



**BEFORE THE  
PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**

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<p><b>Order Instituting Rulemaking to Continue Implementation and Administration, and Consider Further Development of, California Renewables Portfolio Standard Program</b></p>	<p><b>R. 15-02-020</b> (Filed February 26, 2015)</p>
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**THE REGENTS OF THE UNIVERSITY OF CALIFORNIA  
2016 RENEWABLES PORTFOLIO STANDARD  
PROCUREMENT PLAN**

**PUBLIC VERSION**

**Mark Byron**  
**Wholesale Electricity Procurement Manager**  
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**August 8, 2016**

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**BEFORE THE  
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PROCUREMENT PLAN**

**PUBLIC VERSION**

In accordance with the Assigned Commissioner and Assigned Administrative Law Judge’s Ruling, The Regents of the University of California submit its 2016 Renewables Portfolio Standard (“RPS”) Procurement Plan. In fulfilling its reporting obligations, The Regents of the University of California respond to paragraphs 6.1 through 6.5, 6.7, 6.8, and 6.12-6.14 of the Assigned Commissioner and Assigned Administrative Law Judge’s Ruling, as required of Electric Service Providers (ESPs).

**6.1. Assessment of RPS Portfolio Supplies and Demand - § 399.13(a)(5)(A)**

The assessment should consider, at a minimum, a 20-year time frame with a detailed 10-year planning horizon that takes into account both portfolio supplies and demand. This written description must include the retail seller’s need for RPS resources with specific

deliverability characteristics, such as, peaking, dispatchable, baseload, firm, and as-available capacity as well as any additional factors, such as ability and/or willingness to be curtailed, operational flexibility, etc. It must also explain how the quantitative analysis provided in response to section 6.5 supports the assessment. This written description must also explain how the proposed renewable energy portfolio will align with expected load curves and durations, as well as how it optimizes cost, value, and risk for the ratepayer. Where applicable, the assessment should also identify and incorporate impacts of overall energy portfolio and system requirements (not just RPS portfolio requirements), recent legislation, other Commission proceedings, other agencies' requirements, and other policies or issues that would impact RPS demand and procurement. The written description should also explicitly and specifically address, both qualitatively and quantitatively, to the extent possible, how the buyer intends to increase the diversity in its portfolio overall, to address issues of grid integration, potential for overgeneration, and ratepayer value. Additionally, the assessment should describe and incorporate RPS lessons learned over the past year, including RPS trends and potential future trends. Lastly, it should describe how procurement (or sales) planned for the period covered by the 2016 RPS plans is consistent with the assessment of supplies and demand.

*Since January of 2015 The Regents of the University of California in its role Electric Service Provider #1389 ("UC\_ESP") has been providing Direct Access electric service to approximately 500 accounts associated with University facilities.*

*The cumulative load UC\_ESP serves in any given year is a function of many factors. A key factor that drives net campus usage is the energy production of existing behind the meter electric generation resources. Additional factors include weather, incremental load growth, Direct Access lottery selection, energy efficiency, and the addition or retirement of our behind the meter generation resources.*

*When forecasting we use a methodology that consists in part of quantitative, weather-adjusted forecasts of gross load and estimates of behind the meter generation.*

*The campus load UC\_ESP serves is relatively flat throughout the year, but is greater in the fall than in the spring.*

*UC\_ESP transacted in 2014, 2015, and 2016 to meet RPS requirements for individual portfolio content categories for the current compliance period.*

*The University also executed two power purchase agreements for long term renewable supply from utility scale solar projects. Both projects are to be directly connected to the CAISO grid and meet the requirements for Portfolio Content Category 1 (PCC 1) renewable energy credits. The first contract (Project 1) is currently expected to achieve commercial operation by the fourth quarter of 2016. The second contract (Project 2) is expected reach commercial operation in the summer of 2017. UC\_ESP is relying on energy from Project 1 to meet its current compliance period RPS obligations.*

*When both (utility scale) projects are operational, they are expected to provide enough renewable energy to exceed 33% of the UC\_ESP's 2020 forecasted load and to potentially exceed 50% of the UC\_ESP's 2030 forecasted load. These two projects may likely satisfy the requirement, introduced by SB 350, for at least 65% of the procurement a retail seller counts toward the RPS requirement of each compliance period to be from contracts of 10-years or more in duration, beginning January 1, 2021.*

*As part of contingency planning to address potential solar project delays, UC\_ESP executed a transaction for 2016 vintage RECs. Actual results of our short-term RPS procurement strategy and expected results of our long-term RPS procurement strategy are summarized and reflected in section 6.5.*

*UC\_ESP will likely consider wind, geothermal or biomass in addition to solar supply for subsequent procurement activities. We may also look to a mix of shorter term transactions to augment and manage our existing long term supply position. The ultimate resource mix that is retired for compliance purposes may differ from the*

*currently procured quantities, as the University intends to optimize its renewables portfolio over time.*

*Regarding operational flexibility, UC\_ESP secured unlimited curtailment rights in our long-term solar supply contracts. Such curtailment rights allow the asset to respond to price signals related to system over-generation conditions. In addition, the University plans to comply with Flexible Resource Adequacy requirements by contracting with generators that have an Effective Flexible Capacity (EFC) in support of reliable grid operations.*

*Lessons learned. Renewable supply is variable. It is variable in terms of achieving commercial operation date (when power supply shows up for the first time), it is variable from a force majeure perspective, and it is variable from an energy production perspective. The need for renewable energy is also variable as retail load portfolios change over time due to demand and weather related factors. For these reasons and more, a mix of different contract types, among other items, is beneficial for managing an RPS position.*

## **6.2. Project Development Status Update - § 399.13(a)(5)(D)**

Provide a written status update on the development schedule of all eligible renewable energy resources currently under contract or retail seller-owned but not yet delivering generation. This written status update should differentiate status updates based on whether projects are pre-construction, in construction, or post-construction. The status updates provided in the written description must be reflected in the quantitative analysis provided in response to Section 6.5, below. Given this analysis, discuss how the status updates will impact the retail seller's net short and its procurement decisions for the next two years and on a ten-year planning horizon.

