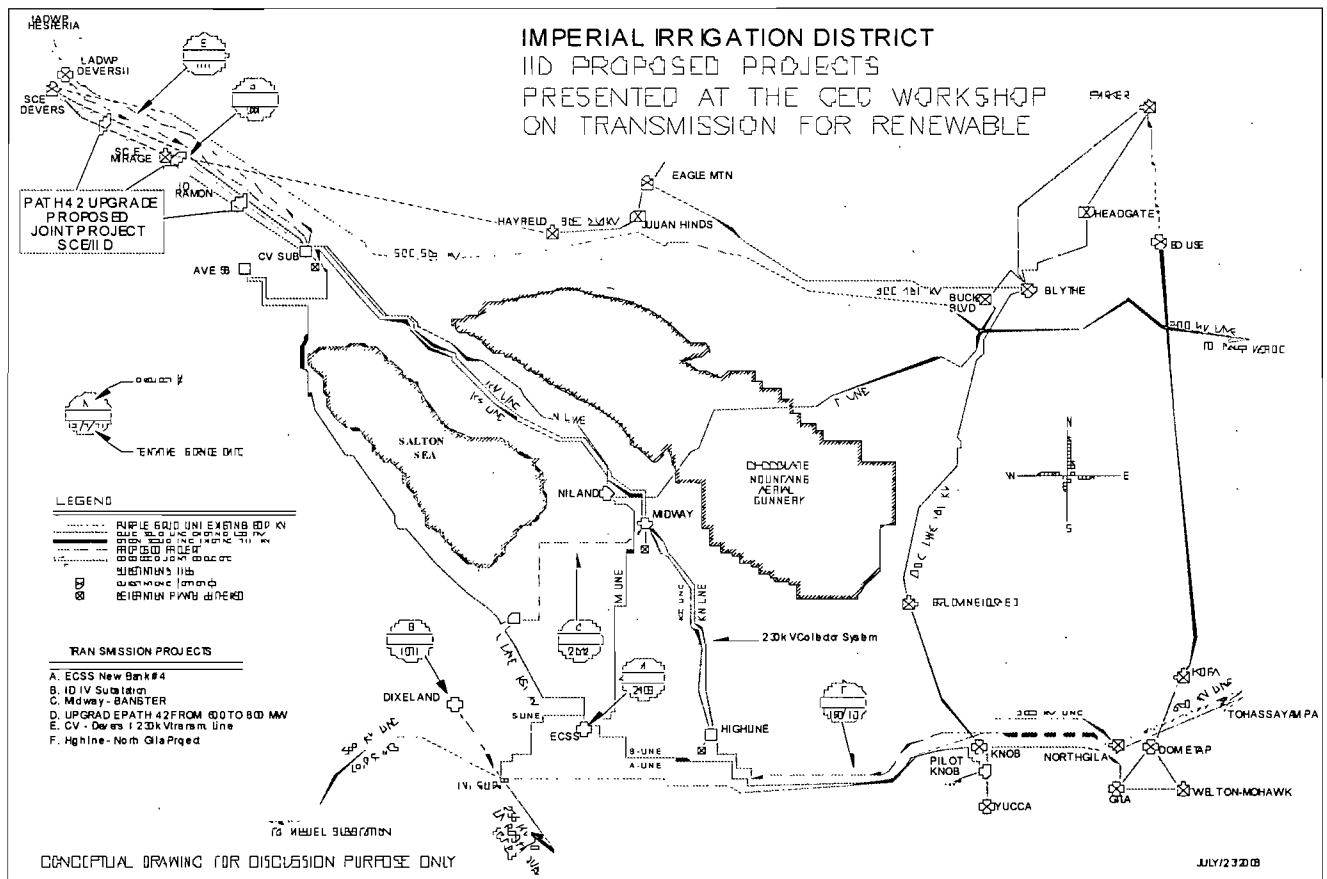


Figure 1

In summary IID commitment to be the Renewable Hub can be summarized:

1. The IID Board of Directors has expressed its strong commitment to assist California meet its renewable energy goals and the importance of renewable energy development to the Imperial Valley and has already approved the first phase of approximately \$100 million in new transmission to facilitate export of renewable.
2. IID currently provides transmission services to approximately 550 MW of geothermal energy from Imperial Valley into the California Independent System Operator (CAISO) control area. In addition, IID has approximately 2000 mw of new renewable energy currently in its queue to be interconnected to the IID grid for the purpose of export.
3. The combination of all IID proposed Transmission projects, outlined in the attachment, will increase net export capability of renewable from IID by 3200 mw.

