

**Electric Generation Workpapers**  
**Jeff Huang**  
**SDG&E/SoCalGas 2013 TCAP**

The electric generation forecast is based on an analysis of the plant's operation in the western electric market using the Market Analytics model from Ventyx. Market Analytics has been used by SoCalGas in previous applications before the Commission. This workpaper includes both the input assumptions and results.

**Workpaper List**

**Link to CEC Load Forecast**

See Form 1.1c and Form 1.5a of CEC's Preliminary California Energy Demand 2012-2022, August 2011. Attached file, *workpapers-jch.xlsx*, tab *Form1.1c* and tab *Form1.5a*. To view the total CEC report, you can find it by clicking the link below.

<http://www.energy.ca.gov/2011publications/CEC-200-2011-011/CEC-200-2011-011-SD.pdf>

To view the electric demand Mid-Demand Case forms, click on the link below.

[http://www.energy.ca.gov/2011\\_energypolicy/documents/2011-08-30\\_workshop/mid-case/](http://www.energy.ca.gov/2011_energypolicy/documents/2011-08-30_workshop/mid-case/)

**Load forecasts for Rest of WECC**

For outside of California, load data were based on Ventyx's most recent update of peak and energy. For the most part, Ventyx acquired the data from other utilities' resource plans. The load profiles are based on the average of 7 historical years.

**Renewables**

**Existing and Future Renewable Assumption**

Please see attached file-tab, *workpapers-jch.xlsx-renewables*.

**References for LADWP** – see attached file (*ladwp014540.pdf*)

**References for SMUD** – see attached file (*smud\_rps.pdf*)

**Throughput Forecasts data**

Please see the consolidated gas demand forecast in Bruce Wetzel's workpapers. For SoCal Gas data, please refer to his files *ScgLgCoGen-UEG-EWG\_WriteUp\_BMW\_2013Tcap.doc* and *Scg\_G50-*

*UEG\_EWG\_LgCogen\_BMW(12Oct2011)\_WP.xls*. For the SDG&E EG data, please refer to his file; the data are embedded *Sdge\_EG-PowerPlant\_JCH(12Oct2011)\_WP.xls*.

**Peak Day forecasts data**

Please see attached file, *workpapers-jch.xlsx*, under *winter peak* tab.

**Spread Sheets on Sensitivities**

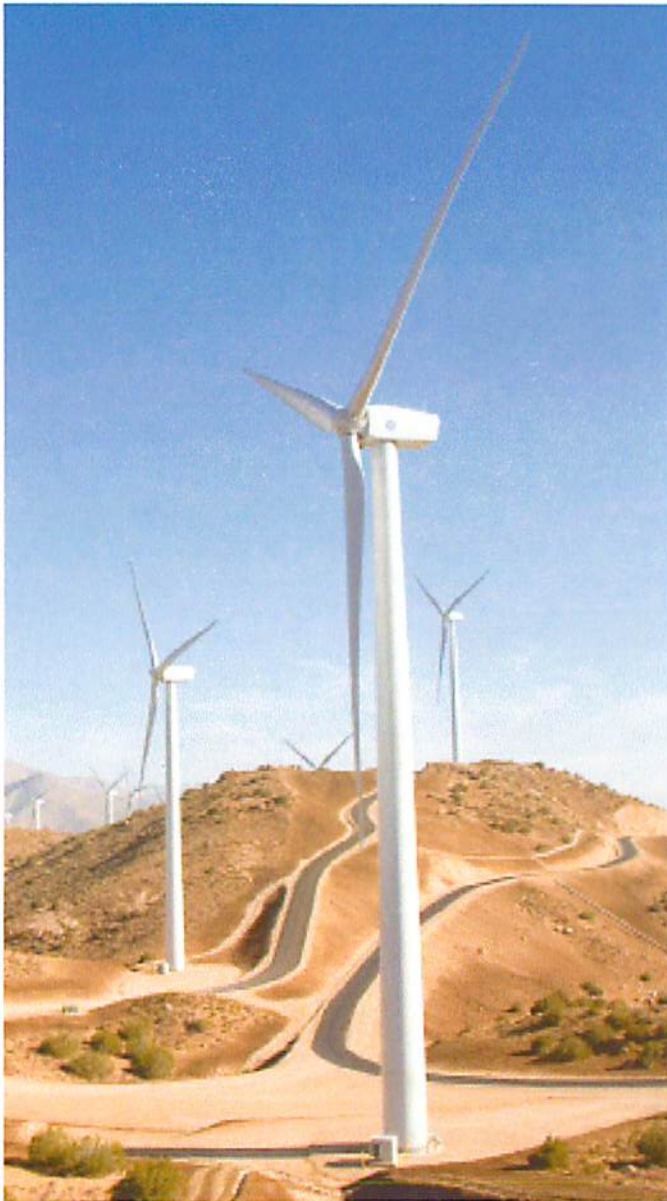
Please see attached file, *workpapers-jch.xlsx*, under *sensitivities* tab for gas volume sensitivities due to weather and renewable resource uncertainties.

**CEC spread sheet on weather variability**

Please see attached file, *workpapers-jch.xlsx*, under *weather* tab *weather adjustment* tab.



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**LOS ANGELES DEPARTMENT OF WATER & POWER (LADWP)**

# **RENEWABLE PORTFOLIO STANDARD: LADWP BOARD WORKSHOP**

August 2011





## AGENDA - Presentation Topics

- RPS
  - Portfolio
  - Lessons Learned
- RPS – The Future
  - SBx1-2 / SB-23 Overview – Future RPS Targets
  - Project Evaluation Principles
- RPS Near Term Actions
  - BioGas Procurement
  - Wind Project Procurement
  - RPS Policy Modifications
- RPS Future Opportunities / Challenges

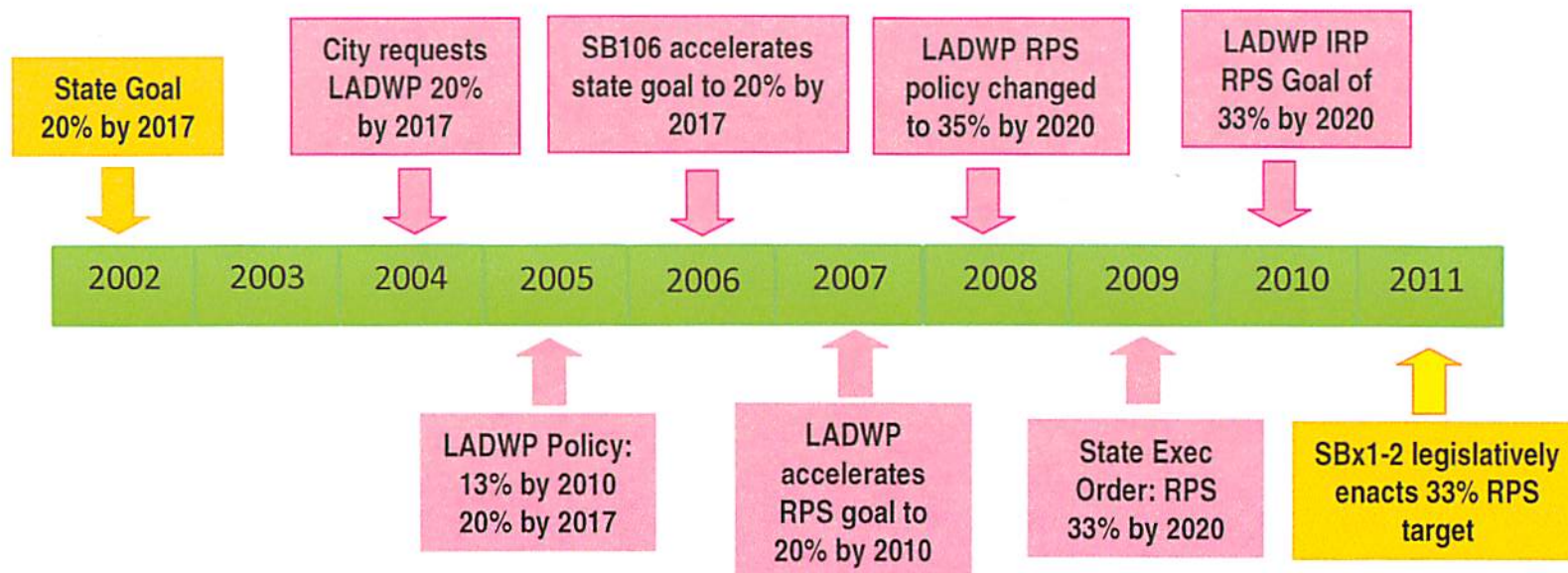




# RPS Policy History

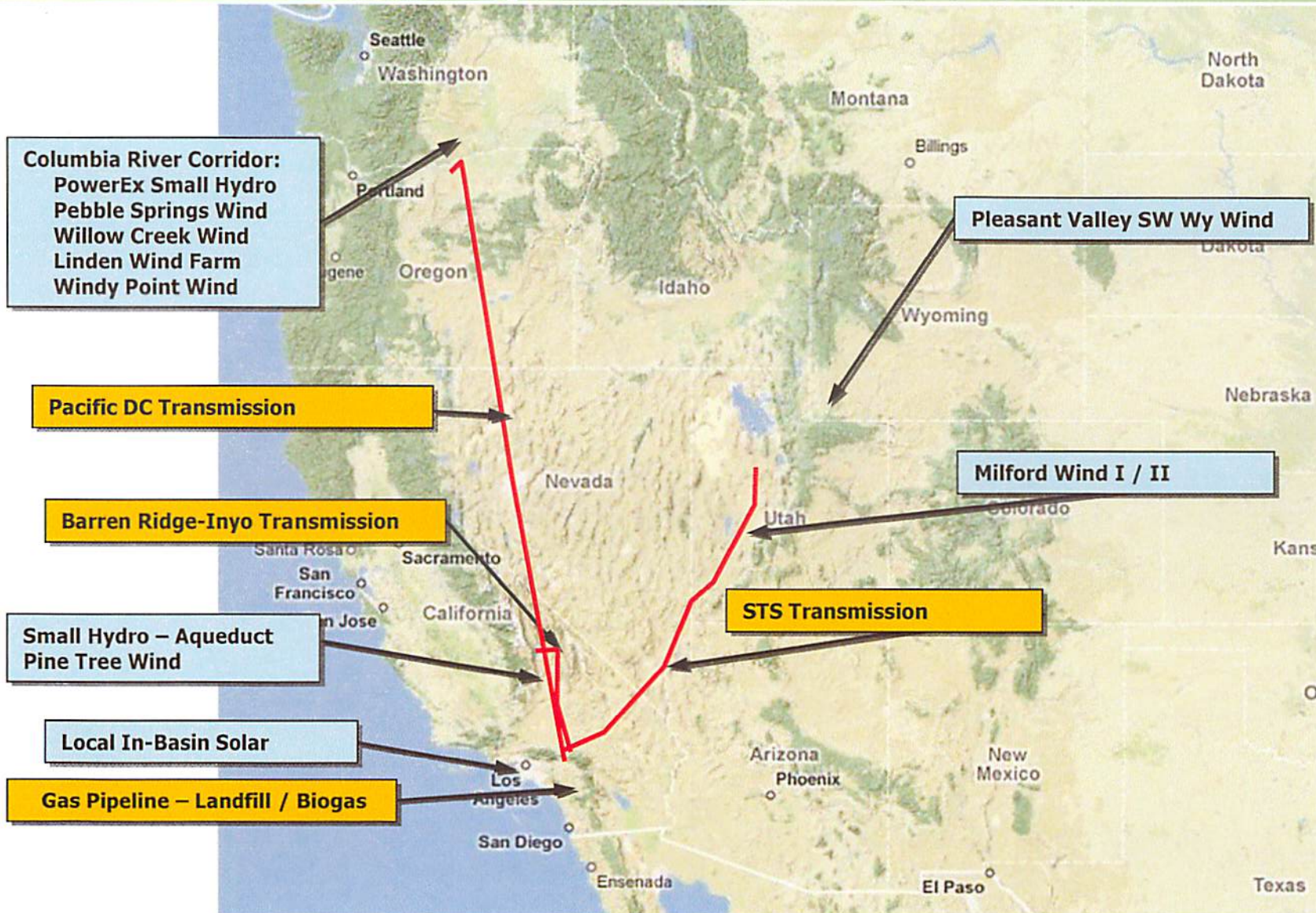
- In 2002, the California Legislature passed Senate Bill 1078 that established the California Renewables Portfolio Standard,
- Progressively, the RPS goals have increased:

## Timeline





# Renewable Projects Regional Map





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# DWP Acquisition of Renewable Energy Projects

