CITY OF OAKLAND and REDEVELOPMENT AGENCY OF THE CITY OF OAKLAND

COUNCIL AND AGENCY AGENDA REPORT

TO: Office of the City Administrator and Agency Administrator
ATTN: Deborah Edgerly
FROM: Public Works Agency
DATE: July 13, 2004

RE: **RESOLUTIONS AUTHORIZING THE CITY ADMINISTRATOR AND AGENCY ADMINISTRATOR TO IMPLEMENT A ONE MEGAWATT SOLAR POWER PROJECT BY: SOLICITING AND ENTERING INTO AGREEMENTS FOR 15-YEAR FINANCING AND TEMPORARY CONSTRUCTION FINANCING; ALLOCATING FUNDS IN THE TOTAL AMOUNT OF $7,759,500; ENTERING INTO AN AGREEMENT WITH POWERLIGHT CORP. IN AN AMOUNT NOT TO EXCEED $7,214,338; ACCEPTING AND APPROPRIATING APPROXIMATELY $3,839,258 IN REBATES FROM PACIFIC GAS AND ELECTRIC COMPANY; AND TAKING RELATED ACTIONS ON BEHALF OF THE REDEVELOPMENT AGENCY**

SUMMARY

Mayor Brown and other Oakland leaders are encouraging development of solar power as part of Oakland's evolution toward sustainable living. At the State level, the California legislature, the California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) are also supporting the solar power development by funding major rebate programs.

The attached resolutions authorize the City Administrator and Redevelopment Agency Administrator to implement one Megawatt (1 MW) of solar power projects at the Municipal Service Center (MSC), located in City Council District 7 at 7101 Edgewater Drive and the Oakland Ice Center (OIC), located in City Council District 3 at 519 18th Street, to include 37 Kilowatts (kW) of energy efficiency improvements at the OIC. The solar equipment at the MSC is expected to generate nearly as much electricity as the MSC uses in a year. The solar equipment at the OIC is expected to produce almost half of the OIC's annual electricity use.

City Administrator and Redevelopment Agency Administrator actions will include:

1. Allocating $7,759,500 from a variety of sources to pay all implementation costs for building a 1 MW solar power system and 37 kW of energy efficiency improvements.
2. Soliciting, executing and appropriating: 15-year financing (lease or loan) for up to $3,138,858, and up to 8-month construction financing (lease or loan) for up to $1,000,000.
3. Entering into an agreement for turnkey design and construction of the solar power systems (with a five year performance guarantee) and energy efficiency improvements with PowerLight Corporation (PowerLight) of Berkeley in an initial amount not to exceed

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$7,074,338, with additional authorization for the City Administrator to increase the contract amount by up to $140,000.

4. Accepting and appropriating up to $3,839,258 of rebates from the Pacific Gas and Electric Company (PG&E) after the solar power and energy efficiency projects are complete.
5. Executing an agreement between the City and the Oakland Redevelopment Agency (ORA) to: authorize the City finance and construct a 336 kW solar power system and 37 kW of energy efficiency improvements to the OIC; and authorize the ORA and the OIC to repay an estimated $126,065 annually for 15 years as the ORA's share of the loan benefiting the OIC.

Over a 25-year period, the solar power system and energy efficiency improvements will:

1. Yield an estimated net economic benefit of $261,968 in today's dollars.
2. Reduce greenhouse gas and other harmful emissions by approximately 478 tons per year.

The project will also encourage development of less expensive solar power products and methods for future projects throughout the country.

FISCAL IMPACT

The attached resolutions authorize the City Administrator to undertake the steps described below. A chart showing all costs and sources of funds is included in Attachment A.

1. Enter into a $7,074,338 contract with PowerLight to provide 998.9 kW of solar power system and 232,000 kW of energy efficiency measures through June 30, 2005.
2. Increase the contract amount described in Item 1 above by up to $140,000 in the event that unforeseen circumstances or opportunities arise that are the City's responsibility.
3. Fund the $7,759,500 implementation cost of the Solar Power Project as follows:
   a. Solicit, execute and appropriate up to $3,138,858 of financing for 15 years at up to 5.0% annual interest.
   b. Solicit, execute and appropriate up to $1,000,000 of construction financing at up to 5.0% annual interest, until the rebate is received from PG&E as described in Item 4a below.
   c. Borrow $1,728,654 from the existing General Energy Efficiency Loan Project (Project C120740, Fund 2159 - State of California-Other) to a new Solar Power Project[1] to be repaid using PG&E rebates as described in Item 4b below.
   d. Allocate and expend $1,475,500 from the Williams Settlement (Self Insurance Liability Fund -1100, Project C256510). A separate report and resolution on the July13, 2004 Finance Committee Agenda requests authorization to accept and appropriate these funds.

[1] *Project number to be established upon approval of this resolution.*

e. Use an estimated $416,488 of existing allocations in the FY 2003-05 Budget to pay for the following staff costs that will be recovered in the future from the PG&E Rebate:

   i. $126,278 for project development by the Public Works Agency Electrical Division, Energy Section (Energy Section).

   ii. $149,093 for project management and oversight by the Energy Section.

   iii. $35,000 for acquiring and administering financing by Finance and Management Agency, Treasury Division.

   iv. $106,116 for Contract Compliance and Employment Services.

4. Accept and appropriate all of the estimated $3,839,258 in PG&E rebates as described below. These funds are expected by August 31, 2005.

   a. $1,030,267 to pay off the construction financing loan (see Item 3b above).

   b. $1,728,654 to fully reimburse the General Energy Efficiency Loan Project (see Item 3c above). These funds will subsequently be available for energy efficiency projects financed by loans from the CEC.

   c. $663,849 (partial repayment of the amount described in Item 3d above) into the Williams Settlement Energy Project (C256510), in the Self Insurance Liability Fund (1100).

   d. $416,488 to reimburse the FY 2003-05 Budget for staff time incurred by the Energy Section (project development and project management), the Contract Compliance and Employment Services Division, and the Treasury Division (see Item 3e above).

5. Create an agreement between the City and the ORA to:

   a. Authorize the City to finance and construct a 336 kW solar power system and 37 kW at the OIC.

   b. Authorize the ORA and the OIC to pay the City $126,065 (or an amount adjusted to OIC's final share of the financing repayment) per year for 15 years to be used for the financing repayment associated with the OIC. The OIC will reimburse the ORA for annual financing payments and will pay for maintenance from its avoided energy costs.

The Public Works Agency plans to repay the financing costs for the MSC-related portion of the 15-year loan or lease by re-allocating approximately $167,010 per year for 15 years from the savings that will accrue to the existing electrical budget (Facilities Fund - 4400, Electrical Account -53112.

Insurance premiums and routine maintenance costs are estimated at $6,815 for the first year of operation, increasing with inflation over time to an estimated high of $13,426 in Year 25[2]. If

[2] See Attachment A – Cash Flow for Nominal Scenario. See Attachment B for additional information on capital maintenance. The analysis method used to estimate life cycle costs is relatively unaffected by the year that capital repairs occur due to the incorporation of inflation in future years and the subsequent conversion of all future costs into today's dollars.

actual routine maintenance costs exceed savings by a significant amount, the Public Works Agency may request a budget increase in future years (estimated at up to $4,000 per year) as part of the budget deliberation process.

Long-term capital maintenance needs will include moving panels to facilitate re-roofing and making repairs to inverters. Based on the relatively recent replacement of the larger MSC rooftops included in this project, and the uncertainty of exactly when re-roofing will be needed, re-roofing impacts were placed in Year 20 of the life cycle analysis[2]. The total impact of the solar power equipment on re-roofing is estimated at $86,096 in today's dollars.

Inverter repair or replacement is included in Years 16 and 17 the life cycle analysis[2]. A total estimated cost of $329,002 is used for the analysis. The Capital Maintenance section of Attachment B provides additional details regarding the likelihood and cost for major repairs to the inverters.

According to the sheet titled Cash Flow for Nominal Scenario in Attachment A significant negative cash flows may occur in later years if all capital maintenance needs occur simultaneously. In such an event, it may be necessary for the City to acquire a loan to spread the cost of such maintenance out over several years. The cash flow does show that sufficient positive cash flow is anticipated in later years to accommodate repayment of a loan.

Over a 25-year period, the completed project will have an estimated net benefit of approximately $261,968 in today's dollars (based on a 4.54% loan interest rate, the solar panel manufacturer's 25-year warranty, and including contingency, staff costs, estimated maintenance costs and projected utility rates derived from state and federal forecasts). A cash flow summary for the project is included as Attachment A.

According to PG&E, the City will be obligated, by the PG&E rebate agreement, to keep the system operational for at least five years or return part of the rebate. However, the City is protected by the five-year performance guarantee from PowerLight and PG&E rules that allow for relocating systems in the event that the buildings they serve are demolished.

Furthermore, the City will be obligated to repay the $3,138,858 loan with annual payments of $293,075, regardless of system performance at the MSC and the OIC. Other risk factors affecting the project are addressed in Attachment B.

BACKGROUND

Mayor Brown, City Council members and other leaders in Oakland have expressed interest in harvesting solar energy for many years. With the onset of the 2001 energy crisis, the CPUC, the CEC and PG&E developed rebate programs to encourage construction of large and small solar-powered electricity generating systems. Some of the resulting programs offered rebates for up to 50% of project implementation costs. The PG&E Self-Generation Program, administered on behalf of the CPUC, is the applicable rebate for large systems in Oakland.

At the Mayor's direction, the Public Works Agency sought proposals from solar power companies for designing and constructing cost-effective solar powered electricity generation systems on municipal facilities. A request for proposals was advertised in November 2003, seeking proposals for all of the following sites: Dimond Library, Main Library, Fire Station #1, Fire Station #8, Municipal Service Center Bldgs. 2, 3, 4, 5, 6 & 8, City Administration Buildings, Henry J. Kaiser Convention Center, Oakland Ice Center. The Oakland Ice Center was added mid-RFP at the suggestion of RFP participants, including PowerLight.

Approximately 1,600 notices were mailed to advertise the opportunity for this project. The opportunity was advertised in the Oakland Tribune and repeated by at least one independent on-line publication, called Solar Buzz. Over 50 people attended the pre-proposal meeting and received copies of the RFP. Several vanloads of prospective teams toured each of the sites.

Three proposals were received in December 2003 from: PowerLight; M.A. Lindquist of Oakland (Lindquist); and EMCOR Energy and Technologies (EMCOR) of San Francisco. An evaluation committee comprised of staff from Alameda County, the City and County of San Francisco, and the City of Oakland was formed to rank the proposals and associated teams according to qualitative and quantitative criteria that were published in the RFP.

