File No. 120433 Committee Item No. 3
Board Item No. 8

COMMITTEE/BOARD OF SUPERVISORS

AGENDA PACKET CONTENTS LIST

Committee: Budget and Finance Sub-Committee **Date** May 16, 2012

Board of Supervisors Meeting **Date** 5/22/12

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Completed by: Victor Young **Date** May 11, 2012
Completed by: Victor Young **Date** 5-16-12

An asterisked item represents the cover sheet to a document that exceeds 25 pages.
The complete document can be found in the file.

FILE NO. 120433 ORDINANCE NO.

[Accept and Expend Grant - Replacement of Refrigeration Equipment in Small Businesses - $403,000]

Ordinance authorizing the Department of the Environment to accept and expend a grant in the amount of $403,000 from the California Public Utilities Commission, through Pacific Gas and Electric Company, to study the impact that the replacement of old refrigeration equipment in San Francisco businesses would have on energy usage and peak power demand in the City, and amending Ordinance Number 146-11(Annual Salary Ordinance, FY2011-2012 and FY 2012-2013) to reflect the addition of one (1) Class 5640 Environmental Specialist grant funded position (.25 FTE) at the Department of the Environment.

Note: Additions are *single-underline italics Times New Roman*; deletions are ~~*strikethrough italics Times New Roman*~~. Board amendment additions are double underlined. Board amendment deletions are ~~strikethrough normal~~.

Be it ordained by the People of the City and County of San Francisco:

Section 1. Findings

The California Public Utilities Commission ("the CPUC") requires the Investor-Owned Utilities ("IOUs") to use ratepayer dollars to fund and administer a portfolio of programs that enhance system reliability and provide in-state benefits, including cost-effective energy efficiency.

Since 2003, the City, through the Department of the Environment, and the Pacific Gas and Electric Company ("PG&E"), the IOU serving the City, have entered into a series of contracts and contract modifications to conduct energy efficiency programs in the City using funds allocated for this purpose by the CPUC through PG&E. Under the current contract of $14,395,000, the Department of the Environment is operating the San Francisco Energy Watch ("SFEW") program, which since 2010, has provided technical services and $5,948,000

in incentives to upgrade over 1,600 business and multifamily buildings in San Francisco, reducing energy bills by $7,462,000 annually.

In 2011, under the direction of the CPUC, PG&E issued a special solicitation for local government "Innovator Pilot" programs. The Department of the Environment submitted a proposal, "Retirement Plan for Commercial Food Service Refrigeration" which was selected and awarded $403,000.

This grant will address the pervasive use of old, inefficient refrigeration units in restaurants and convenience stores in San Francisco. For most of these establishments, refrigeration represents the majority of their monthly electricity usage. Because refrigeration units operate 24 hours a day, they are subject to peak pricing rates. Often the equipment is leased or supplied free by a manufacturer, in which case the owner has no choice about the age or efficiency of the model. There is also a prevalence of older, used equipment continually being re-circulated in the marketplace.

The purpose of this pilot program is twofold. First, it is intended to document a representative sample of real-time data on the energy and greenhouse gas reduction impacts of replacing two specific types of refrigeration equipment used in the food service industry. This information will be analyzed to determine if current energy-savings estimates are accurate, and if an increase in existing rebate levels for replacing such equipment is warranted. The findings can also potentially be used in support of new codes and standards. Secondly, there will be a survey conducted on the number and types of refrigeration units typically found in restaurants and convenience stores in San Francisco to determine if they were acquired new, used, or provided free. The Department of the Environment will use this data in planning new approaches to help these small businesses reduce their energy bills.

This grant was awarded with the understanding that the Department of Environment will leverage the resources of its Energy Watch Program, which, together with similar prior energy efficiency programs, has provided services to restaurants and convenience stores in San Francisco for the past ten years. The Energy Watch database will be the primary source for identifying potential program participants, and Energy Watch staff will provide support in conjunction with their normal duties.

The results of the project findings and recommendations for action will be submitted to PG&E and the CPUC and will be distributed broadly, including to other local jurisdictions.

Section 2. Authorization to Accept and Expend Funds.

The Board of Supervisors hereby authorizes the Department of the Environment to accept and expend $403,000 from PG&E's Local Government Innovator Pilot funds, authorized by the California Public Utilities Commission, to support implementation of the "Retirement Plan for Commercial Food Service Refrigeration" pilot program in San Francisco.

The Department of the Environment is further authorized to furnish whatever additional information or assurances the funding agency may request in connection with this grant, and to execute any and all agreements necessary to carry out the purpose of the grant.

The grant budget includes provision for indirect cost of $52,349.

