

# Town of Loomis

## Strategic Energy Resources Report

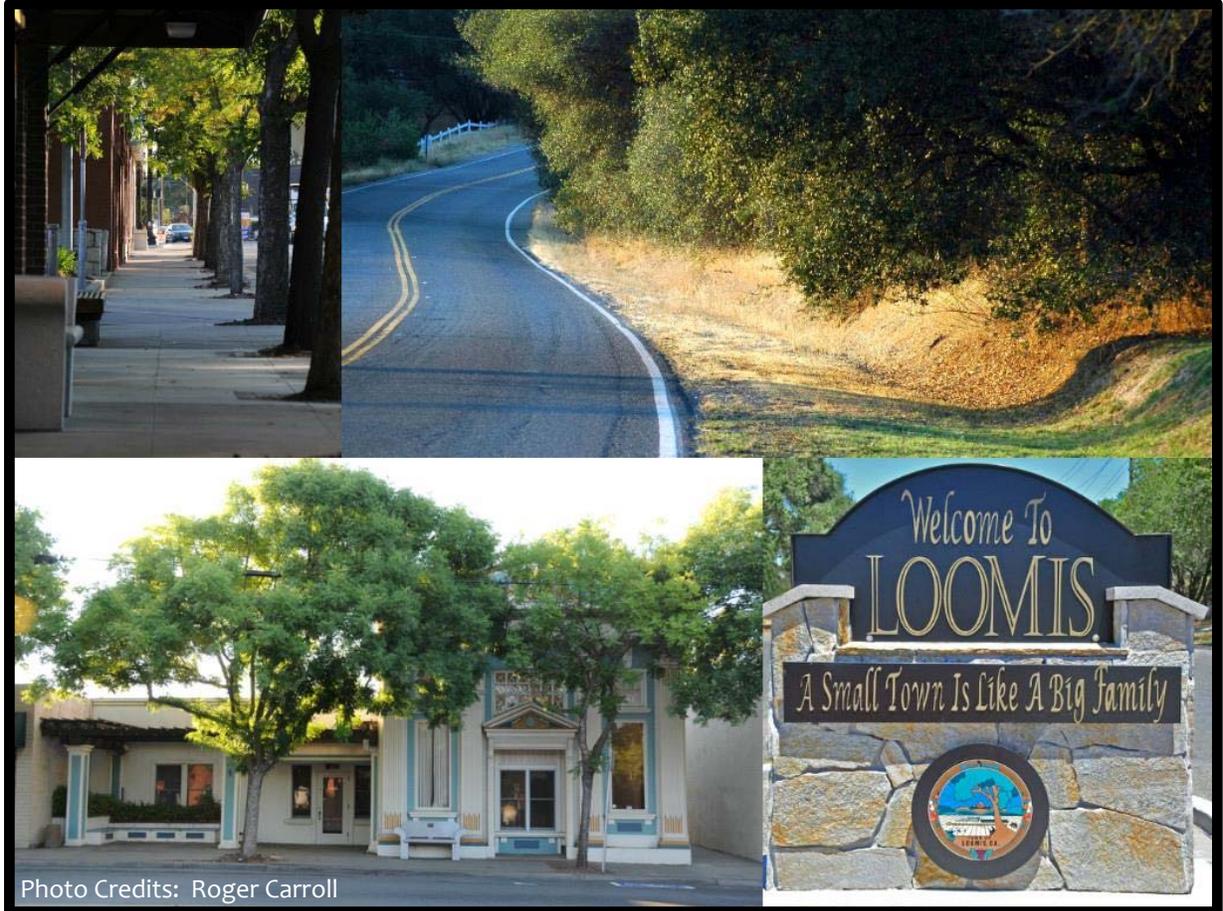


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In Collaboration with Town of Loomis



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# Credits and Acknowledgements

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Pacific Gas and Electric Company provides a range of comprehensive climate planning assistance to local governments, from providing energy usage data and assistance with greenhouse gas inventories, to training and guidance on the development and implementation of climate action plans.

This program is funded by California utility customers and administered by PG&E under the auspices of the California Public Utilities Commission.

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## EXECUTIVE SUMMARY

The Loomis Strategic Energy Resources Report (SERR) is a roadmap for expanding energy-efficiency and renewable-energy efforts already underway in the Town of Loomis (the Town). It builds upon energy-efficiency efforts begun in 2010 and work conducted by Sierra Business Council (SBC) in 2010, 2011 and 2014- 2015. The document focuses on three energy use sectors within the community – residential, non-residential and municipal (which is a subset of non-residential). The report only evaluates energy consumed by buildings and municipal operations; other energy consuming sectors such as transportation, solid waste, etc. are not addressed but could be at a future date. Loomis owns and operates the Town Hall, the Train Depot, a Corporation Yard, the Blue Anchor Park, public lighting, and operates the building, planning, public works and engineering departments.

The two primary energy sources consumed by the three community sectors are electricity and natural gas which is distributed by Pacific Gas and Electric Company (PG&E). Additionally, there is potentially significant propane and other non-utility fuel use in Loomis though due to data limitations, this fuel use was not analyzed. According to the baseline inventory conducted for Year 2005 the Town consumed 48.3 million kilowatt hours (kWhs) of electricity and 1.3 million therms of natural gas. Municipal operations accounted for 148,675 kWhs of electricity consumption in 2005 and cost the Town \$26,000. The forecast for Year 2020 shows a 14% increase in residential energy consumption and a 10% increase in non-residential energy consumption if no additional energy efficiency actions are taken. To date the Town’s energy efficiency efforts are saving over 3.2 million kWhs of electricity and 35,000 therms of natural gas annually, which underscores the importance of having such measures.<sup>1</sup> The inventory and forecast work conducted by SBC identifies additional areas where significant opportunities exist for additional energy savings. The SERR specifies the actions needed to achieve those savings resulting in further reductions in energy consumption and increased energy savings for residents, businesses and the local municipal government.

The document is organized into five chapters; the ‘heart’ of the document is contained in Chapters 4 and 5 (Energy Efficiency Goals, Strategies and Actions, and Implementation). The goals address five key areas:

- Energy efficiency in existing structures
- Energy performance in new construction
- Expansion of renewable energy options
- Energy efficiency in municipal operations
- Water conservation which reduces energy needed to transport and treat water

The strategies focus on voluntary measures that can be taken by residents, businesses and the local government. Key components include developing and disseminating information on existing rebate and incentive programs; public outreach via the Town’s website and printed materials;

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<sup>1</sup> Loomis residential and non-residential energy savings based on projects completed 2006-2012. Source: PG&E

training for staff, contractors and developers; and partnerships with PG&E and local and regional organizations. Energy reduction performance indicators and targets are established for each group of strategies. If all the actions are implemented, the estimated energy and cost savings for each strategy area would be as follows:

## Summary of Potential 2020 Annual Energy and Cost Savings

Strategy Area	2020 Annual Energy Savings		2020 Annual Cost Savings	
	kWh	Therms	Electricity <sup>2</sup>	Natural Gas <sup>3</sup>
Existing Structures	1,448,429	39,195	\$ 367,322	\$ 137,184
New Construction	724,366	13,624	\$ 183,699	\$ 47,685
Renewable Energy	8,203,799	6,430	\$ 2,080,483	\$ 22,504
Municipal Operations	29,730	--	\$ 7,539	--
Water Conservation	55,059	--	\$ 13,963	--
<b>Total</b>	<b>10,461,383</b>	<b>59,249</b>	<b>\$2,653,006</b>	<b>\$207,373</b>

## Purpose of Loomis Strategic Energy Resources Report

The SERR can be used by local residents and business owners to see where they might achieve greater energy efficiency in their home or commercial building. The local municipal government can use it to guide decisions about how to make the Town’s building and operational infrastructure more energy efficient. It can also be used by Town staff to prioritize programs to inform, encourage and inspire residents and businesses owners to be more energy efficient now and in the future. Exploring and implementing energy-efficiency programs creates flexibility for the Town in meeting its energy demand. This in turn helps the community be more self-sufficient and economically resilient in light of probable future increases in energy prices, whether due to market conditions or the regulatory environment. Being energy efficient does not compromise the Town’s small-town character or charm but rather enhances its ability to respond to the ever changing external conditions related to energy supply and demand.

<sup>2</sup>Assumed average rate of \$.2536 per kWh based on Forecast of PG&E Rates.

<http://www.ci.healdsburg.ca.us/Modules/ShowDocument.aspx?documentid=8906>

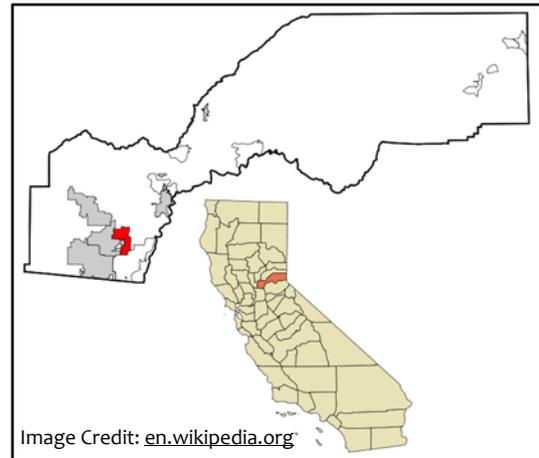
<sup>3</sup> Assumed average rate of \$3.5 per therm based on extrapolation from PG&E 2015 natural gas forecast.

<http://www.pge.com/tariffs/rateinfo.shtml>

## CHAPTER 1: BACKGROUND

### Community Profile

The Town of Loomis is a semi-rural community, established in 1850 and incorporated in 1984. Located in western Placer County just 25 miles northeast of Sacramento, it covers an area of 7.3 square miles. Interstate 80 transects the community. In 2013 the Town was home to approximately 6,688 residents living in 2,356 households with an average household size of 2.7. In 2014, the Town had 8 full-time, 2 contract and 2 summer, part-time employees and an operating



budget of \$3.1 million. Many of the services provided for Loomis residents, such as law enforcement, water delivery, wastewater treatment, solid waste disposal and public transportation, are operated by Placer County and other regional organizations. Loomis does however own and operate public lighting, the Town Hall, the Train Depot, the Blue Anchor Park as well as operate the building, planning, public works and engineering departments and provides senior services for residents. Electricity and natural gas for the community is distributed by Pacific Gas and Electric Company (PG&E).

The climate in Loomis reflects its location in the Sierra Nevada foothills. Average temperatures range from summer highs in the mid 90 degrees Fahrenheit to winter lows in the high 30's with record highs in the 110's and record lows in the high 10's.

### Local Energy Efficiency Efforts

At its 2013 strategic planning meeting, the Town Council adopted as one of its goals the desire to be a leader in promoting and achieving sustainability. Summarized below are activities and programs the Town has undertaken to promote that leadership position. For a full description of programs and activities, refer to Appendix D.

- Participant in Sierra Nevada Energy Watch Program (SNEW)
- Solar Power Purchase Agreement in place for Town municipal buildings
- Participant in Placer County Water Agency's (PCWA) rebate and incentive programs

In addition, the 2001 General Plan supports sustainability in the following ways:

- Parking lot landscaping (p.40)
- Increasing energy efficiency in new and existing residences (p. 107)
- New land use patterns that encourage energy efficiency (p. 107)
- Consideration of energy conservation in selection of building materials (p.111)
- Town's active participation in energy conservation programs and ways to reduce reliance on fossil fuels (p. 111)

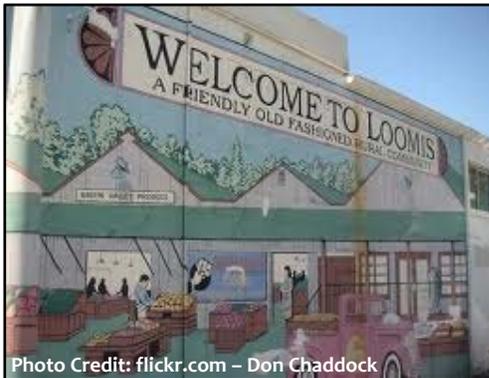
The municipal code has several sections that promote energy efficiency:

- Efficient outdoor lighting (13.30.080B)
- Landscape designs that minimize water and energy demand (13.34.050A)
- Energy efficient light fixtures (signs and gas station lighting) (13.38.050F.8 and 13.42.100)

## CHAPTER 2: INTRODUCTION

This chapter discusses the purpose and scope for the Loomis Strategic Energy Resources Report (SERR), the regulatory context for energy efficiency planning, how the SERR was developed and provides a user's guide to the document.

### WHY PREPARE A STRATEGIC ENERGY RESOURCES REPORT?



Local economies in the Sierra Nevada rely heavily on natural resources for tourism, recreation, forestry, agriculture and other industries. Changes in weather patterns resulting in less precipitation and significantly warmer temperatures have the potential to adversely affect the vitality of the region's natural resources, which in turn directly impacts local business. Reducing a community's demand on the energy grid helps lighten the need for new energy generating plants and creates the flexibility for the community to more readily meet

its energy needs with locally produced renewable energy. Retrofitting homes and businesses to be more efficient creates local jobs, reduces energy costs, improves air quality, and in combination with increased opportunities for walking and bicycling, improves community members' health. In addition, money not spent on energy can be instead spent at local businesses, improving the local economy.

The Loomis SERR outlines a series of strategies to reduce energy consumption in residential and non-residential buildings as well as municipal facilities and operations. This report is intended to provide guidance to Town staff, demonstrate the Town's commitment to energy efficiency, and inspire residents and businesses to participate in community efforts to maximize energy efficiency and reduce the associated air quality impacts of fossil fuel based electricity.

#### Regulatory Context

California is a leader in developing policies to reduce Greenhouse Gas (GHG) emissions, and these policies are some of the drivers behind the completion of GHG inventories and energy efficiency planning at the local level. The state's key efforts are described on the following page.

1978	<ul style="list-style-type: none"> <li>• <b>Title 24, Part 6.</b> Energy Efficiency Standards first adopted in 1978. Ongoing updates. Established minimum energy efficiency performance standards for residential and nonresidential buildings. Effective July 2014 new energy efficiency construction standards cost-effectively increase efficiency by 20% for residential buildings and 25% for non-residential buildings.</li> </ul>
2002	<ul style="list-style-type: none"> <li>• <b>Senate Bill 1078.</b> Established Renewable Portfolio Standards for each of the state's investor-owned utilities (IOUs), electric service providers, and community choice aggregators to acquire 20% of their electricity from renewable resources by 2010 and 33% by 2020.</li> </ul>
2005	<ul style="list-style-type: none"> <li>• <b>Executive Order S3-05.</b> Governor's Executive Order. Set GHG reduction targets for state agencies at Year 2000 levels by 2010, 1990 levels by 2020 and 80% below 1990 levels by 2050.</li> </ul>
2006	<ul style="list-style-type: none"> <li>• <b>Assembly Bill 32.</b> Landmark legislation that requires the California Air Resources Board (ARB) to develop regulatory and market mechanisms that will reduce greenhouse gas emissions to 1990 levels by 2020.</li> </ul>
2007	<ul style="list-style-type: none"> <li>• <b>Senate Bill 97.</b> Requires lead agencies to analyze GHG emissions and climate change impacts under the California Environmental Quality Act.</li> </ul>
2008	<ul style="list-style-type: none"> <li>• <b>Senate Bill 375.</b> Requires the California Air Resources Board to establish GHG reduction targets for each Metropolitan Planning Organization (MPO) in California and directs each MPO to develop a Sustainable Communities Strategy.</li> </ul>
2011	<ul style="list-style-type: none"> <li>• <b>CALGreen.</b> Enhances sustainable construction practices through mandatory and voluntary measures including reduced construction waste, water conservation, non-toxic sealants and use of renewable materials. Now part of Title 24 and updated on same schedule.</li> </ul>

## Economic Opportunities

One of the potential outcomes of implementing the Loomis SERR is increased investment in local green businesses and technologies which could provide new economic development opportunities for the Town. The following indicators suggest a robust market for clean economy businesses and industries as we move forward to the next decade.<sup>4</sup> New clean economy jobs and business opportunities range from water efficiency and recycling to energy and battery technologies as well as the transformation of existing industries. All of this creates new economic opportunities for communities within the Sierra Nevada region.

- California has more patent registrations in clean technology than any other state.
- California leads the nation in energy storage systems development and innovation.

