

# Chapter 5 - City of Redding

## PURPOSE

This chapter serves as the Climate Action Plan (CAP) for the City of Redding. The City has developed this plan in order to contribute to the State's climate protection efforts and to provide California Environmental Quality Act (CEQA) streamlining benefits by eliminating the need for project-level greenhouse gas emission impact analysis and mitigation for residential and commercial development projects within the community that conform to a qualified greenhouse gas (GHG) reduction strategy. As stated in State CEQA Guidelines Section 15183.5, for a qualified GHG reduction strategy to provide streamlining benefits for a local jurisdiction, it needs to include the following elements:

- GHG emissions for the jurisdiction need to be quantified through a comprehensive and complete inventory effort. This means identifying and analyzing GHG emissions from specific actions or categories of actions;
- GHG emissions need to be quantified for both existing and anticipated emissions over a specified time period, that result from current and planned activities within the defined jurisdiction area;
- A reduction target for the jurisdiction must be established, below which the contribution to GHG emissions from activities covered by the plan would not be considered cumulatively significant. All assumptions and calculations in making this determination should be transparent. A margin of safety should be built into the plan as well;
- Specify policies, measures, programs, or performance standards that would collectively achieve the specified emissions reduction level if implemented as a specific project requirement or across a community. An overall reduction plan needs to address existing as well as new development reduction strategies and should rely primarily on mandatory measures;
- A mechanism must be included to monitor the plan's implementation progress toward achieving reduction levels, and revise if the plan is not achieving specified levels.

The content of this chapter is structured to demonstrate compliance with these required elements and to provide the City and community with a useful resource to implement these important actions.

## GREENHOUSE GAS EMISSION INVENTORY AND FORECASTS

The following section provides a summary of the City of Redding's communitywide 2008 baseline GHG emissions inventory, the business-as-usual emissions forecasts, and the adjusted business-as-usual forecasts. Detailed information regarding the calculation and assumptions used in preparing the GHG emissions inventory and forecasts is provided in Appendix A.

### GREENHOUSE GAS EMISSIONS INVENTORY

The 2008 GHG emissions inventory serves as the foundation of the City's CAP. Using data collected from City departments, utilities, and other relevant agencies and locally-specific emissions factors, the inventory provides an accurate assessment of the sources of GHG gas emissions generated within the City of Redding or as a direct result of city operations (even if outside city limits) in the baseline year. This data allows the City to identify appropriate GHG reduction targets and strategies.

To ensure a comprehensive and complete GHG inventory, the City developed a *Full Inventory* that contains emissions from all sectors including building energy (electricity and natural gas), transportation, waste, water, off-road vehicles/recreation, and stationary sources (industrial). Due to a lack of jurisdictional control over the stationary-source sector, emissions from this sector are excluded from the *Jurisdictional Inventory*. Examples of permitted stationary-source emissions that are not under the control of the City include process energy-related emissions at manufacturing facilities. These facilities and equipment are permitted by the Shasta County Air Quality Management District, and their GHG emissions would be controlled under the jurisdiction of the Air Resources Board pursuant to AB 32. The Jurisdictional Inventory is used within this CAP for the purposes of developing reduction targets and strategies.

#### **Total Inventory**

In 2008, the community's total baseline emissions included 1,040,919 metric tons of carbon dioxide equivalent emissions (MT CO<sub>2</sub>e). As shown in Figure 5.1 and Table 5.1, transportation generated the largest portion of emissions at approximately 502,200 MT CO<sub>2</sub>e (48% of the total emissions). Energy production and consumption generated the second highest amount of emissions in the City at approximately 333,300 MT CO<sub>2</sub>e (32% of the total emissions), followed by stationary source emissions, such as cement plants, biomass facilities, and other industrial processes at approximately 82,400 MT CO<sub>2</sub>e (8% of the total emissions). Solid waste emissions contributed approximately 63,700 MT CO<sub>2</sub>e (6% of total emissions). The water and off-road vehicle/recreation sectors comprise the remaining 6% of the emissions inventory.

#### **Jurisdictional Inventory**

With the removal of the stationary source sector emissions, the community's baseline jurisdictional inventory lowers to 958,570 MT CO<sub>2</sub>e in 2008. As shown in Figure 5.2, transportation generated 52% of total emissions, and energy production and consumption generated 35% of total emissions. The solid waste sector contributed 7%, off-road vehicles/recreation contributed 4%, and water contributed the remaining 2% of total emissions.