*UC\_ESP executed two power purchase agreements for long term supply of solar energy. Project 1 reached mechanical completion in May of 2016 and is expected to begin delivering contract energy at the end of the 3<sup>rd</sup> or beginning of the 4<sup>th</sup> quarter of 2016. Project 2 is currently in the pre-construction phase and is expected to deliver energy before July 1, 2017, based on reports from the developer. The UC\_ESP is also the scheduling coordinator (through a subcontractor) for these projects and as such works closely with the Project 1 team on test energy and general scheduling and CAISO matters, and will also continue to monitor the progress of Project 2.*

*Based on currently expected COD for Project 1, and considering additional PCC1 RECs procured earlier in 2016, the University expects to meet its compliance period 2 RPS obligations. In subsequently compliance periods the anticipated RECs from Project 1 should allow UC\_ESP to exceed 33% of forecasted retail sales with renewable supply. When both projects are fully operational, they are expected to provide enough renewable energy to possibly exceed 50% of UC\_ESP's retail sales to the campuses.*

### **6.3. Potential Compliance Delays - § 399.13(a)(5)(B)**

Describe in writing any potential issues that could delay RPS compliance, including, but not limited to, inadequate transmission capacity, permitting delays, insufficient eligible renewable energy resources supply, unanticipated curtailment, unanticipated increase in retail sales, and the relationship, if any, to project development delays, reduced generation, and compliance delays. Describe the steps taken to account for and minimize these potential compliance delays. The potential compliance delays included in the written description must be reflected in the quantitative analysis provided in response to Section 6.5. Given this analysis, discuss how the potential compliance delays will impact the retail seller's RPS net short and its procurement decisions.

*UC\_ESP's solar contracts include delay-damages that provide incentive for the developer to meet the agreed upon timelines.*

*For compliance in the short-term, the primary risks include: (A) Project 1 does not meet the current COD target, (B) Project 1 under-produces compared to forecasted energy production, (C) there is higher than anticipated retail load, and (D) there is insufficient market liquidity to procure PCC 1 or PCC2 RECs for delivery in 2016.*

*To provide a compliance buffer in the event of moderate delays to commercial operation of Project 1, UC\_ESP completed a transaction with a new solar facility in southern California at the beginning of 2016, for 2016 vintage PCC1 RECs. These RECs are additional to those expected from Project 1. Given the current project status (post-construction), significant additional delays are improbable, but would likely be related to project (1) financing, if they occur.*

*In order to recognize and address any potential future period compliance delays in a timely fashion UC\_ESP continues to closely monitor Project 2 through required status reports and weekly developer updates.*

#### **6.4. Risk Assessment - § 399.13(a)(5)(F)**

Provide a written assessment of the risk in the RPS portfolio in relation to RPS compliance requirements. Risk assessment should describe risk factors such as those described above regarding compliance delays, as well as, but not limited to, the following: lower than expected generation, variable generation, resource availability (e.g., biofuel supply, water, etc.), and impacts to eligible renewable energy resource projects currently under contract. The risk assessment provided in the written description must be reflected in the quantitative analysis provided in response to Section 6.5. Given this analysis, discuss how the risk assessment will impact the retail seller's net short and its procurement decisions.

*Not having risk pooling benefits, as entities with larger requirements (and more projects in their portfolio) would, UC\_ESP is potentially vulnerable if output from contracted facilities falls short of forecasted levels.*

*Another risk for the University is the performance of behind the meter generation assets such as cogeneration facilities and (renewable) distributed generation. To the extent that these generation facilities are not operating at expected output levels, there will be a greater volume of energy required to meet the retail load of each applicable campus and accordingly a greater amount of renewable energy required to meet RPS compliance targets.*

*However, these risks are somewhat mitigated in that the UC\_ESP procured beyond the minimum requirements as part of the University's internal goals to achieve carbon neutrality. Once operational, these two projects are expected to produce ample PCC1 RECs to exceed 33% of forecasted retail sales beginning in 2017 and 50% of forecasted retail sales beginning in 2018. This helps reduce compliance risk post 2016.*

#### **6.5. Quantitative Information - §§ 399.13(a)(5)(A), (B), (D) and (F)**

In addition to the written descriptive responses to Sections 6.1 through 6.4, provide quantitative data, methodologies, and calculations relied upon to assess the retail seller's RPS portfolio needs and RPS procurement net short. This quantitative analysis must take into account, where appropriate, the quantitative discussion requirement by Sections 6.1-6.4, above. Any RPS-eligible procurement that has or will occur outside of the RPS program should also be included. As stated above, the portfolio assessment should be for a minimum of 20 years in the future. The responses must be clear regarding the quantitative progress made towards RPS requirements and the specific risks to the electrical corporation's RPS Procurement Portfolio. Risks may include, but are not limited to, project development, regulatory, and market risks. The quantitative response

must be provided in an Excel spreadsheet based on the most recently directed renewable net short methodology.

*Please refer to the attached Renewable Net Short spreadsheet.*

### **6.7. Bid Solicitation Protocol, Including Least-Cost Best-Fit Methodologies - § 399.13(a)(5)(C) and D.04-07-029**

Pursuant to § 399.13(a)(5)(C), 2016 RPS Procurement Plans must include a bid solicitation protocol setting forth the need for eligible renewable energy resources. If selling eligible renewable energy is part of a 2016 RPS Procurement Plan, then a solicitation protocol setting forth the available eligible renewable energy should also be included. Solicitations shall be consistent with portfolio assessment provided in Sections 6.1 through 6.5 and the retail seller's renewable net short position. Additionally, solicitations should be specific regarding what quantity of products are being requested (or offered) and the required deliverability characteristics, online dates, term lengths, and locational preferences.