The term of the CPUC/PG&E refrigeration pilot grant is from April 30, 2012 through February 28, 2014

Section 3. Grant-funded Position; Amendment to FY 2011-2012 Annual Salary Ordinance.

The hereinafter designated sections and items of Ordinance No. 146-11 (Annual Salary Ordinance, FY 2011-2012 and FY 2012-2013) are hereby amended to ADD ONE (1) position in the Department of the Environment, and reads as follows:

Department: ENV-22

Program: CIP - ENERGY

Subfund: 2S-ENV-GNC

Index Code: 220253

Amendment:	Number of Positions:	Class and Item No.:	Compensation Schedule:
Add	.25 FTE	5640 Environmental Specialist	$ 2483 B $3018

APPROVED AS TO FORM:
DENNIS J. HERRERA, City Attorney

By: _____
Thomas Owen
Deputy City Attorney

APPROVED AS TO CLASSIFICATION
DEPARTMENT OF HUMAN RESOURCES

By: _____
Micki Callahan
Director
4/11/12

APPROVED: _____
Edwin Lee
Mayor

APPROVED: _____
Ben Rosenfield
Controller

RECOMMENDED:

Melanie Nutter, Director
Department of the Environment

FILE NO.120433

LEGISLATIVE DIGEST

[Accept and Expend Grant - Replacement of Refrigeration Equipment in Small Businesses - $403,000]

Ordinance authorizing the Department of the Environment to accept and expend a grant in the amount of $403,000 from the California Public Utilities Commission, through Pacific Gas and Electric Company, to study the impact that the replacement of old refrigeration equipment in San Francisco businesses would have on energy usage and peak power demand in the City, and amending Ordinance Number 146-11(Annual Salary Ordinance, FY2011-2012 and FY 2012-2013) to reflect the addition of one (1) Class 5640 Environmental Specialist grant funded position (.25 FTE) at the Department of the Environment.

Existing Law

Since 2003 the Department of the Environment has entered into a series of contracts with PG&E funded by the CPUC to conduct emergency efficiency programs with the objective of assisting and incentivizing private businesses and multifamily businesses to reduce energy consumption. Currently no City energy efficiency program targets old, inefficient refrigeration units in restaurants and convenience stores in San Francisco.

Amendments to Current Law

This ordinance would authorize the Department of the Environment to accept a CPUC funded $403,000 grant from PG&E to enable the City to document the energy and greenhouse impacts of replacing certain types of refrigeration equipment used in the food service industry. The grant would also enable the department of the environment to survey the number, condition, date of acquisition and types of refrigeration units in restaurants and stores. This amendment would also add a 0.25 FTE environmental specialist position to Department of Environment.

Background Information

The Department of the Environment has been working since 2003 under contracts between PG&E and the City funded by the CPUC and designed to reduce energy consumption and energy bills of private businesses and multifamily residences.

TO:	**Angela Calvillo, Clerk of the Board of Supervisors**
FROM:	**The Department of the Environment**
DATE:	**April 6, 2012**
SUBJECT:	**Accept and Expend Resolution for Private Grant**
GRANT TITLE:	**PG&E Refrigeration Replacement Pilot**

Attached please find the original and 4 copies of each of the following:

_X_ Proposed grant resolution; original signed by Department, Mayor, Controller

_X_ Grant information form, including disability checklist

_X_ Grant budget

_X_ Grant application

_X_ Grant award letter from funding agency

_ _ Other (Explain):

Special Timeline Requirements:

Departmental representative to receive a copy of the adopted resolution:

Name: Rachel Buerkle Phone:415-355-3704

Interoffice Mail Address:

Certified copy required Yes ☐ No X

(Note: certified copies have the seal of the City/County affixed and are occasionally required by funding agencies. In most cases ordinary copies without the seal are sufficient).

File Number: _____ 220253/ EVPGRF-12
(Provided by Clerk of Board of Supervisors)

Grant Resolution Information Form
(Effective July 2011)

Purpose: Accompanies proposed Board of Supervisors resolutions authorizing a Department to accept and expend grant funds.

The following describes the grant referred to in the accompanying resolution:

1. Grant Title: CPUC/PG&E Pilot on Energy Efficient Refrigeration Equipment

2. Department: Department of the Environment

3. Contact Person: Rachel Buerkle Telephone: 415-355-3704

4. Grant Approval Status (check one):

[X] Approved by funding agency [ ] Not yet approved

5. Amount of Grant Funding Approved or Applied for: $ 403.000

6a. Matching Funds Required: No
b. Source(s) of matching funds (if applicable):

7a. Grant Source Agency: California Public Utilities Commission

b. Grant Pass-Through Agency (if applicable): Pacific Gas and Electric Company

8. Proposed Grant Project Summary:
The grant will fund a study on the energy savings and climate benefits of replacing certain types of old, inefficient refrigeration equipment commonly found in food service establishments in San Francisco. The scope involves: a survey of all refrigeration equipment in at least 150 establishments; on-site monitoring of the real-time energy usage of specific older models at 40 of these sites; incentives for replacement with new equipment; and measuring actual energy savings after new units are installed. The data will be analyzed and distributed in a report to demonstrate whether higher incentives are justified for replacement of this inefficient equipment, and if new codes and standards should be considered.

