



2012 Integrated Energy Policy Report Update Proceeding

Interconnection of Renewable Development in California

California Energy Commission

May 14, 2012



Background

- CEC prepares IEPR every two years and update in intervening years
- Governor's Clean Energy Jobs Plan in 2010 directed CEC to prepare renewable plan
- 2011 IEPR laid foundation for plan with 5 high-level strategies to address challenges
- Renewable Strategic Plan to be developed under 2012 IEPR Update



Renewable Strategic Plan Workshops

- April 12: Evaluating and Capturing Benefits of Renewable Energy
- May 10: Identifying Priority Geographic Areas
- ***May 14: Minimizing Interconnection Costs/Time***
- May 22: Retail Rate and Cost Issues
- May 30: In-state Jobs and Economic Benefits
- June 6: Financing and R&D
- June 11: Minimizing Integration Costs and Requirements



Strategy 3

Develop a strategy that minimizes interconnection costs and time, and also minimizes integration costs and requirements at the distribution level (such as use of remote telemetry and other smart grid technologies) and the transmission level (such as improved forecasting, the development of an energy imbalance market, and procurement of dispatchable renewable generation), and that strives for cost reductions and improvements to integration technologies, including storage, demand response, and the best use of the state's existing natural gas-fired power plant fleet.



Today's Agenda

- Resource Scenarios for the California ISO 2012-2013 Transmission Plan
- Panel 1: Transmission Planning and the Generator Interconnection Process
- Panel 2: Distribution Interconnection Updates
- Panel 3: Near-Term Approaches, Tools, and Methods to Address Interconnection Challenges
- Public Comment



Renewable Power in California: Status and Issues Report

- Chapter 4: Transmission Infrastructure Issues
- Chapter 6: Distribution-Level Integration Issues

Report available at:

www.energy.ca.gov/2011publications/CEC-150-2011-002/CEC-150-2011-002-LCF-REV1.pdf



Interconnection Queues

- CAISO Interconnection Queue
 - June 2011: 57,000 MW renewable capacity
 - April 2012: 33,000 MW renewable capacity
- Wholesale Distribution Access Tariff Queue
 - June 2011: 450 requests, 5,200 MW renewable capacity
 - April 2012: 560 requests, 4,000 MW capacity



Transmission Interconnection Issues

- Ensuring projects identified as critical to interconnection and delivery of renewable energy are built.
- Improving coordination in transmission planning processes
- Optimizing use of existing transmission grid

Balancing Authority	Transmission	Served CREZ	Cumulative Renewable Deliverability Potential (MW) With Upgrade	Expected Commercial On-line Date
California ISO	Sunrise Powerlink (new 500 kV and 230 kV lines)	Imperial North and South, San Diego South	1,700	2012
California ISO	Tehachapi Renewable Transmission Project	Tehachapi, Fairmont	4,500	2015
California ISO	<i>Colorado River –Valley Transmission Project and new Colorado River and Red Bluff 500 kV substations.</i>	<i>Riverside East, Palm Springs</i>	<i>4,700 combined with West of Devers project</i>	<i>2013</i>
California ISO	<i>Eldorado - Ivanpah 115 to 230 kV conversion</i>	<i>Mountain Pass</i>	<i>1,400</i>	<i>2013</i>
California ISO	Borden - Gregg (230 kV line reconductoring)	Westlands	800	2015
California ISO	South of Contra Costa (reconductoring)	Solano	535	2015
California ISO	<i>Pisgah - Lugo 230 kV to 500 kV conversion</i>	<i>Pisgah, Mountain Pass</i>	<i>1,750</i>	<i>2017</i>
California ISO	<i>West of Devers 230 kV reconductoring</i>	<i>Riverside East, Palm Springs</i>	<i>4,700 combined with Colorado River- Valley Project</i>	<i>2017</i>
California ISO	Carrizo - Midway sections of Morro Bay - Midway (230 kV lines reconductoring)	Carrizo South, Santa Barbara	900	2012
California ISO	<i>Coolwater – Jasper – Lugo (new 230 kV line and other upgrades)</i>	<i>Kramer</i>	<i>700</i>	<i>2018</i>
California ISO/Imperial Irrigation District (IID)	Path 42 Upgrades	Imperial Valley	1,400	2015
IID	Internal IID Upgrades	Imperial Valley	See above	2011+
<i>Los Angeles Dept. of Water and Power</i>	<i>Barren Ridge-Renewable Transmission Project</i>	<i>Tehachapi, Barren Ridge</i>	<i>1,000</i>	<i>2016</i>



Transmission Planning Coordination Issues

- “Wires” planning and land use planning essentially sequential
 - Increases time and risk
- Unclear and inconsistent assumptions among planning agencies
- Too many planning forums



