



PASADENA WATER AND POWER

ATTACHMENT 2

City of Pasadena
Department of Water and Power
Renewable Portfolio Standard ("RPS")
Procurement Plan

*Pursuant to the RPS Enforcement Program
Adopted by the City Council on January 29, 2018*

January 29, 2018

Pasadena Water & Power RPS Procurement Plan – V.3

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Pasadena Water & Power RPS Procurement Plan – V.3

City of Pasadena Department of Water and Power Renewable Portfolio Standard Procurement Plan¹ *Pursuant to the RPS Enforcement Program Adopted by City Council on January 29, 2018*

EXECUTIVE SUMMARY

On July 20, 2015, the City Council approved PWP's 2015 Integrated Resource Plan ("IRP") Update, and reaffirmed the voluntary City of Pasadena ("City") 40% RPS goal first established in 2009. On October 7, 2015, Senate Bill 350 ("SB 350") (De León, Clean Energy and Pollution Reduction Act of 2015) was signed into law. SB 350 increases the state-wide RPS to 50%² by 2030. The main changes in this revised RPS Procurement Plan include:

1. Annual renewable energy targets will reflect reasonable progress in the intervening years between RPS milestones, and will be set at the greater of (i) the voluntary City of Pasadena RPS goal, or (ii) the State of California RPS goal;
2. Pursuant to SB 350 and the City of Pasadena RPS Enforcement Program (herein after also referred to as the "RPS Enforcement Program"), Pasadena Water and Power ("PWP") will incorporate the most recent RPS Procurement Plan into future iterations of the IRP;
3. Pursuant to SB 350, beginning January 1, 2021, at least 65 percent of the procurement PWP counts toward the California RPS in each compliance period will be from contracts of ten years or more in duration, or PWP ownership or ownership agreements, for eligible renewable energy resources;
4. Renewable energy resources under existing contracts are expected to supply at a minimum, 33% of projected Retail Sales in 2020
5. The following changes in Pasadena's contracted RPS resources are reflected in this RPS Procurement Plan:

¹ This RPS Procurement Plan describes the intended strategy of the Pasadena Water and Power department to comply with the Renewable Portfolio Standard requirements of California Senate Bill X1-2 ("SBX1-2"), Senate Bill 350, and the RPS Enforcement Program adopted by the Pasadena City Council on January 29, 2018. The RPS Enforcement Program and this RPS Procurement Plan incorporate the regulations established by the California Energy Commission (aka "CEC") regarding Public Utilities Code Section 399.30 (l), as such interpretations of the law are codified in the California Code of Regulations, Title 20, Division 2, Chapter 13, Sections 3200 through 3208, and in Title 20, Division 2, Chapter 2, Article 4, Section 1240. It is important to note that this RPS Procurement Plan addresses not only California's State-wide RPS requirements, but the City of Pasadena's own voluntary RPS goal, as affirmed in the 2015 Integrated Resource Plan Update.

² 50% of Retail Sales as explained below.

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- a. Deliveries under three Biomethane contracts have been terminated.
 - EDF: Contract terminated January 2, 2015 for failure to meet minimum deliveries. Pasadena has received no Biomethane under this contract since August 1, 2014.
 - Waste Management – Deliveries suspended April 4, 2016 by mutual agreement. Contract terminated on May 3, 2017.
 - Sequent – The contract was terminated October 14, 2016 by mutual agreement.
- b. The contract with the Clearwater Solar project terminated on October 21, 2014 for non-performance. Due to circumstances unforeseen at the time of contracting and beyond the developer's reasonable control, the developer decided not to develop or construct the project. Pasadena had contracted for 3.4 MW (17.143%) of the 20 MW project through SCPPA³.
- c. The Columbia II Solar project achieved commercial operation on December 10, 2014, ahead of the guaranteed commercial operation date of December 31, 2014. Pasadena receives 2.6 MW (17.143%) of the 15 MW project through SCPPA.
- d. The Kingbird Solar project achieved commercial operation on April 30, 2016, four months after the guaranteed commercial operation date of December 31, 2015. Pasadena receives 100% of the 20 MW project.
- e. The Summer Solar project achieved commercial operation on July 25, 2016, almost one month after the guaranteed commercial operation date of June 30, 2016. Pasadena receives 6.5 MW (32.5%) of the 20 MW project through SCPPA.
- f. The Antelope Big Sky Ranch project achieved commercial operation August 19, 2016, approximately two months after the guaranteed commercial operation date of June 30, 2016. Pasadena receives 6.5 MW (32.5%) of the 20 MW project through SCPPA.
- g. The Puente Hills Landfill Gas project started in operation from January 1, 2017. It's a fourteen-year contract with Los Angeles County Sanitation District No. 2 through SCPPA. Pasadena receives 30.2326% of its output. The project proposed size is 43MW.
- h. A new ten-year contract has been entered into with Falls Creek H.P., L.P. for the delivery of 35,000 to 69,000 PCC 3 Renewable Energy Credits ("RECs") annually, beginning in 2017. Supply will be from a group of existing

³ The Southern California Public Power Authority

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California Energy Commission (“CEC”) RPS-certified low impact small hydroelectric facilities in Oregon and Idaho.