9. Grant Project Schedule, as allowed in approval documents, or as proposed:

Start-Date: April 30, 2012 End-Date: February 28, 2014

10a. Amount budgeted for contractual services: $72,760
b. Will contractual services be put out to bid? Yes, using standard City processes.
c. If so, will contract services help to further the goals of the Department's Local Business Enterprise (LBE) requirements? Yes

d. Is this likely to be a one-time or ongoing request for contracting out? One-time

11a. Does the budget include indirect costs? [x] Yes [ ] No

b1. If yes, how much? $52,349

b2. How was the amount calculated? Amount allowed by funder.

c1. If no, why are indirect costs not included? NA
[ ] Not allowed by granting agency [ ] To maximize use of grant funds on direct services
[ ] Other (please explain):

c2. If no indirect costs are included, what would have been the indirect costs? N/A

12. Any other significant grant requirements or comments:

****Disability Access Checklist***(Department must forward a copy of all completed Grant Information Forms to the Mayor's Office of Disability)**

13. This Grant is intended for activities at (check all that apply):

[x] Existing Site(s) [X] Existing Structure(s) [x] Existing Program(s) or Service(s)
[ ] Rehabilitated Site(s) [ ] Rehabilitated Structure(s) [ ] New Program(s) or Service(s)
[ ] New Site(s) [ ] New Structure(s)

14. The Departmental ADA Coordinator or the Mayor's Office on Disability have reviewed the proposal and concluded that the project as proposed will be in compliance with the Americans with Disabilities Act and all other Federal, State and local disability rights laws and regulations and will allow the full inclusion of persons with disabilities. These requirements include, but are not limited to:

1. Having staff trained in how to provide reasonable modifications in policies, practices and procedures;
2. Having auxiliary aids and services available in a timely manner in order to ensure communication access;
3. Ensuring that any service areas and related facilities open to the public are architecturally accessible and have been inspected and approved by the DPW Access Compliance Officer or the Mayor's Office on Disability Compliance Officers.

If such access would be technically infeasible, this is described in the comments section below:

Comments:

Departmental ADA Coordinator or Mayor's Office of Disability Reviewer:

Claudia Molina, Departmental ADA Coordinator, Payroll Personnel Clerk

Date Reviewed: 4/6/12 (Signature Required)

Department Head or Designee Approval of Grant Information Form:

Melanie Nutter, Director, Department of the Environment

Date Reviewed: 4/6/12 (Signature Required)

Accept and Expend/ASO
PG&E Refrigeration Pilot Award to
SF Department of the Environment

Personnel	Tasks	Number of Staff	Salary	Benefits	TOTAL
Project Coordinator - Environmental Specialist 5640	Year 1= .08 FTE; year 2= 1 FTE; Year 3=.66 FTE Coordinate outreach and implementation, track program activities, support data analysis and reporting	1 FTE (new)	$ 144,599	$ 61,292	
Subtotal					$ 205,891
Professional Services		**Tasks**			
Administrative Support	Administrative assistance in processing program applications, paying incentives to participants, and tracking and reporting transactions.	Contractors will be selected using standard City contracting practices.	$ 12,000		
Technical Assistance	Industry coordination and specialized technical support at business sites and preparation of reports on findings from the project as required by the grant.	Contractors will be selected using standard City contracting practices.	$ 56,760		
Evaluation, Measurement and Verification (EM&V)	Evaluation of the program as required by the grant.	Contractors will be selected using standard City contracting practices.	$ 4,000		
Subtotal					$ 72,760
Incentive Dollars					
Incentives to offset cost of new equipment	Restaurants and grocery stores participating in the program will be offered incentives to replace old refrigeration equipment with new efficient models		72,000		
Subtotal					$ 72,000
Indirect Costs					
Overhead epenses			$ 52,349		
Subtotal					$ 52,349
TOTAL PROJECT COST					$ 403,000

Pacific Gas and Electric Company®

Mailing Address:
Mail Code N6G
Pacific Gas and Electric Company
P. O. Box 770000
San Francisco, CA 94177-0001

Overnight Mail:
Mail Code N6G
Pacific Gas and Electric Company
245 Market Street
San Francisco, CA 94105-1702

March 13, 2012

City and County of San Francisco
Department of Environment
Ann Kelly
11 Grove Street
San Francisco, CA 94102

RE: San Francisco Innovator Pilot Program: "Retirement Plan for Commercial Food Service Refrigeration"

Dear Ann:

As requested, this letter confirms that the San Francisco Department of Environment's (SFDoE) proposal, "Retirement Plan for Commercial Food Service Refrigeration", was selected through a competitive process as a participant in Pacific Gas and Electric Company's (PG&E) Innovator Pilot Program.

