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# AGENDA REPORT

**TO:** Sabrina B. Landreth  
City Administrator

**FROM:** Brooke A. Levin  
Director, Public Works

**SUBJECT:** City Solar Power Project – Authorize Reimbursable Project Development Fees and Allow City Administrator to Sign a Power Purchase Agreement

**DATE:** August 22, 2016

City Administrator Approval

Date:

8/31/16

## RECOMMENDATION

Staff Recommends That The City Council Adopt A Resolution Authorizing The City Administrator Or Her Designee To:

(1) Enter Into A Power Purchase Agreement (PPA) With Vanir Management, Inc. (Vanir) To Buy Solar Electricity Delivered From Equipment That Is Owned And Maintained By Vanir On Six City Facilities At A Cost Not To Exceed One Hundred Twenty Thousand Dollars (\$120,000) In The First Year And Three Million Two Hundred Twenty-Five Thousand Dollars (\$3,225,000) During The 20-Year Term Of The Agreement, Paid From The City Facilities Fund (Fund 4400) With Two (2) 5-Year Options To Extend The PPA Upon The Same Terms And Conditions, Only If Financially Beneficial To The City;

(2) Accept And Appropriate A Project Management Reimbursement Fee From Vanir To Reimburse The City For Project Management Expenses In The Estimated Amount Of Seventy Thousand Dollars (\$70,000) To City Facilities Energy Conservation Projects Fund (Fund 4450);

Pay Vanir, If Costs For Pacific Gas & Electric Company (PG&E) Interconnection, Or For Necessary Building Upgrades, Or Other Unforeseen Conditions Arise In An Amount Not To Exceed One Hundred Fifty Three Thousand Dollars (\$153,000) In The First Year And Not To Exceed Three Million Seven Hundred Eighty Thousand Dollars (\$3,780,000) During The 20-Year PPA Term, Paid From The City Facilities Fund (Fund 4400);

(3) Terminate The PPA With Vanir, And Enroll The City In PG&E Solar Choice Program To Purchase Electricity At A Production Amount Equal To That In Vanir's Proposal, At An Estimated Premium Cost Of Seventeen Thousand Five Hundred Dollars (\$17,500) In The First Year, If The Costs Of PG&E Interconnection And Necessary Building Upgrades Under 3) Above Would Incur A Rate Adjustment That Increases Costs More Than Three Million Seven Hundred Twenty Thousand Dollars (\$3,720,000) Over The 20-Year PPA Term; And

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**(4) Take The Actions Herein Without Returning To The City Council For Further Approvals.**

**EXECUTIVE SUMMARY**

For many years, City Council has acted to support placing solar photovoltaic (PV) electricity generation systems on City facilities. In 2005, the City completed a large solar power system, and in 2012, City Council adopted an Energy and Climate Action Plan (ECAP) that emphasized the importance of adding more solar power systems to municipal buildings. In 2013, the City Council authorized purchasing solar power through participation in the Regional Renewable Electricity Procurement (R-REP) program led by Alameda County (County), which assists public agencies throughout Alameda, Contra Costa, San Mateo, and Santa Clara Counties with developing and implementing solar energy projects. To date, R-REP has assisted 19 public agencies with developing and implementing solar energy projects, and has installed 13.1 megawatts (MW).

The project presented here was developed through the R-REP program for the City to purchase solar power at six municipal locations from solar PV generation systems that would be owned, designed, constructed, operated and maintained by Vanir, a certified local business enterprise.

While entering into this PPA with Vanir for the six City facilities is a marginally beneficial proposition for the City fiscally, it offers other benefits. Installation of these PV systems will increase the City's solar PV portfolio by 46% and reduce our greenhouse gas (GHG) emission by 104 metric tons in the first year. In addition, the installation of the PV systems demonstrates to the public the City's leadership and commitment to reduce municipal GHG emissions through clean power solutions. The project confers local economic benefits through the PPA's partnership with five, local Oakland firms to build PV systems for the City's exclusive use. Approval of the PPA does not foreclose the City's participation in other opportunities to purchase solar or other renewable energy, such as through PG&E programs or Community Choice Aggregation (CCA).

Last, this provides reduction of GHG impacts for a small percentage of the overall energy usage without compromising the City's ability to fully utilize future programs, such as a low cost renewable energy option offered by a CCA program.

The attached resolution authorizes the City Administrator to:

1. Enter into a Power Purchase Agreement (PPA) in an amount not to exceed \$3,225,000 over a 20-year term, provided that costs are less than the City would otherwise pay Pacific Gas & Electric Company (PG&E), and no more than \$120,000 in the first year, as directed by Council Resolution No. 84219 C.M.S. PPA payments would be made from the City Facilities Fund (Fund 4400).
2. Extend the PPA for two 5-year periods at the end of the 20-year term upon the same terms and conditions, only if financially beneficial to the City.

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3. Accept and appropriate the project management reimbursement fee to the City from Vanir in the estimated amount \$70,000 to the City Facilities Energy Conservation Projects Fund (Fund 4450), Environmental Services: Energy Group, Solar Phase 2 3<sup>rd</sup> Solicitation Project (Project C256517) to cover any City solar power project expense.
4. Pay Vanir, if costs for PG&E interconnection, or for necessary building upgrades, or other unforeseen conditions arise in an amount not to exceed one hundred fifty three thousand dollars (\$153,000) in the first year and not to exceed three million seven hundred eighty thousand dollars (\$3,780,000) during the 20-year PPA term, paid from the City Facilities Fund (Fund 4400).
5. Terminate the PPA with Vanir if the costs of PG&E interconnection and necessary building upgrades under 4) above would incur a rate adjustment that increases costs to more than one hundred seventy five thousand dollars (\$175,000) in the first year and three million four hundred thousand dollars (\$3,400,000) during the 20-year PPA term, and enroll the City in PG&E Solar Choice program to purchase electricity at a production amount equal to that in Vanir's proposal, at an estimated premium cost not to exceed seventeen thousand five hundred dollars (\$17,500) in the first year and five hundred thousand dollars (\$500,000) over 20-years.
6. Pay project development fees to Vanir, in the estimated amount of \$100,000, for the engineering, bonding, permits, and legal reviews necessary for requesting a mandatory project impact evaluation from PG&E. These project development fees will be paid from the City Facilities Energy Conservation Projects Fund (Fund 4450), Environmental Services: Energy Group, Solar Phase 2 3<sup>rd</sup> Solicitation Project (Project C256517) and reimbursed to the City if the project proceeds to construction, but forfeited if the City terminates the project.
7. Take the actions herein without returning to the City Council for further approvals.

Buying electricity from Vanir rather than PG&E is expected to save approximately \$138,000 on electricity charges over a 20-year period and reduce the City's GHG emissions by 104 metric tons in the first year. Spending of \$120,000 for this PPA represents approximately 2.6% of the City's total spending for electricity serving 108 of the City's largest municipal buildings (excluding streetlights). Completing this project will increase the City's solar PV generation by approximately 46% (to 1.46 MW), providing approximately 2.7% of the electricity consumed in the City's 108 largest municipal buildings based on figures from March 2015 through February 2016.

### **BACKGROUND / LEGISLATIVE HISTORY**

Addition of solar power to City facilities is intended to help achieve the ECAP goal of reducing municipal GHG emissions to 36% below 2005 levels by 2020.

In March 2013, Council considered an Agenda Report that analyzed several procurement options for adding solar power, and adopted Resolution No. 84219 C.M.S. authorizing the City

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Administrator to sign a Memorandum of Understanding with R-REP to pursue solar projects. The resolution specified that costs must not exceed the amount that the City would otherwise pay PG&E, and capped total spending for electricity purchased from the R-REP projects at \$120,000 in the first year and \$3,225,000 during the 20-year PPA term. Staff evaluated 90 City facilities for solar PV potential and selected 74 locations that were suitable to be included in the R-REP program.

R-REP published a Request for Qualifications (RFQ) in September 2013. In October 2013, an Evaluation Committee selected 17 qualified contractors from among 20 responses to the RFQ. Next, R-REP issued a Request for Proposals (RFP) to the qualified contractors for 186 sites, including the City's 74 sites. The solicitation included publication of standard PPA language based on Alameda County contracting requirements along with agency-specific requirements such as the City's Local/Small Local Business Enterprise Program and its Local Employment Program.

