

Agenda Report

September 9, 2013

TO: Honorable Mayor and City Council

THROUGH: Municipal Services Committee (August 27, 2013)

FROM: Water and Power Department

SUBJECT: AUTHORIZE THE CITY MANAGER TO ENTER INTO A POWER PURCHASE AGREEMENT WITH KINGBIRD SOLAR, LLC FOR THE PURCHASE OF 20 MEGAWATTS OF SOLAR ENERGY

RECOMMENDATION:

It is recommended that the City Council:

1. Find that the recommended contract authorization is exempt from the California Environmental Quality Act ("CEQA") pursuant to State CEQA Guidelines Section 15061(b)(3) (General Rule);
2. Authorize the City Manager to enter into a Power Purchase Agreement with Kingbird Solar, LLC to purchase 100% of the renewable energy and capacity from the proposed Kingbird Solar photovoltaic project ("Kingbird Solar Project"), to be located in the Antelope Valley of Kern County, California, for a total of 20 MW;
3. Find that this contract is exempt from the City of Pasadena's ("City") competitive bidding rules pursuant to City Charter Section 1002(f), contracts for professional or unique services; and
4. Find that this contract is exempt from competitive selection pursuant to Pasadena Municipal Code Section 4.08.049.

MUNICIPAL SERVICES COMMITTEE RECOMMENDATION:

On August 27, 2013, the Municipal Services Committee recommended that the City Council enter into the 20 MW Power Purchase Agreement with Kingbird Solar, LLC.

BACKGROUND:

The City of Pasadena has adopted a number of aggressive environmental goals applicable to the Pasadena Water and Power Department (“PWP”), including a renewable Portfolio Standard (“RPS”) goal to supply 40% of its retail energy sales with renewable resources by 2020. Meeting the RPS goal is a key component of PWP’s plan to reduce greenhouse gas emissions by 40% by 2020. These goals were adopted by the City Council as part of PWP’s Integrated Resource Plan (“IRP”)¹. PWP is also required to comply with the state-wide 33% RPS embodied in Senate Bill X 1-2 (“SBX 1- 2”), and has incorporated the state mandate as well as the City’s own voluntary 40% RPS goal into its RPS Procurement Plan. The proposed contract with the Kingbird Solar Project will substitute in the PWP RPS Procurement Plan for the unidentified future contract “under negotiation.”

Table 1
Current Renewable Energy Portfolio Summary (GWh²)

Calendar Year	2015	2016	2020	2025
Azusa Hydro	5	5	5	5
Iberdrola High Winds	14	14	14	-
Minnesota Methane LFG	42	42	-	-
Ormat Geothermal	16	16	16	16
Milford Wind Phase 1	11	11	11	11
Chiquita Canyon LFG	37	37	37	37
EDF Biomethane	13	13	14	-
Sequent Biomethane	29	30	38	-
Waste Management Biomethane	41	41	41	-
Silverado Solar	32	32	32	32
Proposed Kingbird Solar	-	60	58	57
Total Renewable Supply	240	301	266	158
Retail Sales	1161	1168	1196	1196
% Renewable	21.3%	25.8%	22.2%	13.2%

The proposed Kingbird Solar Project is a 20 MW solar photovoltaic generating facility. The expected commercial operation date in the Kingbird Solar Power Purchase Agreement is December 31, 2015. If the project does not achieve commercial operation by June 15, 2016, PWP will have the right to terminate the agreement.

The project was offered on July 24, 2013 into the Southern California Public Power Authority (“SCPPA”)³ open Request for Proposal (“RFP”) process. From among several

¹ See PWP’s Integrated Resource Plan and associated documents at: <http://cityofpasadena.net/waterandpower/IRP/>

² A gigawatt-hour (“GWh”) is equal to 1,000 megawatt-hours (“MWh”)

³ SCPPA is a California joint powers authority, whose members include the cities of Anaheim, Azusa, Banning, Burbank, Cerritos, Colton, Glendale, Pasadena, Riverside, Vernon, the Los Angeles Department of Water and Power, and the Imperial Irrigation District. See website at: <http://www.scppa.org>.