PG&E has reserved $403,000 of the Innovator Pilot program contract budget for the SFDoE project and anticipates successful negotiation and execution of the Innovator Pilot contract within the next several weeks. PG&E is currently authorized by the California Public Utilities Commission (CPUC) to implement the Innovator Pilot program through December 2012. In anticipation of CPUC approval to complete projects that were selected during the current energy efficiency program cycle, PG&E is proposing a contract term for the SFDoE project that will allow implementation to extend through December 2013 and final deliverables and invoices due by February 2014. This contract term date will be subject to final CPUC approval of continuation of the Innovator Pilot program during the 2013-2014 program cycle. Please contact me or Tonya Redfield if you have any questions.

Sincerely,

Lynne Galal

Lynne Galal
Manager, Green Communities and Innovator Pilots
Pacific Gas and Electric Company

PG&E'S INNOVATOR PILOT PROGRAM II
January, 2011

Proposal by
City and County of San Francisco
Department of the Environment (SFE)

Project: A Retirement Plan for Commercial Food Service Refrigeration

Budget: $ 403,000

INTRODUCTION

The City and County of San Francisco (CCSF), which is surrounded on three sides by water, is acutely aware of its vulnerability to sea level rise. San Francisco completed its initial Climate Action Plan (CAP) in 2003 and will be releasing an updated plan this year The City has established aggressive greenhouse gas (GHG) reduction goals: 20% below 1990 levels by 2012, 25% by 2017, 40% by 2025, and 80% by 2050.

The Department of the Environment (SFE) has been charged with developing and updating the CAP as well as preparing the City's municipal and community-wide GHG inventory. Department staff have been implementing energy efficiency programs—including the current partnership with PG&E--since 2001. At that time the department also began developing its CAP and undertaking initiatives on renewable energy and green building. For our energy future, San Francisco is looking for systems solutions to reduce its greenhouse gas emissions by achieving Zero Net Energy Homes (ZNEH) and Zero Net Energy Buildings (ZNEB)–goals that are aligned with, and achievements that contribute to, the goals of the Statewide Strategic Plan.

San Francisco is now well into its implementation stage of the CAP and is committed to pursuing all available avenues to reach its stated goals. One key target is commercial refrigeration. While delivering energy efficiency services to thousands of small businesses in the City over the past ten years, SFE has witnessed refrigeration as an area of lost opportunities, particularly in restaurants and convenience stores. For these establishments, which normally operate at a very low profit margin, refrigeration accounts for most of their electricity bill.

In the pilot project described here, SFE proposes to partner with the Food Service Technology Center (FSTC) to study some of the possibilities for transforming the market so that newer, more efficient equipment can become a more cost-effective option for these businesses. The project will collect real-time pre- and post-installation data at 40 sites in the City, work with local distributors who sell and lease equipment to obtain statistical data, conduct surveys of 150 businesses to document their current equipment profile, determine if a local code should be

introduced, work with PG&E throughout the process to determine if findings warrant new work papers, and possibly a mid- or upstream approach. Ultimately this pilot hopes to result in the permanent retirement and disposal of inefficient commercial refrigeration from the marketplace.

DESCRIPTION

1. How the project supports the Menu of Local Government Strategies for the Strategic Plan (Strategic Plan Menu)

The Retirement Plan for Commercial Refrigeration project supports the following categories of the Strategic Plan Menu in the order listed below:

Goal 4: Local governments lead their communities with innovative programs for energy efficiency, sustainability and climate change.

This project identifies a serious barrier to energy sustainability in our business community and takes a multi-pronged approach to address it, including detailed research and analysis, technical assistance, working with industry stakeholders, supporting better incentives, and the possibility of introducing codes to speed market transformation

Goal 1, Strategy 1.1: Adopt codes, ordinances, standards, guidelines or programs to encourage or require building performance that exceeds state requirements.

Initially, the City, through SFE is approaching the problem with this pilot program. From the data findings, new incentive programs are a desired outcome. Ultimately a specific code will be recommended if the old equipment continues to interfere with moving forward to achieve our stated goals.

Goal 1, Strategy 1.1.5.: Develop and adopt programs to encourage energy efficiency.

This pilot will serve not only as research gathering and analysis, but as a means of outreach and education to businesses and as a foundation for planning future energy efficiency programs.

