

0150-10215-0000

**TRANSMITTAL**

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

**SPRINGBOK 1 SOLAR FARM POWER SALES AGREEMENT AND AGENCY AGREEMENT  
WITH THE SOUTHERN CALIFORNIA PUBLIC POWER AUTHORITY (SCPPA)**

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



(Ana Guerrero)

MAYOR

## OFFICE OF THE CITY ADMINISTRATIVE OFFICER

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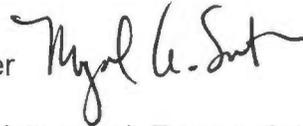
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Date: September 9, 2014

CAO File No. 0150-10215-0000  
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 May 9, 2014, revised on August 15, 2014; referred by the Mayor for report on May 20, 2014

Subject: **SPRINGBOK 1 SOLAR FARM POWER SALES AGREEMENT AND AGENCY AGREEMENT WITH THE SOUTHERN CALIFORNIA PUBLIC POWER AUTHORITY (SCPPA)**

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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 the Southern California Power Purchase Authority (SCPPA), a non-profit joint power agency, relating to the Springbok 1 Solar Farm Project (Springbok), which is owned and developed by 62SK8me, LLC (Developer; 8ME). The project will consist of a 100 megawatt (MW) fixed tilt photovoltaic solar facility located in Kern County, California with a commercial operation date (COD) of June 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 Sales Agreement (PSA) No. BP 14-03 with the SCPPA for the purchase of 100 megawatts (MW) of solar electric generating capacity with an average of 265,646 megawatt hours (MWh) annually from the Springbok Project, including the associated environmental attributes, at a flat cost of \$68.60 per MWh during a 25-year term. Approval is pursuant to City Charter Sections 674(a)(2), by ordinance, and Section 373.
- ii. Agency Agreement (AA) No. BP 14-04 with SCPPA which designates DWP as the Project Manager, in the event DWP elects to exercise a purchase option, to administer all aspects of the Springbok Project including the planning, development, acquisition, maintenance, improvement, administration, and operation of the Project. Approval is pursuant to City Charter Sections 674(a)(2), by ordinance, and Section 373.
- iii. License Agreement allowing 8ME to construct, own, operate, and maintain certain transmission facilities on DWP-owned land facilitating the connection of the Springbok Project to the DWP Beacon Substation for a term of 25 years with an option to extend for a maximum duration of 34 years and 11 months. Approval of this license agreement is pursuant to a finding of the City Council that the long term nature of the agreement is in the best interest of the City, in accordance with City Charter Section 607, as well as Section 606.

The proposed resolution and Solar Transaction consisting of a PSA, Agency Agreement, and License Agreement have been approved by the City Attorney as to form and legality.

As the Department increases its use of renewable energy, this Office observes that the financial complexity and investment aspects of the Power System proposals are also increasing. As part of the CAO's due diligence process, this Office performed exhaustive financial reviews and analysis of this proposal which were facilitated by the cooperative support of the DWP Chief Financial Officer (CFO), the DWP Financial Services Organization (FSO), and the Power System. The findings of these reviews were influential in determining an improved contract structure, lowering costs, and reducing risk while still allowing the Department to pursue the mandated renewable energy goals. It is estimated that the proposed contract cost will be lower by \$19 million or four percent compared to an earlier version of the proposal, which included a significant prepayment for energy. Without this enhanced level of fiscal review and scrutiny, it is not likely that these savings would have been achieved. This is an example of the benefits we anticipate could be realized by continuing these enhanced levels of financial review and analysis for future proposals. Consequently, it is the suggestion of this Office that the Power System actively collaborate with the DWP CFO and the Department's Financial Services Organization throughout any future development processes to continue enhancing the levels of fiscal analysis and reviews on all subsequent projects.

## 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 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 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 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 back up in the near future. Among the factors are (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.

## **REQUEST FOR RENEWABLE ENERGY PROPOSALS**

In January 2012, DWP and multiple utilities participated with the Southern California Public Power Authority (SCPPA) to issue an annual Request for Proposal (RFP) for the purchase and/or acquisition of renewable energy sources. The Department states that this is an open RFP, which allows new proposals to be submitted on a continuous basis and existing proposals to be refreshed with current prices and terms. A total of 340 proposals were received. It is the intent of the Department to evaluate and implement projects that satisfy the DWP Integrated Resource Plan (IRP) and the Renewal Portfolio Standards (RPS) requirements. It is expected that the Department will consider a combination of existing projects, DWP RFPs for renewable energy projects, and SCPPA-sponsored projects.

