



City of San José

STRATEGIC ENERGY PLAN 2022: FOCUS ON THE BUILT ENVIRONMENT

May 2009

Table of Contents



Executive Summary	2
Statement of Purpose	2
Strategic Energy Plan: Focus on the Built Environment	2
Energy Action Plan Recommended Strategies	5
Background	6
Green Vision	6
Other Green Policies and Initiatives	7
State Mandates	8
Powering San José’s Future	9
San José’s Vision for the Future: A World with Energy Efficiency and Renewables	9
Energy in Context	9
Climate Protection	11
Energy Trends: Opportunities and Challenges in San José	12
Community Engagement.....	16
Steering Group	16
Evaluation of Strategic Plan Recommendations	16
Guiding Principles	16
Strategic Recommendations, Strategies, and Tactics.....	18
Lead.....	19
Transform.....	20
Engage.....	22
Innovate.....	23
APPENDICES	24
Appendix A: Glossary of Terms	25
Appendix B: Steering Group	26
Appendix C: Stakeholder Interviews	27
Appendix D: Guiding Principles.....	28
Appendix E: Organics-to-Energy Draft Workplan	29



Executive Summary

Strategic energy planning is vital. The choices we make today will have positive or negative consequences in the years to come. The majority of the country's energy stream is harnessed from limited, nonrenewable resources. To ensure that we do not jeopardize the energy needs of the future, it is critical to find ways to better manage our urban energy demands today. Strategic, sustainable energy policies encompass more than energy efficiency and conservation measures. They must be diverse, flexible, renewable and integrated.

The City of San José (City) has long been a leader in green policies and environmentally friendly programs. This commitment was further strengthened when, in 2003, City Council approved the Sustainable Energy Policy and Action Plan. Since the passage of the first and subsequent energy plans, every City department has worked diligently to internalize energy-efficient practices that have reduced the City's impact on the environment, as well as its operations and maintenance costs. The City has also worked collaboratively throughout our community—with businesses, utilities, nonprofits and our residents.

With the adoption by Council of San José's Green Vision in October 2007, the City's focus on energy was aligned and strengthened with specific and aggressive goals related to the use of energy and renewables:

Goal 2: Reduce energy use per capita by 50%

Goal 3: Receive 100% of our electrical power from clean renewable sources.

Goal 4: Build or retrofit 50 million square feet of green buildings

Goal 5: Convert Waste to Energy

Goal 9: Replace 100% of streetlights with smart zero-emission lighting

Statement of Purpose

The purpose of the Strategic Energy Plan is to develop a roadmap for creating a community where energy is generated and used in the most sustainable manner possible. This Energy Plan focuses on the built environment and seeks to identify the ways and means to implement the energy efficiency and renewable energy goals of the City's adopted Green Vision. These recommendations continue efforts to develop an infrastructure that values energy conservation and efficiency, energy reliability, reasonable and predictable energy costs, and the creation and use of clean, local energy sources.

Strategic Energy Plan: Focus on the Built Environment

The 2009 Strategic Energy Plan (Energy Plan) focuses on energy use in the built environment and is an integral part of San José's Green Vision. It builds on past efforts and further engages all City departments, the community, and stakeholders in identifying and creating opportunities that encourage, incentivize, and provide the City, residents, and businesses with resources to incorporate energy-saving practices and clean, green technologies.



Strategic plans and policies related to the energy implications of transportation and land use issues can be found within the City’s General Plan, Green Fleet Policies and upcoming Climate Change Policy.

This Plan provides background information on energy building usage, details on the current and future risks surrounding San José’s energy supply and proposes goals, policies, and best practices that will tackle those challenges. It is designed to complement and update the energy component of the Sustainable City Plan as detailed within San José’s General Plan: *San José 2020*.

In developing this plan, the City was guided by a steering group comprised of business, environmental and community representatives, along with City staff from various departments. Between October 2008 and February 2009, City staff interviewed over 30 community-based organizations, non-profits, business associations, government agencies, and stakeholders. Additional outreach was performed and comments garnered from throughout the community as part of the review process. These interviews, and subsequent input, helped gauge the community’s views of past energy efforts and concerns for the future. With this information, the Plan better addresses the changing energy demands of San José’s diverse community and economy within the 2022 timeframe of the City’s Green Visions goals.

The interviews and analysis of the current trends focused on four themes:

- Leadership
- Transformation

- Engagement
- Innovation.

Leadership

Many respondents applauded the City’s leadership in energy policy and programs. Representatives of several building and construction related organizations spoke positively about the City’s Green Vision, recognizing its alignment with many of their own goals, policies and directions. All were encouraged by the direction of the City’s current programs, and urged continued and strengthened leadership in energy efficiency and renewable energy.

Transformation

Transformation means large scale change. Change is vital to slow the impacts of climate change and other environmental pressures on the earth. To succeed in meeting the ambitious goals, the paradigm will have to change. This will happen through innovative strategies, structural and behavioral changes in the marketplace, shifts in the funding structures, and focused investment in energy-efficient and renewable technologies.

Engagement

There is widespread interest throughout the community to partner with the City to achieve the Green Vision Goals:

- Joint marketing and educational outreach activities
- Advocacy support for Clean Tech Legislation that supports the Green Vision



- Public-Private Partnerships for the development and implementation of advanced technologies.

Innovation

Silicon Valley is known as a center for innovation and entrepreneurship—where ideas and inventions change the world. With an educated workforce, high tech infrastructure, history of innovation and openness to change, San José has the synergy to meet the challenges.



Energy Action Plan Recommended Strategies

LEAD

Continue the City's leadership in the development and implementation of policies, programs and actions that reduce the City's energy use and increase the use of renewable energy

- Reduce energy consumption in City facilities by 50% by 2022
- Expand municipal energy efficiency financial resources by 40% by 2022
- Receive 100% of the City's electrical power from clean, renewable resources by 2022

TRANSFORM

Create a change in behavior that will effect a meaningful, long-term reduction in energy consumption and increase the use of renewables

- Achieve a 50% reduction in per capita energy use by 2022
- Increase resources for the community to install energy efficiency and/or renewable energy technologies
- Ensure environmental safety in the manufacturing and disposal of existing and emerging energy efficiency and renewable energy technologies

ENGAGE

Engage the San José community in order to strengthen, deepen and expand relationships, better connect people and community resources, and increase involvement in the City's Green Vision

- Develop and expand partnerships throughout the community to implement energy efficiency and renewable energy programs.
- Coordinate with federal, state and regional agencies to improve permitting processes and building codes, including Title 24 building standards and Title 20 appliance standards.
- Strengthen and expand Low to Moderate Income Energy Efficiency programs utilization
- Work with area educational programs and institutions to create jobs and drive markets, ensuring comprehensive and integrated job training programs that build careers in the energy efficiency and renewable energy sectors

INNOVATE

Foster innovation throughout the community, enabling the discovery of new ways to create value and leverage opportunities

- Achieve Green Vision Goal 3—Generating 100% of electricity from renewables by 2022 by exploring opportunities for deploying renewable energy technologies throughout the community
- Engage the full range of participants within the clean and green technology sector to facilitate reduced energy use and expanded use of renewables
- Design, pilot and evaluate emerging energy efficiency and renewable energy technologies
- Promote San José as the City of choice for manufacturers of clean energy technologies



Background

Green Vision

In 2007, the City Council approved its Green Vision goals, a landmark decision to model how innovation and environmental responsibility can strengthen economic opportunities and can, in fact, be vital catalysts for spurring prosperity. The success of the Green Vision will be measured by a triple bottom line: strengthening the regional economy, creating a more sustainable community, and enhancing the quality of life for all residents.