hundred proposals submitted in the last two years, Kingbird Solar was one of the resources determined by PWP staff to be most competitively priced, highly viable, and best fit for PWP's portfolio. Some of the beneficial attributes of this project and agreement include:

- **Category 1 Resource/Proximity to Load:**
 - The project is located in California and Kern County (just across the border from the Los Angeles County line), relatively close to PWP's load center. It interconnects directly to the California Independent System Operator ("CAISO"). It will qualify for Portfolio Content Category 1⁴ under the State's RPS.
- **Portfolio Fit:**
 - The project size is a good match for PWP's renewable energy requirements. It is small enough to fit PWP's portfolio but large enough to make a significant impact in reducing PWP's RPS deficit.
 - While the energy output can be variable due to solar insolation, cloud cover and other weather conditions, solar PV typically produces energy during the hours when PWP's peak loads are occurring, so production generally aligns well with PWP's electric demand.
- **Viability:**
 - The project is in an advanced stage of development. Several initial milestones, such as site control, transmission interconnection studies, California Energy Commission pre-certification, and obtaining several environmental studies and permits, have already been achieved or close to being achieved.
 - The project developer is very experienced and credible, with several utility-scale solar projects already operating and under construction.
 - Solar PV is a proven renewable technology, with minimal development risk and numerous utility scale projects operating worldwide for many years.
- **Value:**
 - As a reflection of the general market, the contract price for this project is less than Pasadena's last two renewable energy and fuel contracts, i.e. Silverado (solar) and biomethane fuel. In the current market, this project price is comparable to renewable energy resources such as geothermal

⁴ SBX1-2 includes a minimum purchase requirement for Category 1, and because it is the most valuable of the SBX1-2 Categories in meeting regulatory mandates, Category 1 products are typically the most expensive renewable energy products to purchase.

and wind power, but provides higher value as the solar energy is available during the day time when energy prices are typically higher and solar has a more predictable generation profile than wind. See Table 2 for a comparison of the price of this PPA to other renewable energy contracts PWP has executed.

- In addition to renewable energy and environmental attributes, the project will provide system resource adequacy benefits⁵.
- The contract includes certain options to purchase the facility during the term of contract or in the event of a default under the power purchase agreement.

TABLE 2
Renewable Energy Contracts Price Comparison

Resource Name/Type	Contract Execution	Contract Energy Price ¹ by Calendar Year (\$/MWh)					
		2014	2015	2016	2017	2020	2025
Proposed Kingbird Solar	2013	-	-	\$68.50	\$68.50	\$68.50	\$68.50
Silverado Solar ² (+ \$5.10/MWh for Resource Adequacy, if available)	2012	-	\$77.34	\$78.50	\$79.68	\$83.32	\$89.76
WM Biomethane	2011	\$94.92	\$94.92	\$94.92	\$94.92	\$94.92	-
Sequent Biomethane	2011	\$94.92	\$94.92	\$94.92	\$94.92	\$94.92	-
EDF Biomethane	2011	\$98.00	\$98.00	\$98.00	\$98.00	\$98.00	-
Milford Wind	2009	\$70.94	\$72.19	\$73.45	\$74.74	\$78.73	\$85.86
Ormat Geothermal Phase 2	2008	\$82.01	\$83.24	\$84.49	\$85.76	\$89.67	\$96.60
Chiquita Canyon LFG	2006	\$65.25	\$65.25	\$65.25	\$65.25	\$65.25	\$65.25
Ormat Geothermal Phase 1	2005	\$64.77	\$65.74	\$66.73	\$67.73	\$70.83	\$76.30
Iberdrola Renewables	2003	\$53.50	\$53.50	\$53.50	\$53.50	\$53.50	-
2013 Market Forecast (brown power)		\$43.99	\$46.19	\$48.50	\$50.92	\$58.95	\$75.23

^[1] Contract prices exclude costs of transmission, losses, and integration fees

^[2] All contract prices include Resource Adequacy, except Silverado, as noted, and the Market Forecast, which is energy only.

⁵ PWP is required to demonstrate to the CAISO that it controls or has contracted for a certain amount of System Resource Adequacy. A renewable resource that includes this attribute is more valuable to PWP than one without. To qualify, a resource must be "deliverable," as determined by transmission studies.