## **8MINUTE ENERGY / SPRINGBOK PROJECT**

One of the 340 proposals received during the SCPPA RFP process was from 8ME, who proposed a power purchase agreement for the purchase of 100 MW of solar energy generating capacity and the associated environmental credits from the Springbok Project. Although the SCPPA team used criteria identified by several SCPPA members, the location and limited transmission availability would increase costs to other SCPPA participants. Consequently, all other SCPPA members declined allowing DWP to be the sole participant.

DWP states that the Springbok Project was selected because the Solar Facility:

- Utilizes existing transmission lines and the nearby Beacon Substation;
- Obtains substantial solar energy resources due to its location and provides geographic diversity of resources;
- Is located nearby existing DWP operation and maintenance crews; and,
- Includes options for the purchase of the facility.

Site Control - According to the Department, the site of the Springbok Project is located on non-tribal lands that are owned by several private entities and/or individuals. The land owners are referenced in Attachment H of the Power Purchase Agreement. 8ME states that it owns a land purchase option agreement to acquire the land fee simple from the current owners which the developer intends to execute prior to starting construction of the Springbok Project. A licensing agreement is included in this DWP request to allow the developer to construct, own, operate, and maintain transmission facilities on DWP-owned land covering approximately 1,157,000 square feet to facilitate the connection of the solar facility to the DWP Beacon Substation for a term of 25 years with an option to extend up to a maximum duration of 34 years and 11 months.

Cost of Energy and Term – The solar energy delivered will be priced at a fixed rate of \$68.60 per MWh or \$0.06860 per kilowatt hour (kWh). This project is connecting to the DWP balancing authority and will not incur any third-party transmission costs. 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 \$456 million or \$18.2 million annually. Energy from Springbok is expected to meet approximately 1.19 percent of DWP's renewable energy requirement.

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 proposed agreements have been structured to receive the benefits associated with the ITCs through lower energy purchase prices. The estimated value of the ITCs to DWP under the proposed PSA is approximately \$2.7 million per year or \$68 million over the 25-year term.

Additionally, within 60 days following the start of commercial operation, DWP shall pay \$7.45 million to 8ME as a reimbursement for various costs and expenses associated with the development of the Springbok Project including certain financing costs, transmission facility upgrades, and installation costs that are necessary for interconnection to the Beacon Substation.

Purchase Option – Included in the proposal is a Purchase Option for the Springbok Project at identified intervals beginning at year 15 of the PSA. This negotiated date corresponds to the completion of investment tax credits anticipated to be utilized by the developer, which is not available to municipally-owned utilities such as DWP. The purchase option includes minimum and maximum valuation amounts that forecast the value of the solar facility in approximately the years 2031, 2036, and 2041. The table below outlines the predetermined values of the purchases options at identified intervals.

Summary of Purchase Options by Year	
Year	Purchase Option for the Springbok Project
	Minimum Price – Maximum Price
15 (2031)	\$101,000,000 – \$119,000,000
20 (2036)	\$90,000,000 – \$106,000,000
25 (2041)	\$75,000,000 – \$88,000,000

The proposed resolution states that prior to execution of any purchase option or assumption of any Springbok Project debt, the Department will require further authorization from the DWP Board and the City Council. This Office and DWP agree that this subsequent approval could allow for an elevated level of review by both the DWP Board and City Council. Additionally, given that the future facility and energy costs are speculative, it could provide DWP an opportunity to prepare a comprehensive financial analysis and review of the facility conditions, project costs, market conditions, industry developments, and new technologies. Ultimately, the results of any future analysis or reviews of the Springbok Project could improve the City's ability to determine if the estimated pricing in the Purchase Option Agreements is appropriate or if the Department should continue to solely purchase the energy through the duration of the PPA.