The Contract Compliance and Employment Services Division assessed each proposal for compliance with the City's programs and made the following determinations:

1. None of the proposals achieved compliance with the Local/ Small Local Business Enterprise Program goals.
2. As a relatively small general contractor located in Oakland, Lindquist received incentives for being a Small Local Business Enterprise. As directed by City policy, the incentives afforded Lindquist 5 additional points, out of 50 points maximum, on the professional services element of the score and a 5% discount (reduction) on their prices in construction services element, with 100 points maximum.

A copy of the summary from the Contract Compliance and Employment Services Division report is included as Attachment D.

In February 2004, while proposals were being evaluated, City staff learned that PG&E rebate funds were temporarily exhausted and that a waiting list would be established for future applications, with applicants ordered according to the timing of the applications. Rather than risk losing access to the rebates by waiting for the solar power contractor to apply for the rebate as originally planned, City staff submitted applications to PG&E. The PG&E program limits each corporation to one Megawatt. Since the PowerLight and Lindquist proposals each offered more than a Megawatt, City staff applied for rebates at the three sites that seemed best at the time: the Municipal Service Center, Oakland Ice Center and the Henry J. Kaiser Convention Center (HJKCC). PG&E responded to the rebate applications by placing the City on the waiting list.

In mid-March, the Evaluation Committee ranked PowerLight highest, Lindquist second and EMCOR third. City staff negotiated with PowerLight to create a turnkey agreement with

PowerLight to acquire 998.9 Kilowatts[3] (kW), or one Megawatt, of electrical power production on the rooftops of the MSC and OIC, along with cost-effective energy efficiency improvements at the OIC for a price that shall not exceed $7,074,338. Additional details of the proposed agreement with PowerLight are contained in the Project Description of this report.

Although staff received several compliments for the quality of the RFP, EMCOR and Lindquist did submit protests regarding the City's process between the delivery of proposals and the request for action by the City Council. EMCOR protested the involvement of Matt Muniz, Energy Manager for the County of Alameda, citing Mr. Muniz' concurrent negotiation for an Alameda County solar power project with PowerLight. EMCOR claimed that Mr. Muniz had conflict of interest relating to his work for the County of Alameda. The City Attorney's Office reviewed the protest and confirmed that no conflict of interest existed.

Lindquist protested the Public Works Agency's choice to retain all information about the proposals, except PowerLight's ranking. The Public Works Agency did not release more information, citing the City's rights within the Sunshine Ordinance, and the Ralph M. Brown Act, to retain information until an award is made by the City Council. Staff explained that some of the information that interested Lindquist would be contained in this report and that it would be available ten days in advance of the committee meeting.

In May 2004, staff received conditional rebate reservations from PG&E's Self-Generation Incentive Program totaling 998.9 kW. Although these reservations total over $4 million, the final rebate amount will be closer to $3,839,258 because as the City's cost drop, so does the rebate amount. The final rebate will vary from the estimate due to adjustments for added contingency expenses and for some minor expenses that may not qualify under PG&E's rules.

The PG&E Self-Generation Program has funds for the City of Oakland rebates on hand now. However, PG&E characterizes the rebate as a "conditional reservation", based on City compliance with project progress milestones and performance requirements. PG&E's approach to the rebate affords the City some protection against missing rebate requirements, as clearly publicized milestone requirements are very effective at preventing unqualified installations.

$1,475,500 of the funds for this agreement are recommended for expenditure from the Williams Settlement, a funding source derived from payments to the City under a settlement agreement between Williams Corporation and several plaintiffs, including the State of California and the City of Oakland. Of the total $3.5 million Williams Settlement, the City has received $1.5 million to-date. The remaining $2 million will be received in two additional payments: $500,000 in January 2005 and $1.5 million in January 2007. A separate report and two resolutions on the July 13, 2004 Finance Committee agenda address the acceptance and

[3] As measured by the California Public Utilities Commission standards. 1 kW is the electrical output measured under laboratory conditions. Useful power from the system is lower. See Attachment A for details.

appropriation of the entire $3.5 million Williams Settlement, and the expenditure of the remaining un-allocated $24,500 that has been received to-date.

KEY ISSUES AND IMPACTS

Several factors influence the success of solar power projects. Attachment B describes the factors considered. Table 1 below summarizes overall project results for several scenarios. Each scenario addresses the project's sensitivity to a combination of factors that are loosely labeled as Unfavorable, Poor, Fair, Good and Superior. The results of the scenarios are provided in Table 1 below.

Table 1 – Scenario Results

Scenario Summary	Loan Interest Rate	Panel Output Drop after Year 5	Rate Forecast	Solar Component Life Cycle Value (2004 Dollars)	Project Value Including Energy Efficiency (2004 Dollars)
Unfavorable Case	5.00%	1.0%	Zero Change	($768,845)	($488,317)
Poor Case	4.70%	1.0%	CEC & DOE Forecast	($115,879)	$193,689
Nominal	4.54%	1.0%	CEC & DOE Forecast	($53,274)	**$261,968**
Good Case	4.16%	0.9%	Tracks Inflation (3.19%)	$1,203,009	$1,597,932
Superior Case	4.00%	0.5%	4.5% Rate Inflation	$2,523,504	$2,972,944

Staff designed these scenarios so that the actual project results are likely to be superior to the Nominal Case. The Nominal Case is based upon:

1. Contingency expenses of $140,000 equaling approximately 6.7% of the project cost excluding solar panels.
2. Weather patterns that conform to the 30-year average for the Bay Area.
3. A lease or loan interest rate of 4.54% for 15 years.
4. 5-Year guaranteed system output from PowerLight.
5. Standard degradation of panel output after year 5, backed up by Sanyo and Sharp's guarantees of performance through year 25.
6. Inflation rates matching the annual average since 1984.
7. Including all staff costs in PG&E rebate calculation.
8. Electricity cost escalation (relative to inflation) based on the CEC and Federal Department of Energy forecasts.

PROJECT DESCRIPTION

Staff negotiated the following main points for the project with PowerLight:

1. Turnkey design and construction for 989.9 kW of solar power placed atop the roofs of the MSC (Council District 7) and the OIC[4] (Council District 3) as shown in Table 2 below. Literature for the proposed products is included in Attachment B. An estimated implementation timeline is included as Attachment E.

Table 2 – Solar Power Equipment Locations

LOCATION	KILOWATTS
Municipal Service Center, Buildings 2 and 3	222.2
Municipal Service Center, Building 4	184.0
Municipal Service Center, Building 5	216.9
Municipal Service Center, Building 8	39.6
Oakland Ice Center	336.2
TOTAL	**998.9**

2. The City will apply for and accept the PG&E rebate on behalf of the City and the ORA. PowerLight is responsible in its agreement with the City for meeting all of the rebate requirements in their control.
3. A 5-year performance guarantee, executed according to the International Performance Measurement and Verification Protocol.
4. Turnkey design/construction of 232,000 annual kWh of energy efficiency improvements at OIC.
5. A roof condition assessment prior to contract execution, performed by a licensed roofing contractor specializing in roofing issues related to solar power installations.
6. Panels are warranted for 25 years by the manufacturer, currently Sanyo and Sharp, stating that the panels will deliver at least 80% of their initial rated output for 25 years.

The total estimated project implementation cost of $7,759,000 is detailed in Table 3 below.

Table 3 – Project Implementation Estimates

DESCRIPTION	AMOUNT
Project Development by Energy Section	$126,278
Project Management & Oversight by Energy Section	$149,093
Contract Compliance and Employment Services	$106,116
Staff Costs for Acquiring and Administering Financing	$35,000
Construction Management by Project Delivery Division	$71,908
Loan-related Fees and Expenses	$26,500
Construction (PowerLight agreement)	$7,074,338
Financing Interest During Construction	$30,267
Construction Contingency (for unforeseen conditions & opportunities)	$140,000
TOTAL	**$7,759,500**

[4] The HJKCC was dropped because of a limitation of 1 MW in the PG&E Self-Generation Program.

The Finance & Management Agency will solicit 15-year financing proposals in the amount of $3,138,858. Preliminary inquiries to financiers are yielding a financing rate estimate of 4.54% per year. If the actual interest rate exceeds 5.0% per year, staff will return to the City Council with revised estimates and a revised resolution. Longer financing periods were considered, but they would have required higher interest rates and less suitable financing instruments, such as certificates of participation.

The solar power component of this project has an estimated life-cycle value of ($53,274) in today's dollars. Attachment A includes estimated costs for financing, maintenance and other impacts directly associated with the system. The rationale for building the solar power project in spite of the negative life-cycle value is addressed in Attachment A. The energy efficiency improvements at the Ice Center have an estimated life-cycle value of $315,242 in today's dollars. Taken together, the solar power and energy efficiency elements of this project have a total positive life-cycle value of $261,968.

Details of the fiscal impacts to the ORA and the OIC are provided in Tables 4 and 5 below, as well as the Cash Flow for Nominal Scenarios sheet in Attachment A. In a typical year for the first 15 years, the Solar Power Project will have the yield an estimated $7,956 positive cash flow to the ORA and OIC. After the $1,350,165 OIC portion of the project financing is paid off in year fifteen, the ORA and the OIC will, on the average, enjoy an annual net benefit exceeding $100,000 a year for the next 10 or more years.

Table 4 - Oakland Ice Center Fiscal Impact Estimates

Description	**Amount in Years 1 to 15**	**Amount in years 16 to 25**
Average Annual Avoided Energy Cost	$140,215	$124,094
Annual Loan Repayment	($126,065)	$0
Average Annual Routine Maintenance	($3,335)	($23,411)
Average Net Fiscal Impact	**$10,815**	**$100,683**

Table 5 - Oakland Ice Center Cash Flows

Description	**Amount**
Total Cash flow in Years 0 to 15	$152,042
Total Cash flow in Years 16 to 25	$1,006, 825
Total Life Cycle Cash Flow	**$1,158,867**

SUSTAINABLE OPPORTUNITIES

This solar power and energy efficiency project will make progress in the City's efforts toward sustainability by:

1. Encouraging the production of solar power products, which is expected to reduce costs for future projects, making renewable energy more affordable.
2. Avoiding production of 147 tons of greenhouse gases per year.

SUSTAINABLE OPPORTUNITIES (continued)

Economic:
This project is one of many in California and the world that will help reduce the cost of solar-powered electricity generation (see Attachment B for information on historic prices and demand). As Oakland and others help increase production and construction of solar power systems, future system implementation cost will likely drop. Once implementation costs drop, solar power can become economically viable without subsidies.

