

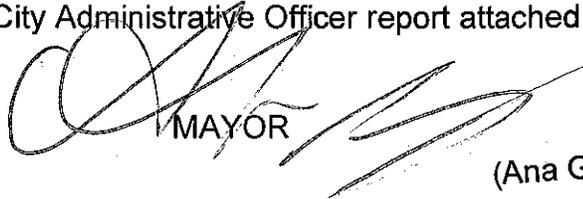
0150-10190-0000

**TRANSMITTAL**

TO Marcie L. Edwards, General Manager Department of Water and Power	DATE JUN 11 2014	COUNCIL FILE NO.
FROM The Mayor	COUNCIL DISTRICT N/A	

**POWER PURCHASE AGREEMENT NO. BP 14-012 AND PURCHASE OPTION WITH  
HECATE ENERGY, LLC, FOR DEVELOPMENT OF SITE 4 OF THE BEACON SOLAR  
PROJECT**

Approved and transmitted for further processing including Council consideration.  
See the City Administrative Officer report attached.

  
MAYOR

(Ana Guerrero)

MAS:RPR:10140119T

## OFFICE OF THE CITY ADMINISTRATIVE OFFICER

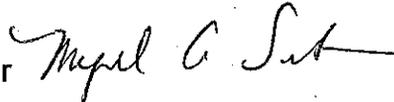
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Date: May 30, 2014

CAO File No. 0150-10190-0000  
Council File No.  
Council District: outside City limits

To: The Mayor

From: Miguel A. Santana, City Administrative Officer



Reference: Communication from the Department of Water and Power dated April 2, 2014; referred by the Mayor for report on April 4, 2014

Subject: **POWER PURCHASE AGREEMENT NO. BP 14-012 AND PURCHASE OPTION WITH HECATE ENERGY, LLC, FOR DEVELOPMENT OF SITE 4 OF THE BEACON SOLAR PROJECT**

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### SUMMARY

The Department of Water and Power (DWP; Department) requests approval of a proposed resolution that authorizes the DWP Board of Commissioners (Board) to execute several agreements with Hecate Energy, LLC (Hecate), for development of the Beacon 50 Solar Facility (Beacon 50; Site 4), a DWP-owned property which is located in Kern County, California. The Beacon 50 project includes a commercial operation date (COD) of April 30, 2016.

Approval of the proposed resolution specifically provides authority to the DWP Board to execute the following agreements, collectively identified as the Solar Transaction:

- i. Power Purchase Agreement (PPA) No. BP 14-012 with Hecate Energy, LLC, a developer of solar projects based in Nashville, Tennessee, for the purchase of 50 megawatts (MW) of solar electric generating capacity with an average of 112,000 Megawatt hours (MWh) annually, including the associated environmental attributes, at a flat cost of \$52.61 per MWh during a 25-year term. Approval is pursuant to City Charter Sections 674(a), by ordinance.
- ii. Purchase Option with Hecate for the Beacon 50 solar facility at the 7<sup>th</sup>, 10<sup>th</sup>, 15<sup>th</sup>, or 25<sup>th</sup> anniversary of the COD, with predetermined pricing constraints. Approval is pursuant to City Charter Section 674(a), by ordinance. Executing the option to purchase this facility is subject to subsequent approval by the DWP Board of Commissions and the Mayor and City Council, by ordinance, pursuant to the provisions of City Charter Section 674(a), prior to exercising the option.
- iii. Ground Lease Agreement with Hecate that allows the developer to build on the DWP-owned property. Although the PPA includes a 25-year term, the ground lease allows for a 7-year extension beyond 25 years, for a total of 32 years, to permit the developers to claim certain tax credits and depreciation. Approval is pursuant to City Charter Section 373 for long term contracts. Additionally, the City Council will need to make a finding by a two-thirds vote that the long term nature of the lease is in the best interest of the City, pursuant to City Charter Section 607, as the term is greater than 30 years.

- iv. 34.5 kV Interconnection Agreement with Hecate that allows the developer to interconnect to the DWP-owned 34.5 kV collection system. Approval is pursuant to City Charter Sections 674(a), by ordinance.

