

City of Brisbane

Agenda Report

TO: Honorable Mayor and City Council

FROM: Director of Public Works/City Engineer via City Manager

SUBJECT: LED Street Light Replacement Project

DATE: January 19, 2010

City Council Goals:

To develop plans and pursue opportunities to protect natural resources. (#8)

Purpose:

To obtain Council's approval for staff to submit documents and execute agreements for a low-cost loan to retrofit streetlights with LED lamps; this action is consistent with the community's value of being environmentally progressive.

Recommendation:

1. Approve Resolution No. 2010-07, "Authorizing Submittal of an Application to the California Energy Commissions for a 1% Low Interest Energy Efficiency Loan to Implement a LED Street Light Replacement Project."
2. Authorize the Director of Public Works/City Engineer to enter into an agreement with PG&E to conduct a LED street light replacement project, contingent on receiving adequate funding.

Background:

The City has approximately 372 "cobra head" fixtures that are eligible for Light Emitting Diode (LED) replacement. All existing lamps are High Pressure Sodium (HPS) street lights, with the exception of 6 that are Mercury Vapor (MV). Per PG&E, street lights represent one of the most significant municipal energy expenses, and the largest amount of energy consumption; street lights can account for as much as one third of all municipal energy costs.

PG&E has developed a turnkey street light replacement program to replace municipal street lights with more energy efficient LED lights. The turnkey program provides technical assistance, project management and installation services, proper disposal and recycling of the HPS and MV lights, as well as a 1-year replacement guarantee, 5-year warranty, GIS data, and

administration of all rebates/service rate changes. To date, PG&E staff has provided a significant amount of technical assistance in analyzing the City's existing street lighting, and has provided recommendations on how to achieve the highest energy savings with installation of LED lights.

A preliminary proposal developed by PG&E for the City of Albany is included for reference. (see Attachment 5) Unfortunately, as city staff has also discovered with its receipt of federal economic stimulus funds for roadway rehabilitation, the scope and pace of the American Recovery and Rehabilitation Act has resulted in a landscape mired by a seemingly never-ending addition of federal and state reporting requirements. Due to the recent addition of requirements related to the disbursement of California Energy Commission-controlled funds for this proposal, PG&E is not able to provide a complete proposal and agreement at this time. A draft agreement has been reviewed by the City Attorney; the final agreement will be subject to his review and approval.

A CEQA notice of exemption has been posted for this project.

Discussion:

One alternative to immediately engaging in a full-scale replacement of the city's streetlights would be to conduct a test program of streetlights approved by PG&E, and potentially include other manufacturers. Staff discarded this alternative because the pool of available funds for the 1% loan is being consumed rapidly; the time required for a test period would most likely result in no low-cost loan money being available for Brisbane. The city could not reasonably afford this conversion program without the currently offered rebates and 1% loan. Additionally, PG&E is only willing to provide turnkey services for LED lights they have approved. Any costs savings the city might realize by purchasing lights from non-PG&E approved manufacturers would be offset by the cost of managing and overseeing the installation.

The results of PG&E's test program and approval of specific manufacturers allow the utility company to state that the same lighting level currently provided will be maintained, and light quality will be improved with the installation of LEDs. The downside of not conducting a test program is that the public will not have an opportunity to familiarize themselves with the new lighting qualities, and while few will oppose energy conservation, there may be a small minority that will perceive the change as reducing public safety.

Fiscal Impact:

According to PG&E estimates, the total project cost is \$230,639. This total cost will be reduced \$30,250 by PG&E rebates¹, and reduced \$11,500 by EECBG funds².

Project funding will generally be as follows:

¹ See Attachment 2 for PG&E project costs estimate and rebate amount.

² See Attachment 3 for information on the city's acceptance of Energy Efficiency Conservation Block Grant funds.

Total Estimated Costs: \$230,639
PG&E Rebate: <\$30,350>
EECBG Funds: <\$11,500>

CEC 1% Loan Amount: \$189,000

After project completion, PG&E estimates the City will realize a cost savings of approximately \$14,610 within the first year³. The general terms of the CEC loan are that payments will be made bi-annually, for a term of up to 15-years, in an amount up to one half of the estimated savings. Attachment 4 is a draft amortization schedule that shows the city's payments will be \$14,200 per year (\$7,100 semi-annually).

The city is presently on a PG&E rate schedule (LS-2C) that includes payment for electricity and PG&E's maintenance of the cobra head lamps. There is no "electricity plus maintenance" rate established for the LED lamps. However, while the city will eventually have to assume maintenance for the LED lights, we will also see an additional annual savings of approximately \$10,900 due to the rate change to LS-2A. Considering that we will have a 1-year installation warranty from PG&E and a 5-year manufacturer's warranty on the LED lamps (which have reported replacement cycles of every 5 to 15-20 years), staff estimates that the "banking" of \$11,000 per year will provide adequate revenue for ongoing maintenance and replacement of the LEDs.