- i. A new four-year contract has been entered into with Powerex for the delivery of 17,500 of PCC 1 RECs and 35,000 of PCC 2 RECs annually, beginning in 2017. Energy will be delivered to the California Independent System Operator (“CAISO”). Supply will be from a group of existing Powerex owned or contracted CEC RPS-certified facilities in Washington and British Columbia.
- j. Given the number of variables and uncertainties related to actual resource performance and net retail load, it is very difficult to precisely match the amount of renewable energy procured for each year to the RPS requirements. PWP’s RPS portfolio optimization strategy to achieve the target RPS at the lowest cost to Pasadena customers includes:
 - To the extent available, maximizing the use of lower cost categories (e.g., PCC 2 and PCC 3), within resource balancing requirements, to meet the target RPS goals.
 - Limiting the amount of renewable energy and RECs that are actually retired in each PCC each year to the targeted amount. Any surplus is carried over to the following year(s), as long as the RECs can be retired within 36 months of generation.

PORTFOLIO CONTENT CATEGORY (“PCC”) REQUIREMENTS

The CEC has developed Enforcement Procedures for the Renewables Portfolio Standard for Local Publicly Owned Electric Utilities, which specify rules and procedures for compliance with the provisions of the California Public Utilities Code as modified by SBX1-2 and SB 350. This Plan is consistent with the latest version of the CEC Enforcement Procedures⁴ and the City of Pasadena RPS Enforcement Program.

The following categories of the renewable resources may be used to meet statutory RPS procurement targets. These categories are defined in the City of Pasadena RPS Enforcement Program and CEC Enforcement Procedures.

PCC 0

Resources procured prior to June 1, 2010. The Total RPS requirement, minus the grandfathered PCC 0 resources that count in full will result in a “Net” RPS requirement, against which the other PCC percentages apply (“Net Procurement Requirement”).

⁴ California Energy Commission: [“Enforcement Procedures For The Renewables Portfolio Standard For Local Publicly Owned Electric Utilities,”](#) Amended Regulations, Title 20, Division 2, Chapter 13, Sections 3200 – 3208, Title 20, Division 2, Chapter 2, Article 4, Section 1240; Effective April 2016 - CEC-300-2016-002-CMF; and [Pre-Rulemaking Amendments to the Enforcement Procedures for the Renewables Portfolio Standard for Local Publicly Owned Electric Utility](#) (Sections 3200 through 3208)

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PCC 1

Eligible renewable energy resource electricity that meets the requirement of “in-state,” or “out-of-state” resources scheduling power directly to a California balancing authority in accordance with Public Utilities Code section 399.16(b)(1);

PCC 2

Resources located outside of a California balancing authority that may be delivered at times or locations other than when the energy is actually produced, in accordance with Public Utilities Code Section 399.16(b)(2); and

PCC 3

Eligible renewable energy resource electricity products or any fraction of the electricity generated, including unbundled RECs that do not qualify under the criteria of PCC 1 or PCC 2, in accordance with Public Utilities Code Section 399.16(b)(3).

The “Net Procurement Requirement” is the total RPS requirement minus the grandfathered PCC 0 resources, which count in full. PWP assigns eligible renewable energy resource electricity products to the appropriate PCC consistent with Section A.3 of the City of Pasadena RPS Enforcement Program and the CEC Enforcement Procedures, Section 3203.

Under the CEC’s Enforcement Procedures, all local publicly owned utilities (“POUs”) must show an increasing annual renewable energy procurement to demonstrate reasonable progress towards reaching the mandated 33% RPS target by calendar year 2020 and with the enactment of SB 350, 50% by calendar year 2030. PWP must procure a minimum quantity of electricity products from eligible renewable energy resources, including RECs, as a specified percentage of Retail Sales. Retail Sales is defined in the RPS Enforcement Program as sales of electricity by a POU to end-use customers and their tenants, measured in MWh minus energy consumption by a POU, electricity used by a POU for water pumping, or electricity produced for onsite consumption (self-generation). Annually, PWP uses approximately 16 GWh⁵ (or about 1.6% of total load) of electricity for water pumping. SB 350 further clarifies that Retail Sales may exclude sales to customers taking service under the optional Green Power Option or any shared renewable generation program to achieve the following targets.