Goal 5. Local government energy efficiency expertise becomes widespread and typical

SFE and the FSTC expect to disseminate the results of the research not only locally, but nationally through the FSTC website. In addition to the study itself, case studies and business profiles will be produced and distributed through SFE and FSTC channels and through PG&E's Green Communities channels.

2. A specific statement of the concern, gap, or problem that the applicant seeks to address and the likelihood that the issue can be addressed cost-effectively through future utility programs that would be developed as a result of the Innovator Pilot program

San Francisco has 5,000 businesses that depend on refrigeration equipment for their operations. These include restaurants, take-out food and coffee shops, convenience stores, supermarkets, warehouses, hotels/motels, and hospitals and convalescent homes. For small and medium businesses, which in San Francisco generally do not have air conditioning, refrigeration represents the highest percentage of electricity load. The equipment operates 24 hours a day making it impossible for these businesses to avoid expensive peak demand electricity rates and high energy bills overall.

Problem to be addressed

An overriding barrier to a successful refrigeration replacement programs is the high cost of equipment. Basically, small businesses are reluctant to invest in equipment with a long-time payback when they are unsure of their ability to remain in business over the long term. Customer response to high purchase/replacement prices has led to conditions that can pose even greater barriers, specifically:

- Business owners often keep equipment far beyond its useful life. In San Francisco facilities we have found that many of these units are in such a state of disrepair that EEMs (gasket replacement, door closers, motor upgrades, and controls) that have been offered in ongoing programs cannot be installed to significantly reduce energy use.

- Certain types of refrigeration and restaurant equipment is leased, used, or provided for free by major companies such as Pepsi and Coca Cola.

- With the high rate of business failures and frequent turnover—particularly in the restaurant industry—the older equipment can continue to get re-circulated in the marketplace.

This combination of factors contributes to excessive energy use sector-wide, but it also creates a financial burden for businesses, which bear the high monthly utility costs of operating the equipment.

The most cost-effective approach for future programs

The proposed pilot project will focus on two specific categories of refrigeration equipment: ice machines and reach-in coolers (refrigerators and freezers). SFE and FSTC will gather and document information and data needed to prepare new or updated work papers or incentive structures for future programs. The baseline usage for varying models will be collected and analyzed to determine if the findings

agree with current usage assumptions and cost calculations. Future programs will be able to use the findings to devise more accurate savings estimates to assure program cost-effectiveness.

The information gathered would also be useful in preparing reach codes and standards that could, for example, prohibit the sale or distribution of equipment below a set efficiency standard. The information and code language would be made available for replication by other local governments and eventually by the State. Codes and Standards have typically been a method for attaining the most impact with comparatively little investment.

The project will also use ice machines to test an integrated demand-side management approach that would involve making ice during off-peak hours. Research on this technique is underway at the FSTC[1] but more data from a greater number of sample sites is needed to complete the study. By far San Francisco has the greatest variety of potential sites in close proximity to one another, which would greatly reduce travel time for site visits. Both organizations bring specialized expertise to the project along with established relationships with San Francisco businesses. In addition, SFE has a database of customers served through its Energy Watch Partnership with PG&E and past programs that, combined with FSTC customers, will simplify the identification of potential sites for the study. Given the limited timeframe for this pilot, the ability to get the project up and running quickly is a distinct advantage.

At a minimum, the pilot will support new or refined future programs by providing a) comprehensive data needed to complete sampling for FSTC ice-machine load shifting study, and b) baseline and post -installation usage of a variety of different vintages of both ice machines and reach-in units to document real-time savings. Based on the findings, the most cost-effective approach for energy savings and market transformation to new technologies could be a combination of: passage of a local reach code; a new statewide upstream/midstream incentive program; and eventually a State code or law banning the operation of specific types of refrigeration equipment below a set efficiency standard.

The project will also produce a characterization study of refrigeration equipment and energy use in convenience stores and restaurants, which would assist SFE in future program design and implementation and be used by local governments and others in designing their programs.

3. Whether and how the project will address a Strategic Plan goal or strategy and market transformation

As outlined in No. 1 above, this Pilot Project will immediately address Strategic Plan Local Government Goal #4, community leadership through innovative programs, and Goal #1, adopting codes or developing guidelines or programs on

[1] http://www.fishnick.com/publications/appliancereports/special/Ice-cube_machine_field_study.pdf

energy efficiency that exceed Title 24. The City must strike a balance in providing a carrot and stick approach to a solution.

