CLIMATE ACTION PLAN Update 2013

Town of Apple Valley

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I. EXECUTIVE SUMMARY

This Climate Action Plan includes general information about greenhouse gases and climate change, assumptions and data used to determine the 2005 inventory and baseline, the 2020 forecast under business as usual conditions, and the proposed reduction measures that will enable to Town to achieve the targeted reduction level, thereby doing its part to limit greenhouse gas emissions statewide that contribute to climate change. As described below the Climate Action Plan is divided into community-wide emissions and municipal specific emissions.

The 2005 CAP was designed to be revised every 3 years to respond to advances in technology, emerging policy reforms, and to build on the successes of Apple Valley's efforts to reduce greenhouse gas emissions. The 2013 CAP update seeks to ensure the reduction measures proposed and implemented in the 2005 CAP support the Town's greenhouse gas emissions reduction target of 15% below 2005 levels by 2020. This update identifies the next steps for Apple Valley's reduction plan based on the progress of the past 3 years. The Town has identified which actions should continue, which should be dropped, as well as proposing new actions to be added.

The 2013 updates to the Climate Action Plan are boxed in green throughout this document.

Community-Wide

The Climate Action Plan for the Town of Apple Valley was prepared using the year 2005 as the baseline and with a greenhouse gas emissions reduction target of 15% below 2005 levels by 2020. The Chart below shows Apple Valley's community-wide GHG trend under business as usual conditions, the 2005 baseline level, and the 15% reduction target. Apple Valley must reduce greenhouse gas emissions by a minimum of 373,317 tons of CO_2e in 2020 in order to meet the reduction target of 15% below 2005 levels.

Apple Valley has made great strides in reducing community-wide GHG emissions since the implementation of the 2010 CAP. Based on 2013 community-wide emissions, Apple Valley must reduce greenhouse gas emissions by a minimum of 176,245 tons of CO_2e in 2020 in order to meet the reduction target of 15% below 2005 levels. This translates to a 197,072 ton reduction in CO_2e from 2005 to 2013 in order to reach 2020 targets.

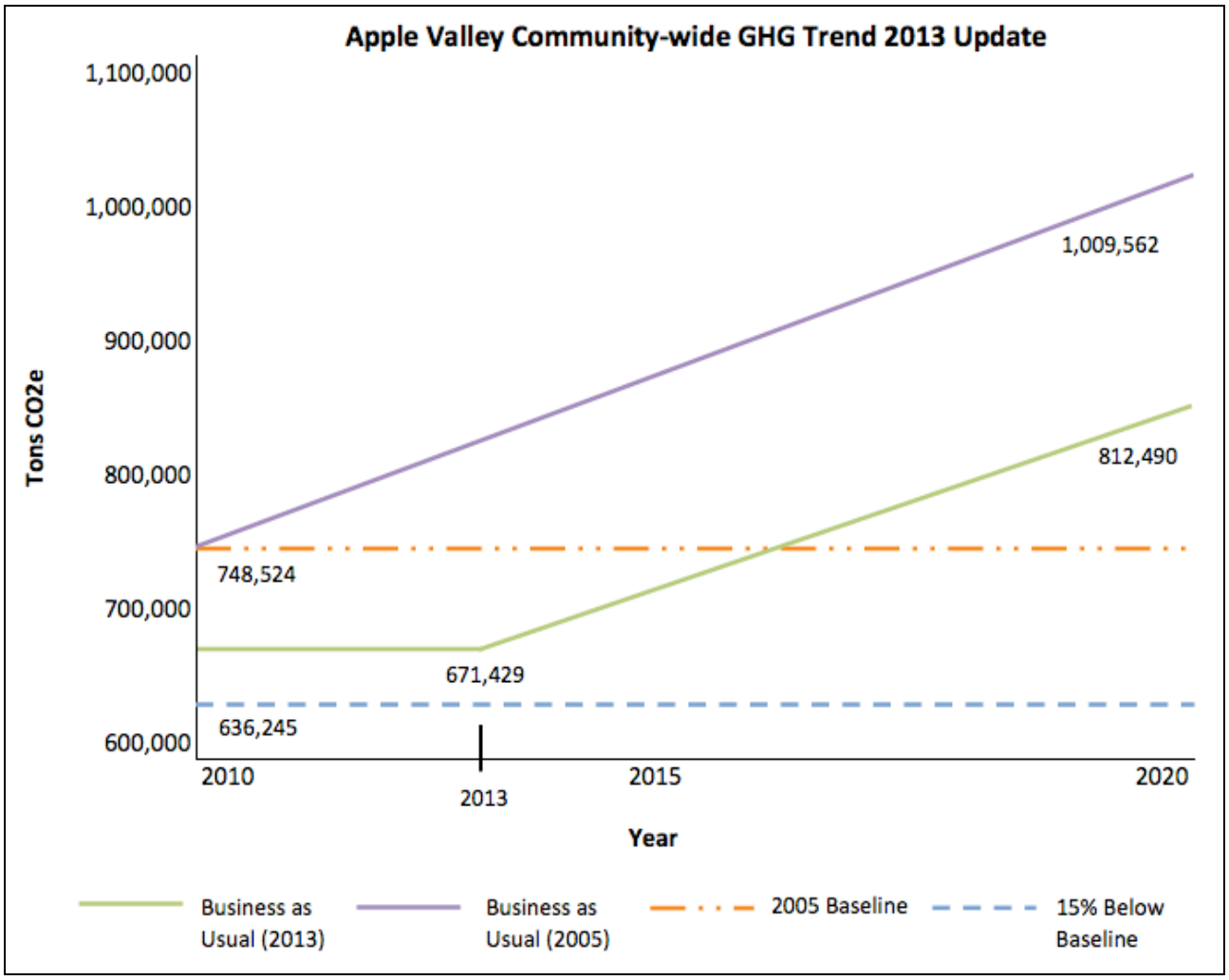


Chart 1: Community-Wide GHG Trend 2013 Update

Municipal-Specific

As with the community-wide analysis, the municipal-specific inventory was prepared using the year 2005 as the baseline and with a greenhouse gas emissions reduction target of 15% below 2005 levels by 2020. Chart 2, below shows Apple Valley's municipal-specific GHG trend under business as usual conditions, the 2005 baseline level, and the 15% reduction target. Apple Valley's municipal operations must reduce greenhouse gas emissions by 1,315 tons of CO_2e in 2020 in order to meet the reduction target of 15% below 2005 levels.

Based on 2013 municipal emissions, Apple Valley must reduce greenhouse gas emissions by a minimum of 1,702 tons of CO_2e in 2020 in order to meet the reduction target of 15% below 2005 levels. This translates to a 387 tons increase in CO_{2e} from 2005 to 2013.

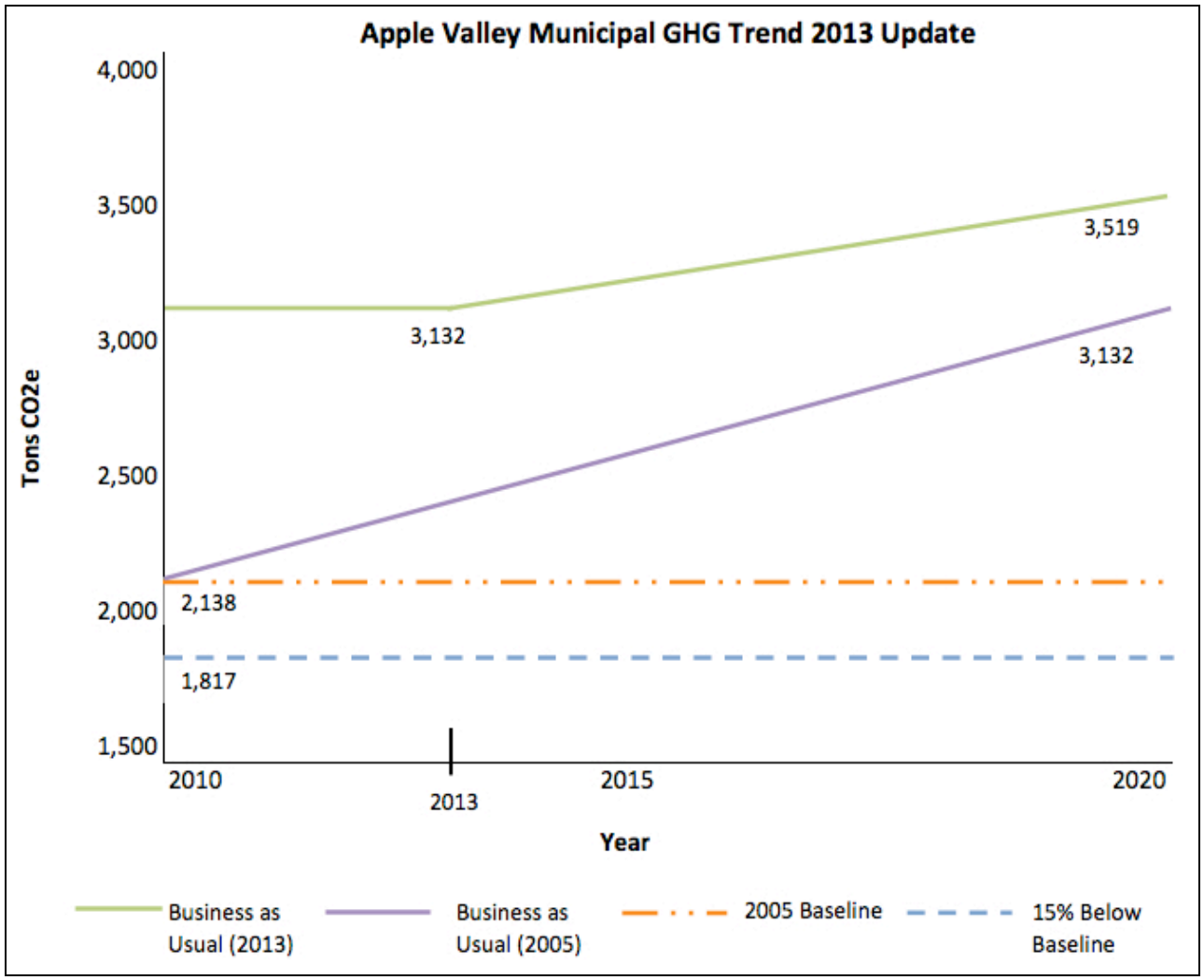


Chart 2: Municipal-Specific GHG Trend 2013 Update

II. INTRODUCTION

Greenhouse gases have, throughout earth's history, had a beneficial purpose – they keep the sun's heat in earth's atmosphere, help to keep temperatures stable at an average of 60 degrees Fahrenheit, and influence climate across the globe. As fossil fuel use and industrial processes increased in the last two centuries, however, the production of greenhouse gases also increased beyond the natural order. As greenhouse gas concentrations rise in the atmosphere, they result in increases in temperature – this increase has become known as climate change. Greenhouse gases include several chemicals: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (NO_2), ozone (0_3) and hydrofluorocarbons. Carbon dioxide and methane are the most common greenhouse gases.

A. The Impact of Climate Change

Climate change can increase hazards associated with wildfires, rising sea levels, and groundwater supply. Public health can suffer due to greater temperature extremes and more frequent extreme weather events, increases in transmission of infectious disease, and increases in air pollution. Agricultural production can be altered by changes in temperature and rainfall patterns.

Rises in temperature have the potential, for example, to cause a shift in the hydrological cycle. While predicted patterns vary with latitude and global location, roughly 75% of analyzed climate change models agree that within the western United States there will be a 10% to 40% decrease in stream flows by 2050[1]. This may be due to a decrease in precipitation levels, which has been evident in the drought conditions suffered by the southwest in recent years, as well as an increase in evaporation, which is temperature dependent and increases as temperatures climb. It has been predicted that a change in the global average surface temperature of 2°C would be at the low end of the possible range[2]. According to the Institute for the Study of Planet Earth at the University of Arizona, it is estimated that a 2°C increase in temperature corresponds to a 9% to 21% decrease in stream flow on the Colorado River[3].

The coast of California is likely to see a rise in sea level that could threaten shorelines, cause increased erosion, and loss of life and property. Sea level rise and storm surges could lead to flooding of low-lying property, loss of coastal wetlands, erosion of cliffs and beaches, saltwater contamination of drinking water, and damage to roads, causeways, and bridges.

1 "Global Pattern of Trends in Stream Flow and Water Availability in a Changing Climate," by P.C.D. Milly et al., Nature Letter 2005.

2 "Working Group III contribution to the Intergovernmental Panel on Climate Change Fourth Assessment Report," Climate Change 2007: Mitigation of Climate Change.

3 "Climate Change in the Colorado River Basin and CAP: a model study," prepared by the Institute for the Study of Planet Earth at The University of Arizona July 18, 2000.

Between the beginning of the industrialized era and 2005, the atmospheric concentration of CO_2 in the atmosphere had increased by 35%, methane by 151%, and nitrous oxide by 18%.

It is estimated that in 2004, total GHG emissions were 20,135 teragrams of carbon dioxide equivalents (Tg CO_2e), excluding emissions/removals from land use, land use change, and forestry. The U. S. Environmental Protection Agency in 2004 estimated that the U.S. contributed 35% of global GHG emissions, with a total of 7074.4 Tg CO_2e, an increase of 15.8% over 1990 emissions.

California is the second largest greenhouse gas contributor in the U.S. and the sixteenth largest in the world. From 1990 to 2003, California's GHG emissions increased 12%. In 2004, California produced 492 Tg CO_2e, which is approximately 7% of all U.S. emissions. Transportation is responsible for 41 percent of the state's total GHG emissions; while electricity generation represents 22% of the state's GHG emissions. Conversely, emissions from residential and commercial fuel use in California decreased 9.7% from 1990 to 2004. This decrease may be due to increases in the effectiveness of energy conservation in buildings (Title 24 requirements) and more efficient appliances.

According the California Air Resources Board*, the state's gross emissions of greenhouse gas over the period of 2000 to 2012 have decreased 1.6% from 466.3 million metric tons of CO_2e in 2000 to 458.7 million tons in 2012, with a maximum of 492.7 million tons in 2004. During that same time period, California's population grew by 11% from 34 to 37.8 million, indicating the state's per capita GHG emissions have generally decreased from 13.7 in 2000 to 12.1 tons of CO_2e per person in 2012.

Implementation of California's Cap-and-Trade program in 2013 will ensure GHG emissions continue to decline alongside economic growth in the state.

* "California Greenhouse Gas Emission Inventory: 2000-2012," California Environmental Protection Agency Air Resources Board. May 13, 2014.

Greenhouse Gases

The term greenhouse gases refers to a broad group of chemicals and substances which all have one thing in common: they have been found to cause changes in the atmosphere which have been shown to, or are suspected of changing climatic conditions on earth. In most cases, these chemicals and substances have a very long life in the atmosphere, and therefore continue to affect climate over a long period of time. The primary greenhouse gases include:

Carbon Dioxide

Carbon dioxide is the primary greenhouse gas that has raised the alarm of atmospheric scientists due to current and projected levels and the highly correlated temperature regression curve that has been observed, predicting a future path of rising carbon dioxide levels and associated increases in temperature. Carbon dioxide is a naturally occurring, odorless and colorless gas. It has natural sources, including bacterial, plant, animal, and fungal respiration; the evaporation of oceans; the decomposition of organic matter; and volcanic out gassing. Man-made sources

include the burning of coal, oil, natural gas, and wood. Carbon dioxide is removed from the atmosphere by photosynthesis, is dissolved into lakes and oceans water, and transferred to the soil.

Currently (May 2014), carbon dioxide concentrations in the atmosphere are around 402 parts per million (ppm). Comparatively, prior to the Industrial Revolution, about 250 years ago, CO_2 levels were 278 ppm, and over the past 650,000 years carbon dioxide levels have fluctuated between 180 and 300 ppm, making present day atmospheric CO_2 levels substantially greater than at any point in the past 650,000 years.[4]. The concentration of carbon dioxide is projected to increase to a minimum of 540 ppm by 2100 as a direct result of man-made activities.

Methane

Methane has both natural and man-made sources. In nature, it is released as part of biological processes such as in swamplands. Man-made sources include the combustion of fossil fuels, and biomass burning. Human activities such as raising cattle, using natural gas, and mining coal have increased the concentration of methane in the atmosphere in recent times. Methane is extremely effective at absorbing atmospheric radiation. Compared to other greenhouse gases, its 10 to 12 year life span is brief.

Nitrous Oxide

Nitrous oxide occurs naturally in soil and water, resulting from microbial processes. It is also produced by fertilizer which contains nitrogen. Man-made sources include nitric acid production, fossil-fuel powered power plants and vehicle emissions. Nitrous oxide is a colorless greenhouse gas which can cause dizziness, euphoria, and sometimes slight hallucinations. Extended use can cause brain damage. It is used as an aerosol propellant, and as a food preservative, as well as a race car fuel.

Chlorofluorocarbons

CFCs were first synthesized in 1928, and do not occur in nature. They were used for aerosol propellants, refrigerants and cleaning solvents. They were found to be a cause of the reduction in stratospheric ozone, and as a result, a global effort was undertaken to stop their production. This effort was extremely successful, and levels of the major CFCs are now remaining stagnant or declining. Their long atmospheric lifetimes mean that some = will remain in the atmosphere for over 100 years. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the air at the earth's surface. CFCs are known to cause cardiac arrhythmia and asphyxiation.

Hydrofluorocarbons

Hydrofluorocarbons are man-made chemicals that are used as a substitute for CFCs. They are used in automobile air conditioners, and as refrigerants. Prior to 1990, the only significant emissions were of HFC-23. HFC-134a emissions are now increasing due to its use as a refrigerant.

[4] "Working Group III Contribution to the Intergovernmental Panel on Climate Change Fourth Assessment Report, Climate Change 2007: Mitigation of Climate Change," prepared by the Intergovernmental Panel on Climate Change, May 2007.

Perfluorocarbons
Perfluorocarbons (PFCs) are produced in the production of aluminum and semiconductors. They do not break down through the chemical processes in the lower atmosphere. Ultraviolet rays about 60 kilometers above earth's surface are able to destroy them. As a result, PFCs have very long lifetimes of between 10,000 and 50,000 years.
Health Effects: None.

Sulfur Hexafluoride
Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection. Sulfur hexafluoride is an odorless, colorless, nontoxic, nonflammable and inorganic gas. In high concentrations in confined areas, it displaces the oxygen needed for breathing, and can cause suffocation.

Aerosols
Aerosols include sulfate aerosols, which are emitted when fuel with sulfur in it is burned, and black carbon (or soot) which is emitted during bio mass burning and the incomplete combustion of fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light. Cloud formation can also be affected by aerosols. Particulate matter regulation has been lowering aerosol concentrations in the United States; however, global concentrations are increasing as a result of fossil-fuel burning around the world.

Water Vapor
Water vapor has a significant influence on global warming, and is the most abundant and variable transporter of greenhouse gases in the atmosphere. Water vapor maintains a climate necessary for life. As the temperature of the atmosphere rises, more water is evaporated in rivers, oceans, reservoirs and soil. When the air is warmer, the relative humidity can be higher, leading to more water vapor in the atmosphere. This higher concentration of water vapor is able to absorb more of the indirect thermal energy radiated from the earth, further warming the atmosphere. The warmer atmosphere can then hold more water vapor, creating a "positive feedback loop." The feedback loop in which water is involved is critically important to projecting future climate change.

B. California Law

Perhaps the first requirement for energy efficiency, California Code of Regulations Title 24, Part 6, enacted in 1978, established energy efficiency standards for residential and nonresidential buildings. The standards are contained in the Building Codes used in most California jurisdictions, and are updated periodically to allow incorporation of new energy efficiency technologies and methods. The most recent update occurred in early 2013.

The first piece of California legislation directly associated with climate change was passed in 1988, when Assembly Bill (AB) 4420 was approved. This Bill directed the California Energy Commission to study the implications of global warming on California's environment, economy, and water supply, in consultation with the Air Resources Board and other agencies. The Commission was also required to prepare and maintain the state's inventory of greenhouse gas emissions. The ARB was required to adopt regulations to achieve the maximum feasible and

cost-effective reduction of motor vehicle greenhouse gas emissions. ARB proposal to implement these regulations was approved in September, 2004. Its implementation will result in an average reduction of greenhouse gases from new California cars and light trucks of 22% in 2012 and 30% in 2016.

AB 1493 was signed into law in 2002. It required that the ARB develop and adopt regulations that achieve the maximum feasible and cost effective reduction of greenhouse gases emitted by passenger vehicles and light-duty trucks. ARB adopted regulations in 2004 limiting greenhouse gas emissions from new vehicles sold in California beginning in the 2009 model year. New vehicles complying with this regulation will consume 30% less fuel than vehicles built prior to 2009.

The Global Warming Solutions Act (AB 32), signed in 2006, requires the ARB to develop regulations on how the state will combat global warming, and requires the state to cut GHG emission to 1990 levels by the year 2020. Specifically, AB 32 requires the ARB to do the following:

1. By January 1, 2008, establish a statewide greenhouse gas emissions cap for 2020, based on 1990 emissions.
2. By January 1, 2008, adopt mandatory reporting rules for significant sources of greenhouse gases.
3. By January 1, 2009, adopt a plan which describes how emission reductions will be achieved from significant greenhouse gas sources via regulations, market mechanisms and other actions.
4. By January 1, 2011, adopt regulations to achieve the maximum technologically feasible and cost-effective reductions in greenhouse gases, including provisions for using both market mechanisms and alternative compliance mechanisms.
5. Convene an Environmental Justice Advisory Committee and an Economic and Technology Advancement Advisory Committee to advise ARB.
6. Evaluate several factors, including the impacts on California's economy, the environment, and public health; equity between regulated entities; electricity reliability, conformance with other environmental laws, and environmental justice prior to imposing any mandates.
7. Adopt a list of action measures by July 1, 2007 that can be implemented before January 1, 2010.

ARB has determined that absent AB 32 and other California climate change laws, California's projected 2020 greenhouse gas emissions would be 596[5] million metric tones carbon dioxide equivalent (MMTCO2e). On December 6, 2007, ARB approved the statewide greenhouse gas limit for carbon dioxide equivalent in the amount of 427 million metric tons. Accordingly, to satisfy the requirements of AB 32, California needs to reduce its overall 2020 emissions for all sectors by 169 MMTCO2e, or 28.3 percent below the "business as usual" 2020 projection of 596 million metric tons. The ARB also determined:

> *"In recognition of the importance of local governments in the successful implementation of AB 32…(The ARB) recommends a greenhouse gas emissions*

[5] CARB Scoping Plan, *Table 1,* December 2008.

> *reduction target for local government municipal and community-wide emissions of a 15 percent reduction from current levels by 2020 to parallel the State's target.*[6]"

This 15 percent reduction from current levels applies to all sectors within the control of the local government, including, but not limited to, reducing emissions from current existing buildings and reducing emissions from government fleet cars.

AB 32 Timeline Update

- **By January 1, 2009** – ARB adopts plan indicating how emission reductions will be achieved from significant sources of GHGs via regulations, market mechanisms and other actions.
- **During 2009** – ARB staff drafts rule language to implement its plan and holds a series of public workshops on each measure (including market mechanisms)
- **By January 1, 2010** – Early action measures take effect.
- **During 2010** – ARB conducts series of rulemakings, after workshops and public hearings, to adopt GHG regulations including rules governing market mechanisms.
- **By January 1, 2011** – ARB completes major rulemakings for reducing GHGs including market mechanisms. ARB may revise the rules and adopt new ones after 1/1/2011 in furtherance of the 2020 cap.
- **By January 1, 2012** – GHG rules and market mechanisms adopted by ARB take effect and are legally enforceable.
- **December 31, 2020** – Deadline for achieving 2020 GHG emissions cap.

Source: CARB website, http://www.arb.ca.gov/cc/ab32/ab32.htm, accessed June 24, 2014.

To date the ARB, Environmental Protection Agency (EPA), and other regulatory agencies have not adopted thresholds to analyze project level impacts on climate change. The South Coast Air Quality Management District has established a Working Group to work on these thresholds, but has only established thresholds for industrial projects over which it has jurisdiction.

EPA Update

GHG Tailoring Rule – On May 13, 2010, EPA set greenhouse gas emissions thresholds to define when permits under the New Source Review Prevention of Significant Deterioration (PSD) and Title V Operating Permit programs are required for new and existing industrial facilities. This final rule "tailors" the requirements of these Clean Air Act permitting programs to limit covered facilities to the nation's largest greenhouse gas emitters: power plants, refineries, and cement production facilities.

[6] CARB Scoping Plan, *Introduction – Proposed Measures,* December 2008.

III. CURRENT EMISSIONS AND REDUCTION TARGETS

A. Introduction

Establishing a greenhouse gas baseline allows for projecting an emissions forecast and reduction target, and achieving quantifiable emission reductions associated with implementing proposed measures.

A greenhouse gas inventory is intended to consider all activities within the jurisdiction that result in the emission of greenhouse gases. For the purposes of this inventory, major sources of GHG emissions where identified and the contribution of the following greenhouse gases where quantified: Carbon Dioxide (CO_2), Methane (CH_4), and Nitrous Oxide (N_2O). GHG emissions are presented in units of Tons of Carbon Dioxide equivalent (CO2e). In order to determine CO_2e for any greenhouse gas the appropriate global warming potential must be applied; CH_4 has a global warming potential of 21 and N2O has a global warming potential of 310.