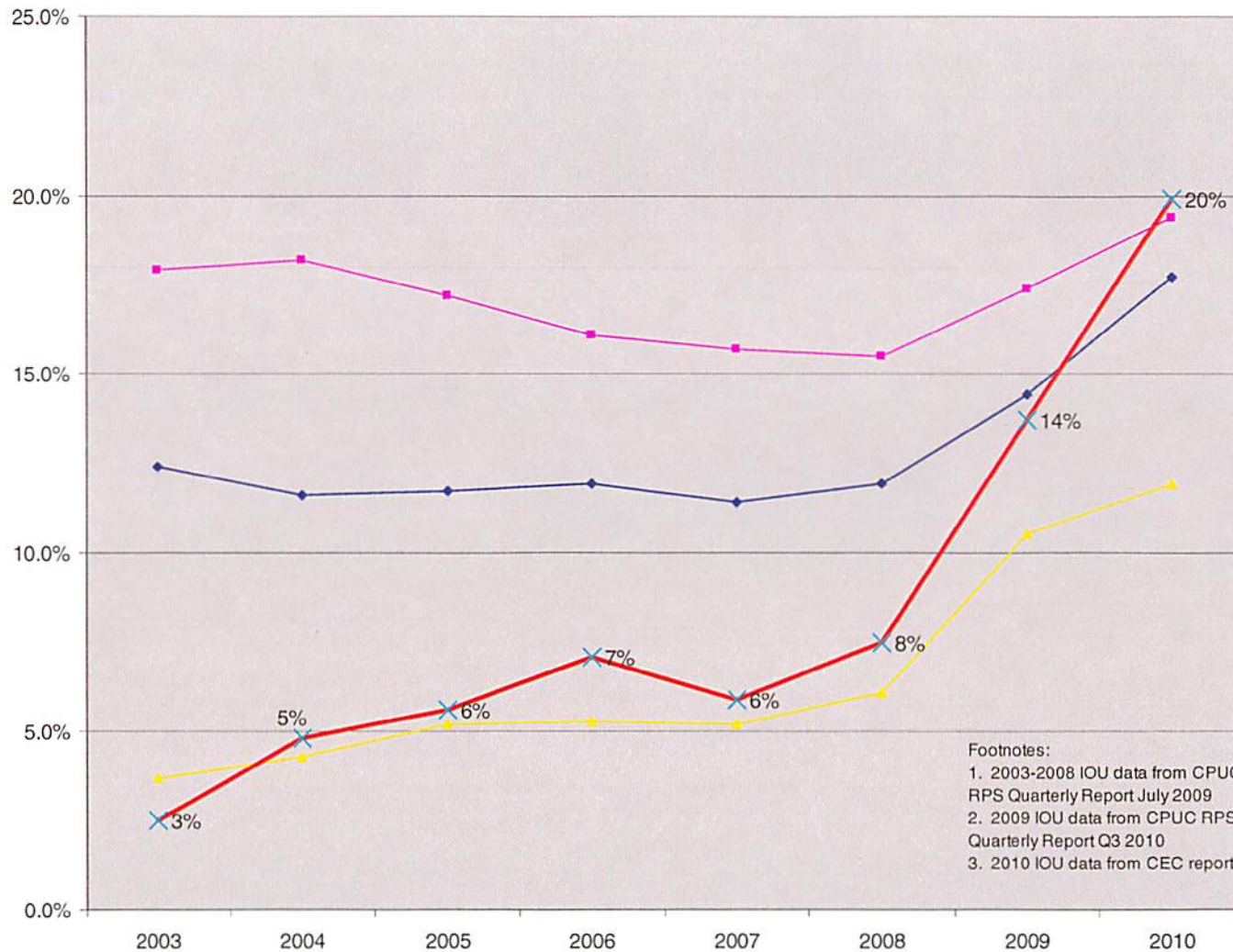
- Self- Development
  - LADWP has developed its own RPS projects, including the Hydro projects along its Aqueduct system, utilizing digester gas at Scattergood from Hyperion Treatment Plant, Landfill gas at Lopez Canyon, Solar PV installations, and the Pine Tree Wind project
- Power Purchase Agreements (PPA's)
  - Additional RPS projects are acquired through a Request for Proposal (RFP) process. Both LADWP and the Southern California Public Power Authority (SCPPA), of which LADWP is a member, solicit RPS projects via RFPs.
  - Recent Wind PPAs include Windy Point, Linden, Willow Creek and Pebble Springs in the Pacific Northwest, Milford Phase 1 and 2 in Utah, and Pleasant Valley in Southwest Wyoming.





# LADWP RPS Progress vs. CA IOU's

LADWP vs. IOU - RPS Percentages



LADWP was successful by focusing only on projects with a high confidence of completion, doing great amounts of due diligence, and emphasizing actual energy delivery vs. simply the quantity of contracts.

- PG&E
- SCE
- SDG&E
- LADWP

Footnotes:  
 1. 2003-2008 IOU data from CPUC RPS Quarterly Report July 2009  
 2. 2009 IOU data from CPUC RPS Quarterly Report Q3 2010  
 3. 2010 IOU data from CEC report





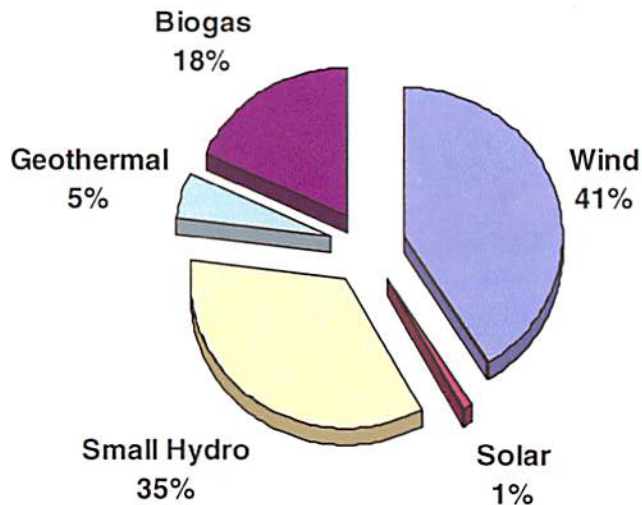
# Renewable Portfolio Standard (RPS)

## Renewable Resource Portfolio - 2010

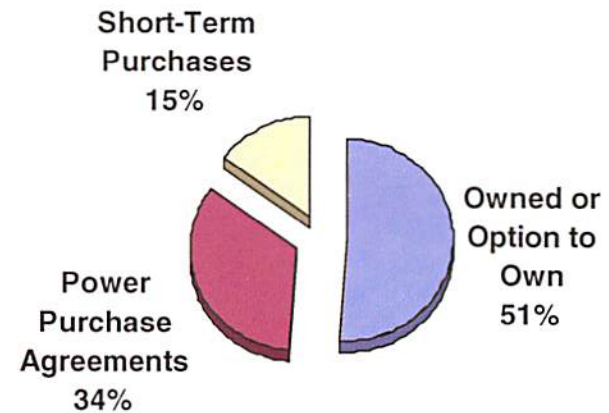
Type of Resource

Ownership Options

RPS 2010 Percentages



Type of Ownership



\*Power Purchase Agreements (PPA) expire between 2015 and 2025.

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# LADWP Wind Projects

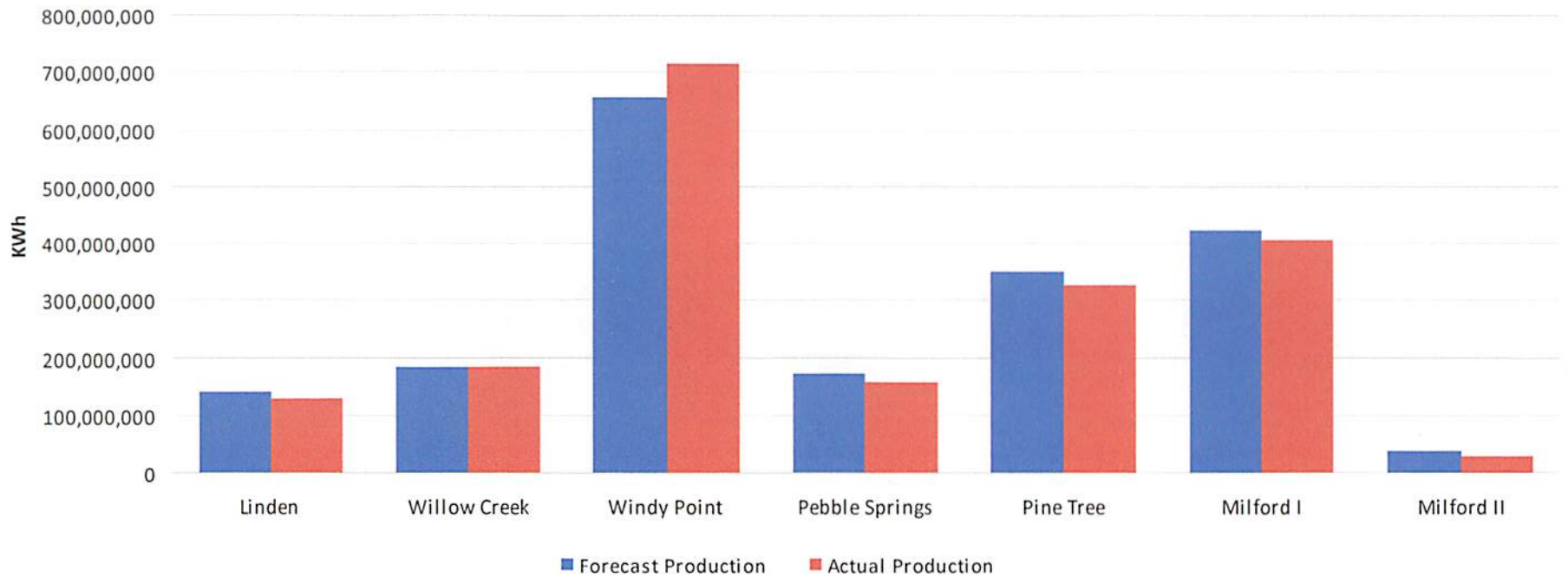
LADWP's Wind Projects (LADWP's Share Only)

	<u>PPM Wyoming</u>	<u>Willow Creek</u>	<u>Pebble Springs</u>	<u>Pine Tree</u>	<u>Linden Ranch</u>	<u>Windy Point</u>	<u>Milford I</u>	<u>Milford II</u>
Nameplate Capacity (MWs)	82.2	72.0	68.7	135.0	50.0	262.2	185.0	102.0
Commercial Operation Date	7/1/2006	12/1/2008	1/30/2009	7/1/2009	6/30/2010	3/1/2010	11/16/2009	5/2/2011
Location	Uinita, WY	Gilliam, OR	Arlington, OR	Tehachapi, CA	Goldendale, WA	Klickitat, WA	Milford, UT	Milford, UT
Expected Annual MWs (P50)	233,303	197,300	192,580	381,539	145,416	693,881	434,321	217,000
Deal Structure	PPA through SCPPA	Direct PPA	PPA through SCPPA	Direct Ownership	Ownership through SCPPA	PPA through SCPPA, with Pre-pay, Ownership, and Buy-out Provisions	PPA through SCPPA, with Pre-pay, Ownership, and Buy-out Provisions	PPA through SCPPA, with Pre-pay, Ownership, and Buy-out Provisions



# Wind Project Performance

### Forecast Production vs Actual Production (July 2010 - June 2011)



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## LADWP Wind Projects – Site Photos