Table 1 summarizes the renewable energy procurement requirements under the CEC Enforcement Procedures, Pasadena’s own RPS Enforcement Program and SB 350.

⁵ 1GWh = one GigaWatt-hour = one million KiloWatt-hours

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Table 1 - Renewable Resource Categories and State RPS Requirements

Pasadena Water & Power California Energy Commission-Compliant RPS Procurement Plan Requirements by Calendar Year						
California RPS Mandatory Procurement Requirement (% of Net Retail Sales) ^{[1][2]}	Compliance Period 3		Compliance Period 4	Compliance Period 5	Compliance Period 6	Compliance Period 7+
	YEAR	%	40% by 12/31/2024	45% by 12/31/2027	50% by 12/31/2030	2031+ (3 year blocks) 50%
	2017	27.0%				
	2018	29.0%				
	2019	31.0%				
2020	33.0%					
PCC 1 Minimum:	≥75% of Net Procurement Requirement					
PCC 2 Maximum ^[3] :	≤25% of Net Procurement Requirement					
PCC 3 Maximum:	≤10% of Net Procurement Requirement					
Long-Term Contracts: (at least 10 years duration)	N/A	At least 65% of contracts must be long-term contracts (at least 10 years in duration)				

^[1] As specified in the California Energy Commission Guidebook and California Energy Commission Enforcement Procedures.

^[2] Net Retail Sales is defined as Total Retail Sales minus Department usage including Water Department pumping load.

^[3] The PCC 2 constraint is not specified by law, but is derived logically as the maximum residual given the PCC 1 and PCC 3 constraints.

For a customer participating in the Green Power Option or any shared renewable generation project, the RECs associated with electricity credited to such customer under the program will not be used by PWP for compliance with state mandated RPS procurement requirements. The RECs will be retired on behalf of the participating customer, and may not be further sold, transferred, or otherwise monetized for any purpose. Under these programs, PWP will seek to procure generation from eligible renewable energy resources that are located in reasonable proximity to participants to the extent possible.⁶

Details of the above requirements can be found in the CEC's [Enforcement Procedures for Local Publicly Owned Utilities](#) and [Pre-Rulemaking Amendments to the Enforcement Procedures](#).

RPS PROCUREMENT PLAN

SUPPLY VS. LOAD

This Plan is consistent with the renewable energy procurement guidelines recommended by the PWP 2015 IRP Update (note: as part of the 2018/2019 IRP, there might be additional changes, but that will be incorporated as part of the 2018/2019 IRP). The IRP Update was designed to strike a balance between environmental regulatory compliance and system reliability while maintaining stable and affordable retail electric rates. The 2015 IRP Update projects that PWP's Retail Sales will remain flat or decrease slightly due to the weak economy and increasing implementation of distributed generation, demand response and energy efficiency programs going into the future, as shown in [Figure 1](#).

⁶ PUC Section 399.30(c)(4)