The bid solicitation protocols should include an overview of the solicitation process, a solicitation schedule, pro forma agreement(s), and a detailed description of the utility's least-cost best-fit (LCBF) methodology. If the renewable auction mechanism (RAM) procurement process is planned to be used, then a pro forma agreement for that process should be included. Additionally, if any sales, or other types of procurement is planned and needs a specific pro forma agreement (e.g. short-term procurement), then it should also be included. The LCBF methodology should be consistent with D.04-07-029, D.11-04-030, D.12-11-016, and D.14-11-042. Also, it should clearly describe criteria (e.g., energy value, congestion cost, locational preference, term length, ability to be curtailed, operational flexibility, etc.) and how bids will be valued and evaluated based on the LCBF methodology. Any qualitative measures that will be used in LCBF methodology

should also be described, both in terms of the criteria and how they will be used in the methodology.

As noted in the Amended Scoping Memo and Ruling of the Assigned Commissioner (February 5, 2016), the Commission will be revising and updating LCBF. The issues that will be addressed in examining LCBF include, but are not limited to: capacity value, energy-only, and time-of-delivery factors. As such, parties will have an opportunity in the near future to provide detailed comments regarding LCBF issues in response to a ruling and staff paper. Thus, parties are encouraged to comment on the particulars of the IOUs' currently proposed LCBF methodologies in their comments on this ruling, and to provide more in-depth comments on LCBF issues in response to subsequent rulings focused on LCBF reform.

*UC\_ESP procured above its compliance obligations for 2016 and beyond, and therefore does not believe we have a compliance-driven need for additional eligible renewable resources. UC\_ESP will continue to closely monitor both supply-side and demand-side risk factors and engage in procurement activities as needed to supplement or manage our long term solar position. UC\_ESP may also elect to pursue additional long-term and short term procurement agreements in order to meet broader organizational goals regarding carbon neutrality.*

*California Public Utilities Code § 399.13, amended pursuant to the passage of Senate Bill 350 (De Leon, 2015), directs all retail sellers to prepare and submit renewable energy procurement plans that address the requirements identified in paragraph 5. Specifically, section § 399.13(a)(5)(C) states "A bid solicitation setting forth the need for eligible renewable energy resources of each*

*deliverability characteristic, required online dates, and locational preferences, if any.”*

*Subsequent paragraphs of Section 6.7 of the Assigned Commissioner and Assigned Administrative Law Judge’s Ruling apply to electrical corporations. For the avoidance of doubt, this includes references to Least-Cost Best-Fit (LCBF) methodology and related CPUC decisions in 6.7, Workforce Development in Section 6.7.1, and Disadvantaged Communities in Section 6.7.2.*

#### **6.7.1. Workforce Development – § 393.13(a)(4)(A)(iv)**

SB 2 (1X) added the requirement that the criteria for ranking and selecting of least-cost, best-fit renewable energy resources shall include “the employment growth associated with the construction and operation of eligible renewable energy resources.” Accordingly, the 2016 RPS Procurement Plans shall include a description of a proposed approach for assessing and differentiating the ability of different bids to contribute to employment growth. Pursuant to statute, the approach should address both the construction and operational phases of the project.

*Not Applicable. See response to section 6.7.*

#### **6.7.2. Disadvantaged Communities – § 393.13(a)(7)**

SB 2 (1X) additionally added the requirement that preference shall be given “to renewable energy projects that provide environmental and economic benefits to communities afflicted with poverty or high unemployment, or that suffer from high emission levels of toxic air contaminants, criteria air pollutants, and greenhouse gases.”<sup>24</sup>

Consequently, the 2016 RPS Procurement Plans shall include a description of their methodology for preferring projects that provide the benefits described in 399.13(a)(7). The description should clearly articulate how a project's benefits to communities are determined or obtained and how that information influences offer selection.

*Not Applicable. See response to section 6.7.*

### **6.8. Consideration of Price Adjustment Mechanisms - § 399.13(a)(5)(E)**

Pursuant to § 399.13(a)(5)(E), describe how price adjustments (e.g., index to key components, index to Consumer Price Index, price adjustments based on exceeding transmission or other cost caps, etc.) will be considered and potentially incorporated into contracts for RPS-eligible projects with online dates occurring more than 24 months after the contract execution date. Discuss how the price adjustments will maximize value for ratepayers and minimize potential risks to ratepayers.

*UC\_ESP generally prefers fixed price contracts for long term procurement. As such, the successful developer assumes or embeds inflation and financing risk into the price shown to UC\_ESP. Expected costs associated with procurement decisions are typically incorporated into rates to the campuses. Index pricing has been used for shorter term procurement; however, we have not used CPI type indexing. The Commission does not regulate the rates of ESPs, and therefore we are not considered to have "ratepayers" in the context of Section 6.8.*

### **6.12. Important Changes to Plans Noted**

A statement identifying and summarizing the important changes between the 2015 and 2016 RPS Procurement Plans must be included. This summary should not be a reprint of the two plans with strike-out and underlined inserts. In addition to identifying and

summarizing the important changes, the plan should also include an explanation and justification of the reasonableness for each important change from 2015 to 2016.

*Since submittal of our 2015 RPS Procurement Plan, UC\_ESP engaged in procurement from additional RPS resources in order to replace contracted RECs that were not delivered due to a force majeure event as well as to ensure compliance in the event of delays to Project 1's commercial operation date. Our 2016 Procurement plan reflects the current status of our two long-term Solar PPAs. The most significant change is that Project 1 is now in the post-construction phase. Lastly, comments regarding our assessment of RPS Portfolio Supplies and Demand (Section 6.1) have been expanded to address new long-term contracting requirements introduced by SB 350.*

### **6.13. Redlined Copy of Plans Required**

A version of the 2016 RPS Procurement Plan that is "redlined" to identify the changes from the 2015 plan must be included with the 2016 RPS Procurement Plans. The IOUs must provide a redlined copy for the Commission's Energy Division Staff, the ALJ, and any party who requests a copy. (This is separate from the Important Changes item above.)