The Green Vision is a comprehensive approach to achieve sustainability through new technology and innovation. In adopting its Green Vision, the City established 10 goals to achieve within 15 years:

1. Create 25,000 Clean Tech jobs as the World Center of Clean Tech Innovation
2. Reduce per capita energy use by 50%
3. Receive 100% of our electrical power from clean renewable sources
4. Build or retrofit 50 million square feet of green buildings
5. Divert 100% of waste from landfill and convert waste-to-energy
6. Recycle or beneficially reuse 100% of our wastewater
7. Adopt a General Plan with measurable standards for sustainable development

8. Ensure that 100% of public fleet vehicles run on alternative fuels
9. Plant 100,000 new trees and replace 100% of our streetlights with smart, zero emission lighting
10. Create 100 miles of interconnected trails

The Energy Plan supports several Green Vision goals, including Goal 1 - create green jobs, Goal 2 - reduce energy use, Goal 3 - generate renewable energy, Goal 4 - build green, Goal 5 - convert waste to energy, Goal 7 - plan for sustainable development, and Goal 9 – 100% of City streetlights with smart, zero-emission lighting.

These goals are further supported by the City's Sustainable Energy Policy and Action Plan, which was first approved by the City Council in 2003 and established the specific strategic goals 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 addition, programs that increase energy efficiency and alternative energy sources, such as energy audits and the installation of photovoltaic (PV) systems, will:



efficiency and alternative energy sources, such as energy audits and the installation of photovoltaic (PV) systems, will:

- Support Green Vision Goals 1 & 2 by fostering and generating additional demand for energy efficient and renewable technologies and products, which will support San José’s green economy.
- Save residents and local businesses money. These smart savings create additional funds for non-essentials, such as discretionary spending or increasing personnel, which help circulate more money within the local economy.
- Further promote San José’s status as a sustainable city and green leader.

Other Green Policies and Initiatives

The Energy Plan is an integral component of many of the City’s environmental programs and policies including:

- Green Building Policy – promoting the construction of resource efficient buildings that are healthier for the occupants and healthier for the environment
- Environmentally Preferable Procurement Policy (EP³) – encouraging purchases that are energy efficient and environmentally friendly
- General Plan/Sustainable City Policy – encouraging sustainable land use, transportation and development
- Street Light Policy – to replace 100 percent of City streetlights with smart, zero emission lighting by 2022
- Zero Waste Strategic Plan – outlining strategies for the City to achieve zero waste to the landfill by 2022
- Clean Tech Legislative Agenda – a series of policy goals guiding the City’s advocacy for the Clean Tech industry on federal, state, and local levels.
- Smart Growth – creating livable communities by developing efficiently within a reasonable growth boundary
- Green Fleet Policy –purchasing and managing the City’s diverse vehicle fleet, including passenger vehicles and heavy equipment, to minimizes greenhouse gas emissions and consider life-cycle economics.

The Energy Plan will support the City’s existing and future environmental commitments such as:



- Envision 2040/San José General Plan – the blueprint for the future growth and development in San José and guidance for the City’s day-to-day decision-making for land use and City services
- San José’s Climate Action Plan - a means through which to implement and measure positive environmental changes by reducing greenhouse gas emissions.
- The Bay Area Climate Compact – an initiative of the three largest Bay Area cities to guide and develop, by joint example, actions that reduce the region's greenhouse gas emissions, and increase the region's resiliency to the impacts of climate change.
- The U.S. Mayors Climate Protection Agreement – San José, along with 935 mayors from the 50 states, have pledged to reduce carbon dioxide emissions by 7 percent below 1990 levels by 2012.
- The Urban Environmental Urban Accords - a declaration of participating city governments to build ecologically sustainable, economically dynamic, and socially equitable futures for their urban citizens
- The Climate Prosperity Project (Joint Ventures Silicon Valley) - a collaborative that brings together Silicon Valley leaders in economic development and urban planning to find new, innovative, and practical solutions for the world's urban problems.

State Mandates

Ensuring that San José meets national, state, and local energy-related mandates remains an Energy Plan priority. These related mandates include:

- California Global Warming Solutions Act of 2006—AB 32 – Legislation that institutes a mandatory limit on greenhouse gas emissions—reducing emissions in California to 1990 levels by the year 2020, or 25% below forecasted levels.
- The California Public Utilities Commission (CPUC) Energy Efficiency Strategic Plan - a single roadmap to achieve maximum energy savings across all major groups and sectors in California
- California Solar Initiative – The State of California’s Go Solar California campaign that provides state solar rebates to customers in California's investor-owned utility territories
- The California Energy Commission’s Integrated Energy Resource Plan – The Legislatively mandated requirement (Pub. Res. Code § 25301(a)) for the Energy Commission to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety.



Powering San José's Future

Energy powers our lives. We depend on energy to run our days and illuminate our nights—it helps drive our economy and maintain our quality of life.

Over five billion kilowatt hours of electricity are used in San José each year. PG&E, San José's primary power provider, receives 12% of its energy from renewables as defined by the State of California. The remaining sources are natural gas (47%), nuclear (23%), large hydro (13%), coal (4%) and other (1%).

San José Electricity use by Sector	kWh/year (FY2006-2007)
Residential	1.8 Billion
Commercial	2.2 Billion
Industrial	796 Million
Municipal	132 Million
Total	5 Billion ¹

San José's Vision for the Future: A World with Energy Efficiency and Renewables

Green technology is evolving. With the supply of fossil fuels declining and climate change an expected reality, the demand for sustainable energy is on the rise— spawning innovative solutions for our energy demand.

Through its policies and ordinances, the City has many opportunities to incentivize energy efficiency and curb greenhouse gas emissions in San José. The largest energy users of

electricity within the City are in the residential and commercial sectors. These uses can be proactively reduced through integrated program design and implementation, land use policies, master planning, building permits, and essential infrastructure.

San José at a Glance:

As of April 1, 2000, San José's population was 894,943. Since that time, the population of San José has grown by nearly 100,000, making it the nation's 10th largest city.

A recent City of San José General Plan/Envision 2040 report projected that San José would grow by an additional 172,000 jobs and 471,000 residents in 173,000 households between 2007 and 2040.

Accommodating this projected population will require strategic, sustainable energy planning.

Energy in Context

National Energy Statistics

Total primary energy consumption in the United States, currently at 101.6 British thermal units (Btus) of energy, is projected to grow by 0.5 percent per year from 2007 to 113.5 Btu's by 2030. The fastest growth is projected for the commercial sector (1.1 percent), which has the smallest share of end-use energy demand. Growth in commercial energy use is primarily due to office equipment, ventilation, and the use of new technologies including service station equipment, automated teller machines, telecommunications equipment, and medical equipment—most of which are powered by electricity. Residential energy use grows by



0.4 percent per year, due to population growth, more personal computer use, and shifts to larger formats for television sets thought the increases are generally offset by efficiency improvements in lighting and appliances.

Approximately 85% of the energy consumed in the U.S. is derived from fossil fuels.² Renewable energy contributed 8.4% of total U.S. electricity generation in 2007.

The State of California defines renewable resources as biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current.