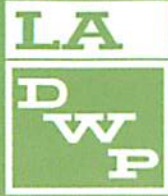
Windy Point / Linden – Washington



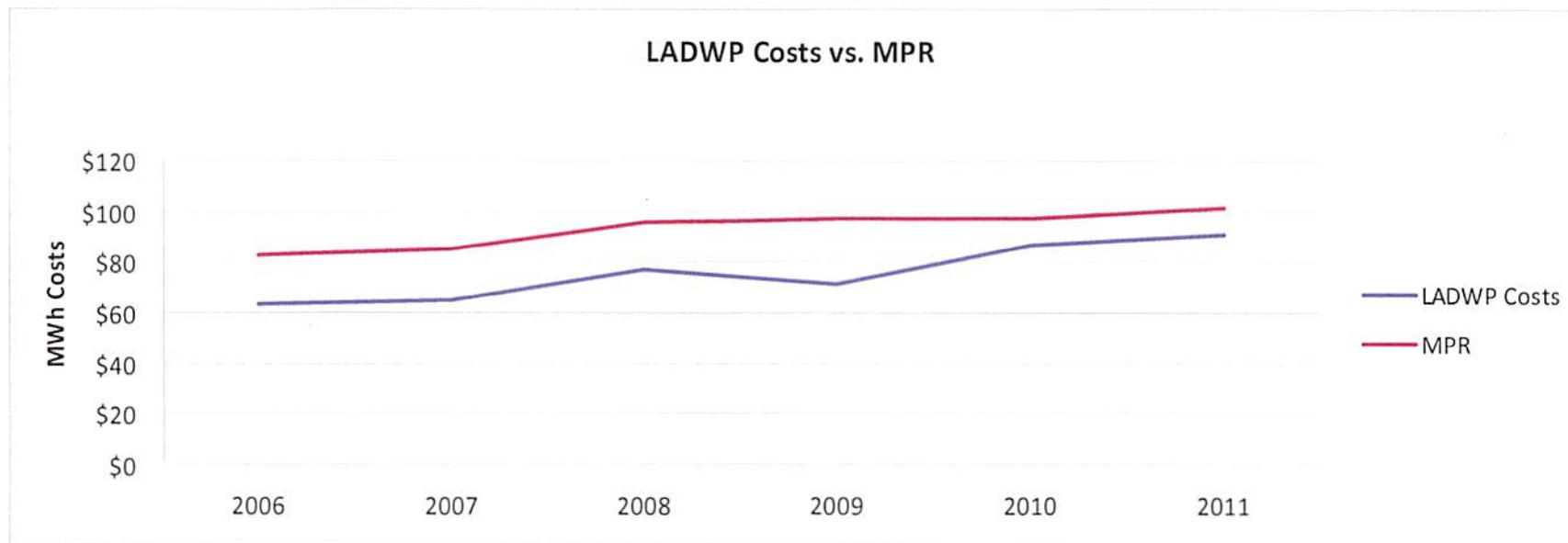
Pine Tree - California



Milford Phase 1 & 2 - Utah



## Historical LADWP Wind Project Costs versus Market Price Reference (MPR)

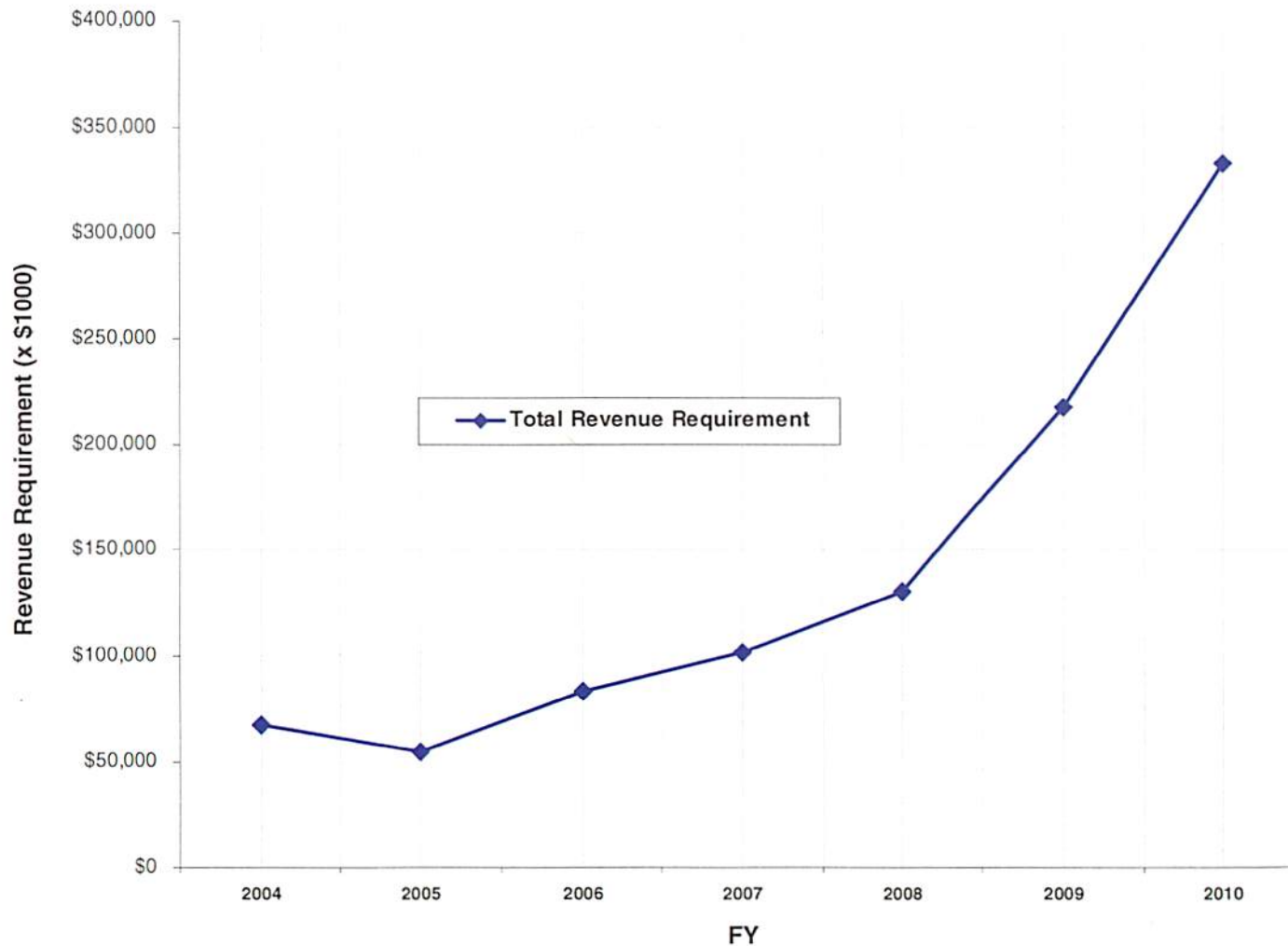


### NOTES:

- All levelized MWh costs are assuming no Early Buyout Option (EBO)
- Neither the LADWP Costs nor the Market Price Reference (MPR) comparisons include transmission, shaping, integration nor imbalance charges.



## LADWP HISTORICAL RPS REVENUE REQUIREMENT





1. System Integration for renewables is an important consideration.
  - BPA in the Northwest, LADWP system in CA and UT
2. Transmission / Energy Delivery is a challenge.
  - Firming/Shaping products are useful to maximize transmission usage
3. Weather forecasting is crucial
4. Benchmarking project performance and O&M costs
5. RPS Audit highlighted the need to integrate RPS cost accounting with the IRP, Budget, and Financial Plans
6. Renewable technology types have different value considerations
7. PPA contract negotiations are difficult and time-consuming
8. RPS must be an integral part of the IRP process



# The RPS Future: SBx1-2 RPS Targets and “Bucket” OVERVIEW NEW STATE LAW APPROVED APRIL 12, 2011

Utilities can procure RPS energy under three different procurement classifications (commonly referred to as “buckets”) for those agreements executed on or after June 1, 2010.

Agreements entered into prior to this date are “grandfathered” as eligible.

- Bucket 1: In-state projects or directly connected to DWP
- Bucket 2: Firmed & Shaped products delivered through other systems
- Bucket 3: Unbundled/REC-Only deals

There are varying thresholds for each of the “buckets:”

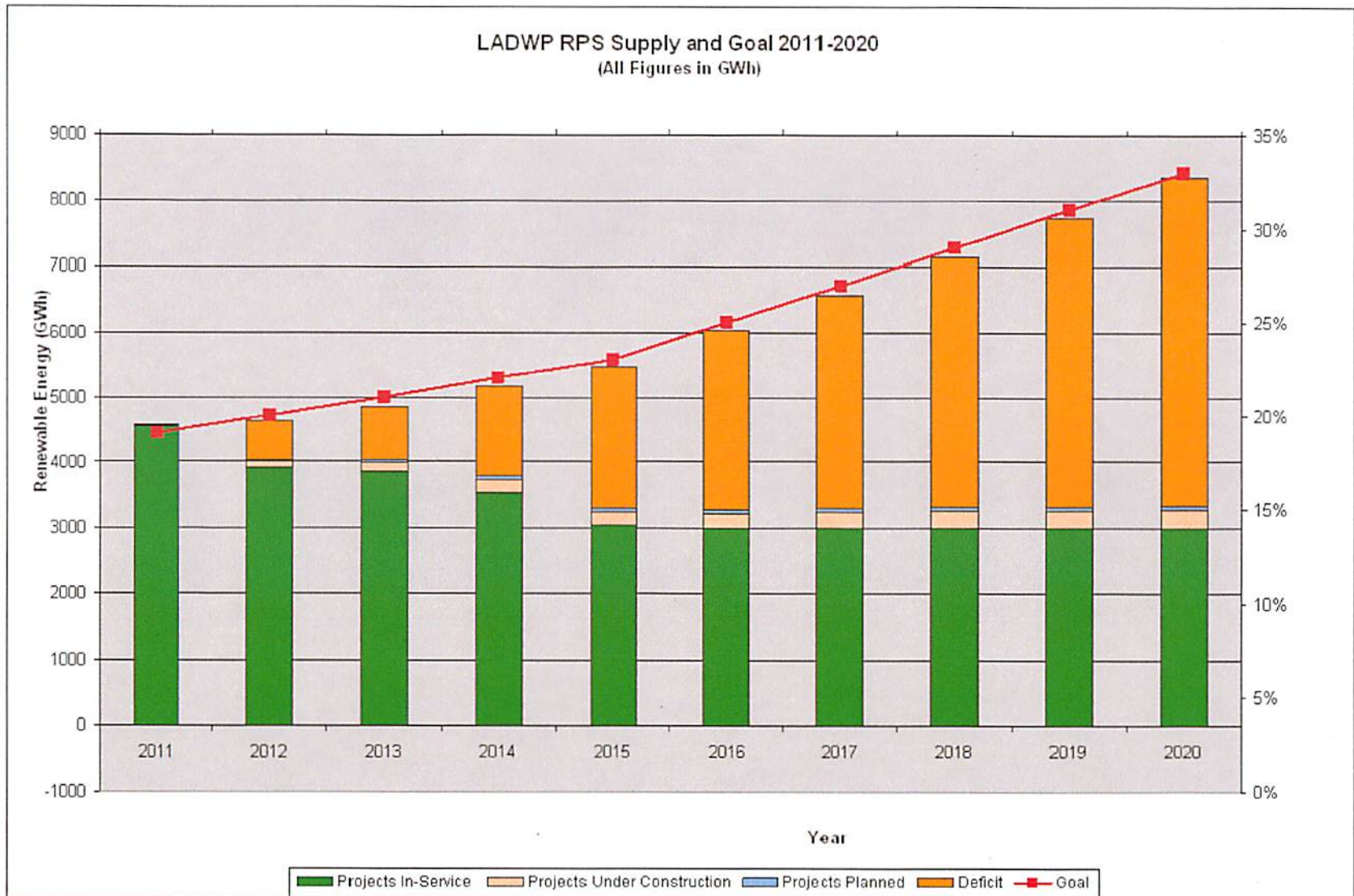
Compliance Period	Minimum % for Bucket 1	Maximum % for Bucket 3
Jan 1, 2011 – Dec 31, 2013 (RPS Target: <b>20%</b> )	50%	25%
Jan 1, 2014 – Dec 31, 2016 “Reasonable progress” to ensure <b>25%</b> renewable energy by the <i>end</i> of this period	65%	15%
Jan 1, 2017 - Dec 31, 2020 “Reasonable progress” to ensure <b>33%</b> renewable energy by the <i>end</i> of this period	75%	10%

These additional “buckets” and the associated limitations will impact the market availability of RPS projects.





# RPS Strategy & Goals





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## Renewables Portfolio Standard – Requests for Proposals History

- To help meet the renewable energy goals for the RPS policy, LADWP has issued four major requests for proposals (RFP) for renewable energy projects,
  - 2001
  - 2004
  - 2007
  - 2009
  - In response to these RFPs, almost 200 projects were proposed.
- Separately, the Southern California Public Power Authority (SCPPA), of which LADWP is a member, has also issued renewable energy project RFPs
  - 2005, 2006, 2008, 2009, and 2010
- The latest SCPPA RFP renewable energy project RFP closed in January 2011.
  - In this process, over 200 additional responses are being evaluated. A short-list is being developed in conjunction with other SCPPA members.
  - This RFP received 13 biogas proposals totaling 70MW, 12 biomass proposals totaling 570MW, 10 geothermal proposals totaling 520MW, 52 solar proposals totaling 9300MW, and 125 wind proposals totaling 14400MW.

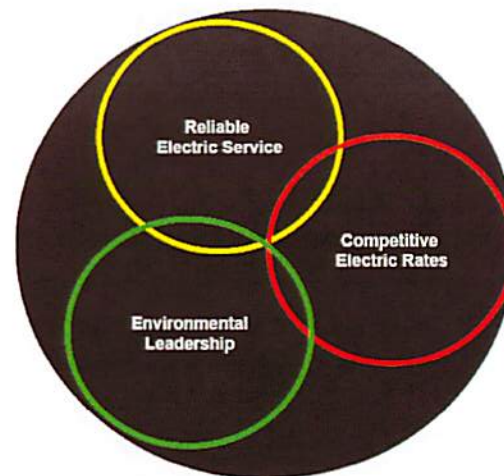


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# RPS Principles

(from 2010 IRP)

1. Geographic Diversity of projects is important
2. Maximize use of existing LADWP transmission & land
3. Maintain options/flexibility
4. Regionally “cluster” renewable projects to achieve operation and main
5. Ownership of projects using proven technology is part of the current RPS Policy





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## RFP Evaluation Process

### **RPS Gates includes:**

- Resource Diversity
- Ownership Options
- Project Size
- Utility Scale Project Experience

*A project under evaluation needs to pass through these gates, before consideration for full scoring and short listing.*

### **RPS Scoring Criteria includes:**

- Geographic Diversity
- Experience/Completion/Compliance Confidence
- Delivery at LADWP Balancing Authority / Project Clustering
- Labor
- SBx1-2 / SB23 RPS Bucket Allocation
- Firm Transmission Rights or Availability
- Pricing



## RPS – Near Term Actions

- Actions are needed to maintain the 20% RPS target, to fill the “deficit” in 2012-2014
- RPS Near Term Actions → **Recommendations**
  - BioGas Procurement
  - Wind Project Procurement
  - Feed-in-Tariff (FIT) Program Development (presented to Board on July 6<sup>th</sup>)
  - Solar Incentive Program Guideline Modifications (presented to Board on July 6<sup>th</sup>)
  - RPS Policy will need to be amended by 12/31/2011 to incorporate interim SBX 1-2 targets, subject to final rule adoption



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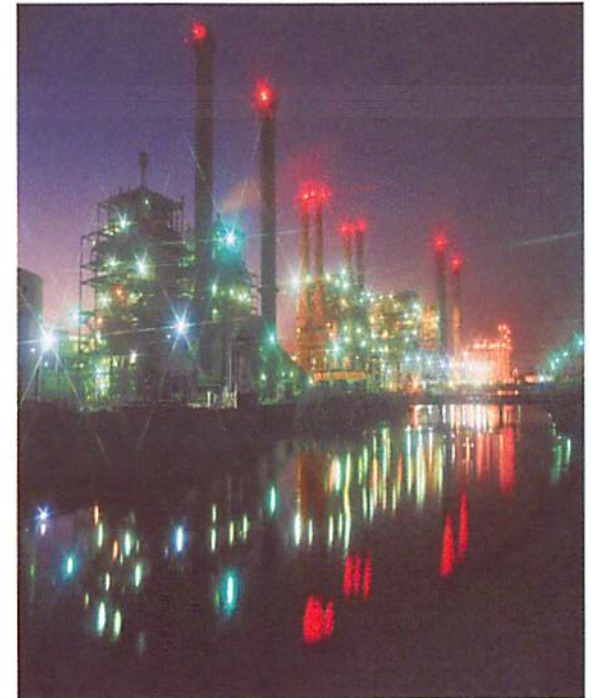
## Recommendation - Biogas

### Procure additional Biogas for use in existing In-Basin Power System Generation – Haynes & Valley GS

#### Biogas / Bio-Methane / Landfill Gas

Counts as In-State Renewable Energy

- Approximately 520GWh/year equivalent of gas is currently available (~ 2% RPS)
- 10-year term proposed, also has hedging component
- Flexible dispatchable usage, supplements natural gas
- Easy to integrate, no transmission cost
- In-Basin Generation as renewable, multi-fuel facilities
- Low Cost Option biogas fuel equivalent to low-\$90's/MWh





## Recommendation: Gas Procurement Ordinance Change

DWP authority for making long term gas purchases is provided in Administrative code Section 10.5.3

- Authority is currently limited to five years in duration and maximum price of \$10/MMBtu for natural gas
- Current authority is specific to natural gas although might be interpreted to include biogas
- It was decided to specifically include biogas in the current authority to eliminate ambiguity

Changes being sought for 10.5.3 are minimal:

- Specifically include biogas in 10.5.3 authority
- Define biogas to include landfill gas, digester gas and like gases; called “Gas” for physical purchases
- Increase the price limit for biogas only, to \$20/MMBtu to reflect market reality
  - Increase the term limit for biogas deals only, from five to ten years again to reflect market reality
  - No changes to authorities for physical natural gas purchases
  - No changes to authorities for financial transactions for natural gas (hedging program)