<sup>4</sup> 2014 California Green Innovation Index, 6<sup>th</sup> Edition. Next 10. [www.next10.org](http://www.next10.org)  
<http://greeninnovationindex.org/sites/greeninnovationindex.radicaldesigns.org/files/2014-Green-Innovation-Index.pdf>. p. 29, 33-44

- Jobs within California’s Core Clean Economy increased by 20% in the last decade (January 2002 to 2012) while the total state economy increased 2%.
- Within California’s Core Clean Economy, the service sector ranked highest (57%) followed by manufacturing (13%), installation (11%), supplier (10%) and research and development (7%).
- California’s clean manufacturing jobs over the last decade were up 53%, while total state economy manufacturing fell by 21%.

## Relationship to CEQA

The Town of Loomis determined the SERR was categorically exempt from the California Environmental Quality Act (CEQA) per section 15061 (b) (3) of the CEQA guidelines:

*The activity is covered by the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA.*

Information in the document (and related background reports) can be used in environmental assessments required for new development projects, thus expediting the project review process.

## STRATEGIC ENERGY RESOURCES REPORT DEVELOPMENT

### Process

The path to the SERR began in 2010 when the Town engaged Sierra Business Council (SBC) to conduct a GHG inventory of municipal facilities and then subsequently, in 2011, to conduct a GHG inventory for the community, including residential and non-residential sectors. Energy consumption data was gathered for baseline year 2005 (which is the recommended year due to data availability). Calculations were performed to estimate baseline emissions (based on Year 2005 energy consumption data) using the most current methodology and protocols at the time.<sup>5</sup> The baseline inventories were presented to the Town Council in March 2011 and April 2012.



Photo Credit: <http://mv.theloomisnews.com>

<sup>5</sup> The municipal inventory followed the Local Government Operations Protocol and the community inventory followed the International Local Government Greenhouse Gas Emissions Analysis Protocol. As part of the SERR process the Town’s community emissions were updated to meet the recently released United States Community Protocol, the new national standard.

In 2013, the Town decided to take the information gathered through the baseline inventory process and formulate an energy strategy that would assist the community in being more energy efficient now and in the future. This direction aligns with the Town Council’s stated goal to be a leader in promoting and achieving sustainability.<sup>6</sup>

In 2014, the baseline inventory data was forecasted out to 2020 using local and regional growth projections. The data gathered during the inventory and forecasting process helped identify those activities within the community that consumed the most energy. This information pointed the way to where the greatest energy efficiencies could be realized, resulting in a series of goals, strategies and actions the Town can undertake to reduce energy consumption as well as dollars spent on energy. Performance indicators and targets were identified, where appropriate, to be used by the Town to measure its progress toward achieving greater energy efficiency.

## **Public Outreach**

As with any local planning process, community involvement is an essential part of its success. For the SERR, input was widely sought within the Town to help shape its content and ensure the document is relevant and realistic. The public outreach strategy included an online survey, information on the Town’s website, two community study sessions, meeting notices in local newspapers, targeted outreach to local businesses and organizations, and duly noticed public meetings before the Planning Commission and Town Council on February 24 and March 17, 2015.

## **USERS GUIDE TO THE REPORT**

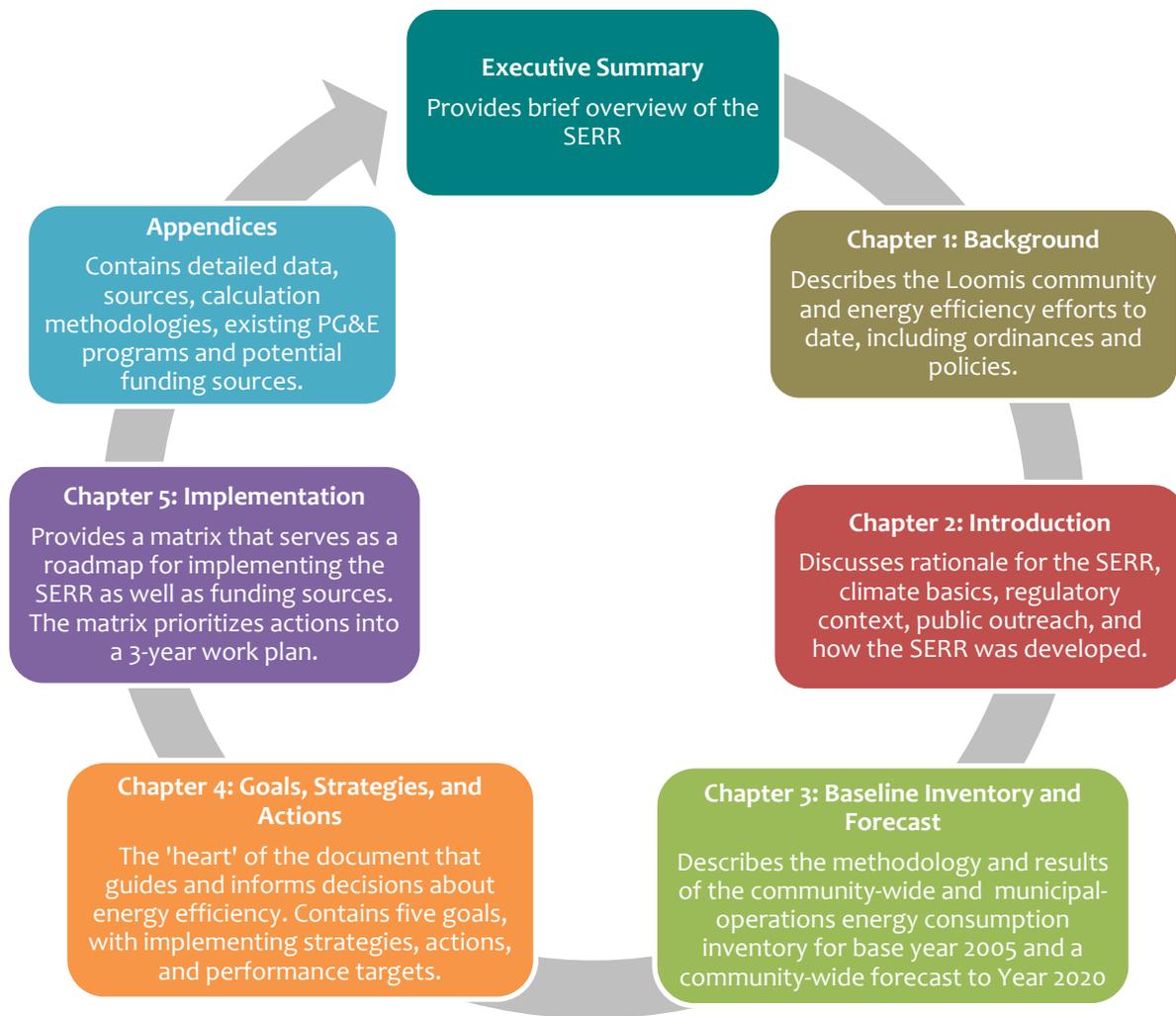
The SERR can be used as a tool to guide municipal and community decisions about the best ways to improve energy efficiency in the home, business, and municipal facilities and operations. It is designed as an integrated ‘living’ document that can be modified and augmented as new information, programs and energy efficiency technologies become available. The following diagram describes the information contained in the five chapters and appendices of the SERR. It provides a roadmap to assist the reader in accessing relevant information on existing and future energy consumption, policy direction, implementation actions, performance targets and a work plan for implementing the SERR.

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<sup>6</sup> 2013/2014 Town of Loomis Adopted Budget, p.iii

# Strategic Energy Resources Report

## Content and Organization



## **CHAPTER 3: BASELINE INVENTORY AND FORECAST**

This chapter summarizes the 2005 baseline and 2020 forecast of community-wide energy consumption as well as the 2005 baseline of municipal-operations energy consumption. SBC previously worked with the Town of Loomis to conduct 2005 baseline GHG emissions inventories of the Town’s municipal operations and community-wide activities and sources. These inventories were conducted from 2010-2012, with support from PG&E. The baseline and forecasted energy consumption informed the strategies for reducing energy consumption and increasing energy efficiency discussed in Chapter 4. It also provides a baseline year against which future progress can be measured.

### **2005 Baseline Community-Wide Inventory**

The Town of Loomis’ community-wide energy consumption data is expressed as aggregated residential and non-residential energy consumption by energy source. The Town’s municipal electricity use is included with the community-wide energy usage. Electricity and natural gas consumption were the two largest energy sources in the Loomis built environment.

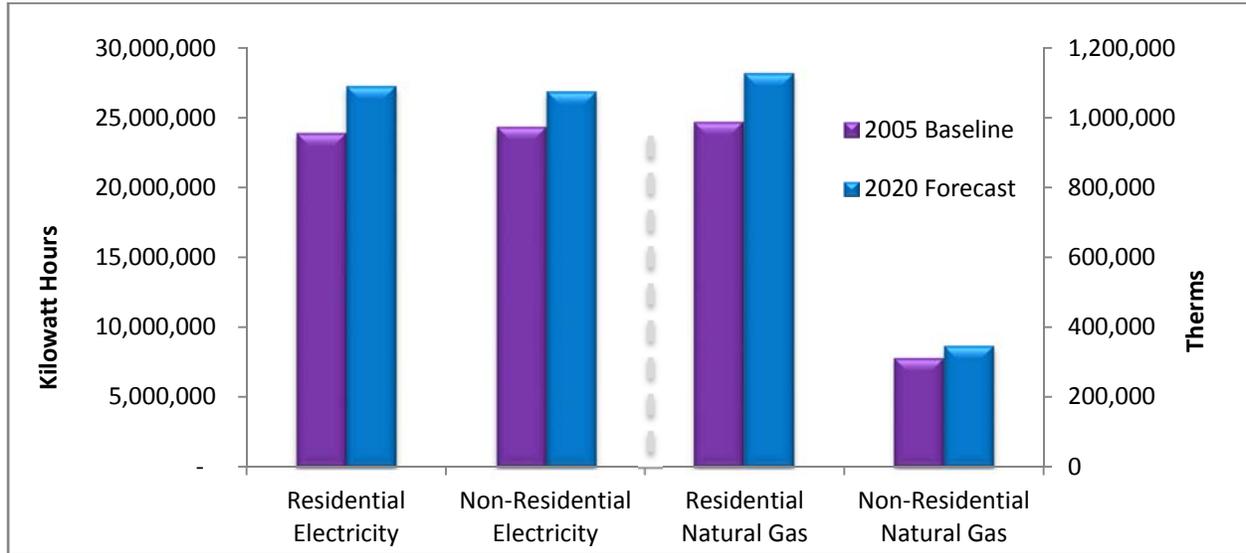
### **2020 Business-as-Usual Community-Wide Forecast**

The Town of Loomis’ community-wide residential and non-residential energy use were forecasted out to 2020 under a business-as-usual (BAU) scenario. Since the Town’s municipal electricity use is included with the community-wide energy usage, a separate forecast for municipal energy was not completed. The BAU forecast scenario was completed using the Statewide Energy Efficiency Collaborative (SEEC) ClearPath California toolkit. The BAU forecast estimates how energy use would change from 2005 to 2020 in the absence of any energy efficiency or renewable energy policies or programs. The two required inputs for a forecast: baseline energy consumption data and growth rates are presented in Appendix A and B respectively. The baseline data was pulled from the community-wide GHG emissions inventory. The growth rates were calculated using local and regional projections of households and employment.

The Town’s residential energy use was forecasted to increase 14% by 2020 using the projected change in households in Loomis. The annualized growth rates for households in Loomis were calculated based on the actual change in households from 2005 to 2013 and the projected growth in new households to meet the Sacramento Area Council of Governments (SACOG) 2013-2021 Regional Housing Needs Assessment final allocations for the Town Loomis. (See Appendix B)

The Town’s non-residential energy use was forecasted to increase 10% by 2020 using the projected change in employment in Loomis. The annualized growth rates for employment in Loomis were calculated based on the actual change in employment in Placer County from 2005 to 2013 as reported by the California Employment Development Department Labor Market Information Division and the projected growth in employment within the SACOG region from 2008 to 2020 prepared for the SACOG Metropolitan Transportation Plan update. (See Appendix B)

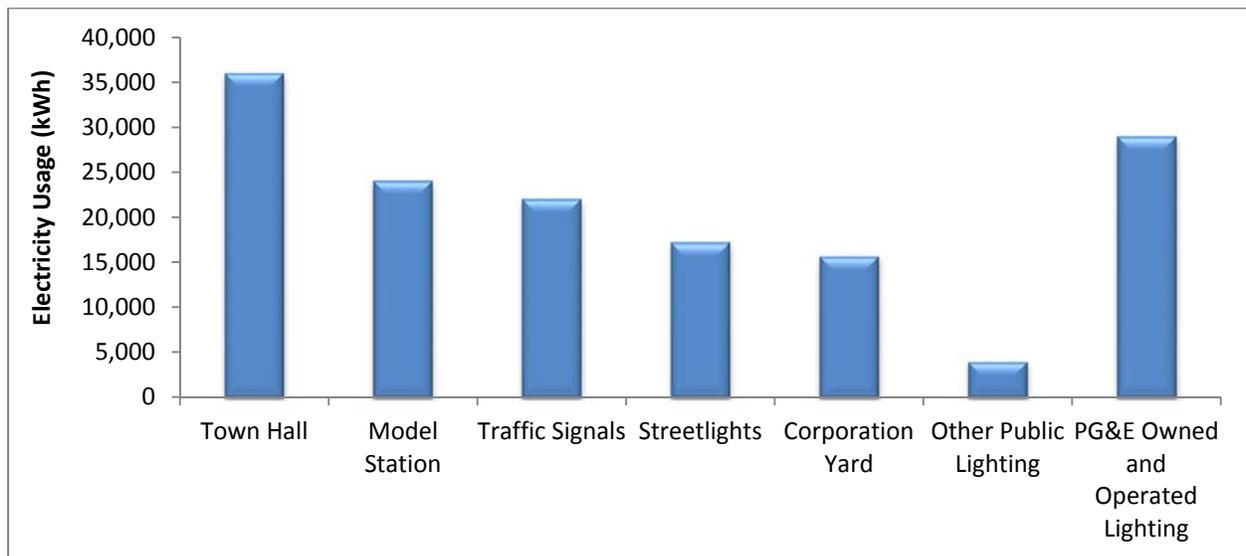
**Baseline and BAU Forecast of Residential and Non-Residential Electricity and Natural Gas Use**



**2005 Baseline Municipal Operations Inventory**

The Town of Loomis’ municipal facilities only energy source is electricity consumption, with the Town Hall consuming the most energy. Significant electricity was also consumed for traffic signals and public lighting. While the Town’s electricity consumption of 148,675 kWh is less than 1% of the community’s total electricity consumption and the Town has undertaken efforts to improve energy efficiency, there are still significant opportunities for the Town to reduce electricity usage and the associated costs. In 2005, the Town spent over \$26,000 on electricity. Detailed electricity use is presented in Appendix A.

**2005 Baseline Municipal Facilities Electricity Consumption (kWh)**



## CHAPTER 4: GOALS, STRATEGIES, AND ACTIONS

This chapter identifies goals, strategies and actions the Town of Loomis can undertake to reduce municipal and community energy consumption, energy-related costs and energy-related GHG emissions in both the near and far term. The goals, strategies and actions pertain to the energy consumed by buildings and facilities in the residential, non-residential and municipal sectors. Other sectors, such as transportation and solid waste, are not included in this report but could be addressed in future studies.

The baseline and forecast data indicate that without a plan to reduce energy consumption, the community's energy use and associated costs will continue to increase over time. The community's residential electricity and natural gas use is forecasted to increase by 14% by 2020 and the community's non-residential electricity and natural gas use is forecasted to increase by 10% by 2020. The continued increase in non-renewable energy consumption also translates to more dollars spent on energy and additional air quality impacts within the region.

### DEFINITION OF KEY TERMS

Key terms used in this report are defined below to assist in understanding the purpose of each and the interconnection between them. Definitions for some non-key terms are footnoted throughout the report at the bottom of the relevant page.

#### **Goal**

An expression of a desired outcome, an ideal future result or condition, based on community priorities and vision. Goals are not quantifiable or time-dependent but rather represent the end state.

*For example: To improve public safety.*

#### **Strategy**

An intermediate step between a goal and an action. Strategies define specific pathways that, if followed, will help achieve the goal.

*For example: Improve lighting conditions in public spaces.*

#### **Action**

Individual activities the jurisdiction will undertake to implement an energy-efficiency strategy. A strategy can have several actions.