In January 2014, the County forwarded all proposals received in response to the RFP to the R-REP Evaluation Committee, including just one proposal, from Solar City, for City of Oakland projects. The Evaluation Committee determined that Solar City's proposal met the R-REP program requirements and formally recommended that the City conduct direct negotiations with Solar City. Though staff pursued negotiations with Solar City, at critical times, Solar City failed to engage in negotiations, citing their inability to submit timely prices for scope refinements, and to meet the City's stated insurance, local employment and local business enterprise requirements. The City and Alameda County each terminated negotiations with Solar City in July 2014.

R-REP prepared a second solicitation, paring down the City's sites to a set of the 25 most viable facilities, intending to attract more interest from qualified contractors. R-REP issued the solicitation to all of its qualified contractors in November 2014, but did not receive any proposals for City sites. After this second solicitation, staff met with each of the R-REP-qualified contractors who remained interested in discussing City projects. The meetings focused on understanding why the contractors did not submit proposals for City projects.

The most distinctive factor that suppressed contractor interest in City projects was project size. The contractors cited that the City's projects were too small for the contractors to consider seriously, as they typically install systems that are 500 kW in size and the City's largest system was 250 kW. Some contractors were strongly influenced by the expiration of the federal investment tax credit on December 31, 2016, and pending PG&E requests to the California Public Utilities Commission that could create less favorable electricity rates for solar PV projects.

Some contractors cited concerns about the expense required for having their legal teams review R-REP's one-of-a-kind contract for relatively small projects, and some insisted on using their own PPA contract language. Last, some contractors passed up the City's projects because of the City's standard requirements for certified Local Business and Small Local Business Enterprise participation.

Staff developed a modified solicitation based upon the feedback provided by the contractors who participated in these meetings. To make the solicitation more attractive by minimizing each

contractor's effort for submitting a proposal, staff reduced the site list to six facilities, eliminated requirements for submitting drawings with the proposal, customized R-REP's PPA template to an Oakland-specific version, and allowed contractors to substitute their own PPAs for the City's proposed version. The Contract Compliance Office analyzed the scope of work, performed an Availability Analysis, determined that parts of the work are specialized, and adjusted the program specifications as detailed in **Attachment A**. In October 2015, the City issued a third solicitation to interested R-REP-qualified contractors.

In December 2015, the City received two PPA proposals in response to the third RFP, one from Vanir and another from CoolEarth. Vanir ranked higher than Cool Earth. After meeting with Vanir and the Contract and Compliance Office to determine that Vanir could meet the City's program requirements, staff began negotiations with Vanir.

In December 2015, staff presented An Informational Report on Solar Power and Electric Vehicle Charging Infrastructure at City Facilities to City Council updating the Council on the status of the project.

## **ANALYSIS**

Staff negotiated with Vanir according to the authorization in Resolution No. 84219 C.M.S. using advice from Optony (R-REP's technical consultant), and the City's experience gained from developing and operating One Megawatt of solar PV since 2004. Although Vanir insisted on some PPA terms (described in this report) that are unfavorable to the City, staff recommends entering a PPA with Vanir rather than terminating negotiations and pursuing alternate strategies. In today's marketplace, where California's solar rebate program has expired, PPAs appear to have lost popularity with solar power contractors, though they still confer benefits on local agencies. Moving forward with this PPA represents the best strategy for maximizing the value of time and resources invested in this endeavor.

At the end of the 20-year term, the City would have the option to: 1) purchase the PV systems at fair market value; 2) renew the agreement for the first of up to two five-year terms; or 3) let the PPA expire, in which case Vanir is obligated to remove the PV systems and restore the sites to their pre-solar conditions at no additional cost to the City.

### ***PPA Pricing Terms as Recommended:***

Creating a PPA pricing structure is complex because the amount of electricity a solar PV system produces varies depending on how much sunlight falls on the panels, therefore annual production for a solar PV system can only be estimated, not controlled. Most solar power purchasing agreements accommodate the uncertainty of actual annual electricity production by setting a price for the estimated annual production quantity, and including flexibility in the pricing structure that allows for variations in actual production. The recommended PPA with Vanir includes flexibility to accommodate variations between estimated production, called "Annual Contract Quantity" in the PPA, and actual production.

In the first year of the recommended PPA, the City would buy electricity generated from the solar PV systems at a price of \$0.198 per kWh until the \$120,000 cap is reached, at which point Vanir will continue delivering any electricity produced by the solar PV systems to the City at no additional cost for the remainder of the year. In years two through twenty, if skies are sunny and Vanir generates more electricity than is estimated, the PPA obligates the City to purchase this electricity up to 110% the Annual Contract Quantity regardless of whether the City uses the electricity. Staff's analysis of the potential effect of this obligation to "take-or-pay" for electricity shows that by carefully selecting the system sizes to accommodate for future energy retrofit projects at each facility and account for expected future conditions, the City is unlikely to pay for electricity that it does not use, and that the requirement for buying up to 110% of the Annual Contract Quantity poses a low risk to the project's lifetime economic effectiveness.

The PPA also includes an annual price escalation factor of 3.25%, and a total cost cap over the 20-year term of \$3,225,000. If the total cost of PPA payments to Vanir reaches \$3,225,000 before the end of the 20-year term, Vanir will continue delivering electricity to the City at no additional cost until the end of the 20-year term. Table A below summarizes the main terms for the recommended PPA.

Table A – Power Purchase Agreement Terms

Subject	Terms		
Contact Duration	20 years		
PPA Rate	\$0.198 per kWh for the first year		
PPA Annual Escalation	3.25% each year, applied to the prior year's rate per kWh		
Cost Caps	<ul style="list-style-type: none"> <li>• \$120,000 maximum in 1<sup>st</sup> year</li> <li>• \$3,225,000 over 20-year term</li> </ul> PV systems will continue to provide electricity after any cap is reached at no additional cost to the City.		
Contract Options	After the initial 20-year term, the City and Vanir may negotiate up to two five-year extensions. The City may purchase the PV systems at fair market value at the 10 <sup>th</sup> and 15 <sup>th</sup> years and at the end of the initial 20-year term.		
System Descriptions	Site	System Size (kW)	Annual System Output (kWh)
	MSC 911 Dispatch	290	394,000
	81 <sup>st</sup> Avenue Library	83	113,000
	Garden Center	26	35,000
	Fire Station #8	16	21,000
	Fire Station #18	16	21,000
	Studio One Arts Center	16	21,000
Financing	Vanir is responsible for all financing throughout the term		
Ownership	Vanir owns the system		
Operations and Maintenance	Vanir is responsible for operations and maintenance		
Up-Time Guarantee	In aggregate, systems are available to produce electricity 90% of the time in a rolling 3-year period		
Roofing Warranty	Roof penetrations will not leak for 2-years		

***Confirming Economic Viability Before Authorizing Construction:***

If Council authorizes the recommended PPA and the agreement is executed, Vanir will prepare engineering designs, obtain permits, and procure bonds for the three PV systems that are most critical to the project's economic viability: the Municipal Service Center 911 Dispatch Center (MSC 911 Dispatch), 81<sup>st</sup> Avenue Library and the Garden Center.

Under the PPA, the City would bear the risk for costs that are currently unknown. These issues associated with these possible costs have two primary characteristics: issues that are foreseen with associated costs that are not known at this time, and issues that are not foreseen and which may be discovered during engineering design preparation. Project development (the first phase of project implementation) is included in the PPA for resolving uncertainties that may impact the net economic benefits for the project, which are currently estimated at \$138,000 over the 20-year PPA term. The most important uncertainties, described below, are unforeseen limitations of each building's infrastructure, which will be addressed during Vanir's engineering design work, and interconnection fees that PG&E may require before the City is allowed to operate the system on the local electricity grid, which PG&E will determine after reviewing Vanir's completed engineering designs.

