



California Public Utilities Commission

# Biennial RPS Program Update

In Compliance with Public Utilities Code Section 399.19

February 2014



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# INTRODUCTION

## Background

In April 2011, Governor Edmund G. Brown signed Senate Bill (SB) 2 (1X) (Simitian, 2011) codifying California's longstanding 33 percent Renewables Portfolio Standard (RPS) goal. In addition to increasing the state's RPS goal from 20 percent in 2010 to 33 percent by 2020, SB 2 (1X) added Section 399.19 to the Public Utilities Code (Pub. Util. Code).<sup>1</sup> Section 399.19 requires the California Public Utilities Commission (CPUC or Commission), in consultation with the California Energy Commission (CEC), to report to the Legislature by January 1 of every even-numbered year on all of the following: (a) the progress and status of RPS procurement, (b) the status of permitting and siting RPS resources and transmission facilities, (c) the projected ability of each electrical corporation to meet the RPS requirements pursuant to the cost limitations established by Section 399.15(d), and (d) barriers to, and recommendations for, achieving the RPS requirements. The complete text of Section 399.19 is provided as Appendix A.

To gather data and other information for this report, Energy Division staff relied upon publicly available data already submitted to the Commission by electrical corporations, in addition to consulting with CEC staff.

This is the first report to the Legislature made pursuant to Section 399.19, referenced hereafter as the Section 399.19 Report. Section 399.19 applies to retail sellers as defined in Section 218. As such, Energy Division staff has included procurement updates for California's three large Investor-Owned Utilities (IOUs), the California Small Multi-Jurisdictional Utilities (CASMUs), Community Choice Aggregators (CCAs), and Electric Service Providers (ESPs).

## Summary

Below is a brief summary of the report:

- The three IOUs are expected to reach all of their Compliance Period 1 (2011-2013) RPS requirements based on confidential Renewable Net Short (RNS) information submitted with their 2013 RPS Procurement Plans (RPS Plans).<sup>2</sup> California's three large IOUs collectively served 19.6% of their 2012 retail electricity sales with renewable power<sup>3</sup>:
  - 19.04 percent for Pacific Gas and Electric Company (PG&E)
  - 19.9 percent for Southern California Edison Company (SCE)
  - 20.31 percent for San Diego Gas and Electric Company (SDG&E)

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<sup>1</sup> All further references to sections refer to the Pub. Util. Code unless otherwise specified.

<sup>2</sup> For details on each IOU's RNS and projected future RPS compliance *See* IOU's 2013 Draft RPS Plans which can be found at: [https://www.pge.com/regulation/RenewablePortfolioStdsOIR-IV/Other-Docs/PGE/2013/RenewablePortfolioStdsOIR-IV\\_Other-Doc\\_PGE\\_20130628\\_280409.pdf](https://www.pge.com/regulation/RenewablePortfolioStdsOIR-IV/Other-Docs/PGE/2013/RenewablePortfolioStdsOIR-IV_Other-Doc_PGE_20130628_280409.pdf); [http://www3.sce.com/sscc/law/dis/dbattach5e.nsf/0/1DCFF422D68E4DBD88257B9800618ABB/\\$FILE/R1105005%20RPS%20-%20SCE%202013%20RPS%20Procurement%20Plan\\_Vol%202.pdf](http://www3.sce.com/sscc/law/dis/dbattach5e.nsf/0/1DCFF422D68E4DBD88257B9800618ABB/$FILE/R1105005%20RPS%20-%20SCE%202013%20RPS%20Procurement%20Plan_Vol%202.pdf); and [https://www.sdge.com/sites/default/files/regulatory/1%20of%202%20Pleading%20Pages%20from%20PUBLIC%20SDG%26E%202013%20RPS%20Plan%20\(FINAL\).pdf](https://www.sdge.com/sites/default/files/regulatory/1%20of%202%20Pleading%20Pages%20from%20PUBLIC%20SDG%26E%202013%20RPS%20Plan%20(FINAL).pdf).

<sup>3</sup> For details on each IOU's RPS compliance reporting *See* the IOU's 2012 Preliminary RPS Compliance Reports which can be found at: <http://www.cpuc.ca.gov/PUC/energy/Renewables/compliance.htm>

- Many renewable energy generation and transmission projects have successfully received all of their necessary permits or are in the late stages of the permitting process. Due to key environmental permitting initiatives taken on by regulatory agencies across California, project viability risk from permitting has decreased.
- Commission staff is in the process of adopting a Procurement Expenditure Limitation (PEL) methodology to limit costs associated with RPS procurement.
- Proactive steps are being taken by the IOUs, regulatory agencies, and market participants to address potential RPS compliance barriers and ensure that RPS compliance requirements are met in the future.

# RPS PROCUREMENT

Section 399.19(a)

*The progress and status of procurement activities by each retail seller.*

## RPS Progress and Status

Table 1 provides a summary of all retail sellers' RPS positions relative to their overall retail sales both in 2012 (actual sales data) and 2020 (based on IOU forecasts).<sup>4</sup> Retail sellers are on pace to meet their Compliance Period 1 (2011-2013) RPS requirement of an average 20% RPS and are on track to achieve the 33% RPS by 2020 with additional future procurement of RPS resources.<sup>5</sup> Table 1 depicts CCAs, CASMUs, and ESPs to be significantly below their RPS requirements due to the fact that the majority of their RPS procurement takes place through transactions made at the end of a compliance period. For the same reason, some ESPs' 2012 data has been redacted to maintain the confidentiality of their short-term portfolio management strategy.

