SOLAR PURCHASE POWER AGREEMENT (PPA)
FREQUENTLY ASKED QUESTIONS

UPDATED: October 28, 2015

1. **Why Solar?**

   Solar energy one of the cleanest and most abundant renewal energy sources available in Texas. Displacing carbon generated energy with solar energy will improve air quality in Houston and Texas, as well as increase renewable generation capacity. The City will realize a four percent greenhouse gas emissions reduction over the term of the contract, helping the City realize its emissions reduction goals.

2. **Why pursue this PPA now?**

   The price for solar has decreased significantly over the past few years. This is reflected in the very competitive price for a 30 Megawatt (MW) solar plant offered by Hecate Energy LLC. The competitive price is due in part to the City taking advantage of federal tax credits set to expire on Dec. 31, 2016.

   Additionally, the only cost of solar energy is the cost of construction and maintenance. This allows the City to receive a fixed price for solar energy over the 20 year term of the contract, providing price certainty and stability for a portion of its energy consumption. The City's negotiated fixed price of 4.8 cents per kilowatt hour (kWh) is one of the best prices for solar in the state. Over the past five years, the City's average rate has been 6.7 cents/kWh.

   > "My sense is that solar is getting closer than ever to grid parity but it's not quite there yet," [Shalini Ramanathan of RES Americas] said.
   >
   > But that gap is deceptively large. For one, notoriously volatile natural gas is the prime driver of wholesale electricity prices in ERCOT. If the fracking bonanza fizzles or natural gas exports overseas pushes the commodity price of natural gas higher, electricity prices will rise too. Renewables on the other hand provide price certainty decades into the future.
   >
   > **Texas Solar Power May Have its Day in the Sun, Texas Observer (Mar. 27, 2014)**

3. **Why Hecate Energy LLC?**

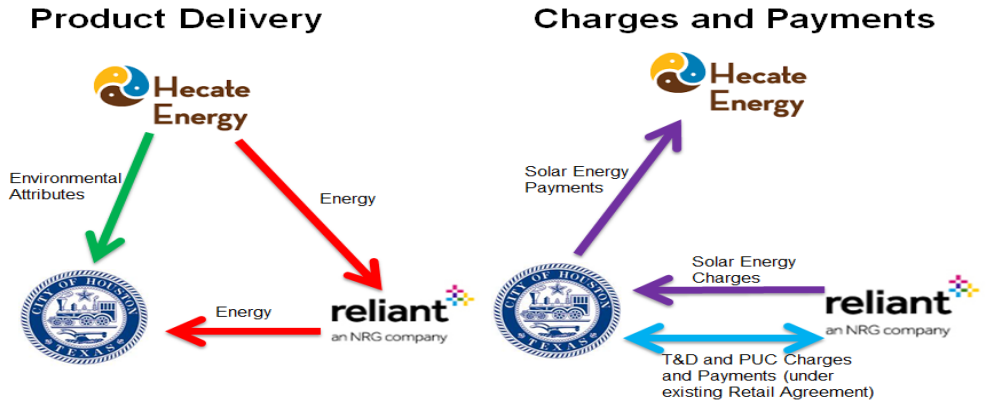
   The highest ranking proposal in a competitive RFP process was provided by Hecate Energy LLC. Founded in 2012, Hecate Energy has over 2,400 MW of power plants under development including natural gas projects in Oregon and Pennsylvania, solar power plants in Massachusetts, Rhode Island, Maryland, Virginia, New York, Ohio, Texas, Georgia and California, and energy storage projects in Ontario, Canada.

   Headquartered in Nashville, TN, Hecate Energy LLC had served numerous municipalities. See chart below.

City	Project	Partnership Highlights
Los Angeles – LADWP	• Three projects totaling 162 MW solar PV in southern California. • 28 MW solar PV of distributed generation in Los Angeles.	• Local inclusion plan with a commitment to utilize local companies and have already completed contracts totaling $350,000 with such businesses during development and site prep. • Conducting a vendor fair to fully inform and engage Los Angeles businesses.
Port Authority of Los Angeles	• 10 MW solar PV at multiple port locations including groundmount, shoreline, parking lots, and rooftops.	• Site identification and early stage development completed by the Port. • Revenue sharing arrangement between Hecate Energy and the Port Authority.
East Providence, Rhode Island	• 3 MW solar PV on a City landfill. • 5 MW solar PV on a City landfill.	• Leasing land from and negotiated PILOT with City. • Jointly raised grant money to fund portion of landfill closing and capping. • As part of the grants, we have the EPC firm commitment to create 5 fulltime permanent jobs for HUD eligible members of the community. • Employed local firms for environmental consulting, site prep, and construction. • Revenue sharing.
Cincinnati, Ohio	• Three year contract • Energy efficiency and renewables • Implementing in partnership with Hecate Energy affiliate Empower Gas & Electric.	• Building a consumer-facing program for energy efficiency. • Marketing renewable energy directly to consumers.
Athens, Ohio	• Electricity aggregation, energy efficiency for residential sector, customer education, renewable energy. • Implementing in partnership with Hecate Energy affiliate Empower Gas & Electric.	• Initial 3 MW PV solar project. • Subsequent 10 MW of renewable energy.
CPS Energy in San Antonio, Texas	• 400 MW solar PV. • Manufacturing facilities from across the supply chain.	• Creation of 800 jobs and over $100M of capital equipment in manufacturing facilities. • Utilization of locally made equipment. • Educational programs with local institutions. • Local tax incentives. • Vendor fair to engage local companies.
Vineland Municipal Electric Utility in New Jersey	• 3 MW solar PV.	• Electricity sales to VMEU. • Project retained the SRECs.