*Please see attached redlined copy.*

### **6.14. Safety Considerations**

As stated in D.11-11-042, all entities filing RPS Procurement Plans must incorporate a section on safety considerations.

*Thus far, UC\_ESP entered term agreements with generators who plan to have Exempt Wholesale Generators (EWG) status. That status places the generators, in part, under FERC auspices. As such, reliability and safety considerations are included via WECC*

*standards. UC\_ESP also included G.O. 167 as applicable to renewable generators, in such agreement(s).*

DATED: August 8, 2016

Respectfully submitted,

/s/

Mark Byron

Wholesale Electricity Program Manager  
The Regents of the University of California

1111 Franklin Street

Oakland, CA 94607

(510) 287-3846

Mark.Byron@ucop.edu

## VERIFICATION

I, Mark Byron, am authorized to make this verification on behalf of The Regents of the University of California. I declare under penalty of perjury that the statements in the foregoing 2016 Renewables Portfolio Standard Procurement Plan filed in Rulemaking 15-02-020 are true of my own knowledge, except as to matters which are therein stated on information or belief, and as to those matters I believe them to be true. The spreadsheet format used to file this compliance report has not been altered from the version issues or approved by the Energy Division.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on August 8<sup>th</sup>, 2016, in Oakland, California.



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Mark Byron, Wholesale Electricity Program Manager

Variable	Calculation	Item	Deficit from RPS prior to Reporting Year	2011 Actuals	2012 Actuals	2013 Actuals	2011-2013	2014 Actuals	2015 Actuals	2016 Forecast	2014-2016	2017 Forecast	2018 Forecast
		Forecast Year		-	-	-	CP1	-	-	-	CP2	-	-
<b>Annual RPS Requirement</b>													
A		Bundled Retail Sales Forecast (LTPP)						-					
B		RPS Procurement Quantity Requirement (%)				20.0%	20.0%	21.7%	23.3%	25.0%	23.3%	27.0%	29.0%
C	A*B	<b>Gross RPS Procurement Quantity Requirement (GWh)</b>						-					
D		Voluntary Margin of Over-procurement						-	-	-	-	-	-
E	C+D	<b>Net RPS Procurement Need (GWh)</b>						-					
<b>RPS-Eligible Procurement</b>													
Fa		Risk-Adjusted RECs from Online Generation						-					
Faa		Forecast Failure Rate for Online Generation (%)						-					
Fb		Risk-Adjusted RECs from RPS Facilities in Development						-					
Fbb		Forecast Failure Rate for RPS Facilities in Development (%)						-					
Fc		Pre-Approved Generic RECs						-					
Fd		Executed REC Sales						-					
F	Fa + Fb + Fc - Fd	Total RPS Eligible Procurement (GWh)						-					
F0		Category 0 RECs						-					
F1		Category 1 RECs						-					
F2		Category 2 RECs						-					
F3		Category 3 RECs						-					
<b>Gross RPS Position (Physical Net Short)</b>													
Ga	F-E	<b>Annual Gross RPS Position (GWh)</b>						-					
Gb	F/A	<b>Annual Gross RPS Position (%)</b>						-					
<b>Application of Bank</b>													
Ha	H - Hc (from previous year)	Existing Banked RECs above the PQR						-	-	-	-	-	-
Hb		RECs above the PQR added to Bank						-	-	-	-	-	-
Hc		Non-bankable RECs above the PQR						-	-	-	-	-	-
H	Ha+Hb	Gross Balance of RECs above the PQR						-	-	-	-	-	-
Ia		Planned Application of RECs above the PQR towards RPS Compliance						-	-	-	-	-	-
Ib		Planned Sales of RECs above the PQR						-	-	-	-	-	-
J	H-Ia-Ib	Net Balance of RECs above the PQR						-	-	-	-	-	-
J0		Category 0 RECs						-	-	-	-	-	-
J1		Category 1 RECs						-	-	-	-	-	-
J2		Category 2 RECs						-	-	-	-	-	-
<b>Expiring Contracts</b>													
K		RECs from Expiring RPS Contracts						-	-	-	-	-	-
<b>Net RPS Position (Optimized Net Short)</b>													
La	Ga + Ia - Ib - Hc	<b>Annual Net RPS Position after Bank Optimization (GWh)</b>											
Lb	(F + Ia - Ib - Hc)/A	<b>Annual Net RPS Position after Bank Optimization (%)</b>											

Note: Fields in grey are protected as Confidential under CPUC Confidentiality Rules

Note: Values are shown in GWhs



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20152016 RENEWABLES PORTFOLIO STANDARD  
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In accordance with the Assigned ~~Commissioner's~~Commissioner and Assigned  
Administrative Law Judge's Ruling (~~"ACR"~~),<sup>3</sup> The Regents of the University of  
California submit its ~~2015~~2016 Renewables Portfolio Standard ("RPS")  
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University of California respond to paragraphs 6.1 through 6.4~~5~~, ~~6.7~~, ~~6.6~~13.~~8~~,  
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Administrative Law Judge's Ruling, as required of Electric Service Providers-  
(ESPs).

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<sup>3</sup>The Regents of the University of California clarified with CPUC Senior Policy Analyst, Cheryl Lee, via e-mail on July 20, 2015 that ESPs must file a proposed RPS Procurement Plan that complies the requirements of Sections 6.1 through 6.6, ~~6.13~~, and ~~6.15~~. The Assigned Commissioner's Revised Ruling Identifying Issues and Schedule of Review for 2015 Renewables Portfolio Standard Procurement Plans filed on May 28, 2015 had erroneously indicated in Section 5 that the applicable Sections were 6.1 through 6.6, 6.12, and 6.14.