Vanir's engineers will determine whether any previously unforeseen building upgrades are necessary to accommodate installation of the solar PV equipment. Although Vanir visited the buildings during and after the solicitation process, they have not performed structural engineering reviews to fully confirm that the buildings can accommodate the solar PV equipment without modification. Several of the buildings (Fire Station #8, Fire Station #18, Studio One and 81<sup>st</sup> Avenue Library) were designed to accommodate solar power equipment. However, because regulations for attaching solar PV equipment to rooftops may have changed since the buildings were constructed, a final determination must be made about the suitability of each set of equipment for the specific building where it will be placed. Vanir and the City will not know if building upgrade issues exist until Vanir completes its engineering design.

PG&E requires engineering design drawings and confirmation that a building permit is issued before they will assess whether the local electric grid must be upgraded to accommodate the impacts of the proposed solar PV systems. If PG&E determines that an electric grid upgrade is necessary, PG&E may require Vanir to commit to paying mandatory interconnection fees for these grid upgrades before the project is approved to operate. Historically, PG&E interconnection fees have ranged from nothing (\$0) to \$250,000 or more, if new transformers or high-power electrical distribution lines are necessary. If after completing the project development phase, Vanir confirms that they will implement the project as planned at a price of \$0.198 per kWh, capped at \$120,000 in the first year and capped at \$3,225,000 over the 20-year term of the PPA with a 3.25% annual escalation factor, staff will issue a Notice to Proceed with Construction (NTPC) to Vanir for MSC 911 Dispatch, 81<sup>st</sup> Avenue Library and the Garden Center.

After Vanir and PG&E complete their engineering design and confirm required interconnection, building upgrades or other known costs, the City will compare this cost against the premium cost of purchasing the same electricity under PG&E Solar Choice program and financed through an increase in the PPA rate. Vanir has offered to increase their PPA rate to pay for any increase cost up to a \$300,000 cap. Vanir will increase the PPA price at a rate of \$0.001066 per kWh, per \$10,000 (of cost) until the \$300,000 cap is reached.

***Options - If Interconnection, Building Upgrade or Other Costs Arise***

Option A:

Authorize the City Administrator to amend the PPA to a cost not to exceed one hundred fifty three thousand dollars (\$153,000) in the first year and not to exceed three million seven hundred eighty thousand dollars (\$3,780,000) during the 20-year PPA term, in the case that implementation of the project would incur PG&E interconnection fees and building improvements costs up to \$300,000. This cost-ceiling estimate is based on experience in the solar industry that PG&E interconnection cost could reach \$250,000, and building upgrades could reach \$50,000. The yearly cost increase would be paid from the City Facilities Fund.

Option B:

The Solar Choice program, is a recent rate plan offering through which PG&E sells electricity generated completely (100%) by solar power at a premium price. Option B would authorize cancellation of the PPA and enrollment in the PG&E Solar Choice program, if the additional costs of interconnection, building upgrades, and other costs exceed \$260,000. This cost threshold amount was calculated based upon Vanir contract quantity amount of 605,000 kWh in the first year and the City purchasing the same amount of electricity from the PG&E Solar Choice program. The additional \$17,500 annual cost, when paid over 20 years, increases the estimated total cost of electricity to approximately three million seven hundred twenty thousand dollars (\$3,720,000) for a period of 20 years to be paid from the City Facilities Fund.

After the project development phase is complete and the most important (and previously undetermined) costs are known, staff will present an update to the City Administrator, and:

- Proceed with the project as planned at the currently agreed price, or
- Amend the PPA, within the limits set by Council, and proceed with the project, or
- Terminate the project, forfeit the project development fees paid to Vanir, and enroll the City in PG&E Solar Choice if costs for interconnection and building upgrades exceed \$260,000

Once the City authorizes construction of one or more of the first three projects, staff may direct Vanir to perform project development work for Fire Station #8, Fire Station #18 and the Studio One Art Center. Vanir will accordingly design the projects, advise the City about any necessary building upgrades, and submit the design for PG&E review and approval (which is very likely to be granted for these three relatively small projects). If no significant building upgrades or PG&E interconnection fees are required, staff will issue an NTPC to Vanir and construction will begin on the final three sites.



**Solar PV Production Scenarios:**

The amount of electricity generated annually by a solar PV system can be estimated based on average weather conditions over the last 30 years, but it cannot be predicted accurately because actual weather and related sunshine may be very different in any one year, or over a 20-year period. Furthermore, the final solar PV systems will not be determined until after Vanir completes the project development phase for each site. Therefore, staff estimated outcomes for a range of results based on the limits of the PPA and engineering analysis with Optony (the R-REP technical consultant).

The analysis of likely economic outcomes was organized into three scenarios:

- Expected Outcome – Optony's estimated typical performance of Vanir's system.
- High Performance – 20 years with more sunshine than historic level, where Vanir always produces 110% of their Annual Contract Quantity.
- Low Performance – 20 years with less sunshine than historic levels, and/or lots of solar PV equipment downtime with Vanir always producing only 90% of their Annual Contract Quantity.

Each case analysis used the following constants:

- PPA rate of \$0.198 per kWh in the first year
- 3.25% annual PPA rate escalation applied to the prior year's rate
- 0.5% annual degradation of the PV system output
- 3.5% inflation rate for PG&E electricity prices
- 1<sup>st</sup> year payment capped at \$120,000
- 20-year cost capped at \$3,225,000

Table B on the next page summarizes the results for the three scenarios over a 20-year PPA term when considering costs paid to Vanir for solar PV electricity and costs paid to PG&E for electricity delivered from the grid.

Table B – Economic Impact Scenarios for a 20-year PPA

Scenario	20-Year Cost Savings (Expense)	Scenario Description
Expected Outcome	\$ 137,900	Based on Optony's estimate of system production at 661,716 kWh in the first year. Electricity cost would be lower than PG&E in the first year when the \$120,000 cap is reached, and higher than PG&E in years 2 through 19. After the \$3,225,000 cap is reached in the middle of year 19, Vanir would deliver electricity at no additional cost for the remainder of years 19 and 20.
High Performance	\$ 252,526	Based on receiving 110% of Vanir's proposed system production in the first year. In this case, costs would be higher than PG&E in years 2 through 7. A tipping point is reached in years 8 when the City benefits economically from the solar production. In year 20, the \$3,225,000 cap is reached mid-year and Vanir would deliver electricity at no additional cost to the City.
Low Performance	\$ (143,394)	Based on receiving 90% of Vanir's Annual Contract Quantity. If Vanir's equipment delivers less electricity than expected because of many cloudy years or equipment performance issues.

**Attachment B**, titled Cost and Benefit Calculations provides the associated costs and benefit under three solar production scenarios. Depending on annual weather conditions, the installed solar PV systems can produce more or less electricity than is expected. Under the high performance-case scenario, the City would purchase 110% of the Annual Contract Quantity (as described in the section of this report titled PPA Pricing Terms as Recommended). If the actual weather conditions result in a 110% production for 20-years, the City would benefit by saving a total of \$252,526 over a 20-year period. Under the low performance-case scenario, if the actual weather conditions result in 90% production for 20-years, the total cost of the project would be an estimated \$143,394 greater than if the City had not completed the project and continued buying electricity from PG&E.

**Other Risks:**

Pursuing this project with Vanir carries multiple financial and operational risks, described below, in addition to those described above related to pre-construction work and system production, including: forfeiture of development fees, system availability guarantee, roofing warranties, tree removal and contaminated soil removal.

*a. Forfeiture of Development Fees*

As described above in the Implementation Process section, Vanir must perform project development work before the City can know whether building a solar PV system is viable at any site. During negotiations, Vanir insisted that the City pay for development work, offering

to finance the whole project in advance of performing development work or to incorporate development fees into the PPA. If Vanir financed the whole project and the City terminated the work due to high PG&E interconnection or building upgrade costs, the City would be responsible to compensate Vanir for their financier's breakage fees in addition to paying for the development costs. Staff recommends paying project development fee to compensate Vanir for this work if the project does not move forward. By paying development fees, the City limits its exposure to the cost of essential work, such as engineering, bonding, permits and legal work and avoids the risk of paying financier's breakage fees. **Attachment C** details these project development costs. If the City issues an NTPC to build a solar PV system at a site, Vanir will refund the development fee for that site back to the City. It is preferable for the City to pay development fees to Vanir before the project's viability is certain, although it places these fees at risk of forfeiture. If the City decides to remove the MSC 911 Dispatch Center or the 81<sup>st</sup> Avenue Library due to high costs, Vanir will be unable to provide solar PV systems on the remaining sites, as these two facilities represent the largest solar PV systems and are needed to offset the costs of the City's smaller solar PV projects.