Figure 5.1 – 2008 Total Greenhouse Gas Emissions Inventory by Sector

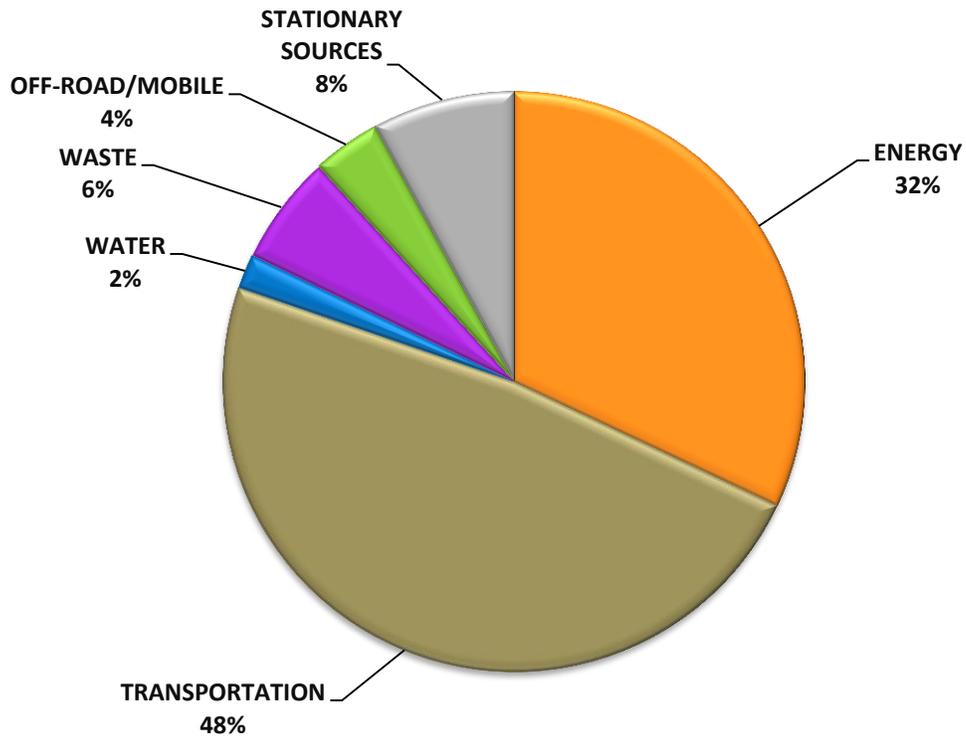
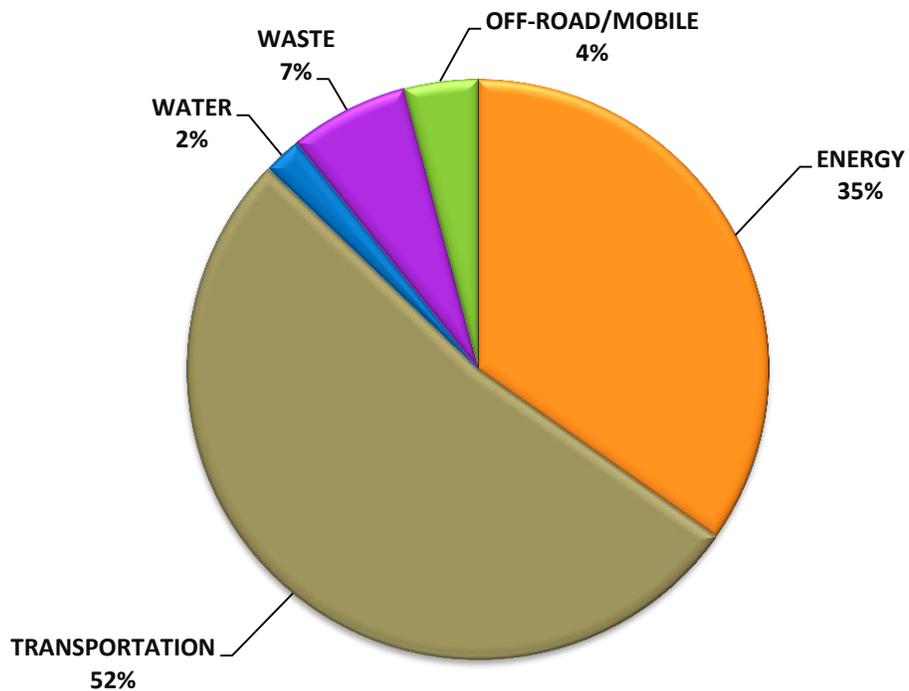


Figure 5.2 – 2008 Jurisdictional Greenhouse Gas Emissions Inventory by Sector



**Table 5.1 – Greenhouse Gas Emissions Inventory and Business-as-Usual Forecast**

Sector	2008 (MT CO <sub>2</sub> e/yr)	2020 (MT CO <sub>2</sub> e/yr)	% Change from 2008
Energy	333,253	365,273	10%
Transportation	502,196	614,881	22%
Solid Waste	63,653	70,179	10%
Water	19,944	21,988	10%
Off-Road and Recreation	39,524	43,575	10%
Stationary Sources (Non-Jurisdictional)	82,350	82,350	0%
<b>TOTAL INVENTORY</b>	<b>1,040,919</b>	<b>1,198,246</b>	<b>15%</b>
<b>JURISDICTIONAL INVENTORY</b>	<b>958,570</b>	<b>1,115,897</b>	<b>16%</b>

### BUSINESS-AS-USUAL GREENHOUSE GAS EMISSIONS FORECASTS

Developing realistic GHG emission forecasts is a critical step in preparing a CAP. Emission forecasts estimate future emissions levels and provide insight regarding the scale of reductions necessary to achieve an emissions target through 2020.

The City's jurisdictional emissions are forecasted to be 1,115,897 MT CO<sub>2</sub>e in 2020, representing growth of 16% from the 2008 baseline emissions. Table 5.1 shows that, while emissions are forecasted to increase in all sectors, transportation-related emissions are anticipated to increase at a greater rate than other sectors.

The forecasts were established using sector-specific growth factors (e.g., energy demand forecasts) or the City's population and employment growth projections. When based on population and employment growth projections, the GHG forecasts assume that baseline year activity intensity (e.g., waste generation per capita) will continue into the future. The business-as-usual GHG forecasts do not include emission reductions associated with State GHG reduction programs or implementation of the local actions described in this CAP.

The forecasts were developed for planning purposes, and represent the best-available estimates. Given the complexity of each emissions sector and the unpredictable nature of market conditions, human behavior and demographics, they will need to be updated in the future as data becomes available. The City will reevaluate the forecasts throughout the CAP implementation process.