PWP Billed Electric Sales Forecast

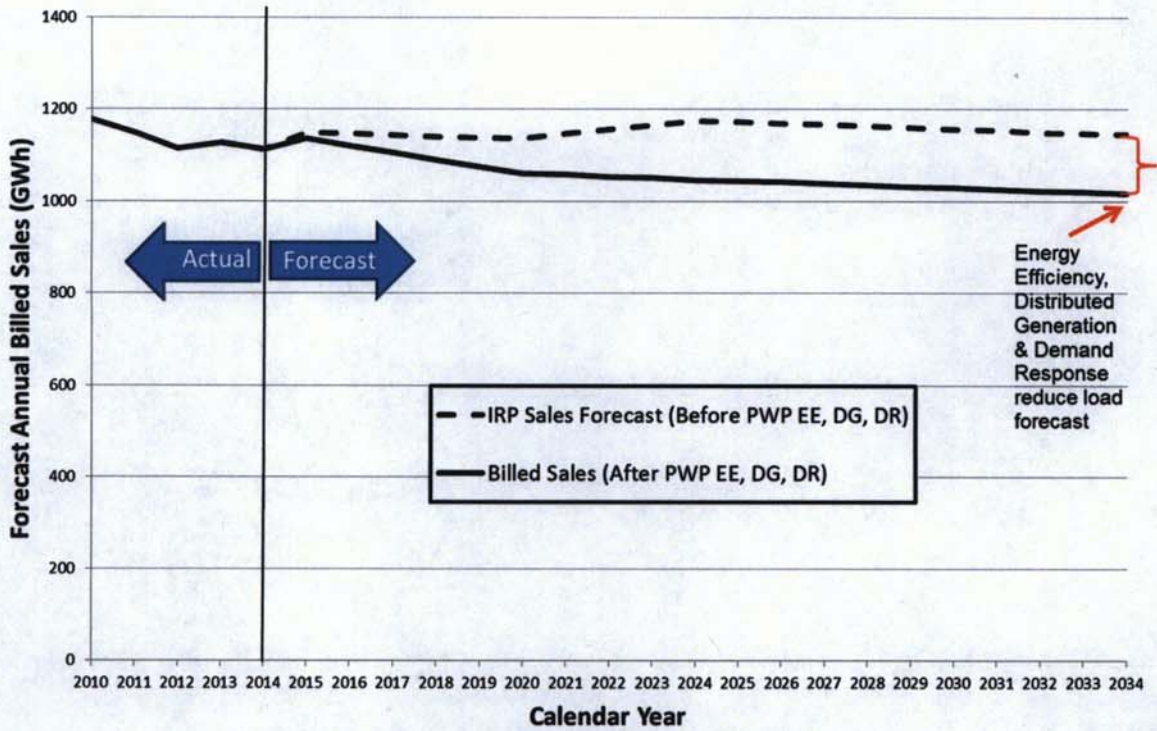


Figure 1 – 2015 IRP Update Load Projection

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PWP can generally be considered fully resourced as shown in [Figure 2](#) from the 2015 IRP.

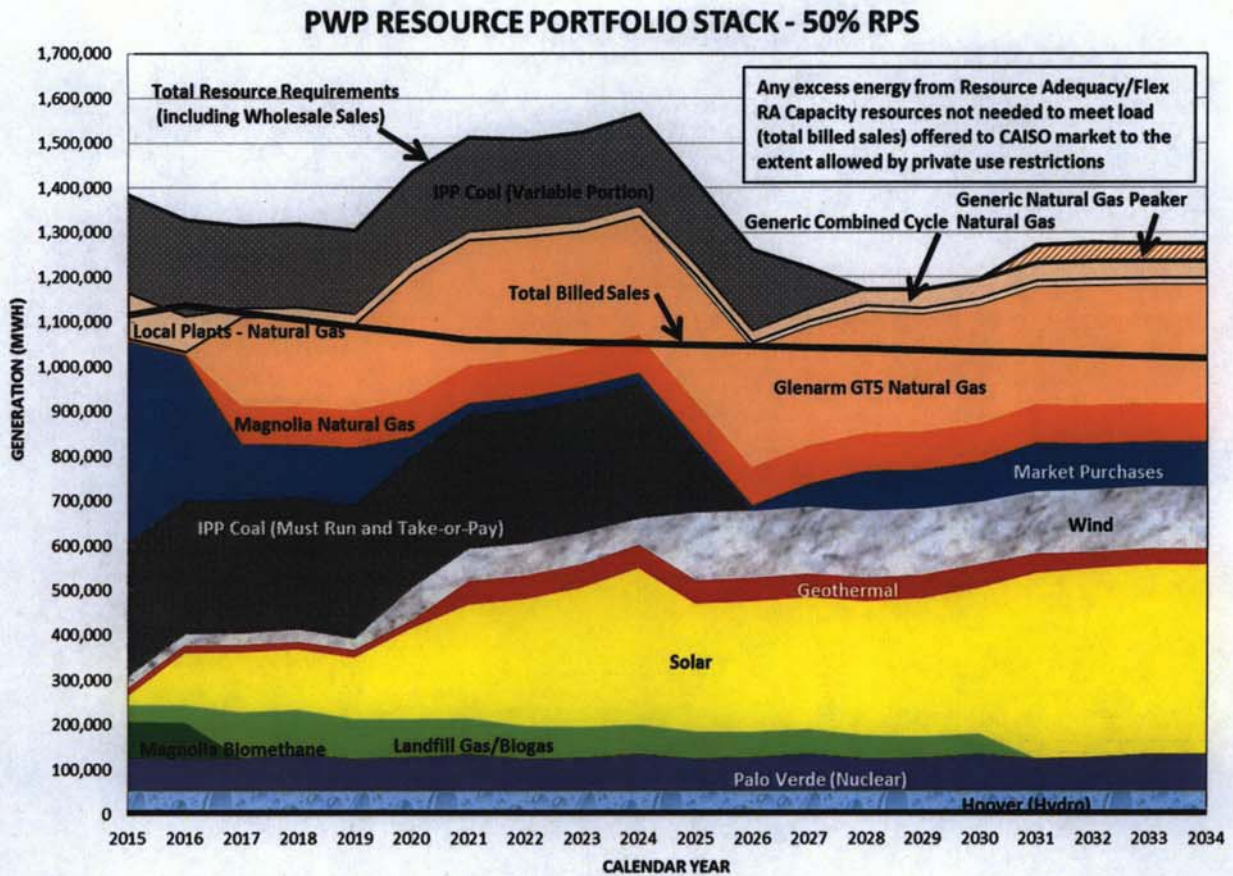


Figure 2 –2015 IRP Update Projected Portfolio of Long Term Contracts & Generation