*For example: Review existing lighting conditions and install new light fixtures where required.*

#### **Performance Indicator**

A quantifiable measure that is used to gauge performance in meeting identified actions.

*For example: Percentage of public space reviewed for safe lighting conditions.*

## Target

The numerical result that demonstrates achievement of a strategy.

*For example: Fifty percent (50%) of public spaces reviewed by 2020.*

## **BASIS FOR ENERGY GOALS AND STRATEGIES**

To identify the most appropriate energy-efficiency strategies for the Town, the following documents/resources were reviewed:

- 2005 Baseline Municipal Operations and Community-Wide GHG Inventories and forecast of future emissions (prepared by SBC in 2010 – 2012)
- 2001 Loomis General Plan
- 2012 Loomis Municipal Code
- 2010 Loomis Green Ribbon Task Force Report
- Measures underway/in place in Loomis
- Measures in other similar jurisdictions
- Meetings/consultation with Town staff
- Public input received from community members

There are a myriad of measures and practices to reduce energy consumption and emissions. Selection of those most appropriate for Loomis was based on the criteria below and in consultation with Town staff:

- Potential of actions to reduce energy use
- Estimated cost to Town to implement actions
- Estimated costs and savings for residents / business owners
- Availability of staff resources or other partner organizations to implement
- Availability of potential funding to assist with implementation
- Benefits to the community in addition to energy savings (e.g. cost savings, air-quality improvement)

## **ENERGY REDUCTION POTENTIAL**

The energy reduction potential was calculated for applicable measures using data collected in the 2005 municipal and community-wide GHG inventories and the energy use forecasts combined with the estimated energy savings associated with completion of the applicable 2020 targets. The annual energy reduction potential was calculated using top-down methods to estimate energy savings achieved in 2020 by meeting the associated 2020 targets. Calculations are documented in Appendix C.

## **ENERGY COSTS AND SAVINGS**

For the Town, the economic implications of implementing the energy efficiency and reduction measures primarily involve costs associated with staff time and potential costs associated with retaining outside consultants to assist with program implementation. Using the Town's 2013-14 budget, an estimate was made of low, medium and high cost ranges that could be incurred by the Town to implement the action measures in the report. The potential costs savings realized from implementation of some of the measures were not factored into this range, given the uncertainty of program design details and how they would

exactly be carried out. The purpose of the cost range is to provide a relative measurement for fiscal impact to the Town that will assist in prioritizing the measures for implementation. For the Town of Loomis, the following cost ranges are used in this report:

Cost to Town (annual)	Low: 0-\$3,500 Medium: \$3,501 - \$6,500 High: \$6,501+
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For residents and businesses, some reduction measures do not result in any notable private costs or savings. However, wherever possible, analysis and quantification was framed in terms of annual costs/savings (or average annual costs/savings). While there are funding sources and financing mechanisms available to offset private costs, calculations were based on a hypothetical average and did not include potential offsets. Almost all measures with private cost implications result in a return on investment in energy cost savings that will accrue over time, thus defraying some of the initial investment costs. The strategies were designed with a focus on actions with the highest return on investment.

Cost to Resident or Business (annual)	Low: \$0-\$100 Medium: \$101-\$250 High: \$251 or greater
Savings to Resident or Business (annual)	Low: \$0-\$100 Medium: \$101-\$250 High: \$251 or greater

**ENERGY EFFICIENCY STRATEGIES POTENTIAL ENERGY SAVINGS**

Potential annual energy savings in 2020 were calculated for each strategy and where applicable reported for residential and non-residential energy use. Combined the strategies in the SERR can potentially reduce energy use by 10,460,000 kWh and 59,000 therms.

**Summary of Potential 2020 Annual Energy Savings**

Strategy Area	Strategy Title		2020 Annual Energy Savings		
			Electricity (kWh / Year)	Natural Gas (therms / Year)	
Existing Structures	1.1	Expand outreach and education to increase participation in voluntary home energy-efficiency programs.	Residential	717,296	29,698
	1.2	Expand outreach and education to increase participation in voluntary non-residential energy-efficiency programs.	Non-Residential	731,133	9,497
New Construction	2.1	Improve compliance with Title 24 Green Building and Energy Efficiency Standards.	Residential	195,459	5,586
			Non-Residential	454,405	5,670
	2.2	Provide incentives for buildings to exceed the current Title 24 Energy Efficiency Standards.	Residential	45,131	1,982
			Non-Residential	29,370	387
Renewable Energy	3.1	Evaluate the Town’s residential, non-residential and municipal solar potential and assess barriers to increased solar energy use.	Residential	5,697,258	
			Non-Residential	2,264,174	
	3.3	Encourage new development projects to meet 70% of their energy needs from renewable resources.	Residential	105,306	4,625
			Non-Residential	137,062	1,805
Municipal Operations	4.1	Improve the energy efficiency of existing municipal structures.		15,207	
	4.2	Evaluate cost-effectiveness of improving energy efficiency of traffic signals and public lighting.	Traffic Lights	4,427	
Street Lights			10,096		
Water Conservation	5.1	Encourage residents and businesses to conserve water used indoors.		29,250	
	5.2	Encourage residents and businesses to conserve water used outdoors.		25,809	
<b>Total Potential 2020 Annual Energy Savings</b>				<b>10,461,383</b>	<b>59,250</b>

## ENERGY EFFICIENCY GOALS, STRATEGIES AND ACTIONS

The goals and strategies in this section are focused on improving the energy efficiency of existing and future buildings, reducing costs associated with energy consumption in municipal buildings and operations, and reducing the carbon intensity of the Town’s energy sources. The goals were designed with the California’s preferred “loading order” in mind for meeting energy demand: first cost-effective energy efficiency, then cost-effective renewable energy, and finally conventional energy sources.

### SUMMARY OF GOALS AND STRATEGIES

#### GOAL 1: INCREASE ENERGY EFFICIENCY IN EXISTING STRUCTURES

- **Strategy 1.1:** Expand outreach and education to increase participation in voluntary home energy-efficiency programs.
- **Strategy 1.2:** Expand outreach and education to increase participation in voluntary non-residential energy-efficiency programs.
- **Strategy 1.3:** Identify and promote programs that help finance energy efficiency and renewable energy projects.

#### GOAL 2: INCREASE THE ENERGY PERFORMANCE OF NEW CONSTRUCTION

- **Strategy 2.1:** Improve compliance with Title 24 Green Building and Energy Efficiency Standards.
- **Strategy 2.2:** Provide incentives for buildings to exceed the current Title-24 Energy Efficiency Standards.
- **Strategy 2.3:** Reduce the heat island effect and related summer heat gain in residential and non-residential projects.

#### GOAL 3: INCREASE RENEWABLE ENERGY USE

- **Strategy 3.1:** Evaluate the Town’s residential, non-residential and municipal solar potential and assess barriers to increased solar energy use.
- **Strategy 3.2:** Develop a comprehensive renewable energy program that provides outreach, financing, and technical assistance.
- **Strategy 3.3:** Encourage new development projects to meet 70% of their energy needs from renewable resources.

#### GOAL 4: INCREASE ENERGY EFFICIENCY IN MUNICIPAL STRUCTURES AND OPERATIONS

- **Strategy 4.1:** Improve energy efficiency of existing municipal structures.
- **Strategy 4.2:** Evaluate feasibility of improving energy efficiency of traffic signals and public lighting.

#### GOAL 5: INCREASE COMMUNITY WATER CONSERVATION AND EFFICIENCY TO REDUCE ASSOCIATED ENERGY USE

- **Strategy 5.1:** Encourage residents and businesses to conserve water used indoors.
- **Strategy 5.2:** Encourage residents and businesses to conserve water used outdoors.

**GOAL 1: INCREASE ENERGY EFFICIENCY IN EXISTING STRUCTURES**

Approximately 45% of the housing stock in Loomis was built prior to the adoption of California’s Title 24 energy standards in 1978 and the non-residential building stock is likely similarly dated. Improving the energy efficiency of existing buildings will save homeowners and businesses money by reducing their long-term energy costs. The Town will leverage existing resources to expand education and outreach programs to promote energy efficiency in existing residential and non-residential structures.

**Strategy 1.1: Expand outreach and education to increase participation in voluntary home energy-efficiency programs.**

Residential energy-efficiency improvements have the potential to reduce energy bills and GHG emissions. The Town will partner with PG&E, Placer County, Energy Upgrade California and other community organizations to leverage existing resources and expand public education and outreach campaigns that encourage residents to voluntarily make energy-efficiency improvements within their homes and to take advantage of the low-cost energy-efficiency financing programs described in Strategy 1.3 below. As part of the outreach program, the Town will include on its website information on available energy-efficiency rebates and incentive programs. The website will also link to local case studies of homes that have implemented cost effective energy-efficiency improvements when available.

**Annual Energy Reduction Potential:**

717,296 kWh  
29,698 therms

**Cost to Town:**

Low to Medium

**Cost to Resident / Business Owner:**

Low to High  
(depending on finance program)

**Savings to Resident / Business Owner:**

Low to High  
(depending on finance program)

**Community Co-Benefits:**

Reduced Energy Costs  
Improved Air Quality

**Potential Funding Sources:**

Partnerships with Organizations and Town Funds

IMPLEMENTATION ACTION		TIME TABLE	RESPONSIBILITY
1	Partner with PG&E and Project Go Inc. to activate programs for income-eligible Loomis residents.	Short-Term (1-2 years)	Planning & Building Departments
2	Partner with PG&E, Placer County and Energy Upgrade California to increase participation in energy efficiency rebates and incentive programs.	Short-Term (1-2 years)	Planning & Building Departments
3	Include on the Town’s website information on and links to residential energy-efficiency rebates, incentives, and case studies.	Short-Term (1-2 years)	Planning & Building Departments
PERFORMANCE INDICATOR		TARGET	
1	Percentage of households participating in energy-efficiency rebate programs.	10% participating by 2020	
2	Percentage of households achieving a 30% improvement in building energy efficiency.	10% achieving 30% savings by 2020	
3	Number of households achieving a 30% improvement in building energy efficiency	235 Existing Households	

# Loomis Strategic Energy Resources Report

## Strategy 1.2: Expand outreach and education to increase participation in voluntary non-residential energy-efficiency programs.

Investments in building energy-efficiency retrofits can save energy and reduce a business’s operational costs. The greatest barriers to these improvements are lack of information about efficiency practices and scarcity of low-cost financing for the initial capital costs.

In partnership with PG&E, Placer County (mPower<sup>7</sup> Placer program), SBC and the Sierra Nevada Energy Watch program (SNEW), and local business organizations the Town will provide outreach programs aimed at maximizing voluntary energy conservation within community businesses. These programs will target specific commercial sectors such as restaurants, supermarkets, retail, office, and manufacturing to provide useful energy and cost savings recommendations. The program will encourage businesses to conduct benchmarking<sup>8</sup>, energy audits and implement energy-efficiency projects. The Town will include on its website information on energy-reduction programs specifically for commercial and industrial businesses. Case studies of businesses that implemented cost-effective energy-efficiency improvements can be showcased on the website, focusing on those in Loomis when possible.

### Annual Energy Reduction Potential:

731,133 kWh  
9,497 therms

### Cost to Town:

Low to Medium

### Cost to Resident / Business Owner:

Low to High  
(depending on finance program)

### Savings to Resident / Business Owner:

Low to High  
(depending on finance program)

### Community Co-Benefits:

Reduced Energy Costs  
Improved Air Quality

### Potential Funding Sources:

Partnerships with Organizations and Town Funds

IMPLEMENTATION ACTION		TIME TABLE	RESPONSIBILITY
1	Partner with PG&E and SBC to expand the SNEW program in Loomis.	Short Term (1-2 years)	Planning & Building Departments Town Manager’s Office
2	Provide links on the Town’s website to tools that demonstrate the financial benefits of efficiency upgrades to local businesses.	Short-Term (1-2 years)	Planning & Building Departments Town Manager’s Office
3	Include on the Town’s website information on and links to non-residential energy-efficiency rebates, incentives, and case studies.	Short-Term (1-2 years)	Planning & Building Departments
PERFORMANCE INDICATOR		TARGET	
1	Number of businesses served by SNEW with energy-efficiency improvements.	72 served by 2020	
2	Percentage of businesses participating in energy-efficiency rebate programs.	10% participating by 2020	
3	Percentage of businesses achieving a 15% improvement in building energy efficiency.	10% achieving 30% savings by 2020	

<sup>7</sup> MPOWER (Money for Property Owner Water and Energy efficiency Retrofitting)

<sup>8</sup> Energy benchmarking compares a building’s energy performance against that of similar buildings.

**Strategy 1.3:** Identify and promote programs that help finance energy efficiency and renewable energy projects.

The up-front costs of energy efficiency improvements can be a considerable barrier for many homeowners and businesses. However there are a myriad of options to address this challenge, including PG&E’s on-bill financing program, low interest loans, energy-efficient mortgages, and the Property Assessed Clean Energy (PACE) programs.

One example, on-bill financing, works in conjunction with PG&E’s energy efficiency rebate and incentive programs to eliminate upfront costs. The cost of energy-efficiency retrofits is amortized on a property’s monthly energy bills. The program helps eligible customers pay for energy efficient retrofit projects with zero-interest, zero-penalty loans. Loan payments are included on the customer’s monthly utility bills and are set to not exceed the energy savings (in dollars) realized from the energy-efficiency retrofit. For further information refer to this report’s implementation section and appendices.

The Town will partner with PG&E, Placer County (mPower Placer program) and local banks to identify and promote existing and potential financing programs. The Town will include links to financing programs on its website.

IMPLEMENTATION ACTION		TIME TABLE	RESPONSIBILITY
1	Partner with PG&E, Placer County (mPower Placer) and local banks to promote existing financing programs.	Short Term (1-2 years)	Town Manager’s Office
2	Include on the Town’s website descriptions of and links to existing financing programs for energy efficiency upgrades.	Short Term (1-2 years)	Planning & Building Departments Town Manager’s Office
PERFORMANCE INDICATOR		TARGET	
1	N/A	N/A	

**Annual Energy Reduction Potential:**

Supports Strategy 1.1 and 1.2

**Cost to Town:**

Low to Medium

**Cost to Resident / Business Owner:**

Low to High (depending on finance program)

**Savings to Resident / Business Owner:**

Low to High (depending on finance program)

**Community Co-Benefits:**

Reduced Energy Costs  
Improved Air Quality

**Potential Funding Sources:**

Partnerships with Organizations, Local Banks and Town Funds

**GOAL 2: INCREASE THE ENERGY PERFORMANCE OF NEW CONSTRUCTION**

New buildings offer a significant opportunity to achieve high levels of energy efficiency through advanced materials and design. The Town will work with developers and contractors to improve compliance with existing energy and green building standards and promote measures to exceed the energy standards. The Town will also review the potential for incentives for buildings that exceed the Title 24 Energy Efficiency Standards.

**Strategy 2.1: Improve compliance with Title 24 Green Building and Energy Efficiency Standards.**

The 2013 revisions to the Title 24 Green Building (Part 11) and Energy Efficiency Standards (Part 6) help make new construction significantly more energy efficient. The Energy Standards are expected to be 25% more efficient than previous standards for residential construction and 30% more efficient for non-residential construction according to the California Energy Commission.<sup>9</sup> The California Green Building Standards include mandatory as well as voluntary green building measures that also have energy saving benefits. Assisting developers and contractors in understanding the standards will help them achieve higher efficiencies on their projects. The energy reduction potential is based on full compliance with the standards.

The Town will provide opportunities for building officials and planning department staff to attend Title 24 energy and green building trainings as well as promote trainings and educational materials to contractors and developers. EnergyCodeACE and PG&E offer free Title 24, Part 6 tools, trainings and resources to assist the building industry, related stakeholders and the public to comply with the 2013 Building Energy Efficiency Standards.