Measure of Success

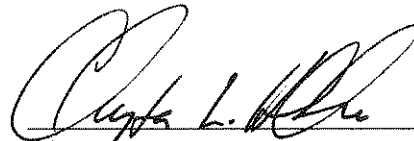
The complete retrofit of 372 city streetlights with LED technology lamps.

Attachments:

1. Resolution No. 2010-07
2. Budgetary Price Estimate - PG&E LED Street Light Turnkey Replacement Service
3. 1/10/10 Staff Report on Energy Efficiency Conservation Block Grant funds
4. California Energy Commission 1% loan DRAFT amortization schedule
5. PG&E SAMPLE Preliminary Proposal



Director of Public Works/City Engineer



City Manager

³ See Attachment 2 and/or Exhibit A to Resolution No. 2010-07 (Attachment 1).

RESOLUTION NO. 2010-07

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BRISBANE AUTHORIZING SUBMITTAL OF AN APPLICATION TO THE CALIFORNIA ENERGY COMMISSION FOR A 1% LOW INTEREST ENERGY EFFICIENCY LOAN TO IMPLEMENT A LED STREET LIGHT REPLACEMENT PROJECT

WHEREAS, the California Energy Commission provides loans to schools, hospitals, local governments, special districts, and public care institutions to finance energy efficiency improvements,

NOW THEREFORE, BE IT RESOLVED by the City Council of the City of Brisbane as follows:

1. The Director of Public Works/City Engineer is authorized to apply for an energy efficiency loan from the California Energy Commission to implement energy efficiency measures.
2. In compliance with CEQA, the City Council finds that the approval of the energy efficiency project described in Exhibit A is a "project" under CEQA that is exempt under Section 15303(e), because the project consists of replacing/retrofitting existing High Pressure Sodium and Mercury Vapor street lights with LED lights, considered as conversion of accessory (appurtenant) structures in the public right of way and are a minor repair or alteration of existing structures or facilities, not expanding existing uses.
3. If recommended for funding by the California Energy Commission, the City Council authorizes the Director of Public Works/City Engineer to accept a loan up to \$189,934.06 on behalf of the City.
4. The amount of the loan will be paid in full, plus interest, under the terms and conditions of the Loan Agreement, Promissory Note and Tax Certificate of the California Energy Commission.
5. The Director of Public Works/City Engineer is hereby authorized and empowered to execute in the name of the City of Brisbane all necessary documents to implement and carry out the purpose of this resolution, and to undertake all actions

necessary to undertake and complete the energy efficiency projects.

W. Clarke Conway, Mayor

I hereby certify that the foregoing Resolution No. 2010-07 was duly and regularly adopted at the regular meeting of the Brisbane City Council on January 19, 2010 by the following vote:

AYES:

NOES:

ABSTAIN:

ABSENT:

Sheri Marie Spediacci, City Clerk

EXHIBIT A

City of Brisbane Energy Efficiency Street Light Replacement – Project Description

Removal and retrofitting of up to 372 High Pressure Sodium (HPS) and Mercury Vapor (MV) street light heads & ballasts with Light Emitting Diode (LED) lights on city-owned lights located in the public right-of-way. The project also includes proper disposal/recycling of replaced lights. Below is a table of existing and proposed lights and their relative energy costs per month:

Existing Light/Assumed Voltage	Quantity	Monthly Energy Used Per Fixture (kWh)	Monthly Facility Charge Per Fixture	Monthly Energy \$ Per Fixture	Total Monthly Cost \$ Per Fixture	Total Monthly Cost (\$)
70 Watt HPS @ 120 Volts	161	29	\$0.187	\$3.551	\$3.738	\$601.82
100 Watt HPS @ 120 Volts	14	41	\$0.187	\$5.020	\$5.207	\$72.90
150 Watt HPS @ 120 Volts	142	60	\$0.187	\$7.347	\$7.534	\$1,069.83
100 Watt HPS @ 240 Volts	0	34	\$0.187	\$5.755	\$5.942	\$0.00
200 Watt HPS @ 240 Volts	26	81	\$0.187	\$9.918	\$10.105	\$262.73
250 Watt HPS @ 240 Volts	4	100	\$0.187	\$12.245	\$12.432	\$49.73
150 Watt HPS @ 240 Volts	19	100	\$0.187	\$8.449	\$8.636	\$164.08
400 Watt Merc Vapor	6	152	\$0.187	\$18.612	\$18.799	\$112.79
TOTALS	372					\$2,333.88

Proposed LED Replacement	Quantity	Monthly Energy Used Per Fixture (kWh)	Monthly Facility Charge Per Fixture	Monthly Energy \$ Per Fixture	Total Monthly Cost \$ Per Fixture	Total Monthly Cost (\$)
20 LED GenC @ 37 Watts	161	12.8	\$0.187	\$1.567	\$1.754	\$282.39
30 LED GenC @ 54 Watts	14	17.9	\$0.187	\$2.192	\$2.379	\$33.31
80 LED GenC @ 139 Watts	10	47.0	\$0.187	\$5.755	\$5.942	\$59.42
90 LED Gen C @ 163 Watts		55.5	\$0.187	\$6.796	\$6.983	\$0.00
50 LED GenC @ 90 Watts	161	29.9	\$0.187	\$3.661	\$3.848	\$619.53
60 LED GenC @ 106 Watts	26	36.7	\$0.187	\$4.494	\$4.681	\$121.71
90 LED Gen C @ 163 Watts		55.5	\$0.187	\$6.796	\$6.983	\$0.00
120 LED GenC @ 216 Watts		36.7	\$0.187	\$9.100	\$9.287	\$0.00
	372					\$1,116.35