The proposed resolution and Solar Transaction consisting of a PPA, Purchase Option, Ground Lease Agreement, and 34.5 kV Interconnection Agreement is subject to approval by the City Attorney as to form and legality.

## BACKGROUND

In 2002, the California Legislature passed Senate Bill (SB) 1078 which established the California Renewable Portfolio Standard (RPS). SB 1078 requires privately owned utilities and encourages public owned utilities to increase their use of renewable energy resources until 20 percent of generation is obtained from renewables by the year 2017. Senate Bill SB2 1X, the California Renewable Energy Resources Act furthers SB 1078 by requiring both privately and publicly owned utilities, such as DWP, to increase their use of Renewable energy resources to 25 percent by the year 2016 and 33 percent by 2020. The DWP Board adopted the 2012 Integrated Resources Plan (IRP) which maintains the following RPS Policy targets that achieve compliance with regulatory mandates:

### *RPS Policy and Compliance Targets*

Renewable Energy Amount (Average)	Compliance Targets
20%	Jan. 1, 2011 to Dec. 31, 2013
25%	Jan. 1, 2016 to Dec. 31, 2016
33%	Jan. 1, 2020 to Dec. 31, 2020
33%	Each year after 2020

DWP's IRP presents several potential strategies for meeting the regulatory requirements and policy objectives for increasing renewable energy generation and reducing greenhouse gases.

During the past two years renewable energy prices have plummeted, in large part due to an influx of low-cost solar panels and a large number of renewable energy developers increasing the supply of available projects. Prior to 2011, solar was considered an expensive type of renewable energy technology while it is now generally among the least expensive. As a result of the changes in the industry, particularly for solar, renewable energy prices are approaching parity with long-term brown energy market prices once the value of emissions credit is included.

In February 2014, the U.S. Energy Department's (DOE) SunShot Initiative – a collaborative national effort launched in 2011 to make solar energy fully cost-competitive with traditional energy sources by 2020 – announced that the solar industry is already most of the way to achieving SunShot's cost target of \$0.06 per kilowatt-hour (kWh) or \$60.00 per MWh by 2020 for utility-scale PV.

Notwithstanding the market forces causing a precipitous decline in solar prices and the SunShot Initiative, DWP continues to assert that the future price of solar energy is uncertain and that a number of factors could push renewable energy prices to higher levels in the near future. Among the factors is (1) the scheduled expiration of Federal tax incentives at the end of 2016; (2) the

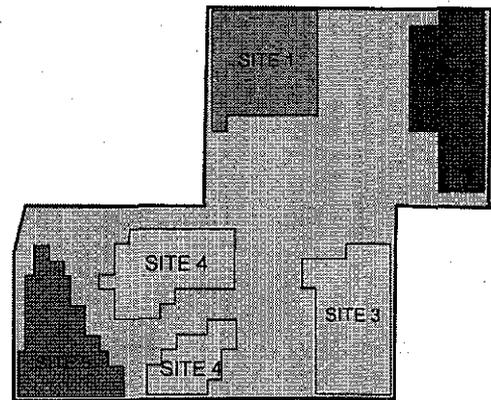
possibility that California will raise its RPS requirement; or (3) the Federal government could impose a RPS requirement or impose a cost on carbon-emitting resources. As a result of the historically low prices and in light of scheduled changes and possible legislation, the DWP is supportive of executing long-term commitments that help the City meet its RPS goals.

The typical industry cost of various types of energy sources ranges from \$48 to \$225 per MWh, not including the transmission costs, which can add up to \$17 per MWh to the cost. The table on Exhibit A (attached) provides the average cost per MWh of the Department's various sources of energy since October 2012 for comparison with the cost under the proposed PPA.

## BEACON PROPERTY

DWP acquired the 2,500 acre Beacon property for \$31.5 million in December 2012 from a solar developer that was in the initial stages of developing a solar generating facility. Additional costs for required infrastructure development including the energy collection system total approximately \$53.3 million resulting in a total cost of \$84.8 million for land and infrastructure.