CAO’s office has been briefed / ED4 package prepared

Potential of using amended authority in conjunction with SCPPA biogas effort

Discussions underway with viable biogas producers in anticipation of success in amending 10.5.3



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## Recommendation – Wind Projects

Attractive Wind Project proposals are available, however:

- Approval Deadlines loom
  - To obtain section 1603 tax grants, projects must be in service by December 31, 2012 and requires construction to commence by the end of this year 2011, by either physically starting site construction or incurring project expenses of at least 5% of project cost (“safe harbor” provisions)
  - To meet this criteria, developers require an approved PPA by September 2011







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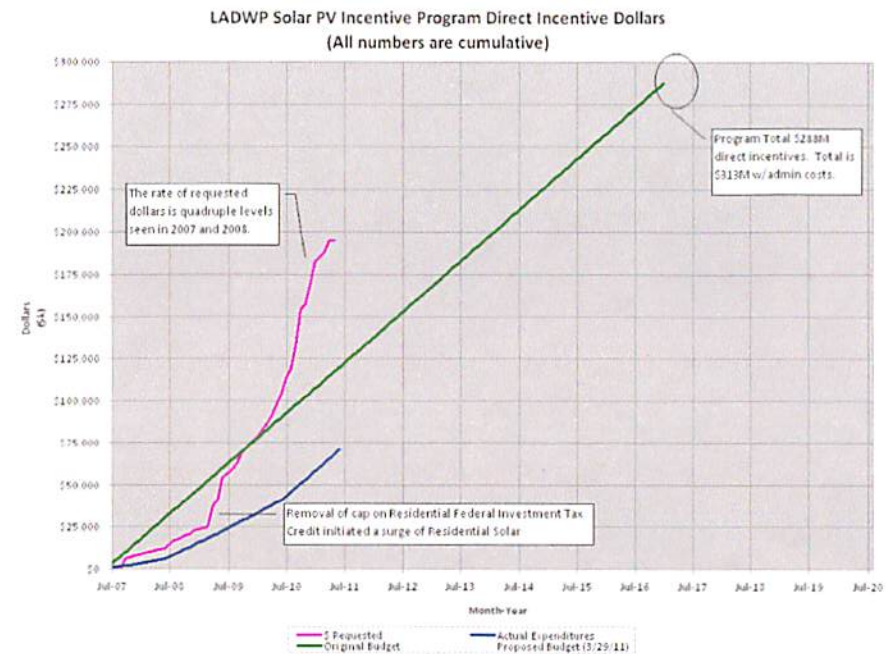
## Recommendation: Feed-in Tariff Guiding Principles

- LADWP's 2010 Integrated Resource Plan proposes a 150MW FiT program
- SB 32 requires LADWP to offer a 75 MW FiT for distributed renewable energy development with no set deadline
- Community outreach conducted in Spring 2011 showed continued strong support for FiT program and general consensus on Guiding Principles:
  - Establish cost controls and best price for customers overall
  - Ensure projects will be built
  - Maintain reliability of electric grid
  - Provide for steady program growth over time
  - Program should have a streamlined and clear participation process
- Major issues identified in public workshops conducted in July 2011:
  - Pricing
  - Carve Outs for small installations
  - Interconnection Costs
- FiT Rollout Plan: 5MW Demo in late 2011  
75MW installed by December 31, 2016



# Recommendation: Solar Incentive Program Modifications

- LADWP's Customer Solar Incentive Program has been overwhelmingly successful since early 2009 when Federal tax laws changed.
- Requests for incentive funds have recently outpaced the annual budget by 3 times.
- On April 8, 2011 the program was suspended for at least 90 days for receiving new project applications.
- During the suspension the program will continue to process projects that have already applied for an incentive reservation.
- During the suspension, staff, with public input, will be recommending program modifications such as:
  - Implement PowerClerk software to improve and automate the application process
  - Modify Incentive Levels to accommodate existing solar markets
  - Incorporate new safety standards
  - Modify other sections of the guidelines to improve the program





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# Utility Built Solar Program



## Local Solar Projects

- 2MW on LADWP and POLA rooftops.
- 10MW on existing covered reservoirs.
- Groundmount solar where applicable.

## High Desert Solar at LADWP Facilities

### **Pine Tree Solar Project**

- 8.6 MW fixed-groundmount photovoltaic solar panels
- Constructed within existing Pine Tree Wind Farm (Kern County)
- In-service 2<sup>nd</sup> Quarter 2012

### **Adelanto Solar Project**

- 10 MW, fixed-groundmount photovoltaic solar panels
- Constructed within Adelanto Switching Station (San Bernardino County)
- In-service 2<sup>nd</sup> Quarter 2012

***Both projects utilize existing utility infrastructure to minimize cost and received low interest financing from Qualified Energy Conservation Bonds.***

# Geothermal Opportunities

- The 2010 IRP identified the development of 160 to 320 MW of geothermal energy in the DWP resource mix in the next 5 to 10 years.
- DWP is working with IID and SCPA in a joint effort to explore geothermal resource in the DWP and IID owned lands in Imperial County, California. Target capacity: 50MW-200MW, Target COD: 2017-2019.
- DWP is assessing geothermal resource potential in DWP controlled lands in the Owens Valley area.

Geothermal energy is energy derived from the natural heat of the earth.

#### Key Points

- High Capital Costs
- High Capacity Factor >90%
- Base load Operable
- Limited resource

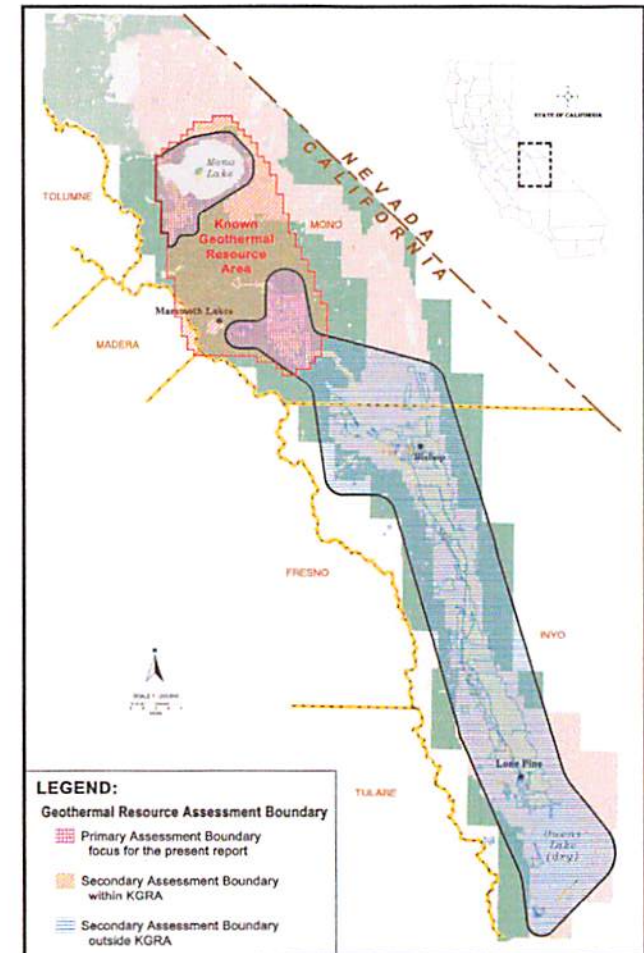
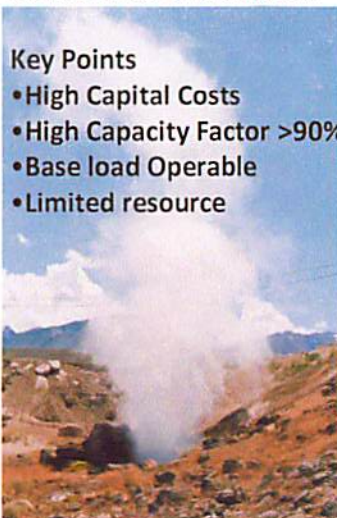


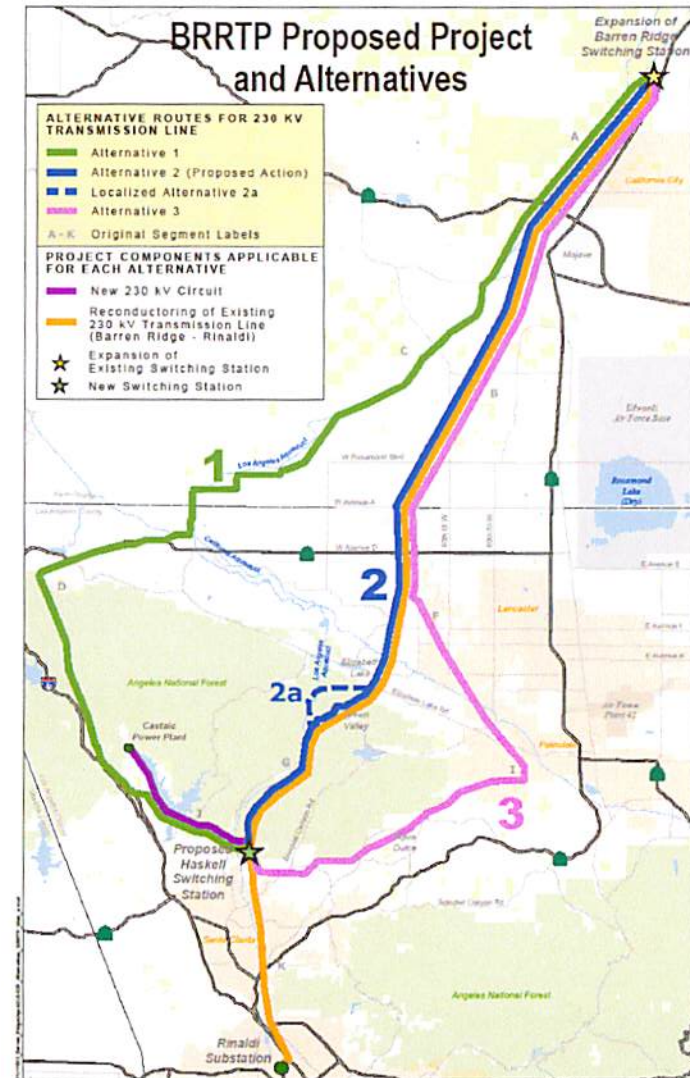
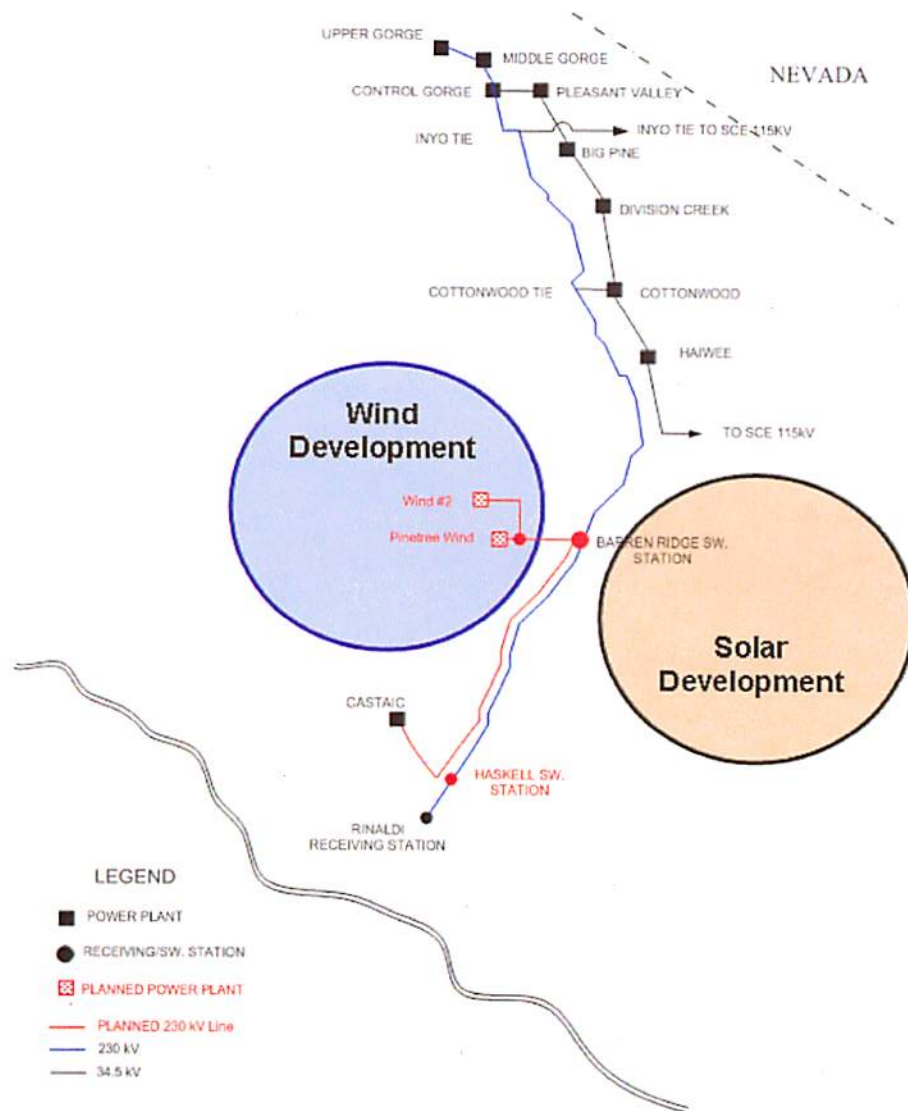
Figure 2: Owens Valley Geothermal Resource Assessment Boundary

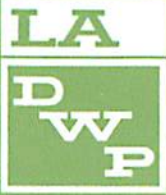


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# Barren Ridge Renewable Transmission Project Owens Gorge / Inyo - Rinaldi Transmission System