### ADJUSTED BUSINESS-AS-USUAL GREENHOUSE GAS EMISSIONS FORECASTS

Table 5.2 describes the emission reductions anticipated to occur within the community through implementation of State and federal policies and regulations. The largest anticipated reductions are from State and federal fuel efficiency improvements to passenger vehicles and light-duty trucks. As residents and businesses replace older vehicles with newer ones, people will consume less fuel and generate fewer emissions per vehicle mile traveled. California's low carbon fuel standard will also reduce transportation-related emissions in the community by requiring a transition away from fossil fuels (i.e., gasoline and diesel) toward lower-carbon bio-fuels (e.g., ethanol). Implementation of the regional SB 375 Sustainable Communities Strategy is intended to reduce vehicle emissions through

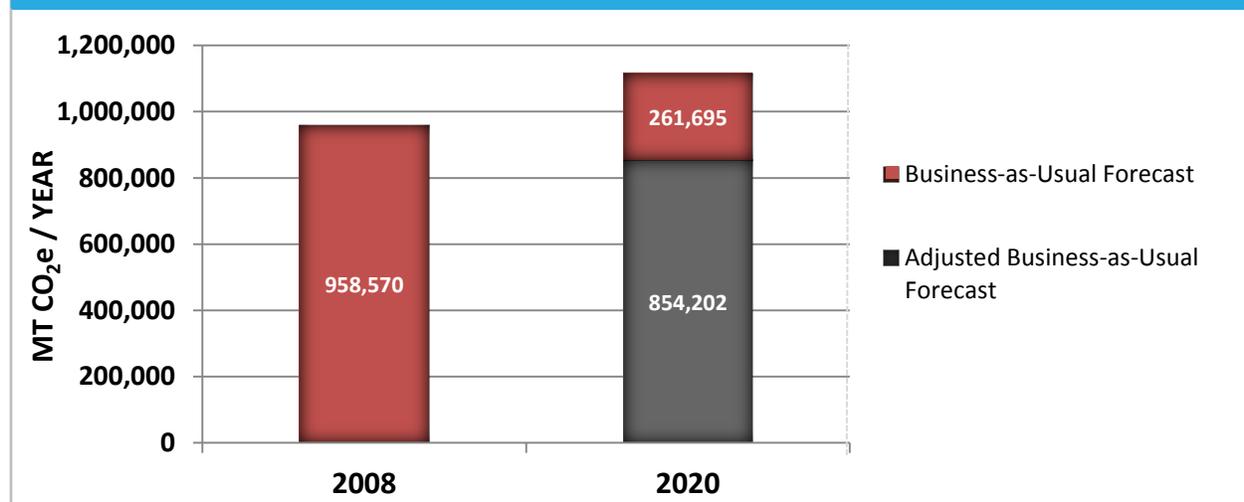
development of effective transit and other alternative transportation systems and encouragement of low-carbon development. California law also requires all utilities to obtain 33% of their electricity from renewable energy sources by 2020. In 2008, about 12% of the Redding Electricity Utility's portfolio was generated from renewable sources. This increase in renewable electricity will reduce the community energy-related emissions. State legislation also established requirements for reducing lighting energy usage in indoor residences and state facilities by no less than 50% by 2018, and a 25% reduction in commercial facilities by the same date. These efficiency improvements will result in emissions reductions associated with reduced electricity consumption. The medium- and heavy-duty vehicle efficiency improvements program and California Energy Code (Title-24) requirements for new construction will create smaller, but still important, communitywide emission reductions.

State and federal actions that reduce Redding's emissions will make it easier for the community to achieve 2020 emission reduction goals. As shown in Table 5.2 and Figure 5.3, with implementation of State and federal actions, communitywide emissions would be 854,202 MT CO<sub>2</sub>e/yr in 2020.

**Table 5.2 – Emission Reductions from State and Federal Actions 2020**

State or Federal Action	2020 Reduction (MT CO <sub>2</sub> e/year)
Passenger vehicle and light-duty truck fuel efficiency standards	68,474
Low Carbon Fuel Standard	28,797
Non-Pavley passenger vehicle efficiency programs	14,175
Medium- and heavy-duty vehicle efficiency improvement program	3,439
SB 375	53,361
2008 and 2013 California Title-24 standards	2,016
Renewable portfolio standard (33% by 2020)	83,052
Lighting efficiency	8,381
<b>Total</b>	<b>261,695</b>

