



# Memorandum

**TO:** TRANSPORTATION & ENVIRONMENT  
COMMITTEE

**FROM:** John Stufflebean  
Peter Jensen

**SUBJECT:** SEE BELOW

**DATE:** 02-20-07

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Approved

Date

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**SUBJECT: SUSTAINABLE ENERGY ACTION PLAN AND SOLAR PILOT  
PROJECTS**

## **RECOMMENDATION**

1. Approve the 2007-08 Sustainable Energy Action Plan.
2. Direction to return to Transportation and Environment Committee in one year with a status report on the implementation of the Sustainable Energy Action Plan.

## **OUTCOME**

Staff will provide annual reports on the implementation of the Sustainable Energy Action Plan. Council approval of the recommendations contained in this memorandum will provide the necessary policy and program development to successfully implement the City's Sustainable Energy Action Plan.

## **BACKGROUND**

On April 1, 2003, Council adopted the Sustainable Energy Policy and corresponding Action Plan. Within that Policy, staff was directed to report on the status of implementation and attainment of the adopted Policy and action plan on an annual basis.

The goals of the San José Sustainable Energy Policy are to:

- Lead by example in pursuing the most efficient use of energy in City facilities and activities.
- Explore opportunities to improve energy reliability, supply and price stability to meet current and future needs.
- Promote collaboration on energy issues.
- Promote and achieve a cleaner and healthier environment, including improving air quality and reducing greenhouse gas emissions.
- Encourage the development and use of renewable energy sources and alternative fuels.

In January of 2007, a study session was held with the City Council to provide Council with information on City efforts related to energy efficiency improvements and solar/renewables in city facilities; the opportunity to hear from State of California and PG&E representatives on new opportunities to improve efficiency, use solar and reduce greenhouse gas emissions, and also hear from municipal and private sector representatives of their efforts to save energy. Specific input was received from Council to guide preparation of the 2007-08 Sustainable Energy Action Plan.

### **ANALYSIS**

A fact sheet is attached which summarizes the highlights of the energy activities completed by the City in the past year. Some highlights:

- Overall Energy Reduction in City Facilities since 2001
  - Over \$20M in estimated avoided electricity expenditures
  - 20% reduction compared to established baseline
  - 196M kWh reduced
- New City Hall is more than 25% more energy efficient per square foot than the old city hall, exceeding California Title 24 building energy standards by 27% and reducing the annual energy costs by \$190,000.
- Converted all of the City's Traffic Signals to LED (Light emitting diode) with a projected annual energy cost avoidance of over \$1.6M.
- Nearly 125,000 metric tons of CO<sup>2</sup> emissions reduced as a result of energy efficiency projects at city facilities—the equivalent of more than 26,000 passenger cars not being driven for one year.
- Continuing collaboration with PG&E for the Silicon Valley Energy Watch Program, providing educational programs for the community (current listing of workshops attached). This program was funded by PG&E in the amount of \$553,250, from July 1, 2006 through June 30, 2009

### **2007-08 Work Plan**

The work plan for 2007-08 relates to the five Energy Policy Goals. These goals and actions were further defined as a result of the discussions that took place during the January 2007 Council Energy Study Session.

#### **City Energy Efficiency Activities—Lead by Example**

- Continue Interdepartmental Energy Team activities and focus on identification and implementation of additional energy efficiency projects
- Continue partnership with City's Environmentally Preferred Purchase Policy Team to ensure purchase of Energy Star and other related energy efficiency equipment.

- Develop educational materials for city employees and for the public, such as displays at the Convention Center highlighting the clean energy technology companies within San Jose.
- Implement the City’s Green Building Program to ensure collaboration on the installation of energy efficiency where applicable.
- Continue Local Government Energy Watch collaboration and educational outreach with PG&E, funded by California utility ratepayers under the auspices of the California Public Utilities Commission.
- Coordinate with the Office of Economic Development (note: because they’d be most likely to have relationships with auto dealers) to identify the potential for establishing incentives for city employees related to the purchase of “green” cars
- Establish benchmarking opportunities with other cities on energy and solar activities

**Financial Opportunities—Explore opportunities to improve energy reliability, supply and price stability to meet current and future needs**

- Expand the Interdepartmental Energy Team activities to include exploration of financial opportunities and oversee energy program implementation, including:
  - Oversight of the City Building Energy Projects Program (C-BEPP) Fund, including identifying projects, and determining the installation projects.
  - Establishing a process whereby energy rebates received as a result of implementation energy projects are returned to the C-BEPP for future projects.
  - Analysis of the potential for an internal city energy fund, whereby costs of energy program personnel and project implementation are spread among City departments and funds.
  - Identification and analysis of the potential for the use of loan and grant programs such as the Department of Energy *Solar America Initiative* and the California Energy Commission’s Local Government Loan Program
  - Analysis of the tax implications of solar projects and resolution of key issues

