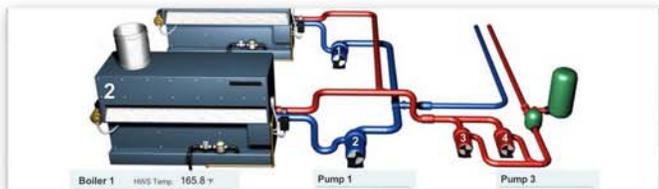




# Mayor's Task Force on Existing Commercial Buildings

**Executive Summary:**  
Recommendations For  
The City and County of  
San Francisco

December 2009



# Mission

The San Francisco Existing Commercial Buildings Task Force was convened to recommend policies, actions, and partnerships that will meet local and state goals to improve energy efficiency in buildings in order to reduce greenhouse gas emissions, conserve resources, enhance electricity reliability, and improve the competitiveness of commercial buildings in the City.

## II. Executive Summary

Mayor Newsom convened the San Francisco Existing Commercial Buildings Task Force (ECBTF) to identify the policies, partnerships, and actions necessary to maximize energy efficiency in commercial buildings. The goal of the process was to reduce greenhouse gas emissions, conserve resources, enhance electricity reliability, and improve the competitiveness of commercial buildings in the City.

At least 75% of greenhouse gas emissions in the U.S. are attributable to urban centers<sup>i</sup> and the activities that support urban life.<sup>ii</sup> As such, cities need to work with state, national, and international institutions in minimizing climate change, the effects of which are already being felt locally,<sup>iii,iv,v</sup> particularly as it affects the clean water, hydroelectric generation, and the agriculture that support our city.<sup>vi</sup> Similarly, electricity reliability in San Francisco presents a complex long-term challenge for the local economy and public health.

The operation, construction, and demolition of buildings accounts for almost half of San Francisco's greenhouse gas emissions (Figure 1.) Commercial, industrial, and municipal buildings account for 63% of building-sector emissions.

The City has established high standards of environmental performance for new construction.

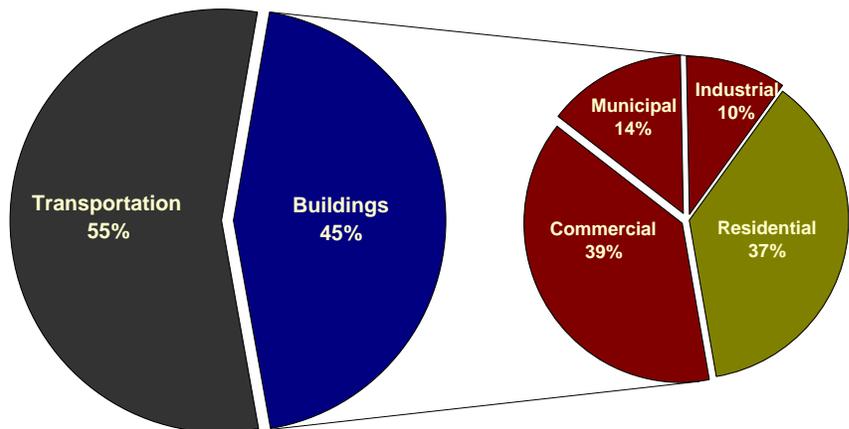
However, at the historic rate of 0.8% new buildings per

year, it could take more than sixty years to 'green' even half of San Francisco. Clearly, we need to address San Francisco's existing buildings. They are not only essential to the history and economy of our city, but crucial to its sustainability.