**FIGURE 5.3 - BUSINESS-AS-USUAL & ADJUSTED BUSINESS-AS-USUAL EMISSION FORECASTS**

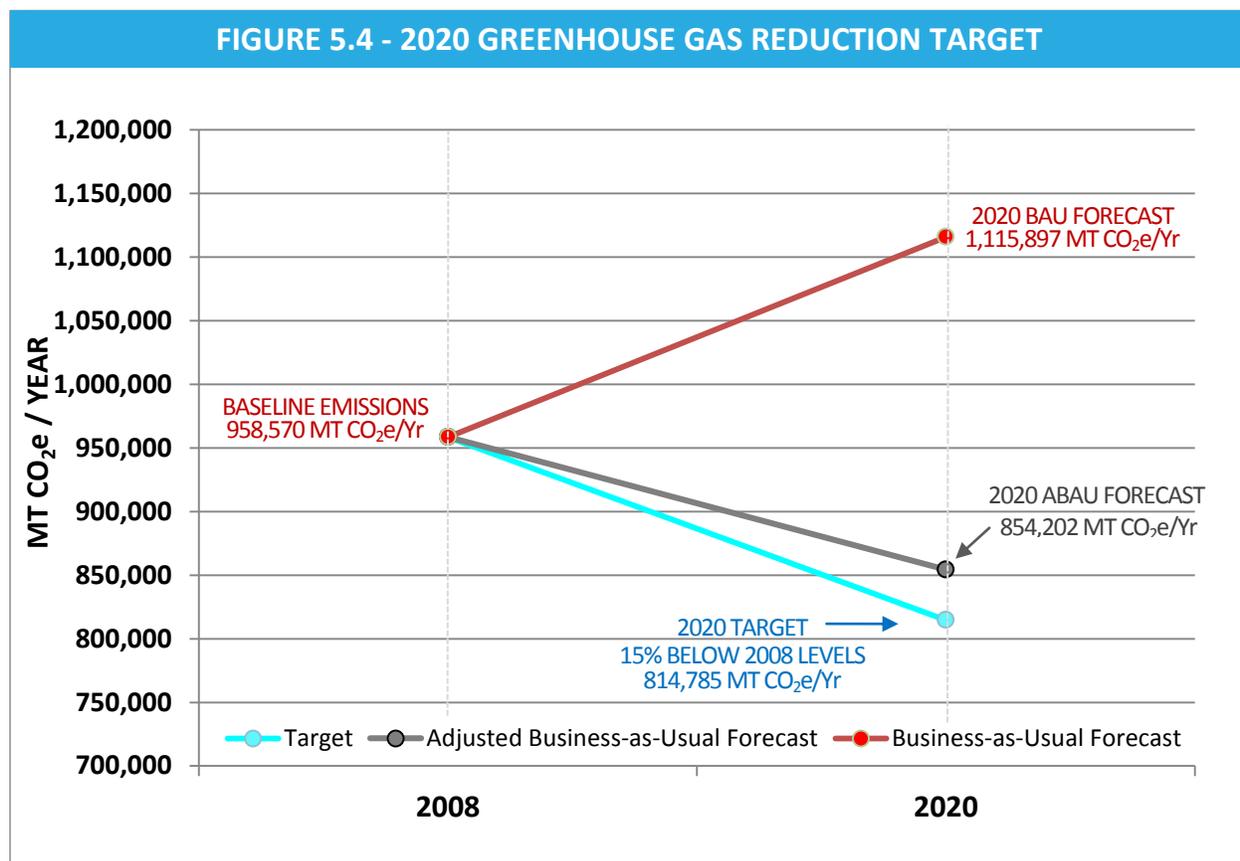


## GREENHOUSE GAS EMISSION REDUCTION TARGETS

The City has selected emission reduction targets that are both ambitious and practical. The targets will allow the City to contribute to State climate protection efforts and are purposely set at levels that are likely to provide CEQA streamlining benefits to new development projects in the community. Redding’s GHG reduction target is to reduce community emissions to 15% below 2008 levels by 2020 (814,785 MT CO<sub>2</sub>e/yr).

The California Global Solutions Warming Act (AB 32) requires the State to reduce statewide GHG emissions to 1990 levels by 2020. The City selected its 2020 target in order to contribute the community’s fair share to this near-term effort. This target aligns with direction provided by the California Air Resources Board as described in Appendix C.

This CAP describes measures that can achieve the 2020 reduction target. While the City supports the goal of Executive Order S-03-05, it recognizes that estimating 2050 emission levels and reduction potentials are highly speculative. For this reason, the City has chosen not to focus on any reduction targets beyond 2020 at this time. The City will re-evaluate its long-term GHG reduction efforts to reflect future conditions and adjust emission reduction measures as necessary.



## GREENHOUSE GAS EMISSION REDUCTION MEASURES

To meet its adopted emissions reduction targets, the City will implement policies, programs, and other projects related to energy, waste, and transportation. This section provides a summary of the CAP's overall emissions reduction potential and describes the measures that the City will use to implement the local actions.

### SUMMARY OF REDUCTIONS

Table 5.3 describes the emissions reduction potential of the City's adopted CAP measures. In 2020, local actions are anticipated to reduce approximately 44,551 MT CO<sub>2</sub>e/yr. The waste-related measures are expected to provide the largest portion, 95.0%, of the local reductions. Building energy measures provide 4.7% of reductions, and transportation measures provide the remaining 0.3%. Table 5.4 and Figure 5.5 illustrate that together the local and state actions are expected to reduce communitywide emissions to approximately 15.5% below 2008 baseline emissions levels, surpassing the adopted 2020 target (15% below 2008 levels) by 5,134 MT CO<sub>2</sub>e/yr. This estimated level of reduction conforms to the CEQA requirements for a qualified GHG reduction strategy and can be expected to provide streamlining benefits for compliant projects constructed within the jurisdiction prior to 2020.