**Table 1. California Retail Sellers' RPS Progress and Status**

	Name of Retail Seller	2012 Actuals (GWh)			2020 Forecast (GWh)		
		2012 Retail Sales	2012 RPS Generation	2012 RPS Procurement %	2020 Retail Sales	2020 RPS Generation	2020 RPS Procurement %
IOU	PG&E	76,205	14,511	19.0%	80,165	23,228	29.0%
	SCE	75,597	15,043	19.9%	77,673	19,677	25.3%
	SDG&E	16,627	3,377	20.3%	20,042	7,029	35.1%
CCA	Marin Energy Authority	570	167	29.2%	1,218	202	16.6%
CASMU	PacifiCorp	783	158	20.1%	774	111	14.3%
	CalPeco / Liberty Utilities	545	123	22.5%	N/A	N/A	0.0%
	Bear Valley Electric Service	131	11	8.3%	151	52	34.3%
ESP	3 Phases Renewables	Information Redacted	Information Redacted	Information Redacted	N/A	N/A	0.0%
	Calpine Power America	Information Redacted	Information Redacted	Information Redacted	1,085	N/A	0.0%

<sup>4</sup> For details on individual retail sellers See IOUs' 2012 Preliminary RPS Compliance Reports.

<sup>5</sup> RPS compliance data is available on the Commission's website at:

<http://www.cpuc.ca.gov/PUC/energy/Renewables/compliance.htm>

Name of Retail Seller	2012 Actuals (GWh)			2020 Forecast (GWh)		
	2012 Retail Sales	2012 RPS Generation	2012 RPS Procurement %	2020 Retail Sales	2020 RPS Generation	2020 RPS Procurement %
Commerce Energy, Inc.	Information Redacted	Information Redacted	Information Redacted	89	N/A	0.0%
Commercial Energy CA	Information Redacted	Information Redacted	Information Redacted	36	N/A	0.0%
ConEdison Solutions	N/A	N/A	N/A	N/A	- N/A	0.0%
Constellation NewEnergy, Inc.	Information Redacted	Information Redacted	Information Redacted	5,200	N/A	0.0%
Direct Energy Business, LLC	Information Redacted	Information Redacted	Information Redacted	N/A	30	N/A
EDF Industrial Power	N/A	N/A	N/A	N/A	N/A	0.0%
EnerCAL USA	N/A	N/A	N/A	N/A	N/A	0.0%
Gexa Energy California	N/A	N/A	N/A	N/A	N/A	0.0%
Glacial Energy California	Information Redacted	Information Redacted	Information Redacted	46	N/A	0.0%
Liberty Power Holdings LLC	Information Redacted	Information Redacted	Information Redacted	39	N/A	0.0%
Noble Americas Energy Solutions LLC	Information Redacted	Information Redacted	Information Redacted	7,000	1	0.0%
Pilot Power Group, Inc.	Information Redacted	Information Redacted	Information Redacted	1,475	.3	0.0%
Praxair Plainfield Inc.	N/A	N/A	N/A	N/A	N/A	0.0%
Shell Energy North America	Information Redacted	Information Redacted	Information Redacted	385	5	1.3%
Tiger Natural Gas, Inc.	Information Redacted	Information Redacted	Information Redacted	N/A	N/A	0.0%

Table 2 provides a summary of the three large IOUs' (PG&E, SCE, and SDG&E) RPS progress over the past ten years and average RPS costs for each IOU.<sup>6,7</sup> Overall, the IOUs have increased the amount of RPS generation as a percentage of their overall generation portfolio. Average costs steadily increased in the earlier years of the RPS program, but have leveled off and even decreased in more recent years.

<sup>6</sup> See IOUs' 2013 RPS Procurement Plans.

<sup>7</sup> RPS generation figures for 2012 differ slightly from the 2013 RPS Compliance Reports due to the vintage of the data.

Table 2. IOU RPS Compliance Progress and Cost Information, 2003-2012

IOU	Data Input	Actuals									
		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
PG&E	Retail Sales (GWh)	71,099	72,114	72,372	76,356	79,078	81,524	79,624	77,485	74,864	76,205
	RPS Generation (GWh)	8,472	8,490	8,908	9,080	9,034	9,824	11,497	12,359	14,402	14,679
	RPS Procurement (%)	11.9%	11.8%	12.3%	11.9%	11.4%	12.1%	14.4%	16.0%	19.2%	19.3%
	RPS Expenditures (\$, thousands)	522,576	530,998	551,874	575,483	671,317	790,116	791,870	893,010	Information Redacted	Information Redacted
	RPS Costs (dollars per MWh)	61.69	62.54	61.95	63.38	74.31	80.42	68.88	72.26	Information Redacted	Information Redacted
SCE	Retail Sales (GWh)	70,617	72,964	74,994	78,863	79,505	80,956	78,048	75,141	73,778	75,597
	RPS Generation (GWh)	12,063	12,799	12,715	12,382	12,163	12,291	13,034	14,344	15,171	14,992
	RPS Procurement (%)	17.1%	17.5%	17.0%	15.7%	15.3%	15.2%	16.7%	19.1%	20.6%	19.8%
	RPS Expenditures (\$, thousands)	907,127	966,608	968,003	932,421	976,870	1,138,145	1,032,716	1,172,088	1,299,941	1,230,432
	RPS Costs (dollars per MWh)	75.20	75.52	76.13	75.30	80.31	92.60	79.23	81.71	85.68	82.07
SDG&E	Retail Sales (GWh)	15,044	15,812	16,002	16,847	17,056	17,410	16,994	16,283	16,249	16,627
	RPS Generation (GWh)	550	678	825	900	881	1,047	1,784	1,940	3,380	3,416
	RPS Procurement (%)	3.7%	4.3%	5.2%	5.3%	5.2%	6.0%	10.5%	11.9%	20.8%	20.5%
	RPS Expenditures (\$, thousands)	25,112	33,215	40,219	44,832	42,886	55,726	95,965	109,275	142,866	256,245
	RPS Costs (dollars per MWh)	45.67	49.00	48.73	49.84	48.69	53.20	53.78	56.34	42.27	75.01