*b. System Availability Guarantee*

After protracted negotiations, Vanir firmly insisted on limiting their system availability guarantee to 90% average uptime over a 3-year rolling period. If the PV systems are not operational in compliance with the uptime guarantee, the guarantee obligates Vanir to pay the City a calculated amount to account for the City's lost economic benefit from the solar panels. Equipment outages are unpredictable, as are their effects. One solar panel could fail, several panels could fail at the same time, or a whole site could stop working if any critical piece of equipment fails. For example, staff estimated that if a 10% deficiency in Vanir's performance occurred at the MSC 911 Dispatch Center each summer, when solar PV is most valuable, for three consecutive PPA contract years, the total cost of electricity at the MSC could rise by a total of approximately \$50,000 for the three-year period.

Staff strongly advocated for basing the guarantee calculation on each contract year's performance, as this matches the period PG&E uses for its own "true-up" calculations and because the City assesses the benefits of operating the system annually. After much discussion, Vanir refused to agree to the City's position, stating that Vanir and their team would be sufficiently motivated to keep the solar equipment operating at maximum uptime because they would lose important revenue when the City is not buying electricity due to downtime. The PPA language uses Vanir's recommended 3-year rolling average, but this approach limits the City's recourse for a poorly performing PV system. However, based on the experience the City has gained with the performance guarantee (different than an uptime guarantee, but similarly reliant on the contractor's performance) for the existing system at the MSC, and Vanir's motivation to keep systems operating to receive compensation for their work, staff recommends accepting Vanir's terms.

*c. Roofing Warranties*

The City's RFP stated that work performed on existing rooftops shall not void, reduce or otherwise negatively impact existing roof warranties. Vanir proposed a 2-year installation warranty of all roof work with no commitment to preserving the existing warranties at:

- Fire Station #8 expires in October 2017
- Fire Station #18 expires in December 2019
- 81<sup>st</sup> Avenue Library until 2030

Maintaining the roof warranty is important because Vanir plans to insert anchors through the roofs to support the PV systems. If a roof leaks, manufacturers of existing (pre- solar PV project) roofing materials may insist that Vanir's penetrations void their product warranty, leaving the City liable for the cost of repairing the roof and related damage. If a roof penetration leaks, a repair can cost approximately \$1,000 per incident, not counting indeterminate costs for related interior water damage.

City staff advocated aggressively for a roofing guarantee that preserves existing warranties. Vanir refused the City's demand in a letter stating, "Vanir will use industry standard practices for roof warranty and installation including working with roof manufactures to maintain roof warranties," without agreeing to PPA terms that would preserve existing warranties. This approach may void certain warranties, depending on the adequacy of Vanir's approach to satisfying existing warranty holders. Staff recommends agreeing to Vanir's roof warranty terms because staff can observe the results during two years of winters to determine if Vanir's installation was performed correctly.

*d. Tree Removal*

At the Garden Center, four trees must be removed to reduce shading of the solar panels. These trees must be removed regardless of the solar project as they are impacting the building foundation. At the MSC, seven trees must be removed to reduce shading. The estimated \$12,000 of tree removal expenses are available in the Solar Phase 2 3rd Solicitation Project (Fund 4450, Environmental Services: Energy Group, (Project C256517) Staff will work with the Parks and Tree Services Division to properly remove trees during the periods when birds are not nesting and in compliance with applicable laws and regulations.

***Future Renewable Energy Programs:***

While developing this particular solar power project was complicated by the changing regulatory and business environment, in the years ahead, the City expects to have access to other clean energy opportunities that may be more advantageous to the City than this recommended PPA with Vanir. Approval of the PPA does not foreclose the City's participation in other opportunities to purchase solar or other renewable energy, such as through PG&E programs or Community Choice Aggregation (CCA).

For example, the City could participate in PG&E's Renewable Energy Self-Generation Bill Credit Transfer (RES-BCT) program, which allows customers to generate solar PV electricity in bulk at a central location (such as the Municipal Service Center parking lots) and send that power to other sites with more costly solar opportunities, limited by sun availability or unfavorable roof configurations. In addition, Alameda County is considering creating a Community Choice Aggregation (CCA), which would allow customers to purchase or generate renewable energy for business, and the City is considering participating in the program. In the future, the City may have opportunities to buy solar power from a CCA, or to develop solar power at City facilities using CCA resources.

**FISCAL IMPACT**

The 20-year fiscal impact for the recommended project is that the City should save an estimated \$138,000 (total over 20 years). The attached resolution authorizes buying electricity from Vanir in an amount not to exceed \$3,225,000 over the 20-year PPA term, and not more than \$120,000 in the first year.

Payments to Vanir will be made from the same utility accounts that are used to pay PG&E for the following facilities:

MSC – 911 Dispatch	Fund 4400, Org 30631, Account 53112, Program 170M
81 <sup>st</sup> Avenue Library	Fund 4400, Org 30631, Account 53112, Program 703M
Garden Center	Fund 2310, Org 30634, Account 53112, Program 271M
Fire Station #8	Fund 4400, Org 30631, Account 53112, Program 108M
Fire Station #18	Fund 4400, Org 30631, Account 53112, Program 118M
Studio One Art Center	Fund 2310, Org 30634, Account 53112, Program 264M

Electricity payments to PG&E will be lower (but not zero) for each of the project sites because the City will buy less electricity from PG&E once solar power is meeting the site's electricity consumption needs. However, the City will continue to buy some electricity from PG&E because Vanir is not expected to supply 100% of the electricity used at each site. The estimated cash flow for the Expected case is illustrated in **Attachment B**.

In addition, the resolution authorizes an estimated amount of \$100,000 from the Solar Phase 2 Project (Fund 4450, Org 30689, Project C256517) for project development fees. If PG&E interconnection or building upgrade costs are too high, as described above in the section titled *Confirming Economic Viability Before Authorizing Construction*, the City has the option to terminate part or all of the project, but must forfeit the corresponding development fee. If the City proceeds to construction, Vanir will reimburse the fees to the city for re-deposit into the project where they originated.

The resolution further authorizes appropriation of the project management reimbursement fee to the City from Vanir in the estimated amount of not to exceed \$70,000 to the City Facilities Energy Conservation Projects Fund (Fund 4450, Org 30689) Solar Phase 2 3<sup>rd</sup> Solicitation Project (Project C256517), to cover any City solar power project expense. The management fee is equal to 3.5% of the construction and labor costs, and is due at Commencement of Work Date for each project.

Finally, depending on the City Council's selected options, any costs for PG&E interconnection or building upgrades would be paid from the same utility accounts that are provided above funded through an increase of the PPA rate of \$0.001066 kWh per \$10,000 (of cost) up to a \$300,000 cap. Therefore, if the maximum cost of \$300,000 is required, then the PPA rate for all six projects and total cost of the PPA will increase to \$0.23 per kWh and \$3,780,000 respectively. If the City Council authorizes enrolment into PG&E Solar Choice program and purchase an estimated 605,000 kWh of clean energy, the equivalent of what would be generated by Vanir's PV system at the City's six sites, at an additional premium cost, estimated at \$17,500 for a total of \$137,000 in the first year.

## **PUBLIC OUTREACH / INTEREST**

The City's current focus on procuring solar PV power originated in the ECAP. The Oakland community was heavily involved in creating the ECAP, and the implementation of the priority measures identified through this planning process is based on input received at that time. No additional public input has been sought on implementing this item.

## **COORDINATION**

Staff coordinated these efforts with the Office of City Attorney; the Oakland Public Works Bureaus of: Facilities & Environment, Infrastructure and Operations, and Engineering and Construction; and the Alameda County General Services Agency.

Staff is working with Parks and Tree Services Division to address removing trees at the MSC and Garden Center facilities.