In support of the renewable energy goals of the Department and to support the development of the solar industry in California, the Department envisioned contracting with solar developers for the construction of four sites and developing one site with DWP labor. The Beacon property was divided into five individual sites as shown in the adjacent diagram. However, the Department determined that it lacked the experienced personnel necessary to adequately complete this project prior to RPS compliance deadlines in 2016 and 2020. Financial considerations such as the 30 percent Federal investment tax credit also support the use of private developers and are not available to municipally owned utilities. DWP also states that if the project was built by the Department, the upfront costs would significantly strain the Department's finances; although, analysis to support this claim was not provided.



The agreement with Hecate discussed in this report pertains only to the Beacon 50 project located at Site 4 of the Beacon property. This Office is currently reviewing a separate request for the development of Sites 1, 2, 3, and 5. A separate CAO report will be issued for the other four sites.

## HECATE PROJECT

On November 8, 2013, DWP released Request for Proposal No. 90167 (RFP) for the purchase and/or acquisition of 50 MW solar renewable energy to be located on the Beacon Solar Facility at Site 4. A total of 12 proposals were received. One of the 12 proposals received during the RFP process was from Hecate, who proposed a power purchase agreement for the purchase of 50 MW of renewable solar energy, generating capacity, and the associated environmental credits.

Site Control – Hecate will lease a portion of the DWP-owned Beacon property for the development and operation of a solar generating facility. The cost of the ground lease is \$1 per

year. DWP considered utilizing a market rate for the ground lease; however, to avoid increasing the cost of solar energy from this project, it was determined that a non-market rate could be utilized.

**PPA Energy Cost and Term** - The solar energy delivered will be priced at a fixed rate of \$52.61 per MWh or \$0.05261 per kilowatt hour (kWh). The estimated cost of the renewable solar energy and the environmental attribute purchases over the 25-year term of the PPA is expected to total \$150 million or \$6 million annually. The impact on a typical residential customer bill is forecasted to be \$0.02 per month. At the completion of the PPA term, the developer has agreed to be responsible for any cost of decommissioning or demolition of the solar facility along with any related environmental or other associated liabilities.

The environmental attributes provided as part of the price of energy would permit DWP to accumulate Renewable Energy Credits (RECs) as a credit toward the DWP RPS goals. In addition, current tax laws allow for the Federal Investment Tax Credits (ITCs) to apply to private entities that develop and operate a qualifying renewable energy generation facility. DWP states that the Hecate PPA has been structured to receive the benefits associated with the ITCs through lower energy purchase prices. As provided by the Department, the estimated value of the ITCs to DWP under the Hecate PPA is approximately one-third of the installed cost or \$90 million over the 25 year term.

**Purchase Options for the Solar Facilities** – Included in the PPA is a purchase option for the purchase of Hecate Solar facility at identified intervals beginning at year 7 of the PPA. This date corresponds to the completion of investment tax credits anticipated to be received by Hecate, the developer, which is not available to municipally owned utilities such as DWP. The purchase option includes minimum and maximum valuation amounts for forecasting the value of this solar facility in approximately the years 2022, 2025, 2030, and 2040. The table below outlines the option intervals and the predetermined values identified.

Year	Facility Purchase Option	
	Min. Price	Max. Price
7 (2022)	\$46,664,517	\$55,697,421
10 (2025)	\$42,954,570	\$47,100,027
15 (2030)	\$41,285,266	\$45,263,793
25 (2040)	\$24,196,362	\$25,331,180

Executing the option to purchase this facility is subject to subsequent approval by the DWP Board of Commissions and the Mayor and City Council, by ordinance, pursuant to the provisions of City Charter Section 674(a), prior to exercising the option. This Office and DWP agree that this subsequent approval, by ordinance, will allow for an elevated level of review by both the Mayor and City Council. Additionally, it will provide DWP the opportunity to develop and present a comprehensive financial analysis and review of the facility conditions, project costs, market conditions, industry developments, and new technologies to better determine if the speculative pricing included in the proposed Purchase Option Agreement is appropriate or if the Department should continue to only purchase the energy through the duration of the PPA.

The expected life of the facility before significant maintenance is required is estimated by DWP to be 25 years, which is equal to certain solar panel warranties; however, the lifespan and warranty

on the inverter component appears to be approximately five years. Given that the expected project life span is longer than the inverter warranty, an uncertain amount of maintenance expense could be expected as part of the forecasted cash flows for the Project. Maintenance expenses for this project would be applicable if the DWP exercises a purchase option for the facility. The expected annual maximum energy output assuming a 33 percent capacity factor is approximately 112,000 MWh. Analytical support was not provided for the estimated expected life of the facility nor the assumed capacity factor or degradation of energy generation capability.