When solar power is economically viable, it will be a healthy and stable choice for energy production for many years to come. Furthermore, this kind of project creates new jobs.

Environmental:
According to the International Council for Local Environmental Initiatives, this project will result in estimated reductions of 477 Tons of carbon dioxide (CO_2), 1,233 Pounds of nitrous oxides (NO_X), 801 Pounds of sulfurous oxides (SO_X), 793 Pounds of carbon monoxide (CO), 89 Pounds of volatile organic compounds (VOCs), and 700 Pounds of fine particulate materials PM_{10} per year.

Social Equity
Promoting solar power now is a step toward lower electricity prices in the future for all members of the Oakland community, including homes and businesses. Building solar power projects and improving energy efficiency throughout Oakland is one way to create an economic advantage for Oakland that can improve our standard of living.

DISABILITY AND SENIOR CITIZEN ACCESS

This project does not have direct impacts on disabled or senior citizens.

RECOMMENDATION AND RATIONALE

It is recommended that the City Council adopt the attached resolutions in the interest of promoting the development of solar power as an option for renewable energy procurement in California.

ALTERNATIVE RECOMMENDATIONS

The City could attempt to obtain financing from the CEC in the form of a 15-year, $3,138,858 loan. Currently, the CEC loan fund is low on capital, which could slow progress as they acquire funds, a process that could take several months.

ACTION REQUESTED OF THE CITY COUNCIL

The Public Works Agency recommends that the City Council approve the resolutions to implement the solar power generation and energy efficiency projects at the Municipal Service Center and the Oakland Ice Center.

ACTION REQUESTED OF THE REDEVELOPMENT AGENCY

Staff recommends that the Agency approve the resolutions to implement the solar power generation and energy efficiency projects at the Oakland Ice Center

Respectfully submitted,

RAUL GODINEZ II
Director, Public Works Agency

Respectfully submitted,

DANIEL VANDERPRIEM
Director of Redevelopment, Economic Development and Housing

Prepared by:
Elroy Holtman, Electrical Division Manager

APPROVED AND FORWARDED TO THE FINANCE COMMITTEE:

OFFICE OF THE CITY ADMINISTRATOR AND AGENCY ADMINISTRATOR

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Attachment A
Solar Power Project
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USES OF FUNDS	Solar Power	Energy Efficiency	Project Totals
IMPLEMENTATION			
Project Development by PWA Electrical Division Energy Section (Energy Section)	$124,950	$1,328	$126,278
Project Management and Oversight by Energy Section (allocated in FY 2003-05 Fund 4400, with reimbursement planned from rebate)	$147,525	$1,568	$149,093
Contract Compliance and Employment Services	$105,000	$1,116	$106,116
Staff Costs for Acquiring and Administering Financing	$34,632	$368	$35,000
Construction Management by PWA Project Delivery Division (must be funded by Solar Power Project)	$71,152	$756	$71,908
Loan-related Fees and Expenses (non-staff)	$26,221	$279	$26,500
PowerLight Agreement Cost	$6,999,938	$74,400	$7,074,338
Contingency for Unforeseen Conditions and Opportunities	$138,528	$1,472	$140,000
Construction Financing Interest	$29,948	$318	$30,267
Total of Implementation Costs	$7,677,894	$81,606	$7,759,500

SOURCES OF FUNDS (before acquiring rebate)	
15-year Financing	$3,138,858
8-month Financing	$1,000,000
Energy Project Loan (Fund 2159)	$1,728,654
Williams Settlement (Fund 1100)	$1,475,500
Existing Allocation within FY 2003-05 Budget (fund 4400)	$416,488
Total of Funding	**$7,759,500**

LIFE CYCLE FIGURES			
Life cycle figures are in Year 2004 dollars, based on a 4.54% discout rate, financing 15-year financing at 4.54% annual interest, 3.19% annual inflation, 5% output degradation for the first 5 years and 1% degradation thereafter.			7
Project Implementation	($7,833,900)	($74,400)	($7,759,500)
PG&E Rebate	$3,826,858	$12,400	$3,839,258
15-Year Financing	$3,076,858	$62,000	$3,138,858
Financing Repayments	($3,857,124)	($62,000)	($3,919,124)
Maintenance and Expenses	($519,067)	$0	($519,067)
Avoided Energy Cost Over 25-Year Project Life	$4,322,917	$377,242	$4,700,159
Net Life Cycle Cost and Benefit	($53,274)	$315,242	$261,968

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Cash Flow for Nominal Scenario

Year	Municipal Service Center				Oakland Ice Center				Project Total
	Avoided Energy Cost	Maint. Cost	Payment	Site Total	Avoided Energy Cost	Maint. Cost	Payment	Site Total	
June 2004 to June 2005 Year 0	0	0	(770,079)	(770,079)	0	0	(10,188)	(10,188)	(780,267)
June 2005 to June 2006 Year 1	172,887	(6,815)	(167,010)	(938)	136,677	(2,656)	(126,065)	7,956	7,018
June 2006 to June 2007	173,367	(7,064)	(167,010)	(707)	137,224	(2,749)	(126,065)	8,410	7,704
June 2007 to June 2008	173,849	(7,289)	(167,010)	(451)	137,774	(2,837)	(126,065)	8,872	8,422
June 2008 to June 2009	174,331	(7,522)	(167,010)	(201)	138,327	(2,927)	(126,065)	9,335	9,134
June 2009 to June 2010 Year 5	174,815	(7,761)	(167,010)	43	138,882	(3,021)	(126,065)	9,797	9,840
June 2010 to June 2011	174,401	(7,393)	(167,010)	(3)	138,903	(3,099)	(126,065)	9,739	9,736
June 2011 to June 2012	173,988	(7,629)	(167,010)	(652)	138,926	(3,198)	(126,065)	9,663	9,012
June 2012 to June 2013	173,576	(7,873)	(167,010)	(1,307)	138,952	(3,300)	(126,065)	9,587	8,280
June 2013 to June 2014	173,165	(8,124)	(167,010)	(1,969)	138,980	(3,405)	(126,065)	9,510	7,541
June 2014 to June 2015 Year 10	167,568	(8,383)	(167,010)	(7,825)	134,838	(3,514)	(126,065)	5,260	(2,565)
June 2015 to June 2016	171,166	(8,650)	(167,010)	(4,494)	138,094	(3,626)	(126,065)	8,404	3,909
June 2016 to June 2017	175,219	(8,926)	(167,010)	(718)	141,737	(3,741)	(126,065)	11,931	11,213
June 2017 to June 2018	178,673	(9,211)	(167,010)	2,452	144,915	(3,861)	(126,065)	14,990	17,442
June 2018 to June 2019	182,510	(9,505)	(167,010)	5,995	148,424	(3,984)	(126,065)	18,375	24,370
June 2019 to June 2020 Year 15	184,660	(9,808)	(167,010)	7,842	150,578	(4,111)	(126,065)	20,402	28,244
June 2020 to June 2021 w/ MSC Inverter Replacement	187,722	(344,835)	0	(157,113)	112,293	(4,242)	0	108,051	(49,062)
June 2021 to June 2022 w/ OIC Inverter Replaement	192,256	(41,096)	0	151,160	115,005	(189,431)	0	(74,425)	76,734
June 2021 to June 2023	196,898	(10,777)	0	186,122	117,782	(4,517)	0	113,265	299,387
June 2023 to June 2024	200,514	(11,121)	0	189,393	119,945	(4,661)	0	115,284	304,677
June 2024 to June 2025 Year 20 w/ Re-roofing	205,356	(172,813)	0	32,542	122,841	(4,810)	0	118,032	150,574
June 2025 to June 2026	209,674	(11,841)	0	197,832	125,425	(4,963)	0	120,461	318,294
June 2026 to June 2027	213,896	(12,219)	0	201,677	127,950	(5,122)	0	122,829	324,506
June 2027 to June 2028	218,203	(12,609)	0	205,594	130,527	(5,285)	0	125,242	330,836
June 2028 to June 2029	222,694	(13,011)	0	209,683	133,213	(5,454)	0	127,760	337,443
June 2029 to June 2030 Year 25	227,277	(13,426)	0	213,851	135,955	(5,628)	0	130,327	344,178
Life Cycle Values (in 2004 dollars)	$2,704,885	($377,577)	($2,558,772)	($231,463)	$1,995,274	($141,490)	($1,360,353)	$493,431	$261,968

Note 1: Life cycle figures based on financing 15-year financing at 4.54% annual interest, 3.19% annual inflation, 5% output degradation for the first 5 years and 1% degradation thereafter.

Note 2: Avoided energy costs at the OIC decline significantly after Year 15 when the expected life of the lighting system energy efficiency improvements is exhausted.

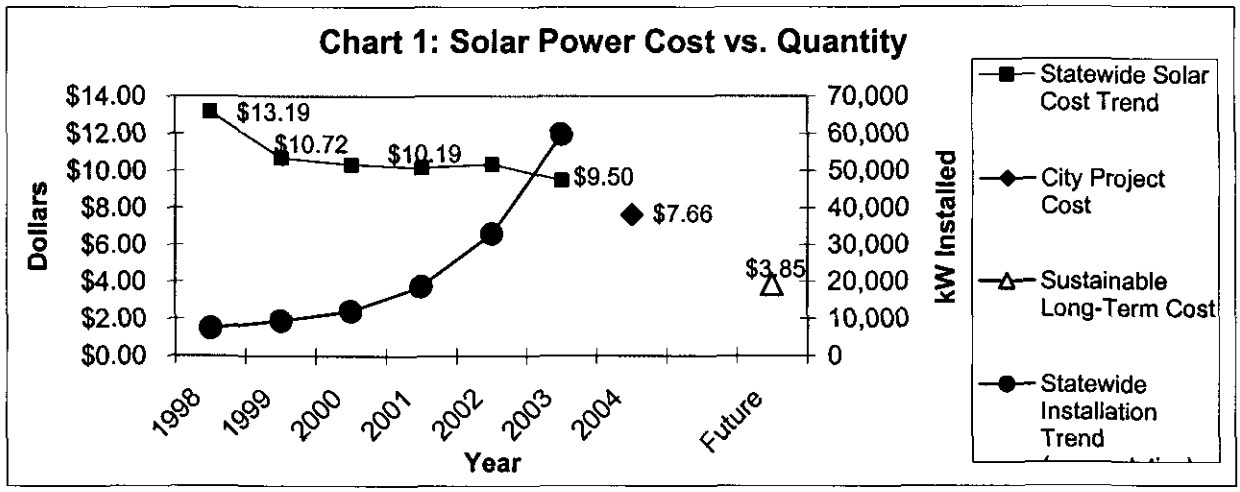
Attachment A
Solar Power Project
Cash Flow for Nominal Scenario
July 13, 2004

Factors Affecting Solar Power Projects

Solar Power Supply and Demand

California's success at implementing solar power will depend on how much solar power is purchased now, and how much pressure is applied by customers and the rebate system. In general, solar power system suppliers are lobbying for significant subsidies. Subsidies will work for a while, but eventually prices must decrease by methods such as innovative manufacturing and installation and by capitalizing on the benefits of producing in large volume.