### Goal

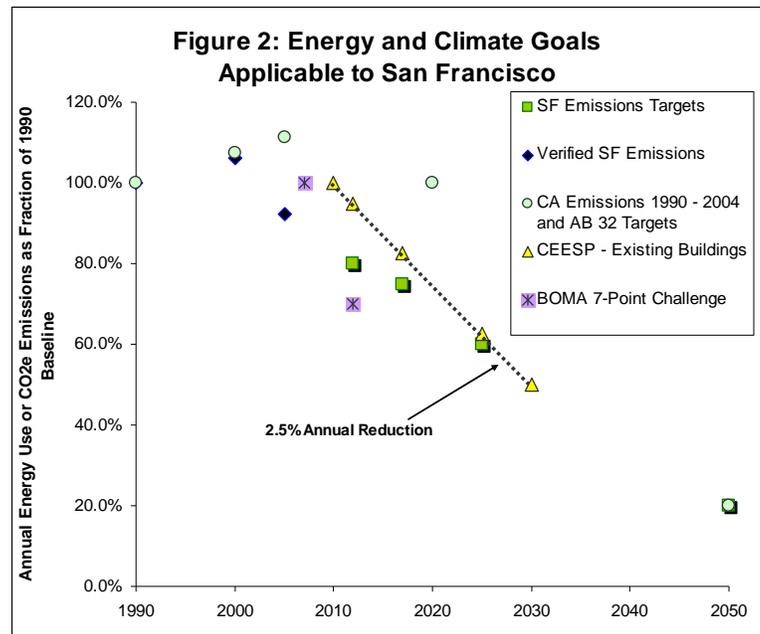
The ECB Task Force recommends that the City and County of San Francisco adopt a voluntary goal: **Cut total energy use in existing commercial buildings 50% by 2030, or an average net reduction of 2.5% per year** (Figure 2.) This target is based on San Francisco's established greenhouse gas reduction goals, California's *Global Warming Solutions Act* (AB 32), President Obama, *Architecture 2030*, and the *California Energy Efficiency Strategic Plan* goal for existing buildings.

Figure 1: San Francisco Greenhouse Gas Emissions, eCO<sub>2</sub>, 2005



## Policy Context

San Francisco needs to design an effective commercial energy efficiency policy for the mid to long term. However, conditions currently are difficult for commercial real estate. The situation is similar for the city government, which has been forced to prioritize services as budgets have declined. Clearly, new policy must rely upon creative use of existing resources; requirements and incentives must be fundable to be credible. To reduce energy use by 2.5% per year, it will be necessary to navigate the challenges of limited public understanding, diverse lease contracts, access to capital constrained by the current economy, and finite city resources.



The Task Force proposes an Existing Commercial Buildings Strategy (ECB Strategy) for San Francisco that will reduce energy use in commercial buildings and grow the energy efficiency services sector by systematically identifying and eliminating the factors that limit local energy efficiency. The ECB Strategy consists of seven proposals for the city, complemented by support from state, federal, and private sector partners, which will enable the City, with modest resources, to meet and exceed its sustainability and economic goals.

There is currently little information available about the amount of energy that commercial buildings use, so the first priority for policy development is to gather and report data. Information is a critical tool in an integrated, effective program to transform the local built environment and capture all available cost-effective efficiency improvements. At the leverage points we have targeted in our proposals, improving access to information will help building stakeholders – particularly owners, managers, and tenants – to track, value, and implement energy saving capital improvements and operational practices. The City will be responsible for tracking and publicly reporting the impact of the ECB Strategy. In the process, the city and stakeholders will have the necessary data to develop additional approaches, such as performance standards and targeted incentives. Our community will gain the information necessary to identify the barriers, opportunities, and policy tools needed to keep San Francisco on the path to energy optimization.