**Annual Energy Reduction Potential:**

649,864 kWh  
11,256 therms

**Cost to Town:**

Low

**Cost to Resident / Business Owner:**

None

**Savings to Resident / Business Owner:**

High

**Community Co-Benefits:**

Reduced Energy Costs  
Improved Air Quality

**Potential Funding Sources:**

Partnerships with Organizations and Town Funds

IMPLEMENTATION ACTION		TIME TABLE	RESPONSIBILITY
1	Provide opportunities for Town building officials and planning department staff to attend Title 24 trainings.	Short Term (1-2 years)	Building & Planning Department
2	Include links to Title 24 energy and green building trainings and educational resources on the Town’s website.	Short Term (1-2 years)	Building & Planning Departments
PERFORMANCE INDICATOR		TARGET	
1	Percentage of Town staff that attended Title 24 energy and green building trainings.	100% of Building & Planning staff by 2020	
2	Percentage of New Construction complying with Title 24.	100% of New Construction by 2020	

<sup>9</sup> [http://www.energy.ca.gov/releases/2012\\_releases/2012-05-31\\_energy\\_commission\\_approves\\_more\\_efficient\\_buildings\\_nr.html](http://www.energy.ca.gov/releases/2012_releases/2012-05-31_energy_commission_approves_more_efficient_buildings_nr.html)

**Strategy 2.2:** Provide incentives for buildings to exceed the current Title 24 Energy Efficiency Standards.

Providing incentives for energy-efficient buildings, such as expedited permit processing, encourages developers to explore incorporating energy-efficient building features into their projects, which can save the property owner money over the life of the building. Reduced permitting times can be an effective incentive because it can translate to significant savings for developers that are paying interest on construction or bridge loans during the permit approval process.

The Town will determine the feasibility of providing incentives or awards for buildings that exceed the current Title 24 Energy Efficiency Standards. The Town will provide information to contractors and developers on available incentives and education resources related to energy efficiency and green building. The Town’s website will include information on available incentives and educational resources.

IMPLEMENTATION ACTION		TIME TABLE	RESPONSIBILITY
1	Determine the feasibility of providing incentives or awards for new buildings that exceed Title 24 energy standards.	Short Term (1-2 years)	Planning & Building Departments
2	If feasible, establish expedited permit processing for projects that exceed Title 24 energy standards by 30%.	Short Term (1-2 years)	Planning & Building Departments
3	Explore incentives that encourage applicants to exceed Title 24 energy standards. Research what other jurisdictions have implemented.	Short Term (1-2 years)	Planning & Building Departments
PERFORMANCE INDICATOR		TARGET	
1	Percentage of new residential housing units exceeding Title 24 energy standards.	15% of buildings exceeding energy standards by 30% by 2020	
2	Percentage of new non-residential buildings exceeding Title 24 energy standards.	15% of buildings exceeding energy standards by 15% by 2020	

**Annual Energy Reduction Potential:**

74,501 kWh  
2,369 therms

**Cost to Town:**

Low

**Cost to Resident / Business Owner:**

None

**Savings to Resident / Business Owner:**

High

**Community Co-Benefits:**

Reduced Energy Costs  
Improved Air Quality

**Potential Funding Sources:**

Partnerships with Organizations and Town Funds

**Strategy 2.3:** Reduce the heat island effect<sup>10</sup> and related summer heat gain in residential and non-residential projects.

Trees, shade structures, cool (high albedo / solar reflectance) paving and roofing materials reduce the amount of solar energy absorbed and therefore temperature of rooftops and parking lots. By increasing the use of shading and cool paving and roofing materials it is possible to reduce heat gain in residential buildings and commercial centers. This decrease in ambient air temperatures and reduced heat gain in warm summer months can reduce the amount of energy required for air conditioning.

Requirements could include a) tree standards for existing streets and parking lots; b) heat gain mitigation requirements for new parking lots (through the use of shade structures, trees or cool pavement, etc.); c) cool roofing requirements for new construction. Shade structures can also accommodate solar panels thus serving a dual purpose.

The Town will develop design guidelines and municipal codes to reduce cooling loads through the use of shade trees, shade structures, cool pavement and cool roofs in new construction projects.

IMPLEMENTATION ACTION		TIME TABLE	RESPONSIBILITY
1	Develop parking lot heat-gain mitigation design guidelines.	Near Term (3-5 years)	Planning & Building Departments
2	Require new development projects with parking lots with more than 10 spaces to mitigate heat gain through the use of shade trees, shade structures with or without solar arrays, or cool pavement.	Near Term (3-5 years)	Planning & Building Departments
3	Develop an ordinance requiring street trees in residential projects and include guidance on tree types, planting, and maintenance.	Near Term (3-5 years)	Planning & Public Works Departments
4	Promote the installation of solar shade structures by requiring new development projects with more than 20 spaces to obtain and submit a quote for solar shade structures with permit application.	Near Term (3-5 years)	Planning & Building Departments
PERFORMANCE INDICATOR		TARGET	
N/A		N/A	

<sup>10</sup> Increase in ambient air temperature due to excess heat created by non-permeable surfaces (such as roofs and pavement) being exposed to high temperatures during hot sunny days.

**Annual Energy Reduction Potential:**

Supports Strategies 2.1 and 2.2

**Cost to Town:**

Medium to High

**Cost to Resident / Business Owner:**

None

**Savings to Resident / Business Owner:**

Medium

**Community Co-Benefits:**

Reduced Energy Costs  
Improved Air Quality

**Potential Funding Sources:**

Partnerships with Organizations and Town Funds

**GOAL 3: INCREASE RENEWABLE ENERGY USE**

Building rooftops and parking lots provide excellent opportunities for solar energy generation. In particular, non-residential and municipal facilities tend to have large, flat roofs that are well suited for solar equipment. The Town will evaluate the local solar market potential and develop a comprehensive solar program that encourages the development of renewable energy. Local renewable-energy projects benefit the Town’s economy by creating jobs and reducing energy costs.

**Strategy 3.1: Evaluate the Town’s residential, non-residential and municipal solar potential and assess barriers to increased solar energy use.**

To facilitate installation of renewable energy systems, the Town will evaluate the solar potential within Loomis. The Town will then formulate and evaluate strategies needed to expand solar development. Currently the Town provides expedited permit processing for solar projects.

The American Solar Transformation Initiative (ASTI) provides no-cost planning assistance to local governments in California to develop a Solar Roadmap for their communities. The program provides participating local governments with an assessment of local solar market potential, estimated economic and environmental impacts, assessment of current solar processes and customized solar roadmaps to accelerate solar installations.

IMPLEMENTATION ACTION		TIME TABLE	RESPONSIBILITY
1	Evaluate the residential, non-residential and municipal solar potential in the community.	Short Term (1-2 years)	Planning Department
PERFORMANCE INDICATOR		TARGET	
1	kWs of solar installed on residential structures.	3,357 kWs by 2020	
2	Number of homes installing solar systems	519 Households by 2020	
3	kWs of solar installed on non-residential structures.	1,334 kWs by 2020	
4	Number of non-residential structures installing solar systems	15 Non-Residential Structures by 2020	

**Annual Energy Reduction Potential:**

7,961,432 kWh

**Cost to Town:**

Low to High

**Cost to Resident / Business Owner:**

None to High (depending on finance program)

**Savings to Resident / Business Owner:**

None to High (depending on finance program)

**Community Co-Benefits:**

Reduced Energy Costs  
Improved Air Quality

**Potential Funding Sources:**

American Solar Transformation Initiative,  
Town Funds

**Strategy 3.2:** Develop a comprehensive renewable energy program that provides outreach, financing, and technical assistance.

Outreach efforts will aim to maximize community participation in renewable energy generation and emphasize energy cost savings. The program will make available information on how home and business owners can incorporate solar hot water heaters and solar photovoltaic systems into their living and working environments. Solar water heating is a proven technology that has a short payback period, providing owners with cost savings and two to three year paybacks, when solely owner-financed.

The Town will maintain a page of their website dedicated to renewable energy programs with tools available for making informed decisions on renewable energy, financing options and the permitting process. The American Solar Transformation Initiative provides participating local governments with a jurisdiction-specific public landing page for community education, including tools to evaluate the costs of solar projects and to request and compare quotes from local and regional solar vendors.

IMPLEMENTATION ACTION		TIME TABLE	RESPONSIBILITY
1	Partner with PG&E and Placer County (mPower Placer) to provide educational materials and tools to help owners make informed decisions about the costs and benefits of renewable energy projects.	Short Term (1-2 years)	Planning & Building Departments
2	Update the Town’s website with links and tools to evaluate renewable energy systems and how to request quotes from local and regional solar vendors.	Short Term (1-2 years)	Planning & Building Departments
3	Partner with PG&E, Placer County (mPower Placer) and local banks to promote available financing options.	Short Term (1-2 years)	Planning & Building Departments
PERFORMANCE INDICATOR		TARGET	
N/A		N/A	

**Annual Energy Reduction Potential:**

Supports Strategy 3.1

**Cost to Town:**

Low to Medium

**Cost to Resident / Business Owner:**

None

**Savings to Resident / Business Owner:**

None

**Community Co-Benefits:**

Reduced Energy Costs  
Improved Air Quality

**Potential Funding Sources:**

American Solar Transformation Initiative,  
Town Funds

**Strategy 3.3:** Encourage new development projects to meet 70% of their energy needs from renewable resources.

Solar water heating (SWH) and photovoltaic solar systems (PV) are two proven technologies that can be used to replace traditional energy use in the built environment. Commercial-scale SWH systems are designed to provide large quantities of hot water using solar energy. A typical SWH system includes roof or wall-mounted solar collectors that work with a pump, heat exchanger, and storage tanks. SWH systems can dramatically reduce the amount of natural gas or electricity used for heating water, lowering the fossil-fuel energy use associated with water heating.

Solar PV systems have reduced in cost significantly over the last decade and will often have payback periods of 8 to 15 years. Additionally, there are new financing mechanisms; such as power purchase agreements, solar leases and Property Assessed Clean Energy financing, available where property owners can receive the benefits of solar power with little to no upfront costs. The federal renewable energy tax credit provides homeowners with a tax credit for 30% of qualified expenditures. There are incentives for non-residential buildings as well. The incentives are currently set to expire on December 31<sup>st</sup> 2016.

Providing recognition or awards for projects that will meet 70% of its energy needs from renewable sources will further incentivize this program.

IMPLEMENTATION ACTION		TIME TABLE	RESPONSIBILITY
1	Determine the feasibility of providing incentives or awards for new buildings that meet 70% of energy needs from renewable sources.	Short Term (1-2 years)	Planning & Building Departments
2	Provide information to contractors and developers on the current incentives for renewable energy developments during plan review.	Short Term (1-2 years)	Planning & Building Departments
PERFORMANCE INDICATOR		TARGET	
1	Percentage of new residential construction that meets 70% of energy needs with renewable energy.	15% of residential new construction by 2020	
2	Percentage of new non-residential construction that meets 70% of energy needs with renewable energy.	15% of non-residential new construction by 2020	

**Annual Energy Reduction Potential:**

242,368 kWh  
6,430 therms

**Cost to Town:**

Low to Medium

**Cost to Resident / Business Owner:**

None to High  
(depending on finance program)

**Savings to Resident / Business Owner:**

None to High  
(depending on finance program)

**Community Co-Benefits:**

Reduced Energy Costs  
Improved Air Quality

**Potential Funding Sources:**

Partnerships with Organizations, American Solar Transformation Initiative, Town Funds

**GOAL 4: INCREASE ENERGY EFFICIENCY IN MUNICIPAL STRUCTURES AND OPERATIONS**

Measures undertaken by the Town to improve energy efficiency not only reduce energy costs but also set an example for the local community and surrounding areas. The 2005 municipal operations inventory indicated that the Town consumed 148,675 kWh of electricity in municipal buildings and for public lighting. Installing Energy-Star rated equipment, lighting controls and programmable thermostats can reduce this energy use. Energy use can also be tracked by benchmarking municipal buildings with EPA’s Portfolio Manager.

**Strategy 4.1: Improve energy efficiency of existing municipal structures.**

The Town Hall (2010) and Train Depot (2005) were retrofitted with energy efficient lighting. The Town will establish a purchasing policy that requires new electrical equipment to be Energy Star rated (or similar energy usage rating). The Town will benchmark municipal facilities using the free EPA Energy Star Portfolio Manager software to track energy use and determine the efficiency of existing facilities. The facilities with the greatest energy use or highest energy intensity will be targeted for energy audits and retro-commissioning<sup>11</sup> to optimize energy use and identify energy-efficiency opportunities. Energy-efficiency projects could include lighting, building envelope, HVAC and water heating upgrades; lighting and HVAC controls; Energy Star® qualified hard-wired fixtures; or Advanced Lighting Packages.

**Annual Energy Reduction Potential:**

15,207 kWh

**Cost to Town:**

Low to High

**Cost to Resident / Business Owner:**

None

**Savings to Resident / Business Owner:**

None

**Community Co-Benefits:**

Reduced Energy Costs  
Improved Air Quality

**Potential Funding Sources:**

Partnerships with Organizations, Energy Service Companies, Town Funds

IMPLEMENTATION ACTION		TIME TABLE	RESPONSIBILITY
1	Establish a purchasing requirement that all new electrical equipment be Energy Star rated when available.	Short Term (1-2 years)	Town Manager’s Office
2	Benchmark municipal facilities using the EPA Energy Star Portfolio Manager.	Short Term (1-2 years)	Town Manager’s Office
3	Conduct energy audit and retro-commissioning of municipal facilities.	Near Term (3-5 years)	Town Manager’s Office
4	Explore options for optimizing the energy efficiency of the Town’s servers.	Near Term (3-5 years)	Town Manager’s Office
PERFORMANCE INDICATOR		TARGET	
1	Purchasing policy in place.	2015	
2	Benchmark municipal facilities.	2015	
3	Audit and retro-commission municipal facilities.	2017	
4	Server optimization feasibility study complete.	2017	
5	Percentage of existing buildings energy use reduced.	20% of energy use reduced by 2020	

<sup>11</sup> Retro-commissioning is a systematic process to improve an existing building’s energy performance and occupants comfort through a whole-building systems approach

**Strategy 4.2:** Evaluate cost-effectiveness of improving energy efficiency of traffic signals and public lighting.

In 2005, the Town used 72,612 kWh for traffic signals and public lighting spending \$14,179 on traffic signals and outdoor lighting. The town has retrofitted all traffic signals and pedestrian signals to LEDs. In 2010, the Town received an Energy Efficiency Community Block Grant award to replace high-pressure sodium streetlights with induction lamps in the Train Depot parking lot and on Taylor road from Sierra College to Del Oro High School. The Town will determine the feasibility and evaluate the cost-effectiveness of converting traffic signals and street lights to higher efficiency LED lighting. When funding becomes available, the Town will retrofit the remaining street lights. The Town will also encourage the school district to implement new operational procedures to turn off lights at Del Oro Football Stadium when not in use.

PG&E offers rebates for the replacement of streetlights with LEDs and full turnkey LED replacement services to local governments.

**Annual Energy Reduction Potential:**

14,522 kWh

**Cost to Town:**

Low to High

**Cost to Resident / Business Owner:**

None

**Savings to Resident / Business Owner:**

None

**Community Co-Benefits:**

Reduced Energy Costs  
Improved Air Quality

**Potential Funding Sources:**

Partnerships with Organizations, PG&E, Town Funds

IMPLEMENTATION ACTION		TIME TABLE	RESPONSIBILITY
1	Evaluate cost-effectiveness of upgrading traffic signal lights to energy-efficient LEDs. Identify phasing and funding sources to offset conversion costs.	Near Term (3-5 years)	Public Works Department Town Manager's Office
2	Evaluate cost-effectiveness of upgrading street lights to energy efficient LEDs. Identify phasing and funding sources to offset costs.	Near Term (3-5 years)	Public Works Department Town Manager's Office
PERFORMANCE INDICATOR		TARGET	
1	Traffic signal conversion.	100% conversion by 2020	
2	Street light upgrade.	100% upgrade by 2020	
3	Percentage of public lighting energy use reduced.	20% of energy use reduced by 2020	

**GOAL 5: INCREASE COMMUNITY WATER CONSERVATION AND EFFICIENCY TO REDUCE ASSOCIATED ENERGY USE**

The state of California’s official goal is to reduce per capita water use by 20% by 2020. In a typical California home the major indoor water users are toilets (33%), showers (22%), faucets (18%), washing machines (14%), and leaks (12%). Dishwashers rank last – 1%.<sup>12</sup> Given that indoor water is delivered to a few, readily identifiable appliances, it is easy to target those with the greatest water conservation potential. Since it requires significant energy to source, treat and deliver water to community members, water conservation measures have the effect of reducing the amount of energy that the Town needs to provide water.

**Strategy 5.1: Encourage residents and businesses to conserve water used indoors.**

The measures below focus on those most readily implementable in light of existing rebate/retrofit programs. Based on the 2013 study referenced in the footnote below, use of more water efficient toilets, showers, faucets, washing machines and leak detection could reduce water usage by 15 gallons per capita per day (GPCD), a 25% reduction from typical daily residential water usage of 62 GPCD.