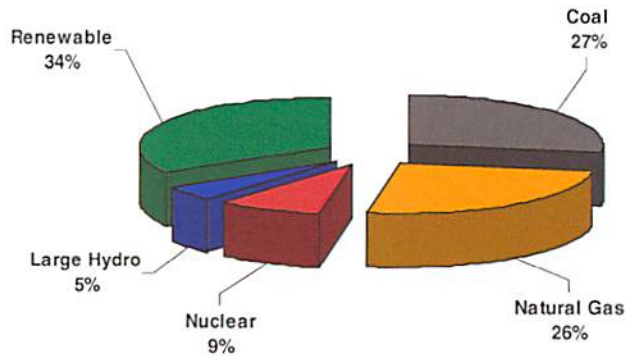
## OWENS VALLEY TRANSMISSION SYSTEM



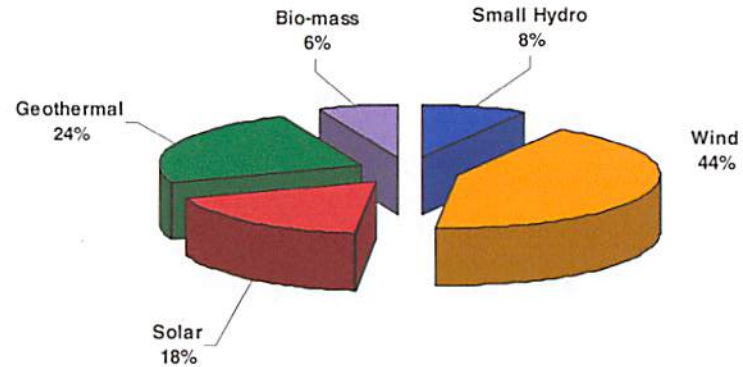


# Projected 2020 Resource Mix

2020 Energy Mix



2020 RPS



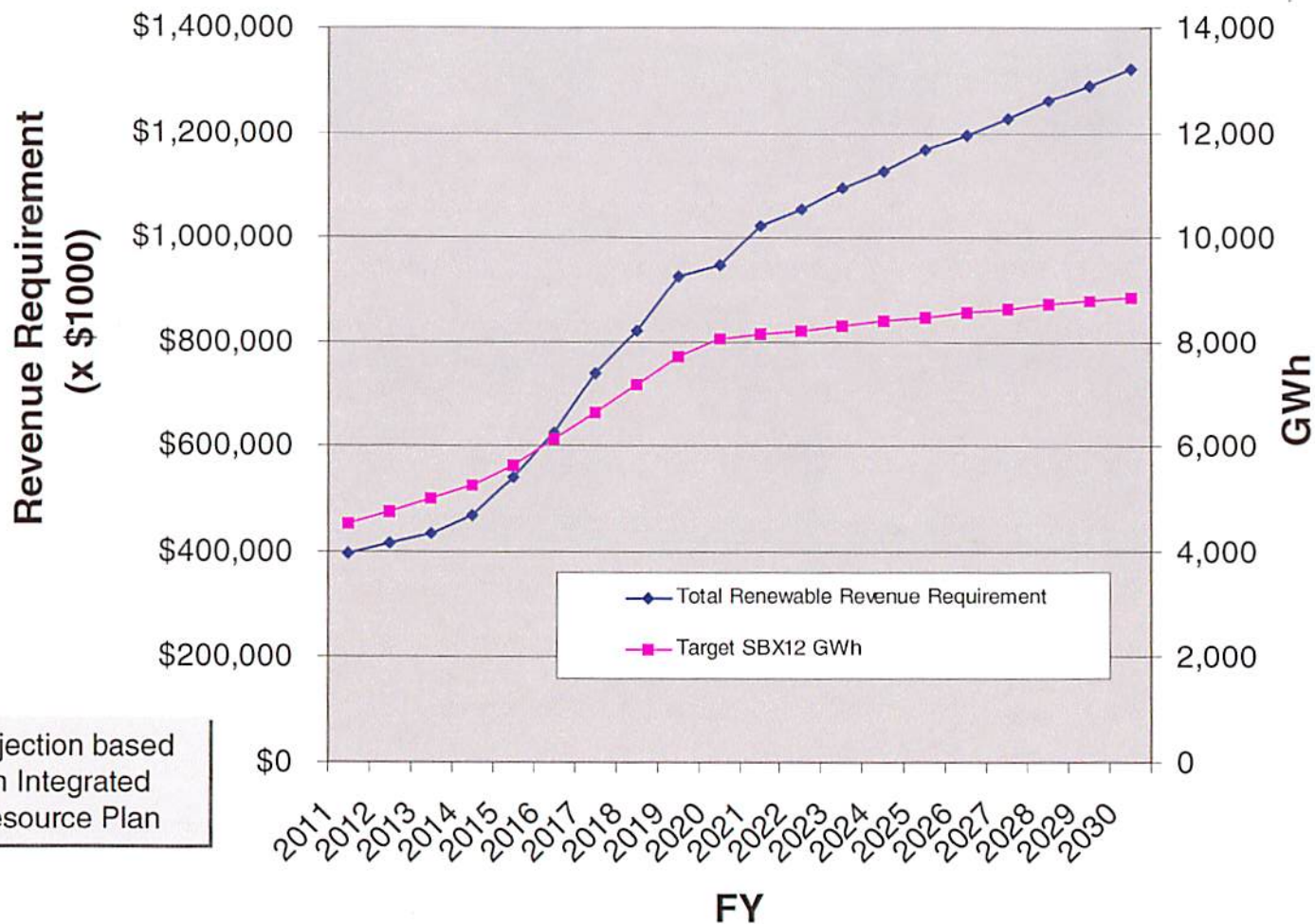
LADWP Energy Mix

RPS by technology

Note that Coal is being reduced from 39% to 27% as shown



### LADWP RPS REVENUE REQUIREMENT



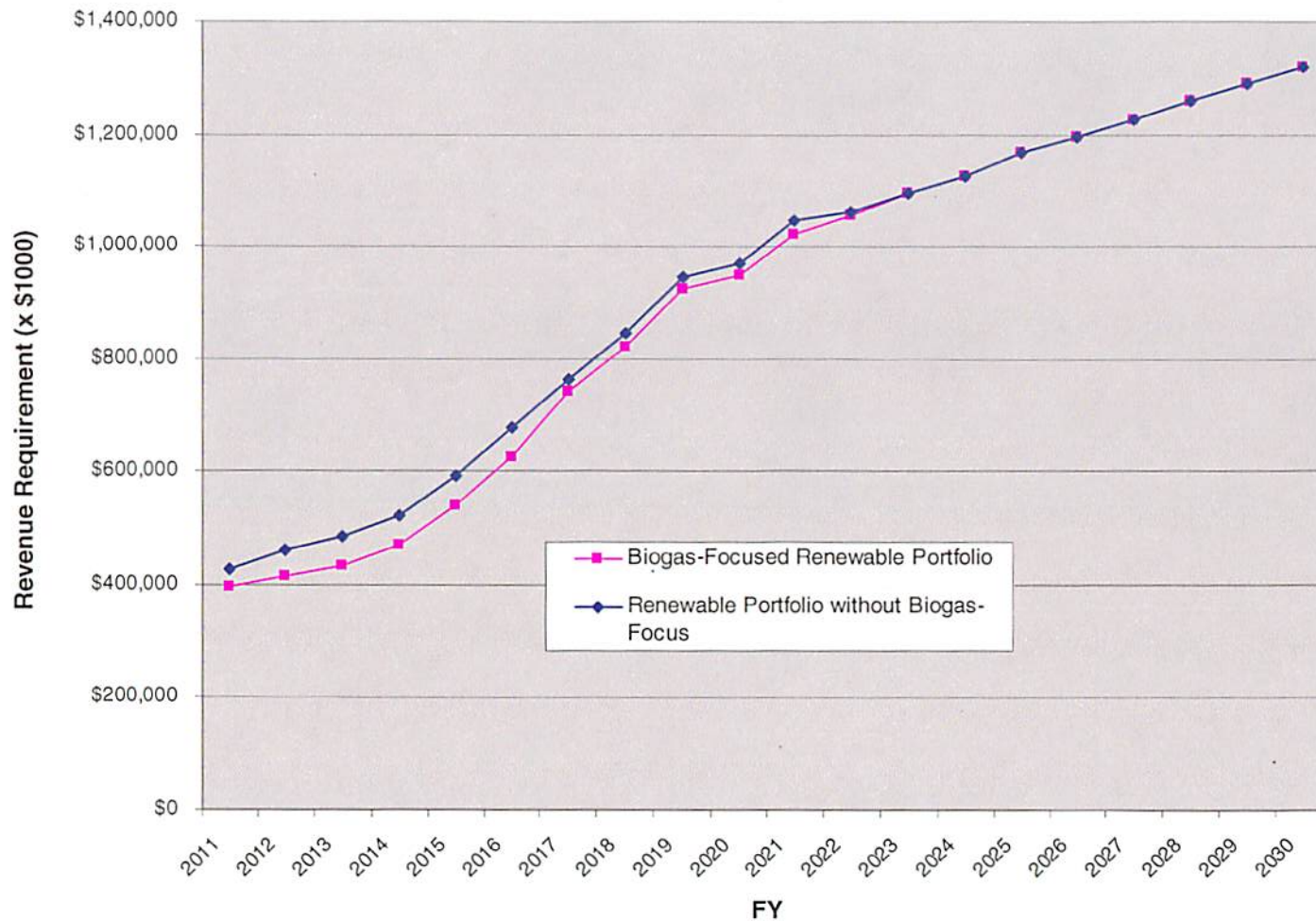
Projection based on Integrated Resource Plan



# Long-Term Costs

## Bio-Gas Focused Recommendation vs. No new Biogas

### LADWP RPS PLAN







# Renewable Energy at SMUD

California Geothermal Energy Collaborative

May 10, 2010

*Elaine Sison-Lebrilla*

*Sacramento Municipal Utility District*

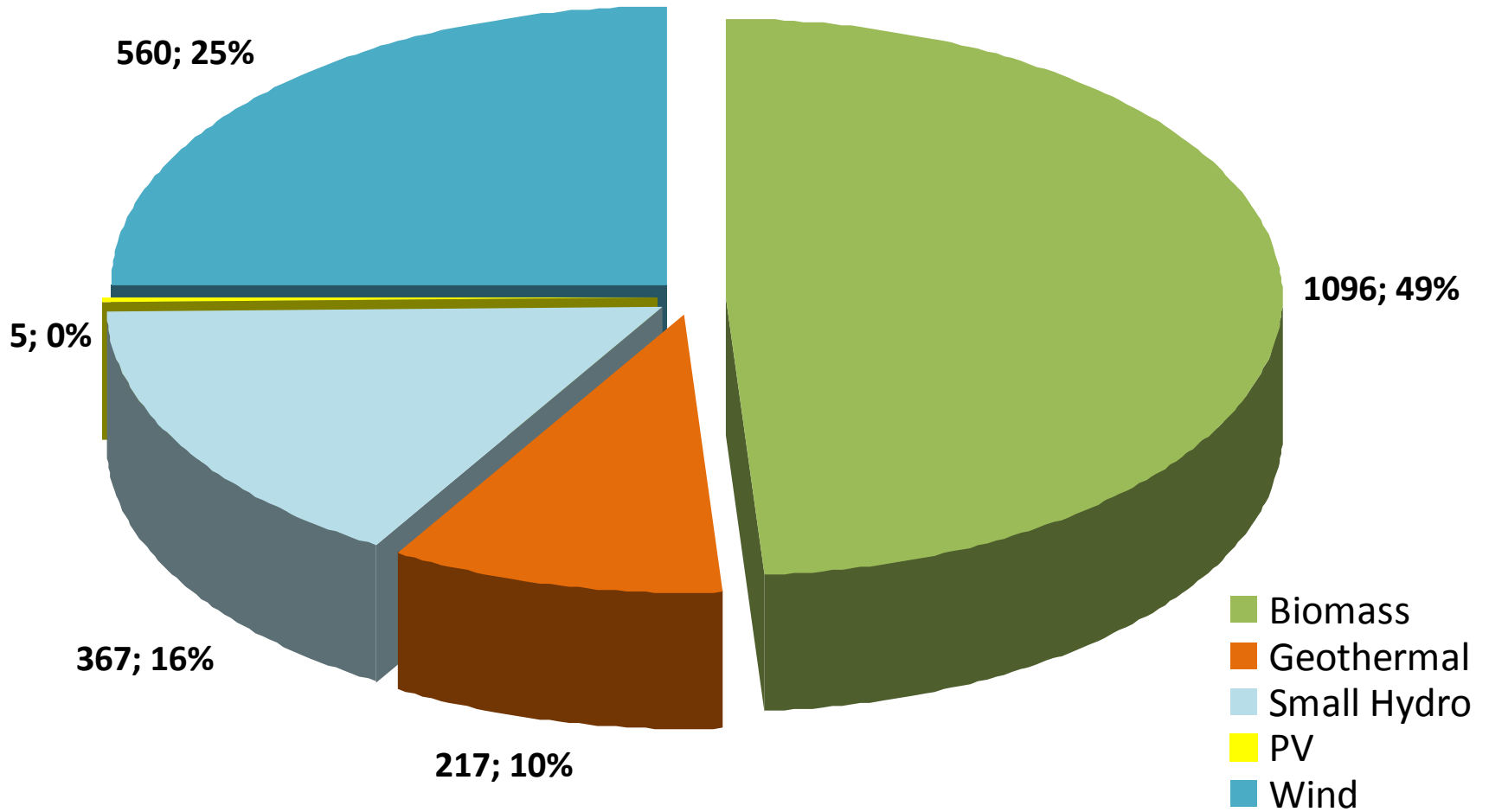
# RENEWABLES GOALS

- SMUD's Board of Directors adopted aggressive Sustainability Goals: GHG Reductions by 2050, Energy Efficiency, and Renewable Supply Targets for 2010 & 2020

Renewable Energy Program	2009 Supply Goal	2009 Actual (est.)	2010 Goal	2020 Goal
RPS	15.5%	17.9%	20%	33%
Greenergy	3.5%	3.5%	3.5%	4%
Totals	19%	21.4%	23.5%	37%