# PERMITTING AND SITING

## Section 399.19(b)

*The status of permitting and siting eligible renewable energy resources and transmission facilities necessary to supply electricity generated to load, including the time taken to permit each eligible renewable energy resource and transmission line or upgrade, explanations of failures to meeting permitting milestones, and recommendations for improvements to expedite permitting and siting processes.*

## Introduction

Permitting is an essential step in securing a project site and successfully developing an RPS project. Many different regulatory bodies oversee the permitting of generation and transmission projects in California. Federal, state, and local agencies may be responsible dependent on where the generation or transmission project is sited. The CPUC is responsible for environmental review and permitting of CPUC-jurisdictional retail seller transmission projects.

The CEC has the responsibility for permitting thermal power plants 50 megawatts (MW) and larger.<sup>8</sup> The CEC's permitting process is a 12-month, certified regulatory program under the California Environmental Quality Act (CEQA) that includes many opportunities for public participation. Additionally, the CEC adopts an Integrated Energy Policy Report (IEPR) every two years, which includes an extensive discussion and update on permitting for renewable generation facilities in California.

Furthermore, both the CPUC and CEC coordinate their review with federal, state, local, and regional agencies and work cooperatively on interagency initiatives such as the Desert Renewable Energy Conservation Plan (DRECP)<sup>9</sup>. The IOUs also assist in identifying future permitting barriers and work with developers to overcome project development issues.

## CPUC Transmission Permitting Update

The following section provides an update on significant transmission projects necessary for California to achieve its RPS targets that the Commission has reviewed or is reviewing.

### Tehachapi Renewable Transmission Project (TRTP)

Location	The project stretches from the Tehachapi Wind Resource Area in Kern County south through Los Angeles County and the Angeles National Forest and east to the existing Mira Loma Substation in Ontario, San Bernardino County, California.
Size of Line	220 kilovolt (kV) line / 500 kV line

<sup>8</sup> The CEC power plant permitting process also includes transmission lines to the first point of interconnection with the grid, fuel supply lines, and water pipelines.

<sup>9</sup> The DRECP, when completed, is expected to further the objectives of California's RPS and provide binding, long-term endangered species permit assurances while streamlining and facilitating the review and approval of compatible renewable energy projects in the Mojave and Colorado deserts in California. More information on the DRECP can be found at: <http://www.drecp.org/>

Participating Transmission Owner (PTO)	SCE
Date of Application	6/29/2007
Date of Decision	12/17/2009 (TRTP approval), 7/11/13 (Chino Hills undergrounding)
Construction Completion Date	Late 2016 or Early 2017 (Tentative)
Delays Encountered	The TRTP incurred delays of six months to a year in the Chino Hills area due to a change in scope to underground and also due to a re-design of the horizontal boring construction.
Status Update	Installing the first 500 kV underground cable in the country is a unique challenge. SCE has stated their earlier schedule was overly optimistic.

#### Eldorado Ivanpah Transmission Project (EITP)

Location	The project straddles the California-Nevada border from the Ivanpah substation near Primm, California to the Eldorado substation near Boulder City, Nevada.
Size of Line	230 kV line
PTO	SCE
Date of Application	5/28/2009
Date of Decision	12/16/2010
Construction Completion Date	7/1/2013
Status Update	Project is complete.

#### Sunrise Powerlink Transmission Project

Location	The project stretches 117 miles along the southern boundaries of Imperial and San Diego counties.
Size of Line	230 kV line / 500 kV line
PTO	SDG&E
Date of Application	4/4/2006
Date of Decision	12/18/2008
Construction Completion Date	June 2012
Delays	SDG&E's original transmission line route was highly controversial because it crossed through 22 miles of Anza-Borrego Desert State Park.

Encountered	More than 100 alternatives routes were screened and 27 alternatives were seriously studied as part of the California Environmental Quality Act (CEQA) review. The CPUC approved a route that avoided going through the park.
Status Update	Project is complete.

Devers-Palo Verde No. 2 Transmission Project (DPV2)

Location	Located in Riverside County along Interstate 10 between Colorado River Substation, Devers Substation and Valley Substation.
Size of Line	500 kV line
PTO	SCE
Date of Application	4/11/2005
Date of Decision	1/25/2007; original decision modified on 11/20/2009
Construction Completion Date	9/26/2013
Delays Encountered	The original Commission decision approved an alternative to the original project since the Morongo tribe did not approve of the transmission line crossing through their sovereign lands. Following the 2007 Commission decision approving the project, the Arizona Corporation Commission denied SCE's request to construct the Arizona portion of the project.
Status Update	Project is complete.