The Town will continue to promote the Placer County Water Agency’s (PCWA) existing rebate and incentive programs to encourage Loomis residents and businesses to voluntarily reduce their water usage. The Town will also work with PCWA and PG&E to explore the feasibility of implementing new water efficiency programs. Programs could include a toilet swap event, or free low-flow showerhead giveaways.

	IMPLEMENTATION ACTION	TIME TABLE	RESPONSIBILITY
1	Work with PCWA to expand existing water efficiency programs in Loomis.	Short Term (1-2 years)	Town Manager’s Office
2	Explore with PCWA and PG&E the feasibility of implementing new programs.	Near Term (3-5 years)	Town Manager’s Office
3	Work with PCWA to redesign the water bill format to encourage water conservation in residential and commercial uses.	Near Term (3-5 years)	Town Manager’s Office
PERFORMANCE INDICATOR		TARGET	
1	Percentage of households and businesses that voluntarily reduce indoor water use by 20% or more.	80% of households by 2020 <sup>13</sup>	

<sup>12</sup> California Water Plan Update, Chapter 3. Urban Water Use Efficiency. 2013. [http://www.water.ca.gov/calendar/materials/vol3\\_urbanwue\\_apr\\_release\\_16033.pdf](http://www.water.ca.gov/calendar/materials/vol3_urbanwue_apr_release_16033.pdf)

<sup>13</sup> Urban and agricultural water suppliers who do not meet the 20% reduction required by SB X7-7 (enacted in 2009) will not be eligible for state water grants or loans.

**Annual Energy Reduction Potential:**

29,250 kWh

**Cost to Town:**

Low

**Cost to Resident / Business Owner:**

Low

**Savings to Resident / Business Owner:**

Low

**Community Co-Benefits:**

Reduced Water Use, Reduced Wastewater Costs, Reduced Energy Costs

**Potential Funding Sources:**

Partnerships with PCWA and other Organizations, Town Funds

**Strategy 5.2: Encourage residents and businesses to conserve water used outdoors.**

Significant water savings can be achieved in the outdoor environment through a few readily implementable programs. PCWA offers Water Wise House calls where trained water efficiency specialists will on request visit homes, review indoor and outdoor water needs, make water-efficiency recommendations; and by request, install certain water saving devices. PCWA also offers Water Wise business calls where trained technicians visit commercial sites, check for leaks, conduct outdoor irrigation check-ups and provide watering schedules. PCWA also offers rebates for water-efficiency measures (rebate program will re-start in 2015).

The Town will work with PCWA to promote the use of the Water Wise House and Business Call programs and to encourage building owners to take advantage of water-efficiency rebates in Loomis. The Town will encourage or require new construction to include California Green Building Code’s (CALGreen) voluntary water-efficiency measures. Expedited permit review for projects meeting the voluntary CALGreen water-efficiency measures will be examined for feasibility. Additionally, the Town will install water-efficient landscaping in areas managed by the Town to serve as public demonstration areas.

**Annual Energy Reduction Potential:**

25,809 kWh

**Cost to Town:**

Low to High

**Cost to Resident / Business Owner:**

Low

**Savings to Resident / Business Owner:**

Low

**Community Co-Benefits:**

Reduced Water Use, Reduced Wastewater Costs, Reduced Energy Costs

**Potential Funding Sources:**

Partnerships with PCWA and other Organizations, Town Funds

IMPLEMENTATION ACTION		TIME TABLE	RESPONSIBILITY
1	Work with PCWA to promote Water Wise programs and water efficiency rebates.	Short Term (1-2 years)	Planning Department Town Manager’s Office
2	Encourage voluntary compliance with CALGreen water efficiency measures by distributing information detailing the measures to builders, contractors and realtors.	Short Term (1-2 years)	Planning and Building Departments
3	Evaluate the feasibility of offering incentives for or requiring the voluntary water efficiency measures in CALGreen.	Near Term (3-5 years)	Planning & Building Departments
4	Design a demonstration zero-water landscape as a teaching tool for reducing outdoor water use.	Near Term (3-5 years)	Planning & Public Works Departments
PERFORMANCE INDICATOR		TARGET	
1	Percentage of households and businesses that voluntarily reduce outdoor water use by 20% or more.	80% of households by 2020	

## CHAPTER 5: IMPLEMENTATION

This chapter provides a roadmap for implementing the SERR. The Town of Loomis recognizes that a clear and straight-forward implementation program is essential to achieve the goals of the SERR. To successfully implement the SERR, the Town, regional organizations and community members will need to work together and leverage existing and new national and state programs.

Ensuring the strategies translate from policy language into on-the-ground results is critical to the success of the SERR. To facilitate this, each strategy described in Chapter 4 contains a table that identifies the specific actions the Town plans to carry out in order to achieve the identified goals. The second section of each table provides performance indicators and targets that enable staff, Council members and the public to track strategy implementation and evaluate the effectiveness of the SERR.

Evaluating the effectiveness of the SERR requires two key tasks: evaluation of the SERR as a whole and evaluation of the individual strategies. Community-wide emissions inventories provide the best indication of the overall SERR effectiveness, although it will be important to reconcile actual growth in the Town versus the growth projected in the forecasts developed for the SERR. Conducting these inventories periodically, instead of annually, will allow direct comparison to the 2005 baseline while lessening the impact on staff resources. It is recommended that inventories are completed at least every 5 years in order to monitor the effect of the SERR and adapt the strategies and actions to reach the identified goals.

While community-wide inventories will provide information about the SERR's overall effectiveness, it will be important to understand the effectiveness of each strategy in order to prioritize future actions. Evaluating strategy performance will require data on community participation rates and the associated energy savings. With the support of PG&E, the Town will coordinate strategy evaluation on the same schedule as the community-wide inventories and summarize progress towards meeting the identified performance targets. For the SERR to remain relevant, the Town must be prepared to evaluate and revise the strategies and actions over time. It is likely new information, technology and programs will emerge; therefore, the Town must be ready to take advantage of these opportunities. Additionally, the Town will prepare interim progress reports, using a template provided by SBC, on an annual basis to track performance.

### IMPLEMENTATION PROGRAM

The Implementation Program identifies specific actions and steps the Town can take to achieve the specified 2020 targets. The following matrix prioritizes the actions by year based on staff resources, potential funding availability and partner organization's capacity. The matrix serves as a guidepost for Staff to initiate actions in order to implement the SERR and track progress.

**SERR Implementation Matrix**

TIME TABLE	IMPLEMENTATION ACTION	SUPPORTS	RESPONSIBILITY	FUNDING SOURCES / PARTNERS
2015	Partner with PG&E and regional organizations to activate existing energy efficiency and water efficiency programs	1.1.1 1.1.2 1.2.1 1.3.1 3.2.1 5.1.1	Planning & Building Departments Town Manager's Office	Pacific Gas and Electric Company
	Provide information on and opportunities for staff, contractors and developers to attend training on Title 24	2.1.1 2.1.2	Planning & Building Departments	Pacific Gas and Electric Company
	Develop solar roadmap to analyze solar potential, review barriers to solar	3.1.1	Planning & Building Departments	American Solar Transformation Initiative
	Adopt purchasing guidelines and benchmark municipal facilities	4.1.1 4.1.2	Town Manager's Office	Pacific Gas and Electric Company
2016	Update the Town's website with information and links to energy efficiency programs, case studies, financing programs.	1.1.3 1.2.2 1.2.3 1.3.2	Planning & Building Departments Town Manager's Office	Pacific Gas and Electric Company
	Determine the feasibility of offering incentives for new construction that completes a green building checklist including: exceed Title 24 energy requirements, meet 70% of energy needs with on-site renewable energy and exceed water efficiency requirements.	2.2.1 2.2.2 2.2.3 3.3.1 5.2.2 5.2.3	Planning & Building Departments	Pacific Gas and Electric Company
	Partner with PG&E, PCWA, Placer County and local banks to promote and expand financing options for energy-efficiency, renewable-energy and water-efficiency projects	3.2.2 3.2.3 3.3.2 5.2.1	Planning & Building Departments	Pacific Gas and Electric Company American Solar Transformation Initiative
2017	Develop heat gain mitigation guidelines and ordinances for streets and parking lots.	2.3.1 2.3.2 2.3.3 2.3.4	Planning, Building & Public Works Departments	Pacific Gas and Electric Company
	Conduct energy audits, retro-commissioning on municipal facilities. Implement cost-effective energy efficiency projects	4.1.3 4.1.4	Town Manager's Office	Pacific Gas and Electric Company
	Evaluate the cost-effectiveness of upgrading traffic signals and street lights to LED.	4.2.1 4.2.2	Public Works Department	Pacific Gas and Electric Company
	Work with PCWA to redesign the water bills to promote conservation, develop new water-efficiency programs and market programs in Loomis including design of a zero-water demonstration garden	5.1.2 5.1.3 5.2.4	Planning, Building & Public Works Departments	Placer County Water Agency

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## FUNDING SOURCES AND FINANCING MECHANISMS

This section describes potential funding sources and financing mechanisms that the Town can pursue to offset the financial burden of implementing the SERR. Each SERR strategy is accompanied with a simplified analysis of costs and savings, potential funding sources, and partnership opportunities. The spectrum of potential public and private funding sources is ever evolving and will need to be continually evaluated. This section outlines funding options that are currently available (as of December 2014). For additional information on energy efficiency programs and financing programs refer to Appendix D and F respectively.

- U.S. Department of Energy (DOE)
- California Energy Commission (CEC)
- California Infrastructure and Economic Development Bank (IBANK)
- California Statewide Communities Development Authority (CSCDA)
- Pacific Gas and Electric Company (PG&E)

### U.S. Department of Energy

The U.S. DOE provides formula grant funding and technical assistance for state and local governments to manage weatherization and clean energy programs including the Weatherization Assistance Program, State Energy Program, Energy Efficiency and Conservation Block Grant Program and American Solar Transformation Initiative.

### California Energy Commission

The CEC offers low-interest loans to public institutions to finance energy-efficiency and energy generation projects on a first-come, first-serve basis. Interest rates are currently between zero and one percent. The CEC also manages the Energy Partnership Program, which provides no-cost (up to \$20,000) technical assistance to public agencies. Technical assistance includes conducting energy audits, preparing feasibility studies, contractor assistance and design review consultation among other services. The CEC also funds Energy Upgrade California, which was designed to be Californian's one-stop-shop for home and business improvement projects that lower energy use, conserve water and natural resources. Californians can use the site to plan upgrade projects, locate participating contractors, and find rebates and incentives including up to \$6,500 towards whole house energy upgrades.

### California Infrastructure and Economic Development Bank

The IBANK finances public infrastructure and private development that promotes opportunities for jobs, contributes to a strong economy and improves the quality of life in California communities. In September 2014, California IBANK launched the Clean Energy Finance Center and the Statewide Energy Efficiency Program to provide low-cost financing to State and local governments for approved energy efficiency projects. The targets will be clean energy projects such as generation, distribution, transmission and storage; energy conservation measures; environmental mitigation measures; and water treatment and distribution.

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## **California Statewide Communities Development Authority**

The CSCDA is a joint powers authority with more than 500 cities, counties and special districts as Program Participants. CSCDA provides California’s local governments with an effective tool for the timely financing of community-based public benefit projects. CSCDA provides program participants with two energy financing programs. The Sustainable Energy Bond Program, which provides access to tax-exempt financing for energy efficiency projects through contracts with Energy Service Companies that contain guaranteed energy savings to cover the full cost of all retrofit work. The CaliforniaFIRST program provides local governments access to a multi-jurisdictional Property Accessed Clean Energy Program that allows property owners to secure upfront financing for energy and water-saving improvements, which they repay through a voluntary special assessment on their property tax bill. CSCDA is also in the process of developing OPEN PACE, a full turnkey resource for local governments where qualified program administrators will develop managed contractor networks within the community, provide 100% financing and file repayment obligations through the property tax bills.

## **Pacific Gas and Electric Company**

PG&E provides technical assistance, rebates and incentives, and financing options to promote energy efficiency and renewable energy projects. For Residential customers, PG&E offers income-eligible customers monthly discounts and free energy saving improvements. PG&E also offers appliance rebates and whole-home upgrade incentives. For Non-Residential customers, PG&E offers the Energy Efficiency Financing program, which provides businesses and government agencies access to 0% loans up to \$100,000 for businesses and \$250,000 for government agencies. PG&E also offers incentives and technical assistance to improve the operational performance of facilities’ equipment, lighting and control systems through a Retro-commissioning program. Additionally, PG&E offers design assistance, incentives and educational resources for new construction that exceeds Title 24 energy efficiency standard through the Savings By Design program.

## APPENDIX A: LOOMIS BASELINE ENERGY USE

The majority of electricity in Loomis is provided by utilities though independent energy service providers also provide a small percentage as direct access electricity. Utility electricity and natural gas consumption data was collected from Pacific Gas and Electric Company (PG&E) for all accounts within the Loomis town limits. Direct-access electricity is energy supplied by a competitive energy service provider other than a utility, but uses a utility's transmission lines to distribute the energy. Due to confidentiality laws, PG&E was unable to release direct-access electricity consumption within the Loomis town limits. The direct-access electricity consumption within Loomis was estimated from county-level, direct-access electricity data provided by the California Energy Commission (CEC). The total direct-access electricity consumption for Placer County was used to determine the ratio of direct-access electricity use to utility-provided electricity use for residential and non-residential energy use. This ratio was applied to the utility-provided electricity use within Placer County to determine an estimate of the direct-access electricity consumed within Loomis. Non-utility propane, fuel oil and wood consumption used for space and water heating was estimated using National Oceanic and Atmospheric Administration reported heating degree days for Sacramento Drainage in 2005, the number of homes using non-utility fuels for home heating reported by the U.S. Census Bureau 2005-2009 American Community Survey, and U.S. Environmental Protection Agency reported space and water heating factors. For detailed references refer to the Town of Loomis 2005 Community-Wide Greenhouse Gas Emissions Inventory.

**Table A-1: Loomis 2005 Baseline Residential Energy Use by Energy Source**

Energy Source	Value	Units	Data Source
Electricity Consumption - PG&E	23,876,964	kWh	Pacific Gas and Electric
Electricity Consumption - Direct Access	32,907	kWh	California Energy Commission
<b>Total Electricity Consumption</b>	<b>23,909,871</b>	<b>kWh</b>	
Natural Gas Consumption	989,949	Therms	Pacific Gas and Electric
Propane (LPG) Consumption	154,915	Gallons	NOAA, U.S. EPA and U.S. Census Bureau
Fuel Oil / Kerosene Consumption	6,855	Gallons	NOAA, U.S. EPA and U.S. Census Bureau
Wood for Home Heating Consumption	156	Cords	NOAA, U.S. EPA and U.S. Census Bureau

**Table A-2: Loomis 2005 Baseline Non-Residential Energy Use by Energy Source**

Energy Source	Value	Units	Data Source
Electricity Consumption - PG&E	17,881,067	kWh	Pacific Gas and Electric
Electricity Consumption - Direct Access	6,490,024	kWh	California Energy Commission
<b>Total Electricity Consumption</b>	<b>24,371,091</b>	<b>kWh</b>	
Natural Gas - PG&E	316,564	Therms	Pacific Gas and Electric

Utility electricity consumption data was collected from PG&E for all accounts paid for by the town of Loomis. In 2005, the Town did not use propane or natural gas in any municipal facilities.