It should be noted that this GHG Inventory is not intended to be exhaustive, rather a good-faith effort has been made to identify major sources of greenhouse gases and establish a baseline that can be further refined as more detailed information becomes available.

The Town of Apple Valley Greenhouse Gas Inventory was conducted by reviewing records from various Town departments such as Finance and Environmental and Regulatory Compliance, gathering and assembling data from local and regional utilities and management agencies, and utilizing modeling software to inventory emissions and establish a baseline. The purpose of the baseline emissions inventory is to determine the levels of greenhouse gas emissions that Apple Valley emitted in its base year, 2005.

In addition to a Town-wide emissions inventory, analysis was also conducted in order to identify Greenhouse Gas Emissions from Municipal sources. These include Town owned and operated facilities such as government buildings, community parks and recreation centers, traffic signals and street lighting, and operation of wastewater conveyance. Identifying Apple Valley's municipal GHG sources allows the government to estimate and track greenhouse gas emissions resulting directly from municipal operations. Although the municipal operations inventory is intended to be subset of the community-scale inventory, there is some overlap due to lack of detailed information. Where there is overlap it is further explained below.

There are two main reasons for completing separate emissions inventories for community and municipal operations. First, government has a higher degree of control and a greater opportunity to achieve GHG reductions in its own municipal emissions than those created by the community at large. Second, by proactively reducing emissions generated by its own activities, the Town of Apple Valley government takes a visible leadership role in the effort to address climate change, which is important for inspiring local action within Town limits, as well as surrounding communities.

B. Methodology

The format and methodology used in this Climate Action Plan (CAP) update are modeled after those presented in the 2010 Apple Valley Climate Action Plan. Wherever possible, the same data sources were contacted so that accurate and meaningful comparisons could be made between 2005 (baseline year analyzed in the 2010 CAP) and 2013 data. Where data was unavailable and assumptions were made in the 2010 CAP, attempts were made to acquire actual data for 2013 to reflect current conditions and set the stage for more precise comparisons in future CAP updates. Where 2013 data was unavailable, the same assumptions as those made in the 2010 CAP were used. The 2010 CAP methodology is provided in Appendix A for reference.

Electricity data was provided by Southern California Edison (SCE), and natural gas data was provided by Southwest Gas Corporation. Electricity and natural gas records for individual municipal buildings were provided by the Town's Finance Department. Public transit data was provided by Victor Valley Transit Agency (VVTA), and bus route maps and schedules were viewed on its website. Solid waste data was provided by the Town and Burrtec Waste Industries. Town staff played a key role in providing information about municipal vehicle fleets, staffing, new development, growth rates, and other details about the community. Demographic data was acquired from the California Department of Finance.

Data was collected for calendar year 2013. Where 2013 data was unavailable, it was obtained for the closest year possible. Specifically, the most recent solid waste data was from 2012, and Town electricity and natural gas records for individual municipal facilities were from Fiscal Year 2012/13.

ICLEI's Emissions Analysis Software

To facilitate local government efforts to identify and reduce greenhouse gas emissions, the International Council for Local Environmental Initiatives (ICLEI) developed the Clean Air and Climate Protection (CACP) software package in 2005. This software estimates emissions derived from energy consumption and waste generation within a community. The CACP software determines emissions using specific factors (or coefficients) according to the type of fuel used. The CACP 2009 Version 2.2.1 software (February 2010) has been updated to incorporate the methods and principles of the Local Government Operations Protocol (LGOP), which is designed to provide a standardized set of guidelines to assist local governments in quantifying and reporting GHG emissions associated with their government operations. This software was used to estimate greenhouse gas emissions for 2013.

Emissions are aggregated and reported in terms of carbon dioxide equivalent units, or CO_2e. Converting all emissions to carbon dioxide equivalent units allows for the consideration of different greenhouse gases in comparable terms. As mentioned above, methane is twenty-one times more powerful than carbon dioxide in its capacity to trap heat, so the model converts one ton of methane emissions to 21 tons of CO_2e.

The methodology employed by the software is consistent with national and international inventory standards established by the Intergovernmental Panel on Climate Change (1996 Revised IPCC Guidelines for the Preparation of National GHG Emissions Inventories), the U.S. Voluntary Greenhouse Gas Reporting Guidelines (EIA form1605), and, for emissions generated from solid waste, the U.S. EPA's Waste Reduction Model (WARM). Emission coefficients have been updated to reflect the latest Southern California Edison and U.S. EPA eGrid data, as well as recent demographic trends of Apple Valley.

As was true when the 2010 CAP was prepared, calculating GHG emissions with precision is difficult. The CACP model provides a useful framework with which to monitor and analyze trends and guide future policies, but it is important to note that specific numbers provided by the model are approximations, not exact values.

Comparisons of 2005 and 2013 data are provided throughout this document to identify community-wide and municipal trends and help shape future policies aimed at reducing greenhouse gas emissions, energy consumption, and solid waste generation in Apple Valley.

C. 2013 Community-Wide Emissions

Emissions Summary

The table below provides a comparison of 2005 GHG emissions, as estimated in the 2010 Apple Valley Climate Action Plan, and 2013 emissions. As shown, community-wide emissions in Apple Valley were estimated at 748,524 tons of carbon dioxide equivalent (CO_2e) in 2005 and 671,429 tons in 2013. This represents a CO_2e decrease of 77,095 tons over the 8-year period. The inventory includes emissions generated within the entire Town of Apple Valley from electricity, natural gas, propane, vehicles, transit buses, pumping, streetlights, traffic signals, and decomposition of solid waste. The data and methodology used to estimate these emissions are described below.

Table 1
Community-Wide GHG Emissions Summary
2005 and 2013 Comparison

Sector	2005 Tons CO_2e	2013 Tons CO_2e
Residential	141,417	144,325
Commercial	38,039	50,145
Industrial	7,118	1,368
Transportation	510,676	461,357
Solid Waste	43,932	8,500
Pumping Facilities	5,956	4,081
Streetlights and Signals	1,386	1,653
Total	**748,524**	**671,429**

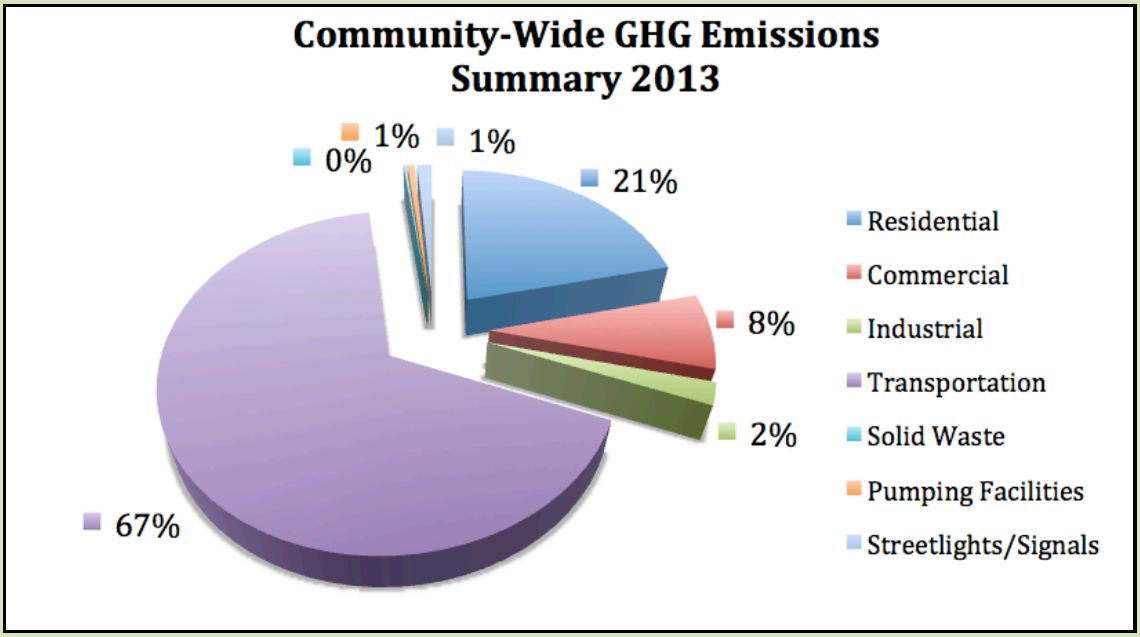


Chart 3: Community-Wide GHG Emissions Summary 2013

Electricity

Southern California Edison (SCE) provided 2005 community-wide electricity usage data for the 2010 Climate Action Plan. The same methodology was used for this Climate Action Plan update. SCE prepared an electricity usage report for all accounts in the Town for 2013 (see Appendix C). The table below compares 2005 and 2013 electricity usage. Annual electricity usage is described by sector and in terms of kilowatt-hours.

Table 2
Community-Wide Electricity Usage
2005 and 2013 Comparison

	2005			2013		
Sector	**Annual kwh Consumed**	**No. of Accounts**	**kwh per Account**	**Annual kwh Consumed**	**No. of Accounts**	**kwh per Account**
Residential	195,613,488	23,316	8,390	215,490,704	25,882	8,325
Commercial	79,780,787	301	265,052	116,611,263	1,902	61,309
Industrial	13,799,465	1,848	7,467	4,077,631	557	7,320
Subtotal:	**93,580,252**	**2,149**	**43,545**	**120,688,894**	**2,459**	**49,080**
Streetlight	3,905,754	160	24,411	5,210,015	200	26,050
Water Pumping	16,783,859	96	174,832	12,625,027	92	137,228
Total:	**309,883,353**	**25,721**		**354,014,640**	**28,663**	

Source: Southern California Edison. 2005 data is taken from Appendix B of 2010 Apple Valley Climate Action Plan. 2013 data is from "Electricity Use Report for Town of Apple Valley, Year 2013," SCE (see Appendix C).

Between 2005 and 2013, the number of SCE accounts in Apple Valley increased by 2,942 or approximately 11%. Total annual electricity consumption increased by 44,131,287 kwh or approximately 14%. This reflects typical growth in the Town during the 8-year period. Per account usage increased by approximately 13% in the commercial/industrial sector, and 7% in the streetlight sector. It decreased by 0.8% in the residential sector and 22% in the pumping sector.

The data suggest that the number of accounts and kilowatt-hours used by the commercial and industrial sectors reversed, within these two categories, from 2005 and 2013. However, during this time period, SCE changed the way it groups and categorizes commercial and industrial accounts. For the purposes of this analysis, commercial and industrial data were combined to clarify the comparison.

To determine the GHG emissions generated by Town-wide electricity consumption in 2013, kwh values for each sector were entered into the CACP model. Electricity emissions factors for year 2013 are based on a the LGOP Average Electricity Emission Factors Table G.7 and the latest U.S. EPA eGRID 2010 Summary Tables created February 2014. The latest EPA eGRID shows the CAMX/WECC California subregion to have an average electricity emission factor of 610.82 lb/MWh for the year 2010. The LGOP shows SCE to have an electricity emission factor of 630.89 lb/MWh for the year 2007. Because 2013 data is not yet available, the higher and more conservative emission factor of 630.89 lb/MWh was used for this analysis. Community-wide GHG emissions from electricity consumption are shown in the chart below.

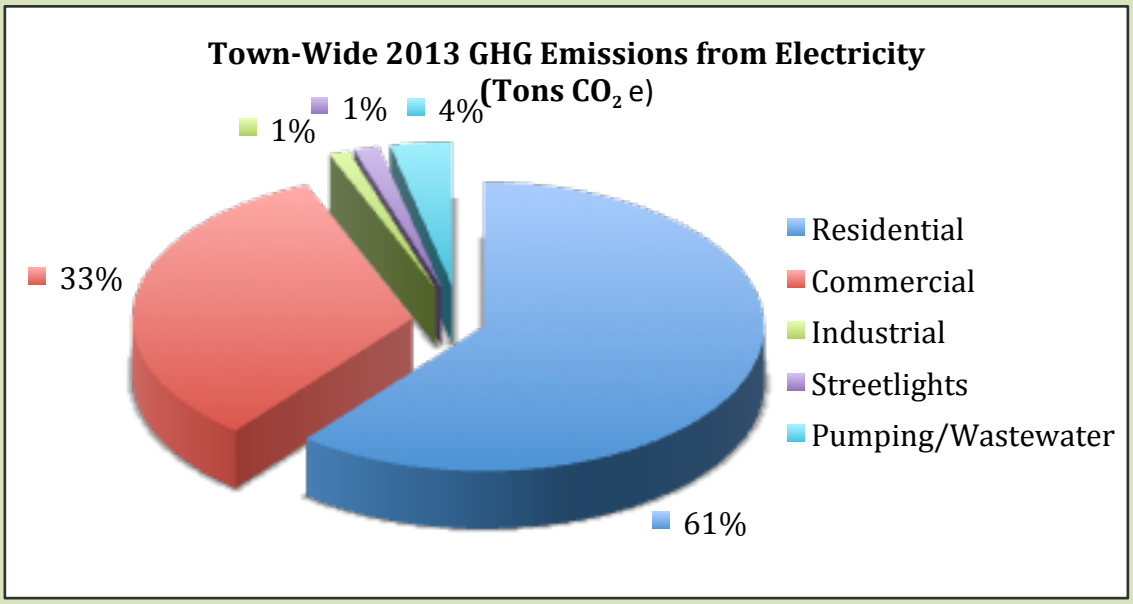


Chart 4: Town-Wide 2013 GHG Emissions from Electricity (Tons CO_2e)

Natural Gas

Southwest Gas Corporation provided natural gas usage data for all accounts in Apple Valley for the 2010 CAP, and provided the same for 2013 (see Appendix C). Data was categorized by customer class and provided in terms of therms, a standard unit for measuring heat energy. A comparison of 2005 and 2013 natural gas usage is shown in the table below.

Table 3
Community-Wide Natural Gas Usage
2005 and 2013 Comparison

	2005			2013		
Sector	**Annual therms Consumed**	**No. of Accounts**	**therms per Account**	**Annual therms Consumed**	**No. of Accounts**	**therms per Account**
Residential	11,576,524	22,526	513	12,184,053	25,552	476
Commercial	1,574,978	991	1,589	2,241,636	1,200	1,868
Industrial	359,547	4	89,886	12,736	3	4,245
Water Pumping	*	*	*	2,177	3	725
Total:	**13,511,049**	**23,521**		**14,440,602**	**26,758**	

* "water pumping" category was not provided by Southwest Gas for 2005.
Source: Southwest Gas Corporation. 2005 data is taken from Appendix B of 2010 Apple Valley Climate Action Plan. 2013 data is from "Southwest Gas Corporation, Southern California Division, Town of Apple Valley, 2013 Total Usage and Year-End Customers" (see Appendix C)

As shown, the number of natural gas accounts in Apple Valley increased by 3,237 (14%) between 2005 and 2013. Annual natural gas consumption increased by 929,553 therms (7%). Per account usage decreased by approximately 7% in the residential sector, but increased by 18% in the commercial sector. The "water pumping" category was not provided by Southwest Gas for 2005, but its contribution to total natural gas consumption is limited and only accounts for 0.02% of all therms consumed in 2013.

Per account usage decreased significantly (95%) in the industrial sector. Between 2005 and 2013, the 2 million square-foot Walmart distribution center installed 10 acres of solar panels that generate enough energy to power half of the facility's needs. This solar power conversion could be a significant contributor to reductions in industrial natural gas consumption.

As shown in the table above, total community-wide natural gas usage was approximately 14,440,602 therms in 2013. According to the CACP 2009 Software, a total of 84,741 tons of CO_2e were emitted in 2013 from community-wide natural gas.

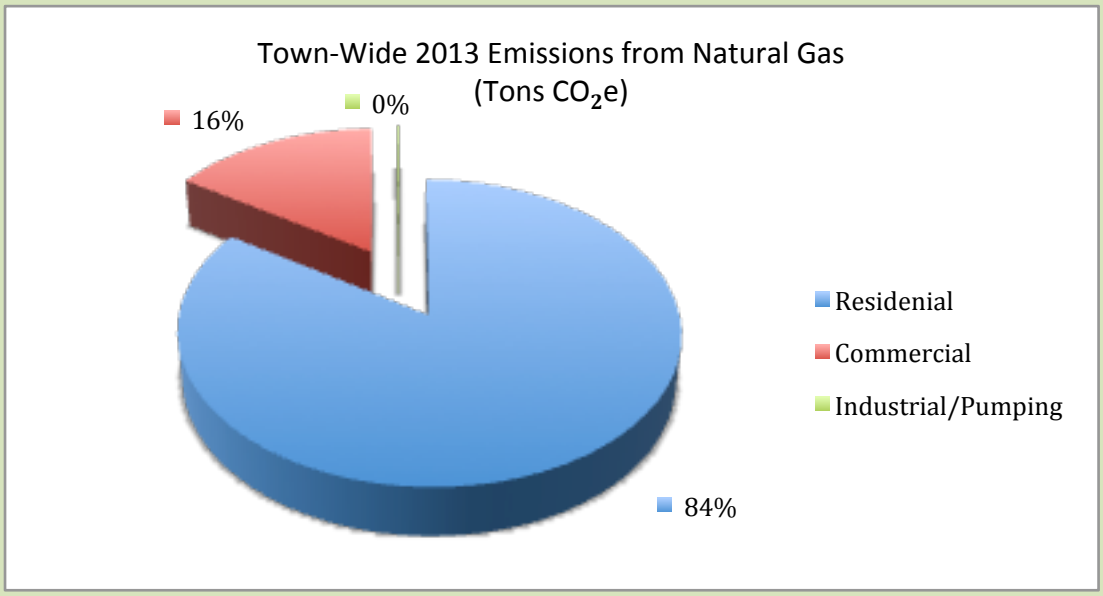


Chart 5: Town-Wide 2013 Emissions from Natural Gas (Tons CO_2e)

Propane

The 2010 CAP assumed that all Apple Valley housing units not using natural gas relied on propane instead. The same assumptions and methodology were used to estimate 2013 community-wide propane usage. The California Department of Finance estimated there were 26,259 housing units in Apple Valley in 2013. Southwest Gas indicated there were 25,552 residential accounts. This suggests that 707 homes did not use natural gas, and it was assumed they used propane as an alternative fuel.

As was done in the 2010 CAP, it was assumed that the average home consumes 1,000 gallons of propane annually. Based on this assumption, an estimated 707,000 gallons of propane were consumed in Apple Valley in 2013, which is more than 9 times the amount consumed in 2005. It is unclear why potential propane use increased substantially. Town building permits do not track the type of fuel used in new homes and, therefore, documenting propane use is difficult. It is possible that the assumptions described above overstate reliance on propane, but the methodology used to compare 2005 and 2013 usage is the same.

The community-wide consumption of propane resulted in the emission of 4,504 tons of CO_2e in 2013.

Transportation

The combustion of fuel during vehicle operation generates GHG emissions. Community-wide emissions are generated by two sources: 1) vehicle used by residents, workers, and others traveling through Apple Valley, and 2) public transportation.

Residents, Workers, Through Trips

The majority of GHG emissions from the transportation sector are from vehicle miles generated by people living, working, and traveling in Apple Valley. The 2010 CAP used data from the Town's General Plan Circulation Element Update to estimate that 776.79 million miles (VMT) were traveled in 2005.

Town-wide traffic counts have not been updated since the General Plan Update. Therefore, to estimate 2013 community-wide vehicle miles traveled, an annual growth rate of 1.3% was applied to the 2005 figure. The growth rate was derived by dividing the percent population change from 2005 to 2013 (10.07%) by 8 years, resulting in 1.25% per year and rounded up to 1.3% for conservative analysis. Therefore, a 1.3% annual growth rate yields an estimated 861,349,070 vehicle miles traveled in Apple Valley in 2013. It was assumed that 85% of VMT were gasoline and 15% were diesel. A comparison of 2005 and 2013 vehicle miles traveled is provided below.

Table 4
Community-Wide Vehicle Miles Traveled (VMT)
2005 and 2013 Comparison

	2005			2013		
Sector	**Total VMT**	**Population**	**VMT Per Resident**	**Total VMT**	**Population**	**VMT Per Resident**
Residents, Workers, and Passers-by	776,790,000	63,754	12,184	861,349,070	70,173	12,275

Source: 2005 VMT is from p. III-7 of 2010 Apple Valley Climate Action Plan. 2013 VMT is based on 2005 VMT plus 1.3% annual growth rate. Population data from U.S. Census Bureau and Department of Finance Report E-1, released May 1, 2014.
* Growth Rate: 63,754 to 70,173 population = a 10.07% growth rate over 8 years, or a 1.26% growth rate per year. 1.3% per year is assumed for conservative analysis.

As shown, the number of vehicle miles traveled per resident is estimated to have increased by approximately 0.8% between 2005 and 2013.

Public Transportation

Transportation in Apple Valley also includes a railroad, County-owned regional airport, and transit buses operated by the Victor Valley Transit Authority (VVTA). The Town has no control over either rail or airport activities, and cannot, therefore, control emissions or emission reductions from these operations. GHG emissions associated with air and rail travel were not included in the 2010 CAP and, therefore, are not included in this analysis.

Specific transit data was not available from VVTA for 2005, and the 2010 CAP assumed that VVTA buses accounted for 1.5 million vehicle miles per year. For this update, however, bus and route information was acquired from VVTA (see Appendix C), and it was estimated that VVTA buses traveled 658,637 miles in Apple Valley in 2013.

Five (5) bus routes serve Apple Valley. Some routes extend into neighboring communities; however, only the route mileage located within Apple Valley Town limits was included in this analysis. VVTA provided the number of buses traveling on each route at specific times of day and on each day of the week, and bus schedules were used to determine the total number of roundtrips traveled each day.

All 40-foot transit buses operated by VVTA use compressed natural gas (CNG). Of the smaller 22-foot buses, which include ADA-compliant buses and vans providing curb-to-curb service on flex routes, approximately 25% are gasoline-powered and 75% are CNG-powered. None of the revenue-generating vehicles are diesel-powered.

Transportation Summary
The data described above were entered into the CACP model to estimate total GHG emissions generated by community-wide transportation. The following assumptions were used in CACP modeling: 861,349,070 VMT for personal vehicles (732,146,710 VMT gasoline powered passenger vehicles, and 129,202,360 VMT diesel powered light trucks), and 658,637 VMT for transit (33,973 VMT gasoline-powered and 624,664 VMT are CNG-powered).

Using the CACP software, it was determined that in 2013, the transportation sector resulted in the emission of 384,144 tons of CO2e from the combustion of gasoline, 76,492 tons of CO2e from the combustion diesel, and 721 tons of CO2e from the use of CNG. This results in a total of 452,643 tons of CO2e.

Solid Waste
Nearly all the Town's solid waste disposal occurs at the Victorville Landfill on Stoddard Wells Road in Victorville. The 2010 CAP reported that 75,619± tons of solid waste was delivered to landfills by the Apple Valley community in 2005. By 2012 (the most recent year for which data is available), this number had decreased to 45,987 tons, which represents a decrease of 29,632 tons or 39% over the 8-year period. The 2012 data are provided in the Town's Annual Report Summary for its CalRecycle Electronic Annual Report (see Appendix C). A comparison of 2005 and 2012 solid waste figures is shown in the table below.

Table 5
Community-Wide Solid Waste
2005 and 2012 Comparison

	2005			2012		
Sector	**Tons Disposed**	**Population**	**Tons Per Resident**	**Tons Disposed**	**Population**	**Tons Per Resident**
Solid Waste Disposed in Landfills	75,619	63,754	1.19	45,987	70,173	0.65

Source: 2005 data taken from p. III-7 of 2010 Apple Valley Climate Action Plan. 2013 data from "Annual Report Summary: Apple Valley 2012," Burrtec and Town of Apple Valley (see Appendix C).

The data indicate that per capita solid waste disposal decreased from 1.19 to 0.65 tons per year from 2005 to 2014. This substantial decrease is likely the result of numerous waste reduction efforts. In 2008, San Bernardino County began a Comprehensive Disposal Site Diversion Program at all its landfills, which diverts recyclable materials (including metal, cardboard, glass, carpet, green waste, biomass materials, and others) from landfills. In 2012, 4,120 tons of materials from Apple Valley sources were diverted from County landfills. In the same year, more than 5,014 tons of recyclables were recovered from Apple Valley sources at the Victor Valley Materials Recovery Facility.

The Town has implemented additional waste diversion and recycling programs, including grasscycling and xeriscaping, backyard composting, community and school outreach programs, waste audits, recycling of tires and building materials (including asphalt, scrap metal and concrete), and numerous related programs. In 2011, the Town adopted an ordinance requiring building permit applicants with development projects of 1,000 square feet or more to prepare a Waste Management Plan that demonstrates they have recycled a minimum of 50% of construction debris from projects. A mandatory Commercial Recycling Ordinance was also enacted in 2011 to require all commercial businesses generating 4 or more cubic yards of solid waste per week, and all multi-family dwellings with 5 or more units, to reuse, recycle, compost, or otherwise divert material away from landfills.