The estimated annual energy savings if all lights are retrofitted is:
 \$14, 610.36 (e.g., [\$2,333.88 - \$1,116.35] x 12)

PG&E LED Street Light Turnkey Replacement Service

non-binding price estimate to be used for budgetary purposes only

City of
Brisbane
date of this estimate: 18-Dec-2009

Number of Lights to be Replaced	Voltage	Type	Wattage	Rate	Suggested Replacement LED
161	120	HPS	70	LS-2	20 LED
14	120	HPS	100	LS-2	30 LED
142	120	HPS	150	LS-2	50 LED
0	240	HPS	70	LS-2	20 LED
0	240	HPS	100	LS-2	30 LED
19	240	HPS	150	LS-2	50 LED
26	240	HPS	200	LS-2	60 LED
4	240	HPS	250	LS-2	80 LED
6	Merc Vapor	S-V	400	LS-2	80 LED
Number of lights converted to LS-2 A		363			
372					

Total Project Price*:
Total PG&E Rebates:
Net Estimated Price:

\$230,639
\$30,250
\$200,389

Total Equipment/Material Cost	Total Non-equipment Cost
\$113,417	\$86,972
Installation Cost Percentage	43%

*Notes and Assumptions:

Price includes purchase of requested street lights, installation and field verification of installed lights, disposal service, rate change and rebate application processing.

No permitting costs included in total project price.

Includes one year warranty on labor and 5 year manufacturer warranty.

Prices may vary depending upon LED light model and make selected.

Prices subject to change without notice*

Project price assumes all lights to be replaced will be cobra head fixtures and will not include post top, shoe box, tear drop, or decorative fixtures

Project price assumes all street lights to be replaced are currently in operating condition.

Project price assumes no restrictions on installations will be made (e.g.--heavy traffic area, special hours for installation, etc.)

Project price assumes all street lights to be replaced are at an operating voltage between 120-240 volts AC.

Cities Low Pressure Sodium lights left off bid due to prior energy efficiency

Payback period (years): 10
Energy cost savings in first year*: \$14,610
Energy savings (kWh/year): 170,714
CO2 reduction (kilograms/year): 89,454
Avoided maintenance expenses in first year:** \$2,604
Annual Savings Related to moving from LS-2C to LS-2A \$10,894.36

Notes:

These calculations are provided by the Clinton Climate Initiative who can discuss alternative financing options with you.

Their calculations are based on an assumptions model — they are not to be taken as final estimates

Please contact Robert Koenig at rkoenig@clintonfoundation.org or by cell: (617)-331-4030 for further information.

*Future year savings will grow with the expected increase in electricity and labor costs.

**Avoided maintenance expenses are compared to maintaining HPSV lights.

Assumptions:

- » 4100 operating hours»
- » 4% annual increase in electricity rate
- » \$0.122 \$/kWh electricity cost
- » 0.524 kg/kWh emission factor
- » 24.4-year life of LED fixture
- » 4.9-year life of HPSV lamp
- » \$26 per year maintenance cost for HPSV
- » \$19 per year average maintenance cost for LED

A# 2

City of Brisbane

Agenda Report

TO: Honorable Mayor and City Council

FROM: Caroline Cheng via Clay Holstine, City Manager

DATE: Meeting of January 10, 2010

SUBJECT: Consider adoption of Resolution No. 2010-05 authorizing the submittal of an application to the California Energy Commission (CEC) for Energy Efficiency and Conservation Block Grant (EECBG) funds to finance the City's LED Street Light Replacement Project.

PURPOSE: To fulfill the requirements of the CEC's application necessary to receive our allotted formula block grant in the amount of \$25,000.

RECOMMENDATION: Adopt Resolution No. 2010-05

BACKGROUND:

Funding for this program is provided from the American Recovery and Reinvestment Act (ARRA). The California Energy Commission is the agency responsible for administering the State's share of EECBG funding within California. The Energy Commission plans to allocate up to \$35.5 million of EECBG funding to eligible small cities and counties to install cost-effective energy efficiency retrofits within their jurisdictions. The City will use the \$25,000 in EECBG funding for retrofitting HPSV street lamps at the Marina Shared Use Parking lot and street lights in town to LED street lights.

FISCAL IMPACT/FINANCING ISSUES:

Going from HPSV to LED street lights will save the City nearly \$15,000 in the first year, with future savings expected to grow due to the expected increase in electricity and labor costs.

MEASURE OF SUCCESS:

That the proposed street lights would be retrofit by March 2012, the CEC's deadline for projects receiving funding to be completed.