Energy in California

Fueled by population and economic growth, the demand for electricity in California is increasing. At the same time, local governments are anticipating future mandates to significantly decrease greenhouse gas emissions.

In 2007, California produced 69.5% of the electricity it uses; the rest is imported from the Pacific Northwest (8.2%) and the U.S. desert southwest (22.3%). Natural gas is the main source of electricity for the state, providing 46.5% of the total system power.

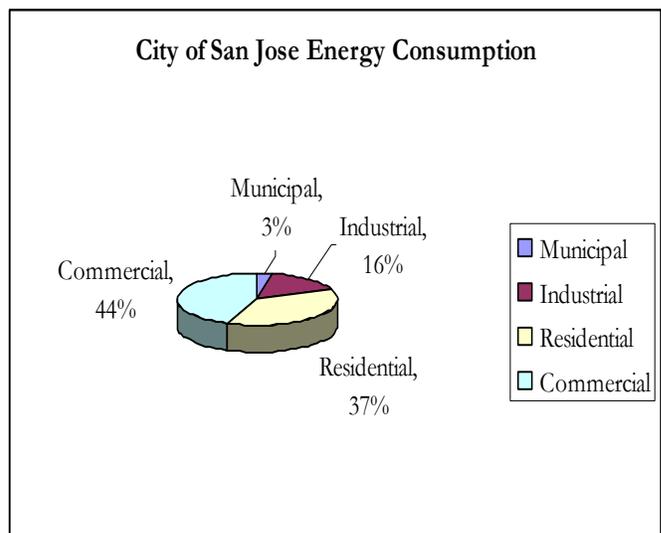
In 2005, Californians spent \$31 billion to purchase electricity. Nineteen percent of the statewide energy use was to pump water so water conservation is another important way to save energy.

The 2008 sources of electricity within the state include³:

Natural Gas	46.5%
Nuclear	14.9%
Large Hydro	9.6%
Coal	15.5%
Renewables	13.5%
<i>Biomass</i>	2.2%
<i>Geothermal</i>	5.1%
<i>Small hydro</i>	3.5%
<i>Solar</i>	0.3%
<i>Wind</i>	2.5%

Energy Use in San José

Citywide, the FY2006-07 total electrical usage by all sectors is almost 5 billion kilowatt hours (kWh) according to PG&E data. The City used 132 million kWh for municipal





operations that year.

To achieve the Green Vision goal of reducing per capita energy use by 50% by 2022, energy use will need to be reduced by at least five percent per year for the next 15 years.

Because of good solar insolation, San José is also well positioned to transition to a wide variety of renewable energy sources, particularly solar energy.

Climate Protection

Scientific evidence and consensus continues to strengthen the idea that climate disruption is an urgent threat to the environmental and economic health of our communities.

In the U.S., energy consumption, mostly from burning fossil fuels, accounts for three-quarters of human-generated greenhouse gas emissions, primarily carbon dioxide. More than half the energy-related emissions come from large stationary sources such as power plants.⁴

Taking Action

The Urban Environmental Accords, adopted by the City of San José in 2005, include a goal for member cities to reduce greenhouse gas emissions by 25% by 2030 (Action 3).

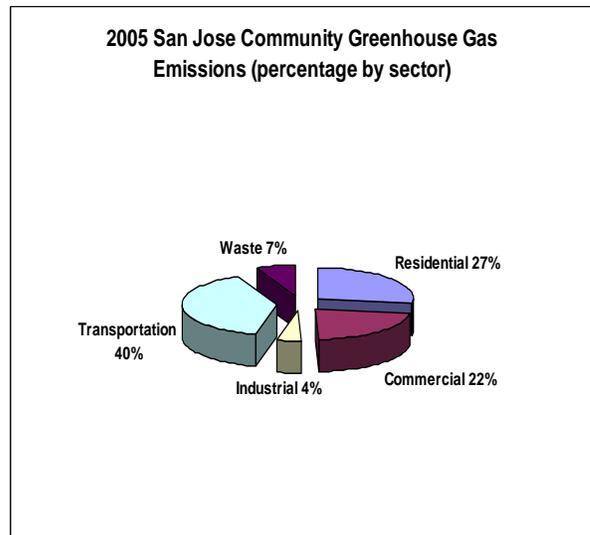
State Climate Change legislation—AB 32, together with Executive Order S-3-05, set a statewide goal of reducing greenhouse gas emissions to 1990 levels by 2020 and 80% below 1990 levels by 2050. In 2007, the San José City Council also adopted municipal Greenhouse Gas reduction goals to bring City

greenhouse gas emissions below 1990 levels as follows:

Goal to bring Greenhouse Gas emissions below 1990 levels	
By Year	Percentage Below 1990 Levels
2012	25%
2015	30%
2020	35%
2030	50%
2045	80%

Today's energy use emits significant amounts of greenhouse gas emissions. For example, in 2005, San José's residential and commercial sectors combined generated over 2 million tons of carbon dioxide equivalent (CO₂e), which is approximately 49% of the communities' greenhouse gas emissions.

Through energy conservation and transition to alternative energy sources, San José can significantly reduce its greenhouse gas emissions.





Energy Trends: Opportunities and Challenges in San José

Clean and Green Technology

Technology is a major driver of the local economy. As the Capital of the Silicon Valley, San José has long been a leader in cutting-edge, technological innovation. In keeping with that spirit of ingenuity, the City and its residents chose to rise to the challenge and transform regional problems into opportunities, as evident in its bold Green Vision goals. It is the City's intention to advance its role as a technological leader and become a world Clean Tech center with thousands of jobs and billions of dollars of new investment in San José. This Energy Plan seeks to support and foster that spirit, find smart, sustainable solutions to our energy demands, and continue to lead by example.

Smart Energy Makes Cents

Energy efficiency is an integral component of clean technology. In October 2008, Next10, an independent, nonpartisan organization that educates, engages and empowers Californians to improve the state's future, released "Energy Efficiency, Innovation and Job Creation in California," a report which details the symbiotic relationship between the State's energy issues and economy. The report concluded that energy efficiency saved Californians \$56 billion between 1972 and 2006.

Clean, sustainable energy has the benefits of:

- Reducing energy costs

- Conserving existing nonrenewable resources
- Driving demand for new, innovative technology
- Stimulating green business growth and creating local jobs.

Energy Efficiency and Renewable Energy Creates Jobs

The Next10 report referenced earlier also asserts that about 1.5 million FTE jobs with a total payroll of over \$45 billion were created as a result of energy savings within California between 1972 and 2006. The report further states that "California's energy policies and resulting economic growth provide evidence that innovation and energy efficiency can make essential contributions to economic growth and stability."

San José's Clean Tech Strategy has produced substantial results in the attracting new clean tech jobs. In October 2007, there were an estimated 1,5000 clean tech jobs located in San José. Today that number totals more than 3,000.

Smart Meters and Smart Grids

California has led the way with the rise of smart metering, consumption, and emissions measurement technology. Recent innovations in consumer technology such as PG&E's SmartMeter program, and the adoption/roll-out of smart meters provide energy users with better information about their consumption habits and resources that will help them better manage energy waste and reduce their impact.



A **smart grid** delivers electricity from suppliers to consumers using digital technology to save energy, reduce cost and increase reliability. It also incorporates consumer equipment and behavior in grid design, operation, and communication technologies. The meters encourage consumers to reduce energy consumption during high-demand periods by notifying them whenever the price of electricity is about to increase or decrease. This will allow customers to adjust their electricity demands accordingly, as well as to take advantage of the prevailing rates of the time period.