The CACP model was used to estimate GHG emissions generated by the decomposition of Apple Valley's solid waste in landfills in 2012. Assumptions used in the model's waste percentage breakdown of the 45,987 tons disposed includes the following: 17% paper products, 16% food waste, 7% plant debris, 22% wood/textiles, and 38% other waste.

CACP model outputs indicate that the decomposition of the Town's waste in 2012 resulted in the generation of 8,500 tons of CO_2e.

D. 2013 Municipal Emissions

Emissions Summary

The Town's 2010 Climate Action Plan included a municipal-specific greenhouse gas emissions inventory to determine emissions generated by Town-owned and operated facilities. It considered emissions resulting from the use of electricity and natural gas, transportation from employee commutes and the Town's fleet of municipal and police vehicles, water and sewer pumping, and decomposition of solid waste generated by Town employees.

The following analysis addresses the same emission sources for year 2013. The same methodology was used, to the greatest extent practical, to provide a meaningful comparison between 2005 and 2013 conditions. The table below shows total GHG emissions from municipal sources for years 2005 and 2013.

Table 6
Municipal GHG Emissions Summary
2005 and 2013 Comparison

Sector	2005 Tons CO_2e	2013 Tons CO_2e
Buildings and Facilities	801	1,136
Streetlights and Traffic Signals	193	349
Wastewater Facilities	106	376
Employee Commute	347	281
Town Fleet	256	438
Police Fleet	364	600
Solid Waste	71	11
Total	**2,138**	**3,191**

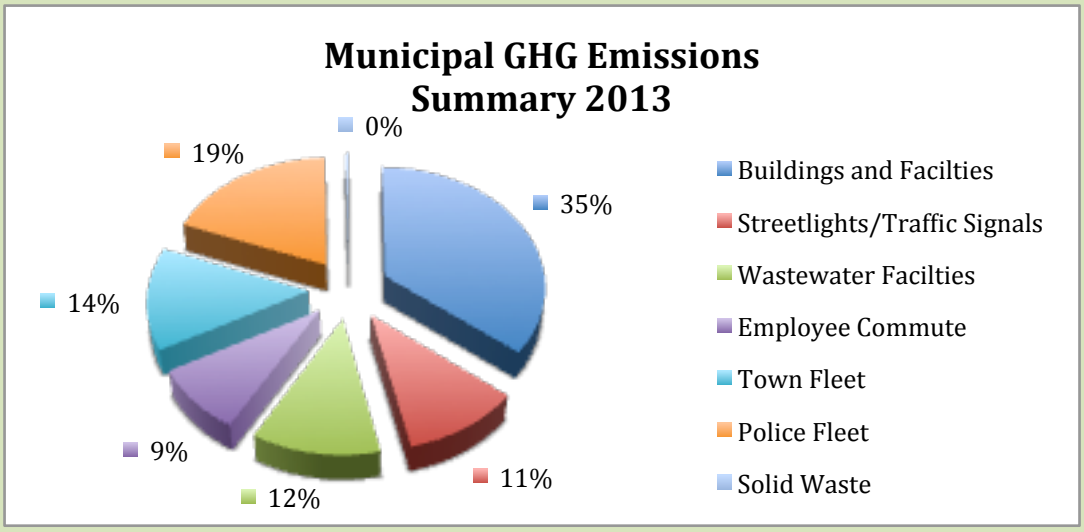


Chart 6: Municipal GHG Emissions Summary 2013

The Table and chart reflect an increase in GHG emissions for municipal facilities, particularly for building and facilities. Since the preparation of the 2010 CAP, the Town has added several buildings and facilities to its inventory of facilities. These changes are discussed in greater detail below.

It is important to note that the municipal emissions shown are a sub-set of the community-wide analysis described in Section C, above. In 2005, municipal operations accounted for 0.29% of community-wide GHG emissions. In 2013, they accounted for 0.48% of community-wide emissions.

Electricity

Southern California Edison provided electricity usage data for municipal accounts in 2013. A comparison or 2005 and 2013 usage is shown in the table below.

Table 7
Municipal Electricity Usage
2005 and 2013 Comparison

Sector	2005 kWh	2013 kWh
Buildings & Facilities Existing in 2005[1]	842,006	531,076
Buildings & Facilities Built After 2005[1]	---	1,465,827
Subtotal:	842,006	1,996,903
Streetlights & Traffic Signals	543,201	725,619
Pumping Facilities	298,043	782,108
Total:	**1,683,250**	**3,504,630**

[1] 2005 is the baseline year used in the 2010 Apple Valley Climate Action Plan. The distinction between buildings/facilities built before or after 2005 is made to accurately analyze changes in 2005 (baseline) conditions.
Source: 2005 data is from Table 6 and Appendix B of Apple Valley 2010 Climate Action Plan. 2013 data is from Nancy Jackson, SCE, March 21, 2014 (see Appendix C).

As shown, electricity usage by municipal accounts increased by 1,821,380 kWh between 2005 and 2013, more than doubling the 2005 consumption levels. Increases occurred in all sectors.

Electricity usage by buildings and facilities in 2013 was more than double that of 2005. However, closer analysis shows that electricity usage by buildings that existed in 2005 (the baseline year of the 2010 Apple Valley Climate Action Plan) decreased by approximately 310,930 kWh or 37% in 2013. They accounted for 27% of electricity used by buildings and facilities in 2013.

Several sizeable Town facilities were built, acquired or remodeled after 2005, including: the acquisition of the Apple Valley Golf Course and clubhouse; the remodeling at the Public Works facility on Nomwaket Road; the expansion of recreation services which resulting in electricity usage for extended hours and field lighting; and the construction of the Development Services, Animal Services, and community center pool buildings. They accounted for approximately 73% of electricity used by buildings and facilities in 2013. The Town's records show that the municipal facility that consumed the most electricity in 2013 was the municipal golf course, which used 715,028 kWh, or approximately 20% of all municipal electricity. Golf course facilities and equipment are older and less efficient, resulting in increased usage, particularly for water pumping. The second largest consumer was the Development Services Building, which used 387,739 kWh or 11% of all municipal electricity.

Analysis of other sectors shows that, between 2005 and 2013, electricity consumption by streetlights and traffic signals increased by 34%, and consumption by pumping facilities more than doubled.

The 2013 electricity usage values were put into the CACP model to determine GHG emissions resulting from the consumption of electricity by municipal facilities. Electricity emissions factors for year 2013 are based on a the LGOP Average Electricity Emission Factors Table G.7 and the latest U.S. EPA eGRID 2010 Summary Tables created February 2014. The model indicates that 1,359 tons of CO_2e were emitted from municipal electricity use in 2013.

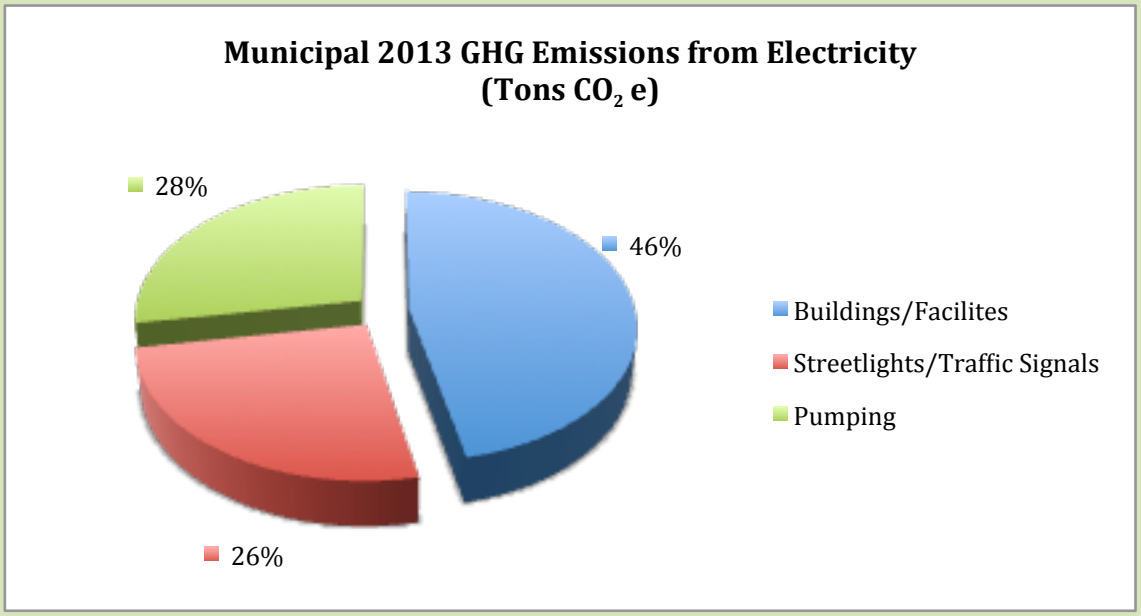


Chart 7: Municipal 2013 GHG Emissions from Electricity (Tons CO_2e)

Natural Gas

Southwest Gas provided natural gas usage data for municipal accounts for 2013 (see Appendix C). The table below compares natural gas consumption in 2005 and 2013.

Table 8
Municipal Natural Gas Usage
2005 and 2013 Comparison

Sector	2005 therms	2013 therms
Buildings and Facilities Existing in 2005[1]	81,211	75,658
Buildings and Facilities Built After 2005[1]	---	10,006
Total:	**81,211**	**85,664**

[1] 2005 is the baseline year used in the 2010 Apple Valley Climate Action Plan. The distinction between buildings/facilities built before or after 2005 is made to accurately analyze changes in 2005 (baseline) conditions.
Source: 2005 data is from pg. III-10 and Appendix B of Apple Valley 2010 Climate Action Plan. 2013 data is from Noreen Litty, Southwest Gas, April 3, 2014 (see Appendix C).

The data indicate that natural gas usage by municipal buildings and facilities was 4,453 therms (5%) higher in 2013 than in 2005. However, natural gas consumption by buildings and facilities that existed in 2005 (the baseline year of the 2010 Climate Action Plan) was 5,553 therms (7%) less in 2013 than in 2005.

Facilities built or acquired after 2005 that use natural gas include the municipal golf course and clubhouse and the Public Works facility on Nomwaket Road. They used 10,006 therms of natural gas, or 12% of total municipal natural gas usage in 2013.

Southwest Gas usage reports show that the largest municipal consumer of natural gas in 2013 was the community center pool on Dale Evans Parkway. It used 58,202 therms of natural gas, or 70% of all natural gas used by Town facilities. The second largest consumer of municipal natural gas was the Apple Valley Golf Course, which consumed 8,891 therms or 10% of municipal natural gas in 2013.

Figures for municipal natural gas usage were entered into the CACP model to estimate GHG emissions. Based on this model, it was estimated that a total of 503 tons of CO_2e were emitted in 2013 from municipal use of natural gas.

Propane

As was true in 2005, no municipal facilities use propane and, therefore, no GHG emissions resulted from propane use in 2013.

Transportation

The municipal transportation sector includes: 1) municipal fleet of vehicles, 2) Sheriff's Department fleet of vehicles (Apple Valley portion only), and 3) employee commutes. Descriptions of each and their estimated GHG emissions are provided below.

Municipal Fleet

According to the 2010 Climate Action Plan, the municipal fleet had 46 vehicles and used 23,860 gallons of fuel in 2005, which yielded an annual consumption rate of 518 gallons per vehicle.

In 2013, the Town owned 69 vehicles that used 43,559 gallons of gasoline. Annual gas consumption was 631 gallons per vehicle. Compared to 2005, this represents an increase of 23 vehicles and 22% more gallons consumed per vehicle. Based on CACP modeling, operation of the municipal fleet in 2013 resulted in the emission of 438 tons of CO_2e .

Police Fleet

The Town of Apple Valley contracts with the San Bernardino County Sheriff's Department for police services. The Department generated GHG emissions from the operation of vehicles. In 2005, 31 vehicles were assigned to Apple Valley. They consumed 33,815 gallons of fuel, yielding a consumption rate of 1,090 gallons per vehicle.

In 2013, the Sheriff's Department operated 36 vehicles and used 61,410 gallons of fuel for Apple Valley police services. Annual fuel consumption was 1,705 gallons per vehicle. Compared to 2005, this represents an increase of 5 vehicles and 56% greater fuel consumption per vehicle. CACP modeling indicates that operation of the police fleet generated 600 tons of CO_2e in 2013.

Fleet Analysis
The increases in fuel consumption described above could be due to methodology differences used in the 2010 CAP and this update. Actual 2005 data was not available for the 2010 CAP, so assumptions were based on data from other years. Actual 2013 figures from the Town Finance Department and Sheriff's Department were obtained for this update. Increases in fuel consumption may also be partly due to natural growth in the Town, which demands more travel by employees and increased patrols by police personnel.

Employee Commute
GHG emissions are also generated by vehicles used by Town employees commuting to and from work. The 2010 CAP states that in 2005, 104 full-time employees traveled an average of 23 miles roundtrip to and from work in passenger vehicles. This resulted in 570,928 total vehicle miles, or 5,489 miles per employee.

In 2013, the Town employed 95 full-time personnel. Consistent with the 2010 CAP, it was assumed they traveled 23 miles roundtrip to and from work. This yields 521,455 total vehicle miles. Compared to 2005, this represents a reduction of 49,473 total vehicle miles (8.66%). CACP modeling estimates that 2013 employee commutes resulted in the generation of 281 tons of CO_2e.

Transportation Summary
Municipal mobile sources that generate GHG emissions include the Town and Sheriff's Department (Apple Valley portion only) fleets and employee commutes. These sources are estimated to have produces a total of 1,319 tons of CO_2e in 2013. A comparison of 2005 and 2013 emissions from the municipal transportation sector is provided in the table below.

Table 9
GHG Emissions from
Municipal Transportation Sector
2005 and 2013 Comparison

Sector	2005 Tons of CO_2e	2013 Tons of CO_2e
Town Municipal Fleet	256	438
Sheriff's Department Fleet	364	600
Town Employee Commute	347	281
Total:	**967**	**1,319**

Solid Waste

According to the 2010 CAP, municipal facilities generated 122.68 tons of solid waste in 2005, which resulted in 71 tons of CO_2e.

Actual data quantifying solid waste generation at municipal facilities is not available. Therefore, consistent with the methodology used in the 2010 CAP, the Town's community-wide 2013 per capita solid waste disposal figure (see Table 5) was multiplied by the number of Town employees. Assuming that 95 employees generated 0.65 tons of solid waste per employee, a total of 61.75 tons of solid waste was disposed by municipal employees in 2013. Compared to 2005 values, this represents a reduction of approximately 61 tons or 50%.

The reduction is likely due to the Town's and County's implementation of numerous waste diversion and reduction programs since 2005 (described above in Section III-C). In addition to large-scale diversion programs at the Victorville Landfill and Materials Recovery Facility, some programs specifically target municipal facilities. Among these are the Town's Green Purchasing Ordinance, which encourages the purchase of Recycled Content Products (RCP) when financially feasible, and conservation of paper by printing double-sided documents and maximizing the use of electronic mail.

E. Future Emissions Estimates, Business As Usual

The 2020 emission BAU forecast has been updated to reflect the 2013 inventory using similar methods for GHG emission projections. The 2013 methods and results are described below.

1. Community Wide

A community wide emissions forecast was prepared for future year 2020 for the Town of Apple Valley. The GHG forecast is based on the 2005 baseline inventory as described in Section B above and projects future emission for 2020 under business as usual (BAU) conditions. BAU conditions assume that there is no change in the current operating procedures. Forecast conditions assumed an annual growth rate of 1.6% for commercial, industrial, and solid waste. The previous annual growth rate of 1.8% for residential and transportation sectors has been updated to reflect the population growth rate of 10.07% over the 8-year period from 2005-2013. Thus, the revised annual growth rate for residential and transportation sectors is 1.3% (10.07% divided by 8 years).

Using the data set established in the baseline inventory conducted for 2005 and the CACP model to forecast future conditions, the Community-wide GHG emissions for the Town of Apple Valley forecast for 2020 was estimated to be 1,009,561 tons of Carbon Dioxide equivalent (CO_2e) for BAU conditions in the 2010 CAP.

The Table and Chart below show Apple Valley's total greenhouse gas emissions forecast from all major sources for the year 2020 under BAU conditions using 2013 analysis. Fuel consumption in the transportation sector is the single largest source of emissions, contributing 61% of total emissions. The residential, commercial, and industrial sectors represent emissions that result from electricity, propane and natural gas used in both private and public buildings and facilities. Streetlights and pumping facilities include energy expenditures required to fulfill operations. Solid waste represents community-wide disposal from all waste brought to landfills in 2020.

Table 10
GHG 2020 Forecast by Sector

	2005	2013
Sector	**Tons CO_2e**	**Tons CO_2e**
Natural Gas[1]	109,267	120,887
Electricity[2]	203,138	170,696
Transportation[3]	627,170	505,014
Streetlights	2,689	1,847
Pumping Facilities	11,555	4,560
Solid Waste	55,742	9,486
Total	**1,009,561**	**812,490**

1 Includes propane.
2 Includes residential, commercial, and industrial
3 Growth rate for 2005 = 1.8%, growth rate for 2013 = 1.3% based on Department of Finance demographic research.

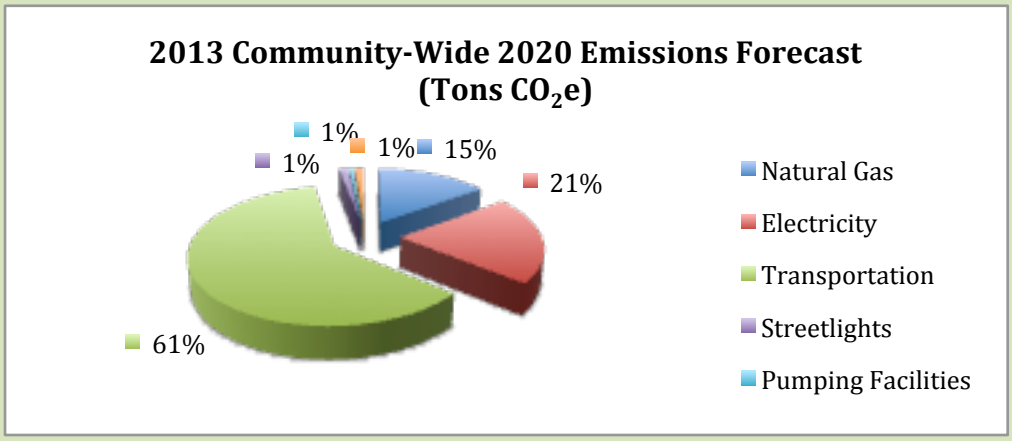


Chart 8: 2013 Community-Wide 2020 Emissions Forecast (Tons CO_2e)

The Table and Chart below show Apple Valley's total greenhouse gas emissions forecast for Residential, Commercial, and Industrial sectors for the year 2020 under BAU conditions. GHG emissions for these sectors result from electricity, propane and natural gas used in both private and public buildings and facilities.

Table 11
GHG 2020 Forecast

	2005	2013
Sector	**Tons CO_2e**	**Tons CO_2e**
Residential	232,812	222,890
Commercial	67,275	67,164
Industrial	12,319	1,529

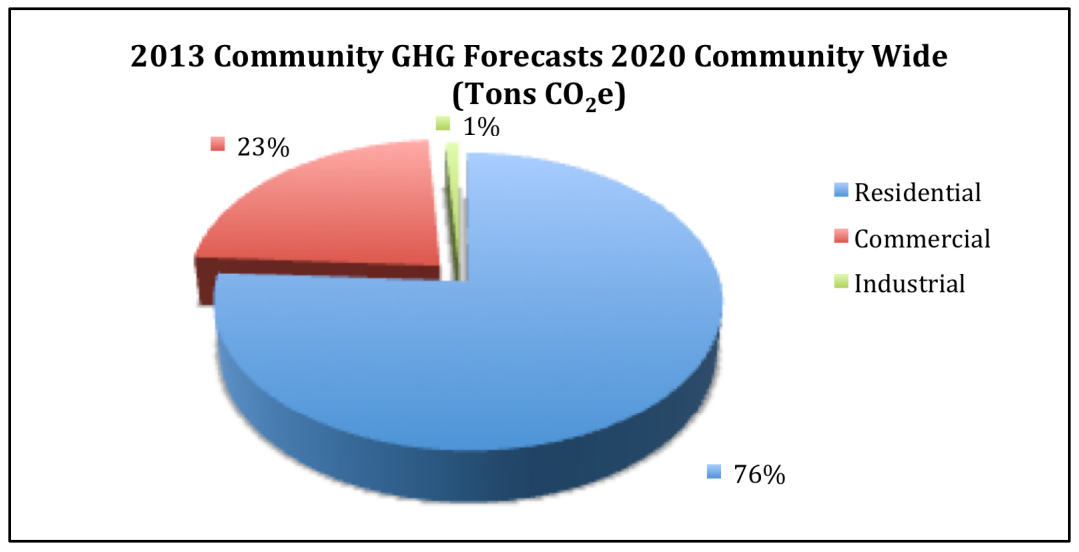


Chart 9: 2013 Community GHG Forecasts 2020 Community Wide (Tons CO_2e)

2. Municipal Specific

A municipal specific emissions forecast was prepared for future year 2020 for Town-owned and operated facilities. The Municipal forecast shows the anticipated GHG Emissions from government operation under BAU conditions and is based on the 2005 baseline inventory. The 2020 forecast for municipal operations assume an annual growth rate of 1.6% for electricity, natural gas, and solid waste, and an annual growth rate of 1.3% for mobile sources including the Town and Police fleet and employee commute.

Using the baseline inventory for 2005 and the CACP model to forecast future conditions, the GHG emissions from municipal operations within the Town of Apple Valley for 2020 was projected to be 3,132 tons of Carbon Dioxide equivalent (CO_2e), and is projected at 3,519 tons in 2013. The Table and Chart below shows Apple Valley's total greenhouse gas emissions forecast for municipal operations for the year 2020 under BAU conditions. The increase, as described above, is primarily due to the increase in Town facilities.

Table 12
GHG 2020 Forecast for Municipal Operations

	2005	2013
Sector	**CO_2e Tons**	**CO_2e Tons**
Building and Facilities	1,216	1,269
Streetlights and Traffic Signals	379	390
Pumping Facilities	205	421
Employee Commute	435	290
Town Fleet	333	480
Police Department	474	656
Solid Waste	90	13
Total	**3,132**	**3,519**

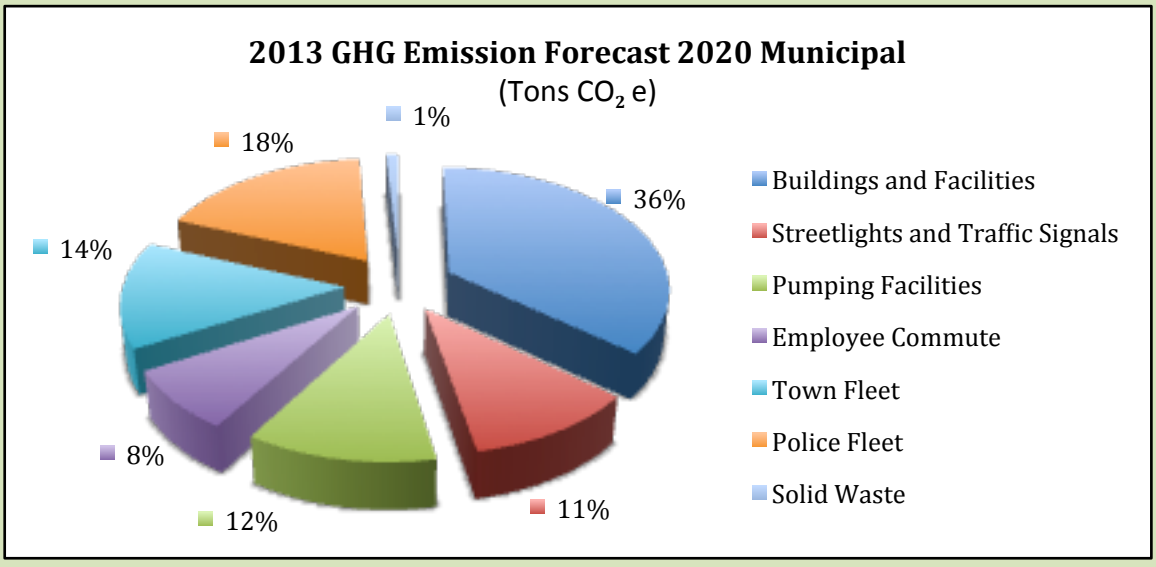


Chart 10: 2013 GHG Emission Forecast 2020 Municipal (Tons CO_2e)

F. Reduction Targets

A reduction target provides a tangible goal for emission reduction efforts. Apple Valley's emissions reduction target represents a percentage by which the community aims to decrease emissions, below the 2005 baseline, by 2020.

Many factors were considered when selecting the reduction target. Ultimately, Apple Valley's reduction target is both aggressive and achievable given local circumstances. Local factors considered in selecting the target reduction percentage included estimation of the effects of implemented and planned programs and policies, an approximate assessment of future opportunities to reduce emissions, targets adopted by peer communities, and emissions reductions expected to be achieved by state-level climate policy.