Further Aspects of the Proposal – The expected life of the facility before significant maintenance is required is estimated by DWP to be 35 years, which is greater than most solar panel warranties of 25 years and inverter components of approximately five years. The facility's anticipated lifespan beyond the warranty could unfavorably result in significant maintenance expenses if the DWP exercises a purchase option for the facility. Estimated costs for maintenance are uncertain and have not been included in the cost of energy or the estimated cost of purchasing the facility.

The average expected annual generation (EAG) from Springbok is approximately 264,684 MWh. Total energy generated ranging from a guaranteed minimum of 75 percent EAG to a maximum of 120 percent EAG will cost the Department \$68.60 per MWh including green energy credits. Energy generated that is in excess of 120 percent EAG (317,620 MWh) will be purchased at a lower rate of \$23.80 per MWh. The likelihood of excess energy is uncertain and highly dependent on technological advancements in solar generation as well as significant declines in the cost of generating solar energy.

Power Purchase Agreement (PPA) Trends – Significant ongoing solar generation 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 following for comparison, including a PPA executed in May 2014 by Recurrent Energy for \$50 per MWh with Austin, Texas Electric. On August 8, 2014, the Los Angeles City Council approved a separate PPA between DWP and Recurrent Energy for the Barren Ridge Solar Project with a \$67.83 per MWh cost of energy.

According to the Department, the proposed price per MWh is competitive with other bids received through the 2012 SCPPA RFP and 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 costs included in a 2012 RFP may not represent the current competitive cost available to DWP. Furthermore, it appears that DWP does not utilize a standard contract structure which hinders an effective comparison to other similar agreements by the DWP and to other energy utilities. It is anticipated that greater levels of comparison, analysis, and transparency could be achieved through further standardization of Department contracts.

*Comparison of Proposed Recurrent PPA to Other Solar Projects*

	DWP by Recurrent Energy	* DWP Beacon 50	Austin, TX by Recurrent Energy	Roseville, CA Lost Hills & Blackwell	Palo Alto, (Elevation & W. Antelope) + Frontier	DWP Copper Mountain 3	DWP K-Road Moapa
Energy Price (\$/MWh)	\$67.83 Fixed	\$52.61 fixed	\$50.00	\$75.00 Fixed	\$68.77 and \$69.00 fixed	\$95.75 fixed	\$93.19 fixed
COD	Dec 2015	-	2016	Apr 2015	Dec 2016	Dec 2015	Dec 2015
Term	20 years	25 years	25 years	10 years	30 years	20 years	25 years
MW Capacity	60 MW	50 MW	150 MW	32 MW	80 MW	210 MW	250 MW
MWh per year	174,380	-	unknown	79,000	182,500	420,000	760,000
Cost of Energy per year	\$11.8 M	\$5.05 M	\$21M	\$0.920M	\$11.7 M	\$40.2 M	\$64.85M
Total Cost over PPA Term	\$237 M	\$126 M	\$525 M	\$9.2 M	\$350 M	\$805 M	\$1.6 B
Impact on typical bill / mo	\$0.075	\$0.02	unknown	Unknown	unknown	\$0.60	\$0.80
Contract Date	May 2014	May 2014	May 2014	Jun 2013	May 2013	Nov 2012	Nov 2012
RFP Source + Date	SCPPA 2012 & May 2013	DWP Nov 2013	Austin, TX Oct 2013	Roseville, CA	Palo Alto Fall 2012	SCPPA 2011	SCPPA 2011
* DWP owns the Beacon property (land) and has expended approximately \$84.8 million to provide certain development investments which invariably subsidize the cost of energy.							

**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 8ME. However, should DWP decide to purchase the Springbok Project 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 Springbok Project 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 Springbok Project to result in a ratepayer impact of approximately \$0.075 per month for a typical household consuming 500 kWh per month.

## **POWER TRANSMISSION**

The Developer will construct a new five-mile transmission line that will connect the Springbok Project to the DWP Beacon Substation. Subsequently, the energy will transmit through existing capacity on the Barren Ridge 230kV transmission line into Los Angeles.

## **RISK MANAGEMENT**

To ensure developer delivery and performance of the solar project, the developer will provide a project performance security (in a letter of credit) totaling \$4.68 million before COD and \$15 million after COD until the completion of the PPA term. The Department states 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.