Addressing Planning Challenges

- Renewable Energy Transmission Initiative
 - Identified 30 CREZs
 - Set precedent for incorporating land-use planning into transmission planning process
- Desert Renewable Energy Conservation Plan
 - Used RETI as basis for collaborative land-use planning
 - Need to bring DRECP results into transmission planning and procurement processes



Addressing Planning Challenges

- California Transmission Planning Group
 - Includes IOUs, POU, SCPPA, TANC
 - Develop conceptual statewide transmission plan for infrastructure needed to meet RPS goals
- California Independent System Operator
 - 2010-2011 Transmission Plan identified policy-driven projects
 - FERC waiver for ARRA-funded projects



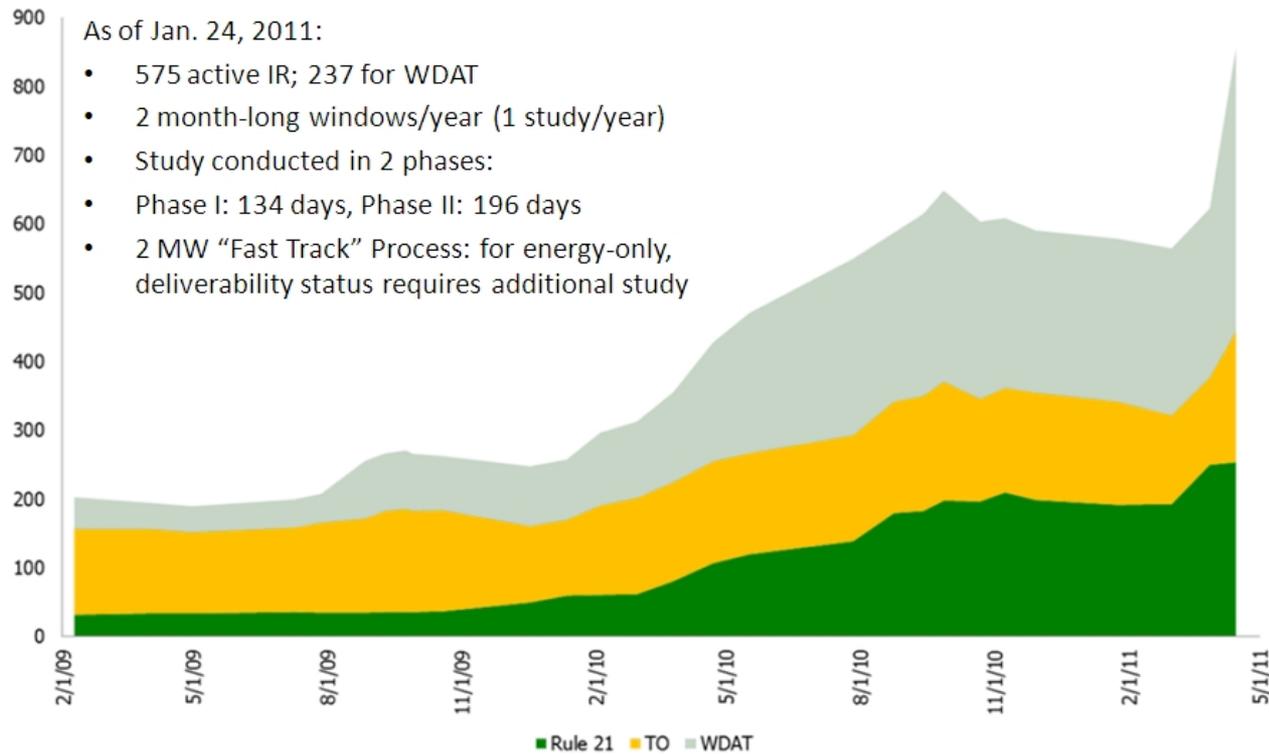
Optimize Use of Existing Grid

- Increase carrying capacity of existing lines
- Reduce instabilities that cause lines to be operated below maximum capacity
- Cables that be operated at higher temperatures
- Upsize transmission projects in anticipation of future needs



Distribution Interconnection Issues

SCE's Active Interconnection Requests (excluding NEM)



Text: SCE tariff filing per WDAT at FERC dated March 1, 2011

Chart: SCE Case Study for Rule 21 Working Group presentation at CPUC dated April 29, 2011



Addressing Distribution Interconnection Challenges

- Renewable Distributed Energy Collaborative working group
- Fast-track processes within interconnection processes
- Renewable Auction Mechanism maps
- FERC approval of combining SGIP and LGIP
- WDAT cluster study process
- Local government coordination with utilities



Next Steps

- Written comments due COB May 21
- For instructions on submitting written comments, see May 14 heading at:

www.energy.ca.gov/2012_energypolicy/documents/index.html