The Town of Apple Valley set a reduction target at 15% below 2005 levels by the year 2020 for both the community and municipal operations. As described above, the 2005 baseline level for GHG emissions was established by conducting a community-wide and government-specific inventory in order to identify and quantify the major GHG emitters within Town limits. Section III-B and III-C above describe the assumptions and data used to arrive at the 2005 baseline. For the community–wide inventory it was determined that 748,524 tons of CO_2e represents the 2005 baseline level and the municipal baseline for 2005 is 2,138 tons of CO_2e. To achieve at 15% reduction by 2020 the community-wide GHG emissions level will need to be reduced to 636,245 CO_2e and the municipal GHG emission level will need to be reduced to 1,817 CO_2e by 2020. Therefore, the reduction target community-wide is 373,317 tons of CO2e and the municipal reduction target is 1,315 tons of CO2e by 2020.

Table 13
GHG Reduction Targets
Tons CO2e

	Community-wide	Municipal
Baseline 2005	748,524	2,138
15% Below Baseline	636,245	1,817
2020 Forecast BAU (2005)	1,009,562	3,132
2020 Forecast BAU (2013)	812,490	3,519
2020 Reduction Target (2005)	373,317	1,315
2020 Reduction Target (2013)	**176,245**	**1,702**

New projects developed after the adoption of this Plan, and demonstrating a reduction in emissions of 15% or more, will be consistent with this Climate Action Plan.

IV. GREENHOUSE GAS REDUCTION MEASURES

This section describes general policies and specific actions that will move the Town in the direction of realizing GHG emission reductions. Sections IV-A through IV-C provide in broad terms policies that may contribute to GHG reductions. These measures are intended as a menu for existing and future development, any combination of which can be implemented to reach reduction targets on a project-by-project basis. Section IV-D describes specific measures that yield quantifiable GHG reductions.

Introduction
Greenhouse gas emissions in Apple Valley are generated by its residents, businesses and institutions. For purposes of this Climate Action Plan, the reduction measures included below are divided into three broad categories:

1. Those which the Town as a government entity can implement (Town Government Operational Measures).
2. Those which existing homes, businesses and institutions can implement (Community Operational Measures).
3. Those which new development proposals for homes, businesses and institutions can implement.

The implementation measures are listed categorically below. Each category also includes sub-categories for general measures, transportation, energy efficiency, renewable energy and solid waste management.

The 2013 Measures have been updated to reflect the evolving needs and successes of Apple Valley's CO_2e reduction efforts over the past 3 years.

A. Town Government Operational Measures

General Measures

MO-1. Encourage the development of residential projects at a density of at least 15 units per acre in the Medium Density Residential zone along Bear Valley Road, Highway 18, Dale Evans Parkway, Apple Valley Road, Navajo Road, Central Road, and Kiowa Road.

MO-2. Encourage the development of mixed-use projects in the Mixed Use zone along Bear Valley Road, Highway 18, Dale Evans Parkway, Apple Valley Road, Navajo Road, Central Road, and Kiowa Road.

MO-3. Encourage the development of residential projects at a density of at least 15 units per acre in the Medium Density Residential zone along the High Desert Corridor.

MO-4. Encourage the development of mixed-use projects in the Mixed Use zone along the High Desert Corridor.

MO-5. Encourage the development of new infill or reconstruction projects along Bear Valley Road, near its intersections with Apple Valley Road, Kiowa Road and Navajo Road; or along Highway 18.

MO-6. Plant a minimum of 25 trees annually in Town parks, and on other Town properties.

MO-7. Partner with the Apple Valley Unified School District to establish an "adopt a tree" education and maintenance program whereby school classes adopt and maintain specific trees in Town parks and other Town properties.

MO-8. Consider offering a Greenhouse Gas Reduction education program to be held at the Recreation Center, and offer it on a quarterly basis to residents and business persons in Town.

Transportation Measures

MO-9. Install advanced technology systems and implement effective management strategies in order to improve the operational efficiency of transportation systems and the movement of people, goods, and services, including synchronization of traffic lights and signals.

MO-10. Expand bikeways, walking paths and trails connecting residential neighborhoods to commercial projects, schools and other institutions, and transit.

MO-11. Prioritize roadway improvements for areas experiencing Level of Service D or worse.

MO-12. Replace gasoline or diesel fleet vehicles with hybrid or alternative fuel vehicles when they are scheduled for replacement, if available for the use intended.

MO-13. A minimum of 50% of the Town's additional new vehicle purchases in 2014 and beyond (not replacement vehicles) shall be hybrid or alternative fuel vehicles (if available for the use intended).

MO-14. Encourage Victor Valley Transit to install bicycle racks on all buses, and to operate an all-alternative fuel fleet.

MO-15. Encourage Apple Valley Unified School District to replace traditional fueled school buses with CNG fueled school buses upon new bus purchases.

MO-16. Encourage CalTrans to install carpool lanes on the High Desert Corridor.

MO-17. Consider the implementation of a Transportation Demand Management Ordinance for all employers with 50 or more employees working during any given shift.

MO-18. Specify rubberized and/or recycled asphalt in Town-initiated road pavement projects to the extent economically viable.

MO-19. Establish a Town employee car pooling program, including incentives (preferred parking, flex time incentives in addition to the Town's existing 9/80 work week, etc.) for participating employees.

MO-20. Provide employees with free public transit passes.

MO-21. Provide secure bicycle racks at all Town facilities.

Energy Efficiency Measures

MO-22. Reduce energy use at all Town facilities by 15% by 2020.

MO-23. Replace all failing or failed fixtures and appliances in Town facilities with energy efficient fixtures and appliances. Light bulbs shall be replaced with CFL or LED bulbs. Appliances shall be Energy Star rated.

MO-24. Encourage Apple Valley Ranchos, Golden State and other water purveyors to replace water systems with energy efficient motors, pumps and other equipment.

MO-25. Encourage VVWRA to replace wastewater systems with energy efficient motors, pumps and other equipment.

MO-26. Encourage the County of San Bernardino to capture and utilize landfill gas for use as an energy source including fuel for vehicles, operating equipment, and heating buildings.

MO-27. Consider the installation of green roofs on Town facilities.

MO-28. Consider the installation of cool roofs on Town facilities.

MO-29. Reduce turf areas at Town facilities by 20% overall.

MO-30. Modernize facilities and equipment at the golf course when financially feasible, including the well pumps.

MO-31. Install semi-pervious surfaces which allow water to percolate at Town facilities to the extent economically feasible.

MO-32. Install timers for all ball field lighting on Town facilities.

MO-33. Consider a home weatherization and energy efficient appliance replacement grant program for existing residents including extremely low, very low and low-income households.

MO-34. Continue to require that improvements made under the Residential Rehabilitation Loan Program and the Mobile Home Repair Program be energy efficient.

MO-35. Promote third-party energy efficiency programs, including the HERO and Energy Upgrade California programs.

Renewable Energy Measures

MO-36. Consider an Energy Savings Performance Contract with a private entity to retrofit public buildings, which will allow the private entity to fund all energy improvements in exchange for a share of the energy savings over a period of time.

MO-37. Partner with Southern California Edison in establishing a rebate/incentive/refund program for the installation of Energy Star appliances or alternative energy systems on private projects, including single family homes. Consider issuance of bonds for such a program.

MO-38. Install photovoltaic systems on the buildings and carports located at the Public Works facility and Town Hall/Police Department, which will provide electricity for the Civic Center and the Public Works/Animal Control facilities. And consider installing wind energy resources on properties greater than 2 acres.

MO-39. Consider installing a CNG fueling station and establish a public access program for same.

MO-40. Consider replacing failing or failed traditional water heaters in Town facilities with solar water heaters.

MO-41. When it fails, consider replacing the municipal pool heater with a solar pool heating system.

Solid Waste Management Measures

MO-42. Require composting of all landscaping waste from Town facilities.

MO-43. Implement a two-sided copy policy at all Town offices.

MO-44. Provide recycling bins for all offices, and at all employee gathering points (lunch room, conference rooms, etc.).

MO-45. Reuse and replace transport packaging including the reuse of cardboard boxes, and the recycling of plastic film, cardboard, and paper. Utilize reusable plastic transport packaging in place of limited-use wood pallets or cardboard boxes.

- For every 1-ton of corrugated cardboard boxes that is kept from entering the landfill, about 3.87 tons of CO2e are avoided.
- For every ton of plastic film (in the form of Low Density Polyethylene LDPE) that is recycled, about 1.9 tons of CO2e are avoided annually.
- For every ton of mixed general paper recycled about 4.3 tons of CO2e are avoided.

B. Community Operational Measures

Community Operational Measures will be implemented in a variety of ways, including voluntary implementation, partnerships with utility and appliance companies, Town incentive programs, and state and federal incentive programs as they become available.

Transportation Measures

CO-1. Encourage replace of personal vehicle with hybrid or alternative fuel vehicle.

CO-2. Establish and enforce idling time limits for delivery vehicles. Idling shall not be permitted for more than 5 minutes.

CO-3. For employers, implement a Transportation Demand Management program, and document trip reduction by employees.

CO-4. Encourage the replacement of gasoline or diesel fleet vehicles with hybrid or alternative fuel vehicles, if available for intended use.

CO-5. Establish an employee carpooling program, including incentives (preferred parking, flex time incentives, etc.) for participating employees.

CO-6. (Encourage) Provide employees with free or discounted public transit passes.

Energy Efficiency Measures

CO-7. Replace failing or failed fixtures and appliances with energy efficient fixtures and appliances. Light bulbs shall be replaced with CFL or LED bulbs. Appliances shall be Energy Star rated.

CO-8. Replace traditional water heater with an instant water heating system.

CO-9. Replace traditional roofing with a green roof.

CO-10. Replace traditional flat roofing with a cool roof.

CO-11. Increase insulation in walls and roof to a minimum R-30.

CO-12. Install weather-stripping on all doors and windows.

CO-13. Replace grass/turf areas with drought tolerant or native plants, or with decorative rock or gravel.

CO-14. Replace water fixtures (faucets, toilets, etc.) with high efficiency fixtures.

Renewable Energy Measures

CO-15. Replace water heater and/or pool heater with a solar water heating system.

CO-16. Install solar panels or photovoltaic.

CO-17. For apartment or condominium projects, install solar or photovoltaic systems on carport roofs.

Solid Waste Management Measures

CO-18. Install a home composting system.

CO-19. Increase recycling by 20%.

CO-20. For businesses, implement a two-sided copy policy.

C. New Development Measures

General Measures

ND-1. Develop a residential project at a density of at least 15 units per acre in the Medium Density Residential zone along Bear Valley Road, Highway 18, Dale Evans Parkway, Apple Valley Road, Navajo Road, Central Road, and Kiowa Road.

ND-2. Develop a mixed-use project in the Mixed Use zone along Bear Valley Road, Highway 18, Dale Evans Parkway, Apple Valley Road, Navajo Road, Central Road, and Kiowa Road.

ND-3. Develop a residential project at a density of at least 15 units per acre in the Medium Density Residential zone along the High Desert Corridor.

ND-4. Develop a mixed-use project in the Mixed Use zone along the High Desert Corridor.

ND-5. Develop a new infill or redevelopment project along Bear Valley Road, near its intersections with Apple Valley Road, Kiowa Road and Navajo Road; or along Highway 18.

ND-6. For projects within the North Apple Valley Industrial Specific Plan, develop employee housing within one mile of the industrial project.

ND-7. Preserve trees occurring on-site either through in situ protection during and after construction, or through transplant and relocation within landscaped areas.

ND-8. Utilize the Collaborative for High Performance Schools (CHPS) best practices for school design, building, and operation.

Transportation Measures

ND-9. During project construction, on-site off-road construction equipment shall utilize biodiesel fuel (a minimum of B20), except for equipment where use of biodiesel fuel would void the equipment warranty. The applicant shall provide documentation to the Town that verifies that certain pieces of equipment are exempt, a supply of biodiesel has been secured, and that the construction contractor is aware that the use of biodiesel is required. As a conservative measure, no reduction in GHG emissions was taken for the implementation of this measure as it is unknown if biodiesel can be readily applied to the various pieces of construction equipment that will be necessary for the project.

ND-10. Install bus stop(s) and secure scheduled transit service from Victor Valley Transit.

ND-11. Install pedestrian, bicycle and/or equestrian trails connecting project to school(s), commercial project(s) or transit.

ND-12. For employers, implement a Transportation Demand Management program, and document trip reduction by employees.

Energy Efficiency Measures

ND-13. Building and site plan designs shall ensure that the project energy efficiencies surpass applicable California Title 24 Energy Efficiency Standards by a minimum of 10%. Verification of increased energy efficiencies shall be documented in Title 24 Compliance Reports provided by the applicant, and reviewed and approved by the Town prior to the issuance of the first building permit. Any combination of the following design features may be used to fulfill this measure provided that the total increase in efficiency meets or exceeds 10% beyond Title 24 standards:

- Buildings shall exceed California Title 24 Energy Efficiency performance standards for water heating and space heating and cooling.
- Increase in insulation such that heat transfer and thermal bridging is minimized.
- Limit air leakage through the structure or within the heating and cooling distribution system to minimize energy consumption.
- Incorporate dual-paned or other energy efficient windows.
- Incorporate energy efficient space heating and cooling equipment.
- Incorporate the use of tankless water heaters in all residential units and community buildings.
- Promote building design that will incorporate solar control in an effort to minimize direct sunlight upon windows. A combination of design features including roof eaves, recessed windows, "eyebrow" shades and shade tress shall be considered.
- Interior and exterior energy efficient lighting which exceeds the California Title 24 Energy Efficiency performance standards shall be installed, as deemed acceptable by Town. Automatic devices to turn off lights when they are not needed shall be implemented.
- To the extent that they are compatible with landscaping guidelines established by the Town, shade producing trees, particularly those that shade paved surfaces such as streets and parking lots and buildings shall be planted at the Project site.
- Paint and surface color palette for the Project shall emphasize light and off-white colors which will reflect heat away from the buildings.
- All buildings shall be designed to accommodate renewable energy sources, such as photovoltaic solar electricity systems, wind energy systems on properties greater than 2 acres, appropriate to their architectural design.
- Consideration shall be given to using LED lighting for all outdoor uses (i.e. buildings, pathways, landscaping, carports).

ND-14. For residential projects, implement Green Building practices and document GHG reduction resulting from same.

ND-15. Use passive solar design by orienting buildings and incorporating landscaping to maximize passive solar heating during the winter, and minimize solar heating during the summer.

ND-16. To reduce energy demand associated with potable water conveyance:

- Landscaping palette emphasizing drought tolerant plants and exceeding Town standards for water conservation.
- Limit turf areas to no more than 20% of all landscaped areas.
- Use of water-efficient irrigation techniques exceeding Town standards for water conservation.
- U.S. EPA Certified WaterSense labeled or equivalent faucets, high-efficiency toilets (HETs), and water-conserving shower heads.

ND-17. Install Energy Star appliances and energy efficient fixtures.

ND-18. Install all CFL or LED light bulbs.

ND-19. Install common area electric vehicle charging station(s) and secure bicycle racks.

Renewable Energy Measures

ND-20. To reduce the project's energy use from the grid:

- Install solar panels sufficient to heat water within the project, and/or
- Install solar panels sufficient to provide electric power for the project, and/or
- Install photovoltaic systems sufficient to heat water within the project, and/or
- Install photovoltaic systems sufficient to provide electric power for the project, and/or
- Install other clean energy system sufficient to heat water within the project, and/or
- Install other clean energy system sufficient to provide electric power for the project.

ND-21. Install solar or photovoltaic systems on new roofs whether on residential, commercial or industrial buildings.

ND-22. Use on-site generated bio-gas in appropriate applications.

ND-23. Install combined heat and power facilities in appropriate applications.

ND-24. Specify rubberized and/or recycled asphalt for roads and driveways to the extent economically viable.

Solid Waste Management Measures

ND-25. Recycle and/or salvage non-hazardous construction and demolition waste, and develop and implement a construction waste management plan quantifying the reduction in the waste stream.

ND-26. Reuse construction waste in project features (e.g. shattered concrete or asphalt can be ground and used in walkways and parking lots).

ND-27. Facilitate the reduction of waste generated by building occupants that is hauled to and disposed of in landfills by providing easily accessible areas that serve each building and are dedicated to the collection and storage of paper, cardboard, glass, plastics, and metals.

ND-28. Provide educational information to residents addressing energy efficiency, solid waste reduction, and water conservation measures.

D. Quantified Reductions

Specific reduction levels have been quantified based on the general measures listed above. Given that not all measures can be quantified, and many of the aforementioned measures will result in GHG reductions, the quantifiable reductions listed below are considered conservative.

To achieve quantifiable reductions the energy demand from electricity and natural gas use must be decreased, combustion of fuels from transportation must become more efficient, and disposal of waste to landfills must be lessened. There are numerous methods to achieve reductions from each of these sectors. The general approach taken in this action plan are described below, followed by the specific measures and assumptions set forth to achieve the reduction target.

GHG reductions to energy use can be achieved through remodeling and retrofitting existing structures, upgrading existing electric and natural gas appliances, and reducing energy use. New development can be constructed to require very little energy through building design, the use of energy efficient appliances, and use of sustainable materials.

To achieve GHG reduction from the transportation sector the Town intends to a) implement policies that reduce dependence on personal motor vehicles and encourage alternative modes of transportation, such as public transit, cycling, and walking; b) utilize vehicles that release fewer greenhouse gases, such as hybrids, more fuel efficient vehicles, and vehicles that run on alternative fuels; and c) encourage 'smart growth' or policies that promote efficient land use development, such as reduce the need to travel long distances, facilitate transit and other non-automotive travel, increase the availability of affordable housing, employ existing infrastructure capacity, promotes social equity, helps protect natural assets, and maintain and reinforce existing communities.

Residential and commercial recycling and composting, buying recycled products, green building and demolition practices, and Desert Friendly Landscaping play an important role in reducing emissions from the solid waste sector. Emission reductions from solid waste can be achieved by reducing the quantity of the waste stream. Avoiding disposal to landfills by increasing recycling and composting are effective ways to achieve landfill diversion targets.

1. Community

Measures are divided into the following sectors: residential, commercial, industrial, transportation, streetlights, water and sewer, and solid waste management.[7]

[7] Waste Management is used in the broader sense to include, waste reduction, recycling, composting and final disposal activities.

Measure Number	Measure Type	Measure Name	Assumptions	Sector	CO_2e Reductions (tons)
CO-16 CO-17 MO-35	Change in Energy Source	Expand Rooftop Solar	Rooftop solar and renewable energy production is expanded to replace 40,408,243 kwh annually. Equates to 15% of forecast 2020 electricity after accounting for new home efficiency and existing home upgrades (ND-13 and MO-32).	Residential	19,447
ND-13 ND-14	Energy Efficiency: Appliances and Equipment	New Homes Natural Gas Efficiency	4,800 homes built after 2013 save 18% (519,740 therms) of overall natural gas use (2,887,442 therms) due to energy efficient appliances that reduce natural gas use under BAU conditions.	Residential	3,048
MO-32 MO-33 MO-34	Energy Efficiency: Appliances and Equipment	Upgrade Existing Home Appliances	Upgrades result in the following savings, 25% from TV, 50% from lighting, 5% from water heating, 13% from central AC, and 15% from refrigerators and freezers. Upgrading 23,727 home (the number of homes constructed before 2013 per DOF) would save 63,644,842 kwh per year.	Residential	30,629
MO-32 MO-33 MO-34	Energy Efficiency: Appliances and Equipment	Upgrade Natural Gas Appliances	Upgrades result in the following savings, 12% for water heaters, 11% space heaters, and 10% for clothes dryers that have moisture sensing. Upgrading 23,727 homes would result in an annual savings of 2,519,182 therms.	Residential	14,772
ND-13 ND-14	Energy Efficiency: Buildings	New Homes Efficiency	Homes built after 2013 are 10% more efficient than Title 24. Assumes that a typical Title 24 home uses 6,000 kwh per year, a 10% more efficient home uses 5,400 kwh per year. Under BAU 4,800 homes would have generated 62,200,128 kwh per year (12,958.36 kwh per home) compared to 36,280,128 kwh per year for efficient homes. (25,920,000 kwh saved)	Residential	12,474

Measure Number	Measure Type	Measure Name	Assumptions	Sector	CO_2e Reductions (tons)
CO-7 through CO-15 MO-22, MO-23 MO-27 MO-37	Energy Efficiency: Buildings	Existing Account Retrofit and Upgrade (Electric)	Replacing failing or failed fixtures and appliances with energy efficient models, installing cool roofs, weatherization of structures (calking, weather-stripping, double-pane, windows, and insulation), and use of solar panels or photovoltaic achieve an overall reduction in electricity demand for 1,902 existing accounts of 58,304,859 kwh by 2020.	Commercial	28,059
CO-7 CO-8 CO-9 through CO-15 MO-22 MO-23 MO-27 MO-28 MO-37	Energy Efficiency: Buildings	Existing Account Retrofit and Upgrade (Natural Gas)	Replacing appliances with energy efficient models, installing cool roofs, and weatherizing structures to reduce heat and cooling costs for 600 accounts (half of all commercial accounts for 2013) will achieve an overall reduction in the natural gas usage rate of 10%. A commercial account uses approximately 1,870 therms of natural gas per year, if 600 existing commercial accounts reduce their natural gas usage by 187 therms (10%) then a total of 112,200 therms will be saved.	Commercial	658
ND-8 ND-13	Energy Efficiency: Buildings	Whole Building Electric	168 (75%) new commercial accounts in 2020 use 50% less electricity compared to BAU, a savings of 5,149,956 kwh of electricity.	Commercial	2,478
ND-8 ND-13	Energy Efficiency: Buildings	Whole Building Natural Gas	114 new commercial accounts in 2020 use 50% less natural gas compared to BAU, a savings of 106,590 therms.	Commercial	625
CO-7 through CO-15	Energy Efficiency: Buildings	Existing Retrofit and Upgrade (Electric)	Compared to BAU retrofitting 557 industrial accounts to achieve 50% savings in electricity demand results in an annual savings of 2,038,815 kwh.	Industrial	981

Measure Number	Measure Type	Measure Name	Assumptions	Sector	CO_2e Reductions (tons)
CO-7 through CO-15	Energy Efficiency: Buildings	Existing Account Retrofit and Upgrade (Natural Gas)	On average an industrial account uses 4,245 therms of natural gas per year. Reducing this use by 10% (425) therms per account (3) will save a total of 1,275 therms compared to BAU.	Industrial	7
ND-13	Energy Efficiency: Buildings	Whole Building Electric	50 (75%) new industrial accounts in 2020 use 50% less electricity compared to BAU, a savings of 178,425 kwh per year.	Industrial	86
ND-13	Energy Efficiency: Buildings	Whole Building Natural Gas	New industrial accounts use 50% less natural gas compared to BAU, a savings of 743 therms.	Industrial	4
MO-9	Change in Fuel Type or Technology	Truck Fuel Economy	Trucks equipped with advanced diesel engines increase fuel economy by 20%, bringing the fuel efficiency from 16.9 miles (BAU) per gallon to 20.28 miles per gallon for heavy trucks.	Transportation	12,608
MO-9 MO-11	Other VMT Reduction	Signal Synchronization for Light Trucks	Town-wide signal synchronization measure would increase fuel efficiency by 12% for all trucks. 113,142,703 vehicle miles (after accounting for reduction in miles from land use efficiencies) achieve a 12% increase in fuel efficiency from 20.28 miles per gallon to 22.7 miles per gallon.	Transportation	6,045
MO-12 MO-14 MO-36 CO-4	Change in Fuel Type or Technology	Use CNG for Transit Bus	All transit bus miles (37,188 miles) operating on gasoline fuel, with a fuel efficiency of 4.9 miles per gallon, are replaced with CNG fuel with a fuel efficiency of 6.9 miles per gallon.	Transportation	32

Measure Number	Measure Type	Measure Name	Assumptions	Sector	CO_2e Reductions (tons)
MO-12 CO-1 CO-4	Increase Fuel Efficiency	Elevate Number of Fuel Efficient Vehicles	Vehicle fleet averages 21.3 miles per gallon. 50% of the vehicle fleet (356,019,558 vehicle miles) will increase fuel efficiency by 50% (31 mpg).[8]	Transportation	53,676
ND-1 through ND-6	Land Use Related	Mixed Use Reduces Miles for Trucks	The total miles traveled for trucks using diesel, with a fuel economy of 16.9 miles, are reduced by 20%, a savings of 28,285,675 miles.	Transportation	16,746
ND-1-ND-6 MO-1-MO-5	Land Use Related	Mixed Use Reduces Miles for Passenger Vehicles[9]	The total miles traveled for passenger vehicles, with a fuel economy of 26.9 miles, are reduced by 20%, a savings of 178,009,779 miles. (Accounts for reduction in miles from ridesharing, transit, and alternative modes of transport.)	Transportation	66,131
MO-16 MO-17 MO-19 CO-3 CO-5 ND-12	Other VMT Reduction	Rideshare at Businesses	5% (864) of the projected 2020 employees (17,282) participate. An average employee travels 23 miles to and from work, 5 days a week, or 5,520 passenger miles per year. Ridesharing replaces 4,769,832 passenger miles traveled by single occupancy vehicles with an occupancy rate of 5 employees per vehicle.	Transportation	2,567
MO-9 MO-11	Other VMT Reduction	Signal Synchronization for Passenger Vehicles	Town-wide signal synchronization measure would increase fuel efficiency by 12% for passenger vehicles. 712,039,116 vehicle miles (after accounting for reduction in miles from ridesharing, transit, alternative modes of transport, and land use efficiencies) achieve a 12% increase in fuel efficiency from 26.9 miles per gallon to 30.2 miles per gallon.	Transportation	28,073

[8] The community vehicle fleet (excluding transit bus) will generate a total of 712,039,116 vehicle miles in 2020 (after accounting for reduced miles from walking/biking, use of transit, ridesharing, and reduced miles from land use efficiencies.