The project would also address Goals #5, providing results that can be widespread and duplicated by others. Regardless of the results of the research, it will be important information to share with all other local governments PG&E, other utilities, the refrigeration industry and the CPUC and CEC

All of the efforts in the goals and strategies identified here are meant to spur significant transformation in a market that has been slow to introduce new efficient technologies. The history of the transformation of the residential refrigeration market should serve as an example. Equipment with a long useful life is bound to remain in operation as long as it continues working, particularly if new models have a high price tag. Without the combination of rewards for new technological advances to push a resistant industry, discounted products available through distributors, and the rollout of new government efficiency standards, homeowners would still be buying refrigerators costing five times more to operate.

This pilot will have the added advantage of applying an important lesson learned from the residential experience: be certain to include a recycling/disposal component. Otherwise, the equipment will continue to circulate in the used market. Used equipment dealers would still see a vibrant business, but their products would have to meet a minimum performance standard. San Francisco could set the initial standard with local ordinances, followed by State and eventually Federal standards.

4. Specific goals, objectives and end points for the proposed project; [EXPAND WITH SPECIFICS AS NEEDED]

Goals: The rapid transition to the elimination of inefficient refrigeration units operating in San Francisco businesses and then throughout the state.

Objectives:

(a) Identification of all major refrigeration dealers and distributors in San Francisco and those in surrounding areas that serve San Francisco;
(b) Analysis of distributors' inventories, sales, and policies as it affects San Francisco businesses.
(c) Identification of the range of equipment models and vintage, and potential replacement types to be considered in the research
(d) An implementation plan with roles and responsibilities, targeted business profiles, equipment types, monitoring schedule with specific data to be collected
(e) Outreach and identification of the first set of customers (10 of 40 total) to participate in the research; repeat on rolling phase in until reaching all 40
(f) Complete baseline equipment monitoring of 40 units
(g) Complete installation and post-install monitoring of 40 units
(h) Decide on whether or not to write an ordinance, and if so;

complete necessary stakeholder buy-in, legal input and review, conditions regarding compliance, and required legislative process;
(i) Publish results of research in formats for distribution as FSTC standard report; documentation for PG&E, other utilities and CPUC' case studies for businesses and industry; documents for local governments.

Endpoints:
(a) Number of units replaced;
(b) Accurate estimates of kW and kWh saved per unit;
(c) Percent of market transformation locally;
(d) Number of other local governments adopting the program;
(e) Number of participating manufacturers/distributors;
(f) Draft ordinance that would require replacement of inefficient equipment;

5. New and innovative design, partnerships, concepts or measure mixes that have not yet been tested or employed

In presenting this refrigeration proposal, SFE hopes to draw attention to a much-overlooked area for addressing peak kW and GHG emission reduction. Most commercial refrigeration equipment is expensive and the industry is slow to introduce efficient options for customers. Innovation typically occurs as a result of new federal standards that take years of industry vs. government compromises before being passed. Also, refrigeration units can last for multiple decades, far beyond their rated useful life, leading to a low rate of replacement.

Most all businesses in San Francisco and elsewhere that use refrigeration equipment, whether it is owned or leased, have one thing in common: they pay the electricity bill. The older and more inefficient this equipment is, the higher their monthly operating costs. Through sufficient outreach and education, these business owners will become aware of options available to them that make good business sense.

There are therefore multiple reasons for the City to undertake an initiative to permanently remove inefficient equipment from the marketplace: a) to support greenhouse gas reduction goals; b) to support businesses struggling to remain open by cutting their operating costs; and c) to support economic stimulus and market transformation by introducing newer, more efficient technologies.

The power to use local codes to set standards and timelines for compliance can act as an education and marketing tool: knowledgeable businesses will create demand for high-efficient units that will cut their utility costs. Incentives leading up to the compliance deadline as well as the prospect of fines afterwards will hasten the replacement and retirement of old equipment.

The FSTC has the technical knowledge, existing research data, and relationships with equipment manufacturers and distributors. Its offices and research lab are located near San Francisco where the study sites will be selected from the City's large and diverse concentration of businesses that are easily accessible.

SFE's staff of energy auditors and engineers has worked for many years with both small and large customers in San Francisco who are using the outdated equipment being targeted. The staff has already collected certain essential data and can support the FSTC with on-site monitoring and further data collection.

SFE has effective and flexible outreach systems already in place, as well as the ability to initiate local ordinances that would contribute to a market push-pull approach. All lessons learned as well as templates for ordinances would be shared with other local governments in an effort to accelerate the early retirement of inefficient equipment

Phase 1: In the Start-up phase of the Innovator Pilot proposed here, SFE will work with the FSTC to identify: the major distributors serving restaurants and convenience stores in the City; the principal product manufacturers and brands being sold or leased; the leasing, maintenance, replacement; and disposal policies. The pilot would also identify: the used equipment dealers; their location and territories; the business types they serve; and their repair and disposal policies. In all cases, statistics on numbers of units, pricing, and other costs will be documented.