Though the mandates of SB 350 require POU's to procure 50% of its retail needs through renewable power, by 2030, we must strike a balance of meeting this need, but being mindful of our reliability mandates and stranded investment. PWP has no need to procure more power and complying with the RPS causes over-generation and over-procurement. Although a sizeable portion of this additional renewable energy can be accommodated by curtailing the use of some long term resource contracts that have flexibility (energy above the take or pay obligation) and through reductions in short term energy purchases, some of the new renewable resources are still in excess of the City's needs.

Private use restrictions on generation projects financed with municipal bonds, and on the sale of power from the federally-owned and operated Hoover power project, generally require that these projects be dedicated to serving PWP load, and not resold to others. The Intermountain Power Project is expected to be repowered with a smaller natural gas-fired project of 1,200 MW or less in the year 2025. Much of the shortfall in capacity and energy after that date is planned to be fulfilled with renewable energy resources. Until

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such time, meeting all legal and regulatory requirements while managing the potential oversupply of energy in PWP's portfolio may be challenging. The use of RECs without associated energy to the maximum extent allowed helps reduce the potential oversupply. In addition, bundled RPS products with index-priced energy provide an important hedge by ensuring that PWP will pay and be paid the market price for the equivalent amount of any over-supplied energy it may have to sell if total resources exceed the amount necessary to serve load. To mitigate a variety of risks, PWP will seek to ensure an appropriate mix of various RPS and traditional generation products as part of a diversified power supply portfolio.

COMPLIANCE STRATEGY

PWP starts with a projected load forecast based on actual historical loads, assuming modest load growth offset by expected distributed generation, demand side management and projected energy efficiency savings. The PWP RPS Procurement Requirement is calculated by multiplying the load forecast for each year (in GWh⁷) by the required annual RPS percentage for that year to come up with the amount of renewable energy (in GWh) required by year (the annual "RPS Total Procurement Requirement").

Next PWP subtracts from the annual RPS Total Procurement Requirement the amount of energy that is expected to be delivered from the existing resources procured by PWP by PCC and Compliance Period. First are the existing, grandfathered contracts in PCC 0. The resulting number is the RPS "Net Procurement Requirement."

In addition to long term contracts, PWP purchases short-term RECs as allowed to meet the State's RPS requirements as well as the City's voluntary RPS goals.

BALANCED PORTFOLIO

After determining the amount of energy already procured in each year and in each PCC or, PWP must determine the amount of RPS Procurement still required in each PCC and year. This requires a calculation of the RPS procurement constraints reflected in [Table 1: PCC 1 Minimums and PCC 3 Maximums](#) (percentages multiplied by Net Procurement Requirement), and a comparison of annual energy procurement against these constraints to determine if future compliance targets (or obligations) will require additional purchases of PCC 1 resources, or will limit purchases of PCC 3 resources. The final calculation is the net short evaluation: If the sum of existing contracts is less than the total required RPS Net Procurement Requirement energy for the year, the difference is the amount that must be procured, and allocated to the Categories according to the constraints. Any surplus renewable energy and/or credits in a year may be carried over into the following year, and the RPS Net Procurement Requirement adjusted accordingly.

In addition to balancing between PCCs and Compliance Periods, PWP must consider the right mix of resources to fit PWP's portfolio and load as it evaluates RPS proposals. This means selecting some base-load projects, such as geothermal and landfill gas, and some

⁷ 1GWh = one GigaWatthours = one million KiloWatthours (KWh)

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variable/peaking projects such as wind and solar. It also means weighing the right mix of contract durations (long vs. short, within statutory limits) and counterparties to diversify and spread the risk of contract expiration and potential contract failure. SB 350 imposes a minimum percentage of long-term contracts. Starting with the 4th Compliance Period (2021-2024) and for all subsequent compliance periods, 65% of PWP's renewable resources must come from either owned resources or contracts that are at least 10 years in duration.