### Summary of Existing Commercial Buildings Strategy

|                                   | Idea  | Mechanism  | Benefits   |
|-----------------------------------|---|--|--|
| Transform Market with Information | <b>Identify Cost-Effective Savings in Every Commercial Building</b> | <b>Require</b> businesses to conduct an energy audit every 5 years for business license renewal, including identifying and listing applicable efficiency measures. | Ensure building owners, managers, and tenants know exactly how much energy – and money – they can save.  |
|                                   | <b>Disclose Energy Performance Information</b>                      | <b>Require</b> building owners and managers to share energy performance data with the City. Publish database to inform stakeholders.                               | <b>We manage what we measure.</b> Tracking helps identify key factors in building performance, including occupant behavior. Monitoring and reporting provides a “miles per gallon” metric that enables tenants and buyers to identify efficient buildings. |
|                                   | <b>Resolve “Split Incentives”</b>                                   | <b>Provide</b> a Green Tenant Toolkit.<br>Make submetering a policy priority.  | Help landlords and tenants mutually benefit from reduced utility costs and sustainable operations.   |
|                                   | <b>Make Incentives Easy</b>   | <b>Develop</b> a web-based tool that finds all incentives, rebates, and financing  | Offset the cost of improvements and streamline the payment of incentives for energy improvements.  |
|                                   | <b>Educate, Train, Mentor, and Market Energy Efficiency</b>         | <b>Promote</b> programs, <b>facilitate</b> mentorship, and <b>partner</b> with institutions.   | Enhance workforce capacity.<br>Engage stakeholders to improve energy efficiency  |
| Lead                              | <b>Lead By Example in Public Facilities</b>                         | <b>Benchmark</b> and disclose energy performance for city facilities.<br><b>Budget</b> to pilot local uses of clean technology.                                    | Leadership inspires others to act.<br>The City uses a fraction of overall energy, but is the largest consumer.<br>Clean tech demonstrations save energy and promote the economy.   |
| Capital                           | <b>Provide Financing</b>  | <b>Launch</b> the San Francisco Sustainable Financing (SF <sup>2</sup> ) Loan Program.<br><b>Require</b> efficiency prior to receiving funds for renewables.       | Financing enables cost-effective energy use reductions through voluntary tax liens.<br>Lowest cost carbon reduction is achieved by prioritizing efficiency.  |

## Expected Results

A 50% reduction in commercial building energy use in 20 years will have the same effect as taking 50% of commercial building stock to zero-net energy, but at lower cost<sup>1</sup>. Tripling the pace and coverage of energy audits – combined with strategic actions to maximize implementation of cost-effective projects – is estimated to reduce climate emissions by at least 64,000 tons per year.

| Scenario  | Fraction of Commercial Stock Audited per year <sup>2</sup> | Net Annual Energy Reduction <sup>3</sup> | Maximum Annual Incentive Budget <sup>4</sup> | 10-Year Net Present Value to Private Sector <sup>5</sup> | Direct Job Creation |
|---|--|--|--|--|---------------------|
| Current Policy - Voluntary Audits And Public Goods Incentives | 10%<br>(Totals 50% over 5 years)                           | 1.3%                                     | \$24 Million                                 | \$382 Million  | 357 Jobs            |
| Implement Full ECB Strategy                                   | 20%<br>(Totals 100% over 5 Years)                          | 4.2%                                     | \$39 Million                                 | \$612 Million  | 578 Jobs            |

“Energy is... this generation's great project. That's why I've set a goal for our nation that we will reduce our carbon pollution by more than 80 percent by 2050. ... Now, the nation that leads the world in 21st century clean energy will be the nation that leads in the 21st century global economy. I believe America can and must be that nation.”

*President Barack Obama*<sup>6</sup>

<sup>1</sup> Based on the much lower cost of efficiency compared to renewables. Bringing any number of buildings to “net-zero energy” would necessitate a exponentially greater investment in renewable energy technologies while a smaller overall investment in energy efficiency would produce similar aggregate results.

<sup>2</sup> Estimated fraction of buildings larger than 50,000 square feet receiving a thorough audit approximately equivalent to an ASHRAE Level II evaluation, plus estimated fraction of buildings smaller than 50,000 square feet receiving the equivalent of an ASHRAE Level I evaluation.

<sup>3</sup> Estimate includes all savings attributable to implementation of recommendations from ASHRAE Level I and Level II audits. All estimates have been reduced by 0.8% to compensate for projected annual increase in local commercial building stock.