Significant ongoing price declines have been observed since 2011. Evidence of this decline is provided in a presentation by the Southern California Public Power Authority (SCPPA) which shows that during 2013 the price of solar proposals decreased 26 percent from \$79.80 to \$59.00 per MWh (see Exhibit B). Other comparisons to large scale solar projects can be observed across California and Texas in the table below for comparison. It is noted that DWP already owns the land and will provide certain site-development investments which invariably subsidize the lower energy costs for the Beacon 50 proposal.

	DWP Hecate Beacon 50	Austin, TX	Roseville, CA Lost Hills & Blackwell	Palo Alto (Elevation & W. Antelope) + Frontier	DWP Copper Mountain 3	DWP K-Road Moapa
Energy Price (\$/MWh)	\$52.61 fixed	\$45 - \$55	\$75.00 fixed	\$68.77 and \$69.00 fixed	\$95.75 fixed	\$93.19 fixed
COD	Apr 2016	2016	Apr 2015	Dec 2016	Dec 2015	Dec 2015
Term	25 years	25 years	10 years	30 years	20 years	25 years
MW Capacity	50 MW	150 MW	32 MW	80 MW	210 MW	250 MW
MWh per year	112,000	unknown	79,000	182,500	420,000	760,000
Cost per year	\$5.05 M	\$21M	\$0.920M	\$11.7 M	\$40.2 M	\$64.85M
Total Cost over PPA Term	\$150 M	\$525 M	\$9.2 M	\$350 M	\$805 M	\$1.6 B
Impact on bill / mo.	\$0.02	unknown	unknown	unknown	\$0.60	\$0.80
Contract Date	May 2014	Mar 2014	Jun 2013	May 2013	Nov 2012	Nov 2012
RFP Source / Date	DWP Nov 2013	Austin, TX Oct 2013	Roseville, CA	Palo Alto Fall 2012	SCPPA 2011	SCPPA 2011

According to the Department, the proposed price per MWh is competitive with other bids received that met set criteria. However, due to significant ongoing price declines in the solar industry that began in 2011, it is a concern of this Office that the contracting process needs to be efficient in order to ensure that contracts reviewed by this Office and considered by the Mayor and Council are indeed representative of the current cost available to DWP. Due to the recent RFP in November 2013 and comparisons to other projects, it appears the cost of this project does reflect the current market rates. Notwithstanding, it is uncertain how much the costs have been subsidized by the Department's \$84.8 million investment in land and infrastructure.

To ensure timely consideration of future renewable project requests, it is recommended by this Office that power contract proposals be processed and submitted for Mayor and Council within six months of the conclusion of an RFP. Beyond six months, it is the concern of this Office that significant market and price fluctuations can occur which result in substantial price differences. Furthermore, it is recommended that DWP develop a standardized process for reviewing renewable energy projects that includes significant financial analysis and documentation to

support future investments. Previous unsupported claims by the Department pertaining to the direction of the renewable energy industry and the urgency to enter long-term contracts have been substantially inaccurate. Comparisons of this proposal to the DWP's 2012 Financial Plan Case No. 119 (on the table below) anticipated an increasing price of solar at \$115 per MWh by 2016 and \$161 per MWh by 2018. The proposed cost of the Hecate solar project is lower than the DWP plan by 54 percent and 67 percent, respectively. While the Department can assert that the proposal is advantageous compared to its plan (i.e. it could have been worse), it does not provide certainty that the Department is capable of providing reliable financial forecasts that are essential factors for determining budgets, rate proposals, and evaluating projects such as this proposal. Additionally, the Department has expressed no interest to modify their financial plan or forecasts to reflect the significantly changed current market conditions.