Administrative Management Analyst

City Manager

ATTACHMENTS: Resolution 2010-05

RESOLUTION NO. 2010-05

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BRISBANE AUTHORIZING THE DIRECTOR OF PUBLIC WORKS/CITY ENGINEER TO SUBMIT AN APPLICATION TO THE CALIFORNIA ENERGY COMMISSION FOR ENERGY EFFICIENCY AND CONSERVATION BLOCK GRANT (EECBG) FUNDS TO FINANCE THE CITY'S LED STREET LIGHT REPLACEMENT PROJECT AND TO EXECUTE ALL DOCUMENTS AS MAY BE REQUIRED FOR ACCEPTANCE OF SUCH GRANT

WHEREAS, the City of Brisbane recognizes that it is in the interest of the regional, state, and national economy to stimulate the economy; create and retain jobs; reduce fossil fuel emissions; and reduce total energy usage and improve energy efficiency within our jurisdiction: and

WHEREAS, the City of Brisbane is eligible for funding under Energy Efficiency And Conservation Block Grant ("EECBG") Program administered by the California Energy Commission ("CEC"); and

WHEREAS, the City of Brisbane is proposing to implement an LED Street Light Replacement Project that would qualify for EECBG funds from the CEC; and

WHEREAS, it is necessary for the City Council to authorize the submittal of an application to the CEC for EECBG funds and acceptance of such funds as may be granted,

NOW, THEREFORE, BE IT RESOLVED, by the City Council of the City of Brisbane as follows:

1. The City Council finds and determines that the LED Street Light Replacement Project is exempt from CEQA pursuant to Section 15303(e) of the CEQA Guidelines because the project consists of replacing/retrofitting existing High Pressure Sodium and Mercury Vapor street lights with LED street lights, considered as conversion of accessory (appurtenant) structures in the public right of way and are a minor repair or alteration of existing structures or facilities, not expanding existing uses.

2. The Director of Public Works/City Engineer is hereby authorized and directed to prepare, execute, and submit on behalf of the City an application to the California Energy Commission for EECBG funds, to be applied toward the cost of the City's LED Street Light Replacement Project, including submittal of all plans, specifications, cost estimates, and other documents as may be required by CEC in connection with such application.

3. The Director of Public Works/City Engineer is further authorized and directed to execute, on behalf of the City of Brisbane, any and all contracts, agreements, certifications, and other documents required by the CEC for acceptance and disbursement of grant funds in the amount of \$25,000, or such other amount as may be awarded by the CEC, and to take such other actions as may be necessary or appropriate for the performance and completion of the City's LED Street Light Replacement Project.

W. Clarke Conway, Mayor

I hereby certify that the foregoing Resolution No. 2010-05 was duly and regularly adopted at a special meeting of the Brisbane City Council on January 10, 2010 by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