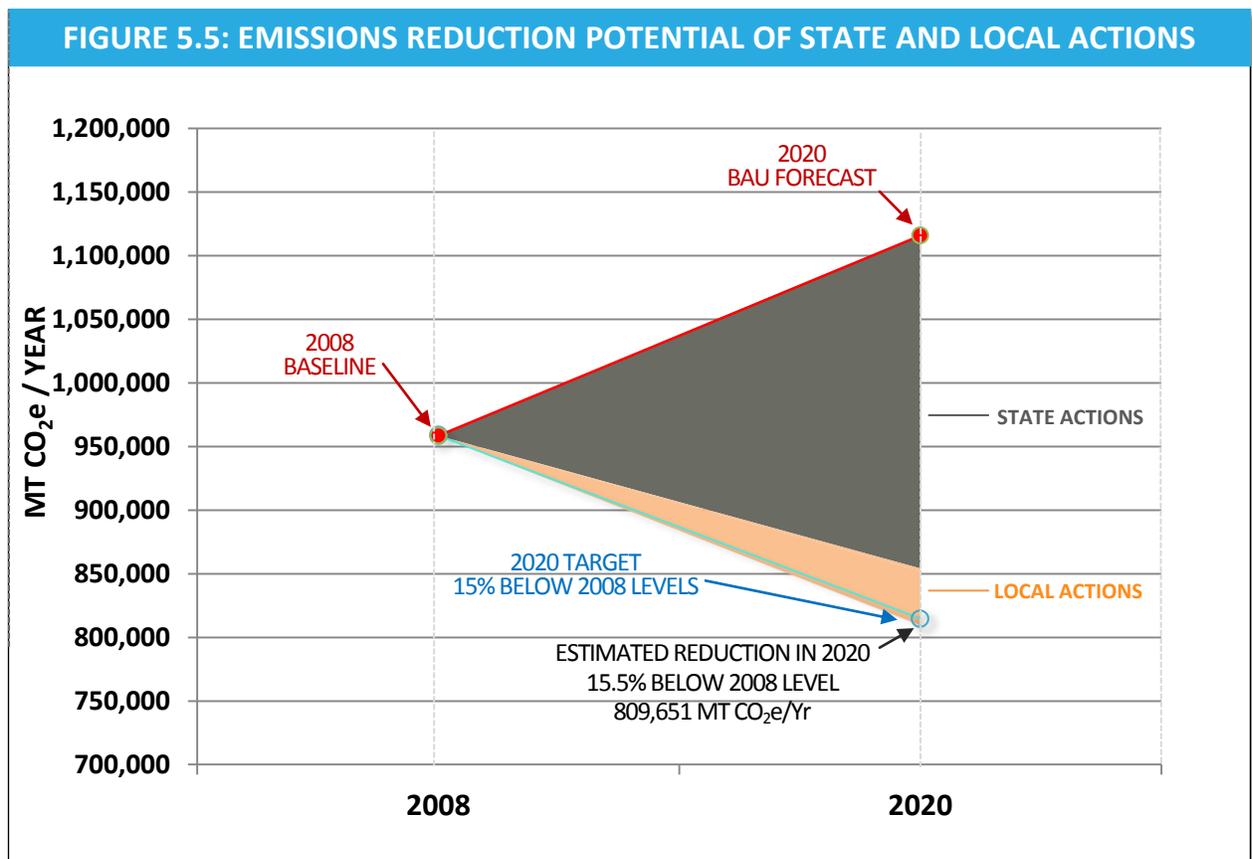
**Table 5.3 – Quantified Greenhouse Gas Reductions**

Sectors and Measures		2020 (MT CO <sub>2</sub> e/yr)
<b>Building Energy</b>		
BE-1	Energy Efficiency Retrofits	130
BE-2	New Construction	-
BE-3	Smart Grid Integration	67
BE-4	Solar Photovoltaic Systems	1,794
BE-5	Building Shade Trees	92
<b>Subtotal</b>		<b>2,083</b>
<b>Solid Waste</b>		
SW-1	Methane Recovery	42,341
<b>Subtotal</b>		<b>42,341</b>
<b>Transportation</b>		
T-1	Mixed Use Development	-
T-2	Bicycle Infrastructure	-
T-3	Pedestrian Network	-
T-4	Service and Maintenance Efficiency	127
<b>Subtotal</b>		<b>127</b>
<b>TOTAL LOCAL ACTION REDUCTIONS</b>		<b>44,551</b>

**Table 5.4 – Reduction Potential of the City’s CAP Measures**

	2008	2020		
	Baseline	BAU	ABAU	ABAU + Local CAP Measures
<b>GHG Emissions (MT CO<sub>2</sub>e/Yr)</b>	958,570	1,115,897	854,202	809,651
<b>Change from Baseline</b>	NA	16%	-10.9%	-15.5%
<b>CAP GHG Reduction Targets</b>	NA	Target = 15% below 2008 level	Does Not Meet Target	Meets Target

Figure 5.5 demonstrates the relative contribution of State and the City’s local actions. While the State actions provide the majority of reductions in 2020, the local actions are necessary to achieve the target.



## REDUCTION MEASURES

The CAP measures define the programs, policies, and projects that the City will undertake to accomplish its emission reduction objectives. Within this section, the measures are organized into three categories including: energy, waste, and transportation. Each category begins with an introduction followed by the pages that describe the component measures.

### Measure Structure

To aid the reader and to facilitate implementation of the CAP, each measure contains the following information:

- **Emission Reductions** - Reduction potential values are provided after each measure title, and identify the estimated annual emission reductions anticipated in 2020 in MT CO<sub>2</sub>e/yr. All measures have a quantifiable GHG reduction potential.
- **Description** - Measure descriptions provide important background information and describe the City's rationale and policy direction. Additionally, some descriptions provide guidance that will be used in program implementation or highlight the City's actions to date that relate to a particular measure.
- **Actions and Progress Indicators** - Action steps and progress indicators are provided in a table following each measure description. Actions identify specific steps that the City will take to implement the measure. The table also identifies responsible departments. Progress indicators enable staff, the City Council, and the public to evaluate implementation and monitor overall CAP progress.

### ENERGY MEASURES:

The use of electricity and natural gas within residential, commercial, and industrial buildings generated over 35% of Redding's communitywide GHG emissions in 2008. The energy measures described on the following pages recommend ways to increase energy efficiency in existing buildings, enhance energy performance for new construction, and increase the use of renewable energy.



## Measure BE-1: Energy Efficiency Retrofits

**2020 GHG Reduction Potential: 130 MT CO<sub>2</sub>e/yr**

Fifty percent of homes in Redding were built before the State of California adopted the Title 24 energy efficiency requirements in 1980. Energy efficiency retrofits help residents reduce their utility bills and the community's building-related emissions. Energy audits can identify inefficient heating and cooling systems and gaps in the building's envelope through which heat escape or enter. Audits can also help homeowners and building owners prioritize cost-effective retrofit investments to maximize their financial returns.