**6.1. Assessment of RPS Portfolio Supplies and Demand - § 399.13(a)(5)(A)**

~~Provide a written description assessing annual and multi-year portfolio supplies and demand in relation to RPS requirements, the RPS program, and the RPS program's overall goals to determine the retail seller's optimal mix of eligible renewable energy resources. The assessment should consider, at a minimum, a 20-year time frame with a detailed 10-year planning horizon that takes into account both portfolio supplies and demand. This written description must include the retail seller's need for RPS resources with specific deliverability characteristics, such as, peaking, dispatchable, baseload, firm, and as-available capacity as well as any additional factors, such as ability and/or willingness to be curtailed, operational flexibility, etc. It must also explain how the quantitative analysis provided in response to section 6.5 supports the assessment. This written description must also explain how the proposed renewable energy portfolio will align with expected load curves and durations, as well as how it optimizes cost, value, and risk for the ratepayer. Where applicable, the assessment should also identify and incorporate impacts of overall energy portfolio and system requirements (not just RPS portfolio requirements), recent legislation, other Commission proceedings (e.g., R.13-12-010, the long-term procurement plans proceeding), other agencies/agencies' requirements, and other policies or issues that would impact RPS demand and procurement. The written description should also explicitly and specifically address, both qualitatively and quantitatively, to the extent possible, how the buyer intends to increase the diversity in its portfolio overall, to address issues of grid integration, potential for overgeneration, and ratepayer value. Additionally, the assessment should describe and incorporate RPS lessons learned over the past year, including RPS trends and potential future trends. Lastly, it must also explain how the quantitative analysis provided in response to section 6.5 supports the assessment.~~

~~In mid-2014 The Regents of Lastly, it should describe how procurement (or sales) planned for the University period covered by the 2016 RPS plans is consistent with the assessment of supplies and demand.~~

~~Since January of California became registered as an Electric Service Provider ("ESP") at the CPUC (ESP #1389). 2015 The Regents of the University of California ("University") then assumed responsibility for approximately 500 in its role Electric Service Provider #1389 ("UC ESP") has been providing Direct Access electric service to approximately 500 accounts associated with our University facilities (campuses, et al) beginning in January, 2015. Those electric accounts were previously served by Noble Americas Energy Solutions and historically represented around 300,000 MWh.~~

~~The cumulative load UC ESP serves in any given year is a function of load. With the expected addition many factors. A key factor that drives net campus usage is the~~

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energy production of new existing behind the meter electric generation at University of California, Santa Cruz (among other load changes), the retail forecast for 2015 was lowered to approximately 262k MWh of expected consumption.

Unlike most ESPs, the University serves its own load. The expected primary drivers of future load fluctuations includes resources. Additional factors include weather, incremental load growth, Direct Access lottery selection (load growth), energy efficiency (load reduction), and additional the addition or retirement of our behind the meter generation (load reduction)-resources.

The University relies on the CAISO day-ahead and real-time market purchases for energy. By becoming our own ESP, the University intends to exercise greater control over our energy supply. With respect to procurement of renewable supplies, the University plans to separate long-term (2017 and beyond) and short-term (through the end of Compliance Period 2), procurement strategies.

In regard of our short-term needs; the University conducted a solicitation and executed three transactions for 2015 vintage RECs, which are summarized in section 6.5. The University will likely pursue additional shorter-term RPS purchases to meet the requirements for Compliance Period 2, while cognizant of potentially overlapping with renewable energy from our long-term purchases.

For the long-term, in September of 2014 the University When forecasting we use a methodology that consists in part of quantitative, weather-adjusted forecasts of gross load and estimates of behind the meter generation.

The campus load UC ESP serves is relatively flat throughout the year, but is greater in the fall than in the spring.

UC ESP transacted in 2014, 2015, and 2016 to meet RPS requirements for individual portfolio content categories for the current compliance period.

The University also executed two 25-year power purchase agreements with development stage for long term renewable supply from utility scale solar projects. Both projects have a guaranteed commercial operation date ("COD") of December 31, 2016, but are expected to reach COD prior to the guaranteed date. Both projects are to be directly connected to the CAISO grid and meet the requirements for Portfolio Content Category 1 (PCC 1) renewable energy credits. When both projects are fully operational, they are expected to provide enough renewable energy to exceed the minimum 33% of the University's forecasted load. The first contract (Project 1) is

currently expected to achieve commercial operation by the fourth quarter of 2016. The second contract (Project 2) is expected reach commercial operation in the summer of 2017. UC ESP is relying on energy from Project 1 to meet its current compliance period RPS obligations.

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TheWhen both (utility scale) projects are operational, they are expected to provide enough renewable energy to exceed 33% of the UC ESP's 2020 forecasted load profile for the University of California is relatively flat throughoutand to potentially exceed 50% of the year. The UniversityUC ESP's 2030 forecasted load. These two projects may likely satisfy the requirement, introduced by SB 350, for at least 65% of the procurement a retail seller counts toward the RPS requirement of each compliance period to be from contracts of 10-years or more in duration, beginning January 1, 2021.

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As part of contingency planning to address potential solar project delays, UC ESP executed a transaction for 2016 vintage RECs. Actual results of our short-term RPS procurement strategy and expected results of our long-term RPS procurement strategy are summarized and reflected in section 6.5.

UC ESP will likely consider wind, geothermal or biomass in addition to solar supply for subsequent procurement activities to provide more energy during the off-peak periods when solar facilities have limited output. We may also look to a mix of shorter term transactions to augment and manage our existing long term supply position. The ultimate resource mix that is retired for compliance purposes may differ from the currently procured quantities, as the University intends to optimize its renewables portfolio over time.

Regarding operational flexibility, the UniversityUC ESP secured unlimited curtailment rights for thein our long-term solar supply contracts. Such curtailment rights allow the asset to address concerns aboutrespond to price signals related to system over-generation conditions. In addition, the University will be requiredplans to meet the newcomply with Flexible Resource Adequacy requirements by contracting with generators that have an Effective Flexible Capacity (EFC) in support of reliable grid operations.