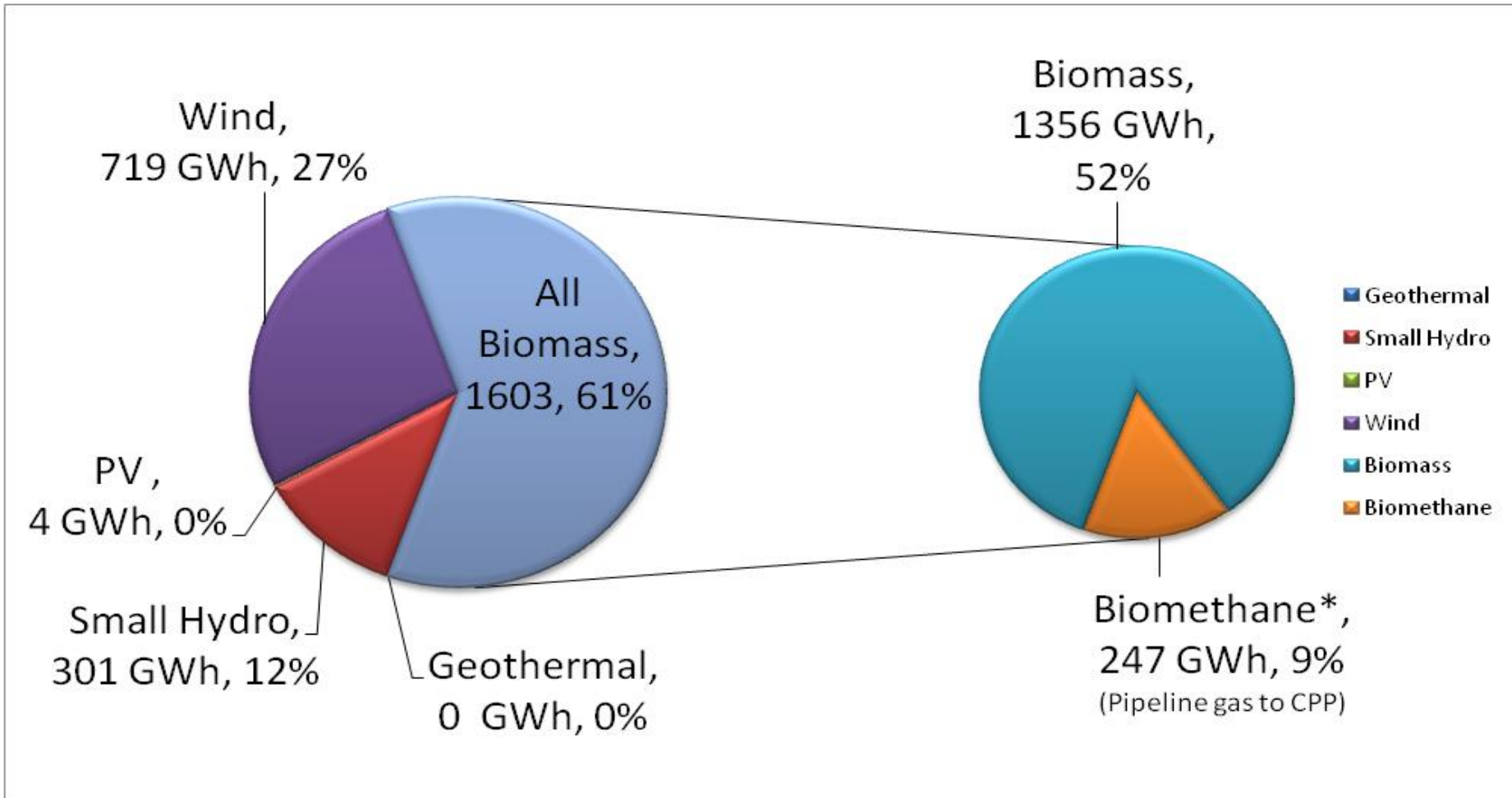
# 2009 Renewable Energy Mix

(GWh & % est.)



# SMUD's RENEWABLE ENERGY MIX

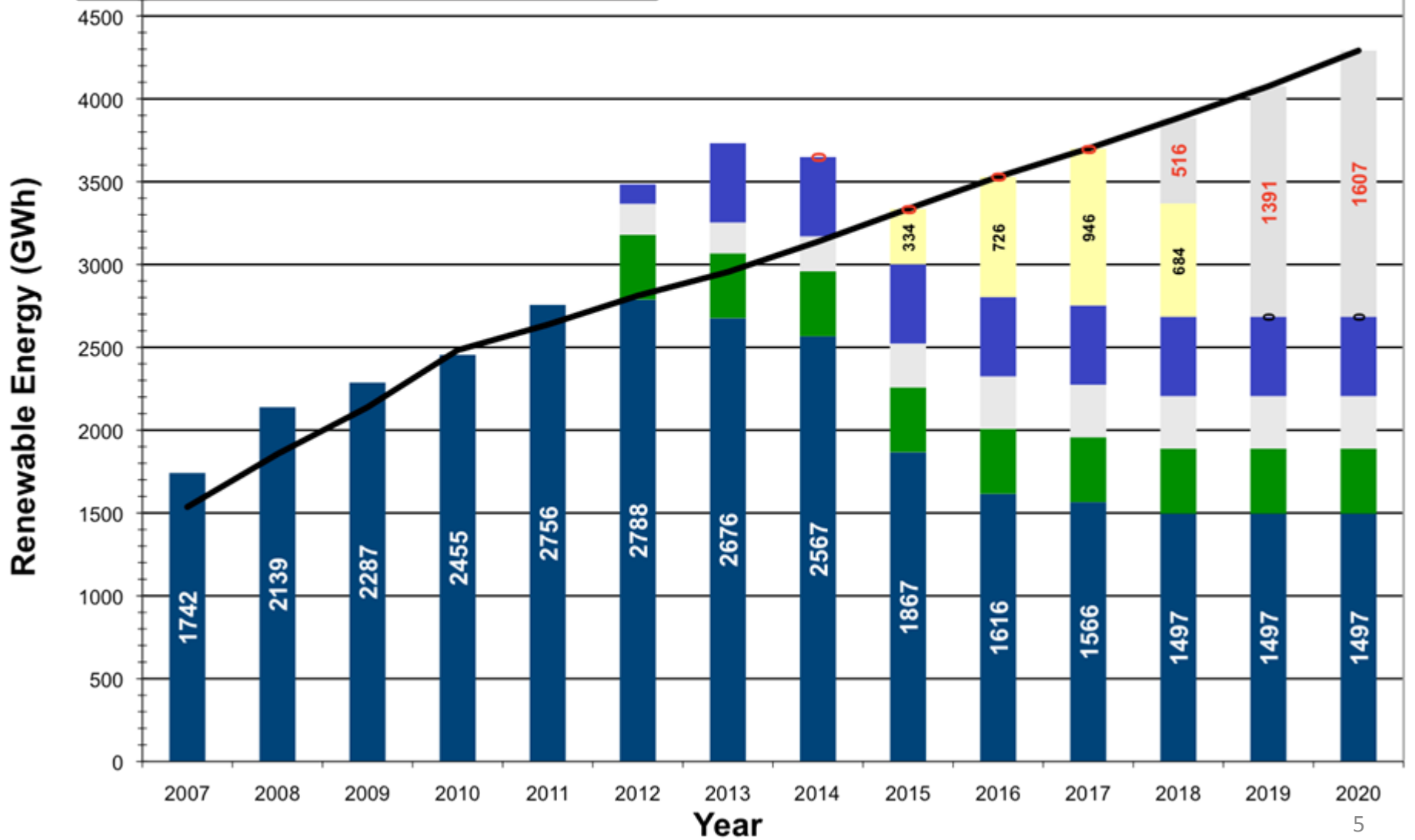
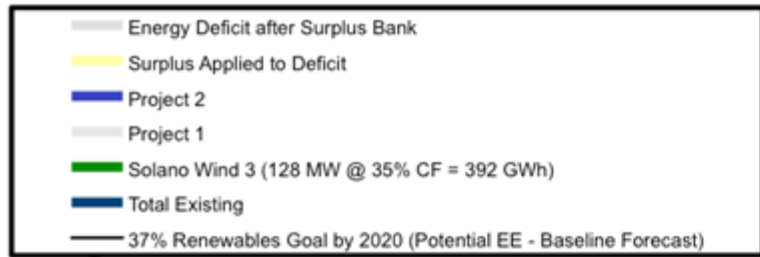
2010 (2,600 GWh estimated)



2010 Total GWh ~ 11,000 for all sources

# SMUD's Renewable Energy Supply

February 22, 2010



# RENEWABLES & DISTRIBUTED GENERATION



- Options at SMUD

1. SMUD Owned & Operated – Large Systems
  - Innovative Ownership Options
2. IPP Owned - Renewables Bidding w/ Cost & Value Ranking
  - Annual Solicitation + Sole Source Accepted
3. Customer Owned - Net Metering (i.e., Retail Rates for Gen) + CSI Incentives
4. IPP Owned - Feed-In Tariff (FIT) began 1/1/2010
  - Value-Based, No Negotiation Contract (PPA)

# SOLAR PV



## FLAT PLATE



**SMUD**

SACRAMENTO MUNICIPAL UTILITY DISTRICT  
The Power To Do More.™

# LOCAL BIOMASS

- Local Problem Wastes to Green Electricity
- SMUD Board Emphasis of Local Environmental Benefits Over Global Benefits
- SMUD Renewables in Service Territory = Solar and Biomass
- How Does Society Currently Dispose of Wastes?
- Can Local “Problem” Wastes be Converted to Electricity & Mitigate Problem? YES!!!



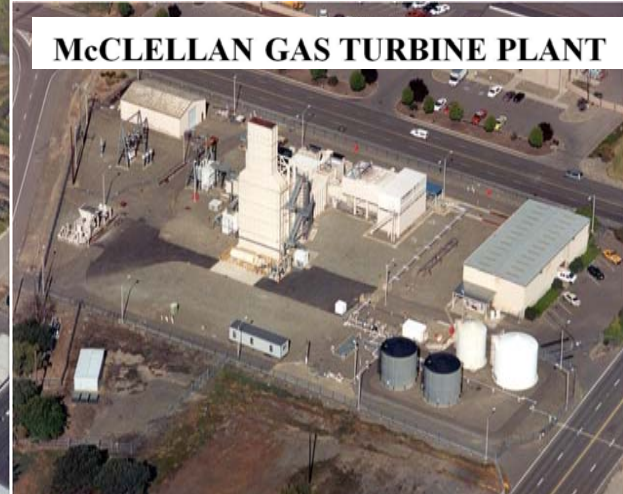
# SMUD Renewable Energy Assets



**SMUD**

SACRAMENTO MUNICIPAL UTILITY DISTRICT  
The Power To Do More.<sup>SM</sup>

# SMUD'S Thermal Generation Assets



# Thank You!

Elaine Sison-Lebrilla

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(916) 732-7017

**Form 1.1c - Statewide  
California Energy Demand 2010 - 2022 Staff Revised Forecast  
Electricity Deliveries to End Users by Agency (GWh)**

<b>Planning Area</b>	<b>Agency</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
PGE	Calaveras Public Power Agency	30	30	30	31	31	32	32	32	33	33
	Central Valley Project	2,948	2,947	2,948	2,949	2,950	2,951	2,951	2,952	2,952	2,953
	City of Alameda	413	418	422	428	434	441	447	453	460	467
	City of Biggs	17	17	17	17	18	18	18	18	18	18
	City of Gridley	33	33	34	34	35	35	36	36	37	37
	City of Healdsburg	74	75	76	77	78	79	80	81	82	83
	City of Hercules	16	16	16	17	17	17	17	17	17	18
	City of Lodi	453	458	465	472	478	483	488	493	498	504
	City of Lompoc	131	132	134	136	138	140	141	143	145	148
	City of Palo Alto	965	974	987	1,001	1,017	1,032	1,046	1,059	1,071	1,084
	City of Redding	768	778	786	797	808	820	832	844	857	871
	City of Roseville	1,182	1,196	1,211	1,229	1,246	1,262	1,277	1,293	1,308	1,326
	City of San Francisco	961	963	970	978	990	1,003	1,013	1,023	1,032	1,041
	City of Shasta Lake	194	195	200	203	205	206	206	206	207	207
	City of Ukiah	107	108	109	111	113	114	116	118	120	122
	Lassen Municipal Utility District	132	134	135	137	139	141	143	145	148	150
	Merced Irrigation District	403	406	413	419	425	429	431	434	437	440
	Modesto Irrigation District	2,435	2,457	2,494	2,530	2,561	2,589	2,613	2,640	2,667	2,699
	Pacific Gas and Electric Company (Bundled)	77,767	77,586	77,666	77,876	77,976	79,021	79,970	81,004	82,009	83,193
	Pacific Gas and Electric Company (Direct Access)	6,532	7,508	8,520	9,561	10,605	10,665	10,740	10,830	10,911	11,011
	Plumas-Sierra Rural Electric Cooperation	148	149	150	152	154	157	159	161	163	166
	Port of Oakland	45	45	46	46	47	47	47	48	48	48
Port of Stockton	12	12	13	13	13	13	13	13	13	14	
Power and Water Resource Purchasing Pooling Authority	532	517	523	528	533	538	543	548	553	557	
Silicon Valley Power	2,729	2,752	2,799	2,838	2,878	2,912	2,938	2,963	2,986	3,010	
Tuolumne County Public Power Agency	25	25	25	26	26	26	27	27	28	28	
Turlock Irrigation District	1,954	1,966	1,994	2,022	2,045	2,067	2,086	2,108	2,130	2,156	