Redding Electric Utility (REU) provides various programs aimed at encouraging customers to make energy-efficient improvements to existing buildings. REU's Home Performance Program (HPP) is an incentive-based program for homeowners to improve their home's energy performance. HPP projects must incorporate REU-approved installation measures and standards that include: removal of old

heating ventilation and air conditioning (HVAC) systems, right-sizing and designing new HVAC and duct systems to REU’s high standards, adding proper attic insulation, and providing whole-house ventilation systems. REU also offers free home energy audits to its residential customers to help save energy and money. REU’s energy auditors provide customers with low- to no-cost energy saving tips. REU’s Weatherization Program offers rebates for the installation of qualifying insulation, windows screens and tints, radiant barrier materials, and electric water heater blankets/wraps. Through its HVAC Program, REU provides rebates for HVAC duct repair and cleaning and the installation of swamp coolers, whole-house fans, and attic fans. REU also offers custom incentives to commercial customers with existing buildings who integrate energy demand saving/shifting technologies, equipment, measures and products.

REU will continue to develop and fund energy-efficiency programs that result in energy conservation, with a focus on peak-load reductions.

ACTION	RESPONSIBILITY
<b>Short-Term</b>	
<b>A</b> Continue to promote and improve utility incentives for energy conservation programs for existing homes and buildings.	Redding Electric Utility
PROGRESS INDICATORS	YEAR
<b>1</b> Contractors embrace program; customers move forward with projects.	2020
<b>2</b> Large commercial customers implement custom energy and demand savings projects.	2020



## Measure BE-2: New Construction

### 2020 GHG Reduction Potential: Included in Title-24 State Reductions

The 2010 CalGreen Building Code (CalGreen) sets guidance for higher building performance standards. CalGreen offers two voluntary compliance pathways to achieve 15% and 30% energy efficiency above the State’s 2008 Title 24 Energy Code efficiency requirements. Contingent upon funding availability, the City will offer priority permitting to new residential projects that demonstrate 15% higher energy efficiency than Title 24 requirements. These efforts will serve to increase energy efficiency of new residential buildings and would help to lower homeowners utility bills.

Additional energy savings are anticipated to be created through the 2013 update of the State’s Title 24 standards. All new construction for which permit applications have been submitted between 2011 and 2013 has been, or will be, required to meet the 2008 Title-24 requirements. All new construction developed between 2014 and 2020 will be required to comply with the updated 2013 Title 24 requirements that the California Energy Commission estimates will be 20-25% more energy efficient than the 2008 standards. The City anticipates that all new construction in the City will be subject to the 2013 Title 24 standards or higher after January 2014. The City’s CAP includes reductions associated with the 2008 and 2013 Title 24 standards with the statewide reductions (see appendix B for details). Further increases in Title 24 standards are anticipated after 2016 but are too speculative at this point in time to quantify.

Because the State develops the Title 24 standards for each code period with the goal of balancing energy efficiency and cost-effectiveness, the City believes it is not prudent to require efficiency at a level higher than the State's standard. The City will not adopt an efficiency standard more stringent than the State's code.

REU offers custom incentives to owners of new commercial building projects who integrate demand saving/shifting technologies, equipment, measures, and products into the building design. REU will also explore offering its Home Performance Program to new residential construction projects.

ACTION	RESPONSIBILITY
<b>Short-Term</b>	
<b>A</b> Continue to offer incentives to commercial customers that install energy demand saving/shifting technology.	Redding Electric Utility
<b>B</b> Consider expanding Home Performance Program to new residential construction.	Redding Electric Utility
PROGRESS INDICATORS	YEAR
<b>1</b> All new construction to achieve 25% reduction in energy use above 2008 Title 24 energy efficiency standards.	2020



## Measure BE-3: Energy Management Systems

**2020 GHG Reduction Potential:** 67 MT CO<sub>2</sub>e/yr

REU is currently implementing a voluntary web-based electric load profiling tool to help commercial and industrial customers better manage their energy and demand uses. REU is also incorporating thermal energy storage (TES) systems. These systems are peak-shifting units that work with air conditioners. Each unit is simply a tank containing water that is frozen during off-peak hours; the ice is then used to provide cooling during peak hours. By connecting to such a unit, the air conditioning unit's compressor can be turned off for several hours without any loss of cooling to the building. REU has been partnering with local business and building owners to install TES systems throughout the Redding community. The program is designed to provide commercial building owners with both the TES system and installation incentives. REU has installed 33 units and is investigating the potential for more unit installations in the future pending available funding.

ACTION	RESPONSIBILITY
<b>Short-Term</b>	
<b>A</b> Continue to encourage web-based electric load profiling tool and TES system installation.	Redding Electric Utility
PROGRESS INDICATORS	YEAR
<b>1</b> TES systems continue to be installed.	2020



## Measure BE-4: Solar Photovoltaic Systems

**2020 GHG Reduction Potential:** 1,794 MT CO<sub>2</sub>e/yr

Redding is a good candidate for solar technologies based on its relatively high solar insolation level. Installation of residential solar photovoltaic (PV) systems allows homeowners to take advantage of cost-saving renewable energy. In addition to residential rooftops, commercial and industrial rooftops tend to have large, flat roofs that are often well-suited for larger PV systems. Parking lots also provide excellent opportunities for additional solar energy generation.