Lessons learned. Renewable supply is variable. It is variable in terms of achieving commercial operation date (when power supply shows up for the first time), it is variable from a force majeure perspective, and it is variable from an energy production perspective. The need for renewable energy is also variable as retail load portfolios change over time due to demand and weather related factors. For these reasons and more, a mix of different contract types, among other items, is beneficial for managing an RPS position.

## 6.2. Project Development Status Update - § 399.13(a)(5)(D)

Provide a written status update on the development schedule of all eligible renewable energy resources currently under contract or retail seller-owned but not yet delivering generation. This written status update should differentiate status updates based on whether projects are pre-construction, in construction, or post-construction. The status updates provided in the written description must be reflected in the quantitative analysis provided in response to ~~section~~Section 6.5, below. Given this analysis, discuss how the status updates will impact the retail seller's net short and its procurement decisions for the next two years and on a ten-year planning horizon.

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~~The University has~~UC ESP executed two 25-year power purchase agreements, for long term supply of solar energy. Project 1 reached mechanical completion in May of 2016 and both are is expected to begin delivering contract energy at the end of the 3<sup>rd</sup> or beginning of the 4<sup>th</sup> quarter of 2016. Project 2 is currently in the pre-construction phase. Based on and is expected to deliver energy before July 1, 2017, based on reports from the developer, both projects are on schedule to meet or exceed the guaranteed commercial operation date ("COD") of December 31, 2016. The University closely monitors. The UC ESP is also the scheduling coordinator (through a subcontractor) for these projects and as such works closely with the Project 1 team on test energy and general scheduling and CAISO matters, and will also continue to monitor the progress of both projects as they proceed through permitting, construction, interconnection, and commissioningProject 2.

~~Assuming compliance with guaranteed COD, the long-term contracts already procured will exceed 33% of forecasted retail sales beginning in 2017. Whether and to what extent each project exceeds the milestones required to meet guaranteed COD, which they are both expected to do, will primarily affect our net short position for 2016. Once projects enter the construction phase, the frequency of progress reports will increase from quarterly to monthly, providing greater COD clarity. Either the failure to meet current anticipated construction start dates, or slower than expected progress after~~

~~construction is commenced, would create a need for REC purchases in the current compliance period. Given the planned start of construction—we believe there will be ample time to solicit short-term REC contracts to meet RPS compliance targets for 2016 should a need arise as a result of project schedule issues. In the unlikely event that the procured RECs are not delivered, the University would enter the marketplace to procure additional RECs to cover any resulting net short.~~

Based on currently expected COD for Project 1, and considering additional PCC1 RECs procured earlier in 2016, the University expects to meet its compliance period 2 RPS obligations. In subsequently compliance periods the anticipated RECs from Project 1 should allow UC ESP to exceed 33% of forecasted retail sales with renewable supply. When both projects are fully operational, they are expected to provide enough renewable energy to possibly exceed 50% of UC ESP's retail sales to the campuses.

### 6.3. Potential Compliance Delays - § 399.13(a)(5)(B)

Describe in writing any potential issues that could delay RPS compliance, including, but not limited to, inadequate transmission capacity, ~~delayed substation construction,~~ permitting, ~~financing delays,~~ insufficient eligible renewable energy resources supply, unanticipated curtailment, ~~unanticipated increase in retail sales,~~ and the relationship, if any, to project development delays, reduced generation, and compliance delays. Describe the steps taken to account for and minimize these potential compliance delays. The potential compliance delays included in the written description must be reflected in the quantitative analysis provided in response to ~~section~~Section 6.5. Given this analysis, discuss how the potential compliance delays will impact the retail seller's RPS net short and its procurement decisions.

~~The University has contracted for two utility scale UC ESP's solar projects. Both contracts include delay-damages that provide incentive for the developer to meet the agreed upon timelines. The developer has an added incentive to become operational by the end of 2016 in order to receive the 30% federal Investment Tax Credit (ITC), before its scheduled reduction to 10%.~~

~~For compliance in the short-term, the primary risk would be if the solar projects do risks include: (A) Project 1 does not exceed meet the current COD targets as expected target, (B) Project 1 under-produces compared to forecasted energy production, (C) there is higher than anticipated retail load, and simultaneously (D), there is insufficient market liquidity to procure Category PCC 1 RPS or PCC2 RECs for delivery in 2016. Based on preliminary surveys~~

To provide a compliance buffer in the event of moderate delays to commercial operation of Project 1, UC ESP completed a transaction with a new solar facility in southern California at the beginning of 2016, for 2016 vintage PCC1 RECs. These RECs are additional to those expected from Project 1. Given the market, there seems to be adequate market supply.

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~~The University continues to closely monitor these projects through required current project status reports and informal developer updates in (post-construction), significant additional delays are improbable, but would likely be related to project (1) financing, if they occur.~~

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~~In order to be recognize and address any potential future period compliance delays in a timely fashion UC ESP continues to closely monitor Project 2 through required status reports and weekly developer updates.~~

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#### 6.4. Risk Assessment - § 399.13(a)(5)(F)

Provide a written assessment of the risk in the RPS portfolio in relation to RPS compliance requirements. Risk assessment should describe risk factors such as those described above regarding compliance delays, as well as, but not limited to, the following: lower than expected generation, variable generation, resource availability (e.g., biofuel supply, water, etc.), ~~load changes,~~ and impacts to eligible renewable energy resource projects currently under contract. The risk assessment provided in the written description must be reflected in the quantitative analysis provided in response to ~~section~~Section 6.5. Given this analysis, discuss how the risk assessment will impact the retail seller's net short and its procurement decisions. ~~The written assessment must explain how quantitative analysis provided in response to section 6.5 supports this response.~~

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~~Not having risk pooling benefits, as entities with larger requirements (and more projects in their portfolio) would, the University UC ESP is potentially vulnerable if output from the facility contracted with is not generating at the levels facilities falls short of forecasted. Also, given our small load, the University is potentially vulnerable to changes in the RPS requirement levels.~~

Another risk for the University is the performance of behind the meter generation assets such as cogeneration facilities and (renewable) distributed generation. To the extent that these generation facilities are not operating at expected output levels, there will be a greater volume of ~~wholesale~~ energy required to meet the ~~load~~retail load of each applicable campus and accordingly a greater amount of renewable energy required to meet RPS compliance targets.