Red Bluff Substation

Location	Located in the Desert Center area along Interstate 10 in Riverside County.
Size of Substation	500 kV substation
PTO	SCE
Date of Application	11/17/2010
Date of Decision	7/14/2011
Construction Completion Date	6/6/2013
Delays Encountered	There were CEQA compliance issues with a National Environmental Protection Act (NEPA) document, requiring substantial revisions and technical analyses to the original NEPA document.
Status Update	Project is complete.

### Coolwater-Lugo Transmission Project

Location	The proposed project would stretch from Hesperia, California (Lugo Substation) toward Lucerne Lake then north to a point east of Barstow, California (Coolwater Substation).
Size of Line	220 kV and 500 kV line segments
PTO	SCE
Date of Application	8/28/2013
Date of Decision	CPUC proceeding is underway.
Construction Completion Date	2018 (Tentative)
Delays Encountered	
Status Update	Certificate of Public Convenience and Necessity Application is under review by the CPUC.

### West of Devers Upgrade Project

Location	The project stretches 48 miles from the existing Devers Substation (Palm Springs, California) to the Vista Substation (Grand Terrace, California) and San Bernardino Substation (San Bernardino, California) in Riverside and San Bernardino counties.
Size of Line	220 kV line
PTO	SCE
Date of Application	10/25/2013
Date of Decision	Estimated in early 2015
Construction Completion Date	2019 – 2020 (Tentative)
Delays Encountered	No delays at this time.
Status Update	Application is undergoing completeness review. Joint Environmental Impact Report / Environmental Impact Statement will be prepared by the CPUC and Bureau of Land Management.

### Sandlot Substation Project

Location	The substation is located on 10 acres of land within the boundary of the Abengoa Mojave Solar Project (AMSP) near Harper Lake in San Bernardino County.
Size of Project	220 kV substation
PTO	SCE
Date of Application	5/5/2011
Date of Decision	7/28/2011
Construction Completion Date	July 2014 (Tentative)
Delays Encountered	Delays associated with the completion of the AMSP have occurred.
Status Update	Sandlot Substation was "in service" in June, 2013, which means the transformers became energized and electricity was transmitted to the AMSP substation. However, AMSP is not expected to be complete until June 2014, at which time electricity will flow from the plant into Sandlot Substation.

### East County (ECO) Transmission Project

Location	The ECO Project is projected to be located in southeastern San Diego County, approximately 70 miles east of downtown San Diego near the unincorporated communities of Jacumba and Boulevard. The ECO project includes developing the ECO substation, a new transmission line, and rebuilding the existing Boulevard Substation.
Size of Project	500/230/138 kV substation (ECO), 138/69/12 kV substation (Boulevard), and 138 kV line
PTO	SDG&E
Date of Application	8/10/2009
Date of Decision	6/21/2012
Construction Completion Date	Fourth Quarter 2014 (Tentative)

Delays Encountered	Red flag fire warnings, species surveys, and water source issues.
Status Update	Various components of the project are between 23-62% complete.

### Strategic Transmission Investment Plan in the CEC’s 2013 Integrated Energy Policy Report<sup>10</sup>

In addition to being the primary state agency responsible for permitting renewable generation in California, the CEC is required by SB 1389<sup>11</sup> to adopt and transmit an IEPR to the Governor and Legislature every two years. The IEPR includes an extensive discussion on trends and issues concerning renewable energy and is used as a key data source in CPUC proceedings. The following section includes an overview of the permitting discussion in the IEPR’s Strategic Transmission Investment Plan, which is required by SB 1565.<sup>12</sup>

The 2013 Strategic Transmission Investment Plan section of the IEPR provides a status update for transmission projects associated with RPS and also discusses other transmission issues such as: the need to better synchronize generation and transmission planning and permitting, coordinating land use and transmission planning efforts through the DRECP, opportunities to designate appropriate transmission corridors in advance of need, and emerging trends in the Western Electricity Coordinating Council (WECC) that could affect California. The 2013 IEPR stated that 17 transmission projects were identified and approved for the integration of renewable resources, and the California Independent System Operator (CAISO) has noted that there is no further need to approve any new major transmission projects for RPS purposes at this time.<sup>13</sup> Fifteen of these projects are within the CAISO’s control area, and the CEC is assisting interested parties in tracking these projects by updating and posting the projects’ status annually on its website.<sup>14,15</sup>

### Overarching Permitting Issues Associated with Transmission Projects for Renewable Projects

The following section provides a summary of permitting issues that have led to the delay of transmission projects associated with RPS projects.

#### Delays due to nesting birds

Mitigation measures requiring that no vegetation can be cleared during the bird nesting season prohibited construction on renewable transmission projects for several months. After much consultation with wildlife agencies, a Nesting Birds Management and Monitoring Plan was

<sup>10</sup> The CEC 2013 Commission Final Integrated Energy Policy Report can be found at: <http://www.energy.ca.gov/2013publications/CEC-100-2013-001/CEC-100-2013-001-CMF.pdf>

<sup>11</sup> Bowen and Sher, Chapter 568, Statutes of 2002.

<sup>12</sup> Bowen, Chapter 692, Statutes of 2004.

<sup>13</sup> See page 9 of the California Independent System Operator 2013-2014 Draft Transmission Plan available at: <http://www.caiso.com/planning/Pages/TransmissionPlanning/2013-2014TransmissionPlanningProcess.aspx>

<sup>14</sup> CEC 2013 Commission Final Integrated Energy Policy Report, pages 10 and 11.