Using both SFE and FSTC databases of customers served, as well as City Assessor's data, the program will identify the profiles of customers needed for the study and begin recruiting businesses to participate in the program. The program will offer participants a deep discount on replacement equipment and coverage of disposal costs in exchange for their cooperation for participating in the program.

Phase 2. The second phase, program implementation, would involve monitoring energy usage on representative equipment models and vintages to establish baseline metrics followed by post-installation monitoring. Outreach and recruitment of more businesses would continue until 40 sites with targeted equipment are enrolled in the program. Preliminary analysis of data will be used to help target more precisely sites with desired equipment.

SFE staff would begin conducting surveys of refrigeration inventories in another 150 businesses for a characterization study of the mix of equipment and energy use in the sectors under study. By educating businesses through these surveys about how their inefficient equipment is driving up their energy bills, we expect them to be willing collaborators on supporting a future code that might ban such equipment. During this phase SFE will also begin reviewing the data to see if developing such a code would be a possibility, and if so, would begin the process.

Phase 3. In this final phase, detailed analysis of all our research will take place and results published for distribution. There will be an extensive effort to assist other local governments and others who could use the information to educate businesses in there jurisdictions. If our information has indicated that a local ordinance is feasible, SFE will develop the ordinance and take all necessary steps to have it passed. SFE would encourage other government to copy our ordinance, so that the potential for market transformation would be more powerful. Local government ordinances could eventually become adopted as state law.

Another outcome would be that PG&E adopts the model throughout its territory and proposes it as a statewide upstream approach for incentives. This should accelerate program participation as incentives will disappear when the new codes become effective and dealers will be more anxious to act before the effective date of the law.

Throughout all phases of the program SFE will work with the Small Business Commission and local businesses associations to educate them on utility savings potential and to gain their support for the initiative. The concept driving this model is to have the "push-pull" of supply and demand at work simultaneously. As data is gathered and we identify possible barriers, we will make adjustments where necessary and continue to improve the model.

6. A clear budget and timeframe (including milestones) to complete the project and obtain results before December 2012

SFE	$150,000	Admin, coordination, customer surveys, research, reporting, etc
FSTC	$ 50,000	Admin, data analysis, reporting, etc
Metering	$120,000	40 projects, pre- and post-installation
Customer participation fee	$ 72,000	New unit discount; disposal fees
EM&V	$ 4,000	City consultant:
Draft ordinance	$ 5,000	City Attorney
Miscellaneous	$ 2,000	Supplies, travel
Total	$ 403,000	

Phase I: Start up. Identifying distributors serving San Francisco, program design and development plan, identifying targeted customers

Timeline: Q3 and continuing in Q4, 2011
Milestones:

Phase II: Implementation. Outreach and education, coordinating with customers, , data collection, equipment monitoring, surveys and research, QA/QC of projects, tracking results, preliminary analysis of information, assessing potential for local code and begin process if decision is to move forward.

Timeline: Q4, 2011-Q3, 2012
Milestones:

Phase III: Publish and distribute findings. Detailed analysis and preparation of materials for distribution, .sharing data, and extending partnerships; work to extend model to other local government jurisdictions and throughout PG&E territory or statewide. If local code is desired, begin process (write legislation, shepherd through community and legislative process, conduct extensive outreach and education around the code, set up system for tracking impact of legislation, including enforcement).

Timeline: Q4-2012
Milestones:

7. Information on relevant baseline metrics or a plan to develop baseline information against which the project outcomes can be measured (project performance metrics).

Baseline metrics on equipment will consist of: measured usage data from a representation number of refrigeration units based on model, age, condition, hours of operation, business sector, and number of operable units. Parallel information will be compiled for the energy efficient models of refrigeration equipment installed within this pilot program. The following metrics and estimates of the energy efficiency potential were formulated using FSTC assumptions/estimates/calculations.

An energy efficient reach in refrigerator (CEE Tier 3, single-door unit) should save 500 kWh per year and reduce demand by 0.05 kW. The replacement of ten reach-in refrigerators within this pilot represents 5000 kWh and 0.5 kW. Assuming 5000 replacement reach-in refrigerators in SF (50% market transformation) the potential savings are 2,500,000 kWh and 250 kW of peak demand.

An energy efficient reach-in freezer (CEE Tier 3, single door unit) should save 1000 kWh per year and reduce peak demand by 0.1kW. The replacement of ten reach-in freezers within this pilot represents 10,000 kWh and 1.0 kW. Assuming 2500

replacement reach-in refrigerators in SF (50% market transformation) the energy and demand savings translate to 2,500,000 kWh and 250 kW.