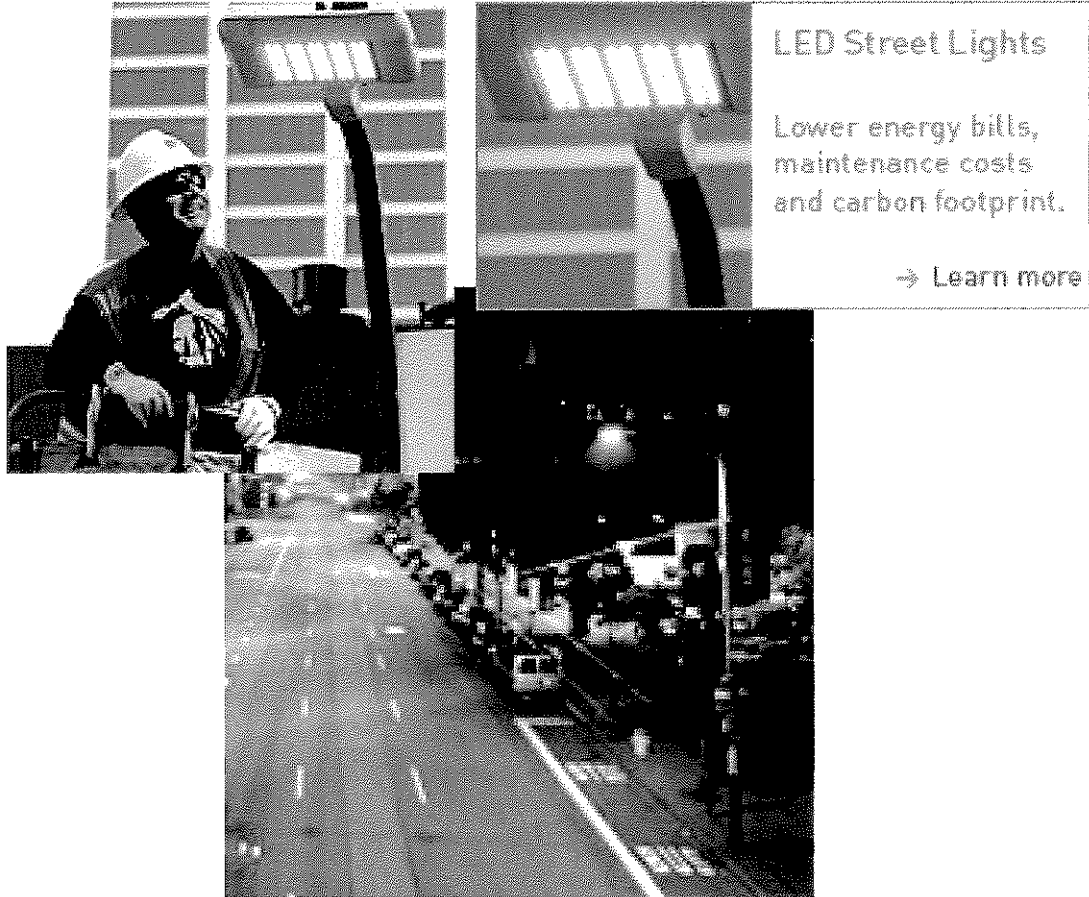
Sheri Marie Spediacci, City Clerk

DRAFT Amortization Schedule

CITY OF BRISBANE

Assumed # of Days per Year: 365 Interest Rate: 1.00% Normal Repayment Amount: \$ 7,100.00 estimate energy savings payment \$ 7,100.00 7305 14,610

Action	Date	# of Days	Principal Disbursement or Repayment	Interest Repayment	Accrued Interest	Principal Balance	Interest Balance	total payment	payment
Disburse	12/15/2010	0	\$ 189,000.00	\$ -	\$ -	\$ 189,000.00	\$ -	\$ -	\$ -
Repayment	12/22/2011	372	\$ (5,173.78)	\$ (1,926.22)	\$ 1,926.22	\$ 183,826.22	\$ -	\$ -	\$ -
Repayment	6/22/2012	183	\$ (6,178.41)	\$ (921.59)	\$ 921.59	\$ 177,647.81	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	12/22/2012	183	\$ (6,209.34)	\$ (890.66)	\$ 890.66	\$ 171,438.47	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	6/22/2013	182	\$ (6,245.15)	\$ (854.85)	\$ 854.85	\$ 165,193.32	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	12/22/2013	183	\$ (6,271.74)	\$ (828.26)	\$ 828.26	\$ 158,921.58	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	6/22/2014	182	\$ (6,307.57)	\$ (792.43)	\$ 792.43	\$ 152,614.01	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	12/22/2014	183	\$ (6,334.84)	\$ (765.16)	\$ 765.16	\$ 146,279.17	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	6/22/2015	182	\$ (6,370.61)	\$ (729.39)	\$ 729.39	\$ 139,908.56	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	12/22/2015	183	\$ (6,398.54)	\$ (701.46)	\$ 701.46	\$ 133,510.02	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	6/22/2016	183	\$ (6,430.62)	\$ (669.38)	\$ 669.38	\$ 127,079.40	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	12/22/2016	183	\$ (6,462.86)	\$ (637.14)	\$ 637.14	\$ 120,616.54	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	6/22/2017	182	\$ (6,498.57)	\$ (601.43)	\$ 601.43	\$ 114,117.97	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	12/22/2017	183	\$ (6,527.85)	\$ (572.15)	\$ 572.15	\$ 107,590.12	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	6/22/2018	182	\$ (6,563.52)	\$ (536.48)	\$ 536.48	\$ 101,026.60	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	12/22/2018	183	\$ (6,593.48)	\$ (506.52)	\$ 506.52	\$ 94,433.12	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	6/22/2019	182	\$ (6,629.13)	\$ (470.87)	\$ 470.87	\$ 87,803.99	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	12/22/2019	183	\$ (6,659.78)	\$ (440.22)	\$ 440.22	\$ 81,144.21	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	6/22/2020	183	\$ (6,693.17)	\$ (406.83)	\$ 406.83	\$ 74,451.04	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	12/22/2020	183	\$ (6,726.72)	\$ (373.28)	\$ 373.28	\$ 67,724.32	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	6/22/2021	182	\$ (6,762.31)	\$ (337.69)	\$ 337.69	\$ 60,962.01	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	12/22/2021	183	\$ (6,794.35)	\$ (305.65)	\$ 305.65	\$ 54,167.66	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	6/22/2022	182	\$ (6,829.90)	\$ (270.10)	\$ 270.10	\$ 47,337.76	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	12/22/2022	183	\$ (6,862.66)	\$ (237.34)	\$ 237.34	\$ 40,475.10	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	6/22/2023	182	\$ (6,898.18)	\$ (201.82)	\$ 201.82	\$ 33,576.92	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	12/22/2023	183	\$ (6,931.66)	\$ (168.34)	\$ 168.34	\$ 26,645.26	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	6/22/2024	183	\$ (6,966.41)	\$ (133.59)	\$ 133.59	\$ 19,678.85	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	12/22/2024	183	\$ (7,001.34)	\$ (98.66)	\$ 98.66	\$ 12,677.51	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	6/22/2025	182	\$ (7,036.79)	\$ (63.21)	\$ 63.21	\$ 5,640.72	\$ -	\$ (7,100.00)	\$ (7,100.00)
Repayment	12/22/2025	183	\$ (5,640.72)	\$ (28.28)	\$ 28.28	\$ -	\$ -	\$ (5,669.00)	\$ (5,669.00)



Preliminary Proposal
LED Street Light Turnkey Replacement Service

Prepared for:

City of Albany, California
October 26, 2009

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October 26, 2009

Ms. Nicole Almaguer
Environmental Specialist
CITY OF ALBANY
979 San Pablo Avenue
Albany, CA 94706

RE: PG&E Street Light Turnkey Replacement Service Proposal

Ms. Almaguer:

PG&E is pleased to present the following proposal to the City of Albany for the replacement of existing city-owned street lights with new clean, bright and energy efficient LED lighting technology. Thank you for the time the City has invested to date assisting in the development of this proposal.