<sup>15</sup> The CEC’s RPS tracking documents can be found at: [http://www.energy.ca.gov/renewables/tracking\\_progress/index.html#renewable](http://www.energy.ca.gov/renewables/tracking_progress/index.html#renewable)

developed. The plan allows for construction during bird nesting season as long as there is upfront review and approval, which can affect preliminary project development schedules.

#### Extensive Helicopter Usage

Helicopters are used for transmission line construction due to the remote locations of transmission projects, challenging topography, lack of road access, and the desire to construct without having to build an extensive road network. The Sunrise Powerlink Project was one of the largest helicopter-supported construction projects on record. The project logged nearly 30,000 flight hours, with as many as 240 to 300 flights a day, and as many as 40 aircraft in use on a daily basis. Although several incidents occurred during helicopter operations, the installation of GPS tracking devices limited the number of problems by monitoring helicopter flight paths and times of operations.

#### Federal Aviation Administration (FAA) Hazard Markers and Tower Lighting

500 kV transmission towers often exceed 200 feet in height. Structures over 200 feet in height are required by FAA rules to be lighted and the associated electric lines are required to be marked with marker balls. Many of the early transmission line projects did not comply with these FAA rules, requiring Petitions for Modification to be filed by the project proponents, which ultimately led to additional environmental analyses.

#### **CEC Generation Permitting Update**

The following section provides an update on significant CEC-jurisdictional renewable generation projects.

#### CEC January 2014 Renewable Energy Tracking Summary<sup>16</sup>

As of the end of 2013, California had nearly 4,400 MW of operating or installed renewable distributed generation<sup>17</sup> capacity with an additional 1,700 MW of generation pending.<sup>18</sup> Additionally, an estimated 11,400 MW of transmission-level renewable capacity were permitted throughout California and could come on-line in future years. Of these permitted projects, 4,200 MW also have secured a power purchase agreement (PPA) with a utility, suggesting a high likelihood that the facilities will be constructed.<sup>19</sup>

The CEC has made substantial progress on renewable generation facility siting. Tables 3 through 5 provide status data and details on recent renewable generation siting cases that are under CEC jurisdiction.

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<sup>16</sup> For details on the CEC's latest renewable energy progress tracking *See* the CEC's January 2014 Renewable Energy Tracking Progress Overview which is available at: [http://www.energy.ca.gov/renewables/tracking\\_progress/documents/renewable.pdf](http://www.energy.ca.gov/renewables/tracking_progress/documents/renewable.pdf)

<sup>17</sup> The CEC defines distributed generation as renewable generation facilities that are 20 MW or smaller.

<sup>18</sup> Pending projects include projects with reserved incentive funding from a self-generation incentive program or projects that have secured a PPA.

<sup>19</sup> CEC January 2014 Renewable Energy Tracking Summary, pages 2-3.

Table 3. CEC-Jurisdictional Renewable Energy Facility Status for Approved Projects Operational, Under Construction, or Under Pre-construction<sup>20</sup>

Projects On-Line	Type	Status	Capacity (MW)	County
Bottle Rock Geothermal Restart – U.S. Renewables Group	Geothermal	Operational	10*	Lake
Genesis Solar Energy Project – NextEra Energy	Solar Thermal	125 MW Operational 125 MW Under Construction	250	Riverside
<b>Subtotal:</b>			<b>260**</b>	
Approved and in Operational Testing	Type	Status	Capacity (MW)	County
Ivanpah Solar – Brightsource, NRG Energy, Google	Solar Thermal	Operational Delivery Expected before January 15, 2014	370	San Bernardino
<b>Subtotal:</b>			<b>370</b>	
Approved and Under Construction	Type	Status	Capacity (MW)	County
Abengoa Mojave Solar Project – Mojave Solar LLC	Solar Thermal	Under Construction	250	San Bernardino
<b>Subtotal:</b>			<b>375***</b>	
Approved and Under Pre-construction	Type	Status	Capacity (MW)	County
Rice Solar Energy Project - Rice Solar Energy LLC / SolarReserve LLC	Solar Thermal	Pre construction	150	Riverside
<b>Subtotal:</b>			<b>150</b>	

\*While the Bottle Rock facility was approved for 55 MW of capacity, it has only been generating around 10 MW due to steam supply issues.

\*\*Projects Online Total includes 125 MW in operation from the Genesis Solar Energy Project.

\*\*\*Approved and/or Under Construction Total includes 125 MW from the Genesis Solar Energy Project still under construction.

Source: California Energy Commission, [[http://energy.ca.gov/sitingcases/all\\_projects.html](http://energy.ca.gov/sitingcases/all_projects.html)].

<sup>20</sup> CEC January 2014 Renewable Energy Tracking Summary, Page 13.