Economic Issues

2008 and 2009 have been characterized by a suffering U.S. economy and the mortgage crisis, combined with fluctuating gas and utility prices. This has meant that residents and businesses have less money to spend and consequently lower priorities to upgrade to energy-efficient products. While many resources exist for the low-income populations within the State and the City, the “working poor”—those households which fall outside of the State’s income eligibility guidelines—do not have the economic resources to avail themselves of energy efficient or renewable technologies.

Energy assistance guidelines state that to be eligible for low-income energy assistance programs, a typical family of four can’t make more than \$41,500 to \$43,200 on an annual basis, depending on the State or utility program. Locally, San José's Housing and Urban Development (HUD) Community Development Block Grant (CDBG) defines a

lower-income family of four as those with an annual income \$84,900. Therefore, an additional 30% of San José residents, while eligible for CDBG assistance, are not eligible for energy assistance programs. The City plans to address this discrepancy in collaboration with PG&E, the California Public Utilities Commission and through some 2009 Federal Stimulus programs, which are expected to offer new financial resources for energy efficiency and renewables within the community.

Organics to Energy

The City’s Zero Waste Strategic Plan, adopted by Council in December, 2008, was created to outline the potential actions needed to reach zero waste.

San José remains committed to diverting waste to its highest and best uses including the recycling of paper, bottles and cans and the composting of clean yard waste. As the City analyzes the final portions of its waste stream, however, the materials become harder to capture and process, creating the need to consider innovative technical solutions. One such solution is the conversion of organic waste to energy, which reduces the volume of these materials and prepares the feedstock for further processing while capturing energy in the process.

The City hopes to achieve the following goals through organic waste-to-energy conversion:

- Divert hard-to-recycle waste from landfills
- Generate renewable energy



- Reduce carbon impacts of organic wastes
- Leverage private sector investment for technology development
- Provide regional solutions for organic waste management
- Become a leader in technology innovation

While there are many innovative solutions to manage organic waste management, it is critical to identify the appropriate technology options for San José based on available waste streams, infrastructure, and community interests. The waste-to-energy planning process focuses on collaboration with stakeholders and industry experts in order to identify a San José specific action plan for implementing these technologies. To date, staff has identified key stakeholders that will contribute to a robust evaluation process, as well as practicable solutions for developing energy conversion capacity in San José.

The following planning strategies were identified for phased implementation of waste-to-energy technology:

1. Add an option to evaluate conversion technology proposals as part of the upcoming Commercial Redesign RFP.
2. Develop a conversion technology research and incubation center at or adjacent to the San José/Santa Clara Water Pollution Control Plant in San José.
3. Analyze the benefits and potential risks of building a gasification plant in

San José to convert wood waste to energy.

These strategies are detailed in the Organics to Energy Strategic Plan attached as *Appendix E*.

Land Use and Energy

As stated earlier, a recent report developed for the City as part of Envision 2040 projected an additional 172,000 jobs and 471,000 residents between 2007 and 2040.

Decisions affecting land use directly affect energy use, along with the consequent production of greenhouse gases, due primarily to the strong correlation between where people live and work and their transportation needs. The City’s General Plan—Envision 2040—will address transportation needs, impacts and recommendations associated with land use decisions. The link to the General Plan is:

http://www.sanjoseca.gov/planning/gp_update/default.asp

Consumer Confusion about Options and Opportunities

Despite strong indicators like increasing adoption of compact fluorescent lamps (CFL) and Energy Star appliances, there are signs that energy efficiency is losing priority with consumers in the United States. An assessment conducted for the California Public Utilities commission identified several barriers to adoption which include: a lack of knowledge of the best options for increasing energy efficiency in the home, and the need to break through the “noise” of multiple



messages coming from utilities, nonprofits, companies and local governments.

In California, more people believe that automobiles, not household energy usage, have the most impact on climate change. In truth, our homes and buildings offer a significant opportunity to reduce greenhouse gas emissions, with the added benefit of saving money. Despite much progress, Californians need further fundamental education regarding energy efficiency. For example, the CPUC found that there still exists:

- Widespread confusion about energy efficiency terms, which actions provide greatest impact, and what is or is not energy efficient
- A significant gap between awareness and action
- The belief among Californians that they are “doing all they can”—yet they could easily do more.⁷

¹ PG&E data—community energy usage

² U.S. Department of Energy(DOE):
<http://www.energy.gov/energysources/fossilfuels.htm>.

³ California Energy Commission:
http://energyalmanac.ca.gov/electricity/total_system_power.html

⁴ EPA:
<http://www.epa.gov/climatechange/basicinfo.html>



Community Engagement

Steering Group

Development of this plan was guided by a steering group comprised of business, environmental and community representatives, working with City departmental staff. The Steering Group was comprised of representatives from:

- The Silicon Valley Leadership Group
- Pacific Gas and Electric (PG&E)
- Solar Tech
- The Sierra Club's Cool Cities Program
- Community Representative involved in Envision 2040
- The City's Environmental Services; General Services; Housing; Finance; Planning, Building & Code Enforcement Department, Office of Economic Development and the San José Redevelopment Agency

Between October 2008 and February 2009, City staff interviewed over 30 community-based organizations, non-profits, business associations, government agencies, and stakeholders. Additional outreach and comment from throughout the community was collected as part of the review process. These interviews, and subsequent input, helped gauge the community's reception of past energy efforts and concerns for the future to better address the changing energy demands of San José's diverse community and economy.

Evaluation of Strategic Plan Recommendations

Each recommendation was developed based on five criteria. The recommendations have the ability to:

1. Support Green Vision goals as well as local, state, and national mandates;
2. Address fiscal impacts related to energy use and increased utility or environmental costs;
3. Improve energy supply reliability and sustainability;
4. Increase community awareness and equity in access to alternative energy and efficiency programs and incentives; and
5. Decrease the environmental impacts related to San José's energy consumption.

Guiding Principles

In developing the four strategic recommendations for action, the steering group also requested guiding principles for their recommendations. The following guiding principles were first recognized in 1996 as part of the City's Water Policy Framework. These guiding principles were also used in the development of the Strategic Energy Plan recommendations. Further detail on these is included in *Appendix D*.

- Embrace the concept of Sustainability.
- Recognize the mutual dependence of environmental quality and continued economic health.



- Commit to environmental equity.
- Prefer prevention over cure.
- Recognize that an aware, responsible and involved community is the key to our success.
- Recognize our role and responsibility in the regional and in the global community.
- Practice what you preach.
- Ensure that we do the right things first, and do them well.
- Reduce risk through environmental policies and programs.
- Recognize the value of continuing leadership in planning and implementing innovative and proactive environmental policies and programs



Strategic Recommendations, Strategies, and Tactics

As discussed earlier, the Community Engagement process undertaken to identify the key recommendations, strategies and tactics for achieving the energy goals within San José's Green Vision focused on the following themes:

- **Leadership**

Continue the City's leadership in the development and implementation of policies, programs and actions that reduce the City's energy use and increase the use of renewable energy

- **Transformation**

Create a change in behavior that will effect a meaningful, long-term reduction in energy consumption and increase the use of renewables

- **Engagement**

Engage the San José community in order to strengthen, deepen and expand relationships, better connect people and resources in our community, and increase involvement in the City's Green Vision

- **Innovation**

Foster Innovation throughout the community, enabling the discovery of new ways to create value and leverage opportunities

Specific strategies and tactics for achieving these recommendations are summarized in the following pages. While many of these are broad in character, specific work plans along with the establishment of measurable objectives are being developed to guide program implementation, allocate resources, measure cost-effectiveness and track progress toward goals.