Will the existing initiatives be sufficient to remove the major transmission barriers to the achievement of the 33% by 2020 goal, and if not, what is missing?

Two critical areas that must be addressed in order to achieve the 33% goal by 2020 are:

1. Transmission projects across multiple Balancing Authorities (BA's) must be integrated to ensure lowest cost to all California consumers, minimize duplications of facilities and maximize the utilization of existing infrastructure and rights-of-way must be the overriding principles in planning new transmission facilities. This will reduce the overall cost of transmission development and minimize impacts upon the environment. The newly formed Pacific Southwest Planning Association is a positive step toward integration of the various planning efforts.
2. Transmission policies across California and neighboring BA's must be addressed where inherent conflicts exist between the bilateral and tariff-based business models that create barriers to joint transmission projects between CAISO PTOs and non-PTOs. In order to achieve the 33% goal, we must address these existing barriers to joint transmission development.

IID submits that streamlining and integrating the various efforts around transmission development to facilitate the transmission of renewable energy in California is necessary and looks forward to working with its neighboring Balancing Authorities, transmission owners and other stakeholders to meet California's renewable energy goals.

Attachment

Additional information

INTRODUCTION

For nearly two decades, IID has been at the forefront of promoting renewable energy in the Imperial Valley. Nearly twenty years ago, IID upgraded its transmission system by building a collector system to accommodate the interconnection of new geothermal generation and export this renewable energy to Southern California Edison (SCE). Today, IID wheels approximately 550 MW of geothermal energy from Imperial Valley into the California Independent System Operator (CAISO) control area.

IID remains committed to the development and export of renewable energy from the Imperial Valley to other parts of California. IID recognizes the importance of renewable energy development to the Imperial Valley to assist California meeting its renewable energy goals. IID has been and will remain a strong proponent of renewable energy as a means of meeting California's energy needs and preserving our environment. It looks forward to working with its neighbors in California to enhance the transmission system in order to facilitate the export of renewable energy to the rest of California.

IID recognizes that promotion of renewable energy projects in the Imperial Valley boosts local economic development and brings much-needed, good-paying jobs to a region of California that desperately needs them. IID looks forward to continuing to work with the State of California and other stakeholders to promote renewable energy goals in the Imperial Valley.

A. Update on IID's Transmission Expansion Plan

1. Background

IID has been at the forefront of promoting renewable energy transmission for many years. The Salton Sea geothermal resource area lies right in the heart of Imperial Valley. This is one of the largest geothermal resources in North America. Approximately fifteen years ago, IID upgraded its transmission system in order to interconnect new geothermal generation that was being developed in the Imperial Valley and export these renewable energy resources to Southern California Edison (SCE). At that time, IID upgraded its transmission system by constructing a double-circuit 230 kV "collector system" across the entire span of the IID service area – called the KN/KS lines – to interconnect new geothermal generation that was being developed in the Imperial Valley. The KN/KS lines were built in excess of the needed capacity since IID anticipated additional renewable generation development. Therefore, IID has excess capacity on its collector system today that can be used to wheel renewable generation. At present, IID wheels approximately 550 MW of geothermal generation into the California Independent System Operator (CAISO) Balancing Authority.

2. The Imperial Valley Study Group

IID was a major participant in regional transmission planning effort known as the Imperial Valley Study Group (IVSG). The IVSG was a voluntary planning collaborative made up of regional stakeholders that met to develop a phased plan for the development of the necessary transmission to export up to 2,200 MW of renewable generation from the Imperial Valley region. The IVSG identified various transmission reinforcements that needed to be made to IID's transmission system in order to facilitate the export of renewable energy out of the Imperial Valley. These reinforcements have been included in IID's transmission planning and incorporated into IID's Transmission Expansion Plan (TEP). IID developed its TEP to accommodate IID's expected load growth and to provide for transmission of Imperial Valley renewable generation to neighboring transmission systems. IID continues to facilitate the development and transmission of renewable energy in Imperial Valley. As of July 2008 there are approximately 2262 mws of generation from 23 proposed generation projects in the IID queue. Most of this is from renewable generation projects (1871.1 mw). IID is currently processing these interconnection requests and will continue to be one of the nation's leaders in the transmission of renewable energy.