## **SUSTAINABLE OPPORTUNITIES**

***Economic:*** Developing solar power projects creates green jobs and enhances electricity price stability for the City. Under the PPA option, employment will be created for the installation and management of the solar PV systems.

***Environmental:*** Creating solar power projects at six City facilities will reduce municipal GHG emissions by an estimated 104 Metric Tons of GHG emissions in the first year and 1,689 Metric Tons over the 20-year PPA term. Additional environmental benefits derive from the publicly visible placement of solar PV on municipal rooftops, which provides the community with confirmation that the City is a leader in procuring renewable energy and reducing the impacts of greenhouse gases on the environment.

***Social Equity:*** Creating solar power projects results in social equity benefits to both the community at large and environmentally disadvantaged communities by creating green jobs, reducing local air pollutants in specific areas (specifically in areas adjacent to or downwind from power plants that will be decommissioned or operated less frequently as a result of the project), and mitigating the effects of climate change resulting from greenhouse gas emissions, which disproportionately affect low income populations in Oakland. In addition, the City will partner with five small / local Oakland firms to build these solar power systems.


**ACTION REQUESTED OF THE CITY COUNCIL**

Staff Recommends That The City Council Adopt A Resolution Authorizing The City Administrator Or Her Designee To:

- (1) Enter Into A Power Purchase Agreement (PPA) With Vanir Management, Inc. (Vanir) To Buy Solar Electricity Delivered From Equipment That Is Owned And Maintained By Vanir On Six City Facilities At A Cost Not To Exceed One Hundred Twenty Thousand Dollars (\$120,000) In The First Year And Three Million Two Hundred Twenty-Five Thousand Dollars (\$3,225,000) During The 20-Year Term Of The Agreement, Paid From The City Facilities Fund (Fund 4400) With Two (2) 5-Year Options To Extend The PPA Upon The Same Terms And Conditions, Only If Financially Beneficial To The City;
- (2) Accept And Appropriate A Project Management Reimbursement Fee From Vanir To Reimburse The City For Project Management Expenses In The Estimated Amount Of Seventy Thousand Dollars (\$70,000) To City Facilities Energy Conservation Projects Fund (Fund 4450);
- (3) Pay Vanir, If Costs For Pacific Gas & Electric Company (PG&E) Interconnection, Or For Necessary Building Upgrades, Or Other Unforeseen Conditions Arise In An Amount Not To Exceed One Hundred Fifty Three Thousand Dollars (\$153,000) In The First Year And Not To Exceed Three Million Seven Hundred Eighty Thousand Dollars (\$3,780,000) During The 20-Year PPA Term, Paid From The City Facilities Fund (Fund 4400); And
- (4) Terminate The PPA With Vanir, And Enroll The City In PG&E Solar Choice Program To Purchase Electricity At A Production Amount Equal To That In Vanir's Proposal, At An Estimated Premium Cost Of Seventeen Thousand Five Hundred Dollars (\$17,500) In The First Year, If The Costs Of PG&E Interconnection And Necessary Building Upgrades Under 3) Above Would Incur A Rate Adjustment That Increases Costs More Than Three Million Seven Hundred Twenty Thousand Dollars (\$3,720,000) Over The 20-Year PPA Term; And
- (5) Take The Actions Herein Without Returning To The City Council For Further Approvals.

For questions regarding this report, please contact Scott Wentworth, Energy Engineer, at (510) 238-3984.

Respectfully submitted,

  
BROOKE A. LEVIN  
Director, Oakland Public Works

Reviewed by:  
Susan Kattchee, Assistant Director

Reviewed by:  
Becky Dowdakin, Env. Services Manager

Prepared by:  
Scott Wentworth, Energy Engineer

*Attachments (3):*

- A: Availability and Compliance Analyses for City Solar Project*
- B: Cost and Benefit Calculations*
- C: Project Development Payment Details*





## INTER OFFICE MEMORANDUM

**TO:** Pete Fong, Energy Engineering Group  
**SUBJECT:** Availability Analysis for  
City Solar Power Project

**FROM:** Deborah Barnes *Deborah Barnes*  
**DATE:** July 15, 2015

Per your request, an availability analysis of our database of certified local and small local firms was performed.

Under the current Local and Small Local Business Enterprise (L/SLBE) Program (see page 7), the awarding authority may request an availability analysis if there is reason to believe that the availability of certified firms will not be sufficient to satisfy the 50% L/SLBE minimum requirement.

The City of Oakland, Public Works Agency, Environmental Services Division, requests written proposals from qualified firms that will be responsible for the design, construction and operation of the photovoltaic (PV) system. A complete scope of services is attached.

In order to determine the availability of the City's certified firms, Contracts & Compliance researched the certification database utilizing the following NAICS codes:

### Design Phase

541330      Engineering Services

Results of the research indicated that there were one hundred and seven (107) certified firms listed under the above NAICS code.

### Construction Phase

221114      Electric Power generation, solar Power generation, solar electric  
237130      Solar power structure construction  
C-39        Roofing Contractors

Results of the research indicated that for NAICS codes 221114 and 237130, there were no certified firms. For NAICS code 238990, there were three (3) certified Small Local Business Enterprises (SLBE) and one (1) certified Local Business Enterprise (LBE).

The L/SLBE Program requires that there be at least three (3) certified firms listed in the industry, trade or professional that constitutes a major category of work. If at least three (3) L/SLBE firms are not certified, then the requirement is either waived, or the 50% requirement may be set from 49% to 0%.

To: Pete Fong  
Subject: Availability Analysis for City Solar Power Project  
Date: July 15, 2015

Page 2

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**Based on the results of the availability analysis, there were no certified firms under the NAICS codes 221114 and 237130. These codes represent 94% of the project. There were four certified firms under contractor license classification C-39, (Roofing Contractor). The roofing contractor represents approximately six percent (6%) of the total project.**

**Therefore *the 50% L/SLBE requirement remains intact for the design phase.* There is a 6% L/SLBE requirement for the construction phase.**

Should you have questions or need additional information, please contact Vivian Inman, Contract Compliance Officer at ext. 6261.



# INTER OFFICE MEMORANDUM

**TO:** Peter Fong

**FROM:** Deborah Barnes, Director, *DBarnes*  
Contracts & Compliance

**SUBJECT:** Compliance Analysis  
RFP for City of Oakland Solar Power Purchase Agreements  
Project No. C256517

**DATE:** August 17, 2016 (Revised date)

On November 6, 2015, a compliance analysis was performed for the above referenced project. At that time Vanir Construction Management did not meet the 13% Local and Small Local Business (L/SLBE) participation requirement for the construction phase.

For the construction phase the City's required L/SLBE participation of 50% was reduced to 13% based on availability. For the design phase of this project the 50% L/SLBE participation requirement remained in-tact.

On August 15, 2016 the initiating agency requested an updated compliance analysis reflecting Vanir Construction Management's compliance with the 13% L/SLBE requirement.

Below is the outcome of the compliance evaluation for the Local and Small Local Business Enterprise (L/SLBE) participation requirement. In addition, firms are reviewed for compliance with the Equal Benefits Ordinance (EBO).

## Design Phase

Responsive to EBO and L/SLBE Policies	Proposed Participation					Preference Points		Oakland Workforce Preference Points	EBO Compliant? Y/N
	Company Name SLBE/VSLBE/LPG Certified Firms	Total LBE/ SLBE/VSLBE	LBE	SLBE	*VSLBE	Total Credited participation	L/SLBE Participation Preference Points		
Cool Earth Solar	25% *50%	0%	0%	25% *50%	25%	2 points	0 Pts	0 Pts	N
Vanir Energy	97%	97%	0%	0%	97%	5 points	2.5 Pts	0 Pts	N

*\*The proposed VSLBE participation is valued at 25%. Per the L/SLBE Program VSLBE/LPG's participation is double counted towards meeting the requirement. Therefore, the VSLBE/LPG value is 50%.*

**Comments:** As noted above, both firms met the minimum 13% L/SLBE participation requirement. The firms are not EBO compliant. They will have to come into compliance prior to contract execution.