**Table A-3: Loomis 2005 Baseline Municipal Buildings Energy Use by Energy Source**

Energy Source	Value	Units	Data Source
Corporation Yard Electricity Consumption	15,840	kWh	Pacific Gas and Electric
Town Hall Electricity Consumption	36,074	kWh	Pacific Gas and Electric
Train Depot Electricity Consumption	24,149	kWh	Pacific Gas and Electric
Total Municipal Buildings Electricity Consumption	76,063	kWh	

**Table A-4: Loomis 2005 Baseline Public Lighting Energy Use by Energy Source**

Energy Source	Value	Units	Data Source
Traffic Lights Electricity Consumption	22,133	kWh	Pacific Gas and Electric
Street Lights and Other Public Lights Electricity Consumption	50,479	kWh	Pacific Gas and Electric
Total Public Lighting Electricity Consumption	72,612	kWh	

## APPENDIX B: LOOMIS BUSINESS AS USUAL ENERGY USE FORECAST

The business as usual (BAU) community-wide energy use was forecasted using the Statewide Energy Efficiency Collaborative Clear Path California forecasting tool. Municipal energy use, because it is included within the non-residential energy use, was not forecasted separately. Residential energy use was forecasted using actual and projected housing units reported by Sacramento Area Council of Governments (SACOG) 2005-2013 Metropolitan Transportation Plan growth increment for Loomis and 2013-2021 Regional Housing Needs Allocation projections for Loomis. Non-residential energy use was forecasted using actual growth in Placer County jobs for 2005-2013 reported by the California Employment Development Department - Labor Market Information Division and 2013-2020 SACOG regional growth projections prepared for the 2013 Metropolitan Transportation Plan. Annualized growth rates for Loomis housing units and employment were calculated for the Clear Path California time periods required to forecast energy use. Annualized growth rates for each time period were calculated using the standard formula.

$$\text{Annualized Growth Rate} = (X/Y)^{(1/(Z)-1)}-1$$

Where: X = Forecast End Year Energy Use

Y = Baseline Year Energy Use

Z = Number of Years in the Forecast

**Table B-1: BAU Residential Energy Use Forecast by Energy Source**

Energy Source	2005 Residential Energy Use	2020 Residential Energy Use	2005-2020 Change in Energy Use
Electricity (kWh)	23,909,871	27,274,491	3,364,620
Natural Gas (Therms)	989,949	1,129,270	139,321
Propane (Gallons)	154,915	176,717	21,802
Fuel Oil/Kerosene (Gallons)	6,855	7,819	964
Wood (Cords)	156	178	22

**Table B-2: BAU Non-Residential Energy Use Forecast by Energy Source**

Energy Source	2005 Non- Residential Energy Use	2020 Non-Residential Energy Use	2005-2020 Change in Energy Use
Electricity (kWh)	24,371,091	26,894,177	2,523,086
Natural Gas (Therms)	316,564	349,330	32,766

**Table B-3: UPlan BAU Energy Use Forecast Annualized Growth Rates**

Energy Use Sector	Growth Indicator	Growth Indicator Source	Annualized Growth Rate (2005-2009)	Annualized Growth Rate (2010-2014)	Annualized Growth Rate (2015-2020)
Residential	Households	SACOG	1%	1%	0.8%
Non-Residential	Employment	CA EDD & SACOG	-1.6%*	1.9%	1.1%

\* for ClearPath model six decimal places were used to accurately reflect the growth indicators (i.e. -1.6% is -0.016167)

**Table B-4: BAU Residential Energy Use Forecast Growth Indicators and Annualized Growth Rates**

Year	Households	Growth Indicator Source
2005	2,304	Sacramento Area Council of Governments Metropolitan Transportation Plan
2013	2,494	
2021	2,648	Sacramento Area Council of Governments Regional Housing Needs Assessment
Time Period	Annualized Growth Rate	
2005-2013	1%*	Sacramento Area Council of Governments Metropolitan Transportation Plan
2013-2021	.8%*	Sacramento Area Council of Governments Regional Housing Needs Assessment

\* for ClearPath model six decimal places were used to accurately reflect the growth indicators (0.009954 and 0.007518, respectively)

**Table B-5: BAU Non-Residential Energy Use Forecast Growth Indicators and Annualized Growth Rates**

Year	Employment	Growth Indicator Source
2005	138,000	California Employment Development Department Labor Market Information Division - Placer County Jobs -Total, All Industries
2010	127,200	
2013	140,700	
2008	1,021,472	Sacramento Area Council of Governments Metropolitan Transportation Plan Total Jobs
2020	1,172,053	
Time Period	Annualized Growth Rate	
2005-2010	-1.6%*	California Employment Development Department Labor Market Information Division - Placer County Jobs -Total, All Industries
2010-2013	3.4%*	
2013-2020	1.2%*	Sacramento Area Council of Governments Metropolitan Transportation Plan Total Jobs

\* for ClearPath model six decimal places were used to accurately reflect the growth indicators (-0.01616, 0.034195, 0.011525 respectively)

## APPENDIX C: POTENTIAL ENERGY REDUCTION CALCULATIONS

This appendix shows the calculations for potential energy reductions resulting from implementation of each energy efficiency strategy. For each strategy, each step of the calculation is numbered, calculation inputs are highlighted in yellow and results are highlighted in green. Potential energy savings were not calculated for non-utility fuels because of their limited use in Loomis and the uncertainty surrounding efficiency programs for non-utility fuels.

<b>Strategy 1.1: Expand outreach and education to increase participation in voluntary home energy-efficiency programs.</b>		
<b>Target: 10% of Existing Households Reduce Energy Use 30% by 2020</b>		
1. Baseline Year	2005	
2. Baseline Annual Residential Energy Use	23,909,871	kWh Electricity
	989,949	Therms Natural Gas
3. Baseline Number of Households	2,354	Housing Units
4. 2020 Target Percent of Households Participating	10%	of baseline homes
5. 2020 Target Percent Energy Reduction From Baseline Year	30%	of electricity use
	30%	of natural gas use
<b>2020 Participating Households</b> = Baseline Households x Percent Participating =	235	Housing Units
<b>2020 Electricity Savings</b> = Baseline Energy Use x Percent Participating x Percent Reduction =	717,296	kWh / Year
<b>2020 Natural Gas Savings</b> = Baseline Energy Use x Percent Participating x Percent Reduction =	29,698	Therms / Year

<b>Strategy 1.2: Expand outreach and education to increase participation in voluntary non-residential energy-efficiency programs.</b>		
<b>Target: 10% of Existing Businesses Reduce Energy Use 30% by 2020</b>		
1. Baseline Year	2005	
2. Baseline Annual Non-Residential Energy Use	24,371,091	kWh Electricity
	316,564	Therms Natural Gas
3. 2020 Target Percent of Non-Res Participating	10%	participating
4. 2020 Target Percent Energy Reduction From Baseline	30%	of electricity use
	30%	of natural gas use
<b>2020 Electricity Savings</b> = Baseline Energy Use x Percent Participating x Percent Reduction =	731,133	kWh / Year
<b>2020 Natural Gas Savings</b> = Baseline Energy Use x Percent Participating x Percent Reduction =	9,497	Therms / Year

<b>Strategy 2.1: Improve compliance with Title 24 Green Building and Energy Efficiency Standards.</b>		
<b>Target: 100% of New Construction meets Title 24 Green Building and Energy Efficiency Standards</b>		
1. Baseline Year	2005	
2. Forecast 2014-to-2020 Energy Use Increase (Without Title 24 Compliance)	Residential	
	1,198,370	kWh / Year Electricity
	49,630	Therms / Year Natural Gas
	Non-Residential	
	1,759,758	kWh / Year Electricity
	22,860	Therms / Year Natural Gas
3. Climate Zone 11 New Housing Construction (CEC 2013) <sup>1</sup>	43.1%	Single Family
	56.9%	Multi-Family
4. Percent of Residential Energy Use Associated with Space Heating, Cooling, Indoor Lighting and Water Heating (CEC 2004) <sup>2</sup>	Electricity	Natural Gas
	37%	88%
5. 2008 Title 24 Energy Savings Associated with Space Heating, Cooling, Indoor Lighting and Water Heating (CEC 2007) <sup>3</sup>	Electricity	Natural Gas
	Single Family (SF)	22.7%
	Multi-Family (MF)	19.7%
	Non-Residential (Non-Res)	4.9%
6. Percent of Residential Energy Use Associated with Space Heating, Cooling, Indoor Lighting and Water Heating (CEC 2010) <sup>4</sup>	Electricity	Natural Gas
	32%	86%
7. 2013 Title 24 Energy Savings Associated with Space Heating, Cooling, Indoor Lighting and Water Heating (CEC 2013) <sup>1</sup>	Electricity	Natural Gas
	Single Family (SF)	36.4%
	Multi-Family (MF)	23.3%
	Non-Residential (Non-Res)	22%
<b>2020 Energy Savings from 2008 Title 24:</b> Res = Forecast 2014-to-2020 Energy Use x Percent Covered Energy Use x [(Percent SF x 2008 SF Percent Savings) + (Percent MF x 2008 MF Percent Savings)] Non-Res = Forecast 2014-to-2020 Energy Use x 2008 Non-Res Percent Savings	Residential	
	93,082	kWh / Year Electricity
	3,622	Therms / Year Natural Gas
	Non-Residential	
	86,228	kWh / Year Electricity
	2,149	Therms / Year Natural Gas
<b>2020 Energy Savings from 2013 Title 24:</b> Res = (Forecast 2014-to-2020 Energy Use - 2008 Title 24 Energy Savings) x Percent Covered Energy Use x [(Percent SF x 2013 SF Percent Savings) + (Percent MF x 2013 MF Percent Savings)] Non-Res = (Forecast 2014-to-2020 Energy Use - 2008 Title 24 Energy Savings) x 2013 Non-Res Percent Savings	Residential	
	102,378	kWh / Year Electricity
	1,964	Therms / Year Natural Gas
	Non-Residential	
	368,177	kWh / Year Electricity
	3,521	Therms / Year Natural Gas
<b>2020 Energy Savings from 2008 and 2013 Title 24</b> = 2008 Title 24 Energy Savings + 2013 Title 24 Energy Savings =	Residential	
	195,459	kWh / Year Electricity
	5,586	Therms / Year Natural Gas
	Non-Residential	
	454,405	kWh / Year Electricity
	5,670	Therms / Year Natural Gas

<sup>1</sup> 2013 CEC - [Impact Analysis California's 2013 Building Energy Efficiency Standards](#)

<sup>2</sup> 2004 CEC - [California Statewide Residential Appliance Saturation Study](#)

<sup>3</sup> 2007 CEC - [Impact Analysis 2008 Update to the California Energy Efficiency Standards](#)

<sup>4</sup> 2010 CEC - [2009 California Residential Appliance Saturation Study](#)

<b>Strategy 2.2: Provide incentives for buildings to exceed the current Title 24 Energy Efficiency Standards.</b>		
<b>Target: 15% of New Construction Reduces Energy Use Beyond Title 24 Requirements (Residential 30% and Non-Residential 15%)</b>		
1. Baseline Year	2005	
2. Forecast 2014-to-2020 Energy Use Increase (Without Title 24 Compliance)	Residential	
	1,198,370	kWh / Year Electricity
	49,630	Therms / Year Natural Gas
	Non-Residential	
	1,759,758	kWh / Year Electricity
	22,860	Therms / Year Natural Gas
3. 2020 Energy Savings from 2008 and 2013 Title 24 Compliance (See Strategy 2.1)	Residential	
	195,459	kWh / Year Electricity
	5,586	Therms / Year Natural Gas
	Non-Residential	
	454,405	kWh / Year Electricity
	5,670	Therms / Year Natural Gas
4. Forecast 2014-to-2020 Energy Use Increase After Title 24 Compliance	Residential	
	1,002,911	kWh / Year Electricity
	44,044	Therms / Year Natural Gas
	Non-Residential	
	1,305,353	kWh / Year Electricity
	17,190	Therms / Year Natural Gas
5. 2020 Target Percent Participation	15%	Residential
	15%	Non-Residential
6. 2020 Target Percent Energy Savings	30%	Residential
	15%	Non-Residential
<b>2020 Energy Savings Beyond Title 24 Requirements</b> = Forecast 2014-to-2020 Energy Use Increase After Title 24 Compliance x Percent Participation x Percent Energy Savings =	Residential	
	45,131	kWh / Year Electricity
	1,982	Therms / Year Natural Gas
	Non-Residential	
	29,370	kWh / Year Electricity
	387	Therms / Year Natural Gas

**Strategy 3.1: Evaluate the Town’s residential, non-residential and municipal solar potential and assess barriers to increased solar energy use.**

**Target: 20% of Existing Households and 15% of Businesses Install Solar PV by 2020**

1. Baseline Year	2005	
2. 2020 Target Potential Installations	2,595	Residential
	231	Non-Residential
3. Number of Existing Installations (2013 PG&E) <sup>1</sup>	310	Residential
	16	Non-Residential
4. Total kW of Existing Installations (2013 PG&E) <sup>1</sup>	2,005	kW Residential
	616	kW Non-Residential
5. 2020 Target Percent Participating	20%	Residential
	15%	Non-Residential
6. Average Hours of Electricity Production (2014 CSI) <sup>2</sup>	4.65	Hours / Day
<b>2020 Number of Participants</b> = Potential Installations x Percent Participating =	519	Residential
	35	Non-Residential
<b>2020 kW Solar Installed</b> = Potential Installations x Percent Participating x Total Size of Existing Installations / Number of Existing Installations =	3,357	kW Residential
	1,334	kW Non-Residential
<b>2020 Solar-Produced Electricity</b> = 2020 kW Solar Installed x Average Hours per Day Production x 365 Days / Year =	5,697,258	kWh / Year Residential
	2,264,174	kWh / Year Non-Residential

**Strategy 3.3: Encourage new development projects to meet 70% of their energy needs from renewable resources.**

**Target: 15% of New Developments Meet 70% of Energy Needs with Renewable Energy by 2020**

1. Baseline Year	2005	
2. Forecast 2014-to-2020 Energy Use Increase After Title 24 Compliance (See Strategy: 2.2)	Residential	
	1,002,911	kWh / Year Electricity
	44,044	Therms / Year Natural Gas
	Non-Residential	
	1,305,353	kWh / Year Electricity
	17,190	Therms / Year Natural Gas
3. Forecast 2014-to-2020 New Construction	115	Households
4. 2020 Target Percent Participating	15%	Residential
	15%	Non-Residential
5. 2020 Target Percent Provided by Renewables	70%	Residential
	70%	Non-Residential
<b>2020 Non-renewable Energy Savings</b> = Forecast Energy Use Increase (After Title 24 Compliance) x Percent Participating x Percent Provided by Renewables =	Residential	
	105,306	kWh / Year Electricity
	4,625	Therms / Year Natural Gas
	Non-Residential	
	137,062	kWh / Year Electricity
	1,805	Therms / Year Natural Gas

<sup>1</sup> 2013 PG&E - PG&E Energy Summary for Loomis 2005 to 2013

<sup>2</sup> 2014 CSI - [California Solar Initiative Incentive Calculator](#)

<b>Strategy 4.1: Improve the energy efficiency of existing municipal structures.</b>		
<b>Target: Reduce Energy Use in Municipal Buildings by 20% by 2020</b>		
1. Baseline Year	2005	
2. Baseline Annual Municipal Buildings Energy Use	76,036	kWh Electricity
3. 2020 Target Percent Energy Reduction	20%	of Electricity Use
<b>2020 Electricity Savings</b> = Baseline Energy Use x Percent Reduction =	15,207	kWh / Year

<b>Strategy 4.2: Evaluate cost-effectiveness of improving energy efficiency of traffic signals and public lighting.</b>		
<b>Target: Reduce Energy Used by the Town for Public Lighting by 20% by 2020</b>		
1. Baseline Year	2005	
2. Baseline Annual Municipal-Operations Energy Use	Traffic Lights	22,133 kWh Electricity
	Street Lights and Other Lighting	50,479 kWh Electricity
3. 2020 Target Percent Energy Reduction	20%	Traffic Signals
	20%	Street Lights and Other
<b>2020 Traffic Light Savings</b> = Baseline Energy Use x Percent Reduction =	4,427	kWh / Year
<b>2020 Street and Other Lighting Savings</b> = Baseline Energy Use x Percent Reduction =	10,096	kWh / Year

<b>Strategy 5.1: Encourage residents and businesses to conserve water used indoors.</b>		
<b>Target: 100% of Households and Businesses Reduce Indoor Water Use by 20% by 2020</b>		
1. Baseline Year	2005	
2. Baseline Population	6,166	People
3. Placer County Water Agency (PCWA) (2010 PCWA) <sup>1</sup> Zones 1, 2 & 3 - 2005 Population Zones 1, 2 & 3 - 2005 Gross Water Use Gallons Per Acre-foot Conversion	92,770	Population
	27,657	Acre-Feet / Year
	325,851	Gallons / Acre-foot
	31%	Residential Indoor
4. Percent of Urban Water Demand (2013 CA WPU) <sup>2</sup>	45%	Landscape Irrigation
	20%	Non-Residential
	20%	Reduction
5. 2020 Target Percent Reduction in Indoor Water Use	20%	Reduction
6. PCWA Zone 1 Treated Water 2007 Energy Use Factor (2009 PCWA) <sup>3</sup>	156	kWh / Acre-Foot
<b>2005 Gallons Per Capita Per Day (GPCD) Water Use</b> = PCWA 2005 Gross Water Use * Gallons Per Acre-foot Conversion / PCWA 2005 Population / 365 Days Per Year =	266	Gallons / Capita / Day
<b>2005 Estimated Indoor Water Use</b> = Total GPCD x (Percent Res + Percent Non-Res) =	136	Gallons / Capita / Day
<b>2005 Estimated Annual Indoor Water Use</b> = Indoor GPCD x Loomis Baseline Year Population * 365 Days Per Year / Gallons Per Acre-foot Conversion =	937	Acre-Feet / Year
<b>2020 Indoor Water Use Savings</b> = Annual Indoor Water Use x Percent Reduction =	187	Acre-Feet / Year
<b>2020 Energy Savings from Reduced Indoor Water Use</b> = Reduced Indoor Water Use x Energy Use Factor =	29,250	kWh / Year