Numerous barriers may prevent widespread adoption of solar PV technology including City regulations and initial up-front costs. The City will review its regulations, ordinances, and codes to identify any barriers to solar project installation. To assist residents and businesses in overcoming the financial burdens associated with PV installation, REU began implementing a solar program pursuant to Senate Bill (SB) 1 in 2007, which seeks to encourage the installation of 3,000 megawatts of solar PV energy statewide by December 31, 2016. REU will continue to promote solar PV and work with customers that are interested in installing solar PV on their homes or businesses.

ACTION		RESPONSIBILITY
<b>Short-Term</b>		
<b>A</b>	Review City regulations, ordinances, and codes to identify and remove, when appropriate, any barriers to solar PV system installation.	Development Services Department
<b>B</b>	Continue to encourage customers to install solar PV systems.	Redding Electric Utility
PROGRESS INDICATORS		YEAR
<b>1</b>	Solar PV systems continue to be installed.	2020



## Measure BE-5: Building Shade Trees

**2020 GHG Reduction Potential:** 92 MT CO<sub>2</sub>e/yr

Properly located trees can provide shading for residential and commercial buildings, and thereby reduce the need for air conditioning. The capacity of a tree to reduce GHG emissions is dependent on its age and species. As trees mature, their canopies increase in size and provide higher levels of shade and greater levels of building cooling in hot weather. Large, deciduous species are ideal for reducing building energy use as they provide shade in summer, but allow winter sunlight into buildings for passive solar gain in cooler weather. Additionally, trees gain carbon-capturing biomass in their trunks and roots as they absorb carbon from the air to grow. The City currently requires planting one tree for each 500 square feet of residential building area.

ACTION		RESPONSIBILITY
<b>Short-Term</b>		
A	Continue existing tree planting requirements	Planning Division
PROGRESS INDICATORS		YEAR
1	3,800 shade trees are planted.	2020

### WASTE MEASURES:

The decomposition of the community's solid waste in landfills generated approximately 7% of Redding's communitywide GHG emissions in 2008. The waste-related measures described on the following pages recommend ways to increase diversion of organic wastes and describe the County's implementation of enhanced landfill methane capture systems.



## Measure SW-1: Methane Recovery

**2020 GHG Reduction Potential: 42,341 MT CO<sub>2</sub>e/yr**

The Air Resources Board approved a regulation to reduce methane emissions from municipal solid waste landfills as an early implementing action of AB 32. Per the regulation, methane capture facilities have been required at all municipal solid waste landfills since June 2010. Two landfills are used in Shasta County to dispose of waste from Redding residents: the West Central Landfill and the Anderson Landfill. The West Central Landfill is currently an uncontrolled municipal solid waste landfill, meaning there is no methane capture infrastructure in place. However, the County is in the process of constructing a gas control system that would capture landfill-generated methane and direct it to a flare where it would be burned off, dramatically reducing the global warming potential of the gas. In the future, this system may be upgraded to a landfill gas-to-energy system under which an operator could construct a power plant to capture the landfill methane and burn it to generate electricity. The Anderson Landfill currently has a methane capture system in place with no plans for system upgrades.

Although Shasta County will complete installation of the methane capture facility at the West Central Landfill, the project will result in emissions reductions associated with the solid waste generated in the City of Redding sent to the landfill and can therefore be counted towards the City's reduction target.

ACTION		RESPONSIBILITY
<b>Short-Term</b>		
A	Consult with County staff to verify the installed methane capture system at the West central Landfill achieves the estimated 75% control efficiency.	Support Services Department
PROGRESS INDICATORS		YEAR
1	Methane recovery efficiency at West Central Landfill improved from 0% to 75%	2020

TRANSPORTATION/LAND USE MEASURES:

The use of motor vehicles for transporting people and products generated approximately 52% of Redding’s communitywide GHG emissions in 2008. The transportation-related measures described on the following pages describe the City’s efforts to reduce auto-dependence in new development and improve biking and walking infrastructure within the community.



## Measure T-1: Mixed Use Development

**2020 GHG Reduction Potential:** Included in SB 375 State Reductions

Research demonstrates that average daily shopping and errand trips in well serviced neighborhoods are less than half the distance than in neighborhoods with low levels of diversity. This research also indicates that residents who live within a ¼- to ½-mile of neighborhood commercial centers are more likely to walk or bike in order to purchase daily goods and services. Enhancing the quality and diversity of uses in the City’s neighborhood commercial centers will help decrease transportation-related GHG emissions and improve residents’ quality of life.

The City will provide incentives to locate higher density development near transit routes and other designated locations. The City has taken the following measures to encourage mixed-use development:

- Allows unlimited residential density in the Downtown core (Central Business District)
- Does not limit building height in Downtown core
- Does not require offstreet parking in the Downtown core
- Identifies two mixed use neighborhoods in the General Plan with underlying single family district classifications; new mixed use developments may provide a mix of residential projects and construct up to 100,000 square feet of commercial floor area without going through the General Plan Amendment process.