We are excited about this project because helping Albany meet energy conservation, energy cost reduction and environmental stewardship goals is consistent with three themes that motivate and drive PG&E – customer satisfaction, energy conservation, and partnering with our communities to demonstrate environmental leadership in the energy industry.

The following proposal provides a description of the project scope, goals and costs. If you have any questions or needs for additional information, do not hesitate to contact me.

We look forward to working with you and the entire City of Albany team on a successful project.

Regards,
PACIFIC GAS AND ELECTRIC COMPANY

Brent Patera
Business Development Manager

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Executive Summary

The City of Albany (its citizens, staff and elected officials) is committed to the goals of fiscal responsibility and environmental stewardship. Financial challenges caused by the current economic situation, constraints on staffing levels, and increasing pressure to reduce environmental impact has put the city in the difficult position of improving environmental performance with limited financial resources.

In most cities, street lights represent one of the largest items of both energy cost and energy consumption, accounting for as much as a third of all municipal energy costs. The City of Albany is no different in this regard. The implementation of LED street light technology provides an excellent opportunity to reduce utility and maintenance costs, advance energy conservation and reduce Albany's overall carbon footprint – all in a simple, quick and cost-effective project. The anticipated energy cost savings from the replacement of the 640 cobrahead street lights considered in this proposal is approximately \$28,723.00 in the first year alone!

Pacific Gas and Electric Company, in support of our commitment to our customers and the environment, has developed a convenient turnkey program for the replacement of street lights with this new, clean, and efficient lighting technology that provides significant return on investment.

PG&E's program is intended to provide our customers with the most efficient and reliable process for street light replacement, delivered according to PG&E's high standards for project oversight, thoroughness, and safety. The value-added benefits for the City of Albany include the following:

- Simple, one-stop source for technical assistance, installation and support
- Consultation on light selection, including photometric validation
- Turnkey installation, including dedicated project management
- Access to PG&E's volume purchasing position
- All labeling of fixtures and poles required for new tariff and rebates
- All administrative work to register tariff change and secure rebates
- GIS Data for ALL of Albany's street lights
- One (1) Year Replacement Guarantee and Five (5) Year Product Warranty
- Cooperation in ARRA reporting

Scope of Work

PG&E proposes to replace approximately 640 street lights in the City of Albany. This represents all of the cobrahead streetlights owned by the City. Following consultation with City Staff, the decorative lights owned by the City have been excluded from the project scope. For reference, the decorative lights are primarily located on Solano and Masonic Avenues, with the balance distributed in various locations throughout the City. The subject lights are further detailed in the attached exhibits. A summary of the quantities, types and sizes are as follows:

Existing HPSV	Fixture	Rebates	Proposed New	QTY
70W	Cobrahead	\$50	20 LED, Gen C	393
100W	Cobrahead	\$75	30 LED, Gen C	7
150W	Cobrahead	\$100	50 LED, Gen C	45
200W	Cobrahead	\$100	60 LED, Gen C	93
250W	Cobrahead	\$150*	60 LED, Gen C	78
400W	Cobrahead	\$200*	90 LED, Gen C	24
Total				640

*Rebate amounts shown for fixtures over 200W are pending CPUC approval.

The selection of LED replacement lights for this proposal has been determined with consideration from the manufacturer's recommendations for typical applications, recommendations from photometric studies conducted by an independent third party and guidance from City staff.

Please see technical data for LED replacement lights included in the attached exhibits.

Note that the quantities, types and sizes of replacement lights specified in this proposal are provided based on the best available data from the City of Albany, PG&E records, and a physical inspection of the target areas. Although care has been taken to ensure the accuracy of the replacement inventory, errors may be found. Should adjustments need to be made to the quantity, type or size of the lights, PG&E will confer with the City and the project price will be adjusted to reflect the change, if needed.

PG&E expects to deliver the benefits of innovative lighting technology to the City of Albany within 90 -120 days from the date PG&E receives a formal notice to proceed.

Savings & Environmental Stewardship

The replacement of existing street lights with new efficient and high quality lighting technology offers significant benefits to the city and the environment. New lighting technology dramatically reduces the consumption of energy while providing high quality, optically-pleasing “white light.” In representative installations in PG&E’s service area, respondents to community surveys consistently express high levels of satisfaction – specifically noting a general sense of appropriate lighting levels, improved optical acuity, and feelings of increased safety as a result of the new lighting.