There are four major milestones that the developer is required to meet; otherwise, liquidated damages (LDs) funded by the performance security can be collected. Each milestone is listed provided below:

1. 8ME must deliver the Environmental Impact Study by July 1, 2014, and if that date is missed, SCPPA will collect LDs at the rate of \$17,000 per day. This milestone has already been met;
2. 8ME must deliver a Notice to Proceed allowing them to begin construction on the Project site by October 24, 2015, and if that date is missed, SCPPA will collect LDs at the rate of \$5,000 per day;
3. 8ME has to have the first MW of solar capacity installed by August 27, 2016, and if that date is missed, SCPPA will collect LDs at the rate of \$17,000 per day; and,
4. 8ME and Springbok must achieve COD no later than December 31, 2016. If that date is missed, SCPPA will collect LDs at the rate of \$17,000 per day.

## **CANCELLATION OF AGREEMENT**

The Agreement provides for multiple scenarios in which DWP can terminate the Agreement with 8ME. 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 8ME fails to deliver 50 percent of the Guaranteed Generation for a period of 18

consecutive months, or if the facility is inoperable and cannot be repaired or replaced within 24 months, termination of the agreement will be deemed "no-fault" and neither DWP or 8ME shall have any liability or obligation to the other party.

## **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**

It is the recommendation of this Office to approve the proposed resolution and Solar Transaction. However, as noted in this report, enhanced levels of financial review and analysis were provided by this Office, the DWP Chief Financial Officer, Financial Services Organization (FSO), and the DWP Power System subsequent to the submission of the proposal. The collective findings of these reviews were influential in determining an improved contract structure, lowering costs, and reducing risk while still allowing the Department to pursue the mandated renewable energy goals. As the Department endeavors to create new business models for developing lower cost energy, it appears that the financial complexity of the Power System agreements is increasing. Consequently, it is the suggestion of this Office that the Power System continue to actively collaborate with the DWP CFO and FSO, in addition to utilizing outside financial advisors, throughout any future development processes to continue enhancing the levels of fiscal analysis and reviews on all subsequent projects.

On three recent CAO reports pertaining to similar solar energy generating proposed projects (e.g. Beacon Bundle, Beacon 50, and Barren Ridge Solar), this Office identified several concerns and provided suggestions (listed on Exhibit C) for improving DWP's energy development project proposals. Compared to the earlier proposals and as described above, DWP did satisfactorily address one of our concerns regarding the level of review for this project and enhanced its financial analysis. However, due to the simultaneous development of this proposal along with the earlier mentioned projects, many of the CAO's concerns were not able to be addressed in this proposal. As the Department proceeds to develop additional energy proposals in the near future, it is anticipated that there will be opportunities to address each of the identified areas of concern.

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.

## RECOMMENDATIONS

That the Mayor:

1. Approve the proposed resolution relating to the Springbok Project including Power Sales Agreement No. BP 14-03 with the Southern California Power Purchase Authority; Agency Agreement No. BP 14-04 with the Southern California Power Purchase Authority; and License Agreement with 8Minute Energy, pursuant to Charter Section 606 along with Section 607, which requires the City Council to make a finding by a two-thirds vote that the long-term nature of the License Agreement is in the best interest of the City, as the term of the License Agreement is greater than 30 years; and,
2. 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 \$18.2 million per year and \$456 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