PWP'S VOLUNTARY IRP RPS STRATEGY

Above and beyond the mandatory RPS Procurement amount required under SBX1-2, PWP's target of 40% RPS by 2020, set by City Council, dictates the additional procurement of renewables. This incremental amount does not need to be in any particular PCC. Beginning in 2024, the state mandated targets under SB 350 exceed the voluntary RPS, and PWP's procurement will no longer be based on the voluntary targets. PWP looks for opportunities to procure incremental renewable resources that are economical, reliable, and a good fit for the portfolio of resources. Resources located within the State of California and CAISO SP15⁸ typically score higher in PWP's resource evaluation due to lower transmission and congestion costs, the potential availability of local resource adequacy capacity and higher market value for the energy

PWP's RPS PROCUREMENT PROCESS

Because PWP is a relatively small municipal utility, it solicits most of its long-term renewable resources through open Requests for Proposals conducted by its joint powers authority, SCPPA⁹ ("SCPPA RFP" – see sample [SCPPA Request for Proposals for Renewable Energy Resources](#)). This allows PWP (and other SCPPA members) to purchase the output of portions of multiple diverse projects and gain economies of scale, rather than limit the projects that they would be capable of participating in due to the comparatively small demand of most of the individual utilities. PWP anticipates dividing its outstanding RPS procurement between base-load and peaking renewable resources, and seeking some long-term and some mid-term contract lengths. In this case, PWP defines long-term as ten years or longer, and mid-term as five to ten years. PWP may procure some RECs and/or PCC 2 products with shorter tenures. PWP will also seek products with energy pricing tied to electricity market indices as well as fixed-priced.

The SCPPA RFPs are considered an open and "rolling" solicitation, generally issued in January, with responses accepted through December of each year. The SCPPA RFP solicits proposals for power purchase agreements with and without ownership options, and also invites energy storage and other innovative proposals. PWP initially screens prospective renewable resource proposals received through SCPPA and through direct

⁸ SP15 is the California Independent System Operator's South of Path 15 zone, where resources that are deliverable to Pasadena load, with the least congestion and losses, and the highest probability of providing local area reliability capacity, are most likely to be located. Assuming price parity, such resources would be the most valuable to PWP.

⁹ SCPPA = [Southern California Public Power Authority](#), which includes the cities of Anaheim, Azusa, Banning, Burbank, Cerritos, Colton, Glendale, Los Angeles Dept. of Water & Power, Pasadena, Riverside, Vernon, and the Imperial Irrigation District.

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contact with renewable project developers based on the levelized offer price (\$/MWh) for resources with a project size and proposed delivery period that matches PWP's procurement targets. For larger projects, joint participation with other SCPA members may be desirable to obtain the best project economics and contract terms.

QUANTITATIVE ANALYSIS

From the short-list of projects that pass the initial screening, PWP evaluates and compares proposals to identify the "least cost/best fit" opportunities. Best fit analysis considers PWP's projected needs in light of its existing portfolio of generating resources and contracts. Considerations include, for example: RPS targets and other regulatory requirements, grid and local area reliability needs, projected load and generation profiles, the estimated commercial operation or contract start date, and proposed contract term (duration). Variables can include:

- Generation cost and market value at the point of delivery;
- Time-of-delivery value;
- Capacity value (if any);
- Ancillary¹⁰ service value (if any);
- Value of environmental attributes by PCC;
- Costs of integrating variable generation technologies; and
- Incremental transmission costs (if any), excluding current CAISO load-based transmission access and grid management charges.

QUALITATIVE ANALYSIS

In addition to the quantitative evaluation, PWP performs a qualitative evaluation, using a process similar to that employed by California investor-owned utilities to rate project viability. Project viability refers to:

- Project owner/development team experience developing, owning, operating and/or maintaining similar projects;
- Technical feasibility:
 - The proposed resource must be a commercialized technology in use at other operating facilities of similar or larger capacity;
 - Must meet the California Emission Performance Standard;
 - Must be pre-certified by the CEC as an eligible renewable resource;
 - The proposal must include high quality resource production profile estimates;
 - There should not be any known or anticipated manufacturing supply chain constraints;
 - Identified available water source and minimal water consumption;
- Development Milestones:
 - Site control;
 - Permitting;
 - Status of and ability to obtain financing;

¹⁰ Ancillary Services are required to support the transmission of energy from generation resources to loads while maintaining reliable operation of the electric grid in accordance with regional reliability standards and good utility practice. Ancillary Services include Regulation, Spinning Reserve, Non-Spinning Reserve, Voltage Support and Black Start, each as defined in the CAISO Tariff.

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- Interconnection progress;
- Transmission system and deliverability upgrade requirements/schedule; and
- Reasonableness of proposed commercial operation or contract start date.