To: Peter Fong  
 Subject: **Compliance Analysis**  
 RFP for City of Oakland Solar Power Purchase Agreements  
 August 17, 2016

**Construction Phase**

Responsive to EBO and L/SLBE Policies	Proposed Participation					Preference Points		Oakland Workforce Preference Points	EBO Compliant? Y/N
	Company Name SLBE/VSLBE/LPG Certified Firms	Total LBE/ SLBE/VSLBE	LBE	SLBE	*VSLBE	Total Credited participation	L/SLBE Participation Preference Points		
Vanir Construction Management	51.64%	41.51%	10.13%	0%	51.64%	NA	NA	0 Pts	N

**Comments:** As noted above, Vanir Construction Management met the minimum 13% L/SLBE participation requirement. The firm is not EBO compliant. They will have to come into compliance prior to contract execution.

Non-Responsive to L/SLBE and/or EBO Policies		Proposed Participation					Earned Credits and Discounts			EBO Compliant? Y/N
Company Name	Original Bid Amount	Total LBE/SLBE	LBE	SLBE	*VSLBE/LPG	L/SLBE /VSLBE Trucking	Total Credited participation	Earned Bid Discounts	Adjusted Bid Amount	
Cool Earth Solar	\$610,200	6.34%	0%	6.34%	0%	NA	0%	NA	NA	N

**Comments:** As noted above, Cool Earth Solar failed to meet the minimum 13% L/SLBE participation requirement. Therefore, the firm is deemed non-compliant. Cool Earth Solar is not EBO compliant. They will have to come into compliance prior to contract execution.

For questions please contact Vivian Inman, Contract Compliance Officer at (510) 238-6261.



**Contract Compliance Division**

**PROJECT EVALUATION FORM**

**PROJECT NO.: C256517**

**PROJECT NAME: RFP for City of Oakland Solar Power Purchase Agreements - Construction Phase**

**CONTRACTOR: Vanir Construction Mgmt**

<b><u>Engineer's Estimate:</u></b>	<b><u>Contractors' Original Bid Amount</u></b>	<b><u>Over/Under Engineer's Estimate</u></b>
\$0.00	\$1,747,308.00	

<b><u>Discounted Bid Amount:</u></b>	<b><u>Amount of Bid Discount</u></b>	<b><u>Discount Points:</u></b>
NA	NA	0%

- |   |                      |
|---|----------------------|
| 1. Did the 13% requirements apply?                          | <b><u>YES</u></b>    |
| 2. Did the contractor meet the 13% requirement?             | <b><u>NO</u></b>     |
| b) % of LBE participation                                   | <b><u>32.44%</u></b> |
| c) % of SLBE participation                                  | <b><u>10.13%</u></b> |
| d) % of VSLBE/LPG Participation                             | <b><u>0%</u></b>     |
| 3. Did the contractor meet the L/SLBE Trucking requirement? | <b><u>NA</u></b>     |
| a) Total L/SLBE trucking participation                      | <b><u>0%</u></b>     |
| 4. Did the contractor receive bid discounts?                | <b><u>NA</u></b>     |
| (If yes, list the percentage received)                      | <b><u>0.00%</u></b>  |

5. Additional Comments.

**An availability analysis was performed for the construction component of this project. Based on the analysis the 50% L/SLBE requirement was reduced to 13%.**

6. Date evaluation completed and returned to Contract Admin./Initiating Dept.

8/17/2016

Date

**Reviewing Officer:**

*[Signature]*

**Date:**

8/17/2016

**Approved By:**

*Shelley Oarensburg*

**Date:**

8/17/2016

# LBE/SLBE PARTICIPATION

## BIDDER 2

Project Name: RFP for City of Oakland Solar Power Purchase Agreements - Construction Phase

Project No.: C256517		Engineers Est:					Under/Over Engineers Estimate: -\$1,747,308.00					For Tracking Only		
Discipline	Prime & Subs	Location	Cert. Status	LBE	SLBE	**VSLBE/LPG	Total	L/SLBE	Total	TOTAL Original Bid Amount	Ethn.	MBE	WBE	
							LBE/SLBE	Trucking	Trucking					
PRIME	Vanir Construction Mgmt	Oakland	CB	201,944			201,944.00			201,944.00	C			
Carport Construction	Baja Construcion Co., Inc.	Martinez	UB							112,710.00	H	112,710		
Electrical Construction	Rodda Electric	Brentwood	UB							225,000.00	C			
EPC Contractor	Citigreen, Inc.	Auburn	UB							722,096.00	C			
Electrical Const	Contra Costa Electric	Oakland	CB	513,333			513,333			225,000	C			
Roof Repair	Fidelity Roof Company	Oakland	CB	10,000			10,000			10,000	C			
Roof Repair	Premium Roofing, Inc.	Oakland	CB		10,000		10,000			83,558	H	83,558		
Electrical Construction	Gill's Electric Company, Inc.	Oakland	CB		167,000		167,000			167,000	C			
<b>Project Totals</b>				\$725,277.00	\$177,000.00	\$0.00	\$902,277.00	\$0.00	\$0.00	\$1,747,308.00		\$196,268	\$0	
				41.51%	10.13%	0%	51.64%	0%	0%	100%		11.23%	0%	
<b>Requirements:</b> The 50% requirement is a combination of 25% LBE and 25% SLBE participation. An SLBE firm can be counted 100% towards achieving the 50% requirement. A VSLBE and LPG's participation is double counted toward meeting the requirement.				LBE 25%	SLBE 25%	VSLBE/LPG	TOTAL LBE/SLBE/VSLBE/LPG	50% LBE/SLBE TRUCKING			<b>Ethnicity</b> AA = African American AI = Asian Indian AP = Asian Pacific C = Caucasian H = Hispanic NA = Native American O = Other NL = Not Listed MO = Multiple Ownership			
<b>Legend</b>				LBE = Local Business Enterprise SLBE = Small Local Business Enterprise VSLBE = Very Small Local Business Enterprise LPG = Locally Produced Goods Total LBE/SLBE = All Certified Local and Small Local Businesses NPLBE = NonProfit Local Business Enterprise NPSLBE = NonProfit Small Local Business Enterprise			UB = Uncertified Business CB = Certified Business MBE = Minority Business Enterprise WBE = Women Business Enterprise							

Attachment A - Availability and Compliance Analyses for City Solar Project

## Cost and Benefit Calculations

Staff worked with Optony to evaluate a set of scenarios and pricing models, assessing a range of reasonably possible variables for this project. The tables below describe the annual economic impacts of a 20-year PPA when considering costs paid to Vanir for solar PV electricity and costs paid to PG&E for electricity delivered from the grid.

Staff and Optony calculated a range of solar PV production and costs based upon Vanir's expected production for all six sites. Each table uses the following constants:

- PPA rate of \$0.198 per kWh in the first year
- 3.25% annual PPA rate escalation applied to the prior year's rate
- 0.5% annual degradation of the PV system output
- 3.5% inflation rate for PG&E electricity prices
- 1<sup>st</sup> year payment capped at \$120,000
- 20-year cost capped at \$3,225,000

**Table 1: Expected-Case**

This scenario is based on Optony's estimate of system production at 661,716 kWh in the first year. In this case, the cost of electricity will be higher than PG&E in years 2 through 19. In the first year, when the \$120,000 cap is reached, and in year 19 when the \$3,225,000 maximum cap is reached, the City is not charged for solar production in the last year. Over the 20-year period the City has an estimated net savings of \$137,900 in today's dollars.