California needs incentives to create a viable marketplace for solar power. Chart 1 below tracks the recent historic cost of solar power in California[1] on the left axis, and the amount of solar power installed in California on the right axis. A correlation is apparent between increased demand and reduced price.



The point labeled "Sustainable Long-Term Price" on Chart 1 approximates the price the City would need for a cost effective solar project without a rebate. Oakland is implementing this solar project to help reduce future prices by increasing demand for solar power equipment now.

Risk Analysis is Important

Solar power technology has numerous points of stability:

1. Electricity production costs are very predictable due to the use of durable equipment and fixed financing costs.
2. Solar panels have 25-year warranties from stable companies such as Sanyo, Sharp and Shell.
3. Results are measurable and suitable for comparison to forecasts of results using 30 years of weather data.

Nonetheless, actual results nearly always differ at least slightly from forecasted results. Since the proposed solar power project recovers it's cost over a long, 25-year, period and since many assumed factors will change over 25 years, it is important to understand the risks and vulnerabilities of the City's solar power project to make an informed decision. This attachment

[1] California Energy Commission Emerging Renewables Program

addresses the importance of several issues, often specifically relating their potential impact back to the project under consideration.

The Role of Subsidies

Solar power, along with wind, biomass, and tide power, is a source of renewable energy that will play an important part in making the Nation energy independent. Independence will be increasingly important as fossil fuel supplies are depleted.

The energy efficiency industry demonstrated, in the 1990's that new technologies could be brought to the marketplace and deliver tremendous savings once production volumes were high enough to create reliable products at justifiable prices. Today, products such as premium lamps (compact fluorescents, T8s and T5s), electronic ballasts for lighting, and premium efficiency motors, variable speed drives for motors and sophisticated electronic controls for buildings are readily available at competitive prices. When these products were first available, their pricing was uncompetitive. Rebates transformed the marketplace for these products.

In general, rebate programs in California are aimed at overcoming barriers for emerging technologies, most commonly the initial premium cost of production and marketing in low quantity. Before a rebate is offered, it is screened to confirm that there is reasonable hope that the technology will become cost effective enough in the future to eliminate the need for the rebate altogether.

Self-Generation Program Rebates

California's renewable energy subsidies are targeted at jump-starting the market to progress toward solar power prices that are eventually affordable without subsidy. The rebate from the PG&E Self-Generation Program, created at the direction of the California Public Utilities Commission, has an overwhelming impact on the project. Under California's current electricity rate structures, this project would not have any economic viability without a rebate for very nearly half of all project costs. With a $3,839,258 rebate, the project is expected to break even or save a few hundred thousand dollars over its life.

Contingency

Although this is a turnkey project, and no contingency should be necessary, a contingency of $140,000 has been included in the project budget and the implementation figures. The contingency may be used in the event that staff costs exceed expectations, in case the City elects to modify PowerLight's scope of work, or if the City elects to perform other work related to the project in order to optimize results.

Staff worked extensively during the Request for Proposal preparation and subsequent negotiations with PowerLight to eliminate or mitigate risks that could lead to exhausting contingency funds.

1. The project is turnkey in nature. During the RFP, all interested parties had several opportunities to carefully observe the condition of each facility. The RFP clearly assigned contractors responsibility for assessing the condition of the buildings. Staff was available to open doors and show the prospective contractors anything they needed to see. The

sample contract language holds the contractor accountable for observing all relevant conditions.

2. The PowerLight agreement will include a clause that allows amicable dissolution of all or part of the agreement if valid, unforeseen and overwhelming expenses are identified during the design phase. For example, although PowerLight and the City have preliminarily investigated the cost of connecting to the PG&E electrical system, unforeseen conditions may be revealed before PG&E delivers their final pricing that have large costs. If these costs overwhelm PowerLight's budget, they City may grant them leave to terminate part, or all, of the contract. However, in exchange for this latitude, the City would not pay PowerLight anything and would be free to pursue the project immediately with other parties.

$140,000 is equal to 2% of the PowerLight contract amount, or 6.7% of PowerLight's price excluding solar panels. Since PowerLight already has agreements with Sanyo and Sharp for pricing on this project, products and services other than solar panels are the only variables in the PowerLight scope of work , and many of these costs are for products, such as inverters, are already well known and resistant to change.

Project Financing Interest Rates

At the time this report is written, the City of Oakland Treasury Division favors lease financing for this project at a likely interest rate of 4.54%. However, Federal Government officials are discussing increases to rates that would likely in higher lease financing rates. For each 0.1% change in the financing interest rate, the life-cycle net present value changes about $40,000 to $56,000. Details on sensitivity to interest rate changes can be found in the Scenario Analysis here in Attachment A.

Capital Maintenance Expenses

Two capital maintenance activities are included in the project economic analysis: re-roofing and inverter repair. Although the roofs affected by this project are relatively new, it is expected that each solar panel must be temporarily relocated and re-installed once in its lifetime. The estimated costs associated with re-roofing total $86,000 in today's dollars.

Inverters will need repairs as well. An inverter collects and converts the direct current produced by solar panels into an alternating current that is compatible with building electrical systems. These are solid-state devices that have a 5-year warranty, and are expected to operate for at least 15 years. Since the economic life of the project is 25 years, one full replacement cost for each inverter is included in the life cycle analysis. These costs total $329,000 for all 6 of the project's inverters and account for negative cash flows in years 15 and 16 in the economic analysis.

It is unlikely that inverter costs will mount as high as above. Only one manufacturer makes inverters of this size today, and in small quantities. In the future, when solar power systems are more common and more manufacturers compete for business, prices should drop. Furthermore, the inverter manufacturer believes that full replacements are unlikely as well, and that parts replacement is a more likely maintenance activity at a lower cost than estimated. However, no guarantee of inverter maintenance cost is offered beyond 5 years.

Routine Maintenance Costs
Costs for maintaining the system from year to year are relatively small including:

Activity	Annual Cost
Cleaning each system twice per summer to increase summertime electricity output by 1.8%.	$3,115
Telephone lines to download	1,200
Increased insurance premiums	4,900
Tightening inverter connections	675
Total	**$9,890**

Weather
The project has little vulnerability to variations in annual sunshine levels. Weather data collected over a 30-year period was used to develop the life cycle cost assessment. Recorded data shows that for 95% of the time over the last 30 years, weather has stayed within 2.2% of the nominal figures used for PowerLight's forecast.

Solar panels have some vulnerability to extremely high winds that create lifting forces on rooftop panels. The proposed project includes the following measures to mitigate wind risk:

1. PowerLight will provide services from a licensed Structural Engineer to confirm that the systems satisfy all permitting requirements, including requirements related to wind.
2. PowerLight represents and has provided documentation showing that the "PowerGuard" product planed for the MSC has been tested and certified to withstand winds up to 140 mph.

General Inflation
Project life cycle results in today's dollars vary by about $17,000 per year relative for each $1/10^{th}$ percent change to general inflation rates. Furthermore, if actual inflation is higher that used in the analysis in this report, the project's financial results improve.

Electricity Price Change
According to the California Energy Commission (CEC), which forecasts electricity prices for 10 years at a time, electricity prices in California are not expected to rise as quickly as inflation. In the next decade, only about 25% of electricity prices are expected to increase with inflation, due to the State of California Department of Water Resources' (DWR) long-term commitment to electricity purchasing contracts. In the following decade, the DWR contracts will end and electricity pricing is expected to follow trends in the western United States. According to forecasts by the U.S. Department of Energy (USDOE), electricity rates for 2014 and beyond will generally increase at the rate of general inflation.

City staff's forecast based on CEC and USDOE yields an average electricity rate increase of 2.2% per year. According to the Bureau of Labor Statistics data for urban consumers, the average general inflation rate since 1984 is approximately 3.19%.

PowerLight has expressed an opinion that the City's forecast is overly pessimistic, emphasize that past experience points to ever increasing electricity costs. Over the last 20 years, electricity prices have risen faster than the general inflation rate.

Staff decided to use the CEC and USDOE forecasts for electricity price inflation. It was the lowest legitimately developed, and publicly published rate used by any of the parties that expressed an opinion on the subject to the City. It affords the project reasonable odds of success. The CEC and DOE rate also protects the project and the reputation of solar power projects form a negative backlash due to a combination of lower-than-expected results and overly optimistic electricity price inflation estimates.

Regardless of the forecast used, electricity price inflation could have a significant impact on Oakland project's life cycle cost results[2]. For example:

- If rates stay right where they are today, the project would lose approximately $344,662. Such a result would be about $600,000 lower than the positive life cycle benefit of $260,534 estimated for the nominal case analyzed.
- If rates increase as predicted by the CEC and the USDOE, the project will have a net value of $260,534, in today's dollars, over it's 25-year life.
- If rates increase at a pace that matches historic inflation of 3.19% per year, the project will have a net value of $1,295,927 in today's dollars.
- If rates increase at a rate of 4.5% per year, the project will have a net value of $2,218,428 in today's dollars.

Panel Degradation

Solar power panels degrade over time. The 5-year performance guarantee of each system's electrical output is a significant hedge against panel degradation. According to data on solar panels from numerous sources, it would be very unusual for the output of a system to degrade more than 0.8% per year.

The life-cycle cost analysis period was set at 25 years because the panels have a guaranteed out put of 80% of their original rated output for 25 years. Sanyo and Sharp, the panel manufacturers are the primary party that bears responsibility for the output guarantee.

Future Plans for the Ice Center

If the Ice Center were closed in the future, the estimated salvage value of the solar power equipment in each year is sufficient to retire the Redevelopment Agency's loan payment obligations.