Strategic Recommendations, Strategies, and Tactics

Lead

Continue the City's leadership in the development and implementation of policies, programs and actions that reduce the City's energy use and increase the use of renewable energy

Strategies	Tactics		
	Near term 2009-11	Mid Term 2012-2015	Long Term 2016-2022
Reduce energy consumption in City facilities by 50%	<ul style="list-style-type: none"> Achieve a 20% reduction in energy consumption in City facilities. Complete 20 energy audits and energy efficiency projects Install LEDs with advanced control and monitoring systems allowing lights to be programmed remotely, dimmed and ensure utility billing for actual consumption; install LED in other outdoor lighting Ensure a robust and effective data tracking and management system 	<ul style="list-style-type: none"> Achieve a 20% reduction in energy consumption in City facilities 	<ul style="list-style-type: none"> Achieve an additional 10% reduction in energy consumption in City facilities resulting in total 50% reduction.
Expand municipal energy efficiency funds by 40% by 2022	<ul style="list-style-type: none"> Continue and expand City's energy efficiency fund to ensure that first year savings, achieved as a result of energy efficiency projects, are returned and employed for future City energy efficiency projects Ensure effective use of federal, state and other energy efficiency funds Release an RFP for building a gasification plant 	<ul style="list-style-type: none"> Refine or develop most effective energy efficiency (EE) and renewable energy (RE) financial instruments 	<ul style="list-style-type: none"> Refine or develop most effective EE and RE financial instruments
Receive 100% of the City's electrical power from clean, renewable resources by 2022	<ul style="list-style-type: none"> Put 10MW of solar on City facilities Draft City guidance document applicable to all City facilities to expedite installations of solar, including adding energy efficiency elements to Power Purchase Agreements 	<ul style="list-style-type: none"> Put 20MW of solar on City facilities/ properties Evaluate effectiveness of guidance and renewable energy procurement documents 	Evaluate and update activities as needed

Transform

Create a change in behavior that will effect a meaningful, long-term reduction in energy consumption and increase the use of renewables

Strategies	Tactics		
	Near term 2009-11	Mid Term 2012-2015	Long Term 2016-2022
Achieve a 50% reduction in per capita energy use by 2022 through demand reduction and efficiency	<ul style="list-style-type: none"> • Work with CPUC, CEC, utilities and local business, educational and community entities to develop and implement a community wide education and outreach effort. • Work with area builders to ensure implementation of energy efficiency strategies related to zero net energy by 2020 in residential and commercial construction • Conduct integrated communication and marketing campaigns • Evaluate progress and refine strategies and actions • Ensure integration and implementation of Smart Meter and Smart Grid program activities • Ensure integrated and streamlined permitting systems for energy efficiency, renewable energy and green building 	<ul style="list-style-type: none"> • Ensure adoption of Envision 2040 General Plan Policies that incorporate energy issues into policy decisions related to land use • Evaluate progress and refine strategies and actions • Increase energy efficiency standards in construction and building standards 	<ul style="list-style-type: none"> • Continue to refine and deliver integrated communication efforts to reach targeted sectors of the community
Increase resources for the community to assist with the implementation of energy efficiency and/or renewable energy technologies	<ul style="list-style-type: none"> • Provide financing mechanisms for the residential and commercial sectors that incorporate funding for energy efficiency, renewable energy, and possibly roof repairs. • Leverage use of federal, state and other energy efficiency funds • Increase energy audits and retrofits in low-income areas 	<ul style="list-style-type: none"> • Monitor and continuously improve financial products and programs for whole-house energy efficiency and renewable energy retrofits 	<ul style="list-style-type: none"> • Monitor and continuously improve financial products and programs for whole-house energy efficiency and renewable energy retrofits

Strategies	Tactics		
	Near term 2009-11	Mid Term 2012-2015	Long Term 2016-2022
Increase resources for the community to install energy efficiency and/or renewable energy technologies (continued)	<ul style="list-style-type: none"> • Increase the number of San José residents and businesses receiving energy efficiency and/or renewable energy services by 10% • Facilitate collaboration between various state, regional and local providers to develop new and existing funding mechanisms for energy efficiency improvements and renewable energy installations • Develop a comprehensive neighborhood/community scale building energy retrofit program • Work with PG&E to implement on-bill financing and other lending products • Establish a recognition program for the Energy Efficiency and Renewable Champions within our community • Develop San José as an employer and technology showcase for emerging waste to energy conversion technologies through demonstration and research at the San Jose/Santa Clara Water Pollution Control Plant 	<ul style="list-style-type: none"> • Increase the number of San José residents and businesses receiving energy efficiency and/or renewable energy services by 50% • Streamline permitting processes for energy efficiency and renewable energy projects • Evaluate energy retrofit on remodel or resale ordinances 	<ul style="list-style-type: none"> • Increase the number of San José residents and businesses receiving energy efficiency and/or renewable energy services by 100%
Ensure environmental safety in the manufacturing and disposal of existing and emerging energy efficiency and renewable energy tech	<ul style="list-style-type: none"> • Ensure safe and proper disposal of all compact fluorescent lights • Work the state, regional and community organizations to ensure environmentally safe manufacturing and disposal of all energy efficiency and renewable technologies 	<ul style="list-style-type: none"> • Monitor and evaluate outreach and education activities, refine strategy and implementation as identified 	Evaluate and update activities as needed

Engage

Engage the San José community in order to strengthen, deepen and expand relationships, better connect people and resources in our community, and increase involvement in the City's Green Vision

Strategies	Tactics		
	Near term 2009-11	Mid Term 2012-2015	Long Term 2016-2022
Develop and expand partnerships throughout the community to implement energy efficiency and renewable energy programs.	<ul style="list-style-type: none"> Establish community wide partnerships with all stakeholders to increase involvement in energy issues Establish partnerships with area businesses and the commercial sector for establishing the Energy Star Buildings Program. Establish a partnership with retail stores to promote the efficient use of energy star appliances 	<ul style="list-style-type: none"> Monitor and evaluate outreach and implementation activities, refine strategy and implementation as identified 	Evaluate and update activities as needed
Coordinate with federal, state and regional agencies to increase building codes and permitting processes, including Title 24 building standards, Title 20 appliance standards.	<ul style="list-style-type: none"> Work with the Santa Clara County Cities association and other state and regional associations and local government groups to identify and implement effective building codes 	<ul style="list-style-type: none"> Advance and implement Title 24 “beyond code” standards in step with state-wide mandatory standards in 2011 and 2014. 	<ul style="list-style-type: none"> Fine tune and revise local building standards based on changing energy efficiency, green building and renewable energy state of the art.
Strengthen and expand Low-to-moderate Income Energy Efficiency (LIEE) programs utilization	<ul style="list-style-type: none"> Improve and enhance regional LIEE outreach, coordination and implementation activities. Work with PG&E, CPUC and City departments to expand LIEE programs to the low-to-moderate community sectors 	<ul style="list-style-type: none"> Monitor and evaluate outreach and implementation activities, refine strategy and implementation as identified 	Evaluate and update activities as needed
Work with area educational programs and institutions to create jobs and drive markets, ensuring comprehensive and integrated job training programs that build careers in the energy efficiency and renewable energy sectors.	<ul style="list-style-type: none"> Work with local, state and regional educational agencies to identify needs and opportunities Develop and implement targeted educational and outreach activities Use City's Go Green Schools program to enhance EE and RE educational activities 	Evaluate and update activities as needed	Evaluate and update activities as needed