Table 4. CEC-Jurisdictional Renewable Energy Facility Status for Projects Not Under Construction<sup>21</sup>

Not Under Construction	Type	Status	Capacity (MW)*	County
Black Rock 1, 2, and 3 Geothermal Power Project (formerly Salton Sea Geothermal) - Cal Energy	Geothermal	On Hold	159	Imperial
Victorville Hybrid Gas-Solar – City of Victorville (513 MW Gas + 50 MW Solar)	Solar Thermal/ Natural Gas	On Hold	50	San Bernardino
Beacon Solar Energy Project – LADWP	Solar PV**	Solar Thermal License Terminated; Solar PV License Approved by Kern County	250	Kern
Imperial Valley Solar (Formerly SES Solar Two) – Imperial Valley Solar LLC	Solar Thermal	License Terminated; Project Cancelled; Future Renewables Not Planned on This Site.	[709]	Imperial
Palmdale Hybrid Gas-Solar – Summit Power Group LLC (formerly City of Palmdale) (520 MW Gas + 50 MW Solar)	Solar Thermal/ Natural Gas	On Hold	50	Los Angeles
Calico Solar – Calico Solar LLC (formerly K Road)	Solar Thermal	Project Cancelled; License Terminated	[663.5]	San Bernardino
Ridgecrest Solar Power Project – Solar Millenium, LLC	Solar Thermal	Suspended During Review	250	Kern
Hidden Hills Solar Electric Generating System – BrightSource Energy, Inc.	Solar Thermal	Suspended During Review	500	Inyo
Rio Mesa Solar Electric Generating Facility – BrightSource Energy	Solar Thermal	Project Cancelled	[500]	Riverside
Blythe Solar – NextEra Blythe Energy Center LLC	Solar PV	Approved Amendment to PV (previously solar thermal)	485	Riverside
<b>Subtotal:</b>			<b>1,744</b>	

\*Megawatts (MW) shown in [] are not included in totals.

\*\*Previously reviewed by Energy Commission as a solar thermal project; LADWP plans to install 250 MW of PV

Source: Energy Commission

<sup>21</sup> CEC January 2014 Renewable Energy Tracking Summary, Page 14.

Table 5. CEC-Jurisdictional Renewable Energy Facility Status for Projects under Review<sup>22</sup>

Projects In Review	Type	Status	Capacity (MW)	County
Palen Solar Electric Generating System – Palen Solar Holdings, LLC	Solar Thermal	Under Review Amendment to Power Tower	500	Riverside
<b>Subtotal:</b>			<b>500</b>	
<b>Total for All Projects Approved (Tables 5 and 6) and Under Review (Table 7):</b>			<b>3,274</b>	

Source: California Energy Commission, [http://energy.ca.gov/sitingcases/all\_projects.html].

Table 6 shows all renewable energy generation projects in California, including those outside the CEC’s jurisdiction, which have received environmental permits and may become operational. The information includes projects that are in pre-construction or under construction. Table 6 shows the number of projects and capacity by county and by renewable technology type.

Table 6. Renewable Projects that Have Received Environmental Permits and are Expected to Come On-Line After 2013<sup>23</sup>

County	Biomass/ Landfill Gas		Solar PV		Solar Thermal		Geothermal		Wind		Small Hydro		Total	
	Count	MW	Count	MW	Count	MW	Count	MW	Count	MW	Count	MW	Count	MW
Amador											1	0.5	1	2.5
Butte			3	3.2									3	3.2
Contra Costa			1	19									1	19
Fresno			19	417									19	417
Glenn			1	38									1	38
Imperial			14	1,394			5	465					19	1,859
Inyo			1	0.5									1	0.5
Kern			24	1,663					8	993			32	2,657
Kern and Los Angeles			1	579									1	579
Kings			13	551									13	551
Lake							1	55					1	55
Los Angeles			23	937							1	4	24	941
Madera			1	90									1	90
Merced			4	115									4	115
Placer			3	4.5									3	4.5
Riverside			10	1,853	2	275							12	2,128
Sacramento			1	1.5									1	1.5
San Benito			2	401									2	401
San Bernardino			16	276	1	250							17	526
San Diego			2	52					1	200			3	252
San Luis Obispo			2	311									2	311
Sonoma							2	98					2	98
Stanislaus	1	1.5	5	270									6	272
Tulare			8	108									8	108
Tuolumne			1	1.5									1	1.5
Yolo			3	4.8									3	4.8
<b>Total</b>	<b>1</b>	<b>1.5</b>	<b>158</b>	<b>9,098</b>	<b>3</b>	<b>525</b>	<b>8</b>	<b>618</b>	<b>9</b>	<b>1,193</b>	<b>2</b>	<b>4.5</b>	<b>181</b>	<b>11,400</b>

Source: California Energy Commission

Due to frequent changes in project circumstances (for example, loss of developer financing, delays in obtaining power purchase agreements, and inability to meet other agencies’

<sup>22</sup> CEC January 2014 Renewable Energy Tracking Summary, Page 15.

<sup>23</sup> CEC January 2014 Renewable Energy Tracking Summary, Page 16.

permitting requirements), project status data are fluid in nature. Therefore, the renewable energy siting information presented in Tables 3 through 6 reflects a snapshot in time relative to the status of projects in the CEC siting database.<sup>24</sup>

### **Permitting Issues Identified in the IOU's 2013 RPS Procurement Plans**

In November, 2013, each IOU filed their annual RPS Plan describing the actions that they would take to meet their RPS procurement requirements. Each IOU's RPS Plan included a section on the permitting and siting of renewable generation projects. The following section summarizes excerpts from each IOU's RPS Plan that addressed permitting issues as they are related to each IOU achieving its RPS compliance requirement.

#### PG&E<sup>25</sup>

PG&E states that it continues to participate in the planning process for the DRECP, a major component of California's renewable energy planning efforts to establish a coordinated and streamlined permitting and planning process for renewable generation in Southern California. PG&E is hopeful that the DRECP and other efforts will establish clear requirements to help decrease the time it takes parties to site and permit projects while ensuring environmental integrity.