<b>Strategy 5.2: Encourage residents and businesses to conserve water used outdoors.</b>		
<b>Target: 100% of Households and Businesses Reduce Landscape Water Use by 20% by 2020</b>		
1. Baseline Year	2005	
2. Baseline Population	6,166	People
3. 2005 Gallons Per Capita Per Day (GPCD) Water Use (See Strategy: 5.1)	266	Gallons / Capita / Day
4. Gallons Per Acre-foot Conversion	325,851	Gallons / Acre-foot
5. Percent of Urban Water Demand (2013 CA WPU) <sup>2</sup>	31%	Residential Indoor
	45%	Landscape Irrigation
	20%	Non-Residential
6. 2020 Target Percent Reduction in Outdoor Water Use	20%	Reduction
7. PCWA Zone 1 Treated Water 2007 Energy Use Factor (2009 PCWA) <sup>3</sup>	156	kWh / Acre-Foot
<b>2005 Estimated Landscaping Water Use</b> = Total GPCD x Percent Landscape Irrigation =	120	Gallons / Capita / Day
<b>2005 Estimated Annual Landscaping Water Use</b> = Landscaping GPCD x Loomis Baseline Year Population * 365 Days Per Year / Gallons Per Acre-foot Conversion =	827	Acre-Feet / Year
<b>2020 Reduced Landscaping Water Use</b> = Annual Landscaping Water Use x Percent Reduction =	165	Acre-Feet / Year
<b>2020 Energy Savings from Reduced Landscaping Water Use</b> = Reduced Landscaping Water Use x Energy Use Factor =	25,809	kWh / Year

<sup>1</sup> 2010 PCWA - [Placer County Water Agency 2010 Urban Water Management Plan](#)

<sup>2</sup> 2013 CA WPU - [2013 California Water Plan Update - Chapter 3: Urban Water Use Efficiency](#)

<sup>3</sup> 2009 PCWA - [PCWA Energy and Green House Gas Benchmark Study](#)

## APPENDIX D: EXISTING ENERGY EFFICIENCY PROGRAMS, POLICIES AND CODES IN LOOMIS

EXISTING PROGRAMS/POLICIES/CODES	DESCRIPTION
<i>Existing Programs</i>	
<ul style="list-style-type: none"> <li>▪ PACIFIC GAS &amp; ELECTRIC COMPANY (PG&amp;E)</li> </ul>	PG&E offers incentives, rebates and educational resources to residents, businesses, non-profits and government agencies in Loomis. ( <a href="http://www.pge.com/">http://www.pge.com/</a> )
<ul style="list-style-type: none"> <li>▪ SIERRA BUSINESS COUNCIL (SBC)</li> </ul>	SBC administers the Sierra Nevada Energy Watch program, delivering cost effective energy-efficiency projects and benchmarking services to businesses, non-profits, and government agencies in Loomis. SBC also offers consulting services to governments on energy and climate planning. ( <a href="http://sierrabusiness.org/">http://sierrabusiness.org/</a> )
<ul style="list-style-type: none"> <li>▪ PLACER COUNTY</li> </ul>	Placer County administers the mPOWER program that currently provides financing for renewable-energy, energy-efficiency and water-efficiency improvements repaid through property taxes for residences and businesses. ( <a href="http://www.mpowerplacer.org">www.mpowerplacer.org</a> )
<ul style="list-style-type: none"> <li>▪ PROJECT GO INC.</li> </ul>	Project Go Inc. administers the low-income home energy assistance and weatherization assistance programs in Loomis. ( <a href="http://www.projectgoinc.org/">http://www.projectgoinc.org/</a> )
<ul style="list-style-type: none"> <li>▪ PLACER COUNTY WATER AGENCY (PCWA)</li> </ul>	PCWA offers water-wise landscaping resources and rebates for high efficiency washing machines and toilets, irrigation efficiency and lawn replacement programs. Rebates will re-start in 2015. ( <a href="http://www.PCWA.net">www.PCWA.net</a> )
<ul style="list-style-type: none"> <li>▪ GRID ALTERNATIVES</li> </ul>	GRID Alternatives is a nonprofit organization that brings the benefits of solar technology to communities that would not otherwise have access, providing needed savings for families and preparing workers for jobs in the fast-growing solar industry. ( <a href="http://www.gridalternatives.org/">http://www.gridalternatives.org/</a> )
<ul style="list-style-type: none"> <li>▪ TRC ENERGY SERVICES</li> </ul>	TRC Energy Services administers the California Advanced Homes program, which highlights best practices in energy efficiency, green building and sustainability, and offers generous financial incentives to help builders and architects create environmentally friendly, energy-efficient communities for potential home buyers. ( <a href="http://cahp-pge.com/">http://cahp-pge.com/</a> )
<i>EXISTING POLICIES (July 2001 General Plan)</i>	
<ul style="list-style-type: none"> <li>▪ III. LAND USE AND COMMUNITY DEVELOPMENT – F. COMMERCIAL AND INDUSTRIAL LAND USE (P. 40)</li> </ul>	<b>Policy F.6</b> - Loomis shall require landscaping throughout off-street parking lots to mitigate the adverse visual impact of large paved areas and provide shading to assist in energy conservation within adjacent buildings

EXISTING PROGRAMS/POLICIES/CODES	DESCRIPTION
<ul style="list-style-type: none"> <li>▪ V. HOUSING – E. ENERGY CONSERVATION (P. 107)</li> </ul>	<p><b>GOAL F</b> - To increase the efficiency of energy use in new and existing homes, with a concurrent reduction in housing costs to Town residents</p> <p><b>Policy F.1</b> - All new dwelling units shall be required to meet current state requirements for energy efficiency. The retrofiting of existing units shall be encouraged.</p> <p><b>Policy F.2</b> - New land use patterns should encourage energy efficiency, to the extent feasible.</p> <p><b>Implementation F.1.1</b> - The Town will continue to implement provisions of the Subdivision Map Act that requires subdivisions to be oriented for solar access, to the extent practical, and which encourages the use of trees for shading and cooling.</p> <p><b>Implementation F.1.2</b> - The Town will encourage the developers to be innovative in designing energy efficient homes, and ways to improve the energy efficiency of new construction.</p> <p><b>Implementation F.1.3</b> - The Town will continue to provide information on weatherization programs funded by the State, PG&amp;E, and others.</p>
<ul style="list-style-type: none"> <li>▪ VI. PUBLIC SERVICES, FACILITIES AND FINANCE (P. 111)</li> </ul>	<p><b>Policy 8</b> - New construction and reconstruction/restoration shall consider energy conservation in the selection of building materials, building orientation, and landscaping.</p> <p><b>Policy 9</b> - The Town shall identify the potential for energy conservation measures for the use of renewable energy sources and alternatives to fossil fuels.</p> <p><b>Policy 10</b> - The Town shall actively participate in the energy conservation programs of the local, state, and federal agencies.</p> <p><b>Policy 11</b> - The Town shall consider the use of alternative energy sources for all public facilities.</p>
<p><b>MUNICIPAL CODE</b> (Current as of April 2014)</p>	
<ul style="list-style-type: none"> <li>▪ TITLE 13 – ZONING</li> </ul>	<p><b>13.10.010 D. Minimize automobile congestion</b> by promoting pedestrian-oriented development...</p> <p><b>13.30.080 B. Outdoor Lighting</b> shall be energy-efficient...</p> <p><b>13.34.050 A. et. al. Landscape Design.</b> The required landscape plan shall be designed to integrate all elements of the project (e.g., buildings, parking lots, and streets) to achieve their aesthetic objectives, desirable microclimates, and minimize water and energy demand. Subsections address drought tolerance (13.34.050(B)(3), and turf limitations ((13.34.050(B)(4).</p> <p><b>13.38.050 F. 8. Light sources</b> shall utilize energy efficient fixtures to the greatest extent possible.</p>

EXISTING PROGRAMS/POLICIES/CODES	DESCRIPTION
	<p><b>13.42.100 Gas Stations F. Lighting.</b> Exterior light sources, including canopy, perimeter, and flood shall be energy efficient...</p> <p><b>Pending Tree Ordinance - Goal:</b> ...Maximize the preservation of existing protected trees. Recognizes the importance of the Town’s green infrastructure. To the extent feasible will use the Sacramento Foundation’s Greenprint Program to create an overall healthy tree canopy in Loomis. (First Reading May 13, 2014)</p>
<ul style="list-style-type: none"> <li>▪ Title 14 – Subdivision Regulations</li> </ul>	<p><b>14.36.320 Protection of natural resources</b> ...To the extent reasonable...preserve indigenous natural resources such as...native trees....</p>

## APPENDIX E: PG&E AND OTHER ENERGY EFFICIENCY PROGRAMS

This appendix lists programs and rebates currently offered by PG&E and other organizations, as of the publishing of the SERR. A full description of current incentives programs can be found online.

ENERGY EFFICIENCY PROGRAMS	DESCRIPTION
<b>RESIDENTIAL PROGRAMS</b>	
<ul style="list-style-type: none"> <li>▪ Home Upgrade</li> </ul>	<p>PG&amp;E’s Home Upgrade program offers rebates of up to \$2,500 to help homeowners focus on their building shell to maintain a warmer or cooler indoor environment while lowering energy bills. Improvements may include attic, wall and floor insulation, duct sealing, furnace and AC replacements, and more.</p>
<ul style="list-style-type: none"> <li>▪ Advanced Home Upgrade</li> </ul>	<p>PG&amp;E’s Advanced Home Upgrade program offers rebates up to \$6,500 to go beyond building shell upgrades and is typically more complex, involving deep improvements. A Home Upgrade Professional will conduct a comprehensive energy assessment using energy-modeling software to create a customized energy-saving plan for your home.</p>
<ul style="list-style-type: none"> <li>▪ SmartAC™</li> </ul>	<p>PG&amp;E’s SmartAC program offers the opportunity to help prevent summer energy supply emergencies from disrupting day to day activities. Upon joining, SmartAC will install their free SmartAC device. Once installed, the customer will receive a SmartAC reward check.</p>
<ul style="list-style-type: none"> <li>▪ SmartRate™</li> </ul>	<p>PG&amp;E’s SmartRate program gives a discount at 3¢ per kWh on the customer’s June through September monthly rate, or the equivalent of 23% off Tier 1 usage. In exchange, the customer pays a surcharge of 60¢ per kWh for 2-7PM usage between 9 and 15 PG&amp;E SmartDays™, May through October. With SmartRate automatic bill protection, the first summer is risk free.</p>
<ul style="list-style-type: none"> <li>▪ Home Appliance Rebate</li> </ul>	<p>PG&amp;E offers residential customers rebates on the purchase of Energy Star® home appliances. Rebates on cooling systems range from \$20-\$425, heating systems from \$100-\$500 and appliances from \$50-\$75.</p>
<ul style="list-style-type: none"> <li>▪ Solar Water Heating</li> </ul>	<p>PG&amp;E’s Solar Water Heating program provides incentives up to \$2,719 based on the expected performance of the system.</p>
<ul style="list-style-type: none"> <li>▪ Federal Renewable Energy Tax Credit</li> </ul>	<p>A taxpayer may claim a credit of 30% of qualified expenditures for a renewable energy system that serves a dwelling unit located in the United States that is owned and used as a residence by the taxpayer. Expenditures include labor costs for on-site preparation, assembly or original system installation, and piping or wiring to interconnect a system to the home.</p>
<ul style="list-style-type: none"> <li>▪ California Advanced Homes</li> </ul>	<p>California Advanced Homes™ Program, administered by PG&amp;E and TRC Energy Services, highlights best practices in energy efficiency, green building and sustainability, and offers generous financial incentives to help builders and architects create environmentally friendly, energy-efficient communities for potential home buyers.</p>

ENERGY EFFICIENCY PROGRAMS	DESCRIPTION
<ul style="list-style-type: none"> <li>▪ New Solar Homes Partnership (NSHP)</li> </ul>	<p>The NSHP provides financial incentives and other support to home builders, encouraging the construction of new, energy efficient solar homes that save homeowners money on their electric bills and protect the environment.</p>
<b>TARGETED RESIDENTIAL PROGRAMS</b>	
<ul style="list-style-type: none"> <li>▪ Home Energy Assistance Program (HEAP)</li> </ul>	<p>HEAP provides financial assistance to income-qualified applicants in the form of an annual utility credit for gas, electric, propane or firewood to help with the high costs of heating and/or cooling. HEAP programs in Loomis are administered by Project Go Inc.</p>
<ul style="list-style-type: none"> <li>▪ Emergency Crisis Intervention Program (ECIP)</li> </ul>	<p>ECIP provides financial assistance in the event of a crisis, such as a 48-hour shut-off notice. ECIP programs in Loomis are administered by Project Go Inc.</p>
<ul style="list-style-type: none"> <li>▪ Weatherization Assistance Program (WAP)</li> </ul>	<p>WAP provides free weatherization services and products to improve a home’s energy efficiency and reduce overall utility costs, including attic insulation, weather stripping, caulking, minor home repairs and related conservation measures. WAP programs in Loomis are administered by Project Go Inc.</p>
<ul style="list-style-type: none"> <li>▪ Relief for Energy Assistance through Community Help (REACH)</li> </ul>	<p>REACH provides grants for projects that reduce energy vulnerability such as PG&amp;E’s one-time emergency financial assistance.</p>
<ul style="list-style-type: none"> <li>▪ California Alternate Rates for Energy (CARE)</li> </ul>	<p>Qualified low-income customers that are enrolled in the CARE program receive a 30-35 percent discount on their electric and natural gas bills. CARE is administered by PG&amp;E.</p>
<ul style="list-style-type: none"> <li>▪ Family Electric Rate Assistance (FERA)</li> </ul>	<p>The FERA program provides a monthly discount on electric bills for income-qualified households of three or more persons. FERA is administered by PG&amp;E.</p>
<ul style="list-style-type: none"> <li>▪ Energy Savings Assistance Program</li> </ul>	<p>The Energy Savings Assistance Program provides income-qualified customers with energy-saving improvements at no charge. The program is administered by PG&amp;E.</p>
<ul style="list-style-type: none"> <li>▪ Medical Baseline Allowance</li> </ul>	<p>Residential customers with a qualified physician certified medical condition can receive additional quantities of energy at the lowest (baseline) price. The program is administered by PG&amp;E.</p>
<ul style="list-style-type: none"> <li>▪ Multi-Family</li> </ul>	<p>PG&amp;E’s Multi-Family Program is for property owners and managers of existing residential dwellings or mobile home parks with five or more units. The program encourages owners to install qualifying energy-efficient products in individual tenant units and common areas of residential apartments, mobile home parks and condominium complexes. A full list of available rebates and incentives is available online.</p>
<ul style="list-style-type: none"> <li>▪ Single Family Affordable Solar Housing (SASH)</li> </ul>	<p>The California Solar Initiative SASH program provides qualifying low-income homeowners up-front rebates to defray the costs of installing a solar electric system. Depending on the income level, homeowners may be eligible for an entirely free system, or a highly subsidized one. The SASH program is administered by GRID Alternatives.</p>