However, these risks are ~~significantly~~ somewhat mitigated by the fact in that the University has UC ESP procured well beyond the minimum requirements as part of the University's internal policies goals to achieve carbon neutrality over time. Once operational, these two projects will provide are expected to produce ample Category

~~PCC1 RECs to exceed 33% of forecasted retail sales beginning in 2016, 2017 and 50% of forecasted retail sales beginning in 2018. This virtually eliminates helps reduce compliance risk post 2016. In addition to the risk mitigation measures described in section 6.3, the University will closely monitor forecasted versus actual load to assess the need for additional short-term REC procurement needs for compliance period 2.~~

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### 6.5. Quantitative Information - §§ 399.13(a)(5)(A), (B), (D) and (F)

In addition to the written descriptive responses to Sections 6.1 through 6.4, provide quantitative data, methodologies, and calculations relied upon to assess the retail seller's RPS portfolio needs and RPS procurement net short. This quantitative analysis must take into account, where appropriate, the quantitative discussion requirement by Sections 6.1-6.4, above. Any RPS-eligible procurement that has or will occur outside of the RPS program should also be included. As stated above, the portfolio assessment should be for a minimum of 20 years in the future. The responses must be clear regarding the quantitative progress made towards RPS requirements and the specific risks to the electrical corporation's RPS ~~procurement portfolio~~ Procurement Portfolio. Risks may include, but are not limited to, project development, regulatory, and market risks. The quantitative response must be provided in an Excel spreadsheet based on the most recently directed renewable net short methodology.

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*Please refer to the attached Renewable Net Short spreadsheet.*

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### ~~6.6. "Minimum Margin" of Procurement~~ 7. Bid Solicitation Protocol, Including Least-Cost Best-Fit Methodologies - § 399.13(a)(4)(D)5(C) and D.04-07-029

~~Section 399.13(a)(4)(D) provides, in part, that the Commission shall adopt, by rulemaking, "[a]n appropriate minimum margin of procurement above the minimum procurement level necessary to comply with the renewable portfolio standard to mitigate the risk that renewable projects planned or under contract are delayed or canceled." This ruling directs PG&E, SCE, and SDG&E to identify in their proposed 2015 RPS Procurement Plans the assumed minimum margin of procurement above the minimum procurement level necessary to comply with the RPS program to mitigate the risk that renewable projects under contract are delayed or terminated. Each proposed 2015 RPS Procurement Plan shall include a methodology and inputs regarding the utility's proposed minimum margin of over procurement metric. The methodology should be representative of and consistent with the utility's inputs and assumptions in section 6.5. Also, the metric~~

~~should be used to calculate the utility's procurement needs pursuant to section 6.5. Additionally, use of any sensitivities or scenarios should be described. If the utility's assumed minimum margin of over procurement is not used to calculate a utility's net short provided in response to section 6.5, then the utility should clearly describe the reasons and any assumptions or other additional methodologies used to calculate the utility's proposed over procurement. Reasons and assumptions should be supported with quantitative information to the extent possible.~~

~~*The University has*~~ Pursuant to § 399.13(a)(5)(C), 2016 RPS Procurement Plans must include a bid solicitation protocol setting forth the need for eligible renewable energy resources. ~~If selling eligible renewable energy is part of a 2016 RPS Procurement Plan, then a solicitation protocol setting forth the available eligible renewable energy should also be included. Solicitations shall be consistent with portfolio assessment provided in Sections 6.1 through 6.5 and the retail seller's renewable net short position. Additionally, solicitations should be specific regarding what quantity of products are being requested (or offered) and the required deliverability characteristics, online dates, term lengths, and locational preferences.~~

~~The bid solicitation protocols should include an overview of the solicitation process, a solicitation schedule, pro forma agreement(s), and a detailed description of the utility's least-cost best-fit (LCBF) methodology. If the renewable auction mechanism (RAM) procurement process is planned to be used, then a pro forma agreement for that process should be included. Additionally, if any sales, or other types of procurement is planned and needs a specific pro forma agreement (e.g. short-term procurement), then it should also be included. The LCBF methodology should be consistent with D.04-07-029, D.11-04-030, D.12-11-016, and D.14-11-042. Also, it should clearly describe criteria (e.g., energy value, congestion cost, locational preference, term length, ability to be curtailed, operational flexibility, etc.) and how bids will be valued and evaluated based on the LCBF methodology. Any qualitative measures that will be used in LCBF methodology should also be described, both in terms of the criteria and how they will be used in the methodology.~~

~~As noted in the Amended Scoping Memo and Ruling of the Assigned Commissioner (February 5, 2016), the Commission will be revising and updating LCBF. The issues that will be addressed in examining LCBF include, but are not limited to: capacity value, energy-only, and time-of-delivery factors. As such, parties will have an opportunity in the near future to provide detailed comments regarding LCBF issues in response to a ruling and staff paper. Thus, parties are encouraged to comment on the particulars of the IOUs' currently proposed LCBF methodologies in their comments on this ruling, and to provide more in-depth comments on LCBF issues in response to subsequent rulings focused on LCBF reform.~~

UC ESP procured ~~significantly beyond above~~ its compliance obligations for 2016 and beyond, as part of its carbon neutrality goals. An assumed minimum margin of over-procurement has and therefore does not been used to calculate our net short position. Since under-procurement is a reasonable risk only for the remainder of believe we have a compliance-period 2 (2015 and 2016), the University will-driven need for additional eligible renewable resources. UC ESP will continue to closely monitor both supply-side and demand-side risk factors and engage in short-term procurement activities as needed to supplement or manage our long term solar position. UC ESP may also elect to pursue additional long-term and short term procurement agreements in order to meet broader organizational goals regarding carbon neutrality.