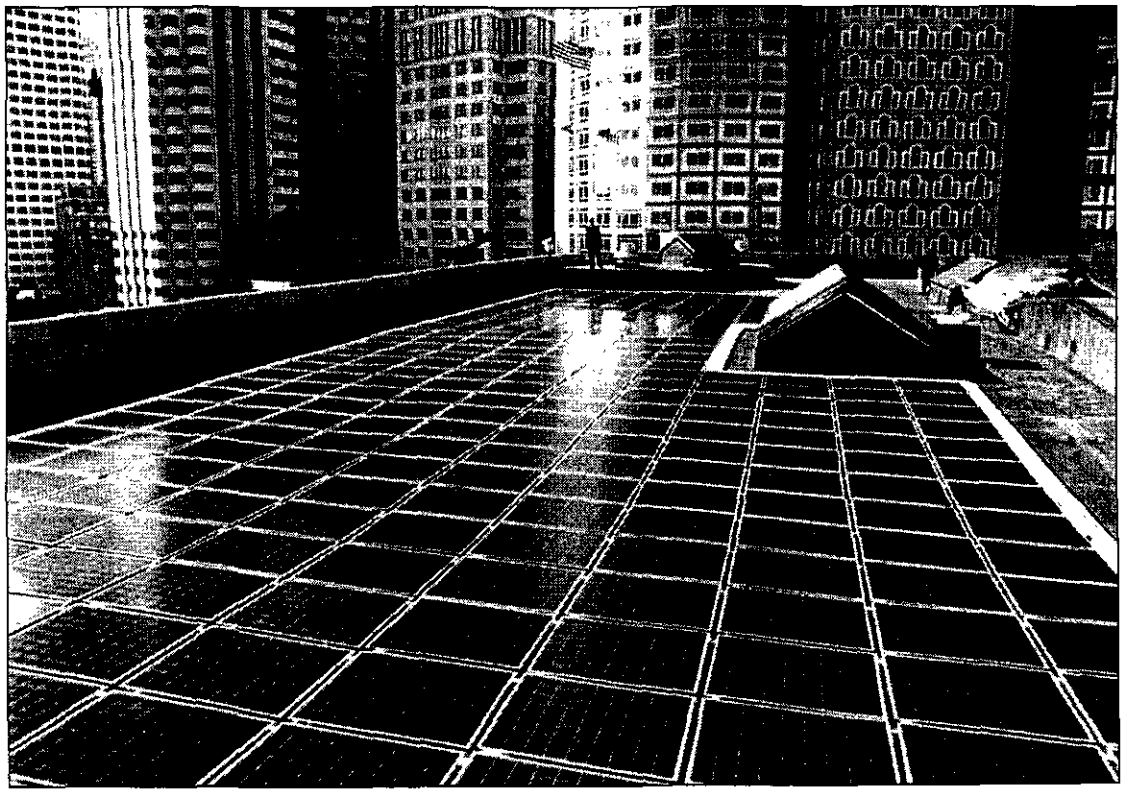
[2] This analysis estimates the impact of electricity cost increases only. All other figures used to estimate the project's life cycle value are kept constant at the levels used for the nominal case analysis.

PRODUCT INFORMATION SHEET

POWERLIGHT®
SOLAR ELECTRIC SYSTEMS

PowerGuard®

Solar Electric Roof System



The PowerGuard system is based on a very simple but powerful idea - attaching photovoltaic (PV) modules to lightweight, interlocking roof tiles. PowerGuard is a patented PV solar roof tile that delivers reliable, clean electricity while insulating and protecting the roof. The modular tiles interconnect easily with no roof penetrations, operate invisibly with your existing electrical network, and come with a 20-year limited warranty on electricity output.

7

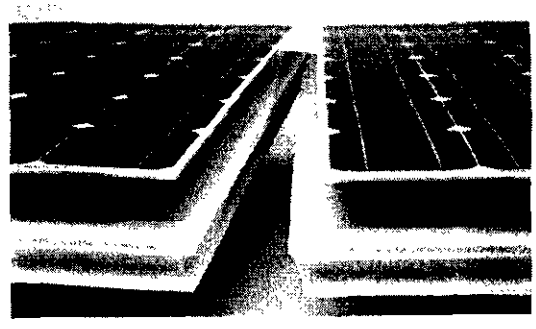
Features

Non-Penetrating
PowerGuard is laid directly onto new and existing rooftops without mechanical fastening. The patented aerodynamic design is stable under wind speeds of up to 140 m.p.h..

Lightweight
PowerGuard weighs less than six pounds per square foot and can therefore be applied to nearly all buildings without exceeding roof loading limits. The lightweight design also makes the systems easy to ship, handle and install.

Modular and Scalable
PowerLight has created a standardized, modular solar electric system that easily scales from use at small offices up to multi-megawatt facilities.

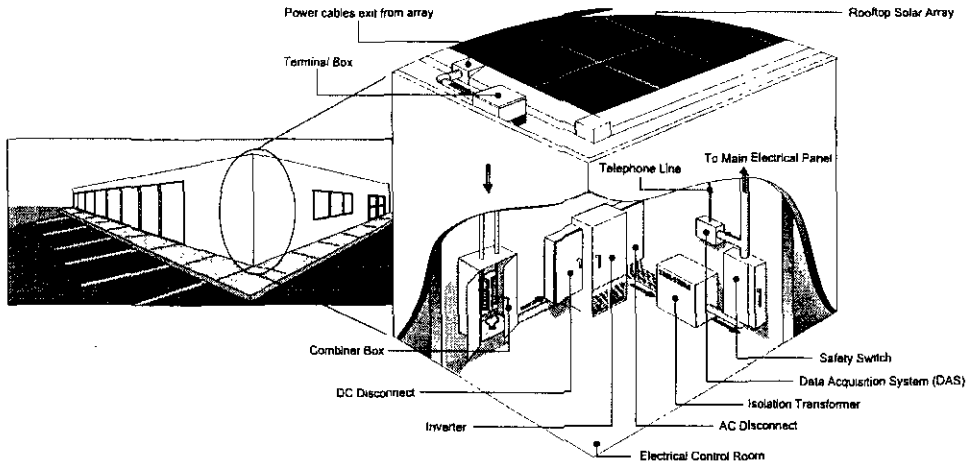
Pre-Engineered
PowerGuard is a complete, pre-engineered system. It is the only PV roof system that currently carries UL approval. Pre-engineering eliminates most of a project's mechanical design, reducing system cost and speeding project approval and permitting.



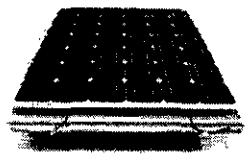
PRODUCT INFORMATION SHEET

PowerGuard®

Solar Electric Roof System



POWERGUARD SPECIFICATIONS



Attributes	Values (USA)	Values (Metric)
Tile Weight	5 - 7 lb/ft²	24.4-34.2 kg/m²
Tile Dimensions	Range: 22" x 27" - 50" x 65"	Range: 0.56m x 0.69m - 1.27m x 1.65m
R-Value	R-10 or greater	0.029 watt/m* K
Roof Penetrations	None, except high-wind areas	None, except high-wind areas
System Monitoring	Data Acquisition System (DAS)	Data Acquisition System (DAS)
Typical Output	1-1.25kWp/100 sq ft	1.07-1.21kWp/10m²

Benefits

Easy Installation

PowerGuard systems feature modular interlocking tiles that don't require mechanical roof attachments, which means large scale solar arrays can be rapidly and easily installed.

Insulating

PowerGuard tiles are built using rigid polystyrene foam insulation. The system adds approximately R-20 insulating value to the roof. This reduces the building's heating and cooling load and provides as much as 30% additional savings.

About PowerLight

PowerLight Corporation is the nation's leading designer, manufacturer and installer of grid-connected solar electric systems. Founded in 1991, PowerLight's distributed generation products produce reliable, affordable clean power for business and government agencies worldwide. Inc. Magazine has ranked PowerLight Corporation among the top 500 fastest growing privately held companies for the past four consecutive years. Today, PowerLight has worldwide offices and a full line of commercial solar electric products.

PowerLight's Mission

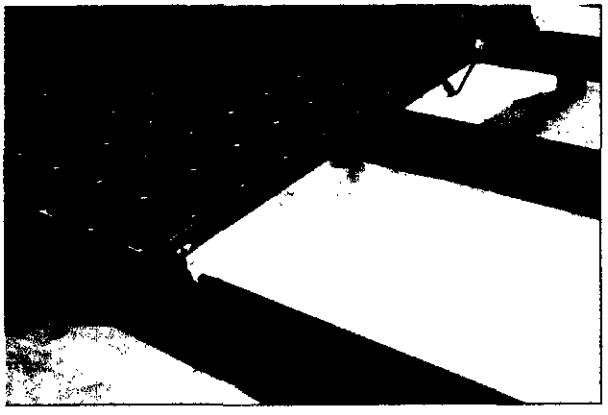
PowerLight is committed to making clean power a mainstream and affordable source of the world's energy supply. Our solar products enable companies to reduce operating costs by transforming clean, abundant solar energy into electricity.

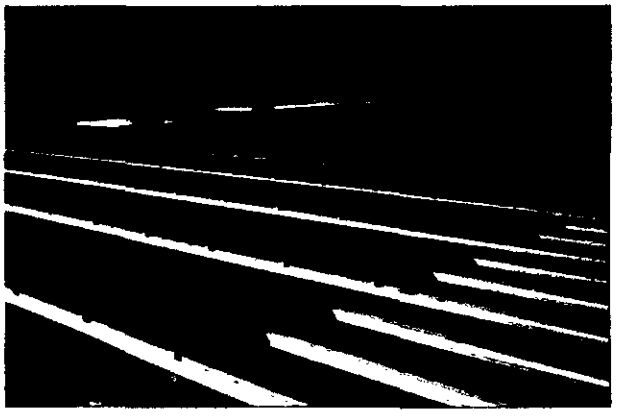
PowerLight Corporation
2954 San Pablo Avenue
Berkeley, CA 94702
Tel: 510-540-0550
Fax: 510-540-0552

POWERLIGHT®
SOLAR ELECTRIC SYSTEMS
www.powerlight.com

Oakland Ice Center:
PowerLight proposes the PowerRoof system for the Oakland Ice Center. The standing seam metal roof has the same profile as Rodney Strong Vineyard where PowerLight has installed a 766 kWp Power Roof system, as shown in the pictures below. The rows of modules are spaced 24" apart which is the distance between the standing seams. This spacing will be used to avoid inter-row shading of the PV modules, and as a walking path to allow access to rooftop equipment.