[9] Passenger Vehicles includes both diesel and gasoline operated vehicles.

Measure Number	Measure Type	Measure Name	Assumptions	Sector	CO_2e Reductions (tons)
MO-9 MO-11	Other VMT Reduction	Signal Synchronization for Transit Bus	Town-wide signal synchronization measure would increase fuel efficiency by 12% for all transit buses. 720,962 vehicle miles achieve a 12% increase in fuel efficiency from 6.9 miles per gallon to 7.7 miles per gallon.	Transportation	76
MO-4 MO-5 MO-20 CO-6	Switch to Public Transport	Free Transit Pass	5% (864) of the projected 2020 employees (17,282) participate. An average employee travels 23 miles to and from work, 5 days a week, or 5,520 passenger miles per year. Use of transit bus replaces 4,769,832 passenger miles traveled by single occupancy vehicles with an occupancy rate of 6.9 per transit bus operating on CNG.[10] (864/6.9=125; 125x23x5x4x12= 690,000 VMT)	Transportation	1,413
ND-11 MO-10	Walking/Biking	Alternative Mode of Transport	Expanded walking/biking infrastructure and promotion there of shift 46,844,679, 5% of vehicle miles traveled 890,048,895 by all passenger vehicles (excluding transit buses) to bicycle or walking.	Transportation	21,872
MO-40 MO-41 CO-18 CO-19	Avoided Disposal to Landfill	Increase Recycling of Paper Products	20% (1,747 tons) of paper products are recycled rather than disposed of in a landfill.	Solid Waste	5,304
CO-18	Avoided Disposal to Landfill	Compost Food Waste	20% (1,645 tons) of food waste are composted rather than disposed of in a landfill.	Solid Waste	498
				TOTAL	**328,328**

[10] 4.769 million passenger miles at single occupancy equates to 2.981 million vehicle miles at an occupancy factor of 1.6.

2. Municipal-Specific

Measures are divided into the following sectors: buildings, streetlight, transportation[11], water and sewer, and solid waste management.

Measure Number	Measure Type	Measure Name	Assumptions	Sector	CO_2e Reductions (tons)
CO-16 CO-17 MO-27 MO-35	Change in Energy Source	Rooftop and Above Parking Solar	Half of all municipal building' energy demand (2,140,513 kwh) will be met through on-roof and above parking solar. (accounts for energy reductions from 15% savings)	Buildings	1,030
MO-22 MO-23 MO-27 MO-28 ND-13	Energy Efficiency: Buildings	Reduce Electricity Demand	Overall municipal buildings will use 15% less energy compared to BAU as a result of new building design, upgrades to efficient appliances, and retrofit and weatherization of existing buildings. 334,737 kwh will be avoided.	Buildings	161
MO-22 ND-13 ND-14	Energy Efficiency: Buildings	Reduce Natural Gas Use	On average municipal buildings will use 15% less natural gas compared to BAU. 12,850 therms will be avoided.	Buildings	202
MO-12 CO-4	Change in Fuel Type	Replace Diesel with B100	2,348 gallons of diesel is replaced with a B100 blend.	Vehicle Fleet	26
MO-12 MO-13 CO-4	Change in Fuel Type	Replace Gasoline Vehicles with B100	21,457 gallons of gasoline is replaced with a B100 blend.	Vehicle Fleet	213
MO-12 MO-13 CO-4	Change in Fuel Type	Replace Gas Vehicles with Fuel Efficient Models	8,851 gallons are gasoline are avoided by replacing older fleet vehicles with fuel efficient models.	Vehicle Fleet	88

[11] Transportation accounts for vehicles from employee commutes, the Town's vehicle fleet, and the Police Fleet.

Measure Number	Measure Type	Measure Name	Assumptions	Sector	CO_2e Reductions (tons)
MO-19 CO-3 CO-5	Car/Van Pooling	Municipal Rideshare	5 employees participate in a rideshare program saving 22,080 vehicle miles and use a fuel-efficient vehicle that achieved 26.9 miles to the gallon.	Employee Commute	8
MO-20 CO-6	Switch to Public Transport	Public Transit	5 employees use the public transit system to travel to and from work save 27,600 vehicle miles.	Employee Commute	13
CO-4	Increase in Fuel Efficiency	Improve Fleet MPG	On average an employee's passenger vehicle used for work commute achieves 32.2 mpg. Applied to 621,858 vehicle miles traveled (accounts for reductions from rideshare and transit).	Employee Commute	37
MO-9 MO-11	Increase in Fuel Efficiency	Signal Synchronization	On average vehicles achieve an additional 3.864 miles per gallon due to efficiencies gained from signal synchronization. 621,858 miles achieve 36.1 mpg rather than 32.2 mpg.	Employee Commute	20
CO-7 MO-31	Change in Energy Source	Streetlights and Traffic Signals	50% of electricity used for streetlights and traffic signals will come from solar electricity, 405,448 kwh.	Streetlight	195
MO-25 MO-38	Change in Energy Source	Use Solar for Pumping	20% of 2020 kwh used for pumping (174,805 kwh) is generated by green electricity, such as solar.	Water/Sewage	195
MO-25 MO-38	Energy Efficiency: Equipment and Lighting	Use Solar for Upgrade/Install Efficient Pumps	43,701 kwh (5%) are avoided through installation of new and more efficient pumps including replacing existing pumps with efficient models.	Water/Sewage	21
MO-40 MO-41 CO-18	Avoided Disposal to Landfill	Increase Recycling of Paper Products	20% (2.35 tons) of paper products are recycled rather than disposed of in a landfill.	Solid Waste	10
CO-18 ND-27	Avoided Disposal to Landfill	Compost Food Waste	20% (2.21 tons) of food waste are composted rather than disposed of in a landfill.	Solid Waste	1
ND-27 ND-28	Avoided Disposal to Landfill	Recycle Misc. Waste	20% (5.24 tons) of mixed general waste is recycled	Solid Waste	18
				TOTAL	**2,239**

E. GHG Reduction Summary

The Town of Apple Valley may choose to implement a number of policies and programs intended to reduce emissions from greenhouses gases. The purpose of this Plan is to show those measure types and target quantities that are likely to be most effective. A necessary consideration when weighing the effectiveness of each measure is cost of implementation, which is not accounted for in this Climate Action Plan. The above list of quantifiable reduction measures shows that with an aggressive schedule the targeted 15% reduction below 2005 levels can be realized by 2020.

Reduction measure assumptions and reduction calculations have been updated to reflect 2013 emissions and 2020 projections.

1. Community-wide

In the event that all of the reduction measures set forth above were implemented by 2020 and resulted in the projected reduction quantities then the community-wide greenhouse emissions, would be reduced by 407,941 tons of CO_2e. Under the business as usual conditions, GHG emissions are projected to be 1,009,562 tons of CO2e in 2020. A reduction of 407,941 ton of CO2e exceeds the 15% reduction target, bringing the 2020 emission level to 602,071 tons of CO2e with implementation of this CAP.

The updated 2013 community-wide reduction measures set forth above have the potential to result in a 328,328 CO_2e reduction. Under business as usual conditions (2013), GHG emissions are projected to be 812,490 tons of CO2e in 2020. A reduction of 328,328 tons of CO2e exceeds the 15% reduction target, bringing the 2020 emission level to 484,162 tons of CO2e with implementation of the 2013 CAP updates.

2. Municipal-Specific

In the event that all of the reduction measures set forth above were implemented by 2020 and resulted in the projected reduction quantities, then the municipal-specific greenhouse emissions would be reduced by 1,369 tons of CO_2e. Under the business as usual conditions, GHG emissions are projected to be 3,132 tons of CO2e in 2020. A reduction of 1,369 ton of CO2e exceeds the 15% reduction target, bringing the 2020 emission level to 1,763 tons of CO2e with implementation of this CAP.

The updated 2013 municipal-specific reduction measures set forth above have the potential to result in a 2,239 CO_2e reduction. Under business as usual conditions (2013), GHG emissions are projected to be 3,519 tons of CO2e in 2020. A reduction of 2,239 tons of CO2e exceeds the 15% reduction target, bringing the 2020 emission level to 1,280 tons of CO2e with implementation of the 2013 CAP updates.

V. IMPLEMENTATION AND ADMINISTRATION

A. Introduction

This section addresses the steps required by the Town to maintain and update the Climate Action Plan over time. The estimates of potential reduction provided in Section IV will need to be tracked to assure that the Town is meeting its targeted reductions. Since this document assumes certain growth and participation factors which may or may not prove to be accurate, the activities described below will allow the Town to record the actual progress made to meeting reduction targets.

As with the reduction measures, implementation and administration activities associated with the tracking of the Town's progress will be divided between municipal activities and community activities. The Town has greatest control over those measures it can implement itself. Those are also the measures which will be easiest to track. Community activities can be tracked by establishing an information gathering network with local businesses and agencies. A wide range of monitoring options are described below.

B. Implementation and Administration

Annual Activities

Implementation of this CAP will occur at many levels. The monitoring of the Town's reductions will require annual reporting. The activities required to accomplish this reporting effort are detailed below. The annual reports from all departments are to be forwarded to the Community Development Department, which will be responsible for the maintenance of the Town's database for this effort.

Municipal Activities

1. Tabulate the number of new trees planted, and existing trees removed in Town parks, parkways and other open space (Parks Department).
2. Establish a liaison with School District to:
   a. Implement an "adopt a tree" program in Town schools for the planting and maintenance of trees on school grounds and in Town parks. Tabulate number of trees planted as a result.
   b. Tabulate the use of CNG or other alternative fuel school buses used by the District. (Town Manager's Office)
3. Establish and implement a quarterly Greenhouse Gas Reduction class for Town residents and businesses (Parks and Recreation Department).
4. Tabulate the number of intersections at which traffic signals have been synchronized (Town Engineer).
5. Tabulate the new trails, bikeways and sidewalks constructed in linear miles (Town Engineer).
6. Tabulate the number of gasoline and diesel vehicles removed, and the hybrid or electric vehicles added to the Town's vehicle fleet. A minimum of 50% of the Town's new

vehicle purchases shall be hybrid or alternative fuel vehicles, beginning in 2011 (Finance Department).
7. Require reporting of carpool, vanpool and other Transportation Demand Management activities from all businesses subject to the Transportation Demand Management Ordinance in vehicle trips reduced (Community Development Department).
8. Tabulate the carpooling, vanpooling and other activities of Town employee programs in vehicle trips reduced (Community Development Department).
9. Tabulate the new Energy Star rated appliances, and CFL or LED light bulbs installed at Town facilities (Building Department).
10. Tabulate water use at Town facilities (Finance Department).
11. Tabulate electric usage at Town facilities (Finance Department).
12. Tabulate natural gas usage at Town facilities (Finance Department).
13. Tabulate propane usage (if any) for Town equipment or facilities (Finance Department).

Community Activities

1. Tabulate the number of new units constructed at a density of 15 units or more per acre (Building Department).
2. Tabulate the number of new units constructed on infill lots on Bear Valley Road and Highway 18 (Building Department).
3. Tabulate the number of new residential units by type (single family, multi-family), and the square footage of commercial and industrial development constructed (Building Department).
4. Tabulate the number of Energy Star appliances, high efficiency water heaters, pool pumps and pool heaters installed in new residential units (Building Department).
5. Tabulate all alternative energy installations on residential, commercial or industrial buildings (new or additions) (Building Department).
6. Establish a liaison with Southern California Edison and Southwest Gas to:
   a. Collect data on Energy Star appliances, high efficiency pool pumps and other appliances and fixtures replaces in Apple Valley under a rebate or other incentive program.

   (Community Development Department)
7. Tabulate any and all Energy Star appliances installed through a Town-operated rebate program (Town Manager's Office).
8. Track buildings constructed which exceed Title 24 Building Code standards by percentage exceeded (Building Department).
9. Track buildings constructed to LEED, by certification level (Community Development Department).
10. Track solid waste and recycling tonnage generated by Town residents and businesses (Community Development Department).
11. Track the use of B20 or other biodiesel fuel in construction equipment (Town Engineer, Community Development Department).

The annual reports prepared by the Town's departments will be the basis for the Town's GHG Reduction Database. This database will cumulatively record the annual reports.

This database must also include an annual reporting of new units constructed and Town population (Department of Finance annual report). The database will calculate the actual growth in Town, to be used to compare to the growth assumptions used in this document. As less growth will result in lower greenhouse gas emissions, population growth is an important component of the implementation program.

Activities Conducted Every Three Years

Every three years, starting in 2013, the Town will run its Greenhouse Gas Reduction Measures through the program prepared for this document, to determine if its targets are being reached. After each run of the program, Town staff will determine which measures, if any must be modified to reach the Town's reduction targets.

The analysis for each update must be conducted based on known actual activities, and known actual growth rates to be effective. This document assumes a steady annual rate of growth, for example, over the life of the program. In the last three years, however, growth in Town has been significantly less than anticipated, due to economic and market conditions. A lower growth rate will be reflected in greenhouse gas emissions which are less than those anticipated in the model. Conversely, should the Town experience an economic boom in the future, that increased growth should be reflected in the CAP update undertaken at that time. By establishing and maintaining an annual reporting program, the Town can be assured that the data required to conduct the update is available at the time it is needed, and in one database (as described above).

This effort will also require the preparation of a GHG inventory, similar to the one provided in this report, but for the reporting year. The components of the inventory, and the information needed to complete it, are detailed below.

Municipal Activities and Accounts

Electricity

The Town should maintain a list for easy reference of all existing account numbers and account types currently held with SCE that can be updated when new accounts are opened or when existing accounts are closed. This will be implemented through the tracking of usage for Town facilities described above.

Natural Gas

The Town should maintain a list for easy reference of all existing account numbers and account types currently held with Southwest Gas that can be update periodically when new accounts are opened or when existing accounts are closed. This will be implemented through the tracking of usage for Town facilities described above.

Propane

The Town should maintain a list for easy reference of all quantities of propane purchased for municipal use. This will be implemented through the tracking of usage for Town facilities described above.

Transportation
To be consistent with the Community-wide analysis it was assumed that on average Town employees travel 23 miles to work. A polling of employees during reporting years should be conducted to establish the actual commute trip length at the time of each inventory update. The actual number should be input into the model when updates are conducted.

Solid Waste
For purposes of the CAP, it was assumed that Municipal waste generation was consistent with the Community-wide waste generation rate on a per person basis. That is, each employee generates an equivalent amount of waste as a resident. The Town's actual solid waste contribution should be surveyed for total tonnage as well as waste type. Town staff should coordinate with the Town's solid waste hauler to develop a tracking system for annual reporting.

Community Based Activities and Accounts

Electricity
Southern California Edison (SCE's) provided annual electricity usage per rate group including the number of accounts for the inventory in this document. SCE's rate groups are independently defined -- that is there is no direct nexus between residential, commercial, and industrial as defined by SCE, Apple Valley's General Plan, and other utilities. SCE's Hany Elgayar, Business Customer Division Rate & Data Analysis, has indicated that SCE is working to redefine rate groups in order to be able to provide electricity usage reports by sector. A coordinated effort to similarly define rate groups and sectors would assure that similar users are properly grouped together for future inventories.

Natural Gas
While Southwest Gas provided customer categories that include residential, commercial, and industrial sectors, more specific information on account type -- such as defining customer categories -- would confirm consistency with the General Plan's and other utilities' definitions of these sectors.

Propane
For the purpose of the original inventory, propane usage was estimated by taking the difference between the total number of households, (22,455 as reported by DOF) and the average number of residential customer accounts, (22,527 as reported by Southwest Gas). More refined propane usage could be obtained by surveying local and regional propane suppliers. The same tabulation will be required in subsequent inventory years.

Transportation
The CAP uses the General Plan's traffic analysis for community wide traffic count data. Some mobile sources, such as Victor Valley Transit, AV Unified School District and others, can be refined with actual vehicle miles traveled, vehicle type, and fuel use. For future inventory years, base year traffic will be increased by actual growth data, to reflect an accurate growth in vehicle trips. This estimate should be compared to Town Engineer trip counts to assure consistency.

Solid Waste

Actual tonnage by type of waste for the following categories would yield more precise data and would determine which types of waste reduction programs would be most effective: paper products, plant debris, wood/textiles. Should this data not be available for future inventories, tonnage provided by the Town's waste hauler will be required.

Modification of the CAP

If the analysis during any given update cycle shows that the reduction measures must be amended to achieve the stated targets, such an amendment shall be completed by staff during the same year as the update was undertaken. The amended reduction measure assumptions shall be appended to this document, and disseminated to Town staff for implementation. If the amended measures result in an increase of less than 20% in activity (percentage increase over the reduction measure in this document), the change shall not require adoption by the Town Council. If, however, a reduction strategy requires an increase of 21% or more in a reduction strategy, the amended CAP shall be considered by the Town Council, and adopted by Resolution.

Appendix A

2010 CAP Methodology

2010 Climate Action Plan Methodology

An inventory of greenhouse gas emissions requires the collection of information from a variety of sectors and sources. For electricity and natural gas data Southern California Edison (SCE) and Southwest Gas Corporation were consulted. The Traffic Study prepared for Apple Valley's General Plan served as the source of transportation data. Solid waste data was gathered from the California Department of Resource Recycling and Recovery, the County of San Bernardino Solid Waste Management Division (SWMD), and the Victor Valley Materials Recovery Facility. Town staff including Diana McKeen, Environmental and Regulatory Compliance Manager, and Kaye Reynolds, Assistant Director of Finance, were instrumental in providing data on municipal operations and support for the Town-wide inventory and invoice records, respectively.

Apple Valley's community inventory includes all energy consumed within Town limits. This means that even though the electricity used is actually produced elsewhere, this energy and emissions associated with it appears in Apple Valley's inventory. The decision to calculate emissions in this manner reflects the general philosophy that a community should take full ownership of the impacts associated with its energy consumption, regardless of whether the generation occurs within the geographical limits of the community.

Data was assimilated using 2005 as the base year. For utilities and agencies that could not readily provide data for the 2005 year, data was obtained for the closest year available and a reduction factor was applied in order to account for the difference in demand. According to the Department of Finance City/County Population Estimates in 2005 Apple Valley's population size was 63,754 people. In 2008 the Town's population size was 69,654 people. This represents a growth rate of 8.47% over the three year period from 2005 to 2008.[12]

Assimilating data from all utilities and agencies provided the base information needed to build a comprehensive community emissions inventory and a municipal emissions inventory. The Clean Air and Climate Protection (CACP) software, Version 1.1., June 2005, was utilized in order to systematically estimate and track greenhouse gas emissions from energy and waste related activities at the community-wide scale and those resulting directly form municipal operations.

ICLEI's Emissions Analysis Software

To facilitate local government efforts to identify and reduce greenhouse gas emissions, the International Council for Local Environmental Initiatives (ICLEI) developed the Clean Air and Climate Protection (CACP) software package with Torrie Smith Associates. This software estimates emissions derived from energy consumption and waste generation within a community. The CACP software determines emissions using specific factors (or coefficients) according to the type of fuel used.

Emissions are aggregated and reported in terms of carbon dioxide equivalent units, or CO_2e. Converting all emissions to carbon dioxide equivalent units allows for the consideration of different greenhouse gases in comparable terms. As mentioned above, methane is twenty-one

[12] Department of Finance Table E-5A, City/County Population.

times more powerful than carbon dioxide in its capacity to trap heat, so the model converts one ton of methane emissions to 21 tons of CO_2e.

The emissions coefficients and methodology employed by the software are consistent with national and international inventory standards established by the Intergovernmental Panel on Climate Change (1996 Revised IPCC Guidelines for the Preparation of National GHG Emissions Inventories), the U.S. Voluntary Greenhouse Gas Reporting Guidelines (EIA form1605), and, for emissions generated from solid waste, the U.S. EPA's Waste Reduction Model (WARM).

Although the software provides Apple Valley with a sophisticated and useful tool, calculating emissions from energy use with precision is difficult. The model depends upon numerous assumptions, and it is limited by the quantity and quality of available data. With this in mind, it is useful to think of any specific number generated by the model as an approximation rather than an exact value.

Appendix B

CACP Output Tables

Apple Valley

Community Greenhouse Gas Emissions in 2013

Summary Report

	CO_2 (tons)	N_2O (lbs)	CH_4 (lbs)	Equiv CO_2 (tons)	(%)	Energy (kWh)
Residential	143,713	2,509	21,241	144,325	21.7	591,342,028
Commercial	49,895	1,216	5,853	50,145	7.5	182,291,198
Industrial	1,361	41	121	1,368	0.2	4,450,796
Transportation	458,996	13,425	26,726	461,357	69.3	1,713,198,372
Waste	0	0	809,478	8,500	1.3	
Total	653,965	17,190	863,418	665,695	100.0	2,491,282,394

This report has been generated for Apple Valley, California using ICLEI's Clean Air and Climate Protection 2009 Software.

Community Greenhouse Gas Emissions in 2013
Detailed Report

	CO_2 (tons)	N_2O (lbs)	CH_4 (lbs)	Equiv CO_2 (tons)	(%)	Energy (kWh)
Residential						
Apple Valley, California						
Residential						
Electricity	67,975	2,155	6,249	68,375	10.3	215,490,704
Natural Gas	71,263	269	13,431	71,446	10.7	356,992,753
Propane	4,475	85	1,561	4,504	0.7	18,858,571
Subtotal Residential	143,713	2,509	21,241	144,325	21.7	591,342,028
Propane: 25,552 natural gas customers (Southwest Gas), assume 707 homes are using propane at 1,000 gal/year/household.						
Subtotal Residential	143,713	2,509	21,241	144,325	21.7	591,342,028
Commercial						
Apple Valley, California						
Commercial						
Electricity	36,784	1,166	3,382	37,001	5.6	116,611,263
Natural Gas	13,111	49	2,471	13,145	2.0	65,679,935
Subtotal Commercial	49,895	1,216	5,853	50,145	7.5	182,291,198
Subtotal Commercial	49,895	1,216	5,853	50,145	7.5	182,291,198
Industrial						
Apple Valley, California						
Industrial						
Electricity	1,286	41	118	1,294	0.2	4,077,631
Natural Gas	74	0	3	75	0.0	373,165
Subtotal Industrial	1,361	41	121	1,368	0.2	4,450,796
Subtotal Industrial	1,361	41	121	1,368	0.2	4,450,796
Transportation						
Apple Valley, California						
Personal Vehicles						
Diesel	76,424	424	282	76,492	11.5	277,700,203
Gasoline	381,850	12,751	23,727	384,075	57.7	1,431,963,737
Subtotal Personal Vehicles	458,273	13,176	24,009	460,568	69.2	1,709,663,939
776,790,000 vehicle miles traveled in 2005 X 1.3% annual growth rate for each year through 2013. Equals 861,349,070 VMT for 2013, 15%						

This report has been generated for Apple Valley, California using ICLEI's Clean Air and Climate Protection 2009 Software.

Community Greenhouse Gas Emissions in 2013
Detailed Report

	CO_2 (tons)	N_2O (lbs)	CH_4 (lbs)	Equiv CO_2 (tons)	(%)	Energy (kWh)
(129,202,360) assumed diesel						
Transit						
Compressed Natural Gas	655	241	2,707	721	0.1	3,280,868
Gasoline	68	8	9	69	0.0	253,564
Subtotal Transit	723	249	2,717	790	0.1	3,534,433
Transit:CNG = 624,664 vmt; Gasoline = 33,973 vmt						
Subtotal Transportation	458,996	13,425	26,726	461,357	69.3	1,713,198,372
Waste						
Apple Valley, California						
Community Waste						*Disposal Method - Managed Landfill*
Paper Products	0	0	398,012	4,179	0.6	
Food Waste	0	0	212,037	2,226	0.3	
Plant Debris	0	0	52,568	552	0.1	
Wood or Textiles	0	0	145,776	1,531	0.2	
Subtotal Community Waste	0	0	808,392	8,488	1.3	
Waste share estimates based on "California 2008 Statewide Waste Characterization Study," prepared by Cascadia Consulting Group, August 2009.						
Municipal Waste						*Disposal Method - Managed Landfill*
Paper Products	0	0	534	6	0.0	
Food Waste	0	0	285	3	0.0	
Plant Debris	0	0	71	1	0.0	
Wood or Textiles	0	0	196	2	0.0	
Subtotal Municipal Waste	0	0	1,085	11	0.0	
Municipal Waste: 45,987 tons (disposed in entire Town) divided by 70, 436 residents = 0.65 tons/resident disposed in 2013. 95 Full time employees X 0.65 tons = 61.75 tons disposed in 2013.						
Subtotal Waste	0	0	809,478	8,500	1.3	
Total	653,965	17,190	863,418	665,695	100.0	2,491,282,394

Apple Valley

Community Greenhouse Gas Emissions in 2020

Summary Report

	CO_2 (tons)	N_2O (lbs)	CH_4 (lbs)	Equiv CO_2 (tons)	(%)	Energy (kWh)
Residential	221,914	4,169	31,401	222,890	27.7	893,300,422
Commercial	66,821	1,698	7,597	67,164	8.3	239,529,357
Industrial	1,521	46	135	1,529	0.2	4,973,861
Transportation	502,429	14,695	29,255	505,014	62.6	1,875,312,842
Waste	0	0	904,609	9,498	1.2	
Total	792,684	20,607	972,997	806,095	100.0	3,013,116,482

This report has been generated for Apple Valley, California using ICLEI's Clean Air and Climate Protection 2009 Software.