3. IID's Recently Approved Transmission Projects.

IID continues to demonstrate its commitment to the development and export of renewable energy in the Imperial Valley. IID is working closely with its neighboring balancing authorities to develop new transmission projects to enhance the export of renewable to other parts of Southern California and Arizona.

IID is moving forward with three transmission projects that have been approved by the IID Board of Directors. Those three projects are:

- a 230kV transmission line from the Midway substation to a new Bannister substation;
- a 230 kV transmission line from the Imperial Valley (IV) substation to Dixieland substation; and
- A joint transmission project proposed by Arizona Public Service, Salt River Project, Wellton Mohawk Irrigation District and IID for a 500 kV transmission line from the Palo Verde Hub to the North Gila substation near Yuma, Arizona.

These three projects will significantly increase the capability of IID to export renewable energy to its neighbors in Southern California and Arizona.

In addition, IID is also a partner in the Greenpath North transmission project which is a 500 kV transmission line interconnecting IID's system and Los Angeles Department of Water and Power's system. IID is also working with SCE to increase the rating of WECC Path 42 to provide an additional 200 MW of export capability from IID's system into SCE's system.

a. Midway to Bannister Transmission Project

On February 19, 2008, the IID Board of Directors approved the construction of a 35-mile transmission project to connect IID's Midway substation to a new Bannister substation. The 230 kV Midway-Bannister line will run right through the heart of the Salton Sea geothermal resource area and provide easy access to IID's transmission system for renewable generation being developed in this area. The line will connect IID's KN/KS line that runs on the east side of the Salton Sea to IID's 161 kV L-line that runs on the west side of the Salton Sea. It will provide a low-cost, reliable 1200 MW

transmission path for renewable energy to flow to the north into SCE or to the west into San Diego Gas and Electric (SDGE).

The IID Board of Directors has already approved the right-of-way acquisition on the 35-mile Midway to Bannister line. IID has already completed the environmental studies and met all CEQA requirements for this project.

The estimated cost of this project is \$74 million and it has an expected in-service date of second quarter 2011.

b. Dixieland-IV Transmission Project

The Dixieland-IV project was approved by the IID Board of Directors in November 2006. This is an eight-mile line that will connect the Dixieland substation to the IV substation. It will increase the export capability from IID to SDGE by approximately 400 MW. The Dixieland-IV transmission project is a prime example on how a low-cost alternative can bring substantial new transmission capacities for the export of renewable resources from the Imperial Valley. IID believes that entities such as San Diego Gas & Electric (SDGE) can utilize these capabilities to export renewable to meet their needs.

The estimated cost of the project is \$15 million, The IID Board approved the project and it has an expected in-service date of second quarter 2010.

c. 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, Arizona Public Service, Salt River Project and Wellton Mohawk Irrigation and Drainage District and will be capable of transporting up to 1200 MW of energy. The line will be extended to Highline sub with IID's estimated investment in this project will be \$70 million and it has an expected in-service date of 2013

4. Rating Upgrade to Path 42.

WECC Path 42 includes two transmission lines from IID's Coachella Valley substation to SCE's Devers substation and IID's Ramon substation to SCE's Mirage substation. IID and SCE are in the process of re-rating Path 42. It is anticipated that the re-rating will increase the rating of Path 42 from

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600 MW to approximately 800 MW. The Path 42 re-rating does not require transmission upgrades. The increased rating is based upon bringing the rating of Path 42 up to the thermal rating of the transmission lines. The current Path 42 rating is 600 MW but the transmission lines can accommodate a rating of up to 800 MW. IID and SCE are in the process of completing the re-rating studies and will submit it to WECC for approval. It is anticipated that the increase in Path 42 rating to 800 MW can be completed in the 2nd quarter 2009. This will provide an additional 200 MW of export capability from IID's system into SCE's system.

In addition, IID submits that with additional upgrades, the export capability of Path 42 could be increased by an additional 800 mw. Therefore, the total additional increase in export capability on Path 42 would be approximately 1000 mw – from 800 mw to 1800 mw.