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**6.13.** California Public Utilities Code § 399.13, amended pursuant to the passage of Senate Bill 350 (De Leon, 2015), directs all retail sellers to prepare and submit renewable energy procurement plans that address the requirements identified in paragraph 5. Specifically, section § 399.13(a)(5)(C) states “A bid solicitation setting forth the need for eligible renewable energy resources of each deliverability characteristic, required online dates, and locational preferences, if any.”

Subsequent paragraphs of Section 6.7 of the Assigned Commissioner and Assigned Administrative Law Judge’s Ruling apply to electrical corporations. For the avoidance of doubt, this includes references to Least-Cost Best-Fit (LCBF) methodology and related CPUC decisions in 6.7, Workforce Development in Section 6.7.1, and Disadvantaged Communities in Section 6.7.2.

#### **6.7.1. Workforce Development – § 393.13(a)(4)(A)(iv)**

SB 2 (IX) added the requirement that the criteria for ranking and selecting of least-cost, best-fit renewable energy resources shall include “the employment growth associated with the construction and operation of eligible renewable energy resources.” Accordingly, the 2016 RPS Procurement Plans shall include a description of a proposed approach for assessing and differentiating the ability of different bids to contribute to employment growth. Pursuant to statute, the approach should address both the construction and operational phases of the project.

Not Applicable. See response to section 6.7.

**6.7.2. Disadvantaged Communities – § 393.13(a)(7)**

SB 2 (1X) additionally added the requirement that preference shall be given “to renewable energy projects that provide environmental and economic benefits to communities afflicted with poverty or high unemployment, or that suffer from high emission levels of toxic air contaminants, criteria air pollutants, and greenhouse gases.”<sup>24</sup> Consequently, the 2016 RPS Procurement Plans shall include a description of their methodology for preferring projects that provide the benefits described in 399.13(a)(7). The description should clearly articulate how a project’s benefits to communities are determined or obtained and how that information influences offer selection.

*Not Applicable. See response to section 6.7.*

**6.8. Consideration of Price Adjustment Mechanisms - § 399.13(a)(5)(E)**

Pursuant to § 399.13(a)(5)(E), describe how price adjustments (e.g., index to key components, index to Consumer Price Index, price adjustments based on exceeding transmission or other cost caps, etc.) will be considered and potentially incorporated into contracts for RPS-eligible projects with online dates occurring more than 24 months after the contract execution date. Discuss how the price adjustments will maximize value for ratepayers and minimize potential risks to ratepayers.

*UC ESP generally prefers fixed price contracts for long term procurement. As such, the successful developer assumes or embeds inflation and financing risk into the price shown to UC ESP. Expected costs associated with procurement decisions are typically incorporated into rates to the campuses. Index pricing has been used for shorter term procurement; however, we have not used CPI type indexing. The Commission does not regulate the rates of ESPs, and therefore we are not considered to have “ratepayers” in the context of Section 6.8.*

**6.12. Important Changes to Plans Noted**

A statement identifying and summarizing the important changes between the ~~2014~~2015 and ~~2015~~2016 RPS Procurement Plans must be included. This summary should not be a reprint of the two plans with strike-out and underlined inserts. In addition to identifying and summarizing the important changes, the plan should also include an explanation and justification of the reasonableness for each important change from ~~2014~~2015 to ~~2015~~2016.

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*~~The primary changes to note between 2014 and 2015 are that the University has begun serving load as an ESP and has completed one round each of long-term and short-term RPS procurement activities.~~*

~~6.15~~ Since submittal of our 2015 RPS Procurement Plan, UC ESP engaged in procurement from additional RPS resources in order to replace contracted RECs that were not delivered due to a force majeure event as well as to ensure compliance in the event of delays to Project 1's commercial operation date. Our 2016 Procurement plan reflects the current status of our two long-term Solar PPAs. The most significant change is that Project 1 is now in the post-construction phase. Lastly, comments regarding our assessment of RPS Portfolio Supplies and Demand (Section 6.1) have been expanded to address new long-term contracting requirements introduced by SB 350.

### 6.13. Redlined Copy of Plans Required

A version of the 2016 RPS Procurement Plan that is "redlined" to identify the changes from the 2015 plan must be included with the 2016 RPS Procurement Plans. The IOUs must provide a redlined copy for the Commission's Energy Division Staff, the ALJ, and any party who requests a copy. (This is separate from the Important Changes item above.)

Please see attached redlined copy.

### 6.14. Safety Considerations

As stated in D.11-11-042, all entities filing RPS Procurement Plans must incorporate a section on safety considerations.

Thus far, ~~the University has~~ UC ESP entered ~~contracts exclusively~~ term agreements with generators who plan to have Exempt Wholesale Generators (EWG) status. That status places the generators, in part, under FERC auspices. As such, reliability and safety considerations are included via WECC standards ~~and state safety regulations via the Division of Occupational Safety and Health (DOSH), better known as Cal/OSHA.~~ UC ESP also included G.O. 167 as applicable to renewable generators, in such agreement(s).

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DATED: August 3, ~~2015~~, 2016

Respectfully submitted,

/s/

Mark Byron  
Wholesale Electricity Program Manager

The Regents of the University of California  
1111 Franklin Street  
Oakland, CA 94607  
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Mark.Byron@ucop.edu

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## VERIFICATION

I, Mark Byron, am authorized to make this verification on behalf of The Regents of the University of California. I declare under penalty of perjury that the statements in the foregoing [20152016](#) Renewables Portfolio Standard Procurement Plan filed in Rulemaking 15-02-020 are true of my own knowledge, except as to matters which are therein stated on information or belief, and as to those matters I believe them to be true. The spreadsheet format used to file this compliance report has not been altered from the version issues or approved by the Energy Division.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on August ~~3<sup>rd</sup>~~, [20158<sup>th</sup>, 2016](#), in Oakland, California.

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Mark Byron, Wholesale Electricity Program Manager