Community Greenhouse Gas Emissions in 2020
Detailed Report

	CO_2 (tons)	N_2O (lbs)	CH_4 (lbs)	Equiv CO_2 (tons)	(%)	Energy (kWh)
Residential						
Apple Valley, California						
Residential						
Electricity	116,500	3,693	10,710	117,185	14.5	369,313,198
Natural Gas	100,274	378	18,898	100,531	12.5	502,324,653
Propane	5,140	98	1,793	5,174	0.6	21,662,570
Subtotal Residential	221,914	4,169	31,401	222,890	27.7	893,300,422
Propane: 25,552 natural gas customers (Southwest Gas), assume 707 homes are using propane at 1,000 gal/year/household.						
Subtotal Residential	221,914	4,169	31,401	222,890	27.7	893,300,422
Commercial						
Apple Valley, California						
Commercial						
Electricity	51,760	1,641	4,758	52,065	6.5	164,083,757
Natural Gas	15,060	57	2,838	15,099	1.9	75,445,600
Subtotal Commercial	66,821	1,698	7,597	67,164	8.3	239,529,357
Subtotal Commercial	66,821	1,698	7,597	67,164	8.3	239,529,357
Industrial						
Apple Valley, California						
Industrial						
Electricity	1,437	46	132	1,446	0.2	4,556,841
Natural Gas	83	0	3	83	0.0	417,020
Subtotal Industrial	1,521	46	135	1,529	0.2	4,973,861
Subtotal Industrial	1,521	46	135	1,529	0.2	4,973,861
Transportation						
Apple Valley, California						
Personal Vehicles						
Diesel	83,655	465	309	83,731	10.4	303,978,113
Gasoline	417,983	13,958	25,973	420,419	52.2	1,567,466,030
Subtotal Personal Vehicles	501,638	14,423	26,281	504,150	62.5	1,871,444,142
776,790,000 vehicle miles traveled in 2005 X 1.3% annual growth rate for each year through 2013. Equals 861,349,070 VMT for 2013, 15%						

This report has been generated for Apple Valley, California using ICLEI's Clean Air and Climate Protection 2009 Software.

Community Greenhouse Gas Emissions in 2020
Detailed Report

	CO_2 (tons)	N_2O (lbs)	CH_4 (lbs)	Equiv CO_2 (tons)	(%)	Energy (kWh)
(129,202,360) assumed diesel						
Transit						
Compressed Natural Gas	717	264	2,964	789	0.1	3,591,327
Gasoline	74	8	10	75	0.0	277,373
Subtotal Transit	791	272	2,974	864	0.1	3,868,699
Transit:CNG = 624,664 vmt; Gasoline = 33,973 vmt						
Subtotal Transportation	502,429	14,695	29,255	505,014	62.6	1,875,312,842
Waste						
Apple Valley, California						
Community Waste						*Disposal Method - Managed Landfill*
Paper Products	0	0	444,787	4,670	0.6	
Food Waste	0	0	236,956	2,488	0.3	
Plant Debris	0	0	58,745	617	0.1	
Wood or Textiles	0	0	162,907	1,711	0.2	
Subtotal Community Waste	0	0	903,396	9,486	1.2	
Waste share estimates based on "California 2008 Statewide Waste Characterization Study," prepared by Cascadia Consulting Group, August 2009.						
Municipal Waste						*Disposal Method - Managed Landfill*
Paper Products	0	0	597	6	0.0	
Food Waste	0	0	318	3	0.0	
Plant Debris	0	0	79	1	0.0	
Wood or Textiles	0	0	219	2	0.0	
Subtotal Municipal Waste	0	0	1,213	13	0.0	
Municipal Waste: 45,987 tons (disposed in entire Town) divided by 70, 436 residents = 0.65 tons/resident disposed in 2013. 95 Full time employees X 0.65 tons = 61.75 tons disposed in 2013.						
Subtotal Waste	0	0	904,609	9,498	1.2	
Total	792,684	20,607	972,997	806,095	100.0	3,013,116,482

Apple Valley

Community Greenhouse Gas Emissions Reductions in 2020

Target Year Measures Summary

Measures Summary	CO_2 (tons)	N_2O (lbs)	CH_4 (lbs)	Equiv CO_2 (tons)	(%)	Energy (kWh)	Energy Cost Savings ($)
Residential Sector	80,063	1,497	7,119	80,370	24.5	219,013,500	0
Commercial Sector	31,690	703	2,081	31,821	9.7	69,865,362	0
Industrial Sector	1,074	24	65	1,079	0.3	2,276,367	0
Transportation Sector	204,088	31,888	21,568	209,258	63.7	760,363,227	0
Waste Sector	0	0	555,264	5,830	1.8		0
Total	316,916	34,112	586,096	328,357	100.0	1,051,518,456	0

Apple Valley

Community Greenhouse Gas Emissions Reductions in 2020

Target Year Measures Detailed Report

	CO_2 (tons)	N_2O (lbs)	CH_4 (lbs)	Equiv CO_2 (tons)	Equiv CO_2 (%)	Energy (kWh)	Energy Cost Savings ($)
Residential Sector							
Apple Valley, California							
Change in Energy Source							
Expand Rooftop Solar	19,365	444	1,172	19,447	5.9	40,408,243	0
Energy Efficiency: Appliances and Equipment							
New Homes Natural Gas	3,040	11	573	3,048	0.9	15,228,382	0
Upgrade Existing Home Appli	30,501	700	1,846	30,629	9.3	63,644,842	0
Upgrade Natural Gas Applian	14,734	56	2,777	14,772	4.5	73,812,033	0
Energy Efficiency: Buildings							
New Home Efficiency	12,422	285	752	12,474	3.8	25,920,000	0
Subtotal Residential	80,063	1,497	7,119	80,370	24.5	219,013,500	0
Commercial Sector							
Apple Valley, California							
Energy Efficiency: Buildings							
Exisitng Account Retrofit and	27,942	641	1,691	28,059	8.5	58,304,859	0
Existing Accound Retrofit and	656	2	124	658	0.2	3,287,460	0
Whole Building Electric	2,468	57	149	2,478	0.8	5,149,956	0
Whole Bulding Natural Gas	623	2	117	625	0.2	3,123,087	0
Subtotal Commercial	31,690	703	2,081	31,821	9.7	69,865,362	0
Industrial Sector							
Apple Valley, California							
Energy Efficiency: Buildings							
Existing Account Retrofit and	7	0	0	7	0.0	37,358	0
Existing Retrofit and Upgrade	977	22	59	981	0.3	2,038,815	0
Whole Building Electric	86	2	5	86	0.0	178,425	0
Whole Building Natural Gas	4	0	0	4	0.0	21,770	0
Subtotal Industrial	1,074	24	65	1,079	0.3	2,276,367	0

Apple Valley

Community Greenhouse Gas Emissions Reductions in 2020
Target Year Measures Detailed Report

	CO_2 (tons)	N_2O (lbs)	CH_4 (lbs)	Equiv CO_2 (tons)	(%)	Energy (kWh)	Energy Cost Savings ($)
Transportation Sector							
Apple Valley, California							
Change in Fuel Type or Technology							
Light Truck Fuel Economy	12,608	0	0	12,608	3.8	45,812,332	0
Use CNG for Transit Buses	35	-6	-151	32	0.0	82,055	0
Increase in Fuel Efficiency							
Elevate Number of Fuel Effici	50,952	16,875	10,282	53,676	16.3	191,074,139	0
Land Use Related							
Mixed Use Reduces Miles for	64,228	11,538	10,910	66,131	20.1	240,861,366	0
Mixed Uses Reduces Miles fo	16,731	93	62	16,746	5.1	60,795,621	0
Other VMT Reduction							
Free Transit Pass	1,453	43	-2,698	1,431	0.4	4,536,294	0
Rideshare at Businesses	2,516	309	292	2,567	0.8	9,435,411	0
Signal Synchronization for	28,073	0	0	28,073	8.5	105,277,153	0
Signal Synchronization forTru	6,045	0	0	6,045	1.8	21,967,408	0
Town-Wide Synchronization f	76	0	0	76	0.0	378,665	0
Walking/Biking							
Alternative Mode of Transport	21,371	3,036	2,871	21,872	6.7	80,142,784	0
Subtotal Transportation	204,088	31,888	21,568	209,258	63.7	760,363,227	0
Waste Sector							
Apple Valley, California							
Landfilling to Composting							
Compost Food Waste	0	0	47,405	498	0.2		0
Landfilling to Recycling							
Municipal- Recycle Misc. Was	0	0	1,740	18	0.0		0
Landfilling to Composting							
Municipal-Compost Food Was	0	0	64	1	0.0		0

Apple Valley

Community Greenhouse Gas Emissions Reductions in 2020

Target Year Measures Detailed Report

	CO_2 (tons)	N_2O (lbs)	CH_4 (lbs)	Equiv CO_2 (tons)	(%)	Energy (kWh)	Energy Cost Savings ($)
Landfilling to Recycling							
Municipal-Increase Recycling	0	0	935	10	0.0		0
Recycling Paper Products	0	0	505,121	5,304	1.6		0
Subtotal Waste	0	0	555,264	5,830	1.8		0
Total	316,916	34,112	586,096	328,357	100.0	1,051,518,456	0

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Residential Sector **Location of Measure: Apple Valley, California**

Type of Measure: Change in Energy Source

Measure Name

Expand Rooftop Solar

Measure Details

Initial Energy Source	Replacement Energy Source
Electricity	Green Electricity

Usage Before	40,408,243	Usage After	0
Unit	(kWh)	Unit	(kWh)
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	19,365
Year Implemented		N2O Reduction (lbs)	444
Implementation Cost	$0	CH4 Reduction (lbs)	1,172
Energy Reduction (kWh)	40,408,243	Emission Reduction (tons eCO2)	19,447
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *5.9%*

This emission reduction as a percentage of emission reductions required to meet target: *11.2%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

Replace 40,408,243 kwh annually with solar, which equates to 15% of forecast 2020

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Residential Sector **Location of Measure: Apple Valley, California**

Type of Measure: Energy Efficiency: Appliances and Equipment

Measure Name

New Homes Natural Gas Efficiency

Measure Details

Affected Energy Source 1		Affected Energy Source 2 (Optional)	
Natural Gas			
Residential			
Energy Reduction	519,740	Energy Reduction	0
Unit	(therms)	Unit	
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	3,040
Year Implemented		N2O Reduction (lbs)	11
Implementation Cost	$0	CH4 Reduction (lbs)	573
Energy Reduction (kWh)	15,228,382	Emission Reduction (tons eCO2)	3,048
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *0.9%*

This emission reduction as a percentage of emission reductions required to meet target: *1.8%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
4	0	1	0	0	0

Full Description of Measure

4,800 homes built after 2013 save 18% (519,740) therms.

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Residential Sector **Location of Measure: Apple Valley, California**

Type of Measure: Energy Efficiency: Appliances and Equipment

Measure Name

Upgrade Existing Home Appliances

Measure Details

Affected Energy Source 1		Affected Energy Source 2 (Optional)	
Electricity			
Energy Reduction	63,644,842	Energy Reduction	0
Unit	(kWh)	Unit	
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	30,501
Year Implemented		N2O Reduction (lbs)	700
Implementation Cost	$0	CH4 Reduction (lbs)	1,846
Energy Reduction (kWh)	63,644,842	Emission Reduction (tons eCO2)	30,629
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *9.3%*

This emission reduction as a percentage of emission reductions required to meet target: *17.6%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

Upgrade 23,727 homes- save 63,644,842 kwh

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Residential Sector **Location of Measure: Apple Valley, California**

Type of Measure: Energy Efficiency: Appliances and Equipment

Measure Name

Upgrade Natural Gas Appliances

Measure Details

Affected Energy Source 1		Affected Energy Source 2 (Optional)	
Natural Gas			
Residential			
Energy Reduction	2,519,182	Energy Reduction	0
Unit	(therms)	Unit	
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	14,734
Year Implemented		N2O Reduction (lbs)	56
Implementation Cost	$0	CH4 Reduction (lbs)	2,777
Energy Reduction (kWh)	73,812,033	Emission Reduction (tons eCO2)	14,772
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *4.5%*

This emission reduction as a percentage of emission reductions required to meet target: *8.5%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
20	1	5	1	1	0

Full Description of Measure

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Residential Sector **Location of Measure: Apple Valley, California**

Type of Measure: Energy Efficiency: Buildings

Measure Name

New Home Efficiency

Measure Details

Affected Energy Source 1		Affected Energy Source 2 (Optional)	
Electricity			
Energy Reduction	25,920,000	Energy Reduction	0
Unit	(kWh)	Unit	
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	12,422
Year Implemented		N2O Reduction (lbs)	285
Implementation Cost	$0	CH4 Reduction (lbs)	752
Energy Reduction (kWh)	25,920,000	Emission Reduction (tons eCO2)	12,474
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *3.8%*

This emission reduction as a percentage of emission reductions required to meet target: *7.2%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Commercial Sector **Location of Measure: Apple Valley, California**

Type of Measure: Energy Efficiency: Buildings

Measure Name

Exisitng Account Retrofit and Upgrade (Electric)

Measure Details

Affected Energy Source 1		Affected Energy Source 2 (Optional)	
Electricity			
Energy Reduction	58,304,859	Energy Reduction	0
Unit	(kWh)	Unit	
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	27,942
Year Implemented		N2O Reduction (lbs)	641
Implementation Cost	$0	CH4 Reduction (lbs)	1,691
Energy Reduction (kWh)	58,304,859	Emission Reduction (tons eCO2)	28,059
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *8.5%*

This emission reduction as a percentage of emission reductions required to meet target: *16.2%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Commercial Sector **Location of Measure: Apple Valley, California**

Type of Measure: Energy Efficiency: Buildings

Measure Name

Existing Accound Retrofit and Upgrade (Natural Gas)

Measure Details

Affected Energy Source 1		Affected Energy Source 2 (Optional)	
Natural Gas			
Commercial			
Energy Reduction	112,200	Energy Reduction	0
Unit	(therms)	Unit	
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	656
Year Implemented		N2O Reduction (lbs)	2
Implementation Cost	$0	CH4 Reduction (lbs)	124
Energy Reduction (kWh)	3,287,460	Emission Reduction (tons eCO2)	658
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *0.2%*

This emission reduction as a percentage of emission reductions required to meet target: *0.4%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
1	0	0	0	0	0

Full Description of Measure

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Commercial Sector **Location of Measure: Apple Valley, California**

Type of Measure: Energy Efficiency: Buildings

Measure Name

Whole Building Electric

Measure Details

Affected Energy Source 1		Affected Energy Source 2 (Optional)	
Electricity			
Energy Reduction	5,149,956	Energy Reduction	0
Unit	(kWh)	Unit	
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	2,468
Year Implemented		N2O Reduction (lbs)	57
Implementation Cost	$0	CH4 Reduction (lbs)	149
Energy Reduction (kWh)	5,149,956	Emission Reduction (tons eCO2)	2,478
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *0.8%*

This emission reduction as a percentage of emission reductions required to meet target: *1.4%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Commercial Sector **Location of Measure: Apple Valley, California**

Type of Measure: Energy Efficiency: Buildings

Measure Name

Whole Bulding Natural Gas

Measure Details

Affected Energy Source 1		Affected Energy Source 2 (Optional)	
Natural Gas			
Commercial			
Energy Reduction	106,590	Energy Reduction	0
Unit	(therms)	Unit	
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	623
Year Implemented		N2O Reduction (lbs)	2
Implementation Cost	$0	CH4 Reduction (lbs)	117
Energy Reduction (kWh)	3,123,087	Emission Reduction (tons eCO2)	625
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *0.2%*

This emission reduction as a percentage of emission reductions required to meet target: *0.4%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
1	0	0	0	0	0

Full Description of Measure

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Industrial Sector **Location of Measure: Apple Valley, California**

Type of Measure: Energy Efficiency: Buildings

Measure Name

Existing Account Retrofit and Upgrade (Natural Gas)

Measure Details

Affected Energy Source 1		Affected Energy Source 2 (Optional)	
Natural Gas			
Industrial			
Energy Reduction	1,275	Energy Reduction	0
Unit	(therms)	Unit	
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	7
Year Implemented		N2O Reduction (lbs)	0
Implementation Cost	$0	CH4 Reduction (lbs)	0
Energy Reduction (kWh)	37,358	Emission Reduction (tons eCO2)	7
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *0.0%*

This emission reduction as a percentage of emission reductions required to meet target: *0.0%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

Average industrial account uses 4,245 therms annually. Reduce by 10% per account (3 accounts in 2013) will savea total of 1,275 therms.

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Industrial Sector **Location of Measure: Apple Valley, California**

Type of Measure: Energy Efficiency: Buildings

Measure Name

Existing Retrofit and Upgrade (Electric)

Measure Details

Affected Energy Source 1		Affected Energy Source 2 (Optional)	
Electricity			
Energy Reduction	2,038,815	Energy Reduction	0
Unit	(kWh)	Unit	
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	977
Year Implemented		N2O Reduction (lbs)	22
Implementation Cost	$0	CH4 Reduction (lbs)	59
Energy Reduction (kWh)	2,038,815	Emission Reduction (tons eCO2)	981
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *0.3%*

This emission reduction as a percentage of emission reductions required to meet target: *0.6%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

557 industrial accounts (in 2013) achieve 50% savings from 4,007,631 annual kwh to 2,038,815 annual kwh

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Industrial Sector **Location of Measure: Apple Valley, California**

Type of Measure: Energy Efficiency: Buildings

Measure Name

Whole Building Electric

Measure Details

Affected Energy Source 1		Affected Energy Source 2 (Optional)	
Electricity			
Energy Reduction	178,425	Energy Reduction	0
Unit	(kWh)	Unit	
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	86
Year Implemented		N2O Reduction (lbs)	2
Implementation Cost	$0	CH4 Reduction (lbs)	5
Energy Reduction (kWh)	178,425	Emission Reduction (tons eCO2)	86
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *0.0%*

This emission reduction as a percentage of emission reductions required to meet target: *0.0%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

75% (50) of new industrial acounts in 2020 uses 50% less electricity compared to BAU, saving 178,425 kwh annually.

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Industrial Sector **Location of Measure: Apple Valley, California**

Type of Measure: Energy Efficiency: Buildings

Measure Name

Whole Building Natural Gas

Measure Details

Affected Energy Source 1		Affected Energy Source 2 (Optional)	
Natural Gas			
Industrial			
Energy Reduction	743	Energy Reduction	0
Unit	(therms)	Unit	
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	4
Year Implemented		N2O Reduction (lbs)	0
Implementation Cost	$0	CH4 Reduction (lbs)	0
Energy Reduction (kWh)	21,770	Emission Reduction (tons eCO2)	4
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *0.0%*

This emission reduction as a percentage of emission reductions required to meet target: *0.0%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

New industrial accounts use 50% less natural gas compared to BAU, saving 743 therms annually

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Transportation Sector **Location of Measure: Apple Valley, California**

Type of Measure: Change in Fuel Type or Technology

Measure Name

Light Truck Fuel Economy

Measure Details

Initial Fuel and Vehicle Type	Replacement Fuel and Vehicle Type
Diesel	Diesel
Light Trucks Alt. Method	Light Trucks Alt. Method

Usage Before	129,202,400	Usage After	129,202,400
Unit	(vehicle-miles)	Unit	(vehicle-miles)
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	12,608
Year Implemented		N2O Reduction (lbs)	0
Implementation Cost	$0	CH4 Reduction (lbs)	0
Energy Reduction (kWh)	45,812,332	Emission Reduction (tons eCO2)	12,608
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *3.8%*

This emission reduction as a percentage of emission reductions required to meet target: *7.3%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

Diesel engines increase fuel economy by 20% for light trucks.

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Transportation Sector **Location of Measure: Apple Valley, California**

Type of Measure: Change in Fuel Type or Technology

Measure Name

Use CNG for Transit Buses

Measure Details

Initial Fuel and Vehicle Type	Replacement Fuel and Vehicle Type
Gasoline	Compressed Natural Gas
Heavy Duty Vehicles Alt. Method	Heavy Duty Vehicles

Usage Before	37,188	Usage After	37,188
Unit	(vehicle-miles)	Unit	(vehicle-miles)
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	35
Year Implemented		N2O Reduction (lbs)	-6
Implementation Cost	$0	CH4 Reduction (lbs)	-151
Energy Reduction (kWh)	82,055	Emission Reduction (tons eCO2)	32
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *0.0%*

This emission reduction as a percentage of emission reductions required to meet target: *0.0%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	1	0	0	0

Full Description of Measure

All transit miles (37,188) oprating on gasoline fuel

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Transportation Sector **Location of Measure: Apple Valley, California**

Type of Measure: Increase in Fuel Efficiency

Measure Name

Elevate Number of Fuel Efficient Vehicles

Measure Details

Initial Fuel and Vehicle Type	Replacement Fuel and Vehicle Type
Gasoline	Gasoline
Passenger Cars Alt. Method	Passenger Cars MY 2005

Usage Before	356,019,558	Usage After	356,019,558
Unit	(vehicle-miles)	Unit	(vehicle-miles)
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	50,952
Year Implemented		N2O Reduction (lbs)	16,875
Implementation Cost	$0	CH4 Reduction (lbs)	10,282
Energy Reduction (kWh)	191,074,139	Emission Reduction (tons eCO2)	53,676
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *16.3%*

This emission reduction as a percentage of emission reductions required to meet target: *30.9%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
-147	-7	0	-61	0	0

Full Description of Measure

50% of community vehicles (356,019,558 VMT) is replaced with fuel efficient models to achieve an average 46 miles/gallon (for hybrids) as opposed to 18.6 miles per gallon.

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Transportation Sector **Location of Measure: Apple Valley, California**

Type of Measure: Land Use Related

Measure Name

Mixed Use Reduces Miles for Passenger Vehicles

Measure Details

Initial Fuel and Vehicle Type		Replacement Fuel and Vehicle Type	
Gasoline			
Passenger Cars Alt. Method			
Usage Before	178,009,779	Usage After	0
Unit	(vehicle-miles)	Unit	
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	64,228
Year Implemented		N2O Reduction (lbs)	11,538
Implementation Cost	$0	CH4 Reduction (lbs)	10,910
Energy Reduction (kWh)	240,861,366	Emission Reduction (tons eCO2)	66,131
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *20.1%*

This emission reduction as a percentage of emission reductions required to meet target: *38.1%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
189	11	2,816	258	6	0

Full Description of Measure

Total miles traveld reduced 20% (savings of 178,009,779 miles)

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Transportation Sector **Location of Measure: Apple Valley, California**

Type of Measure: Land Use Related

Measure Name

Mixed Uses Reduces Miles for Trucks

Measure Details

Initial Fuel and Vehicle Type		Replacement Fuel and Vehicle Type	
Diesel		Diesel	
Light Trucks Alt. Method		Light Trucks Alt. Method	
Usage Before	28,285,675	Usage After	0
Unit	(vehicle-miles)	Unit	(vehicle-miles)
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	16,731
Year Implemented		N2O Reduction (lbs)	93
Implementation Cost	$0	CH4 Reduction (lbs)	62
Energy Reduction (kWh)	60,795,621	Emission Reduction (tons eCO2)	16,746
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *5.1%*

This emission reduction as a percentage of emission reductions required to meet target: *9.6%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
9	4	11	6	3	0

Full Description of Measure

Miles traveked for trucks using diesel with a fuel economy of is reduced by 20%, a savings of 28,285,675 miles

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Transportation Sector **Location of Measure: Apple Valley, California**

Type of Measure: Other VMT Reduction

Measure Name

Free Transit Pass

Measure Details

Initial Fuel and Vehicle Type	Replacement Fuel and Vehicle Type
Gasoline	Compressed Natural Gas
Passenger Cars Alt. Method	Buses

Usage Before	4,769,832	Usage After	690,000
Unit	(vehicle-miles)	Unit	(vehicle-miles)
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	1,453
Year Implemented		N2O Reduction (lbs)	43
Implementation Cost	$0	CH4 Reduction (lbs)	-2,698
Energy Reduction (kWh)	4,536,294	Emission Reduction (tons eCO2)	1,431
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *0.4%*

This emission reduction as a percentage of emission reductions required to meet target: *0.8%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
2	0	68	6	0	0

Full Description of Measure

690,000 VMT CNG buses replace 4,769,832 VMT passenger vehciles. (5% of 2020 employees (864) use bus at occupancy rate of 6.9. 864/6.9=125; 125 x 23 x 5 x 4 x 12= 690,000)

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Transportation Sector **Location of Measure: Apple Valley, California**

Type of Measure: Other VMT Reduction

Measure Name

Rideshare at Businesses

Measure Details

Initial Fuel and Vehicle Type	Replacement Fuel and Vehicle Type
Gasoline	Gasoline
Passenger Cars Alt. Method	Passenger Cars Alt. Method

Usage Before	4,769,832	Usage After	0
Unit	(vehicle-miles)	Unit	(vehicle-miles)
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	2,516
Year Implemented		N2O Reduction (lbs)	309
Implementation Cost	$0	CH4 Reduction (lbs)	292
Energy Reduction (kWh)	9,435,411	Emission Reduction (tons eCO2)	2,567
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *0.8%*

This emission reduction as a percentage of emission reductions required to meet target: *1.5%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
5	0	75	7	0	0

Full Description of Measure

5% of 2020 employees (864 of 17,282) participate. Ridesharing replaces 4,769,832 passenger miles traveled by single occupancy vehicles with an occupancy rate of 5 employees per vehicle. The ride share vehicle averages 26.96 mpg compared to 18.4 mpg under BAU.