Planning Area	Agency	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
PGE Total		101,006	101,897	103,184	104,628	105,959	107,237	108,410	109,693	110,930	112,385
SMUD	Sacramento Municipal Utility District	10,293	10,546	10,762	10,954	11,124	11,300	11,482	11,662	11,824	12,005
SCE	Anza Electric Cooperative, Inc.	45	46	46	47	48	48	49	49	50	51
	Azusa Light & Water	243	246	249	252	255	258	260	262	265	267
	Bear Valley Electric Service	135	139	140	142	144	146	148	151	153	156
	City of Anaheim	2,412	2,449	2,468	2,500	2,533	2,564	2,593	2,622	2,650	2,681
	City of Banning	139	142	143	146	147	149	151	153	155	157
	City of Colton	334	340	344	349	353	357	360	365	369	374
	City of Corona	77	77	78	79	80	81	81	82	83	83
	City of Rancho Cucamonga	66	67	67	67	68	70	71	72	73	73
	City of Riverside	2,034	2,074	2,088	2,117	2,144	2,173	2,200	2,229	2,256	2,288
	City of Vernon	1,159	1,147	1,171	1,185	1,197	1,201	1,200	1,199	1,198	1,197
	Metropolitan Water District	2,231	2,227	2,228	2,228	2,228	2,228	2,227	2,227	2,226	2,226
	Moreno Valley Utilities	96	99	99	101	102	103	105	107	108	110
	Southern California Edison Company (Bundled)	76,275	76,598	76,363	76,516	76,531	77,561	78,480	79,517	80,496	81,687
	Southern California Edison Company (Direct Access)	8,368	9,416	10,409	11,466	12,516	12,520	12,570	12,581	12,630	12,649
	Valley Electric Association, Inc.	8	8	8	8	8	8	8	8	8	8
	Victorville Municipal	58	57	58	59	59	60	59	59	59	59
SCE Total		93,679	95,132	95,958	97,261	98,414	99,525	100,563	101,682	102,778	104,066
LADWP	Los Angeles Department of Water and Power	22,929	23,640	24,001	24,260	24,493	24,715	24,939	25,138	25,358	25,640
BUGL	City of Burbank	1,136	1,168	1,189	1,206	1,221	1,236	1,249	1,261	1,273	1,288
	City of Glendale	1,076	1,110	1,131	1,147	1,161	1,175	1,189	1,202	1,215	1,232
BUGL Total		2,212	2,279	2,320	2,352	2,382	2,411	2,438	2,463	2,489	2,521
PASD	City of Pasadena	1,183	1,216	1,227	1,206	1,209	1,217	1,227	1,235	1,243	1,255
DWR	Department of Water Resources	7,566	7,566	7,566	7,566	7,566	7,566	7,566	7,566	7,566	7,566
SDGE	San Diego Gas and Electric Company (Bundled)	16,283	16,641	16,806	17,001	17,221	17,558	17,898	18,262	18,596	18,965
	San Diego Gas and Electric Company (Direct Access)	3,202	3,305	3,371	3,444	3,522	3,510	3,495	3,497	3,501	3,506
SDGE Total		19,485	19,946	20,177	20,445	20,744	21,068	21,393	21,759	22,098	22,471
IID	Imperial Irrigation District	3,228	3,364	3,446	3,521	3,587	3,654	3,719	3,786	3,857	3,946
OTHER	City of Needles	56	56	56	56	56	56	56	56	56	56
	Mountain Utilities	5	5	5	5	5	5	5	5	5	5
	PacifiCorp	831	844	850	857	864	871	878	885	892	899
	Sierra Pacific Power Company	549	550	550	550	550	550	550	550	550	550
	Surprise Valley Electrification Corporation	91	91	92	92	92	93	93	94	94	94
	Truckee-Donner Public Utility District	148	150	151	153	154	155	157	158	160	161
OTHER Total		1,679	1,696	1,705	1,713	1,722	1,730	1,740	1,748	1,757	1,766
Statewide Total		263,261	267,283	270,347	273,906	277,200	280,424	283,476	286,733	289,899	293,620
Total Pumping Load		10,515	10,514	10,515	10,515	10,516	10,517	10,518	10,518	10,519	10,519
Total Statewide Retail Deliveries excluding pumping		252,746	256,769	259,832	263,391	266,684	269,908	272,959	276,214	279,380	283,101

\*This table includes retail sales and other deliveries only measured at the customer level. Losses and consumption served by self-generation are excluded.

\*\* Includes sales from entities outside of California. Thus, total sales in row 70 are higher than state totals given in Form 1.1b.

<b>Planning Area</b>	<b>Agency</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>Average Annual Growth 2010 - 2022</b>
PGE	Calaveras Public Power Agency	33	34	34	1.3%
	Central Valley Project	2,953	2,954	2,954	0.0%
	City of Alameda	473	479	485	1.6%
	City of Biggs	18	18	18	0.6%
	City of Gridley	38	38	39	1.7%
	City of Healdsburg	85	86	87	1.6%
	City of Hercules	18	18	18	1.2%
	City of Lodi	510	515	520	1.4%
	City of Lompoc	150	152	154	1.6%
	City of Palo Alto	1,097	1,108	1,118	1.5%
	City of Redding	886	899	912	1.7%
	City of Roseville	1,344	1,360	1,375	1.5%
	City of San Francisco	1,048	1,055	1,060	1.0%
	City of Shasta Lake	208	209	209	0.7%
	City of Ukiah	123	125	127	1.7%
	Lassen Municipal Utility District	153	156	158	1.8%
	Merced Irrigation District	443	445	447	1.0%
	Modesto Irrigation District	2,730	2,758	2,784	1.3%
	Pacific Gas and Electric Company (Bundled)	84,340	85,410	86,432	1.1%
	Pacific Gas and Electric Company (Direct Access)	11,097	11,181	11,248	5.6%
	Plumas-Sierra Rural Electric Cooperation	168	171	173	1.6%
	Port of Oakland	49	49	49	0.9%
Port of Stockton	14	14	14	1.6%	
Power and Water Resource Purchasing Pooling Authority	562	566	569	0.7%	
Silicon Valley Power	3,033	3,052	3,067	1.2%	
Tuolumne County Public Power Agency	28	28	29	1.5%	
Turlock Irrigation District	2,181	2,204	2,226	1.3%	

Planning Area	Agency	2020	2021	2022	Average Annual Growth 2010 - 2022
PGE Total		113,781	115,084	116,306	1.4%
SMUD	Sacramento Municipal Utility District	12,174	12,345	12,518	2.0%
SCE	Anza Electric Cooperative, Inc.	52	53	54	1.8%
	Azusa Light & Water	270	273	275	1.2%
	Bear Valley Electric Service	159	162	164	2.0%
	City of Anaheim	2,709	2,736	2,761	1.4%
	City of Banning	160	162	164	1.7%
	City of Colton	379	384	389	1.5%
	City of Corona	84	85	85	1.0%
	City of Rancho Cucamonga	74	75	75	1.3%
	City of Riverside	2,317	2,346	2,372	1.5%
	City of Vernon	1,194	1,192	1,188	0.2%
	Metropolitan Water District	2,225	2,225	2,225	0.0%
	Moreno Valley Utilities	111	113	114	1.7%
	Southern California Edison Company (Bundled)	82,805	83,908	84,958	1.1%
	Southern California Edison Company (Direct Access)	12,660	12,658	12,653	4.2%
	Valley Electric Association, Inc.	8	8	8	0.0%
	Victorville Municipal	59	58	58	0.0%
SCE Total		105,267	106,436	107,543	1.4%
LADWP	Los Angeles Department of Water and Power	25,953	26,226	26,548	1.5%
BUGL	City of Burbank	1,304	1,319	1,335	1.6%
	City of Glendale	1,250	1,267	1,284	1.8%
BUGL Total		2,554	2,586	2,619	1.7%
PASD	City of Pasadena	1,267	1,279	1,291	0.9%
DWR	Department of Water Resources	7,566	7,566	7,566	0.0%
SDGE	San Diego Gas and Electric Company (Bundled)	19,330	19,698	20,067	2.1%
	San Diego Gas and Electric Company (Direct Access)	3,484	3,461	3,424	0.7%
SDGE Total		22,814	23,159	23,491	1.9%
IID	Imperial Irrigation District	4,036	4,023	4,080	2.4%
OTHER	City of Needles	56	56	56	0.0%
	Mountain Utilities	5	5	5	0.0%
	PacifiCorp	906	899	906	0.9%
	Sierra Pacific Power Company	550	550	550	0.0%
	Surprise Valley Electrification Corporation	95	94	95	0.4%
	Truckee-Donner Public Utility District	163	161	163	1.0%
OTHER Total		1,776	1,766	1,776	0.6%
Statewide Total		297,187	300,470	303,738	1.4%
Total Pumping Load		10,520	10,520	10,520	0.0%
Total Statewide Retail Deliveries excluding pumping		286,667	289,950	293,217	1.5%

\*This table includes retail sales and other deliveries only measured at t

\*\* Includes sales from entities outside of California. Thus, total sales in

**Form 1.5a - Statewide  
California Energy Demand 2010 - 2022 Staff Revised Forecast  
Net Energy for Load by Agency and Balancing Authority (GWh)**

<b>Balancing Authority</b>	<b>Agency</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
	CCSF	1,053	1,056	1,063	1,072	1,086	1,099
	NCPA - Greater Bay Area	1,559	1,575	1,595	1,617	1,642	1,666
	Other NP15 LSEs - Bay Area	18	18	18	18	18	19
	PG&E Service Area - Greater Bay Area	39,544	39,271	39,656	40,113	40,520	40,902
	Silicon Valley Power	2,991	3,016	3,068	3,110	3,155	3,192
	<b>Greater Bay Area Subtotal</b>	<b>45,164</b>	<b>44,935</b>	<b>45,399</b>	<b>45,931</b>	<b>46,421</b>	<b>46,877</b>
	<b>Total Bay</b>	<b>40,615</b>	<b>40,345</b>	<b>40,737</b>	<b>41,203</b>	<b>41,624</b>	<b>42,020</b>
	CDWR-N	1,123	1,123	1,123	1,123	1,123	1,123
	NCPA - Non Bay Area	1,055	1,066	1,080	1,096	1,111	1,125
	Other NP15 LSEs - Non Bay Area	802	787	796	804	813	822
	PG&E Service Area - Non Bay Area	42,131	43,043	43,690	44,419	45,094	45,756
	WAPA	1,633	1,744	1,738	1,719	1,699	1,680
	<b>Total North of Path 15</b>	<b>91,907</b>	<b>92,698</b>	<b>93,826</b>	<b>95,092</b>	<b>96,260</b>	<b>97,382</b>
	<b>Total North - Non Bay</b>	<b>51,294</b>	<b>52,354</b>	<b>53,090</b>	<b>53,888</b>	<b>54,637</b>	<b>55,364</b>
	CDWR-ZP26	2,121	2,121	2,121	2,121	2,121	2,121
	PG&E Service Area - ZP26	10,717	10,949	11,114	11,300	11,471	11,640
	<b>Total Zone Path 26</b>	<b>12,838</b>	<b>13,070</b>	<b>13,235</b>	<b>13,420</b>	<b>13,592</b>	<b>13,760</b>
	<b>Total Valley</b>	<b>59,581</b>	<b>60,833</b>	<b>61,661</b>	<b>62,582</b>	<b>63,431</b>	<b>64,265</b>
	<b>Total North of Path 26</b>	<b>104,745</b>	<b>105,768</b>	<b>107,061</b>	<b>108,512</b>	<b>109,851</b>	<b>111,142</b>
	Merced	441	445	453	459	465	470
	Turlock Irrigation District	2,142	2,155	2,185	2,216	2,242	2,265
	<b>Total Turlock Irrigation District Control Area</b>	<b>2,583</b>	<b>2,599</b>	<b>2,638</b>	<b>2,675</b>	<b>2,707</b>	<b>2,735</b>
	City of Shasta Lake	212	214	219	222	224	225
	Modesto Irrigation District	2,669	2,693	2,733	2,773	2,807	2,837
	Redding	842	852	861	874	886	899
	Roseville	1,296	1,310	1,327	1,347	1,365	1,383
	SMUD	10,952	11,221	11,451	11,655	11,835	12,023
	WAPA (SMUD)	1,599	1,486	1,493	1,513	1,534	1,554
	<b>Total SMUD/WAPA Control Area</b>	<b>17,569</b>	<b>17,776</b>	<b>18,085</b>	<b>18,384</b>	<b>18,651</b>	<b>18,921</b>
	<b>Total Turlock + Total SMUD</b>	<b>20,152</b>	<b>20,375</b>	<b>20,723</b>	<b>21,059</b>	<b>21,358</b>	<b>21,656</b>



<b>Balancing Authority</b>	<b>Agency</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
	Anaheim	2,576	2,616	2,635	2,670	2,705	2,739
	MWD	214	214	214	214	214	214
	Other SP15 LSEs - LA Basin	981	1,000	1,009	1,024	1,036	1,049
	Pasadena	1,259	1,294	1,306	1,283	1,287	1,295
	Riverside	2,172	2,215	2,230	2,261	2,290	2,321
	SCE Service Area - LA Basin	70,448	71,589	72,220	73,227	74,114	74,974
	Vernon	1,238	1,225	1,251	1,266	1,278	1,283
	<b>LA Basin Subtotal</b>	<b>78,889</b>	<b>80,153</b>	<b>80,865</b>	<b>81,944</b>	<b>82,925</b>	<b>83,874</b>
	CDWR-S	4,610	4,610	4,610	4,610	4,610	4,610
	SCE Service Area - Big Creek Ventura	16,569	16,837	16,986	17,222	17,431	17,633
	<b>Big Creek/Ventura Subtotal</b>	<b>21,179</b>	<b>21,448</b>	<b>21,596</b>	<b>21,833</b>	<b>22,041</b>	<b>22,244</b>
	MWD	2,168	2,165	2,165	2,165	2,165	2,165
	Other SP15 LSEs - Out of LA Basin	301	303	307	311	314	317
	SCE Service Area - Out of LA Basin	3,381	3,436	3,467	3,515	3,557	3,599
	<b>Total SCE TAC Area</b>	<b>105,919</b>	<b>107,505</b>	<b>108,399</b>	<b>109,768</b>	<b>111,003</b>	<b>112,199</b>
	<b>SDG&amp;E Service Area</b>	<b>20,867</b>	<b>21,361</b>	<b>21,608</b>	<b>21,895</b>	<b>22,214</b>	<b>22,562</b>
	<b>Total South of Path 26</b>	<b>126,785</b>	<b>128,866</b>	<b>130,007</b>	<b>131,663</b>	<b>133,218</b>	<b>134,760</b>
	Burbank	1,209	1,243	1,265	1,283	1,299	1,315
	Glendale	1,145	1,181	1,203	1,220	1,236	1,251
	LADWP	26,025	26,831	27,241	27,535	27,800	28,052
	<b>Total LADWP Control Area</b>	<b>28,378</b>	<b>29,256</b>	<b>29,709</b>	<b>30,038</b>	<b>30,335</b>	<b>30,617</b>
	<b>Imperial Irrigation District Control Area</b>	<b>3,641</b>	<b>3,794</b>	<b>3,887</b>	<b>3,972</b>	<b>4,046</b>	<b>4,122</b>
	<b>Total CAISO</b>	<b>231,531</b>	<b>234,634</b>	<b>237,067</b>	<b>240,175</b>	<b>243,069</b>	<b>245,903</b>
	<b>Total Statewide</b>	<b>283,702</b>	<b>288,060</b>	<b>291,388</b>	<b>295,243</b>	<b>298,808</b>	<b>302,297</b>

\*Balancing Authority Tables exclude LSEs located in non-California based control areas.