Rodney Strong Vineyard, Healdsburg, CA 766 kWp PowerRoof system





Note that the 24" spacing between and type of standing seams is exactly the same as the roof of the Oakland Ice Center. The S5! Clamp is shown in the photo below anchoring the PV module to the standing seam without penetrating the roof membrane.

Attachment C - Technical Data
Solar Power Project
July 13, 2004

Description	MSC 2 & 3	MSC 4	MSC 5	MSC 2, 3, 4 & 5 Total	MSC #8	Ice Center	Solar Power Totals
Module	Sanyo	Sanyo	Sharp		Sanyo	Sanyo	
Module Type	190	190	ND N6E		190	190	
Panel Qty	1304	1080	1806	4190	232	1960	
CEC Watts PTC per Module	177.5	177.5	125.1		177.5	178.7	
kW Peak DC Output Before Derating Using	231.5	191.7	225.9		41.2	350.3	
Inverter Efficiency	0.96	0.96	0.96		0.96	0.96	
PG&E Incentive Watts per Module	170.4	170.4	120.096		170.4	171.552	
KW per PG&E/CPUC Self-Gen Program	222.2	184.0	216.9	623.1	39.5	336.2	**998.9**
DC Cabling	0.02	0.02	0.02		0.02	0.02	
Diodes and Connections	0.005	0.005	0.005		0.005	0.005	
Mismatch	0.03	0.03	0.03		0.03	0.03	
Total of DC Losses	0.055	0.055	0.055		0.055	0.055	
Transformer Losses	0.03	0.03	0.03		0.03	0.03	
AC Wiring Losses	0.01	0.01	0.01		0.01	0.01	
Soiling Losses	0.02	0.02	0.02		0.02	0.02	
Availability of System	0.02	0.02	0.02		0.02	0.02	
Total of AC and OutPut losses	0.08	0.08	0.08		0.08	0.08	
AC kW After Losses (power used by building systems)	193.2	160.0	188.6	541.7	34.4	292.3	**868.4**
Energy Production Based on Figures for 998.9 kW							
Summer On Peak kWh	82,212	68,090	80,176	230,477	14,627	123,558	368,662
Summer Partial Peak kWh	52,745	43,684	51,439	147,868	9,384	79,272	236,523
Summer Off Peak kWh	66,654	55,204	65,003	186,861	11,859	100,175	298,895
Winter Partial Peak kWh	74,140	61,405	72,305	207,850	13,191	111,428	332,469
Winter Off Peak kWh	35,865	29,705	34,977	100,547	6,381	53,903	160,831
Total Proposed kWh	311,615	258,088	303,900	873,603	55,441	468,336	1,397,380
Avoided Energy Due to Insulation							
Summer On Peak kWh		984	2,237	3,221			6,443
Summer Partial Peak kWh		631	1,435	2,067			4,133
Summer Off Peak kWh		798	1,814	2,612			5,223
Winter Partial Peak kWh		887	2,018	2,905			5,810
Winter Off Peak kWh		429	976	1,405			2,811
Total Proposed kWh		3,730	8,480	12,210			24,420

Life-Cycle Cost-Related Data

	A10	A10	E19SV	
Current Rate Schedule	A10	A10	E19SV	
Revised Rate Schedule (changed rate)	A6	A10	A6	
Average Summer Monthly Max Demand to Peak kW AC Ratio		0.25		
Average Winter Monthly Max Demand to Peak kW AC Ratio		0.05		
Annual Baseline Electricity Cost on Existing Rate	$160,434	$63,152	$215,593	$439,179
Recalculated Energy Bill on Current Rate	$27,178	$49,708	$118,747	$195,633
Recalculated Energy Bill on Changed Rate	$2,331	$49,708	$112,976	$165,015
Avoided Energy Cost for Changed Rate	$158,103	$13,444	$102,617	$274,164
Annual kwh per kWSO	1,422	1,402	1,393	1,411
Warranted Percent Output Degredation at 25 Years	20.0%	20.0%	20.0%	
% Output Degredation Used for Calculations in 1st five years	0.5%	0.5%	0.5%	
% Output Degredation Used for Calculations in last 20 years	1.0105%	1.0105%	1.0105%	
Annual Cost of Telephone or LAN/WAN Costs	$720	$240	$240	$1,200
Number of 225 kW Inverters	3	0	1	
Number of 100 kW Inverters	0	0	1	
Number of 45 kW Inverters	0	1	0	
Inverter Major Repair/Replacement Cost (estimated in Year 15)	$202,522	$17,973	$108,507	$329,002
Annual Inverter and System Maintenance	$338	$113	$225	$675
Re-roofing Cost Increases (estimated in Year 20)	$81,579	$4,517	$0	$86,096
Cleaning Cost per Year (covers two cleanings in Summer)	$2,077	$346	$692	$3,115
Insurance Premium per Year	$3,057	$194	$1,649	$4,900

Attachment C - Inflation Rates
Solar Power and Energy Efficiency Report
July 13, 2004

Year	Projection of 20 Year Historic Inflation Increasing 3.19% per Year	Utility Cost Inflation Relative to Previous Year	Inflation Relative to Base Year (used for Nominal Scenario)
June 2004 to June 2005 Year 0	1.000	0.000%	1.000
June 2005 to June 2006 Year 1	1.032	0.782%	1.008
June 2006 to June 2007	1.065	0.782%	1.016
June 2007 to June 2008	1.099	0.782%	1.024
June 2008 to June 2009	1.134	0.782%	1.032
June 2009 to June 2010 Year 5	1.170	0.782%	1.040
June 2010 to June 2011	1.207	0.782%	1.048
June 2011 to June 2012	1.246	0.782%	1.056
June 2012 to June 2013	1.286	0.782%	1.064
June 2013 to June 2014	1.327	-2.244%	1.073
June 2014 to June 2015 Year 10	1.369	3.190%	1.049
June 2015 to June 2016	1.413	3.413%	1.082
June 2016 to June 2017	1.458	3.012%	1.119
June 2017 to June 2018	1.504	3.190%	1.153
June 2018 to June 2019	1.552	2.211%	1.189
June 2019 to June 2020 Year 15	1.602	2.696%	1.216
June 2020 to June 2021	1.653	3.461%	1.248
June 2021 to June 2022	1.705	3.460%	1.292
June 2021 to June 2023	1.760	2.876%	1.336
June 2023 to June 2024	1.816	3.460%	1.375
June 2024 to June 2025 Year 20	1.874	3.145%	1.422
June 2025 to June 2026	1.934	3.055%	1.467
June 2026 to June 2027	1.995	3.055%	1.512
June 2027 to June 2028	2.059	3.100%	1.558
June 2028 to June 2029	2.125	3.100%	1.606
June 2029 to June 2030 Year 25	2.193	3.055%	1.656

Contract Compliance and Employment Services Division Office of the City Manager

Memorandum

Date: January 9, 2004

From: Deborah Barnes, Manager, Contract Compliance and Employment Services

To: Gwen McCormick - PWA, Contract Admin., Manager

Regarding: Compliance Analysis - Photovoltaic Generation System

Contract Compliance and Employment Services reviewed the three proposals received for the above referenced project. This project is a design-build, as such, analyses were completed for both the design (professional services) phase and the construction phase. The findings are as follows.

Design Phase

	LBE	SLBE	TOTAL	TRUCKING
MA Lindquist	0.00%	96.00%	96.00%	NA
EMCOR	2.00%	00.00%	2.00%	
Powerlight Corp.	0.00%	1.00%	1.00%	

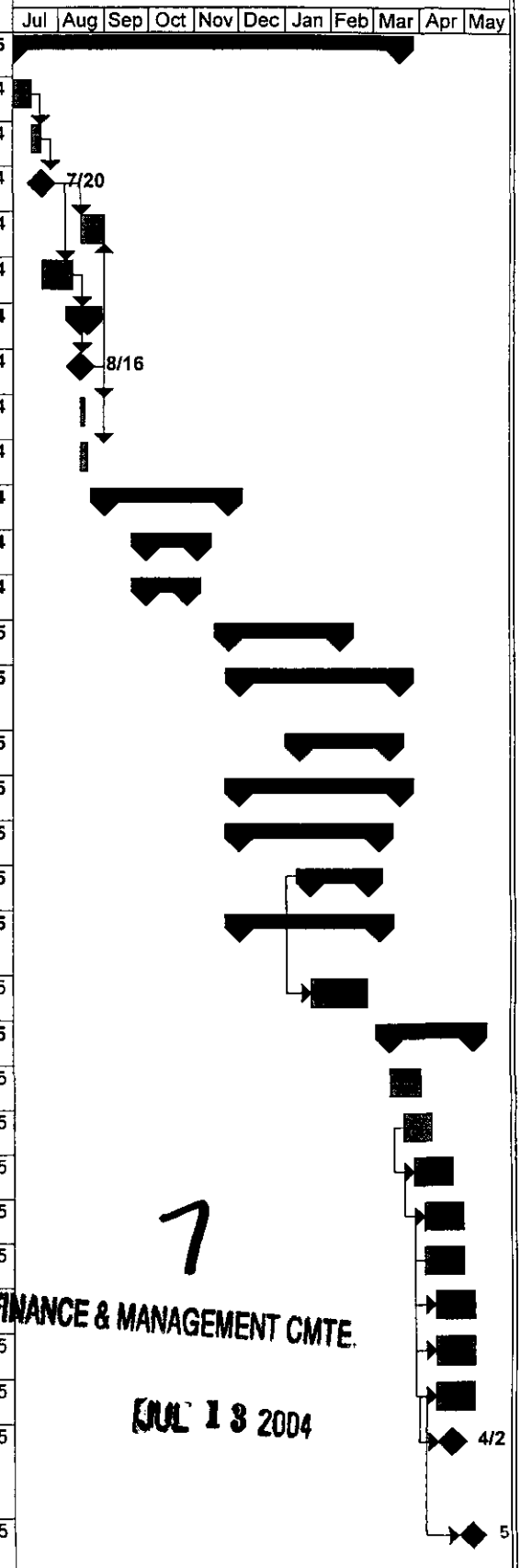
It is important to note that the goals of the Local/Small Local Business Enterprise program could not be reached for this project because the cost of materials averaged approximately 75% of the total project cost. Bidders are listed in order starting with the lowest bidder.

