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To: Lemoore City Council
From: John Tyler, Administrative Analyst
Date: April 25, 2007
Subject: Solar Power Proposal: City Facilities

Item #7

Discussion:

Council will recall that at the last regular meeting, City staff was directed to investigate further the potential for working with Chevron Energy to develop a Solar & Energy Efficiency package that would be feasible for the City to accomplish. Chevron was asked to clarify some of the questions and concerns posed by Council, such as the financing options, the use of local trade professionals, etc. Chevron has submitted a revised plan and it is attached here for your review. Ashu Jain will be in attendance at the regular meeting on Tuesday to answer any questions you may have.

In short, the revised proposal gives the City some options before moving forward and also clarifies certain concerns addressed by City Council Members. Please remember, the project encompasses four of our City facilities: Lemoore Municipal Complex, the Fire Department/Planning Building at 210 Fox Street, City Hall, and the Police Department. The project scope goes beyond solar and into energy efficiency as well to make the most of efficient technologies and create an entire package.

The main portion of the project is a 175 kW solar array on top of the Lemoore Municipal Complex. This installation, along with skylights and retrofitting of existing lighting technology with new, efficient technology will go far toward the goal of reduced power consumption and cost at the LMC facility. Staff, however, as of our last meeting, posed to Chevron some contingent variables that we might face in moving forward. We did this in an effort to validate some of their calculations (predictions), and help Council make the most informed decision. For example, we asked Chevron what happens if the CCA program takes off, and performs as anticipated? What will this do to rate savings forecasts? Another variable we asked to be addressed was the anticipated annual escalation of PG&E rates and how that would affect the economics of the proposal. Chevron has been very cooperative in providing the data and the answers to these scenarios and we present them to you in this report.

As of the writing of this report, the proposed project qualifies for just under \$600,000 in rebate incentives over the next five years. This quoted amount of rebate is down from the last report. This is due to the fact that the rebate structures put in place call for timeliness, and the longer a

customer waits to move forward on a project, the lower the rebate. You will notice that the proposal also adds, as an option, a 38kW shade structure at the Police Department that would qualify for an additional \$106,000 in incentive rebates but would, in a practical sense, cost the City over \$4,000 per year over the 30-year term of the project. This cost is a net cost, taking into account projected energy savings (using a 4% PG&E escalator), incentive rebates, and debt service. For all intents and purposes, the Police Department shade structure, increases the overall annual cost of the project, making it, effectively less economic, but not necessarily unacceptable.

Additionally, staff asked for roofing material under the solar structure at LMC to have a longer life than the rest of the roof. This would effectively put off roof replacement costs directly under the solar panels for ten additional years.

The revised proposal then is broken down into scenarios for the different variables mentioned above (CCA rates and variable PG&E escalation factors) and also takes into account that we will be replacing the roof of the LMC and Fire Department facilities (and the HVAC at the Fire Department) with funds we currently have, and will not be financing that portion of the project. Staff will be providing pictures by way of PowerPoint at the meeting to illustrate the condition of disrepair of the roof at LMC and the need to replace it, regardless of any solar project.

The different financial scenarios outlined by Chevron are as follows:

1. We stay with PG&E (no CCA) and use an annual escalation factor in PG&E rates of 4%.
*This is twice the escalator that we are using in the financial model with the CCA program.
2. Go with CCA rates and use a 2% annual escalator factor for electric rates.
*This is the formula that we are using for CCA calculation for the SJVPA.
3. Go with CCA rates and use a 4% annual escalator.
*Using PG&E rates here would make the projected savings decrease slightly.
4. Go with CCA rates and use a 6% annual escalator.
*Using PG&E rates here would make the projected savings decrease slightly.

One might ask, what is the particular difference in each escalation calculation, and that question is easily explained. The higher the escalation factor, the easier it is to make the project look economic on paper. That is precisely why we cannot predict more than a 5% savings off of generation through the San Joaquin Valley Power Authority. We used 2.1% as an escalator for PG&E rates in the business model and implementation plan to the CPUC. If we were to have used a 4% escalator, we could have predicted a 10% savings in generation, but chose to go with the more conservative estimates, so as not to overestimate or paint a rosier picture than truly exists. Having said that, it is entirely possible that PG&E's rates could change on average 6% annually and that makes all of our electrical generation projects more economic on paper; we just cannot say with how much certainty, at this point, that these conditions would exist. I'll present to you in the Budget Impact section of the staff report the different variable effects on the calculations, and thus the range of savings (or cost).