ACTION		RESPONSIBILITY
<b>Short-Term</b>		
<b>A</b>	Create streamlined permitting process for higher density and mixed-use developments.	Planning Division
<b>B</b>	Coordinate bicycle and pedestrian infrastructure improvements with planning for mixed-use, transit-oriented developments to ensure infrastructure improvements target higher density areas first to maximize trip reduction benefits	Planning Division
PROGRESS INDICATORS		YEAR
<b>1</b>	5% of all new residential units are constructed in mixed-use development.	2020



## Measure T-2: Bicycle Infrastructure

**2020 GHG Reduction Potential:** Included in SB 375 State Reductions

The City understands the importance of creating a balanced multi-modal transportation network that meets the needs of all users, such as pedestrians, bicyclists, motorists, movers of commercial goods, and users of public transportation. Redding's bicycle network currently provides:

- 20.6 miles of paved multi-use paths
- 2.0 miles of Class I paths
- 24.6 miles of Class II lanes, and
- 77.0 miles of Class III routes

The City has adopted the 2010-2015 Bikeway Action Plan, which identifies and prioritizes necessary bicycle system improvements to increase bicycle use for commuting and recreation. The plan calls for the construction of 38.7 miles of new on-street bicycle paths/lanes, and the conversion of 57.7 miles of existing Class III bicycle routes to Class II bicycle paths. The City is rapidly implementing these goals already and is planning for additional expansions beyond this target in the near future. In addition to bicycle paths and lanes, the City also participates in a program to provide public bicycle racks on streets in the Downtown core, and currently requires bicycle facilities in commercial developments to encourage a shift towards bicycle use for daily trips.

ACTION	RESPONSIBILITY
<b>Short-Term</b>	
<b>A</b> Continue to pursue grant funding opportunities to implement the Bikeway Action Plan.	Community Services; Public Works Department
<b>Medium-Term</b>	
<b>B</b> Update Bikeway Action Plan to increase bicycle infrastructure expansion goals, with a focus on connecting activity centers (e.g., school campuses, shopping areas, job centers) with residential neighborhoods.	Community Services
PROGRESS INDICATORS	YEAR
<b>1</b> 96.4 new miles of Class I and II bicycles lanes constructed.	2020



## Measure T-4: Service and Maintenance Efficiency

**2020 GHG Reduction Potential: 127 MT CO<sub>2</sub>e/yr**

REU is using new and existing technologies to reduce VMT associated with its service call and maintenance operations, including:

- exploring the potential for leveraging REU's GIS mapping system to minimize service call mileage, and
- implement substation modernization by installing microwave radios that will provide data from substations and other major assets to engineers and maintenance personnel to reduce vehicle trips to the field.

ACTION	RESPONSIBILITY
<b>Short-Term</b>	
<b>A</b> Use GIS mapping to reduce VMT associated with service calls.	Redding Electric Utility
<b>B</b> Implement substation modernization such as through the installation of microwave radios to reduce maintenance service VMT.	Redding Electric Utility
PROGRESS INDICATORS	YEAR
<b>1</b> Reduce service call and maintenance VMT annually.	2020

## IMPLEMENTATION AND MONITORING

This section describes how the City will implement the emission reduction measures and actions contained in the CAP. The section contains the following three subsections:

- **Measure Implementation** - Describes how City staff will implement CAP measures and their related actions, and the role of the progress indicators and other guidance provided within the measure tables.
- **Program Evaluation and Evolution** - Discusses the need to evaluate, update, and amend the CAP over time, in order to ensure that the program remains effective and current.
- **Relationship to the California Environmental Quality Act**- Describes the relationship between the CAP and the California Environmental Quality Act (CEQA), and establishes criteria for City staff to use when determining if a proposed project is consistent with the document.

### MEASURE IMPLEMENTATION

Ensuring that the measures translate from policy language into on-the-ground results is critical to the success of the CAP. To facilitate this, each measure contains a table that identifies the specific actions the City will carry out. The table also identifies responsible departments for each action. The second section of each table provides progress indicators that enable City staff, the City Council, and the public to track measure implementation and monitor overall CAP progress.

Upon adoption of the CAP, the City departments identified will become responsible for implementing assigned actions. Key staff in each department will facilitate and oversee this action implementation. Some actions will require inter-departmental or inter-agency cooperation, and appropriate partnerships will need to be established. The City would also need to assess its progress towards measure implementation.

## PROGRAM EVALUATION AND EVOLUTION

The CAP represents the City's best initial attempt to create an organized, communitywide response to the threat of climate change at the time of preparation. Staff will need to evaluate the program's performance over time and be ready to alter or amend the plan if it is not achieving the reduction targets.

### Program Evaluation

Two types of performance evaluation are important: (A) evaluation of the community's overall ability to reduce GHG emissions as a whole and (B) evaluation of the performance of individual CAP measures. Communitywide emission inventories will provide the best indication of CAP effectiveness. It will be important to reconcile actual growth in the City versus the growth projected when the CAP was developed. Conducting these inventories periodically will enable direct comparison to the 2008 baseline inventory and will demonstrate the CAP's ability to achieve the adopted reduction targets. The City will coordinate inventories in 2015 and 2020 to assess the level of GHG reduction goal attainment.

A progress report on the CAP action items will be provided to decision-makers on a semi-annual basis. The progress report will include a brief assessment on the progress and implementation of individual CAP measures, including how new projects have been incorporating relevant measures. The progress report will allow for gaps and new opportunities to be identified. It also will allow for additional measures to be added to the CAP.

### Program Evolution

To remain relevant, the City must be prepared to adapt and transform the CAP over time. It is likely that new information about climate change science and risk will emerge, new GHG reduction technologies and innovative municipal strategies will be developed, new financing will be available, and State and federal legislation will change. As part of the evaluations identified above, the City will assess the implications of new scientific findings and technology, explore new opportunities for GHG reduction, respond to changes in climate policy, and incorporate these changes in future updates to the CAP to ensure an effective and efficient program.

## RELATIONSHIP TO THE CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA Guidelines, Section 15183.5 describes the requirements for an emissions reduction plan to be able to provide tiering and streamlining benefits to future development projects. Section 15183.5(b)(1)(D) specifically states that the plan must contain measures, that if implemented on a project-by-project basis, would collectively achieve the plan's established emissions reduction target. This guidance essentially means that each future project seeking to use CEQA tiering will need to demonstrate compliance with the CAP.

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