Reduced energy consumption also means less energy expense for the city and a reduction in the overall production of greenhouse gases (GHGs). Lighting replacement will reduce the demands on the city’s general fund while reducing its overall carbon footprint.

And, last but not least, new lighting technology significantly reduces the cost of operations and maintenance through increased lamp life. Because new lamps last on average three (3) to five (5) times longer than High Pressure Sodium Vapor (HPSV), replacement cycles are reduced from once every five (5) years today to an estimated once every fifteen (15) to twenty (20) years. Note, however, that the photo controller may require replacement, estimated on average, once every ten (10) years.

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Validation of expected savings and CO₂ reduction, including details and assumptions, are available from the Clinton Climate Initiative (CCI).

Rebates and Incentives

As part of our commitment to serve our communities and promote environmental stewardship, PG&E offers a variety of programs and services to assist customers in achieving their energy and environmental goals. Among the most successful of these programs are the incentives PG&E offers for energy efficiency.

PG&E currently offers a rebate program that can be accessed to support the replacement of legacy street lighting technologies, including High Pressure Sodium Vapor (HPSV), Low Pressure Sodium Vapor (LPSV), Mercury Vapor (MV) and Metal Halide (MH).

In summary, a “per fixture” rebate is paid for the replacement of HPSV street lights with LED fixtures from an approved list of vendors. All of the LED street lights proposed for this turnkey project are approved for this rebate program.

The pricing estimates provided below include all available rebates.

Funding Opportunities

Both the Federal Government and the State of California are actively involved in promoting and supporting the efforts of local governments to reduce the consumption of energy - its associated expense and its effects on the environment. There are currently two (2) funding opportunities available to the City of Albany for the proposed street light replacement project.

Calculated Block Grant: The first is the DoE/CEC Energy Efficiency and Conservation Block Grant (EECBG) program funded by the American Recovery and Reinvestment Act of 2009 (ARRA). This program allocates funds to local governments for the implementation of projects that measurably reduce the amount of energy consumed by a jurisdiction. This program names street light replacement among the projects that are “deemed” appropriate for the use of these funds.

Low Interest Financing: The second is the low interest financing program provided by the California Energy Commission (CEC) for local government, schools, colleges and universities to implement projects that reduce their annual cost of energy. The energy savings realized through efficiency and conservation measures fund the repayment of these loans. As with the grant program above, the CEC identifies street light replacement as a suggested use of these funds.

This proposal and the associated budgetary pricing estimates anticipate the use of the above funding opportunities for the completion of a successful project.

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Budgetary Pricing Estimate

It is our understanding that the City of Albany is planning to use approximately \$80,000 from their EECBG funds for this project, with the balance of the project cost coming from a low interest loan from the CEC. The summaries provided below reflect that assumption. Detailed estimates can be found in the attached exhibits.

LED Cobrahead Replacement	Pricing	Quantity
Estimated Total Project Price	\$389,102	640
Estimated Rebate Value	\$52,800	
Total Net Estimated Price	\$336,302	640

The following summaries account for the two (2) funding sources.

EECBG Funded Replacements	Pricing	Quantity
Estimated Price (171 x 70W HPSV)	\$88,935	171
Estimated Rebate Value	\$8,550	
Total Net Estimated Price	\$80,385	171

Low Interest Loan Replacements	Pricing	Quantity
Estimated Price (469 x various wattages)	\$300,167	469
Estimated Rebate Value	\$44,250	
Total Net Estimated Price **	\$255,917	469

**** Note:** Per CEC underwriting criteria, the replacement of 469 lights yields an annual energy cost savings of \$24,114 and a qualifying loan amount of approximately \$313,483 which will easily cover the cost of the replacement. (\$24,114 x 13).

PG&E has partnered with the Clinton Climate Initiative (CCI) who has provided the calculations for the payback period, energy savings, avoided maintenance, and CO₂ reduction. CCI can also work with you to further discuss additional financing options that may be available to you. Please contact Robert Koenig with the CCI at rkoenig@clintonfoundation.org.

New Street Light Rate (LS2)

To further support communities in their goals to reduce energy costs and improve environmental stewardship, PG&E developed and applied for a new tariff recognizing energy efficient street lighting technologies. The California Public Utility Commission (CPUC) has recently approved a new rate schedule (tariff) for

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LED streetlights. The replacement street lights proposed for this project qualify for the new tariff. The benefits of the new tariff are reflected in all cost estimates and calculations provided in this proposal.

Lighting Selection

As part of the Turnkey Replacement Program, PG&E has worked closely with city staff, the lighting manufacturer and company in-house technical resources to determine the appropriate lighting replacements for Albany's existing HPSV street lights. The design goals for the project are to achieve the energy savings, reduced operations & maintenance costs and improved light quality available from today's market-leading LED replacement technology while maintaining the lighting level currently provided by the existing fixtures.

For this project, we have selected a combination of LED Cobrahead replacement fixtures to be installed. All lighting replacements have been selected to achieve the above design goals.