The proposed agreement is for energy, capacity, environmental attributes, and ancillary products and services from the Kingbird Solar Project. The initial capacity factor⁶ is anticipated to be approximately 33%. The annual contract quantity is estimated to be approximately 60 GWh of energy in the project's first year of operation, with production degrading at a rate of approximately 0.5% per year. This contract is expected to provide approximately 5.5% of PWP's total annual energy requirements. The contract price for California Energy Commission certified delivered energy is \$68.50 per MWh ("Contract Price") each year of the twenty (20) year contract term after the commercial operation date. There will be a \$10/MWh discount from the price if the system resource adequacy capacity is not available. Prior to the commercial operation date, any unscheduled energy the project might deliver will be purchased at 70% of the Contract Price.

The proposed project is one of two separate 20 MW projects that will be located on 324 acres at the northwest corner of Avenue A and 170th Street West in the City of Rosamond in the Antelope Valley of Kern County, California. The other 20 MW project will be separately metered, and the output is expected to soon be sold either to other SCPA members, or to a California investor-owned utility. Both projects share an interconnection with another large project, AV Solar Ranch, built by the same parent company, First Solar. The nearby 230 MW AV Solar Ranch is expected to achieve full commercial operation by the end of this year. AV Solar Ranch has a power purchase agreement with PG&E.

The project developer is Kingbird Solar, LLC, a special purpose entity organized for the purpose of developing, owning, managing and operating the Kingbird solar facility. The development company's ultimate parent company is First Solar, Inc.⁷ (NASDAQ: FSLR) an S&P 500 Company with total assets of over \$6 billion. First Solar manufactures and sells PV solar modules with an advanced thin-film semiconductor technology, and designs, constructs, and sells PV solar power systems that use the solar modules it manufactures. First Solar is one of the world's largest PV solar module manufacturers and is the world's largest *thin-film* PV solar module manufacturer. As of December 31, 2012, First Solar had 28 installed production lines with an annual global manufacturing capacity of approximately 1.9 GW at manufacturing plants in Perrysburg, Ohio, and Kulim, Malaysia. First Solar's global headquarters is in Tempe, Arizona. First Solar is often employed as an "EPC" (engineer-procure-construct) contractor by developers for projects using First Solar panels, and First Solar typically sells the power projects it develops and builds itself to third party owners. The tables in Attachment 1 include a partial list of utility-scale First Solar PV facilities.

Like all other long-term commitments, the proposed agreement carries financial and compliance risks. Since the contract carries no up-front capital or annual fixed-cost commitment, these risks are primarily related to the possibility that: (1) future alternative

⁶ Capacity Factor is calculated as the amount of expected energy production (in MWh) divided by the capacity (in MW) divided by the number of hours in the period (e.g., 8760 in a year).

⁷ For more information on First Solar, please see www.FirstSolar.com

renewable resources may have a lower price and/or (2) the Kingbird Solar Project does not produce the output expected.

The agreement includes the provision of Performance Security⁸ to protect against Seller's failure to develop the project on time or at all, and daily liquidated damages for delays in meeting certain key milestones, such as the commercial operation date.

COUNCIL POLICY CONSIDERATION:

The proposed agreement is consistent with the City's Urban Accords Goals with respect to renewable energy and greenhouse gas emission reduction goals, the General Plan Energy Element, the City Council's Strategic Planning Goals, the 2012 Power Integrated Resource Plan and PWP's RPS Procurement Plan. The Project will help PWP achieve regulatory compliance as well as City Council goals in a cost-effective manner.

ENVIRONMENTAL ANALYSIS:

The proposed agreements are determined to be exempt from the CEQA process pursuant to State CEQA Guidelines Section 15061(b)(3), the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA. The proposed action is for the City to enter into an agreement to purchase power from the Kingbird Solar Project, which is proposed for construction and operation in the County of Kern. The City of Pasadena does not have the authority to approve/entitle the Kingbird Solar Project. Such authority rests with the County of Kern, and the County is currently preparing a CEQA document to consider the environmental impacts of that project. The City's proposed Power Purchase Agreement does not commit the County to approving the Kingbird Solar Project and, thus, no physical construction is contemplated, or would be authorized, by the actions proposed in this staff report.