Innovate

Foster Innovation throughout the community, enabling the discovery of new ways to create value and leverage opportunities

Strategies	Tactics		
	Near term 2009-11	Mid Term 2012-2015	Long Term 2016-2022
Achieve Green Vision Goal 3— Receiving 100% of electricity from renewables by 2022 by exploring opportunities for increasing renewable energy technologies throughout the community	<ul style="list-style-type: none"> • Develop one or more appropriate and cost-effective agreements to develop and build one or more “renewable energy/solar farms” of 5-20MW. • Develop a conversion technology research and incubation center • Incorporate an energy conversion option into the Commercial waste RFP • Prepare a recommendation regarding establishing Renewable Energy Zones within San José, similar to Enterprise Zones. • Develop means of retrofitting streetlights to solar energy 	<ul style="list-style-type: none"> • Evaluate and update activities as needed • Demonstrate and compare emerging technologies that could be used in San José to convert hard to recycle wastes 	<ul style="list-style-type: none"> • Evaluate and update activities as needed • Implement safe and effective technologies that can be used to convert the final fractions of non-recyclable solid waste to energy
Engage the full range of participants within the clean and green technology sector to facilitate paths to market	<ul style="list-style-type: none"> • Partner with clean tech companies to test and pilot innovative energy efficiency and renewable energy projects • Leverage private, federal, state and local financing tools and mechanisms for technology research and investment 	Continuous Improvement including lessons learned regarding policies and actions	Continuous Improvement including lessons learned regarding policies and actions
Design, pilot and evaluate EE and RE technologies	<ul style="list-style-type: none"> • Identify EE and RE opportunities for the use of the City’s Demonstration Policy 	Evaluate and update activities as needed	Evaluate and update activities as needed
Promote San José as the City of choice for manufacturers of clean energy technologies	<ul style="list-style-type: none"> • Continue City efforts at achieving the Green Vision Goal of securing 25,000 new clean tech jobs • Continue and explore additional opportunities for the City to collaborate with others to showcase clean tech innovations 	Continuous Improvement including lessons learned regarding policies and actions	Continuous Improvement including lessons learned regarding policies and actions



APPENDICES

Appendix A: Glossary

Appendix B: Steering Group

Appendix C: Stakeholder Interviews

Appendix D: Guiding Principles

Appendix E: Organics-to-Energy Draft Workplan

Appendix A: Glossary of Terms

AB – Assembly Bill

Btu – British Thermal Unit, measure of energy usage

CFL – compact fluorescent lamp

CO₂ – carbon dioxide

EE – energy efficiency

EP3 – Environmentally Preferable Purchasing Policy

FTE – Full Time Equivalent

FY – Fiscal Year

GHG – greenhouse gases

LED – light emitting diode

LEED – leadership in energy and environmental design

LIEE – Low Income Energy Efficiency

PG&E – Pacific Gas & Electric

RE – renewable energy

RFP – request for proposals

SJ-SVEW – San Jose Silicon Valley Energy Watch

Appendix B: Steering Group

In developing this plan, the City was guided by a steering group comprised of business, environmental and community representatives, along with City departmental staff.

- Papia B. Gambelin and Diane Silveira, Pacific Gas and Electric (PG&E)
- Doug Payne, Solar Tech
- David Marsland, The Sierra Club's Cools Cities Program
- Bob Hines, The Silicon Valley Leadership Group
- Lisa Jensen, City of San José Planning Commissioner, Community Representative--Envision 2040

City of San José Departmental Representatives:

San Jose Redevelopment Agency: Bill Ekern

Finance Department: Charlene Sun

General Services Department: Randy Turner

Housing Department: James Stagi

Office of Economic Development: Collin O'Mara

Planning, Building and Code Enforcement Department: Michael Rhoades

Environmental Services Department:

- Mary Tucker, Energy Program Manager, Coordinator for the Strategic Energy Plan
- Kerrie Romanow
- Mary Ellen Dick
- Jessie Denver
- Amy Fonseca
- Kirsten Struve
- Michele Young

Appendix C: Stakeholder Interviews

Individual interviews were held with City Departments and with representatives from the following organizations/businesses:

- American Institute of Architects
- Applied Materials
- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE—Silicon Valley Chapter)
- Asian Business Alliance of Silicon Valley
- Bo Enterprises (Weatherization Contractors)
- Building Operators and Managers (BOMA) Energy and Sustainability Committee
- California Building Performance Contractors Association
- Environmental Business Cluster
- Greenbelt Alliance
- Joint Venture Silicon Valley—Climate Protection Initiative
- Joint Venture Silicon Valley—Sustainable Buildings Initiative
- League of Women Voters
- Office on Aging—Senior Commission
- Orchard Supply Hardware
- People Acting in Community Together/Unitarian Church
- Parliament of the World’s Religions—Conference Event
- PG&E
- San Jose Housing Department – Homeless Programs
- San Jose Conservation Corp and Charter School
- San Jose Developers Roundtable
- San José State University—Facility Management
- Santa Clara County Association of Realtors
- Santa Clara Valley Chapter National Electrical Contractors Association
- Sierra Club
- Silicon Valley Council of Nonprofits
- Silicon Valley Toxics Coalition
- Strong Neighborhoods Initiative
- Tri-County Apartment Association
- Western Appliance
- Working Partnerships USA

Appendix D: Guiding Principles

- **Embrace the concept of Sustainability.**

In short, this means the City should work to meet its existing needs without compromising the ability of future generations to meet their needs.

- **Recognize the mutual dependence of environmental quality and continued economic health.**

Economic vitality and environmental protection are not mutually exclusive. A healthy environment is integral to the long-term economic interests of our City. Likewise, a healthy economy will allow the City to champion and implement the programs and projects that will maintain and enhance our local natural environment into the future.

- **Commit to environmental equity.**

The City's environmental efforts must reach all segments of the community. The City should work to ensure that environmental requirements do not place inordinate and unfair burdens on any one sector of the City.

- **Prefer prevention over cure.** The City favors a prevention oriented approach to environmental management, rather than corrective action after the fact.

- **Recognize that an aware, responsible and involved community is the key to our success.** The City's environmental efforts will fall short unless individual citizens, community-based groups, and businesses are involved.

- **Recognize its role and responsibility in the regional and in the global community.**

The City must continue to recognize, and act upon, the relationship between local environmental issues and the regional and global environment.

- **Practice what you preach.** Few things raise as much ire as when government entities fail to meet the same standards and regulations they impose on others. The City must avoid this double standard and act as a leader in environmental management.

- **Ensure that we do the right things first, and do them well.** The City must develop and continually reevaluate its environmental priorities to ensure that it is making the best possible investments in San José's future.

- **Reduce risk through environmental policies and programs.** The overarching goal of all the City's environmental actions and investments is to reduce the risks environmental problems pose to human health, the environment, the economy and the quality of life.