	LBE	SLBE	TOTAL	TRUCKING
EMCOR	0.00%	3.76%	3.76%	0.00%
MA Lindquist	2.26%	15.67%	17.93%	0.00%
Powerlight Corp.	3.50%	2.71%	6.21%	100.00%

CC: Claudette Ford
Mary Mayberry
Attachments

Attachment E - Project Schedule
Solar Power and Energy Efficiency Project
July 13, 2003

ID	Task Name	Start	Finish
1	**Oakland 2004 PV Installation Schedule**	**7/2/2004**	**3/18/2005**
2	Public Works and Finance Committee Reviews	7/2/2004	7/13/2004
3	City Council Review	7/14/2004	7/20/2004
4	City Council Approval	7/20/2004	7/20/2004
5	Professional Roof Surveys	8/16/2004	8/31/2004
6	Agreement Execution	7/21/2004	8/10/2004
7	**Contract in place**	**8/16/2004**	**8/20/2004**
8	NOTICE TO PROCEED	8/16/2004	8/16/2004
9	Kick Off Meeting	8/16/2004	8/18/2004
10	Site Audit Reviews	8/16/2004	8/20/2004
11	**Design**	**9/1/2004**	**11/23/2004**
20	**PG&E Interconnection Agreement**	**9/29/2004**	**11/2/2004**
23	**Electrical Permit**	**9/29/2004**	**10/26/2004**
25	**Material Procurement**	**11/24/2004**	**2/7/2005**
36	**Municipal Service Center PowerGuard Installation**	**12/1/2004**	**3/18/2005**
37	**PowerGuard Installation**	**1/11/2005**	**3/11/2005**
44	**Electrical Equipment Installation**	**12/1/2004**	**3/18/2005**
51	**Ice Rink PowerRoof Installation**	**12/1/2004**	**3/4/2005**
52	**PowerRoof Installation - Ice Rink**	**1/18/2005**	**2/25/2005**
59	**PV Electrical Equipment Installation - Ice Rink**	**12/1/2004**	**3/4/2005**
66	Ice Rink Energy Efficiency Installation	1/18/2005	2/24/2005
67	**Project Completion**	**3/11/2005**	**5/6/2005**
68	Create As-built Drawings	3/11/2005	4/1/2005
69	Electrical Permit Approved	3/21/2005	4/8/2005
70	PG&E Interconnection Approved	3/28/2005	4/22/2005
71	Start of PV System	4/4/2005	4/29/2005
72	System Commissioning and Acceptance- Initial Mc	4/4/2005	4/29/2005
73	Start-up Web Site	4/11/2005	5/6/20
74	Deliver O&M Manual	4/11/2005	5/6/2005
75	Conduct Operator Training	4/11/2005	5/6/2005
76	***Milestone # 20 Ice Rink - Commissioning and Operator Training (Acceptance)***	4/22/2005	4/22/2005
77	***Milestone # 10 MSC 2, 3, 4, 5 & 8 - Commissioning and Operator Training (Acceptance)***	5/6/2005	5/6/2005



OAKLAND CITY COUNCIL

RESOLUTION NO._____C.M.S.

INTRODUCED BY COUNCILMEMBER_____

Requires the two-thirds vote of the Council

RESOLUTION AUTHORIZING THE CITY ADMINISTRATOR TO IMPLEMENT A ONE MEGAWATT SOLAR POWER AND ENERGY EFFICIENCY PROJECT BY APPROPRIATING AND ALLOCATING FUNDS IN THE TOTAL AMOUNT OF $7,759,500; AND ENTERING INTO AN AGREEMENT WITH POWERLIGHT CORP. IN AN AMOUNT NOT TO EXCEED $7,214,338.

Whereas, Mayor Brown and other Oakland leaders are encouraging development of solar power as part of Oakland's evolution toward sustainable living; and the California legislature, the California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) are also supporting solar power development by funding major rebate programs that pay for up to 50% of project implementation costs, including the Pacific Gas and Electric (PG&E) Self-Generation Program; and

Whereas, this project is one of many in California and the world that will help reduce the cost of solar-powered electricity generation and create new jobs; and

Whereas, promoting solar power and energy efficiency are steps toward lowering electricity prices in the future for all members of the Oakland community, including residents and businesses, which creates an economic advantage for Oakland that can improve our standard of living; and

Whereas, this project will make progress in the City's efforts toward sustainability by encouraging the production of solar power products; and

Whereas, according to the International Council for Local Environmental Initiatives this project will result in estimated reductions of 477 Tons of CO_2, 1,233 Pounds of NO_X, 801 Pounds of SO_X, 793 Pounds of CO, 89 Pounds of VOCs, and 700 Pounds of PM_{10} per year; and

Whereas, three other resolutions, one for appropriating and allocating project financing, a second another for accepting and appropriating a rebate, and a third for Oakland Redevelopment Agency actions are being proposed simultaneously to facilitate implementation of the project described herein; and

Whereas, a fifth resolution, being proposed simultaneously, will accept and appropriate the City of Oakland's $3.5 million share of a settlement agreement between Williams Corporation and several plaintiffs, including the State of California and the City of Oakland; and

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Whereas, at the Mayor's direction, the Public Works Agency sought proposals from solar power companies for designing and constructing cost-effective solar-powered electricity generation systems on City of Oakland and Oakland Redevelopment Agency facilities at the Dimond Library, Main Library, Fire Station #1 and Fire Station #8, Municipal Service Center (MSC) Bldgs. 2, 3, 4, 5, 6 & 8, City Administration Buildings, Henry J. Kaiser Convention Center, and the Oakland Ice Center (OIC); and

Whereas, none of the proposals achieved compliance with the Local/ Small Local Business Enterprise Program goals due to the confirmed lack of presence by solar power manufacturing companies in Oakland; and

Whereas, City staff negotiated with PowerLight Corporation to create a turnkey agreement to acquire 998.9 Kilowatts (kW) of electrical power production on the rooftops of the MSC and OIC, along with cost-effective energy efficiency improvements at the OIC for a price that shall not exceed $7,074,338; and

Whereas, a total of $7,759,500 is expected to cover all costs of implementation including project development, project management & oversight, contract compliance and employment services, staff costs for financing, loan-related fees and expenses, construction, financing interest during construction; and

Whereas, over a 25-year period, the solar power system and energy efficiency improvements will yield an estimated net economic benefit of $261,968 in today's dollars (based upon a 4.54% loan interest rate, the solar panel manufacturer's 25-year warranty, including contingency, staff costs, estimated maintenance costs and projected utility rates derived from state and federal forecast); and

Whereas, the agreement with PowerLight Corporation has the following main components:

1. Turnkey design and construction for 998.9 kW of solar power at the MSC and the OIC, and
2. The City will apply for and accept the PG&E rebate. PowerLight is responsible in its agreement with the City for meeting all of the rebate requirements in their control, and
3. Performance is guaranteed for the solar power output for 5 years, measured according to the International Performance Measurement and Verification Protocol, and
4. Turnkey design and construction of 232,000 annual kWh of energy efficiency improvements at the OIC, and
5. Roof condition assessment, by a licensed roofing contractor, before contract execution, and
6. Solar panels are warranted for at least 80% of their initial rated output for 25 years; and

Whereas, future capital maintenance costs are included in the project feasibility analysis and will be brought before the Council in the proposed FY 2005-07 budget; and

Whereas, combining design and construction into a single agreement for a project that has a clearly definable scope and presents the prospective contractors with reasonable opportunities to observe existing conditions (as are the case on this project) holds the single contractor responsible for delivering the expected results and reduces the City's risk of missed expectations and cost overruns; and

Whereas, the City lacks the equipment and qualified personnel to perform the necessary work; and

Whereas, the City Council finds and determines that the performance of this contract is in the public interest because of economy; and

Whereas, the City Council finds that services under this contract will be temporary; and

Whereas, the City Council finds and determines that the performance of this contract shall not result in the loss of employment or salary by any person having permanent status in the competitive service; and

Whereas, it is in the best interest of the City to waive formal bidding requirements in order to reduce the City's risk by using a request for proposals that facilitates a single design/build agreement; now therefore, be it

Resolved: That pursuant to O.M.C., Title 2, Section 2.04.050 I (5), the City Council finds and determines that it is in the best interest of the City to waive formal bid requirements; and be it

Further Resolved: That the City Council hereby authorizes the City Administrator, or her designee, to award a contract to PowerLight Corporation to implement a one megawatt solar power and energy efficiency project in an amount not to exceed $7,074,388; and be it

Further Resolved: That the City Administrator, or her designee, is hereby authorized to approve any subsequent amendments to or extensions of the PowerLight Corporation agreement including amendments or change orders in a total amount not to exceed $140,000 to pay for unforeseen expenses or opportunities associated with the project that become the City's responsibility, provided that such amendments or extensions shall be filed with the City Clerk's Office; and be it

Further Resolved: That the contract shall be reviewed and approved by the City Attorney and placed on file in the Office of the City Clerk; and be it

Further Resolved: That the approval of this Resolution requires a two-thirds vote of the Council members; and be it

Further Resolved: That the City Administrator is directed and authorized to implement solar power projects at the MSC and the OIC, and 37 Kilowatts (kW) of energy efficiency at the OIC by:

1. Entering into a $7,074,388 agreement with PowerLight to provide 998.9 kW of solar power system and 232,000 kW of energy efficiency measures through June 30, 2005, and
2. Borrowing $1,728,655 from the existing General Energy Efficiency Loan Project (C120740) State of California Other (2159) to a Solar Power project, and
3. Allocating and expending $1,475,500 from the Williams Settlement (Self Insurance Liability Fund – 1100, Project C256510), and
4. *Contributing solar power and energy efficiency improvements to* Redevelopment Agency for the OIC in return for a contribution by the Redevelopment Agency to pay the City an amount estimated at $126,065 per year, and not to exceed $130,000 per year, for 15 years to be used for the financing repayment associated with the OIC, and the OIC will pay for maintenance from their avoided energy costs.

IN COUNCIL, OAKLAND, CALIFORNIA,_____, 20_____

PASSED BY THE FOLLOWING VOTE:

AYES- BROOKS, BRUNNER, CHANG, NADEL, QUAN, REID, WAN AND PRESIDENT DE LA FUENTE

NOES-

ABSENT-

ABSTENTION-

ATTEST:_____
CEDA FLOYD
City Clerk and Clerk of the Council
of the City of Oakland, California

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FINANCE & MANAGEMENT CMTE.
JUL 13 2004

OAKLAND CITY COUNCIL

RESOLUTION NO._____ C.M.S.