Total - All Sites						
Year	Production	Pre-Solar PG&E	PPA Cost	Remaining PG&E	Savings	
1	661,716	\$ 213,765	\$ 120,000	\$ 81,131	\$ 5,895	
2	658,407	\$ 221,246	\$ 134,601	\$ 84,696	\$ (5,001)	
3	655,115	\$ 228,990	\$ 138,281	\$ 88,407	\$ (4,867)	
4	651,839	\$ 237,005	\$ 142,061	\$ 92,270	\$ (4,721)	
5	648,580	\$ 245,300	\$ 145,945	\$ 96,292	\$ (4,563)	
6	645,337	\$ 253,885	\$ 149,935	\$ 100,478	\$ (4,393)	
7	642,111	\$ 262,771	\$ 154,034	\$ 104,835	\$ (4,210)	
8	638,900	\$ 271,968	\$ 158,244	\$ 109,369	\$ (4,013)	
9	635,706	\$ 281,487	\$ 162,570	\$ 114,088	\$ (3,802)	
10	632,527	\$ 291,339	\$ 167,015	\$ 118,998	\$ (3,576)	
11	629,364	\$ 301,536	\$ 171,581	\$ 124,108	\$ (3,335)	
12	626,218	\$ 312,090	\$ 176,271	\$ 129,425	\$ (3,077)	
13	623,087	\$ 323,013	\$ 181,090	\$ 134,957	\$ (2,803)	
14	619,971	\$ 334,318	\$ 186,040	\$ 140,712	\$ (2,511)	
15	616,871	\$ 346,019	\$ 191,126	\$ 146,700	\$ (2,200)	
16	613,787	\$ 358,130	\$ 196,351	\$ 152,928	\$ (1,870)	
17	610,718	\$ 370,665	\$ 201,719	\$ 159,408	\$ (1,520)	
18	607,664	\$ 383,638	\$ 207,234	\$ 166,148	\$ (1,150)	
19	604,626	\$ 397,065	\$ 212,899	\$ 173,158	\$ (757)	
20	601,603	\$ 410,963	\$ 28,002	\$ 160,450	\$ 190,375	
<b>Total</b>	<b>12,624,147</b>	<b>\$ 6,045,193</b>	<b>\$ 3,225,000</b>	<b>\$ 2,498,556</b>	<b>\$ 137,900</b>	

**Table 2: High Performance-Case**

The scenario is based on 110% of Vanir's proposed system production in the first year. In this case, the City would otherwise pay more to PG&E in years 2 through 7. A tipping point is reached in year 8 when the City benefits economically from the solar production. In the final year the \$3,225,000 maximum cap is reached and the City is not charged for solar production. Over the 20-year PPA term the City may save an estimated \$252,526 in today's dollars over a 20-year period.

Total - All Sites					
Year	Production	Pre-Solar PG&E	PPA Cost	Remaining PG&E	Savings
1	666,488	\$ 213,765	\$ 120,000	\$ 76,880	\$ 10,168
2	663,155	\$ 221,246	\$ 135,572	\$ 80,318	\$ (1,571)
3	659,839	\$ 228,990	\$ 139,278	\$ 83,899	\$ (1,332)
4	656,540	\$ 237,005	\$ 143,086	\$ 87,628	\$ (1,078)
5	653,257	\$ 245,300	\$ 146,997	\$ 91,511	\$ (809)
6	649,991	\$ 253,885	\$ 151,016	\$ 95,554	\$ (525)
7	646,741	\$ 262,771	\$ 155,144	\$ 99,764	\$ (223)
8	643,508	\$ 271,968	\$ 159,386	\$ 104,147	\$ 95
9	640,290	\$ 281,487	\$ 163,743	\$ 108,710	\$ 432
10	637,089	\$ 291,339	\$ 168,219	\$ 113,460	\$ 787
11	633,903	\$ 301,536	\$ 172,818	\$ 118,404	\$ 1,161
12	630,734	\$ 312,090	\$ 177,542	\$ 123,551	\$ 1,556
13	627,580	\$ 323,013	\$ 182,396	\$ 128,908	\$ 1,972
14	624,442	\$ 334,318	\$ 187,382	\$ 134,482	\$ 2,410
15	621,320	\$ 346,019	\$ 192,505	\$ 140,284	\$ 2,871
16	618,213	\$ 358,130	\$ 197,767	\$ 146,322	\$ 3,355
17	615,122	\$ 370,665	\$ 203,174	\$ 152,604	\$ 3,864
18	612,047	\$ 383,638	\$ 208,728	\$ 159,141	\$ 4,399
19	608,986	\$ 397,065	\$ 214,434	\$ 165,942	\$ 4,961
20	605,941	\$ 410,963	\$ 5,812	\$ 173,018	\$ 220,035
Total	12,715,186	\$ 6,045,193	\$ 3,225,000	\$ 2,384,525	\$ 252,526

**Table 3 Low Performance-Case**

This scenario is based on receiving 90% of Vanir's proposed production. In this case, if Vanir's system underperforms by 10% the City will pay PG&E more every year than it currently pays for electricity now, adding up to \$143,394 in today's dollars, over a 20-year period.



## ATTACHMENT B

Total - All Sites						
Year	Production	Pre-Solar PG&E	PPA Cost	Remaining PG&E	Savings	
1	558,235	\$ 213,765	\$ 110,531	\$ 104,914	\$ (7,548)	
2	555,444	\$ 221,246	\$ 113,552	\$ 109,191	\$ (7,550)	
3	552,667	\$ 228,990	\$ 116,656	\$ 113,636	\$ (7,548)	
4	549,903	\$ 237,005	\$ 119,845	\$ 118,255	\$ (7,539)	
5	547,154	\$ 245,300	\$ 123,122	\$ 123,055	\$ (7,524)	
6	544,418	\$ 253,885	\$ 126,488	\$ 128,043	\$ (7,502)	
7	541,696	\$ 262,771	\$ 129,945	\$ 133,225	\$ (7,474)	
8	538,987	\$ 271,968	\$ 133,498	\$ 138,610	\$ (7,438)	
9	536,292	\$ 281,487	\$ 137,147	\$ 144,205	\$ (7,395)	
10	533,611	\$ 291,339	\$ 140,897	\$ 150,018	\$ (7,344)	
11	530,943	\$ 301,536	\$ 144,748	\$ 156,057	\$ (7,284)	
12	528,288	\$ 312,090	\$ 148,705	\$ 162,331	\$ (7,215)	
13	525,647	\$ 323,013	\$ 152,771	\$ 168,849	\$ (7,137)	
14	523,019	\$ 334,318	\$ 156,947	\$ 175,620	\$ (7,049)	
15	520,403	\$ 346,019	\$ 161,238	\$ 182,654	\$ (6,952)	
16	517,801	\$ 358,130	\$ 165,645	\$ 189,960	\$ (6,843)	
17	515,212	\$ 370,665	\$ 170,174	\$ 197,549	\$ (6,723)	
18	512,636	\$ 383,638	\$ 174,826	\$ 205,432	\$ (6,591)	
19	510,073	\$ 397,065	\$ 179,605	\$ 213,620	\$ (6,447)	
20	507,523	\$ 410,963	\$ 184,515	\$ 222,124	\$ (6,291)	
<b>Total</b>	<b>10,649,954</b>	<b>\$ 6,045,193</b>	<b>\$ 2,890,855</b>	<b>\$ 3,137,349</b>	<b>\$ (143,394)</b>	

## Project Development Payment

Buyer shall pay Seller for project development Work as follows:

### 1. Fixed Costs

Work Deliverable	Timing for Submitting Payment Request				Sub Total
	Start of Work for MSC, 81 <sup>st</sup> Ave. & Garden Center	100% Design Completion for MSC, 81 <sup>st</sup> Ave & Garden Center	Start of Work for FS 8, FS 18 & Studio One	100% Design Completion for FS #8, FS #18 & Studio One	
Engineering	\$7,500	\$7,500	\$7,500	\$7,500	<b>\$30,000</b>
Bonding	\$35,000	0	0	0	<b>\$35,000</b>
Project Management	\$4,500	\$3,860	\$4,500	\$3,860	<b>\$16,720</b>
Legal	\$15,000	0	\$0	\$0	<b>\$15,000</b>
<b>Sub Total</b>	<b>\$62,000</b>	<b>\$11,360</b>	<b>\$12,000</b>	<b>\$11,360</b>	<b>\$96,720</b>

### 2. Variable Costs

Fee Description	Estimated Fee Amount		Estimated Sub Total
	MSC, 81 <sup>st</sup> Ave. & Garden Center	FS #8, FS #18 & Studio One	
PG&E Interconnection Study and Engineering	\$800	\$0	\$800
Building Permits	\$1,200	\$1,200	\$2,400
<b>Estimated Sub Total</b>	<b>\$2,000</b>	<b>\$1,200</b>	<b>\$3,200</b>