- **Recognize the value of continuing leadership in planning and implementing innovative and proactive environmental policies and programs.** The City understands and values the encouragement it has received, from individual San José residents to international organizations, as a city that manages environmental affairs well. Being a municipal environmental leader has value in that it has given residents, businesses and City employees a renewed sense of civic pride which fuels our desire to solve all our urban problems with enthusiasm, determination and cooperation.

Appendix E: Organics-to-Energy Draft Workplan



San José Green Vision

In October 2007, San José unveiled its Green Vision for the future. The Green Vision provides a comprehensive approach to sustainability through innovation and new technology. In adopting its Green Vision, the City established 10 goals to be achieved within 15 years. Goal Five reads: ***Divert 100 percent of the waste from our landfill and convert waste to energy.***

The Zero Waste Strategic Plan (ZWSP) was created in order to outline the current programs and actions needed to reach zero waste. It was adopted by Council on December 16, 2008. The Organics-to-Energy Workplan is an addendum to the ZWSP that outlines specific strategies for conversion of organic waste to energy.

San José remains committed to diverting waste to its highest and best uses including the recycling of paper, bottles, and cans and the composting of clean yard waste. As the City targets the remaining portions of its waste stream the materials become harder to capture and process. This creates the need to consider source reduction efforts such as extended producer responsibility, social marketing for behavior change, fees, product bans at the front end, and innovative technical solutions at the back end. One such back-end solution is the conversion of organic waste to energy. Converting organic waste to energy

reduces the volume of hard-to-capture materials and prepares the organic waste feedstock for further processing while capturing energy in the process. This workplan provides an overview of the steps being taken to incorporate energy conversion into the ZWSP and the Strategic Energy Plan. The City hopes to achieve the following goals through conversion of organic waste to energy:

- Divert hard-to-recycle waste from landfills
- Generate renewable energy
- Reduce carbon impacts of organic wastes
- Provide regional solutions for organic waste management
- Leverage private sector investment for technology development
- Maintain leadership in technology innovation

In order to determine the feasibility of conversion technologies for San José, the City has collected and analyzed data over the past two years. The following documents are available at www.sjrecycles.org/zerowaste-citydocs.asp.

- The [Biomass-to-Energy Technology Evaluation](#) was conducted in 2007 for the San Jose/Santa Clara Water Pollution Control Plant. This evaluation surveyed available biomass streams in San José, including

biosolids, wood, and yard waste. It also included a brief analysis of energy technologies that could handle this local material.

- In December 2007, the City of San José Environmental Services Department released a Request for Information regarding Alternative Technology Energy Facilities in order to begin determining feasibility and evaluating options for generating energy from selected waste materials. The [RFI](#) and [Review of City RFI responses](#) outline options.
- [The Zero Waste Strategic Plan](#), approved by the City Council in December, 2008, includes [Appendix E Conversion Technology](#) which reviews conversion technologies that the City could consider for to achieve zero waste. The report recommends next steps for further evaluation of new technologies.

Based on Criteria outlined in the Zero Waste Strategic Plan, including scale of operation, regulatory parameters, and potential environmental issues, analysis suggests that anaerobic digestion (AD) and gasification are the only viable large scale conversion technologies appropriate for San José at this time. Other technologies included in the analysis would need to be demonstrated through incubation scale tests to prove design inputs and outputs. Traditional waste-to-energy facilities, whether using moving grates or fluidized bed combustion, are not

considered viable in San José at this time due to the difficulty of meeting local air pollution control requirements and the challenge of achieving public approval.

Organic Conversion Strategies

While there are many innovative solutions to consider regarding organic waste management, it is critical to identify the appropriate options for San José based on available waste streams, infrastructure, and community interests. City staff has implemented a planning process that leverages collaboration with stakeholders and industry experts to identify a San José-specific action plan for implementing new technologies. Through this process, staff has identified key stakeholders who will contribute to a robust evaluation process, and help design practicable solutions for developing the capacity for energy conversion in San José.

The following planning strategies were identified for phased implementation of energy technology:

1. Add an option to convert organic waste to energy as part of the upcoming Commercial Redesign RFP.
2. Develop a conversion technology research and incubation center at or adjacent to the San José/Santa Clara Water Pollution Control Plant in San José.
3. Analyze the benefits and potential risks of a gasification plant in San José to convert wood waste to energy.

As a partner in the process of infrastructure development, the City is willing to consider:

1. Proven commercial scale conversion technologies
2. Incubator or demonstration scale projects for emerging technologies
3. Siting support for technology companies wishing to locate headquarters in San José
4. Directing a portion of the waste stream to the facility
5. Alternative collection methods that segregate a portion of the waste stream in a manner consistent with the requirements of the technology (such as dedicated routes for food scraps from restaurants)
6. Providing a land lease at a competitive lease rate
7. Committing digester capacity at the City's waste water treatment plant
8. Revenue sharing

Strategy 1: Incorporate an Energy Conversion Option into the Commercial RFP

Overview

Including an option for energy conversion as part of the Commercial RFP is the first

available opportunity to assess implementation of conversion technology as a local waste management solution. Giving proposers the opportunity to present processing options that are linked to collection allows for the private sector to identify and invest in the best technologies available for San José-specific logistics and feedstocks. Conversion technology will be an optional proposal in addition to the core services of the RFP, but will allow for energy technology to be integrated into City-wide commercial waste operations if it is appropriate.

Because these technologies require feedstocks to be in specific forms for conversion, the energy option in the Commercial RFP is important. It allows proposers to align appropriate collection methods and infrastructure investments with the most appropriate processing technologies. Separating procurement of processing technology from collection could result in collection of feedstocks which are incompatible with the conversion technology, making the processing more expensive or ineffective.

Opportunities

- The redesign of the commercial system presents a unique opportunity for restructuring and innovation in collection and processing.

- Contract cycles are over ten years long, creating an infrequent window of opportunity.
- Federal Stimulus money available under the American Recovery and Reinvestment Act of 2009 can provide leveraged support for capital investment in infrastructure, lowering contract costs to the City and reducing risks to private investors and the public.
- Proposers will analyze technology readiness and appropriateness, sharing the risk in technology selection.
- The contract can contain an option of setting aside, or ‘carving out’ a certain amount of the waste collected by haulers for the City to use at will for technology demonstration.
- There are opportunities for greater accountability/sustainability in combined procurement of collection and processing if the contractor wants to develop infrastructure and keep doing business in the area, as opposed to a working solely with a technology vendor who has less long-term local business investment.
- Facility development requires significant capital investment and the proposer will require guaranteed tons of feedstock as a base throughput. The proposals will outline required tons and costs per ton, which will dictate how many tons the City can guarantee.
- A portion of the San José/Santa Clara Water Pollution Control Plant lands will be offered as part of the package in order to both attract private investment, and explore integrating Plant goals, such as the use of recycled water, waste heat, biosolids, etc.
- The Plant facility (upgraded digesters) could be used for technology implementation as part of the Plant Master Plan which would include collaboration on key issues such as land use, transportation, and community outreach.

Considerations

Current Activity

1. Developed energy option for inclusion in the Commercial Redesign RFP.
2. Working with HDR and other subject experts to develop specialized evaluation criteria.
3. Collaborating with TPAC to confirm potential uses of Water Pollution

Control Plant lands, and how the uses benefit tributary agencies.

4. Identifying financing opportunities to mitigate service costs such as Federal funding, carbon credits, land lease, etc.