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Transportation Sector **Location of Measure: Apple Valley, California**

Type of Measure: Other VMT Reduction

Measure Name

Signal Synchronization for Passenger Vehicles

Measure Details

Initial Fuel and Vehicle Type	Replacement Fuel and Vehicle Type
Gasoline	Gasoline
Passenger Cars Alt. Method	Passenger Cars Alt. Method

Usage Before	712,039,116	Usage After	712,039,116
Unit	(vehicle-miles)	Unit	(vehicle-miles)
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	28,073
Year Implemented		N2O Reduction (lbs)	0
Implementation Cost	$0	CH4 Reduction (lbs)	0
Energy Reduction (kWh)	105,277,153	Emission Reduction (tons eCO2)	28,073
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *8.5%*

This emission reduction as a percentage of emission reductions required to meet target: *16.2%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

Increase fuel efficiency by 12% for all passenger vehicles. 712,039,116 VMT (after accounting for reduction in miles from ridesharing, transit, alt. modes of transport and land use efficiencies) achieve 12% increase in fuel efficiency from 26.9 mpg to 30.2 mpg.

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Transportation Sector **Location of Measure: Apple Valley, California**

Type of Measure: Other VMT Reduction

Measure Name

Signal Synchronization forTrucks

Measure Details

Initial Fuel and Vehicle Type		Replacement Fuel and Vehicle Type	
Diesel		Diesel	
Light Trucks Alt. Method		Light Trucks Alt. Method	
Usage Before	113,142,703	Usage After	113,142,703
Unit	(vehicle-miles)	Unit	(vehicle-miles)
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	6,045
Year Implemented		N2O Reduction (lbs)	0
Implementation Cost	$0	CH4 Reduction (lbs)	0
Energy Reduction (kWh)	21,967,408	Emission Reduction (tons eCO2)	6,045
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *1.8%*

This emission reduction as a percentage of emission reductions required to meet target: *3.5%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

Community-wide signal synchonization for trucks would increase fuel efficiency by 12%. 113,142,703 VMT achive 12% fuel efficiency (after accounting for reduction i miles from fuel economy efficiences) from 20.3 miles/gal to

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Transportation Sector **Location of Measure: Apple Valley, California**

Type of Measure: Other VMT Reduction

Measure Name

Town-Wide Synchronization for Transit Bus

Measure Details

Initial Fuel and Vehicle Type	Replacement Fuel and Vehicle Type
Compressed Natural Gas	Compressed Natural Gas
Buses	Buses

Usage Before	720,962	Usage After	720,962
Unit	(vehicle-miles)	Unit	(vehicle-miles)
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	76
Year Implemented		N2O Reduction (lbs)	0
Implementation Cost	$0	CH4 Reduction (lbs)	0
Energy Reduction (kWh)	378,665	Emission Reduction (tons eCO2)	76
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *0.0%*

This emission reduction as a percentage of emission reductions required to meet target: *0.0%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

Increase fuel efficiency in transit buses by 12%. 720,962 VMT achieve 12% from 6.9 miles per gallon

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Transportation Sector **Location of Measure: Apple Valley, California**

Type of Measure: Walking/Biking

Measure Name

Alternative Mode of Transportation

Measure Details

Initial Fuel and Vehicle Type		Replacement Fuel and Vehicle Type	
Gasoline			
Passenger Cars Alt. Method			
Usage Before	46,844,679	Usage After	0
Unit	(vehicle-miles)	Unit	
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	21,371
Year Implemented		N2O Reduction (lbs)	3,036
Implementation Cost	$0	CH4 Reduction (lbs)	2,871
Energy Reduction (kWh)	80,142,784	Emission Reduction (tons eCO2)	21,872
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *6.7%*

This emission reduction as a percentage of emission reductions required to meet target: *12.6%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
50	3	741	68	2	0

Full Description of Measure

5% of all VMT (46,844,679) shift to walking and biking

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Waste Sector **Location of Measure: Apple Valley, California**

Type of Measure: Landfilling to Composting

Measure Name

Compost Food Waste

Measure Details

Waste Type Affected
Food Waste

Amount of Waste	1,645		
Unit	(tons)		
Price per Unit	$.00		
Ramp-In Factor	100%	CO2 Reduction (tons)	0
Year Implemented		N2O Reduction (lbs)	0
Implementation Cost	$0	CH4 Reduction (lbs)	47,405
		Emission Reduction (tons eCO2)	498
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *0.2%*

This emission reduction as a percentage of emission reductions required to meet target: *0.3%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

20% of food waste (1,645 tons)

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Waste Sector **Location of Measure: Apple Valley, California**

Type of Measure: Landfilling to Recycling

Measure Name

Municipal- Recycle Misc. Waste

Measure Details

Waste Type Affected
Mixed Recyclables

Amount of Waste	5		
Unit	(tons)		
Price per Unit	$.00		
Ramp-In Factor	100%	CO2 Reduction (tons)	0
Year Implemented		N2O Reduction (lbs)	0
Implementation Cost	$0	CH4 Reduction (lbs)	1,740
		Emission Reduction (tons eCO2)	18
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *0.0%*

This emission reduction as a percentage of emission reductions required to meet target: *0.0%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

20% (5.24 tons)mixed general waste recycled

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Waste Sector **Location of Measure: Apple Valley, California**

Type of Measure: Landfilling to Composting

Measure Name

Municipal-Compost Food Waste

Measure Details

Waste Type Affected
Food Waste

Amount of Waste	2		
Unit	(tons)		
Price per Unit	$.00		
Ramp-In Factor	100%	CO2 Reduction (tons)	0
Year Implemented		N2O Reduction (lbs)	0
Implementation Cost	$0	CH4 Reduction (lbs)	64
		Emission Reduction (tons eCO2)	1
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *0.0%*

This emission reduction as a percentage of emission reductions required to meet target: *0.0%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

20% (2.21 tons) of food waste composted

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Waste Sector **Location of Measure: Apple Valley, California**

Type of Measure: Landfilling to Recycling

Measure Name

Municipal-Increase Recycling of Paper Products

Measure Details

Waste Type Affected
Paper - Mixed Office

Amount of Waste	2		
Unit	(tons)		
Price per Unit	$.00		
Ramp-In Factor	100%	CO2 Reduction (tons)	0
Year Implemented		N2O Reduction (lbs)	0
Implementation Cost	$0	CH4 Reduction (lbs)	935
		Emission Reduction (tons eCO2)	10
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *0.0%*

This emission reduction as a percentage of emission reductions required to meet target: *0.0%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

20% paper products recycled (2.35 tons)

Apple Valley

Community Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Waste Sector **Location of Measure: Apple Valley, California**

Type of Measure: Landfilling to Recycling

Measure Name

Recycling Paper Products

Measure Details

Waste Type Affected
Paper - Mixed General

Amount of Waste	1,747		
Unit	(tons)		
Price per Unit	$.00		
Ramp-In Factor	100%	CO2 Reduction (tons)	0
Year Implemented		N2O Reduction (lbs)	0
Implementation Cost	$0	CH4 Reduction (lbs)	505,121
		Emission Reduction (tons eCO2)	5,304
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *1.6%*

This emission reduction as a percentage of emission reductions required to meet target: *3.1%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

Recycle 20% (1747) tons of paper products

Apple Valley

Government Greenhouse Gas Emissions in 2013

Summary Report

	CO_2 (tons)	N_2O (lbs)	CH_4 (lbs)	Equiv CO_2 (tons)	(%)	Energy (kWh)	Cost ($)
Buildings and Facilities	1,131	22	152	1,136	12.7	4,506,858	0
Streetlights & Traffic Signals	1,991	60	172	2,002	22.5	5,935,634	0
Water Delivery Facilities	4,432	135	403	4,457	50.0	13,780,300	0
Vehicle Fleet	1,025	71	85	1,037	11.6	3,839,088	0
Employee Commute	275	37	35	281	3.2	1,032,266	0
Total	8,855	325	847	8,914	100.0	29,094,146	0

Government Greenhouse Gas Emissions in 2013
Detailed Report

	CO_2 (tons)	N_2O (lbs)	CH_4 (lbs)	Equiv CO_2 (tons)	(%)	Energy (kWh)	Cost ($)
Buildings and Facilities							
Apple Valley, California							
Municipal 2005							
Electricity	168	5	15	169	1.9	531,076	0
Natural Gas	443	2	83	444	5.0	2,216,779	0
Subtotal Municipal 2005	610	7	99	612	6.9	2,747,855	0
Municipal 2005 represents municipal facilities analyzed in the 2010 Apple Valley CAP. Municipal post 2005 represents municipal facilities built since 2005, not included in the 2010 Apple Valley CAP.							
Municipal Post 2005							
Electricity	462	15	43	465	5.2	1,465,827	0
Natural Gas	59	0	11	59	0.7	293,176	0
Subtotal Municipal Post 2005	521	15	54	524	5.9	1,759,003	0
Subtotal Buildings and Facilities	1,131	22	152	1,136	12.7	4,506,858	0
Streetlights & Traffic Signals							
Apple Valley, California							
Community							
Electricity	1,643	52	151	1,653	18.5	5,210,015	0
Subtotal Community	1,643	52	151	1,653	18.5	5,210,015	0
Community CO2e emissions from streetlights/traffic signals are quantified in the Community Analysis Summary of this report.							
Municipal							
Electricity	348	8	21	349	3.9	725,619	0
Subtotal Municipal	348	8	21	349	3.9	725,619	0
Municipal accounts for street lights and traffic signals for a total of 725,619.							
Subtotal Streetlights & Traffic Si	1,991	60	172	2,002	22.5	5,935,634	0

Government Greenhouse Gas Emissions in 2013
Detailed Report

	CO_2 (tons)	N_2O (lbs)	CH_4 (lbs)	Equiv CO_2 (tons)	(%)	Energy (kWh)	Cost ($)
Water Delivery Facilities							
Apple Valley, California							
Community Pumping							
Electricity	3,983	126	366	4,006	44.9	12,625,027	0
Natural Gas	74	0	14	75	0.8	373,165	0
Subtotal Community Pumping	4,057	127	380	4,081	45.8	12,998,192	0
Community Pumping emissions are quanitfied in the Community Analysis Summary of this report.							
Municipal Pumping							
Electricity	375	9	23	376	4.2	782,108	0
Subtotal Municipal Pumping	375	9	23	376	4.2	782,108	0
Subtotal Water Delivery Facilitie	4,432	135	403	4,457	50.0	13,780,300	0
Vehicle Fleet							
Apple Valley, California							
Municipal Fleet							
Diesel	49	0	0	49	0.5	176,993	0
Gasoline	381	51	48	389	4.4	1,426,904	0
Subtotal Municipal Fleet	429	51	48	438	4.9	1,603,897	0
Assumes a 90% gasoline/10% diesel municipal fleet consumption, consistent with 2010 CAP assumptions. (39,203 gal gasoline + 4,356 gal deisel = 43,559 total gallons)							
Police Fleet							
Gasoline	596	20	37	600	6.7	2,235,191	0
Subtotal Police Fleet	596	20	37	600	6.7	2,235,191	0
Subtotal Vehicle Fleet	1,025	71	85	1,037	11.6	3,839,088	0
Employee Commute							
Apple Valley, California							
Employee Commute							
Gasoline	275	37	35	281	3.2	1,032,266	0
Subtotal Employee Commute	275	37	35	281	3.2	1,032,266	0
95 full time employees with average 23-mile roundtrip to & from work, for 5 days/week, year round (assumes 260 working days a year)							

Government Greenhouse Gas Emissions in 2013
Detailed Report

	CO_2 (tons)	N_2O (lbs)	CH_4 (lbs)	Equiv CO_2 (tons)	Equiv CO_2 (%)	Energy (kWh)	Cost ($)
Subtotal Employee Commute	275	37	35	281	3.2	1,032,266	0
Total	8,855	325	847	8,914	100.0	29,094,146	0

Apple Valley

Government Greenhouse Gas Emissions in 2020

Summary Report

	CO_2 (tons)	N_2O (lbs)	CH_4 (lbs)	Equiv CO_2 (tons)	(%)	Energy (kWh)	Cost ($)
Buildings and Facilities	1,264	24	170	1,269	12.8	5,036,500	0
Streetlights & Traffic Signals	2,225	67	192	2,238	22.6	6,633,200	0
Water Delivery Facilities	4,953	151	450	4,981	50.2	15,399,791	0
Vehicle Fleet	1,122	81	97	1,136	11.5	4,202,372	0
Employee Commute	284	40	38	290	2.9	1,063,887	0
Total	9,848	364	948	9,914	100.0	32,335,750	0

Government Greenhouse Gas Emissions in 2020
Detailed Report

	CO_2 (tons)	N_2O (lbs)	CH_4 (lbs)	Equiv CO_2 (tons)	(%)	Energy (kWh)	Cost ($)
Buildings and Facilities							
Apple Valley, California							
Municipal 2005							
Electricity	187	6	17	188	1.9	593,489	0
Natural Gas	495	2	93	496	5.0	2,477,286	0
Subtotal Municipal 2005	682	8	110	684	6.9	3,070,775	0
Municipal Post 2005							
Electricity	517	16	48	520	5.2	1,638,093	0
Natural Gas	65	0	12	66	0.7	327,633	0
Subtotal Municipal Post 2005	582	17	60	585	5.9	1,965,726	0
Subtotal Buildings and Facilities	1,264	24	170	1,269	12.8	5,036,500	0
Streetlights & Traffic Signals							
Apple Valley, California							
Community							
Electricity	1,837	58	169	1,847	18.6	5,822,305	0
Subtotal Community	1,837	58	169	1,847	18.6	5,822,305	0
Municipal							
Electricity	389	9	24	390	3.9	810,895	0
Subtotal Municipal	389	9	24	390	3.9	810,895	0
Subtotal Streetlights & Traffic Si	2,225	67	192	2,238	22.6	6,633,200	0
Water Delivery Facilities							
Apple Valley, California							
Community Pumping							
Electricity	4,451	141	409	4,477	45.2	14,108,741	0
Natural Gas	83	0	16	83	0.8	417,027	0
Subtotal Community Pumping	4,534	141	425	4,560	46.0	14,525,768	0

Government Greenhouse Gas Emissions in 2020
Detailed Report

	CO_2 (tons)	N_2O (lbs)	CH_4 (lbs)	Equiv CO_2 (tons)	Equiv CO_2 (%)	Energy (kWh)	Cost ($)
Municipal Pumping							
Electricity	419	10	25	421	4.2	874,023	0
Subtotal Municipal Pumping	419	10	25	421	4.2	874,023	0
Subtotal Water Delivery Facilities	4,953	151	450	4,981	50.2	15,399,791	0
Vehicle Fleet							
Apple Valley, California							
Municipal Fleet							
Diesel	53	0	0	53	0.5	193,733	0
Gasoline	417	59	56	426	4.3	1,561,940	0
Subtotal Municipal Fleet	470	59	56	480	4.8	1,755,673	0
Police Fleet							
Gasoline	652	22	41	656	6.6	2,446,699	0
Subtotal Police Fleet	652	22	41	656	6.6	2,446,699	0
Subtotal Vehicle Fleet	1,122	81	97	1,136	11.5	4,202,372	0
Employee Commute							
Apple Valley, California							
Employee Commute							
Gasoline	284	40	38	290	2.9	1,063,887	0
Subtotal Employee Commute	284	40	38	290	2.9	1,063,887	0
Subtotal Employee Commute	284	40	38	290	2.9	1,063,887	0
Total	9,848	364	948	9,914	100.0	32,335,750	0

Apple Valley

Government Greenhouse Gas Emissions Reductions in 2020

Target Year Measures Summary

Measures Summary	CO_2 (tons)	N_2O (lbs)	CH_4 (lbs)	Equiv CO_2 (tons)	(%)	Energy (kWh)	Energy Cost Savings ($)
Buildings and Facilities Sector	1,388	32	84	1,394	63.1	755,475	0
Streetlights & Traffic Signals Se	194	4	12	195	8.8	405,448	0
Wastewater Facilities Sector	215	5	13	216	9.8	43,701	0
Vehicle Fleet Sector	320	41	39	327	14.8	561,513	0
Employee Commute Sector	78	3	3	78	3.5	291,529	0
Total	2,196	86	151	2,210	100.0	2,057,667	0

Apple Valley

Government Greenhouse Gas Emissions Reductions in 2020

Target Year Measures Detailed Report

	CO_2 (tons)	N_2O (lbs)	CH_4 (lbs)	Equiv CO_2 (tons)	(%)	Energy (kWh)	Energy Cost Savings ($)
Buildings and Facilities Sector							
Apple Valley, California							
Change in Energy Source							
Rooftop and Above Parking S	1,026	24	62	1,030	46.6	0	0
La Quinta, California							
Energy Efficiency: Buildings							
Reduce Electricity Demand	160	4	10	161	7.3	334,737	0
Reduce Natural Gas Use	202	5	12	202	9.2	420,738	0
Subtotal Buildings and Facilities	1,388	32	84	1,394	63.1	755,475	0
Streetlights & Traffic Signals Sector							
Apple Valley, California							
Use of Solar Electricity							
Streetlights and Traffic Signal	194	4	12	195	8.8	405,448	0
Subtotal Streetlights & Traffic Si	194	4	12	195	8.8	405,448	0
Wastewater Facilities Sector							
Apple Valley, California							
Change in Energy Source							
Use Solar for Pumping	194	4	12	195	8.8	0	0
La Quinta, California							
Energy Efficiency: Equipment and Lighting							
Use Solar for Upgrade/Install	21	0	1	21	1.0	43,701	0
Subtotal Wastewater Facilities	215	5	13	216	9.8	43,701	0

Apple Valley

Government Greenhouse Gas Emissions Reductions in 2020

Target Year Measures Detailed Report

	CO_2 (tons)	N_2O (lbs)	CH_4 (lbs)	Equiv CO_2 (tons)	(%)	Energy (kWh)	Energy Cost Savings ($)
Vehicle Fleet Sector							
Apple Valley, California							
Change in Fuel Type							
Replace Diesel with B100	26	0	0	26	1.2	32,570	0
La Quinta, California							
Change in Fuel Type							
Replace Gas Vehicles with Fu	86	12	12	88	4.0	322,157	0
Replace Gasoline Vehicles wi	208	29	28	213	9.6	206,786	0
Subtotal Vehicle Fleet	320	41	39	327	14.8	561,513	0
Employee Commute Sector							
Apple Valley, California							
Car/Van Pooling							
Municpal Rideshare	8	1	1	8	0.4	29,876	0
La Quinta, California							
Increase in Fuel Efficiency							
Improve Fleet MPG	37	0	0	37	1.7	138,495	0
Signal Synchronization	20	0	0	20	0.9	75,940	0
Switch to Public Transport							
Public Transit	13	2	2	13	0.6	47,219	0
Subtotal Employee Commute	78	3	3	78	3.5	291,529	0
Total	2,196	86	151	2,210	100.0	2,057,667	0

Apple Valley

Government Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Buildings and Facilities Sector **Location of Measure: Apple Valley, California**

Type of Measure: Change in Energy Source

Measure Name

Rooftop and Above Parking Solar

Measure Details

Initial Energy Source	Replacement Energy Source
Electricity	Green Electricity

Use Before	2,140,513	Use After	2,140,513
Unit	(kWh)	Unit	(kWh)
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	1,026
Year Implemented		N2O Reduction (lbs)	24
Implementation Cost	$0	CH4 Reduction (lbs)	62
Energy Reduction (kWh)	0	Emission Reduction (tons eCO2)	1,030
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *46.6%*

This emission reduction as a percentage of emission reductions required to meet target: *16.3%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

50% of all municipal building electricty will be met through solar. (accounts for 15% reductions, therefore total electricity = 4,281,026 kwh / 2= 2,140,513

Apple Valley

Government Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Buildings and Facilities Sector **Location of Measure: La Quinta, California**

Type of Measure: Energy Efficiency: Buildings

Measure Name

Reduce Electricity Demand

Measure Details

Affected Energy Source 1		Affected Energy Source 2 (Optional)	
Electricity			
Energy Reduction	334,737	Energy Reduction	0
Unit	(kWh)	Unit	
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	160
Year Implemented		N2O Reduction (lbs)	4
Implementation Cost	$0	CH4 Reduction (lbs)	10
Energy Reduction (kWh)	334,737	Emission Reduction (tons eCO2)	161
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *7.3%*

This emission reduction as a percentage of emission reductions required to meet target: *2.6%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

Municipal buildings to use 15% less electricity. 2020 = 2,231,582 kwh - 15% = 1,896,845)

Apple Valley

Government Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Buildings and Facilities Sector **Location of Measure: La Quinta, California**

Type of Measure: Energy Efficiency: Buildings

Measure Name

Reduce Natural Gas Use

Measure Details

Affected Energy Source 1		Affected Energy Source 2 (Optional)	
Electricity			
Energy Reduction	420,738	Energy Reduction	0
Unit	(kWh)	Unit	
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	202
Year Implemented		N2O Reduction (lbs)	5
Implementation Cost	$0	CH4 Reduction (lbs)	12
Energy Reduction (kWh)	420,738	Emission Reduction (tons eCO2)	202
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *9.2%*

This emission reduction as a percentage of emission reductions required to meet target: *3.2%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

15% less natural gas. Save 420,738 kwh equivilent

Apple Valley

Government Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Streetlights & Traffic Signals Sector **Location of Measure: Apple Valley, California**

Type of Measure: Use of Solar Electricity

Measure Name

Streetlights and Traffic Signals

Measure Details

Initial Energy Source		Replacement Energy Source	
Electricity			
Use Before	405,448	Use After	0
Unit	(kWh)	Unit	
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	194
Year Implemented		N2O Reduction (lbs)	4
Implementation Cost	$0	CH4 Reduction (lbs)	12
Energy Reduction (kWh)	405,448	Emission Reduction (tons eCO2)	195
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *8.8%*

This emission reduction as a percentage of emission reductions required to meet target: *3.1%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

50% of electricity replaced with solar (405,448 kwh)

Apple Valley

Government Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Wastewater Facilities Sector **Location of Measure: Apple Valley, California**

Type of Measure: Change in Energy Source

Measure Name

Use Solar for Pumping

Measure Details

Initial Energy Source	Replacement Energy Source
Electricity	Green Electricity

Use Before	405,448	Use After	405,448
Unit	(kWh)	Unit	(kWh)
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	194
Year Implemented		N2O Reduction (lbs)	4
Implementation Cost	$0	CH4 Reduction (lbs)	12
Energy Reduction (kWh)	0	Emission Reduction (tons eCO2)	195
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *8.8%*

This emission reduction as a percentage of emission reductions required to meet target: *3.1%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

20% of 2020 kwh used for pumping (174,805) is generated by green electricity.

Apple Valley

Government Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Wastewater Facilities Sector **Location of Measure: La Quinta, California**

Type of Measure: Energy Efficiency: Equipment and Lighting

Measure Name

Use Solar for Upgrade/Install Efficient Pumps

Measure Details

Affected Energy Source 1		Affected Energy Source 2 (Optional)	
Electricity			
Energy Reduction	43,701	Energy Reduction	0
Unit	(kWh)	Unit	
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	21
Year Implemented		N2O Reduction (lbs)	0
Implementation Cost	$0	CH4 Reduction (lbs)	1
Energy Reduction (kWh)	43,701	Emission Reduction (tons eCO2)	21
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *1.0%*

This emission reduction as a percentage of emission reductions required to meet target: *0.3%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

5% of kwh (43,701) are avoided through installation of more efficient pumps

Apple Valley

Government Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Vehicle Fleet Sector **Location of Measure: Apple Valley, California**

Type of Measure: Change in Fuel Type

Measure Name

Replace Diesel with B100

Measure Details

Initial Fuel and Vehicle Type		Replacement Fuel and Vehicle Type	
Diesel		Biodiesel (B100)	
Light Trucks Alt. Method		Light Trucks Alt. Method	
Use Before	2,348	Use After	2,348
Unit	(US gal)	Unit	(US gal)
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	26
Year Implemented		N2O Reduction (lbs)	0
Implementation Cost	$0	CH4 Reduction (lbs)	0
Energy Reduction (kWh)	32,570	Emission Reduction (tons eCO2)	26
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *1.2%*

This emission reduction as a percentage of emission reductions required to meet target: *0.4%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

2,348 gallons of diesel replaced

Apple Valley

Government Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Vehicle Fleet Sector **Location of Measure: La Quinta, California**

Type of Measure: Change in Fuel Type

Measure Name

Replace Gas Vehicles with Fuel Efficent Models

Measure Details

Initial Fuel and Vehicle Type		Replacement Fuel and Vehicle Type	
Gasoline			
Passenger Cars Alt. Method			
Use Before	8,851	Use After	0
Unit	(US gal)	Unit	
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	86
Year Implemented		N2O Reduction (lbs)	12
Implementation Cost	$0	CH4 Reduction (lbs)	12
Energy Reduction (kWh)	322,157	Emission Reduction (tons eCO2)	88
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *4.0%*

This emission reduction as a percentage of emission reductions required to meet target: *1.4%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	3	0	0	0

Full Description of Measure

8,851 gallons of gasoline avoided by replacing older fleet with fuel efficient models.