5. Greenpath North Projects

a. Greenpath North Project

The Greenpath North (GPN) project is a proposed 500 kV transmission line that will carry between 1200-1600 MWs of energy between a new switching station in Hesperia near the Southern California Edison (SCE) Lugo Substation to a new switching station near Palm Springs and SCE's existing Devers Substation. GPN will provide a transmission path for Imperial County renewable energy to reach the Los Angeles load centers with an estimated in service date of October 2013

b. Coachella Valley-Devers II Project

IID is also planning to build a thirty-five mile transmission line that will connect the IID system in the Coachella Valley area to the LADWP and California Independent System Operator (CAISO) balancing authority areas near Palm Springs. The new line known as the Coachella Valley-Devers II project (CV-Devers II) will carry up to 1600 MWs of energy from IID's Coachella Valley substation to the proposed Devers II substation near SCE's existing Devers substation. The CV-Devers II project will be either a double-circuit 230 kV or single-circuit 500 kV line with an anticipated commercial operation date of 2013.

The majority of the right-of-way has been secured and the environmental analysis is under way.

6. Generators transmission interconnection

Below is a summary of the renewable and non-renewable resources that have requested transmission services from IID. IID is diligently working to process these interconnection requests for these projects, nearly all of which will be exported from the IID area

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IID Generation Interconnection Queue

Queue Position	Request Date	Request Process	Service Type	Max MW Output	Location	Interconnection Facility	In-Service Date	Facility Type
1	May 5, 2005	GIP	ER	25	Imperial County	"L" 161 kV Line	Jun-10	Geothermal
2	July 21, 2005	GIP	NR	80	Imperial County	El Centro Switching Station	Jun-09	Combined Cycle Unit
3	January 31, 2006	GIP	ER	49.9	Imperial County	Midway Substaion	Sep-09	Geothermal
4	January 31, 2006	GIP	ER	49.9	Imperial County	Midway Substaion	Sep-10	Geothermal
5	February 10, 2006	GIP	ER	45	Imperial County	"L" 161 kV Line	Jul-10	Geothermal
6	May 5, 2006	GIP	ER	115.5	Imperial County	Plaster City Substation	Dec-08	Wind
7	May 17, 2006	GIP	ER	15.5	Imperial County	"J" 92 kV Line	Jan-09	Bio-Mass
8	December 13, 2006	GIP	ER	50	Imperial County	"CO" 92 kV Line	Oct-08	Geothermal
9	December 13, 2006	GIP	ER	50	Imperial County	"CO" 92 kV Line	Oct-09	Geothermal
10	March 2, 2007	GIP	ER	46	Imperial County	"J" 92 kV Line	Apr-09	Gas Turbine
11	April 20, 2007	GIP	ER	49.4	Imperial County	Imperial Valley Substation	Mar-10	Solar
12	May 4, 2007	GIP	ER	225	Imperial County	Midway Substaion	Sep-09	Solar
13	August 2, 2007	GIP	ER	77	Imperial County	Midway Substaion	Jan-10	Solar
14	August 13, 2007	GIP	ER	20	Imperial County	"L" 161 kV Line	Dec-10	Geothermal
15	August 14, 2007	GIP	ER	49.6	Imperial County	"L" 161 kV Line	Jun-10	Geothermal
16	September 11, 2007	GIP	ER	50	Imperial County	"B" 92 kV Line	Dec-08	Solar
17	September 26, 2007	GIP	NR	49.5	Imperial County	Midway Substaion	Jul-09	Gas Turbine
18	September 26, 2007	GIP	NR	216	Imperial County	Midway Substaion	Dec-10	Combined Cycle Unit
19	January 3, 2008	GIP	ER	500	Imperial County	"L" 161 kV Line	Dec-09	Solar
20	March 24, 2008	GIP	ER	250	Imperial County	Highline Substation	Sep-12	Solar
21	April 25, 2008	GIP	ER	49.3	Imperial County	"EO" 92 kV Line	Feb-11	Bio-Mass
22	May 5, 2008	GIP	ER	100	Riverside County	Mecca Substation	May-11	Solar
23	May 5, 2008	GIP	ER	100	Imperial County	Dixieland Substation	May-11	Solar

Summary of current renewable project in IID Generation Queue

1	Geothermal	339.4
2	Solar	1351.4
3	Wind	115.5
4	Biomass	64.8
5	Total Renewable	1871.1
6	CT/CC	391.5
7	Total	2262.6

The figure below shows the approximate location of the new renewable projects that requested transmission services from IID

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