4. What are the key contract terms of the agreement?

- Purchasing all output from Solar Facility for $48.48 per megawatt hour (MWh) (which equals 4.8 cents/kWh) for 20 years
  a. City will receive all energy and installed capacity
  b. City will also receive all environmental attributes, including renewable energy credits (RECs) and future carbon credits which would have a separate market value
- Total output of solar facility represents only 6.7% of City's annual load; balance will continue to be purchased under Reliant contract
- Capacity will be between 27 and 30 MW, depending on final output of solar panels
- Good faith efforts to subcontract to Houston MWBE firms
- Release, indemnification, and insurance protections
- $1 million parent guaranty or letter of credit security interest as additional collateral
- Product delivery & charges/payment as illustrated below:



5. **What is an REP?**

   Retail Electric Provider (REP) – in this case, Reliant Energy Retail Services, LLC. The REP will make arrangements for transmission of the solar energy from West Texas to the City's meters. Reliant is a necessary party because Texas law prohibits the City from purchasing energy directly from a generator or from serving as its own REP.

6. **Can City of Houston change the REP?**

   Yes – the agreement allows the City to change REP (see Section 2.7 of the PPA at page 12).

7. **What are the financial cost and savings for City of Houston?**

   With a very competitive price offered by Hecate, this proposal allows City of Houston to minimize exposure to natural gas price fluctuations, realize budget certainty and energy price stability with guaranteed electricity rate providing long term savings.

   Over the past 5 years, the Reliant Energy electricity rate ranged from 4.3 cents to 8.11 cents/kWh (variable rate) with an average of approximately 6.7 cents/kWh. Hecate offers a fixed rate of 4.848 cents/kWh over 20 years.

   The Finance Department conducted a cost analysis over 20 years based on solar versus conventional electricity rates with at low, medium and high cost projections for conventional electricity rates.

   - Under a high cost scenario for conventional electricity (4.9 cents/kWh), the City will realize $19.5 million in savings.
   - Under a low cost scenario for conventional electricity (3.9 cents/kWh) the City could lose $763,000.
   - The midrange scenario (4.2 cents/kWh) and most likely projection will result in a $5.3 million savings.

   The wide range is due to the variability of conventional electricity rates.

8. **Is there cancellation clause?**

   No. Hecate's lenders would not approve the project with a termination for convenience clause. However, the City's may cancel the contract early if there is an event of default and the $1 million in security proves insufficient. The list of potential events of default is in Section 5.1 of the PPA at pages 18 to 20. The contract also has a standard non-appropriations clause in Section 10.14 of the PPA at page 35 that provides the City with additional protection.

9. **Has the solar plant been developed and is the contract financing the plant?**

   The solar facility has not been built yet. The PPA offtake will allow Hecate to finance construction.

"Most all solar financing is dependent on the offtake agreement. In this case, the executed power purchase agreement assures the financier that once the facility is built and delivering energy that a creditworthy buyer has committed to the offtake." Craig Overmyer, Hecate Energy, LLC.

10. What is the rate we are paying for solar vs. other cities?

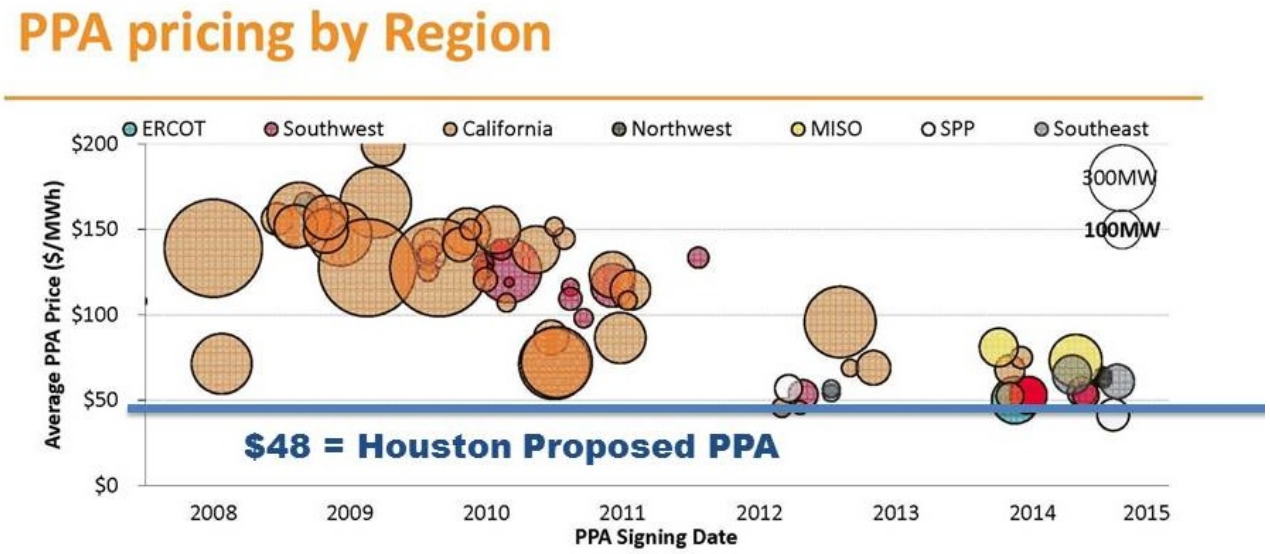
Houston is the only Texas municipality in a deregulated market purchasing solar power through a power purchase agreement (PPA). Austin, San Antonio, El Paso, and Georgetown all have municipal power companies (MPCs) authorized to directly purchase wholesale power. The main advantage of a PPA is the ability to lock-in a long-term price like the MPCs.