<sup>4</sup> Incentive budget refers to ratepayer funds (both Public Goods Charge and energy procurement) regulated by the California Public Utilities Commission and used by investor owned utilities for energy-related public benefit programs. The estimate above includes but is not limited to San Francisco Energy Watch. Each incentive budget estimate is conservatively high because all energy savings reduce ongoing energy costs, but some of the net annual energy reduction will be attributable to California's Title 24 Part 6 energy code requirements.

<sup>5</sup> Present value is estimated as the sum of total construction costs, incentive rebates, and energy savings. This estimate is based on 9% discount rate (which is the rate applied by SF Department of Finance.)

<sup>6</sup> Address by President Obama (April 27, 2009) to the National Academy of Sciences Annual Meeting [http://www.whitehouse.gov/the\\_press\\_office/Remarks-by-the-President-at-the-National-Academy-of-Sciences-Annual-Meeting/](http://www.whitehouse.gov/the_press_office/Remarks-by-the-President-at-the-National-Academy-of-Sciences-Annual-Meeting/)

## ECB Strategy: Implementation Timeline

| Year  | 2010  | 2011   | 2012  | 2013   | 2014   | Beyond... to 2030                     |
|---|---|--|---|--|--|---------------------------------------|
| <b>Identify Cost-Effective Savings</b>                      | Require 1/5 of all buildings greater than 5k square feet to get an energy audit.<br>Encourage smaller facilities – particularly energy intensive uses such as markets and restaurants - to voluntarily audit.   |  |   |  |  |                                       |
| <b>Disclose Energy Performance</b>                          | Educate property owners about upcoming requirements. Support early action   | Require all buildings >25k square feet to benchmark  | Require all buildings >10k square feet to benchmark   | Require all buildings >5k square feet to benchmark             | Continue benchmarking. Re-evaluate options for buildings <5k sq. ft. | Maintain public access to data.       |
| <b>Split Incentive Solutions: Green Tenant Toolkit</b>      | Develop and launch green tenant toolkit   | Promote and maintain Green Tenant Toolkit  |   |  |  | Update as needed.                     |
| <b>Split Incentive Solutions: Submetering</b>               | Submeter new construction and single tenant build-outs/improvements (TI's) in buildings >50k square feet  | Submeter TI's >10k sq ft which are in buildings >100k sq ft.   | Submeter TI's >7.5k sq ft which are in buildings >75k sq ft   | Submeter TI's >5k sq ft which are in buildings >50k sq ft      | Submeter TI's >3k sq ft which are in buildings >30k sq ft            | Continue policy                       |
| <b>Make Incentives Easy</b>                                 | Identify technology partners, refine business model, begin development  | Launch Financial Optimization Tool   | Maintain Financial Optimization Tool; use data to enhance targeting and delivery of local incentives. |  |  |                                       |
| <b>Educate, Train, Mentor, and Market Energy Efficiency</b> | (2009: Engage with partners, and seek State Energy Program funding support.) Publicize education, attract resources, communicate ECB Strategy.  | Collaborate and support workforce education. Promote efficiency with contests, incentives, and social marketing.   |   |  |  |                                       |
| <b>Lead By Example in Public Facilities</b>                 | Benchmark and make public energy performance of all significant city facilities   | Maintain information on public environmental performance "dashboard." Continue performance enhancement and communication of excellence. Achieve zero-net energy in significant number of city facilities |   |  |  |                                       |
| <b>Provide Financing</b>                                    | Launch and deliver San Francisco Sustainable Financing (SF <sup>2</sup> ) Loan Program  |  |   |  |  |                                       |
| <b>Measurement and Evaluation</b>                           | Launch ECB Strategy Begin monitoring  | Measure performance toward metrics and goals   | Evaluate program efficacy. Adjust approach if needed  | Continue to measure. Maintain and enhance successful elements. |  | Refine approach with partner support. |
| <b>Impact</b>   | Energy use reduction of at least 2.5% per year on average, with >4% initial pace of annual reduction anticipated. Average 70k+ tons CO2 year-to-year reduction. Significant net positive cash flow relative to status quo for commercial building sector. |  |   |  |  |                                       |