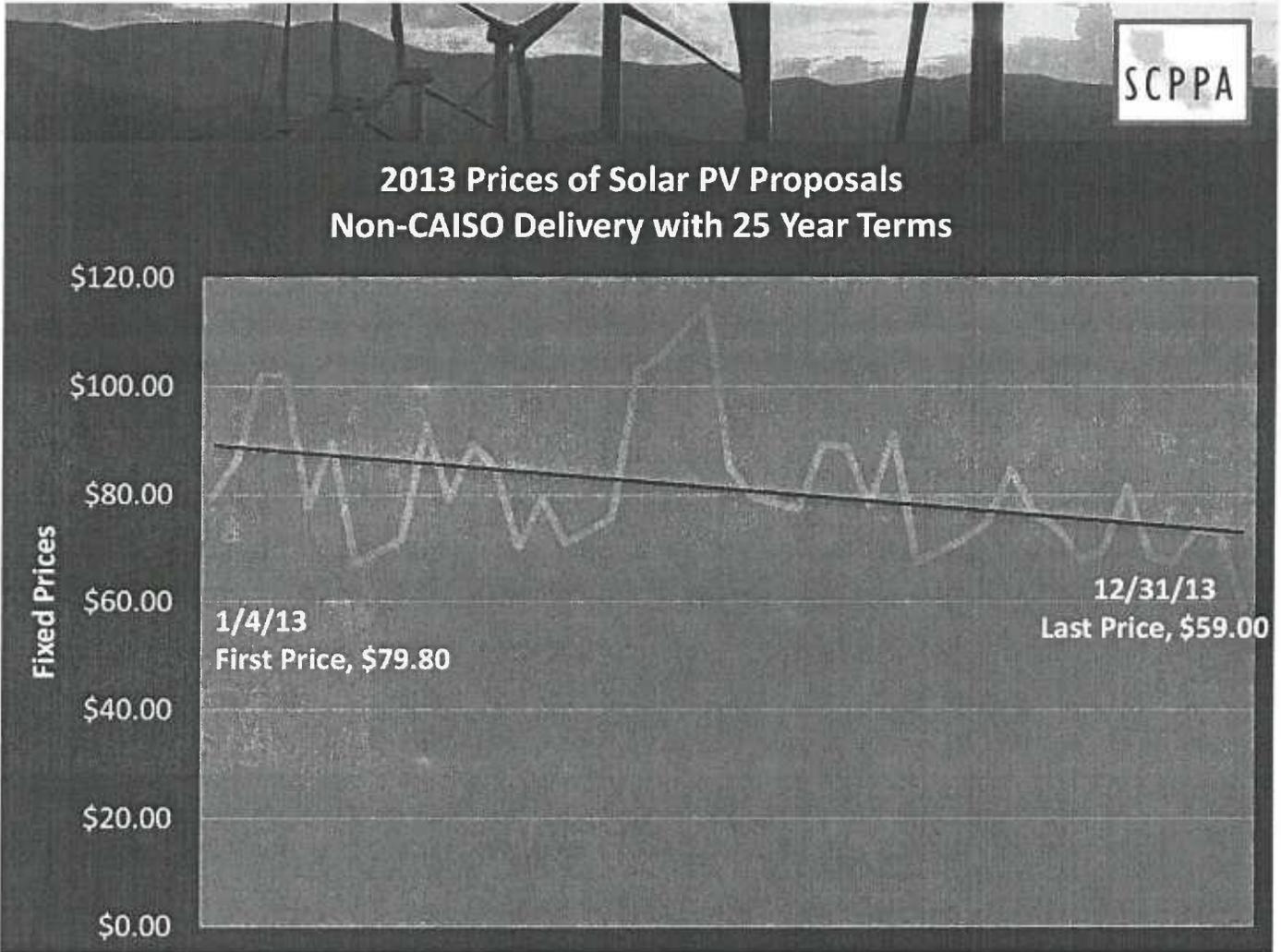
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**Exhibit A**

Recent DWP Energy Projects	Cost per MWh
Springbok – 100 MW, August 2014	\$68.60
Barren Ridge – 60 MW, June 2014	\$67.83
Beacon 1 – 56 MW, April 2014	\$52.61
Beacon 2 – 48 MW, April 2014	\$58.56
Beacon 3 – 56 MW, April 2014	\$51.97
Beacon 4 – 50 MW, April 2014	\$52.61
Beacon 5 – 40 MW, April 2014	\$59.85
Manzana Wind – June 2013	\$82.50
DWP Copper Mountain 3 Solar – October 2012	\$95.75

Department Wide Costs of All Sources of Energy	Cost per MWh		
	April 2014	June 2013	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



## Exhibit C

### SUMMARY OF CONCERNS IDENTIFIED IN RECENT DWP SOLAR PROPOSALS

- Enhance financial analysis and support all financial claims;
- Utilize alternative to the minimum and maximum pricing structure for purchase options;
- Submit renewable energy project requests within six months of the RFP conclusion;
- Standardize the review process and provide significant analysis and documentation to support proposals, including title ownership of any impacted parcels of land;
- Standardize the Power Purchase Agreements to facilitate a shorter contracting process;
- Modify the DWP financial plan and/or forecast with current market data to enable comparisons with future proposals.