*Comparison of DWP 2012 Financial Plan Case No. 119 and the Hecate Solar Project for Beacon 50*

Year	2013	2014	2015	2016	2017	2018
DWP 2012 Financial Plan Case No. 119 for New RPS Project Average Costs (\$/MWh)	\$158.2	\$116.0	\$111.2	\$115.1	\$115.6	\$161.1
Hecate Solar Project for Beacon 50 (\$/MWh)				\$52.61	\$52.61	\$52.61
Percentage Less than DWP Financial Plan				(54%)	(54%)	(67%)

**SOURCE OF FUNDING AND RATE IMPACT**

DWP states that funding for this PPA has been included in the Fuel and Purchased Power Budget within the Power Revenue Fund. This PPA will affect rates through increases to the Capped Renewable Portfolio Standard Energy Adjustment (CRPSEA) and the Variable Renewable Portfolio Standard Energy Adjustment (VRPSEA) as provided in the Incremental Electric Rate Ordinance No. 112273 adopted on October 5, 2012. The PPA provides for the purchase of solar energy from Hecate. However, should DWP decide to purchase the Beacon 50 facility at the option dates indicated in the PPA, the impact on ratepayers will change from a fuel expense to a capital expenditure which should be carefully considered in the DWP financial plan for future budgets as well as for potential rate increases during the 25-year term of this PPA. At this time, the PPA does not require purchase of the Beacon 50 facility and DWP did not factor a purchase into its rates. The cost of the PPA is favorably lower than the DWP IRP and the adopted Incremental Electric Rate Ordinance.

DWP expects the Beacon 50 facility to have a ratepayer impact of approximately \$0.00004 per kilowatt-hour resulting in approximately \$0.02 per month for a typical household consuming 500 kWh per month.

**POWER TRANSMISSION**

The solar energy generated from Hecate will first be delivered to a DWP collector system located on the Beacon property that will receive energy from the five individual sites. Energy will be transferred from the collector system to a new DWP 230 kV Beacon Substation and then travel along a new three-mile transmission line to the existing DWP Barren Ridge Switching Station.

The energy will then flow through the Barren Ridge 230kV transmission line into Los Angeles.

## **RISK MANAGEMENT**

The PPA provides for Hecate to deliver solar energy for 25 years; therefore, it is in the best interest of DWP to partner with a viable company to provide this energy. One indication of the capability of a company to adhere to a long term commitment is its credit rating. The DWP advises that Hecate does not have a known credit rating. Although according to the Hecate website, the company manages approximately a dozen active or developing power generating projects internationally with eight smaller scale solar projects in the United States totaling 102 MW.

To ensure developer performance and delivery of the project, the developer has agreed to provide a project performance security deposit (in a letter of credit) totaling \$9.0 million before COD and \$9.0 million after COD until the completion of the PPA term. The Department determined that the coverage provided by the performance security deposit is sufficient to protect the interests of the City and the Department's demand for qualifying renewable energy.

To adequately manage investment risk, City of Los Angeles Treasury investments generally require a Standard and Poor's (S&P) credit rating of no less than A-. Furthermore, the Investment Policy for the City of Los Angeles identifies a Standard of Care for the investment of City funds which shall use the Prudent Investor standard. As described in California Government Code Section 53600.3, local agencies authorized to make investment decisions with public funds are trustees and therefore fiduciaries subject to the prudent investor standard. When investing, purchasing, exchanging, selling, or managing public funds, a trustee shall act with care, skill, prudence, and diligence under the circumstances then prevailing, including, but not limited to, the general economic conditions and the anticipated needs of the agency, that a prudent person acting in a like capacity and familiarity with those matters would use in the conduct of funds of a like character and with like aims, to safeguard the principal and maintain the liquidity needs of the agency.

## **CANCELLATION OF AGREEMENT**

The PPA provides for multiple scenarios in which DWP can terminate this contract with Hecate. One of the scenarios for termination is a Force Majeure Event that is commonly found in many agreements and provides for cancellation due to an uncontrollable condition such as a disaster or act of God, preventing one of the parties from performing obligations listed in the Agreement.

Furthermore, if Hecate fails to deliver the Guaranteed Generation during a contract year, the developer, at DWP's discretion, agrees to pay an amount equal to the cost of replacement energy or to provide replacement energy during a subsequent contract year.