INTRODUCED BY COUNCILMEMBER_____

RESOLUTION AUTHORIZING THE CITY ADMINISTRATOR TO SOLICIT, AND ENTER INTO AGREEMENTS FOR 15-YEAR FINANCING IN AN AMOUNT NOT TO EXCEED $3,138,858 AND TEMPORARY CONSTRUCTION FINANCING IN AN AMOUNT NOT TO EXCEED $1,000,000 FOR IMPLEMENTING A ONE MEGAWATT SOLAR POWER AND ENERGY EFFICIENCY PROJECT

Whereas, Mayor Brown and other Oakland leaders are encouraging development of solar power as part of Oakland's evolution toward sustainable living; and the California legislature, the California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) are also supporting solar power development by funding major rebate programs that pay for up to 50% of project implementation costs, including the Pacific Gas and Electric (PG&E) Self-Generation Program; and

Whereas, this project is one of many in California and the world that will help reduce the cost of solar-powered electricity generation and create new jobs; and

Whereas, promoting solar power now is a step toward lowering electricity prices in the future for all members of the Oakland community, including residents and businesses. Building solar power projects and improving energy efficiency throughout Oakland is one way to create an economic advantage for Oakland that can improve our standard of living; and

Whereas, over a 25-year period, the solar power system and energy efficiency improvements will yield an estimated net economic benefit of $261,986 in today's dollars (based upon a 4.54% loan interest rate, the solar panel manufacturer's 25-year warranty, including contingency, staff costs, estimated maintenance costs and projected utility rates derived from state and federal forecast); and

Whereas, part of the funding for this project is derived from a settlement agreement between Williams Corporation (Williams) and several plaintiffs, including the State of California and the City of Oakland, and the use of these funds is restricted to energy-related matters; and

Whereas, three other resolutions, one for appropriation, allocation, design and construction, a second for accepting and appropriating a rebate, and a third for Oakland Redevelopment Agency actions are being proposed simultaneously to facilitate implementation of the project described herein; and

Whereas, the Fiscal Services Agency will solicit 15-year financing proposals in the amount of up to $3,138,858 and will return to the Council for approval if the actual interest rate exceeds 5.0% per year; and

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FINANCE & MANAGEMENT CMTE.

Whereas, the Fiscal Services Agency will solicit 8-month financing proposals in the amount of up to $1,000,000, and will return to the Council for approval if the actual interest rate exceeds 5.0% per year; and

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Whereas, future capital maintenance costs are included in the project feasibility analysis and will be brought before the Council in the proposed FY 2005-07 budget; now, therefore, be it

Resolved: That the City Administrator is directed and authorized to implement solar power projects at the MSC and the OIC, and 37 Kilowatts (kW) of energy efficiency at the OIC by:

1. Soliciting, executing and appropriating a 15-year, $3,138,858 loan at up to 5.0% annual interest, and
2. Soliciting, executing and appropriating an 8-month, $1,000,000 loan at up to 5.0% annual interest.

IN COUNCIL, OAKLAND, CALIFORNIA,_____, 20_____

PASSED BY THE FOLLOWING VOTE:

AYES- BROOKS, BRUNNER, CHANG, NADEL, QUAN, REID, WAN AND PRESIDENT DE LA FUENTE

NOES-

ABSENT-

ABSTENTION-

ATTEST:_____
CEDA FLOYD
City Clerk and Clerk of the Council
of the City of Oakland, California

APPROVED AS TO FORM AND LEGALITY:

Agency Counsel

REDEVELOPMENT AGENCY OF THE CITY OF OAKLAND

RESOLUTION NO. _____ C.M.S.

A RESOLUTION AUTHORIZING THE AGENCY TO ACCEPT A 337 KILOWATT SOLAR POWER SYSTEM AND OTHER ENERGY EFFICIENCY IMPROVEMENTS FOR THE OAKLAND ICE CENTER AT 519 18TH STREET AND TO PROVIDE FOR ANNUAL PAYMENTS NOT TO EXCEED $130,000 TO THE CITY FOR FIFTEEN YEARS

WHEREAS, Mayor Brown and other Oakland leaders are encouraging development of solar power as part of Oakland's evolution toward sustainable living; and the California legislature, the California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) are also supporting solar power development by funding major rebate programs that pay for up to 50% of project implementation costs, including the Pacific Gas and Electric (PG&E) Self-Generation Program; and

WHEREAS, three City Council resolutions, one for appropriation, allocation of project financing, a second for appropriation, allocation, design and construction, and a third which is a complement to the resolution, are being proposed simultaneously to facilitate implementation of the project described herein; and

WHEREAS, at the Mayor's direction, the Public Works Agency sought proposals from solar power companies for designing and constructing cost-effective solar powered electricity generation systems on City facilities and the Oakland Ice Center ("OIC"); and

WHEREAS, City staff negotiated with PowerLight Corporation of Berkeley ("PowerLight") to create a turnkey agreement to acquire 337 Kilowatts ("kW") of electrical power production on the rooftop of the OIC along with cost-effective energy efficiency improvements at the OIC (together the "Plan"); and

WHEREAS, the City will obtain funding for the Plan and will enter into agreements to implement the Plan; and

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WHEREAS, as part of the funding for Plan the City will obtain a $3,139,000 loan with a fifteen year term of which approximately $1,350,165 will be attributable to the Plan, with annual payments to retire the Agency's share of an estimated $126,065, and;

WHEREAS, the Agency believes the Plan will produce savings to the OIC in excess of the cost to the Agency and the OIC cost savings can be paid to the Agency as necessary to reimburse the Agency for its annual payments to the City; and

WHEREAS, the Agency desires to support City in obtaining funding and implementing the Plan by reimbursing the City for the Agency's share ($1,350,165) of the City secured loan which would require annual subordinated debt payments not to exceed $130,000 for fifteen years, now, therefore, be it

RESOLVED: that the Agency hereby authorizes the Agency Administrator or her designee to accept a 337 kilowatt solar power system and other energy efficiency improvements from the City that will be installed at the OIC; and be it further

RESOLVED: that the Agency hereby authorizes the Agency Administrator or her designee to make annual subordinated debt payments to the City not to exceed $130,000 a year for fifteen years to help pay for the implementation of the Plan; and be it further

RESOLVED: that the Agency hereby appoints the Agency Administrator or her designee as agent of the Agency to conduct negotiations, execute documents, extend or modify the repayment terms, and take any other action with respect to the Plan consistent with this Resolution and its basic purpose.

IN AGENCY, OAKLAND, CALIFORNIA, _____, 2004

PASSED BY THE FOLLOWING VOTE:

AYES- BROOKS, BRUNNER, CHANG, NADEL, QUAN, REID, WAN, AND CHAIRPERSON DE LA FUENTE

NOES-

ABSENT-

ABSTENTION-

ATTEST: _____
CEDA FLOYD
Secretary of the Redevelopment Agency
of the City of Oakland

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FINANCE & MANAGEMENT CMTE
JUL 13 2004

OAKLAND CITY COUNCIL

RESOLUTION NO._____ C.M.S.

FILED
OFFICE OF THE CITY CLERK
OAKLAND
2004 JUL -1 PM 2:00

INTRODUCED BY COUNCILMEMBER_____

RESOLUTION AUTHORIZING THE CITY ADMINISTRATOR TO ACCEPT AND APPROPRIATE APPROXIMATELY $3,839,258 IN REBATES FROM PACIFIC GAS AND ELECTRIC COMPANY FOR IMPLEMENTING A ONE MEGAWATT SOLAR POWER AND ENERGY EFFICIENCY PROJECT

Whereas, Mayor Brown and other Oakland leaders are encouraging development of solar power as part of Oakland's evolution toward sustainable living; and the California legislature, the California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) are also supporting solar power development by funding major rebate programs that pay for up to 50% of project implementation costs, including the Pacific Gas and Electric (PG&E) Self-Generation Program; and

Whereas, promoting solar power now is a step toward lowering electricity prices in the future for all members of the Oakland community, including residents and businesses. Building solar power projects and improving energy efficiency throughout Oakland is one way to create an economic advantage for Oakland that can improve our standard of living; and

Whereas, this project will make progress in the City's efforts toward sustainability by encouraging also development of less expensive solar power products and methods for future projects throughout the country; and

Whereas, three other resolutions, one for appropriation, allocation of project financing, a second for appropriation, allocation, design and construction, and a third for Oakland Redevelopment Agency actions, are being proposed simultaneously to facilitate implementation of the project described herein; and

Whereas, at the Mayor's direction, the Public Works Agency sought proposals from solar power companies for designing and constructing cost-effective solar powered electricity generation systems on municipal facilities; and

Whereas, City staff negotiated with PowerLight to create a turnkey agreement to acquire 998.9 Kilowatts (kW) of electrical power production on the rooftops of the MSC and OIC, along with cost-effective energy efficiency improvements at the OIC; and

Whereas, the City of Oakland received conditional rebate reservations from PG&E's Self-Generation Incentive Program totaling 998.9 kW with an estimated value of $3,839,258 and a final amount that will equal 50% of the City's costs that are eligible for the program; and

Whereas, a total of $7,759,500 is expected to cover all costs of implementation including project development, project management & oversight, contract compliance and employment services, staff costs for financing, loan-related fees and expenses, construction, financing interest during construction; and

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Whereas, over a 25-year period, the solar power system and energy efficiency improvements will yield an estimated net economic benefit of $261,968 in today's dollars (based upon a 4.54% loan interest rate, the solar panel manufacturer's 25-year warranty, including contingency, staff costs, estimated maintenance costs and projected utility rates derived from state and federal forecast; now, therefore, be it

Resolved: That the City Administrator is directed and authorized to implement solar power projects at the MSC and the OIC, and 37 Kilowatts (kW) of energy efficiency at the OIC by accepting and appropriating up to $3,839,258 in rebates from PG&E as follows:

1. $1,030,267 to pay off the construction-financing loan, and
2. $1,728,655 to fully reimburse the General Energy Efficiency Loan Project. These funds will subsequently be available for energy efficiency projects financed by loans from the California Energy Commission, and
3. $662,639 from the Williams Settlement (Self Insurance Liability Fund – 1100, Project C256510), and
4. $416,488 to cover staff time and cost of project development.

IN COUNCIL, OAKLAND, CALIFORNIA,_____, 20____

PASSED BY THE FOLLOWING VOTE:

AYES- BROOKS, BRUNNER, CHANG, NADEL, QUAN, REID, WAN AND PRESIDENT DE LA FUENTE

NOES-

ABSENT-

ABSTENTION-

ATTEST:_____
CEDA FLOYD
City Clerk and Clerk of the Council
of the City of Oakland, California

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FINANCE & MANAGEMENT CMTE.

JUL 13 2004