#### SCE<sup>26</sup>

SCE states that the lengthy process of siting, permitting, and building new transmission continues to be a real and complicated impediment to bringing new renewable resources on-line. Specifically, SCE lists environmental concerns, legal challenges, and public opposition as factors that impact the timeline for bringing renewable generation and transmission projects on-line.

#### SDG&E<sup>27</sup>

SDG&E states that uncertainty surrounding the availability and timely issuance of key permits can create development risk. Permitting processes established to secure land rights have proven to be burdensome and time-consuming for some developers, which has led to uncertainty, scheduling challenges and associated project development problems.

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<sup>24</sup> CEC January 2014 Renewable Energy Tracking Summary, Page 15.

<sup>25</sup> PG&E draft RPS Procurement Plan, Pages 46-47.

<sup>26</sup> SCE draft RPS Procurement Plan, Pages 12-13.

<sup>27</sup> SDG&E draft RPS Procurement Plan, Page 20.

## COST LIMITATION

### Section 399.19(c)

*The projected ability of each electrical corporation to meet the renewables portfolio standard procurement requirements under the cost limitations in subdivision (d) of Section 399.15 and any recommendations for revisions of those cost limitations.*

Section 399.15(c)-(d) orders the Commission to establish a limitation for each electrical corporation on the procurement expenditures for all eligible renewable energy resources to comply with California's RPS. The Commission is in the process of implementing this code section. In July 2013, the Administrative Law Judge issued a Ruling seeking comments on Energy Division's staff proposal for a methodology to implement a PEL and Commission staff held a workshop on this topic in November 2013.<sup>28</sup> A proposed decision on the procurement expenditure limitation is expected in the second quarter of 2014.<sup>29</sup>

Due to the Commission's ongoing implementation of Section 399.15(c)-(d), it is not possible to fulfill the reporting requirement of Section 399.19(c) at this time. Until the Commission formally adopts a PEL for RPS, the Commission cannot project the ability of each electrical corporation to meet the RPS requirements within those limitations.

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<sup>28</sup> The workshop agenda and workshop presentation materials can be found online at: <http://www.cpuc.ca.gov/NR/ronlyres/7157FB43-3CFB-4F9D-9127-E5EFCDA20D9C/0/PELWorkshopAgendaandPresentations.zip>

<sup>29</sup> Assigned Commissioner's Third Amended Scoping Memo, January 2014, page 7.

# RPS BARRIERS AND RECOMMENDATIONS

Section 399.19(d)

*Any barriers to, and policy recommendations for, achieving the renewables portfolio standard pursuant to this article.*

In their 2013 RPS Plans, the IOUs included a section that discussed potential barriers to achieving future RPS compliance. The following section of the Section 399.19 Report includes an overview of the different barriers listed by the IOUs in their RPS plans. Furthermore, this section includes a discussion of how the IOUs and other associated agencies plan to overcome the barriers that they've identified.

## Financing

The IOUs are hopeful that the current trends in renewable project financing continue, which will help renewable developers overcome financial barriers and enable additional renewable energy supply at reduced procurement costs for customers. Since the phase-out of the 1603 Treasury Cash Grant at the end of 2012, investors with a tax appetite as tax equity investors have been crucial to successfully financing renewable energy projects. However, the Production Tax Credit sunset at the end of 2013, and the Investment Tax Credit (ITC) is currently set to sunset at the end of 2016.<sup>30,31</sup> These tax benefits represent about a third of the economic value of renewable projects and without them, the relative competitiveness of renewable energy to fossil fuel generation will be severely impacted. The looming expiration of these tax incentives will likely re-shape the project development and financing landscape for future renewable energy projects.

There is speculation among market analysts that the extension of the ITC may occur and it should be noted that the environment for renewable project financing has improved, particularly for wind and solar technologies, due to lower costs of capital, new financial products, more financing options, and more investors entering the marketplace.

## Interconnection and Transmission

The IOUs have commented that the development and funding of additional transmission infrastructure continues to be a significant impediment to California reaching its renewable energy requirements. Over the past few years, the CAISO and the IOUs have seen a significant increase in the number of generators requesting to interconnect into the grid. The growth in these requests has, in turn, led to an overcrowded interconnection queue at the CAISO and extended estimated project development timelines. Projects that experience interconnection delays face a significant barrier to receiving financing when pressed with the requirement to come online within tight contractual milestone dates. The growth in interconnection requests has also made it difficult to estimate reliable interconnection study results that identify necessary transmission upgrades and their associated costs and timing.

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<sup>30</sup> 26 USC § 45, 26 USC § 48.

<sup>31</sup> The ITC will not expire at the end of 2016. The tax credit will be reduced from a 30% tax credit to a 10% tax credit for solar and wind facilities.

To improve the management of the transmission planning and interconnection processes, the CAISO has already implemented clustering of interconnection requests and studies, as well as the Transmission Planning Process and Generator Interconnection Procedures (TPP-GIP) integration initiative. These reforms have provided greater clarity of transmission timing and funding responsibilities and also cleared non-viable renewable generation projects out of the interconnection queue. Additionally, the CAISO adopted the Generator Interconnection and Deliverability Allocation Procedures (GIDAP) after its implementation of the TPP-GIP initiative. Under GIDAP, the largest and most important ratepayer-funded transmission upgrades for generator interconnection are no longer principally driven by the large amounts of potential generation entering the interconnection process, but rather are driven by the more comprehensive and inter-linked central resource and transmission planning processes. Overall, GIDAP and additional ongoing interconnection reforms provide greater flexibility and cost transparency for generation projects that participate in the interconnection process, and also incentivize timely exit of non-viable generation projects from the interconnection queue, providing better predictability of costs and timing for the remaining projects.