## **PROPOSED USAGE OF SOLAR GENERATED ENERGY**

The DWP electric generation can be separated into three basic categories: base, intermediate and peak load units. Base load units derive their energy from operating generation stations on a constant (24 hours a day, 7 days a week) basis, historically needed to supply the DWP customers a majority of the time. Intermediate load units are utilized to satisfy periodic energy demand fluctuations. Peak load units are utilized to address short term seasonal or emergency needs.

Solar energy is affected by seasonal and meteorological variations that impact its availability; however, the facility is sited in an area which has a high probability of generating solar energy on a regular basis. The energy will not be utilized in the same manner as the Department's base energy generation because of the intermittent nature of solar energy; however, it will be used to supplement the base energy during peak hours and during high temperature periods.

## **CONCLUSION**

This Office recommends approval of the competitively bid agreement with Hecate for development of the Beacon 50 Solar Project. However, as noted throughout this report, it is a concern of this Office that the Department is not performing adequate financial analysis or reviews of these substantial renewable energy projects.

In light of the numerous issues discussed in this report and in anticipation of several significant rate increase requests in the near-term of this PPA, it is advantageous to have greater levels of financial support and certainty from the DWP. As a result, this Office provides several noted requests for improvement of DWP energy development project proposals listed as follows:

- (i) Perform financial analysis and support all financial claims and assumptions to increase the certainty that project costs are appropriate and competitive;
- (ii) Consider an alternative to the current minimum and maximum pricing constraints for purchase options and determine the future project value at the time of executing any purchase options to improve the certainty of a project's value;
- (iii) Submit future renewable project requests for power contract proposals requiring Mayor and Council within six months of the conclusion of an RFP;
- (iv) Develop a standardized process for reviewing renewable energy projects that includes significant financial analysis and documentation to support future investments;
- (v) Modify the DWP financial plan and/or forecasts to reflect the significantly changed current market conditions.

This Office has met with DWP leadership and the Department has agreed to address our suggested improvements in future projects.

The above-mentioned aspects of the proposed Agreement, and this report, are based upon information received from the Department subsequent to the initial request submittal.

## RECOMMENDATION

That the Mayor:

1. Approve, subject to approval by the City Attorney as to form and legality, the proposed resolution relating to the Power Purchase Agreement No. BP 14-012 with Hecate Energy, LLC; the associated Purchase Option which requires a subsequent approval by ordinance prior to exercising the Purchase Option, in accordance with Charter Section 674(a); the associated 34.5 kV Interconnection Agreement; and the associated Ground Lease Agreement, pursuant to Charter Section 607, which requires the City Council to make a finding by a two-thirds vote that the long term nature of the lease is in the best interest of the City, as the term is greater than 30 years;
2. Request the Department to address areas of concern identified in this report on all future energy development proposals; and
3. Return the proposed resolution to the Department for further processing, including Council consideration.

## FISCAL IMPACT STATEMENT

Approval of the proposed resolution authorizes expenditures of estimated at approximately \$6 million per year and \$150 million over the 25 year term of the agreement from the Power Revenue Fund. There is no impact to the City's General Fund. The proposed Agreement complies with the Department's adopted Financial Policies.

Attachment

MAS:RPR:10140119

**Exhibit A**

Costs of Other Sources of Energy	Cost per MWh		
	Costs reported for Barren Ridge 1 Solar Nov. 2013	Costs reported for Manzana Wind June 2013	Costs reported for Copper Mtn. 3 Solar Oct. 2012
Coal	\$48	\$48	\$48
Combined Cycle Natural Gas	\$80	\$80	\$80 – \$170
Simple Cycle Natural Gas	\$225	\$225	
Solar Photovoltaic (PPA)	\$94	\$116	\$116 – \$152
Solar Photovoltaic (In-Basin)	\$154	\$154	
Solar Photovoltaic (Owens Valley)	\$153	\$153	
Solar Customer-Net-Metered	\$130	\$130	
Solar Feed-in-Tariff	\$152	\$152	
Wind	\$105	\$105	-
Geothermal	\$100	\$109	\$65 – \$106
Biomass	\$100	\$100	\$68 – \$110
Small Hydropower	\$85	\$85	\$76
Large Hydropower	\$31	\$31	-

**Exhibit B**



**2013 Prices of Solar PV Proposals  
Non-CAISO Delivery with 25 Year Terms**