Next Steps

1. Develop expert panel to review proposal submissions.
2. Determine whether to accept energy options included in commercial proposals.
3. Work with awarded proposers to support permitting and public process for technology implementation.
4. Identify appropriate technologies not included in commercial proposals that could be implemented in the research and incubation center.

Strategy 2: Develop a Conversion Technology Research and Incubation Center

Overview

Technology development and implementation requires testing, demonstration, and expert evaluation. Pending approval by the other tributary agencies to the Plant, the City has the opportunity to use a portion of the Water Pollution Control Plant land for the development of a research and incubation center for emerging technologies. This center would function to identify appropriate technologies for San José and the region through demonstration and data collection. The center could become a destination for other municipalities and institutions who want

to observe new technologies for their own communities. By collaborating with the research and educational institutions in the area such as UC Davis, Stanford, San José State, and UC Santa Cruz, the City can leverage research experience and expertise in technology analysis. A demonstration site would focus on incubation-scale projects for technologies not yet developed to commercial scale, or technologies that require additional evaluation from stakeholders including the local community and regulatory agencies such as the Bay Area Air Quality Management District (BAAQMD).

Opportunities

- San José would become a technology leader and center for innovation.
- Demonstration allows side-by-side comparison of technologies to determine the best options for San José.
- Small scale operations mitigate risks to the City inherent with large scale infrastructure development.
- Key stakeholders such as BAAQMD could help determine the scale of project allowable for consideration.
- Linkage with research institutions already involved with technology development such as UC Davis and UC Santa Cruz would leverage experience and technology expertise from the academic community.
- The type of agreements needed could be flexible including sole source agreements to meet certain niche's

needs – based on gaps after the commercial system is more defined.

Considerations

- A portion of the San Jose/Santa Clara Water Pollution Control Plant lands will be offered as part of the package in order to attract private investment. In conjunction with the Plant Master Plan the land lease option would require exploration of opportunities to integrate Plant goals such as the use of recycled water, waste heat, biosolids, etc.
- A small throughput of feedstock would need to be dedicated and managed for research projects.

Current Activity

1. Meetings were held at the Water Pollution Control Plant with State energy specialist and UC Davis researcher to identify opportunities and develop ideas.
2. Third parties reviewed the RFI and other conversion documents created for San José to confirm recommendations about appropriate technology.
3. Reviewing model innovation centers that can be replicated.

Next Steps

1. Meet with research institution stakeholders to identify opportunities for collaboration.
2. Collaborate with TPAC to confirm potential uses of Water Pollution

Control Plant lands, and benefits to tributary agencies.

3. Apply for funding through the federal competitive grant cycle.

Strategy 3: Release an RFP for Design/Build and Operation of a Gasification Facility

Overview

According to analysis completed by San José, gasification is one of the technologies that could be considered for commercial scale implementation. However, there are many considerations and potential barriers to siting a facility. Because of emissions and processing by-products, building a gasification plant in San José will require buy-in from key stakeholders such as BAAQMD and the community. Input from stakeholders would help avoid political or legal action that can stop facility siting. Benefits to San José would include the production of renewable energy, reduction of long haul of woody waste to co-generation sites in China Camp, and development of a regional facility that could potentially receive woody waste and biosolids.

Opportunities

- Siting a plant within the City limits would reduce the climate impact of San José's wood to energy practices.
- A regional gasification facility could generate revenue in the form of host fees.
- Potential solution for biosolids co-processing in coordination with the Plant Master Plan, and the potential to align with the Regional Biosolids

Initiative if it is in the region's best interest.

- Upcoming redesign of the City's CDDD program creates a planning opportunity.
- Gasification technology can be tested in San José's research and incubation center to determine impacts and gain stakeholder support.

Considerations

- It would be difficult to site and permit a facility given the stringent air regulations and potential for a negative community perception of the facility.
- There is a history of project cancellation due to public pressure.
- Most of the wood available for gasification is privately hauled from construction projects and thus not currently controlled by City waste hauling contracts.
- San José wood waste is already being diverted – either turned into mulch or sent to the central valley for gasification. This solution would make a minimal impact on diversion from landfill.
- Water Pollution Control Plant lands will likely need to be offered as part of the package in order to attract private investment.
- There are other energy alternatives for this feedstock such as wood waste to

ethanol or methanol, biogas to fuel, etc.

Next Steps

1. Meet with BAAQMD to outline acceptable project parameters.
2. Evaluate incentives for C&D debris haulers to use a gasification facility for disposal including terms in C&D Franchise Agreements as part of current C&D redesign effort or through modification of CDDD Program requirements.
3. Consider gasification technology on a small scale as part of the research and incubation center to mitigate potential stakeholder opposition.

Project Analysis for Risk Mitigation

The Environmental Services Department feels that it is critical to take all of the following steps for each of the technologies considered in order to provide high quality analysis and develop the most appropriate course of action.

- Feedstock Analysis
- Technology Evaluation
- Planning Coordination
- Regulatory Review
- Expert Review and Case Study Comparison
- Funding Identification

Feedstock Analysis

Conversion technologies require facility-specific or technology-specific feedstock. Some of these technologies require significant pre-processing of the feedstock to convert it to a usable form. The completion of a waste characterization for San José was a critical first step in analyzing potential feedstock for conversion technologies. Pilot programs are being developed to further characterize feedstock and efforts are underway to coordinate with the residential and commercial collection programs to identify available feedstocks.

Technology Evaluation

Comparisons of technologies for adoption in San José were reviewed as part of the Zero Waste Strategic Plan process. It was determined that anaerobic digestion or gasification are the only appropriate large scale technologies for San José at this time. However, ongoing research is being conducted to identify emerging technologies that might be appropriate for incubation scale projects. This research includes analysis of pilot projects being conducted by other municipalities.

Planning Coordination

In order to ensure that resources are leveraged throughout City and regional efforts, the City's Organics Management team is coordinating energy planning efforts with other planning efforts including the Green Vision Steering Committee, Plant Master Plan Team, General Plan 2040 Team, Energy Task Force, Regional Biomass-to-Energy Task Force, Climate Action Plan Team, and

Commercial and Residential Collection Redesign teams.

Regulatory Review

The City's Organics Management team is working with legislative consultants who will help City staff analyze regulatory and community barriers to siting conversion technology facilities. The team is also working with BAAQMD to identify regulatory parameters that will help guide project design and analyze EIR and CEQA opportunities.

Expert Review and Case Study Comparison

This City has technical experts available to assure that the planning, technical review, and project decision process get reviewed by expert third parties to minimize risk to the City. In conjunction with the City, these experts are comparing case studies on recent attempts to site conversion facilities by Sacramento, Santa Cruz, Los Angeles, Salinas, and San Francisco. Through these examples, San José can avoid some critical issues faced in recent processes such as receiving no stakeholder input, mismatching technology and collection infrastructure, not pursuing a proven commercial-level technology, and releasing RFPs with ambiguous criteria difficult to respond to resulting in proposals difficult to evaluate.

Funding Identification

The City's Organics Management team met with the City's federal lobbyist in February 2009 to learn about opportunities to obtain funds from the American Recovery and

Reinvestment Act of 2009. The team is also pursuing State grant opportunities and researching incentives for private investment. In addition to these efforts, steps are being taken to leverage opportunities presented by carbon markets. The team participates on the Climate Registry Panel as well as the State Waste Board Organics Roadmap Task Force and Infrastructure Advisory Committee to ensure San José remains current on carbon market development issues.