Roadway Cobraheads: The target area specified for this project consists of standard roadway Cobrahead fixtures equipped with various sizes of HPSV lamps ranging from 70W to 400W. For this application, PG&E is proposing the replacement of the existing cobrahead fixtures with LED cobrahead fixtures sized to deliver the level of lighting currently provided by the existing HPSV lamps.

Installation and Material Management

PG&E will install the proposed lighting fixtures using union or union-friendly third-party licensed electrical contractors. All contractors will be qualified and approved through PG&E's sourcing organization to be properly bonded and insured. Contractors will be trained by PG&E and the lighting manufactures in the appropriate methods and procedures to ensure proper installation and performance of the replacement equipment. All work will be completed in a "workmanlike manner" and in accordance with industry best practices and all pertinent standards and regulations.

PG&E will source and manage all fixtures and miscellaneous materials required to complete installation of the replacement lighting. All materials will be staged and managed by PG&E from a secure storage facility either located on property provided by the City of Albany or at the nearest PG&E controlled facility. All materials will be the responsibility of PG&E until installed in their permanent locations.

Traffic Control and Permitting

During installation, PG&E will provide traffic control procedures appropriate for each work location according to the requirements set forth by the City.

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PG&E will obtain all permits required by the City. For the purposes of this proposal, it is assumed that no fees will be charged by the City.

Project Management, Inspection and Acceptance

A qualified PG&E project manager will be assigned to this project to ensure that it is completed on time and according to specification. The project manager will be the functional “single point of contact” between Albany and PG&E to simplify and control communication throughout the project. Prior to commencement of the project, the project manager will prepare a proposed project schedule for discussion, comment and approval. The project manager will schedule a pre-commencement “kick-off” meeting with Albany and the installation contractor to confirm procedures and will conduct periodic project review meetings as needed to ensure project quality, progress and customer satisfaction.

Qualified PG&E personnel will conduct periodic inspections during the project to ensure work quality and progress against the schedule. In the event the inspector encounters deficiencies in the work, Albany and the project manager will be notified so that corrections can be made in a timely manner. Upon completion of the work, PG&E will conduct a final inspection with Albany to confirm all work has been completed according to specifications. Any deficiencies will be noted in a punch list of work to be completed by PG&E before final acceptance by Albany.

Disposal & Recycling

Disposal of the universal waste material, including fixtures, lamps, ballasts, packaging, etc., will be handled by PG&E according to Environment Protection Agency requirements. The contractor will be trained to properly remove the existing fixtures and place them in designated disposal bins which will be supplied and housed by PG&E.

Rate Change, Rebate/Incentive Application and Labeling

PG&E has established rebates and pricing tariffs to incent the replacement of inefficient lighting technologies. As a condition of the rebates and tariff, certain actions must be taken by the customer (Albany) to qualify for the rebates and/or incentives and complete the transition to the new tariff rate.

As part of this proposal, PG&E will coordinate the required actions on behalf of Albany to ensure the timely receipt of all the benefits of the qualifying rebates, incentives and rate changes. Specifically:

- PG&E will process forms for all customer requested rebates and rate changes.

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- PG&E will coordinate the proper labeling of all the new fixtures required to qualify for the available rebates.
- PG&E's turnkey project manager will oversee the application processes to ensure that Albany receives the rebates and new pricing in a timely manner.

GIS Information

GIS data for street lights is currently available from PG&E for a fee. Following completion of the project, PG&E will provide any GIS data developed for the new fixtures at no cost.

Additionally, PG&E is currently undertaking the physical inventory of all the lights in our service area. As part of this turnkey offering, once an area is completed and the data is available, the GIS information collected during the inventory of Albany will be provided at no additional cost.

Replacement Guarantee and Product Warranty

The work completed under this turnkey program is covered by a one (1) year full replacement guarantee offered by PG&E and a five (5) year product warranty from the manufacturer, both commencing on the date of acceptance.

If a newly installed lamp or fixture fails within the first year of installation, PG&E will replace it at no cost to Albany. In the event of a failure, Albany will notify PG&E, and PG&E will manage the replacement including all labor and the coordination of the return/replacement process for the fixtures.

After the first year of installation, Albany will assume the responsibility for the replacement of any failures. During years two (2) through five (5) of installation, Albany will be the beneficiary of two manufacturer's warranties. If a light or photocell controller fails during this period, Albany will notify the manufacturer and manage the return/replacement process according to the manufacturer's standard warranty terms. Albany will be responsible for any and all labor required to remove, ship, receive and replace failed equipment.

At no time will PG&E, the contractor or the equipment manufacturer be responsible for "knock-downs", painting or any other maintenance of the poles or fixtures.

Project Reporting

PG&E will provide Albany with information to assist them with the reporting requirements for American Recovery and Reinvestment Act (ARRA) funding upon request.

Exhibits

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LED Street Light Replacement Turnkey Service Agreement

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PG&E LED Street Light Program Fact Sheet

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LED Street Light Replacement Turnkey Service Budget Estimate Worksheet

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Street Light Energy Savings Comparison

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Street Light Target List/Area

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LED Street Light Product Specifications

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Product Warranty Information

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