**Economic Development Opportunities—Promote collaboration on energy issues**

- Identifying and reducing barriers to integrating “clean technologies” into government facilities and the private sector
- Refine incentives to increase the supply of and demand for clean tech firms and products
- Develop strategies to leverage existing assets to catalyze clean tech growth
- Explore opportunities for the City to collaborate with others to showcase clean tech innovations
- Investigate strategies adopted by other communities

**Climate Change Opportunities—Promote and achieve a cleaner and healthier environment, including improving air quality and reducing greenhouse gas emissions**

- Continue collaboration with Sustainable Silicon Valley and Silicon Valley Leadership Group on their *Clean and Green* initiative and our commitment to reduce greenhouse gas emissions.
- Explore becoming a member of California Climate Registry, which was established by California statute as a non-profit voluntary registry for greenhouse gas (GHG) emissions. The purpose of the Registry is to help companies and organizations with operations in the state to establish GHG emissions baselines against which any future GHG emission reduction requirements may be applied. Membership in the Registry will assist the City in its greenhouse gas emission reduction activities.
- Collaborate with PG&E on their Sustainable Communities Project and identify resources and opportunities for community efforts.

**Solar Opportunities—Encourage the development and use of renewable energy sources and alternative fuels**

- Begin analysis, development and identification of funding options for a solar installation at City 4<sup>th</sup> and St. John employee parking garage.
- Implement the City's Green Building Program to ensure collaboration on the installation of energy efficiency on new City facilities and work with Finance Department and Budget to analyze opportunities and constraints for the installation of solar measures in new and existing city facilities.

**Resource Implications and Budget Proposals**

Implementation of the Sustainable Energy Policies and recommended Action Plan will involve the allocation of resources for dedicated staff to coordinate and ensure successful implementation of the action plan. A proposal for a two-year pilot program—using rebate monies received from PG&E as a result of the traffic signal project –will be brought forward as part of the FY 2007-08 Budget Process. This two-year pilot program will fund an Energy Officer position and also establish additional implementation funds within the City's existing Building Energy Projects Program fund (C-BEPP) for projects such as the use of LED lighting on streetlights. Performance targets to be measured for this program include:

- Energy cost reductions achieved as a result of projects implemented,
- Rebates secured, and
- Greenhouse gas emission reductions achieved.

### **COORDINATION**

Preparation of this report and memorandum was coordinated with the assistance of the following Departments: Office of Economic Development; Departments of Transportation; Planning, Building and Code Enforcement, City Manager's Office; and the City Attorney's office.

### **FISCAL/POLICY ALIGNMENT**

Implementation of the Sustainable Energy Action Plan meets the Budget Strategy that emphasizes the reduction of operating costs to the City and our community.

### **COST IMPLICATIONS**

Specific Budget Proposals will be brought forward for Council consideration of the FY 2007-2008 Budget process.

JOHN STUFFLEBEAN  
Director, Environmental Services Department

PETER JENSEN  
Director, General Services Department

For questions, contact Mary Tucker, Supervising Environmental Services Specialist,  
at 975-2581.

Attachments:   A: City of San José Energy Fact Sheet  
                  B: Silicon Valley Energy Watch Workshop Schedule for March 2007



***Supportive City Policies***

Sustainable City Policy—General Plan:

- The statement of San Jose's desire to become an environmentally and economically sustainable city. A "sustainable city" is a city designed, constructed, and operated to minimize waste, efficiently use its natural resources and to manage and conserve them for the use of present and future generations.

Green Building Policies

Environmentally Preferable Procurement Policy

United Nations Environmental Accords

Sustainable Energy Policies

***Lead by Example -***

***Energy Policy Goal I***

**• Overall Energy Reduction in City Facilities since 2001**

- \$23,234,912 in avoided expenditures
- 20.1% reduction compared to established baseline
- 196,472,529 kWh reduced

**• Projects at City Facilities/Services**

- New City Hall is 25.7% more energy efficient per square foot than the old city hall, exceeding California Title 24 building energy standards by 27.4% and reducing the annual energy costs by \$190,000.
- Lighting system upgrades at City garages
- City Hall employee garage “solar ready”
- Installation of variable frequency drives at all pump stations and large mechanical equipment sites
- Energy Management System upgrades at libraries, community centers and other Civic buildings