⁸ Performance Security is equal to \$1 million beginning on the power purchase agreement execution date, stepping up to \$2 million 240 days after the execution date, and increasing to \$2.5 million upon commercial operation and for the remainder of the contract term. Performance Security can be in the form of letters of credit or surety bond by qualified issuers ("A2" by Moody's or "A" by S&P), cash or guarantees from qualified guarantors (at least investment grade, or otherwise acceptable to PWP).

FISCAL IMPACT:

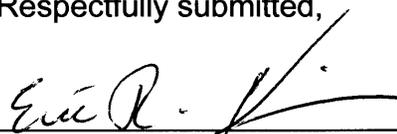
The proposed Kingbird Solar Project is expected to commence commercial operation in FY 2016. It is expected to produce approximately 60 GWh of category 1 renewable energy in the first year at a cost of approximately \$4.11 million. The annual production and cost is anticipated to decline by approximately 0.5% annually after the first year.

Currently, the cumulative net impact of all existing renewable contracts in the energy portfolio is about \$7.3 million per year or approximately 0.62¢ per kWh. With this agreement, the net cumulative impact will increase by approximately \$1.2 million per year or about 0.11¢ per kWh to about \$8.5 million per year or approximately 0.73¢ per kWh starting in January 2016.

Currently, with the existing renewable contracts, the monthly bill for a typical customer using 500 kWh per month is \$87.20, which includes a renewable energy premium of \$3.16. With this agreement, the monthly bill for a typical customer using 500 kWh per month will increase by \$0.52 to \$87.72, including a renewable energy premium of \$3.68 per month.

All costs associated with this agreement will be recovered in the Energy Charge component of Pasadena's electric energy rates.

Respectfully submitted,

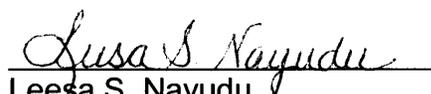


PHYLLIS E. CURRIE

General Manager

Water and Power Department

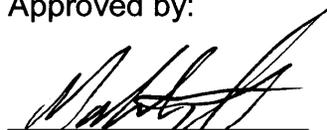
Prepared by:



Leesa S. Nayudu

Resource Planning Manager

Approved by:



MICHAEL J. BECK

City Manager

Attachments:

Attachment 1: Partial List of First Solar Projects Completed and Under Construction

ATTACHMENT 1

PARTIAL LIST OF FIRST SOLAR FACILITIES

Completed Projects

Project	Location	Project Size in MW (AC)	Power Purchase Agreement (PPA)	Third Party Owner/ Purchaser
Blythe	Blythe, CA	21	SCE	NRG Energy, Inc
Copper Mountain 1	Boulder City, NV	58	PG&E	Sempra USG&P
Cimarron	Colfax County, NM	21	Tri-State	Southern Company & Turner Renewable Energy
Silver State North	Primm, NV	50	NV Energy	Enbridge, Inc
Roadrunner Santa Teresa	Santa Teresa, NM	20	El Paso Electric	NRG Energy
Sarnia	Sarnia, Ontario, Canada	80	Ontario Power Authority	Enbridge