ENERGY EFFICIENCY PROGRAMS	DESCRIPTION
<b>NON-RESIDENTIAL PROGRAMS</b>	
<ul style="list-style-type: none"> <li>▪ Sierra Nevada Energy Watch Program (SNEW)</li> </ul>	<p>SNEW, administered by Sierra Business Council, delivers cost effective-energy efficiency projects to businesses, non-profits, and governments in the Sierra Nevada region including Placer County.</p>
<ul style="list-style-type: none"> <li>▪ PG&amp;E Rebates and Incentives</li> </ul>	<p>PG&amp;E offers non-residential customers rebates and incentives for power management software, occupancy sensors on lights, steam traps, HVAC motors and pumps, electric water heaters, process cooling, data center airflow management, boiler economizers, refrigeration, boiler heat recovery, refrigeration control, VSD pumps, boilers and fans. A full list of current rebates can be found using the PG&amp;E money back tool. (<a href="http://www.pge.com/businessrebates">www.pge.com/businessrebates</a>)</p>
<ul style="list-style-type: none"> <li>▪ HVAC Quality Maintenance Program</li> </ul>	<p>PG&amp;E’s Commercial HVAC Quality Maintenance Program offers generous incentives for enrolling in a three-year air conditioning quality maintenance service agreement and installing optional unit retrofits. The business owner will lower their operating, repair and replacement costs; optimize unit performance and efficiency; improve the indoor air quality and thermal comfort for employees and customers; help prevent HVAC unit failures that can threaten business operations; and reduce their carbon footprint.</p>
<ul style="list-style-type: none"> <li>▪ Lighting Rebates</li> </ul>	<p>PG&amp;E offers rebates for high-efficient replacement lights as well as rebates to help cover the costs of qualifying fixtures and retrofit kits.</p>
<ul style="list-style-type: none"> <li>▪ Federal Business Investment Tax Credit</li> </ul>	<p>A taxpayer may claim an investment tax credit of 30% of qualified expenditures for solar, fuel cells, small wind systems or 10% of qualified expenditures for geothermal, microturbines and combined heat and power systems (CHP), aka co-generation systems. Expenditures include labor costs for on-site preparation, assembly or original system installation, and for piping or wiring to interconnect a system.</p>
<ul style="list-style-type: none"> <li>▪ Savings By Design (SBD)</li> </ul>	<p>SBD is a statewide program offered by PG&amp;E to encourage high-performance new building design and construction for commercial buildings. The program offers building owners and their design teams a wide range of services, such as design assistance, design team incentives, owner incentives, and educational resources.</p>
<ul style="list-style-type: none"> <li>▪ Retrocommissioning (RCx) Program</li> </ul>	<p>Retrocommissioning (RCx) is a systematic process for identifying less-than-optimal performance in your facility’s equipment, lighting and control systems and making the necessary adjustments. While retrofitting involves replacing outdated equipment, RCx focuses on improving the efficiency of what’s already in place. PG&amp;E’s RCx Program provides incentives and connects businesses with experts to make sure their facilities — and the equipment and systems within them — are running in peak condition for optimal energy savings. RCx projects can improve a facility’s work environment and extend the service life of equipment.</p>

## APPENDIX F: ENERGY EFFICIENCY FINANCING PROGRAMS

This appendix lists available financing programs for specific sectors (community-wide, residential, non-residential, municipal).

FUNDING SOURCE	DESCRIPTION
<b>COMMUNITY-WIDE</b>	
<ul style="list-style-type: none"> <li data-bbox="240 594 363 621">▪ MPOWER</li>   <li data-bbox="240 789 496 848">▪ Solar Power Purchase Agreement (PPA)</li> </ul>	<p data-bbox="540 531 1386 684">Placer County administered program that provides fixed-rate, no money down financing to residential, commercial, industrial, agricultural and multifamily property owners who want to install energy efficiency, water conservation retrofits and renewable energy systems repaid through property taxes. <a href="http://www.mpowerplacer.org">www.mpowerplacer.org</a></p> <p data-bbox="540 709 1435 930">A solar power purchase agreement (PPA) is a financial agreement where a developer arranges for the design, permitting, financing and installation of a solar energy system on a customer’s property at little to no cost. The developer sells energy to the host customer at a fixed rate that is typically lower than the local utility’s retail rate. The lower price offsets the purchase of grid electricity while the developer receives the income from these sales of electricity as well as any tax credits and other incentives generated from the system.</p>
<b>RESIDENTIAL</b>	
<ul style="list-style-type: none"> <li data-bbox="240 1005 488 1064">▪ Energy Star Energy Efficiency Mortgages</li>   <li data-bbox="240 1213 509 1272">▪ CHF Residential Energy Retrofit Program</li> </ul>	<p data-bbox="540 1005 1414 1192">An Energy Efficient Mortgage (EEM) is a mortgage that credits a home's energy efficiency in the mortgage itself. EEMs give borrowers the opportunity to finance cost-effective, energy-saving measures as part of a single mortgage and stretch debt-to-income qualifying ratios on loans thereby allowing borrowers to qualify for a larger loan amount and a better, more energy-efficient home. <a href="https://www.energystar.gov/index.cfm?c=mortgages.energy_efficient_mortgages">https://www.energystar.gov/index.cfm?c=mortgages.energy_efficient_mortgages</a></p> <p data-bbox="540 1213 1414 1339">Through the California Home Finance Authority (CHF) Residential Energy Retrofit Program, eligible homeowners can finance energy efficiency and renewable energy measures, up to \$50,000, with a 6.5% fixed interest rate 15-year loan. <a href="http://www.chfloan.org/programs/energy/overview.shtml">http://www.chfloan.org/programs/energy/overview.shtml</a></p>
<b>NON-RESIDENTIAL</b>	
<ul style="list-style-type: none"> <li data-bbox="240 1425 472 1484">▪ PG&amp;E Energy Efficiency Financing</li>   <li data-bbox="240 1619 423 1677">▪ Energy Savings Agreement</li>   <li data-bbox="240 1776 391 1803">▪ SAFE-BIDCO</li> </ul>	<p data-bbox="540 1425 1425 1579">PG&amp;E offers 0% interest loans of up to \$100,000. Loans can be used to replace old and inefficient equipment with no up-front out-of-pocket investment. The program allows 5 years for repayment; however, the energy savings continue to accrue after the loan is paid off. <a href="http://www.pge.com/en/mybusiness/save/rebates/onbill/index.page">http://www.pge.com/en/mybusiness/save/rebates/onbill/index.page</a></p> <p data-bbox="540 1604 1414 1692">An Energy Savings Agreement involves a financing contract with a private energy services company that packages energy efficiency as a service paid through the energy savings. It allows for 100% financing and is off balance sheet.</p> <p data-bbox="540 1717 1435 1871">SAFE-BIDCO offers small businesses, qualifying landlords, and non-profit organizations loans up to \$450,000 for a maximum of 15 years to complete energy efficiency and renewable energy projects. The loan can cover energy studies, design and consultant fees, materials and equipment costs and loan fees. <a href="http://www.safe-bidco.com/loan-programs/energy-efficiency-loans/">http://www.safe-bidco.com/loan-programs/energy-efficiency-loans/</a></p>

FUNDING SOURCE	DESCRIPTION
<b>MUNICIPAL</b>	
<ul style="list-style-type: none"> <li>CEC Energy Efficiency Financing</li> </ul>	<p>The California Energy Commission (CEC) offers school districts, charter schools, county offices of education, state special schools, community college districts 0% loans for energy efficiency and energy generation projects. CEC offers cities, counties, special districts, public colleges, universities and public care institutions/hospitals 1% loans for energy efficiency and energy generation projects. <a href="http://www.energy.ca.gov/efficiency/financing/">http://www.energy.ca.gov/efficiency/financing/</a></p>
<ul style="list-style-type: none"> <li>PG&amp;E Energy Efficiency Financing</li> </ul>	<p>PG&amp;E offers 0% interest loans of up to \$250,000. Loans can be used to replace old and inefficient equipment with no up-front out-of-pocket investment. The program allows 10 years for repayment; however, the energy savings continue to accrue after the loan is paid off. <a href="http://www.pge.com/en/mybusiness/save/rebates/onbill/index.page">http://www.pge.com/en/mybusiness/save/rebates/onbill/index.page</a></p>
<ul style="list-style-type: none"> <li>Energy Savings Agreement</li> </ul>	<p>An Energy Savings Agreement involves a financing contract with a private energy services company that packages energy efficiency as a service that is paid through the energy savings. It allows for 100% financing and is off balance sheet.</p>
<ul style="list-style-type: none"> <li>CSCDA Sustainable Energy Bond Program</li> </ul>	<p>California Statewide Communities Development Authority (CSCDA) and the Foundation for Renewable Energy and Environment are teaming together to provide public agencies and nonprofit organizations throughout California with access to tax exempt financing for critical sustainable energy investments. Under the Sustainable Energy Bond Program, participating entities and organizations will contract with an Energy Service Company (ESCO) to complete energy and water conservation measures. Improvements could include street lighting, building lighting, pumps, HVAC, system controls, boilers, chillers, ducting, windows, partial roofing, toilets and others. The program participants will receive substantial utility cost savings, including a contractual guarantee sufficient to cover the full cost of all retrofit work. All projects are financed through tax exempt bonds. <a href="http://www.cacommunities.org/energy-finance-programs/">http://www.cacommunities.org/energy-finance-programs/</a></p>
<ul style="list-style-type: none"> <li>IBank Clean Energy Finance Center</li> </ul>	<p>The California Infrastructure and Economic Development Bank (IBank) Clean Energy Finance Center (CEFC) encourages concerted public and private investments and utilizes IBank's access to capital markets for selected clean energy and energy efficiency projects. The IBank CEFC will help to drive energy related projects for State and local governments. <a href="http://ibank.ca.gov/clean_energy.htm">http://ibank.ca.gov/clean_energy.htm</a></p>

## APPENDIX G: PUBLIC OUTREACH

Throughout development of the Strategic Energy Resources Report (SERR) public outreach was a key part of the process. To this effort, two publicly noticed study sessions were hosted and an online survey was released to collect public input on the SERR and the identified Goals, Strategies and Actions. In addition there were two public hearings prior to approval of the SERR – one before the Planning Commission on February 24 and one before the Town Council on March 17, 2015. A variety of methods were used to ‘spread the word’ about the study sessions and survey including newspaper articles, radio announcements, multiple email blasts to local contacts, and invitations to elected officials, the Chamber and other local organizations and businesses. A summary of the public input is described below.

### **Study Session 1: August 20, 2014**

The first study session summarized work performed by Sierra Business Council (SBC) for the Town of Loomis in 2010 – 2013. The work included an inventory of energy used community-wide and by municipal operations for base year 2005, and a forecast of future usage to Year 2020. A series of charts and graphic displays were provided as well as handout materials summarizing the work done to date.

While turnout was low a number of excellent comments were made that helped inform the next phase of the process – development of the goals, strategies and actions. A summary of the key comments are provided below.

#### **Comments from Study Session 1: August 20, 2014**

<b>Topic</b>	<b>Comment</b>
<b>General</b>	<ul style="list-style-type: none"> <li>▪ Now is the time to get word out on energy rebates – before they expire in 2016</li> <li>▪ Loomis is interested in being a leader; we are a unique community</li> <li>▪ Saving tax dollars is an important concept to emphasize</li> </ul>
<b>Actions</b>	<ul style="list-style-type: none"> <li>▪ Consider changing all outdoor lighting to LED</li> <li>▪ Expand education about lighting upgrades in the faith-based sector</li> </ul>
<b>Outreach</b>	<ul style="list-style-type: none"> <li>▪ Loomis Local News – have multiple articles on the SERR</li> <li>▪ Loomis local radio</li> <li>▪ Engage Chamber of Commerce</li> <li>▪ Engage all faith-based congregations</li> <li>▪ Schools - send invitation to parents home with students</li> <li>▪ Identify other community-based organizations</li> </ul>

**Study Session 2: November 19, 2014**

The purpose of the second study session was to review and receive input on the draft goals, strategies and actions for the SERR. As discussed, the goals provide the overall framework for the SERR while the strategies and actions provide specific steps and metrics to measure progress toward accomplishing the goals.

Despite a low turnout it was a very productive discussion. The main ‘takeaways’ are enumerated below.

**Comments from Study Session 2: November 19, 2014**

Topic	Comment
<b>Goals &amp; Strategies</b>	<p><b>Goal 1:</b> Good support for expanding available information on energy-efficiency programs (benefits, feasibility, how to finance these upgrades). Focus should be on cost-savings of projects.</p> <p><b>Goal 2:</b> Many building in Loomis were built pre-Title 24; how will residents be able to finance upgrades? Discussed the many financing options available and that these will be identified in the SERR.</p> <p><b>Goal 3:</b> Town is proud of their current efforts with renewable energy practices; integrate these successes with energy efficiency programs currently available to residents and business owners.</p> <p><b>Goal 4:</b> Benchmarking facilities and municipal buildings is a good strategy</p> <p><b>Goal 5:</b> Water-related measures may be out of the Town’s purview because it does not ‘own’ its water.</p>
<b>Education &amp; Outreach</b>	<ul style="list-style-type: none"> <li>▪ Chamber of Commerce will be a great contact/connection with the community</li> <li>▪ Education can include doing case-studies on local businesses’ experience with energy-efficient practices</li> <li>▪ Word of mouth goes a long way in Loomis; can spread education and outreach by developing good relations with business leaders and locals alike at various community events</li> <li>▪ Publicize the town’s current efforts with renewable energy and speak to the point of Loomis being a small town that is making a difference</li> <li>▪ Mail inserts providing program information</li> <li>▪ Updating the Town’s website/webpage with information about energy efficiency programs and incentives</li> <li>▪ Need to educate homeowners so they can ask more of their contractors and/or develop good working relationships that will lead to good building practices</li> <li>▪ Get more public feedback on programs and perceptions to gain better understanding of their concerns and reservations</li> <li>▪ Loomis can be energy efficient without compromising its small town charm and character</li> <li>▪ Increase education and outreach, work alongside community, liaison to increase awareness and engagement (volunteerism).</li> </ul>
<b>Challenges</b>	<ul style="list-style-type: none"> <li>▪ Water-related programs could be difficult to implement/have oversight because the town’s water provided by Placer County Water Agency</li> <li>▪ Upstream sewage diversion project to increase available service for future Town expansion is the Town Manager’s current priority</li> </ul>

	<ul style="list-style-type: none"> <li>▪ Town’s staff resources are limited, need CivicSpark member to assist implementation</li> <li>▪ Need to stress other ways to ‘spread the word’ as parts of town do not have broadband internet access</li> <li>▪ Expedited permit processing may not always be the best way to go because quality of these improvements can be compromised</li> <li>▪ Not all “upgrades” that were made early in the game of energy efficiency have tested well in municipal buildings (dim lighting in Train Depot Council Chambers)</li> </ul>
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**Online Survey**

In an effort to expand outreach to local residents and businesses, Sierra Business Council developed an on-line survey to garner input on the proposed goals, strategies and actions. A series of questions about each strategy topic were asked and respondents were provided multiple choices for an answer plus an opportunity to provide additional written comments. A summary of the survey responses is included below; the full survey is available at the Town’s Manager’s Office.

**Summary – Loomis Online Survey**

**Activated October 27<sup>th</sup>, 2014; Closed December 3<sup>rd</sup>, 2014**

<b>Respondent Profile:</b>	
<ul style="list-style-type: none"> <li>▪ 5 responses</li> <li>▪ 100% from Loomis</li> <li>▪ 100% 45 or older; 60% over 55</li> </ul>	
<b>Survey Questions</b>	<b>Responses</b>
Promote energy efficiency and are proposed strategies effective	67% yes
Promote water conservation	100% yes
Offer incentives for renewable energy projects	67% no (requirement should be mandatory)
Offer incentives for projects exceeding Title 24 energy requirements	67% yes
Offer incentives for projects exceeding Title 24 water efficiency requirements	67% no (should be code mandated)
Prioritize energy efficiency and renewable energy projects	67% yes Town should prioritize. Focus should be: <ul style="list-style-type: none"> <li>▪ Solar in existing parking lots and rooftops</li> <li>▪ Electric vehicles</li> <li>▪ Study to determine where else non-fossil fuel operated equipment could be installed</li> </ul>
Obtaining information to make a decision about an energy efficiency project in home/business	Top two ways: <ul style="list-style-type: none"> <li>▪ Contractor quotes</li> <li>▪ Average costs</li> </ul>
Accessing information about energy efficiency	Top three sources:

# Loomis Strategic Energy Resources Report



programs, rebates, etc.	<ul style="list-style-type: none"><li>▪ Seminars/Workshops</li><li>▪ Mailers</li><li>▪ PG&amp;E</li></ul> <p>(note: web based info ranked lowest)</p>
Additional Comments	<ul style="list-style-type: none"><li>▪ Should have more strategies!</li><li>▪ Is PG&amp;E considering assessing a \$10 fee on homes with solar?</li><li>▪ Who paid for the survey? Is it costing homeowners? Have other cities done this?</li></ul>