- Piloting new technologies—lighting, raised floor heating systems, and daylighting controls
- Implementation of PC software to go into “sleep mode” when not in use
- Retrofit of appliances to Energy Star-rated appliances
- LED exit signs and compact fluorescent lights at several city facilities secured through a PG&E installation program

**• Water Pollution Control Plant activities**

- Since 2004, Plant staff have worked with PG&E to design and install fine bubble diffusers at the Plant, saving annual energy expenditures. Installation of this equipment has resulted in the Plant receiving \$287,426 in rebates from PG&E.
- Plant is considering installation of a 1000 kW fuel cell using digester gas which could qualify for a rebate of up to \$4.50 per kW as a renewable resource under the Self Generation Incentive Program administered by the PG&E. In addition to producing electricity, the project would produce hot water as a byproduct and would be virtually pollution free. The cost of electricity produced by fuel cell generator is about 5-6 cents cheaper than the lowest cost of electricity produced at the plant using internal combustion engine generators.

**• Department of Transportation Projects**

- Converted all of the city’s Traffic Signal to LED (Light emitting diode) with a projected annual energy cost savings of close to \$1.5M.
- Installed solar powered warning lights at over 20 pedestrian sites throughout the city, reducing construction costs by \$800,000 to \$1.3M.
- Retiming of traffic signals is saving citizens an estimated 715,000 gallons of fuel per year

and eliminates 140,500 pounds of toxic vehicle air emissions annually.

- **Airport**—new facilities will have U.S. Green Building Council LEED certification.
- **Convention Center Improvements.** Cogeneration improvements projected to save \$450,000 to \$600,000 annually. Lighting retrofits resulted in paybacks less than one year.
- **Use of PG&E Savings by Design technical assistance and rebates** by Public Works staff for to include efficiency measures in construction of new libraries, community centers, fire and police stations
- **Cool roofs**—highly reflective and emissive roofing materials that reduce roof temperatures by 50 to 60 degrees Fahrenheit in the summer sun on several facilities
  - African American Service Agency
  - Corporation Yards
  - Health Building
- **City Building Energy Projects Fund**
  - \$56,483 for energy efficiency projects at twelve city facilities (FY04-05 Funds/in process)
  - \$130,000 five year allocation available within the 2006-2010 Capital Improvement Program for energy improvements to Parks and Public Safety facilities.
- **Incorporating energy principles and guidelines into land use planning efforts**
- **Low income energy program**—have provided 361 households with energy efficiency installations (water heater, energy star appliances).

### ***Improve Energy Reliability – Energy Policy Goal II***

- Continued monitoring and participation at the California Public Utilities Commission in their proceedings related to improving energy reliability including Community aggregation, solar and energy efficiency programs.

### ***Promote Collaboration – Energy Policy Goal III***

- **Silicon Valley Energy Watch Program—Partnership with PG&E**—\$500K grant agreement with PG&E to provide energy education, technical assistance and marketing throughout Silicon Valley

### ***Improve Air Quality & Reduce Greenhouse Gases – Energy Policy Goal IV***

- **124,144 metric tons of CO<sup>2</sup> emissions reduced as a result of energy efficiency projects at city facilities**—the equivalent of 26,871 passenger cars not being driven for one year.
- **Collaboration with Sustainable Silicon Valley (SSV)**—participation in SSV Carbon Dioxide Emissions Reduction Project. Four city facilities pledged to reduce greenhouse gas emissions—currently achieving a 22.2% reduction
- **Collaboration with Bay Area Air Quality Management District's Spare the Air Program** – providing alerts to city employees regarding spare the air days and opportunities to reduce emission reductions

### ***Encourage the development and Use of Renewable Energy – Energy Policy Goal V***

- Attracting and retaining emerging technology companies, including renewable energy companies – the Agency and OED will invest \$2 million in Nanosolar over the next three years.
- Planning and developing the Electronic Transportation Development Center, a facility where Silicon Valley companies will collaborate on the design and commercialization of alternative energy vehicles that feature electronic solutions to transportation security and safety needs.
- **Tech Museum**—working with the Tech Museum on a possible pilot solar installation

## ***Energy Policies Implementation Key Considerations***

*Resources/staff to implement programs*—there is currently no staff dedicated to coordinating energy audits at city facilities, and identifying the potential energy saving reductions at those facilities.