Projects Under Construction⁹

Project	Location	Project Size in MW (AC)	Power Purchase Agreement (PPA)	Third Party Owner/ Purchaser	Expected Substantial Completion
Topaz	San Luis Obispo, CA	550	PG&E	MidAmerican	2014/2015
Desert Sunlight	Desert Center, CA	550	PG&E/SCE	NextEra/GE/Sumitomo	2014/2015
Agua Caliente	Yuma County, AZ	290	PG&E	NRG/MidAmerican	2014
AV Solar Ranch One	Los Angeles County, CA	230	PG&E	Exelon	2013
Imperial Energy Center South	Imperial County, CA	130	SDG&E	Tenaska ^[1]	2013
Copper Mountain 2	Boulder City, NV	58	PG&E	Sempra USG&P ^[1]	2015 ^[2]
PNM2	NM	22	UOG ^[3]	PNM ^[1]	2013
Walpole	Ontario, Canada	20	OPA ^[4]	GE/Alterra	2013
Belmont	Ontario, Canada	20	OPA ^[4]	GE/Alterra	2013
Amherstburg 1	Ontario, Canada	10	OPA ^[4]	GE/Alterra	2013
DEWA	UAE	13	DEWA ^[5]	DEWA ^[1]	2013
Campo Verde	Imperial County, CA	139	SDG&E	N/A	2013
Macho Springs	Deming, NM	50	El Paso Electric	N/A	2014
Maryland Solar	Maryland	20	FE Solutions	N/A	2013
Lost Hills	Kern County, CA	32	PG&E	N/A	2015/2016 ^[7]
Stateline	San Bernadino County, CA	300	SCE	N/A	2016

⁹ Includes uncompleted sold projects, projects under sales contracts subject to conditions precedent, and EPC agreements including partner developed projects that FS is constructing.

Project	Location	Project Size in MW _(AC)	Power Purchase Agreement (PPA)	Third Party Owner/ Purchaser	Expected Substantial Completion
Silver State South	Clark County, NV	250	SCE	N/A	2016
AGL ^[6]	Australia	159	AGL ^[1]	N/A	2015
Cuyama	San Joaquin Valley, CA	40	PG&E	N/A	2015/2016 ^[7]

^[1] EPC contract or partner developed project

^[2] First 92 MW AC phase was completed in 2012. Remaining phase is 58 MW AC for which substantial completion is expected in 2015

^[3] UOG = Utility Owned Generation

^[4] OPA = Ontario Power Authority RESOP program

^[5] DEWA = Dubai Electric and Water Authority

^[6] Subject to financial close and execution of EPC contracts

^[7] PPA term does not begin until 2019

**Disclosure Pursuant to the
City of Pasadena Taxpayer Protection Amendment
Pasadena City Charter, Article XVII**

Contractor/Organization hereby discloses its trustees, directors, partners, officers, and those with more than 10% equity, participation, or revenue interest in Contractor/Organization, as follows:

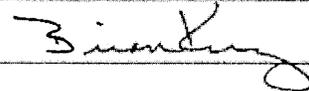
(If printing, please print legibly. Use additional sheets as necessary.)

1. Contractor/Organization Name:	First Solar Development, LLC
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2. Type of Entity:	<input type="checkbox"/> non-government <input type="checkbox"/> nonprofit 501(c)(3), (4), or (6) <input checked="" type="checkbox"/> Limited Liability Company
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3. Name(s) of trustees, directors, partners, officers of Contractor/Organization:	
Directors (FSD, LLC)	Officers (continued)
Mary Beth Gustafsson	David Bradly, VP, Treasurer
Mark Widmer	Steve Robertson, VP, Tax
	Dana Diller, VP, Business Development
Officers (FSD, LLC)	Mary Beth Gustafsson, VP and Secretary
Tim Rebhorn - President	Jason Dymbort, VP and Assistant Secretary
Lou Moore - VP, EPC	Beth Deane, VP and Assistant Secretary
Brian Kunz - VP, Project Development	
Alex Bradley - VP, Project Finance	
Bryan Schumaker, VP, Corporate Controller	

4. Names of those with more than a 10% equity, participation or revenue interest in Contractor/Organization:	
Directors of FSE (CA), Inc.:	Officers of FSE (CA), Inc. (continued):
Mary Beth Gustafsson	Alex Bradley - VP, Project Finance
Louis Moore	Bryan Schumaker, VP, Corporate Controller
Mark Widmar	David Brady, VP, Treasurer
	Steve Robertson, VP, Tax
Officers of FSE (CA), Inc.:	Mary Beth Gustafsson, VP and Secretary
Lou Moore - President	Jason Dymbort, VP and Assistant Secretary
Justin Bloch, Vice President	Beth Deane, VP and Assistant Secretary
Mark Widmar, Chief Financial Officer	

Prepared by: 

Title: VICE PRESIDENT

Phone: 415-935-2490

Date: September 3, 2013