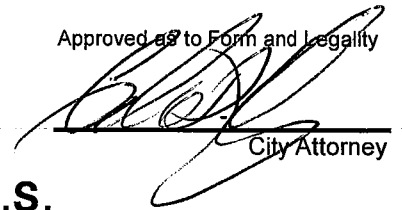
Sub Total:    **\$96,720**

      + \$3,200

**Grand Total \$99,920**

FILED  
OFFICE OF THE CITY CLERK  
OAKLAND

## OAKLAND CITY COUNCIL

  
City Attorney

2016 SEP -1 AM 10:36 RESOLUTION No. \_\_\_\_\_ C.M.S.

RESOLUTION AUTHORIZING THE CITY ADMINISTRATOR OR HER DESIGNEE TO:

1) ENTER INTO A POWER PURCHASE AGREEMENT (PPA) WITH VANIR MANAGEMENT, INC. (VANIR) TO BUY SOLAR ELECTRICITY DELIVERED FROM EQUIPMENT THAT IS OWNED AND MAINTAINED BY VANIR ON SIX CITY FACILITIES AT A COST NOT TO EXCEED ONE HUNDRED TWENTY THOUSAND DOLLARS (\$120,000) IN THE FIRST YEAR AND THREE MILLION TWO HUNDRED TWENTY-FIVE THOUSAND DOLLARS (\$3,225,000) DURING THE 20-YEAR TERM OF THE AGREEMENT, PAID FROM THE CITY FACILITIES FUND (FUND 4400) WITH TWO (2) 5-YEAR OPTIONS TO EXTEND THE PPA UPON THE SAME TERMS AND CONDITIONS, ONLY IF FINANCIALLY BENEFICIAL TO THE CITY;

2) ACCEPT AND APPROPRIATE A PROJECT MANAGEMENT REIMBURSEMENT FEE FROM VANIR TO REIMBURSE THE CITY FOR PROJECT MANAGEMENT EXPENSES IN THE ESTIMATED AMOUNT OF SEVENTY THOUSAND DOLLARS (\$70,000) TO CITY FACILITIES ENERGY CONSERVATION PROJECTS FUND (FUND 4450); AND

3) PAY VANIR, IF COSTS FOR PACIFIC GAS & ELECTRIC COMPANY INTERCONNECTION, OR FOR NECESSARY BUILDING UPGRADES, OR OTHER UNFORESEEN CONDITIONS ARISE, IN AN AMOUNT NOT TO EXCEED ONE HUNDRED FIFTY THREE THOUSAND DOLLARS (\$153,000) IN THE FIRST YEAR AND NOT TO EXCEED THREE MILLION SEVEN HUNDRED EIGHTY THOUSAND DOLLARS (\$3,780,000) DURING THE 20-YEAR PPA TERM, PAID FROM THE CITY FACILITIES FUND (FUND 4400); AND

4) TERMINATE THE PPA WITH VANIR, AND ENROLL THE CITY IN PG&E SOLAR CHOICE PROGRAM TO PURCHASE ELECTRICITY AT A PRODUCTION AMOUNT EQUAL TO THAT IN VANIR'S PROPOSAL, AT AN ESTIMATED PREMIUM COST OF SEVENTEEN THOUSAND FIVE HUNDRED DOLLARS (\$17,500) IN THE FIRST YEAR, IF THE COSTS OF PG&E INTERCONNECTION AND NECESSARY BUILDING UPGRADES UNDER 3) ABOVE WOULD INCUR A RATE ADJUSTMENT THAT INCREASES COSTS MORE THAN THREE MILLION SEVEN HUNDRED TWENTY THOUSAND DOLLARS (\$3,720,000) DURING THE 20-YEAR PPA TERM; AND

5) TAKE THE ACTIONS HEREIN WITHOUT RETURNING TO THE CITY COUNCIL FOR FURTHER APPROVALS.

**WHEREAS**, the City's Energy and Climate Action Plan calls upon Oakland to use 62 million kilowatt-hours of electricity from renewable sources to help achieve the goal of reducing community-wide greenhouse gas emissions by 36% below 2005 levels by 2020; and

**WHEREAS**, the County of Alameda (County) provided the Regional Renewable Energy Procurement (R-REP) project to assist public agencies throughout Alameda, Contra Costa, San Mateo, and Santa Clara Counties with developing and implementing solar energy projects; and

**WHEREAS**, the City has six sites for renewable energy projects, capable of generating approximately 447 kilowatts of solar photovoltaic (PV) electricity during periods of maximum sunshine and approximately 661,716 kilowatt-hours of electricity annually; and

**WHEREAS**, a PPA will allow the City to purchase renewable energy from a contractor that builds, finances and owns the PV system, and provides operations and maintenance; and

**WHEREAS**, R-REP provided participants with access to many County-solicited contractors, free technical assistance and free financial analysis; and

**WHEREAS**, the Solar Choice program is a rate plan offering through which PG&E sells electricity generated completely (100%) by solar power at a premium price; and

**WHEREAS**, Vanir was selected through the R-REP program process; therefore, now be it

**RESOLVED:** That the City Administrator or her designee is authorized to enter into a PPA with Vanir for purchasing electricity generated from solar PV systems at six City facilities, which include: (1) solar PV systems that are financed, constructed, owned, operated and maintained by Vanir; (2) at a cost in the first year not to exceed \$120,000.00; and (3) at a cost not to exceed \$3,225,000.00 over the 20-year term of the PPA; and, be it

**FURTHER RESOLVED:** That the City Administrator or her designee is authorized to agree to PPA language to pay Vanir an estimated not to exceed amount of \$100,000.00 of project development fees from the Solar Phase 2 Project (Fund 4450, Org 30689, Project C256517, Program SC26), which will be reimbursed and appropriated to the City Project C256517 if the project proceeds to construction, or forfeited if the project is terminated; and be it

**FURTHER RESOLVED:** That the City Administrator or her designee is authorized to accept and appropriate the management fee to the City from Vanir in the estimated amount of \$70,000 to the Solar Phase 2 Project (Fund 4450, Org 30689, Project C256517, Program SC26) to cover any City solar power project expense; and be it

**FURTHER RESOLVED:** That if costs for Pacific Gas & Electric Company (PG&E) interconnection, or necessary building upgrades, or other unforeseen conditions arise, the City Administrator or her designee is authorized to: a) amend the PPA to a cost not to exceed one hundred fifty three-thousand dollars (\$153,000) in the first year and not to exceed three million seven hundred eighty thousand dollars (\$3,780,000) during the 20-year PPA term, paid from the City Facilities Fund (Fund 4400); or b) terminate the PPA with Vanir, and enroll the City in the PG&E Solar Choice program to purchase approximately 605,000 kilowatt-hours of solar electricity, at an estimated premium cost of \$17,500 in the first year, if the cost of PG&E interconnection and necessary building upgrades would incur a rate adjustment that increases costs to more than \$3,720,000 during the 20-year PPA term; and be it

**FURTHER RESOLVED:** That the funds required to pay Vanir for solar PV electricity will be sourced from the same City utility accounts from which the City pays PG&E for electricity; and be it

**FURTHER RESOLVED:** That the City Administrator or her designee is authorized to extend the PPA terms for an additional two (2) 5-year Periods at the end of the 20-year term, if beneficial to the City; and be it

**FURTHER RESOLVED:** That the City Administrator or her designee is hereby authorized and empowered to approve any subsequent amendments to, or extensions of, said PPA with Vanir with the exception of those related to an increase in compensation or the allocation of additional funds provided that such amendments or extensions shall be reviewed by the City Attorney and filed with the City Clerk's Office; and be it

**FURTHER RESOLVED:** That a copy of the agreement will be on file in the City Clerk's Office and will be approved by the Office of the City Attorney.

IN COUNCIL, OAKLAND, CALIFORNIA, \_\_\_\_\_

**PASSED BY THE FOLLOWING VOTE:**

AYES - BROOKS, CAMPBELL WASHINGTON, GALLO, GUILLEN, KALB, KAPLAN, REID, AND PRESIDENT GIBSON MCELHANEY

NOES -

ABSENT -

ABSTENTION -

ATTEST: \_\_\_\_\_

LaTonda Simmons  
City Clerk and Clerk of the Council  
of the City of Oakland, California