*Need for on-going funding for all city energy efficiency projects*—there is a current allocation of \$130,000 for implementing energy efficiency projects at Parks/Community and Public Safety facilities. Funding is not currently been identified for other city facilities. City staff is currently identifying a process for ensuring that PG&E rebates received for energy efficiency projects funded through general fund or other appropriate funds could be returned to the City's Building Energy Projects fund, thus leveraging and maximizing energy projects funding.

### *Third Party Financing of Energy Efficiency and Solar Projects*

*Use of Energy Service Companies (ESCOs) for energy efficiency projects*—

- ESCOs have approached the City about entering into contracts for the installation of solar panels and energy efficiency improvements on City buildings. The business points of these deals vary. In some cases, the ESCOs also offer financing for the installations, which would allow the City to use the energy savings that it would obtain from the installation to pay off the financed cost of the installation. Some of the financing arrangements would require the City to secure the repayment by entering into a lease/leaseback type arrangement with the company that is financing the installation.
- California Communities, a joint powers authority, also offers a solar installation program to its members (the City is a member). The California Communities program also offers financing, but would require the City to use a pre-selected installer of the solar panels and a separate pre-selected "project company" which would own the solar panels until the City pays off the installation cost. The cost of installation is

paid through a note issued by California Communities. In order to repay California Communities for the City's share of the note, the City leases one or more City facilities to California Communities. The City then leases its facilities back from California Communities. The rent paid by the City is the source of California Communities' repayment of the note

In general, third party financing arrangements like these present the following significant considerations:

*Procurement Issues.* Both the City's Charter and Municipal Code establish requirements for the procurement of public works and services. Entering into an agreement to construct a solar project or install energy efficiency improvements without bidding is not permitted unless an exception to the bidding requirement applies.

*Federal Tax Issues.* Many of the City's larger facilities, e.g. City Hall and the Convention Center, among others, were financed with tax-exempt debt. Since the issuance of tax-exempt debt results in less tax revenues for the federal government, the IRS has issued regulations to ensure that facilities built with tax exempt debt are really used for a governmental purpose, and that such facilities are not used for "private activity."

If the installer of solar panels continues to have an economic benefit from the panels after installation, then the private activity issues must be analyzed before entering into the deal. Whether the private activity issues would prevent this type of arrangement depends on the portion of the facility dedicated to the solar panels and the amount of existing or planned private activity at the facility, e.g. retail.

*Property Issues:* The bond documents for City facilities with outstanding debt often prohibit the City from allowing third parties to have a property interest in the facility, such as lease or a lien. For example, the California Communities' lease/lease back arrangement would not be possible for City Hall, the Convention Center or the City hall employee garage because these facilities already are or soon will be, the subject of other lease/lease back arrangements.

# SILICON VALLEY

# energy watch

## FREE

### energy-efficiency workshops

**LOCATION:**  
Electrical JATC  
908 Bern Court  
San Jose, Calif. 95112

Pre-registration is required.  
Visit [www.pge.com/stocktonclasses](http://www.pge.com/stocktonclasses)  
to register.

a joint project of:



**Pacific Gas and  
Electric Company**<sup>®</sup>



### Title 24 Overview of the Current Residential Standards

Thursday, March 1 - 9 am to 12 pm

- Covers 2005 changes to California Residential Energy Code.
- Includes demonstrations of Title 24-compliant indoor & outdoor light fixtures and switches.
- For builders, architects, code officials and energy consultants.

### Title 24 HVAC System Change-Outs: Duct Testing Requirements for Residential & Small Business

Tuesday, March 13 - 9 am to 12 pm

- Introduces the new duct testing rules for HVAC change-outs.
- Hands-on demonstration of duct testing for Title 24 compliance.
- This class qualifies a technician for the PG&E Duct Testing and Sealing Incentive Program. Call (877) 411-8378 for details.

### The Truth About Residential Fans and Motors

Tuesday, March 20 - 9 am to 5 pm

- Learn how static pressure effects efficiency.
- Get information to make informed decisions about fan selection and installation, as well as field testing and performance verification.
- For residential HVAC contractors, builders, energy consultants, HERS raters, and multifamily owners and operators.

### Cool Roofs - Code Requirements and Program Opportunities

Wednesday, March 28 - 9 am to 12 pm

- Learn how roofing materials can cut roof surface temperature and reduce cooling load on hot days.
- Understand how to benefit from cool roof technology and available products, and learn how to qualify for PG&E's new Residential Cool Roof Rebate Program.
- For builders, inspectors, roofing contractors and architects.

This program is funded by California utility ratepayers under the auspices of the California Public Utilities Commission.



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