In addition to project viability, PWP's qualitative evaluation also considers factors such as:

- Risk exposure diversification;
- Counterparty creditworthiness and willingness to post collateral;
- Resource flexibility and optionality;
- California's Energy Action Plan preferred loading order;
- Preference for previously disturbed and brownfield sites, or locations in designated Renewable Energy Zones; and
- Local and certified small or micro business preference.

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SUMMARY OF RPS PROCUREMENT PLAN

On the next page, is PWP's 2017 RPS Procurement Plan for meeting the RPS goals, with the appropriate PCC and RPS targets required under the CEC Enforcement Procedures. To optimize the portfolio and minimize costs, this plan assumes PWP retires only the amount of RECs required in each PCC in any particular year and carries over the remainder into future periods. The pending contracts listed below, refers to planned future contracts to meet compliance requirements. Some of these "planned contracts," are currently under negotiation while others are being planned for. The 2017 RPS Procurement Plan is an estimate only, to show PWP's intent to comply with SB 350.

When reviewing the 2017 RPS Procurement Plan, it is important to note the following:

- CP refers to "Compliance Period";
- CP 1 and CP 2 is shaded as the data is based on CEC compliance filings and is based on past data;
- CP 3, CP 4, CP 5 and CP 6 are based on PWP estimates;
- TBD is "To Be Determined" based on contract negotiations and the 2018/2019 Integrated Resource Plan; and
- "Planned" refers to projects that are under negotiation, or plan to be under negotiation in that CP.

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PWP RENEWABLE RESOURCE PROCUREMENT PLAN												
22-Jan-18												
Compliance Period (CP)	CP1	CP2	CP3	CP4	CP5	CP6						
Calendar Year (CY)	CY 2011-2013	CY 2014-2016	CY 2017-2020	CY 2021-2024	CY 2025-2027	CY 2028-2030						
Estimated PWP Retail Sales (GWh)	3330.29	3248.34	4178.78	4161.55	3111.12	3110.07						
Grandfathered Projects	CP1 (GWh)	CP2 (GWh)	CP3 (GWh)	CP4 (GWh)	CP5 (GWh)	CP6 (GWh)	PCC	Contract Term (Years)	Online Year	Location	Resource Type	
Azusa Hydro	12.62	0.12	0.00	0.00	0.00	0.00	0	Ownership	1933	CA	Small Hydro	
Chiquita Canyon LFG (Ameresco)	114.01	115.70	143.19	143.19	111.83	111.83	0	20	2010	CA	Landfill Gas	
Heber South Geothermal (Dimat)	48.33	44.68	63.79	63.79	47.84	47.84	0	25	2006	CA	Geothermal	
High Winds (Iberdrola)	44.08	38.76	51.88	38.91			0	20	2003	CA	Wind	
Minnesota Methane LFG	133.18	137.46					0	10	2007	CA	Landfill Gas	
Millford Wind	28.66	31.53	41.00	41.00	30.75	20.50	0	20	2009	UT	Wind	
City of Glendale LFG (Grayson)	34.75						0	1	2010	CA	Landfill Gas	
Total Grandfathered Resources	415.63	368.24	305.86	292.83	190.49	180.24						
Contracted Projects	CP1 (GWh)	CP2 (GWh)	CP3 (GWh)	CP4 (GWh)	CP5 (GWh)	CP6 (GWh)	PCC	Contract Term (Years)	Contract Year	Location	Resource Type	
Anelope Big Sky Ranch	0.00	5.62	63.30	62.05	45.72	45.04	1	25	2012	CA	Solar	
Columbia 2 Solar	0.00	15.30	30.52	29.87	22.03	21.69	1	20	2013	CA	Solar	
EDF Biomethane (GWh equivalent)	0.00	4.06	0.00	0.00	0.00	0.00	1	10	2011	TX	Biogas	
Kingbird A	0.00	46.80	235.03	230.27	163.58	166.90	1	20	2013	CA	Solar	
Puente Hills LFG	0.00	0.00	282.64	188.12	96.08	87.76	1	14	2014	CA	Landfill Gas	
Sequent Biomethane (GWh equivalent)	80.21	70.62	0.00	0.00	0.00	0.00	1	10	2011	TN	Biogas	
Short Term WSPP (PCC1)	0.00	37.75	0.00	0.00	0.00	0.00	1	<1 year	2014	WECC Region	Various	
Summer Solar	0.00	7.64	63.30	62.05	45.72	45.04	1	25	2012	CA	Solar	
Short Term WSPP (PCC1)	0.00	5.50	0.00	0.00	0.00	0.00	1	<1 year	2014	WECC Region	Various	
Waste Mgmt Biomethane (GWh equivalent)	107.79	71.52	0.00	0.00	0.00	0.00	1	10	2011	OH	Biogas	
Short Term WSPP (PCC1)	0.00	26.05	32.00	0.00	0.00	0.00	1	<1 years	2016	CA	Wind	
Windoor Reservoir Solar	1.31	2.38	3.48	3.48	2.61	2.61	1	20	2010	CA	Solar	
Planned (PCC1) (TBD)	0.00	0.00	0.00	487.50	562.50	787.50	1	>= 10 years	2020	WECC Region	Various	
Short Term WSPP (PCC1)	0.00	0.00	77.50	0.00	0.00	0.00	1	<1 years	2017	WECC Region	Various	
Short Term WSPP (PCC1)	0.00	0.00	81.00	0.00	0.00	0.00	1	<1 years	2017	WECC Region	Various	
Short Term WSPP (PCC1)	15.03	0.00	0.00	0.00	0.00	0.00	1	<1 years	2011	WECC Region	Various	
Short Term WSPP (PCC1)	17.90	0.00	0.00	0.00	0.00	0.00	1	<1 years	2012	WECC Region	Various	
Short Term WSPP (PCC1)	62.24	0.00	0.00	0.00	0.00	0.00	1	<1 years	2012	WECC Region	Various	
Short Term WSPP (PCC2)	0.00	91.75	17.00	0.00	0.00	0.00	2	<1 years	2014	WECC Region	Various	
Short Term WSPP (PCC2)	0.00	0.00	145.00	0.00	0.00	0.00	2	<1 years	2017	WECC Region	Various	
Planned (PCC 2) (TBD)				97.50	112.50	157.50		TBD				
Unbundled RECs	0.00	146.25	0.00	0.00	0.00	0.00	3	<1 years	2014	WECC Region	NIA	
Unbundled RECs	6.07	14.27	223.00	165.00	88.00	0.00	3	<1 years	2013	WECC Region	NIA	
Unbundled RECs	0.00	76.75	0.00	0.00	0.00	0.00	3	<1 years	2015	WECC Region	NIA	
Unbundled RECs	77.34	0.00	0.00	0.00	0.00	0.00	3	<1 years	2011	WECC Region	NIA	
Unbundled RECs	20.10	0.00	0.00	0.00	0.00	0.00	3	<1 years	2013	WECC Region	NIA	
Unbundled RECs	55.00	0.00	0.00	0.00	0.00	0.00	3	<1 years	N/A	WECC Region	NIA	
Planned (PCC 3) (TBD)								TBD				
Total Contracted Resources	443.01	622.24	1253.77	1390.83	1219.74	1399.04						
Not Applied/Banked/Carried Over Procurement	32.23	49.02	TBD	TBD	TBD	TBD						
California Energy Commission RPS TARGET	20%	25%	33%	40%	45%	50%						
Achieved/Expected PWP RPS %	22.85%	27.00%	37.32%	40.46%	45.33%	50.78%						