An energy efficient ice machine should save 2000 kWh per year and reduce peak demand by 0.2 kW. Replacement of 20 units will save 20,000 kWh per year and reduce peak demand by 4 kW.

If each ice machine was operated off-peak, the demand reduction is estimated at 2 kW per machine, for a 20-machine off-peak reduction of 40 kW. 50% market transformation in S.F. could easily represent 5,000 ice machines. If operated off peak, the peak load reduction would be in the order of 10,000 kW (10 MW) with an energy reduction of 10 million kWh per year.

An underlying goal of this pilot project is to confirm these estimates, or optimistically, establish kWh and kW savings that are significantly higher as a result of the deteriorated performance of the aging equipment population in S.F. restaurants. We need to move from rough estimates to accurate projections of the energy and demand savings that would be realized by transforming this market. The plan is to develop baseline information as granular as possible. This information will be used to determine the impact of a mass market transformation.

8. Methodologies to test the cost-effectiveness of the project

The cost effectiveness of this pilot project will be determined by amortizing the upfront project cost over the energy and demand savings that may be realized by successfully replacing the stock of refrigeration equipment in S.F. businesses. In other words, the energy and demand savings from 40 sites is not the metric by which to evaluate the cost effectiveness of this pilot project. It is the ultimate energy savings that can be achieved through a well-designed program impacting 5000 businesses in San Francisco that will justify the upfront cost of this pilot project. The projected energy saving associated with transforming 50% of the market is in the order of 15 million kWh, reflecting an energy cost saving to the customer in the order of $1.5 million.

Another parameter to be included in the cost effective equation will be potential water savings associated with ice-machine retrofit. This data will be derived from the pilot project.

9. (EM&V) plan A proposed evaluation, measurement and verification

An EM&V Plan should include both a process and an impact evaluation. An EM&V team would work directly with City staff to develop a specific plan, beginning with the metrics discussed above. With a full understanding of the Pilot goal and objectives, parties will agree on a set of performance indicators that can accurately evaluate, measure, and verify all phases of the Pilot. Because this is a Pilot, there should be a process for feedback at intervals throughout the program for improvement and correction.

This program can serve as a test case for developing metrics for the goals of the Strategic Plan, which extend beyond 2012 to as far out as 2030 for zero net energy commercial buildings. Thus, an important indicator for 2012 for this program would be documenting the *momentum* to retire older refrigeration equipment and to prevent the manufacture and/or sale of new units that do not meet extremely high efficiency standards. Because this Pilot has the potential of actually achieving measureable energy savings as it tests new waters, an indicator is needed to show the compounding effects over the longer term assuming this model will be replicated elsewhere and possibly be used statewide. Further analysis should be done to project impacts of codes over the longer term

10. A concrete strategy, including schedule, to identify and disseminate best practices and lessons learned from the project to all California cities and to transfer those practices to energy savings programs to be offered by energy utilities.

This project is designed to produce its findings following a nine to twelve month period gathering and analyzing data from 40 food service sites and comparing this with data now being used. Preliminary results could be released at intervals throughout the process, but ideally official dissemination of the findings would not be released until the study is complete and has been peer-reviewed.

1. April, 2012: Preliminary findings
2. August, 2012: Field work complete
3. November, 2012: Final Study Released

Post Study Potential Outcomes 2013-2015:

1 New and updated work papers
2 Introduction of Upstream Program
3 Introduction of integrated energy efficiency-demand response measures
4 Local ordinance requiring minimum efficiency standards
5 State standard requiring minimum efficiency standards

The City will support dissemination of all information derived from the study after the close of the project in December, 2012.

11. A draft scope of work, including project budget, in the format provided

Task 1 – Identify Distributors and Preliminary List of Targeted Customers

Description: Work with stakeholders to identify distributors and their products. Search database for appropriate customers. and

Deliverable 1 of 2: List of Distributors
Deliverable 2 of 2 List of Customers

Due Date: 90 days after Notice to Proceed

Budget: $75,000

Task 2 – Baseline study and Customer Survey

Description: Determine the pre- and post replacement energy use of targeted refrigeration equipment at listed sites. Conduct surveys of equipment inventories of customers.

Deliverable 1 of 2: Spreadsheet of baseline data results.

Deliverable 2 of 2: Survey results data and narrative analysis.

Due Date: Monthly on-going.

Budget: $248,000

Task 3 – Analyze Data and Produce Study for Dissemination

Description: Analyze the collected data, produce the study, and disseminate widely.

Deliverable 1 of 3: Final full analysis, case studies and other materials for distribution.

Deliverable 2 of 3: List of distribution channels.

Deliverable 3 of 3: Draft Ordinance

Due Date: December 1, 2012

Budget: $80,000

Total Budget: $403, 000