**Form 1.5a - Statewide  
California Energy Demand 2010 - 2022 Staff Revised Forecast  
Net Energy for Load by Agency and Balancing Authority**

Balancing Authority	Agency	2016	2017	2018	2019	2020	2021	2022	Average Annual Growth 2010 - 2022
	CCSF	1,111	1,121	1,131	1,140	1,149	1,156	1,162	0.99%
	NCPA - Greater Bay Area	1,688	1,710	1,730	1,753	1,774	1,794	1,811	1.51%
	Other NP15 LSEs - Bay Area	19	19	19	19	19	20	20	1.06%
	PG&E Service Area - Greater Bay Area	41,239	41,619	41,976	42,417	42,830	43,203	43,540	0.97%
	Silicon Valley Power	3,220	3,247	3,273	3,299	3,324	3,345	3,361	1.17%
	<b>Greater Bay Area Subtotal</b>	<b>47,277</b>	<b>47,716</b>	<b>48,129</b>	<b>48,629</b>	<b>49,097</b>	<b>49,517</b>	<b>49,895</b>	<b>1.00%</b>
	<b>Total Bay</b>	<b>42,369</b>	<b>42,759</b>	<b>43,126</b>	<b>43,576</b>	<b>43,998</b>	<b>44,379</b>	<b>44,722</b>	
	CDWR-N	1,123	1,123	1,123	1,123	1,123	1,123	1,123	0.00%
	NCPA - Non Bay Area	1,137	1,152	1,165	1,181	1,197	1,211	1,225	1.51%
	Other NP15 LSEs - Non Bay Area	830	839	848	857	866	874	881	0.94%
	PG&E Service Area - Non Bay Area	46,380	47,060	47,725	48,494	49,242	49,954	50,636	1.86%
	WAPA	1,668	1,656	1,645	1,632	1,622	1,612	1,601	-0.20%
	<b>Total North of Path 15</b>	<b>98,416</b>	<b>99,547</b>	<b>100,635</b>	<b>101,917</b>	<b>103,147</b>	<b>104,291</b>	<b>105,361</b>	<b>1.38%</b>
	<b>Total North - Non Bay</b>	<b>56,046</b>	<b>56,787</b>	<b>57,509</b>	<b>58,339</b>	<b>59,148</b>	<b>59,913</b>	<b>60,638</b>	
	CDWR-ZP26	2,121	2,121	2,121	2,121	2,121	2,121	2,121	0.00%
	PG&E Service Area - ZP26	11,798	11,971	12,140	12,336	12,527	12,708	12,881	1.86%
	<b>Total Zone Path 26</b>	<b>13,919</b>	<b>14,092</b>	<b>14,261</b>	<b>14,457</b>	<b>14,647</b>	<b>14,828</b>	<b>15,002</b>	<b>1.57%</b>
	<b>Total Valley</b>	<b>65,058</b>	<b>65,923</b>	<b>66,767</b>	<b>67,745</b>	<b>68,697</b>	<b>69,602</b>	<b>70,468</b>	<b>1.69%</b>
	<b>Total North of Path 26</b>	<b>112,335</b>	<b>113,639</b>	<b>114,896</b>	<b>116,374</b>	<b>117,794</b>	<b>119,120</b>	<b>120,363</b>	<b>1.40%</b>
	Merced	473	476	479	482	485	488	490	1.06%
	Turlock Irrigation District	2,286	2,311	2,334	2,363	2,390	2,415	2,439	1.31%
	<b>Total Turlock Irrigation District Control Area</b>	<b>2,759</b>	<b>2,787</b>	<b>2,813</b>	<b>2,845</b>	<b>2,875</b>	<b>2,903</b>	<b>2,929</b>	<b>1.27%</b>
	City of Shasta Lake	226	226	227	227	228	229	229	0.77%
	Modesto Irrigation District	2,864	2,894	2,923	2,958	2,992	3,023	3,052	1.35%
	Redding	911	926	939	955	971	986	1,000	1.73%
	Roseville	1,399	1,417	1,434	1,454	1,472	1,490	1,507	1.52%
	SMUD	12,217	12,409	12,580	12,773	12,953	13,135	13,319	1.98%
	WAPA (SMUD)	1,566	1,579	1,591	1,604	1,615	1,625	1,636	0.23%
	<b>Total SMUD/WAPA Control Area</b>	<b>19,184</b>	<b>19,450</b>	<b>19,694</b>	<b>19,972</b>	<b>20,231</b>	<b>20,487</b>	<b>20,742</b>	<b>1.67%</b>
	<b>Total Turlock + Total SMUD</b>	<b>21,943</b>	<b>22,237</b>	<b>22,507</b>	<b>22,817</b>	<b>23,106</b>	<b>23,390</b>	<b>23,671</b>	<b>1.62%</b>

Balancing Authority	Agency	2016	2017	2018	2019	2020	2021	2022	Average Annual Growth 2010 - 2022
	Anaheim	2,769	2,801	2,830	2,863	2,893	2,922	2,949	1.36%
	MWD	214	214	214	214	214	214	214	0.00%
	Other SP15 LSEs - LA Basin	1,060	1,073	1,086	1,102	1,116	1,130	1,144	1.55%
	Pasadena	1,305	1,314	1,322	1,335	1,348	1,361	1,374	0.88%
	Riverside	2,350	2,380	2,410	2,443	2,475	2,505	2,534	1.55%
	SCE Service Area - LA Basin	75,781	76,653	77,508	78,516	79,456	80,372	81,241	1.44%
	Vernon	1,282	1,280	1,279	1,278	1,276	1,273	1,268	0.24%
	<b>LA Basin Subtotal</b>	<b>84,762</b>	<b>85,715</b>	<b>86,650</b>	<b>87,751</b>	<b>88,778</b>	<b>89,777</b>	<b>90,723</b>	<b>1.41%</b>
	CDWR-S	4,610	4,610	4,610	4,610	4,610	4,610	4,610	0.00%
	SCE Service Area - Big Creek Ventura	17,823	18,028	18,230	18,466	18,687	18,903	19,107	1.44%
	<b>Big Creek/Ventura Subtotal</b>	<b>22,433</b>	<b>22,639</b>	<b>22,840</b>	<b>23,077</b>	<b>23,298</b>	<b>23,513</b>	<b>23,718</b>	<b>1.14%</b>
	MWD	2,165	2,164	2,164	2,163	2,163	2,162	2,162	-0.03%
	Other SP15 LSEs - Out of LA Basin	320	323	325	329	332	334	337	1.14%
	SCE Service Area - Out of LA Basin	3,637	3,679	3,720	3,769	3,814	3,858	3,900	1.44%
	<b>Total SCE TAC Area</b>	<b>113,317</b>	<b>114,520</b>	<b>115,699</b>	<b>117,088</b>	<b>118,384</b>	<b>119,645</b>	<b>120,840</b>	<b>1.33%</b>
	<b>SDG&amp;E Service Area</b>	<b>22,909</b>	<b>23,302</b>	<b>23,664</b>	<b>24,064</b>	<b>24,432</b>	<b>24,801</b>	<b>25,157</b>	<b>1.89%</b>
	<b>Total South of Path 26</b>	<b>136,226</b>	<b>137,822</b>	<b>139,364</b>	<b>141,152</b>	<b>142,815</b>	<b>144,446</b>	<b>145,997</b>	<b>1.42%</b>
	Burbank	1,329	1,342	1,355	1,371	1,388	1,404	1,420	1.62%
	Glendale	1,265	1,279	1,293	1,311	1,330	1,348	1,366	1.78%
	LADWP	28,306	28,532	28,781	29,102	29,456	29,766	30,132	1.48%
	<b>Total LADWP Control Area</b>	<b>30,900</b>	<b>31,152</b>	<b>31,429</b>	<b>31,784</b>	<b>32,174</b>	<b>32,518</b>	<b>32,919</b>	<b>1.50%</b>
	<b>Imperial Irrigation District Control Area</b>	<b>4,195</b>	<b>4,271</b>	<b>4,351</b>	<b>4,451</b>	<b>4,552</b>	<b>4,538</b>	<b>4,602</b>	<b>2.37%</b>
	<b>Total CAISO</b>	<b>248,562</b>	<b>251,461</b>	<b>254,259</b>	<b>257,526</b>	<b>260,609</b>	<b>263,565</b>	<b>266,359</b>	<b>1.41%</b>
	<b>Total Statewide</b>	<b>305,599</b>	<b>309,121</b>	<b>312,546</b>	<b>316,577</b>	<b>320,442</b>	<b>324,012</b>	<b>327,551</b>	<b>1.45%</b>

\*Balancing Authority Tables exclude LSEs located in non-California ba

Balancing Authority	Total Bay	Total North - Non Bay	Total Zone Path 26	Total Turlock + SMUD	Total SCE TAC Area	SDG&E Service Area	Total LADWP Control Area	Imperial Irrigation District Control Area
2010	40,615	51,294	12,838	20,152	105,919	20,867	28,378	3,641
2011	40,345	52,354	13,070	20,375	107,505	21,361	29,256	3,794
2012	40,737	53,090	13,235	20,723	108,399	21,608	29,709	3,887
2013	41,203	53,888	13,420	21,059	109,768	21,895	30,038	3,972
2014	41,624	54,637	13,592	21,358	111,003	22,214	30,335	4,046
2015	42,020	55,364	13,760	21,656	112,199	22,562	30,617	4,122
2016	42,369	56,046	13,919	21,943	113,317	22,909	30,900	4,195
2017	42,759	56,787	14,092	22,237	114,520	23,302	31,152	4,271
2018	43,126	57,509	14,261	22,507	115,699	23,664	31,429	4,351
2019	43,576	58,339	14,457	22,817	117,088	24,064	31,784	4,451
2020	43,998	59,148	14,647	23,106	118,384	24,432	32,174	4,552

**TCAP 2013**  
**Total California Renewable Energy (GWh)**

	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
PG&E	17,497	19,464	22,346	23,065	23,610
SMUD	2,317	2,472	2,634	2,796	2,950
SCE	20,683	22,462	24,936	26,828	26,736
LADWP	3,437	3,945	4,475	5,018	5,548
SDG&E	3,481	4,803	5,906	6,409	6,655
Other Utilities	2,857	3,988	5,158	6,376	7,619
<b>Total RPS</b>	<b>50,271</b>	<b>57,134</b>	<b>65,455</b>	<b>70,493</b>	<b>73,118</b>
Statewide RPS Goal (%)	19%	21%	24%	25%	26%
Total Out-of-State RPS	8,429	8,786	9,190	9,619	9,756
Total In-State RPS	41,842	48,348	56,265	60,874	63,362

**TCAP 2013****Winter Base Hydro - Coincidental Peak****San Diego EG December Peak Day**

<b>Scenarios</b>	<b>SDGE</b>	<b>Gbtu or MDth</b>
Base12	Daily Max	165
Base13	Daily Max	159
Base14	Daily Max	160
Base15	Daily Max	119
Base16	Daily Max	148

**SoCal EWG/UEG/Cogen December Peak Day**

<b>Scenarios</b>	<b>SoCal</b>	<b>Gbtu or MDth</b>
Base12	Daily Max	723
Base13	Daily Max	761
Base14	Daily Max	797
Base15	Daily Max	834
Base16	Daily Max	854

## 2013 TCAP Sensitivity for Year 2015

Year	Heat Rate
2015	8,300 Btu/kwh
	8.3 GBtu/GWh

1% Change In Southern California Sales

Input

1,500	GWh
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Output

12.45	MMDth
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Weather Adjustments in the CEC Electricity Consumption Summary Model for the 2011 IEPR  
Demand Forecast\*

Year	Sum of Heating Adjustment (Annual GWH)	Sum of Cooling Adjustment (Annual GWH)	Sum of Adjusted sales (GWH)	Total Weather Adjustment	Percentage Change in Annual Consumption
1990	(11)	817	126,192	806	0.6%
1991	(69)	(607)	123,472	(675)	-0.5%
1992	(419)	1,318	127,584	900	0.7%
1993	(322)	(34)	126,126	(356)	-0.3%
1994	193	275	127,679	469	0.4%
1995	(252)	(431)	127,923	(683)	-0.5%
1996	(205)	403	131,862	198	0.2%
1997	(359)	1,472	135,812	1,113	0.8%
1998	313	(452)	135,379	(139)	-0.1%
1999	344	(1,443)	136,923	(1,098)	-0.8%
2000	(93)	68	141,796	(25)	0.0%
2001	606	(536)	138,344	70	0.1%
2002	328	(1,530)	139,437	(1,202)	-0.9%
2003	(31)	283	140,943	253	0.2%
2004	40	(13)	144,862	27	0.0%
2005	(237)	(1,172)	145,267	(1,410)	-1.0%
2006	205	535	148,253	740	0.5%
2007	160	(199)	149,664	(39)	0.0%
2008	282	714	152,132	997	0.7%
2009	(11)	(129)	148,076	(140)	-0.1%
2010	227	(2,020)	146,888	(1,792)	-1.2%

\*Preliminary California Energy Demand 2012 - 2022, publication # CEC-200-2011-011-SD. August 2011.  
Sum of Adjustments for the SCE, Pasadena, Burbank/Glendale, LADWP, IID, and SDG&E Area Forecasts