### Permitting

The IOUs have identified the permitting process for renewable generation as a barrier to meeting their RPS requirements due to its ability to impact the timeline for bringing renewable generation and transmission projects on-line. Permitting delays can occur at the county, state, and/or federal level, and are typically the result of environmental concerns, legal challenges, and public opposition. Renewable developers, particularly those of wind and solar projects, face challenges related to farmland designation and Williamson Act contracts, tribal and cultural resources areas, and protected species.

The uncertainty surrounding the availability and timely issuance of necessary permits creates downstream development risks for renewable project development including: scheduling challenges and corresponding problems with site control, financing, permitting, engineering, procurement and construction (EPC) contracts and supplier contracts. Section 399.19(b) of this report discusses steps being taken by the CPUC, CEC, and IOUs to address these permitting barriers.

### Developer Performance Issues

Achieving California's renewable energy goals is dependent on renewable developers meeting contractual obligations, timely completion of construction milestones, and RPS projects achieving commercial operation. Hurdles encountered during the project development process require developers to alter their milestone schedules, which can result in delays and contract terminations. For example, several renewable projects have been terminated due to developer performance issues such as: poor site selection, permitting delays, and the inability to complete the CAISO interconnection process in a timely and cost-effective manner.

To proactively address developer performance issues, the IOUs maintain constant communications with project developers, discuss options and the status of project development, and provide guidance and direction as appropriate. In response to lessons learned from previous project terminations, the IOUs have made several modifications to their solicitation materials. For example, some IOUs have created an option to have the IOU act as scheduling coordinator, allow for delivery points at the point of interconnection with the transmission

provider's electric grid, and tailored certain terms and conditions to address market changes in equipment availability and supply.<sup>32</sup> Additionally, the IOUs have collaborated with stakeholders in local communities to promote local support for renewable projects through renewable education programs.

### **Curtailment**

As more renewable generation achieves commercial operation, congestion at the transmission and distribution levels is increasing and curtailment events are becoming increasingly common. As a result of over generation in congested areas of the grid, renewable resources may drive down the market price for energy to the point that the market price is negative. Excessively low and negative power prices are intended to signal to generators to lower production when there is more generation than available transmission capacity (or load) in a particular area. However, some renewable contracts are structured in a way so that generators are insulated from these price signals. When price signals are not enough to entice generators to decrease their output to alleviate congestion on the grid, the CAISO may resort to curtailing generators for system reliability purposes. These curtailments could affect owners that operate renewable projects and their ability to maintain adequate revenue to service their debt. It may also negatively affect the future financing of projects under development.

The IOUs have been working on multiple fronts to mitigate the risk of curtailment. For instance, SCE has aggregated several large wind projects under a "physical scheduling plant" (PSP), which enables SCE to manage the projects as a single resource in CAISO markets. This gives plant operators the ability to optimize the output of the individual plants in order to follow dispatch instructions given at the aggregate level. SCE has also been working to increase coordination with generators during the construction phases of major transmission projects to minimize the duration of outages that will require curtailments. SCE has already had some success facilitating curtailment optimization at the distribution level, primarily by encouraging wind generators with advanced control systems to curtail on behalf of those with more basic technologies in exchange for a negotiated payment amount.<sup>33</sup>

### **Increasing Proportion of Intermittent Resources in RPS Portfolios**

Over the last several years, a large number of solar and wind projects have achieved commercial operation. The influx of intermittent renewable generation makes an IOU's forecasting of its RPS position and need more complex. Actual production from wind generators varies significantly from hour-to-hour, month-to-month, and year-to-year, thereby potentially exposing IOUs to large fluctuations in renewable energy deliveries. Solar production also varies over time depending on weather conditions and project performance, among other factors.

Given the number of intermittent resources expected to achieve commercial operation in the coming years, the IOUs are preparing to successfully integrate new wind and solar resources. For example, generation forecasting accuracy is being improved by collecting actual generation

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<sup>32</sup> SCE 2013 Draft RPS Procurement Plan, Page 15.

<sup>33</sup> SCE 2013 Draft RPS Procurement Plan, Pages 17-18.

data from new wind and solar resources and analyzing forecasted output versus actual production after-the-fact.



# APPENDIX A

Text of Section 399.19 of the Public Utilities Code

399.19. The commission, in consultation with the Energy Commission, shall report to the Legislature by January 1 of every even-numbered year on all of the following:

- (a) The progress and status of procurement activities by each retail seller.
- (b) The status of permitting and siting eligible renewable energy resources and transmission facilities necessary to supply electricity generated to load, including the time taken to permit each eligible renewable energy resource and transmission line or upgrade, explanations of failures to meet permitting milestones, and recommendations for improvements to expedite permitting and siting processes.
- (c) The projected ability of each electrical corporation to meet the renewables portfolio standard procurement requirements under the cost limitations in subdivision (d) of Section 399.15 and any recommendations for revisions of those cost limitations.
- (d) Any barriers to, and policy recommendations for, achieving the renewables portfolio standard pursuant to this article.