Pasadena Water & Power RPS Procurement Plan – V.3

RPS PROCUREMENT PLAN LIMITATIONS AND RELIEF

Section E of the City's RPS Enforcement Program notes that PWP will use its best efforts to procure adequate supplies of renewable energy as set forth in this RPS Procurement Plan; however, PWP will at all times maintain system reliability and maintain average procurement costs for retail electric sales in accordance with the approved budget and retail electric rates approved by the City Council. California law recognizes that adverse situations beyond PWP's control may arise and prevent PWP from fulfilling the RPS Procurement Targets in a timely manner and consistent with such limitations.

In the event PWP discovers that such conditions, as specified in the City's RPS Enforcement Program, may potentially prevent PWP from meeting the RPS Procurement Targets set forth in the RPS Enforcement Program, PWP will notify the City Council of the adverse conditions and apply to the CEC for relief. If appropriate, PWP may submit a revised RPS Procurement Plan for discussion, approval and implementation.

The CEC may reduce a procurement requirement to the extent PWP demonstrates that it cannot comply because of conditions beyond its control¹¹. However, the CEC may not, under any circumstance, reduce the procurement obligation of PCC 1 below 65 percent for any compliance period obligation after December 31, 2016.

PWP expects to fully comply with both the City's voluntary and the State of California's mandatory RPS requirements. PWP does not recommend taking advantage of this provision or other optional compliance measures detailed in the City's RPS Enforcement Program at this time.

VERSION HISTORY

- VERSION 1: Initially Adopted- July 22, 2013
 - New mandate to comply with SBX1 2
- VERSION 2: Amended- June 1, 2015
 - Include updates on contracts and other processes
- VERSION 3: Amended- January 29, 2018
 - Show compliance with SB 350
 - Include updates on contracts and other processes

¹¹ [PUC Section 399.15\(5\)](#)