That brings me to my next point of discussion; and that is one of timing. It recently occurred to the executive board members of the SJVPA (CCA) at our last meeting held on April 23rd, that we (the SJVPA members) would, once contracted to do so, be able to become energy producers, a venture never before afforded to the City of Lemoore. If that were to become the case then we

could reconsider the size of the electrical production available on the top of the LMC facility (up to 10 times the current proposal). We could build as much solar as the roof could accommodate and sell the excess power back to Kings River Conservation District. In effect, we could provide free green electricity to many, if not all, of our City facilities, while helping to satisfy the renewable energy requirements of the CCA (Please note that this condition would make us ineligible for the incentive rebates). The current Chevron proposal calls for 175 kW...what if we could produce 1,500 kW (1.5mW) and sell it back? Would that make the project more attractive? If so, then Council may consider waiting longer to make sure that CCA goes forward. A large solar generator would certainly qualify as a viable project under the current RFP put out by KRCD for renewable generators in the local area. Some might argue the risk that CCA goes belly-up and the City is stuck with a 1.5mW electricity production facility and nowhere to sell the excess power. I would argue that if CCA goes belly-up, PG&E would not hesitate at the chance to procure additional green power to meet their supply needs. While not currently allowed by law, regulations are always subject to change. If the regulations were adjusted to allow for this situation, it would be up to the City, at that point, to negotiate terms of net-metering with PG&E. Also, with regard to timing, I recently received a call from Honeywell, in which they indicated a high level of interest in bidding on a similar type of project, but would, in their proposal, own/operate/maintain the system and the SJVPA would, in turn, contract to purchase the green power from Honeywell. To date, however, no proposal has been provided.

To recap then, the proposal states that we will be replacing the roof at the Lemoore Municipal Complex and the Fire Department, simultaneously replacing the HVAC units at the Fire Department, with existing city funds. Everything else will be financed at 4.5%. Chevron also indicated in their revised proposal that the financing would be put out to bid and would be accomplished through a “third party municipal tax-exempt financing company.” In Chevron’s opinion, this method, as well as the method of using local tradesmen and installation professionals (also listed in their presentation), makes their project effectively contribute to the overall local, or at least regional, economy.

Budget Impact:

Again, for clarification, the new roof at LMC, the new roof at the Fire Department and the A/C units for the Fire Department will not be financed, but paid for up front by the City at an estimated cost of \$1,998,000; the remainder of cost (\$1,985,286) will be financed.

Each scenario shows a different cost/savings estimate. Those are enumerated here.

First, under the conditions of no CCA, PG&E rate structure of A-10S (which is the rate we would pay without the 12kV substation) and a 4% PG&E escalation rate, the proposal projects a net savings over the 30-year life of the solar generators to be \$674,556. This amount, however, translates to a present-value savings of \$7,340. For the first twenty years, under this financing structure, the City would pay a net extra cost of \$32,438 annually; for the remaining ten-year life of the of the solar installation, the City would see energy savings increasing each year starting at \$114,543 in year 21 and going as high as \$151,661 in year 30.

Second, under the conditions of a CCA rate structure and a more conservative 2% PG&E escalation rate (as used by SJVPA), the proposal projects a net savings over the 30-year life of the solar generators to be \$166,788. This amount, however, translates to a present value cost of \$363,142. For the first twenty years, under this financing structure, the City would pay a net

extra cost of \$47,676 annually; for the remaining ten-year life of the of the solar installation, the City would see energy savings increasing each year starting at \$74,572 in year 21 and going as high as \$82,905 in year 30.

Third, under the conditions of a CCA rate structure and a 4% PG&E escalation rate, the proposal projects a net savings over the 30-year life of the solar generators to be \$557,484. This amount, however, translates to a present value cost of \$51,547. For the first twenty years, under this financing structure, the City would pay a net extra cost of \$35,645 annually; for the remaining ten-year life of the of the solar installation, the City would see energy savings increasing each year starting at \$109,961 in year 21 and going as high as \$145,595 in year 30.

Finally, under the conditions of a CCA rate structure and a 6% PG&E escalation rate, the proposal projects a net savings over the 30-year life of the solar generators to be \$1,627,432. This amount, however, translates to a present value savings of \$398,288. For the first twenty years, under this financing structure, the City would pay a net extra cost of \$20,570 annually; for the remaining ten-year life of the of the solar installation, the City would see energy savings increasing each year starting at \$160,950 in year 21 and going as high as \$252,958 in year 30.

Chevron will be requesting that an Energy Audit (the next step) be performed, and that Council provide the City Manager with the authority to enter into an Agreement with Chevron Energy to perform that audit at a cost of \$23,782. After the audit, if we move forward, the fee for the audit would be rolled into the cost of the project. Of course, we would not enter into an agreement until the City Attorney was satisfied with the contract.

Mr. Jain has indicated that an energy audit would be required even if we decide to go with the larger power generation project under CCA, and that the sooner we get started on it, the better.

Recommendation:

If Council wishes to proceed immediately, staff recommends that Council authorize the City Manager to enter into agreement for a comprehensive energy audit with Chevron Energy at a cost of \$23,782, only after the City Attorney's office has reviewed and approved said contract. It is at the Council's discretion on whether to wait for more information from the San Joaquin Valley Power Authority regarding the CCA project.