Further evidence has been delivered of the rapid fall in the cost of utility-scale solar in the US, which dropped to an average of **US$0.05 per kilowatt hour**, according to a new report by Lawrence Berkeley National Laboratory.

PV Tech News (Oct. 1, 2015).

The municipal power companies would not share the commercial terms of their PPAs or state whether their prices are fixed or escalated. From published news reports, these other Texas cities are paying between 16.5 cents/kWh and 4.0 cents/kWh. Their median price is 9.5 cents/kWh.

The City's own RFP produced price quotes ranging from 4.8 cents/kWh to 6.6 cents/kWh for solar facilities in West Texas. The quotes for solar facilities in the Houston area ranged between 9.4 cents/kWh and 9.9 cents/kWh. Several quotes contained annual price escalations between 1.5% and 2.0%.



Source: Bloomberg NEF and U.S. Department of Energy

According to the U.S. Department of Energy (DOE) and Lawrence Berkeley National Lab, the 2015 national average PPA price for similarly sized utility-scale projects has been decreasing and is now $57.85 MWh (which equals 5.8 cents/kWh). The above DOE chart shows this trend along with the proposed Houston price of $48.49 MWh (which equals 4.8 cents/kWh). However, this trend will

either reverse or stall when the federal investment tax credits for solar are reduced from 30% to 10% on Jan. 1, 2017.

When compared to both local, Texas and national markets, Houston is being offered a competitive price for long-term solar power, especially since the PPA does not have any price escalation.

11. What percent of electricity expenditures would this contract represent?

Over the past five years, the average annual cost of electricity has been approximately $113,735,857. Over 20 years, average annual cost of solar will be approximately $3,980,154. Therefore, on an annual basis, solar expenditure is approximately **3.4%** of the City's total electricity expenditures.

12. Where are the insurance protections?

Section 10.7 beginning on page 31.

13. Are the transmission lines already in place?

Yes. The Hecate solar facility will be connected to an American Electric Power (AEP) distribution line less than 100 miles from a high capacity Competitive Renewable Energy Zone (CREZ) line.

> Another reason for the boom: Texas recently wrapped up construction of $6.9 billion worth of new transmission lines, many connecting West Texas to the state's largest cities. These massive power lines enabled Texas to become, by far, the largest U.S. wind producer.
>
> Solar developers plan to move electricity on the same lines, taking advantage of a lull in wind generation during the heat of the day when solar output is at its highest.
>
> **Next Texas Energy Boom: Solar, Wall Street Journal (Aug. 21, 2015).**

14. Is $1M sufficient security?

Yes. The most significant damages the City could suffer are (a) the failure of Hecate to deliver Energy, and (b) the failure of Hecate to reach Commercial Operation Date by April 1, 2017.

In either instance, the City will need to buy electricity in the spot market to make up for the electricity not delivered. The City's damages are the difference between the fixed solar price of 4.8 cents/kWh and the market price. Assuming the market price is 6.7 cents/kWh (the City's past average price), the City will be damaged in the amount of 1.9 cents/kWh. Assuming further that the outage happens during the summer when solar power production is at its greatest, the energy not delivered could be as much as 350,000 kWh per day. Therefore, one day's damages under scenario (a) could be as much as $6,650. The $1 million in security will protect the City for 150 days of failed deliveries.

Hecate is expected to reach Commercial Operation on or before Dec. 15, 2016. If it does not, then the City is also entitled to Delay Damages of $200 per MW of capacity not completed. Assuming

Hecate fails to bring any generation on-line before the drop dead date of April 1, 2017, this amounts to a maximum of $636,000 in additional delay damages. Therefore, under scenario (b) the City would collect both market damages calculated in the previous paragraph and delay damages calculated in this paragraph. The $1 million in security will protect the City if Hecate totally fails to reach commercial operations by April 1, 2017.

15. Couldn't we achieve the same price certainty by locking in natural gas prices?

No. The NYMEX natural gas futures contracts only go out five years, and the premium increases substantially in the out years. For example, the premium for Oct. 2020 deliveries is currently +29%.