Apple Valley

Government Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Vehicle Fleet Sector **Location of Measure: La Quinta, California**

Type of Measure: Change in Fuel Type

Measure Name

Replace Gasoline Vehicles with B100

Measure Details

Initial Fuel and Vehicle Type	Replacement Fuel and Vehicle Type
Gasoline	Biodiesel (B100)
Passenger Cars Alt. Method	Passenger Cars Alt. Method

Use Before	21,457	Use After	21,457
Unit	(US gal)	Unit	(US gal)
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	208
Year Implemented		N2O Reduction (lbs)	29
Implementation Cost	$0	CH4 Reduction (lbs)	28
Energy Reduction (kWh)	206,786	Emission Reduction (tons eCO2)	213
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *9.6%*

This emission reduction as a percentage of emission reductions required to meet target: *3.4%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	7	1	0	0

Full Description of Measure

21,457 gallons of gasoline replaced with B100

Apple Valley

Government Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Employee Commute Sector **Location of Measure: Apple Valley, California**

Type of Measure: Car/Van Pooling

Measure Name

Municpal Rideshare

Measure Details

Initial Fuel and Vehicle Type		Replacement Fuel and Vehicle Type	
Gasoline			
Passenger Cars Alt. Method			
Use Before	22,080	Use After	0
Unit	(vehicle-miles)	Unit	
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	8
Year Implemented		N2O Reduction (lbs)	1
Implementation Cost	$0	CH4 Reduction (lbs)	1
Energy Reduction (kWh)	29,876	Emission Reduction (tons eCO2)	8
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *0.4%*

This emission reduction as a percentage of emission reductions required to meet target: *0.1%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

23,900 vehicle miles saved (5 employees)

Apple Valley

Government Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Employee Commute Sector **Location of Measure: La Quinta, California**

Type of Measure: Increase in Fuel Efficiency

Measure Name

Improve Fleet MPG

Measure Details

Initial Fuel and Vehicle Type	Replacement Fuel and Vehicle Type
Gasoline	Gasoline
Passenger Cars Alt. Method	Passenger Cars Alt. Method

Use Before	621,858	Use After	621,858
Unit	(vehicle-miles)	Unit	(vehicle-miles)
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	37
Year Implemented		N2O Reduction (lbs)	0
Implementation Cost	$0	CH4 Reduction (lbs)	0
Energy Reduction (kWh)	138,495	Emission Reduction (tons eCO2)	37
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *1.7%*

This emission reduction as a percentage of emission reductions required to meet target: *0.6%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

Improve employee passenger vehicles fuel economy from 26.9 to 32.2 for 62,858VMT (accoutns for reductions from rideshare and transit)

Apple Valley

Government Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Employee Commute Sector **Location of Measure: La Quinta, California**

Type of Measure: Increase in Fuel Efficiency

Measure Name

Signal Synchronization

Measure Details

Initial Fuel and Vehicle Type		Replacement Fuel and Vehicle Type	
Gasoline		Gasoline	
Passenger Cars Alt. Method		Passenger Cars Alt. Method	
Use Before	621,858	Use After	621,858
Unit	(vehicle-miles)	Unit	(vehicle-miles)
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	20
Year Implemented		N2O Reduction (lbs)	0
Implementation Cost	$0	CH4 Reduction (lbs)	0
Energy Reduction (kWh)	75,940	Emission Reduction (tons eCO2)	20
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *0.9%*

This emission reduction as a percentage of emission reductions required to meet target: *0.3%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

Vechiles achieve average 3.864 mpg due to signal synch- results in 36.1 rather than 32.2 for 621,858 miles

Apple Valley

Government Greenhouse Gas and Air Pollutant Reductions in 2020

Target Year Measures Listing

Employee Commute Sector **Location of Measure: La Quinta, California**

Type of Measure: Switch to Public Transport

Measure Name

Public Transit

Measure Details

Initial Fuel and Vehicle Type		Replacement Fuel and Vehicle Type	
Gasoline			
Passenger Cars Alt. Method			
Use Before	27,600	Use After	0
Unit	(vehicle-miles)	Unit	
Price per Unit	$.00	Price per Unit	$.00
Ramp-In Factor	100%	CO2 Reduction (tons)	13
Year Implemented		N2O Reduction (lbs)	2
Implementation Cost	$0	CH4 Reduction (lbs)	2
Energy Reduction (kWh)	47,219	Emission Reduction (tons eCO2)	13
Savings ($/year)	$0	Payback Period (years)	0

The emission reduction from this measure as a percentage of total reductions: *0.6%*

This emission reduction as a percentage of emission reductions required to meet target: *0.2%*

NOx Reduction (tonnes)	SOx Reduction (tonnes)	CO Reduction (tonnes)	VOC Reduction (tonnes)	PM10 Reduction (tonnes)	PM2.5 Reduction (tonnes)
0	0	0	0	0	0

Full Description of Measure

5 employees switch to transit, sacve 27,600 VMT

Appendix C

Statistical Background Data

- **SCE Account Information**
- **Southwest Gas Account Information**
- **VVTA Fleet Data**
- **CalRecycle Electronic Annual Report**

Town of Apple Valley

Electricity Use Report
For: Town of Apple Valley
Year 2013

Prepared by:

Southern California Edison

Version 5.0
February 18, 2014

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

I. Introduction

The purpose of this report is to fulfill your request for overall energy consumption data for the Town of Apple Valley. SCE has made every effort to fulfill this request. However, our legal responsibility of maintaining confidentiality of individual customer data limits us to providing only the following information:

- Rate group descriptions
- kWh consumption, and
- kW demand for those rate groups with demand meters (non-coincident and coincident loads); no kW demand data is available for those rate groups that do not have demand metered data

II. Energy and Demand Data Availability

Rate group specific energy consumption data is readily available and included within this report. However, several of our rate schedules such as Schedule "D," the standard domestic rate, do not require the measurement of demand data. Therefore, coincident demand-related data within this report is only an estimate reflecting those rate groups where demand is measured. Table A summarizes the availability of demand data by rate group:

Table A – Data Availability Table

Rate Groups ***with*** Demand Data	Rate Groups ***without*** Demand Data
GS-2, PA-2, TOU-PA-5, AG TOU, TOU-GS-3, and TOU-8	Domestic, GS-1, PA1, TC-1 and Street Lighting

For rate groups ***with*** measured demand data, we have provided:

- Total kWh
- Non-coincident peak demand - this is the sum of the individual accounts' maximum peak demands, regardless of when they occur
- Coincident peak demand – this is a calculated field based on application of the coincidence factors outlined on page 3, section III
- Number of accounts

For rate groups ***without*** measured demand data, we have provided:

- Total kWh
- Number of accounts

III. Coincidence Factors

Coincidence factor is an indication of how closely the individual customer peaks conform to the time of the rate group peak. Coincidence factor is expressed as a proportion and can never be greater than 1.0. Table B lists coincidence factors based SCE system wide peak demands.

Table C on page 4 contains calculated values of coincident peak demand. To derive these values, the rate class non-coincident peak (Table C) is multiplied by its respective rate class coincidence factor, in Table B, yielding a calculated "Coincident Peak (kW)". The calculated coincident peaks approximate the maximum peak for each rate class.

Table B - System Coincidence Factors

	Coincidence Factor				Coincidence Factor		
Rate Group	Annual	Summer	Winter	Rate Group	Annual	Summer	Winter
Domestic-Single	0.38	0.42	0.30	GS-1	0.46	0.52	0.41
Domestic-Multiple	0.26	0.32	0.24	TC-1	1.00	1.00	1.00
Domestic- Mstr Mtrd	0.61	0.66	0.56	GS-2	0.71	0.74	0.70
				TOU-GS	0.53	0.54	0.58
Total Domestic	0.34	0.39	0.28	Total Sm and Med	0.61	0.65	0.60

	Coincidence Factor				Coincidence Factor		
Rate Group	Annual	Summer	Winter	Rate Group	Annual	Summer	Winter
PA-1	0.40	0.44	0.34	TOU-8-Secondry	0.76	0.79	0.76
PA-2	0.65	0.70	0.63	TOU-8-Primary	0.70	0.74	0.70
AGTOU	0.62	0.67	0.54	TOU-8-Sub	0.67	0.71	0.68
Tou-PA-5	0.84	0.84	0.86				
Total AG&Pump	0.46	0.50	0.40	Total Large Power	0.70	0.74	0.71

IV. Data Description

The summary provided in Table C is based on 12 months usage data ending December 2013 for SCE installed service accounts within the city's boundaries. The accounts included in the dataset were extracted from SCE's Customer Service System based on the Public Authority Code for the Town of Apple Valley. This code is used to identify accounts by municipality for the purpose of calculating state and local taxes. Public Authority Code is permanently retained as a part of each premise's identification regardless of occupancy. The only time a Public Authority Code changes is when a city or county annexes a given piece of property into its territory or a particular piece of property is transferred from one public authority to another through other means.

V. Summary of Results (January 1, 2013 – December 31, 2013)

Table C – Total of Account Summary Data for Bundled and Direct Access Customers

RATE GROUP	ANNUAL KWH	% of TOTAL	NONCOINCIDENT PEAK	CALCULATED COINCIDENT PEAK	AVERAGE NUMBER OF ACCOUNTS	% OF TOTAL
AG TOU	12,073,575	3.4%	4,513	2,798	47	0.17%
DOMESTIC	215,490,704	60.9%	-	-	25,882	90.39%
GS-1	4,077,631	1.2%	-	-	557	1.94%
GS-2	9,684,980	2.7%	3,498	2,484	110	0.38%
PA-1	551,452	0.2%	-	-	45	0.16%
STREET LIGHTING	5,210,015	1.5%	-	-	200	0.70%
TOU-GS	106,926,283	30.2%	32,597	17,277	1,792	6.26%
Grand Total	354,014,640				28,634	

DA % of kWh	11.8%

Application of 15/15 Rule (Section VIII. Release of Aggregated Customer Information, p.5
The TOU-PA-5 rate group was combined with the AG TOU rate group.
The PA-2 rate group was combined with the GS-2 rate group.
The TOU-8 rate group was combined with the TOU-GS rate group.
The TC-1 rate group was combined with the Street Lighting rate group.

VI. Additional Data Availability

The data listed in Table C is at a summary level, and is not displayed by time-of-use. For your convenience we have attached time-of-use load profiles (Appendix A) for each rate class. In the event that you would like the detailed data that supports these load profiles (annual hourly load data for each rate class average profile), you can find it on SCE's website at the following address:

http://www.sce.com/AboutSCE/Regulatory/loadprofiles/

Additionally, revenue impacts are often part of an overall economic analysis related to energy consumption. In the event that you would like specific rate schedules, you can find them at the following web address:

http://www.sce.com/AboutSCE/Regulatory/tariffbooks/ratespricing/

VII. Nonbypassable Charge Energy Efficiency Funds

SCE estimated the Town of Apple Valley's proportional share of Public Goods Charge (PGC) funded energy efficiency activities that the California Public Utilities Commission might make available to the customers in the Town of Apple Valley if it became a community choice aggregator ("CCA") but did not implement energy efficiency programs in the CCA territory. SCE performed the estimated proportional share calculation in accordance with the directives of Decision (D.) 03-07-034 of the CPUC, and determined that the Town of Apple Valley estimated proportional share is $1,422,184. Please note that the estimated proportional share calculation does not necessarily represent an amount of funds that would be made available for energy efficiency programs in the Town of Apple Valley's territory should the City become a CCA. As stated in D.03-07-034, the proportional share calculation is only used to estimate non-CCA expenditures in a CCA's territory. Also note that the proportional share estimate is not equal to the amount of PGC funds collected from ratepayers in the Town of Apple Valley, since the PGC rate includes authorized amounts for energy efficiency as well as other public interest programs.

VIII. Release of Aggregated Customer Information

The **15/15 Rule** is intended to protect customer confidentiality by reducing the possibility of identifying customers through the release of usage information. SCE will apply the 15/15 Rule in releasing aggregated customer information. The rule was initially implemented by the California Public Utilities Commission during Direct Access proceedings in 1997 and was adopted through D. 97-10-031.

The **15/15 Rule** requires that any aggregated information provided by the Utilities must be made up of at least 15 customers and a customer's load must be less than 15% of an assigned category. If the number of customers in the compiled data is

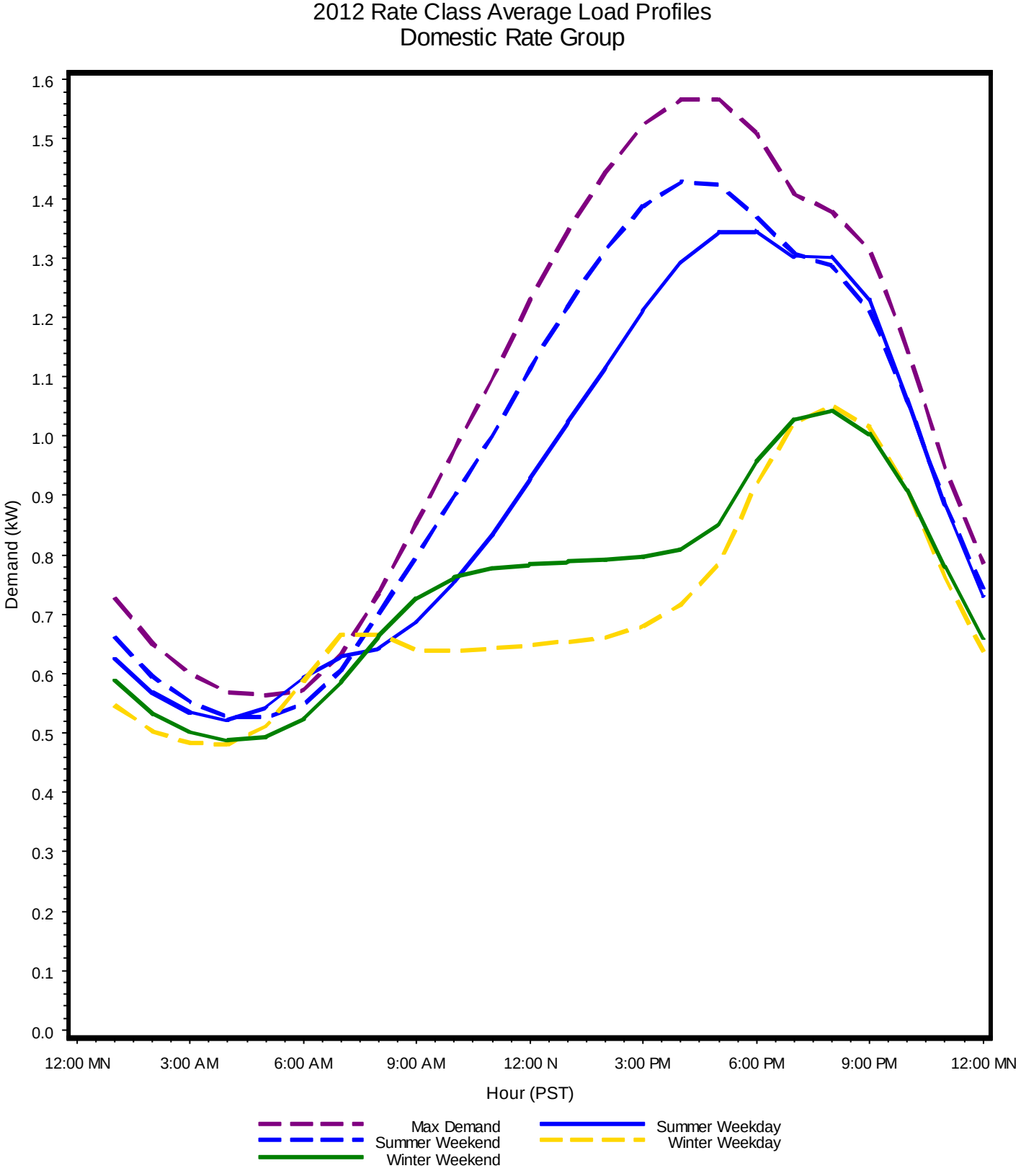
below 15, or if a single customer's load is more than 15% of the total data, categories (e.g., rate classes) must be combined before the information is released. The rule further requires that if the 15/15 rule is triggered for a second tie after the data has been screened once already using the 15/15 rule, then the customer is dropped from the information provided.

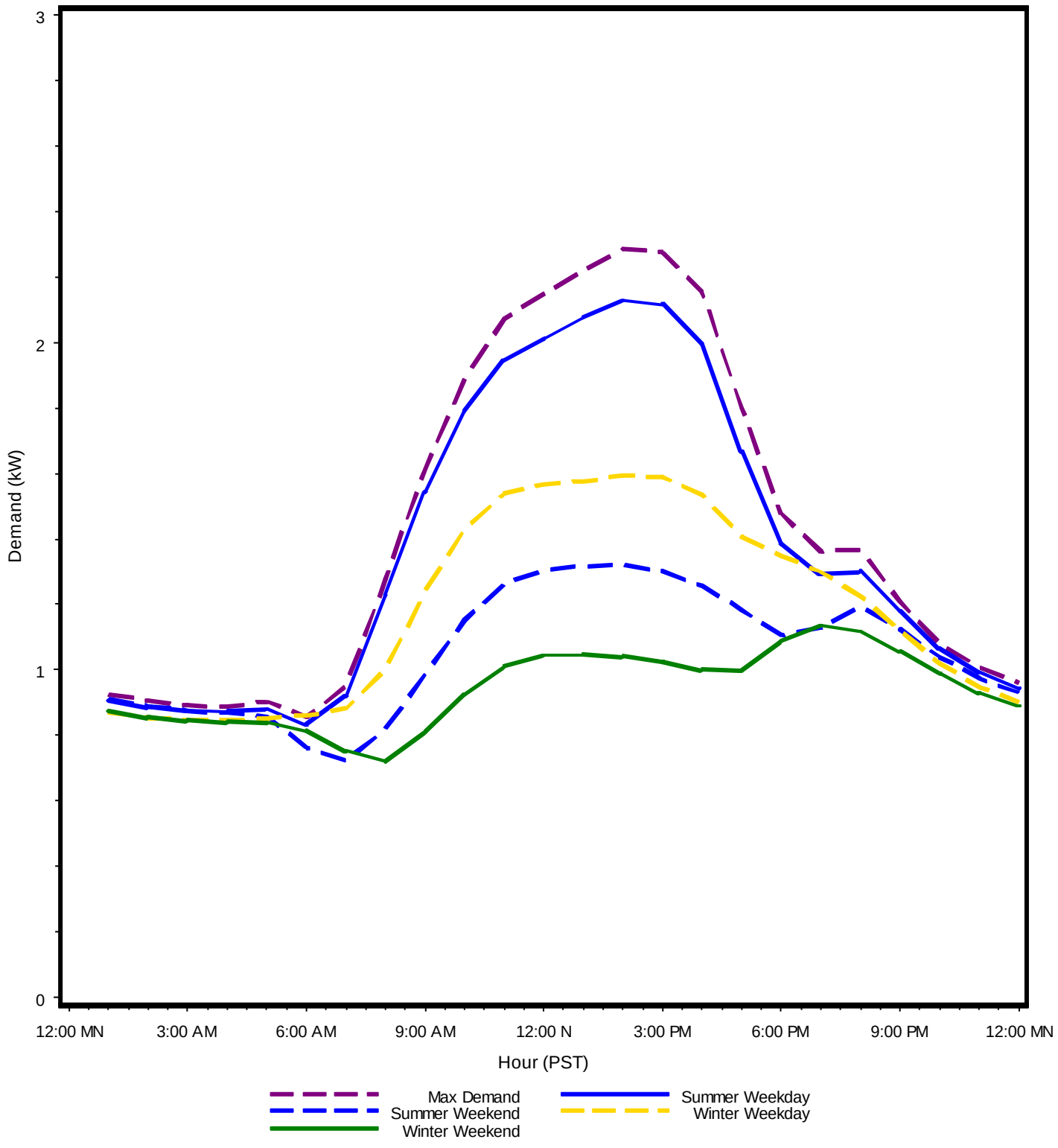
IX. Disclaimer

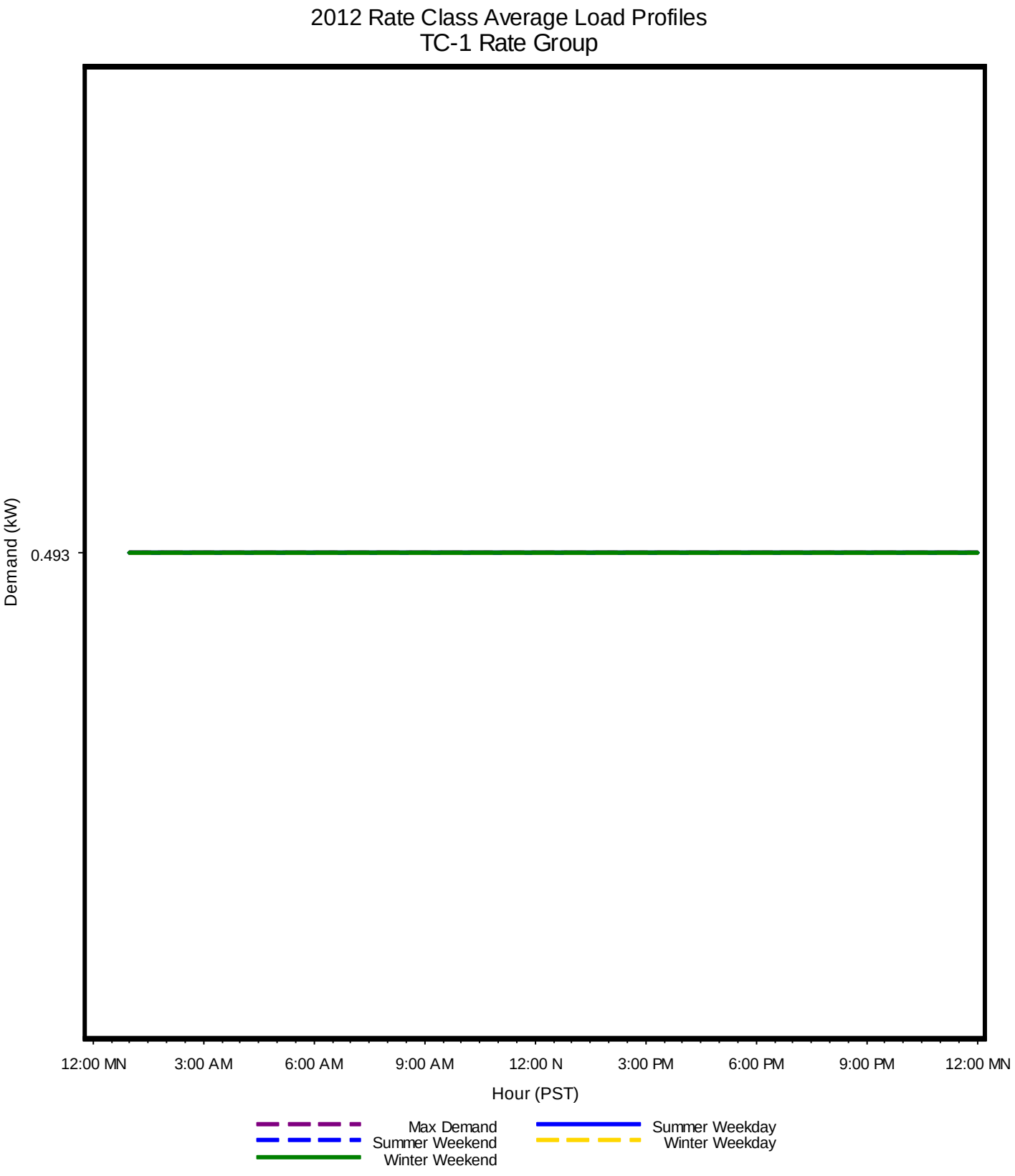
Southern California Edison Company has provided the above information at your request. The data presented here represents 12 months ending December, 2013. These estimates are provided for informational purposes only, and are not intended to, nor do they, predict what energy usage and loads within your city boundaries will be in the future. The actual future loads and energy consumption will vary from these estimates for a variety of reasons, including changes in energy usage, demand levels, and weather patterns. Southern California Edison Company assumes no liability for the use of the information provided above. If you have any questions regarding this information, please contact your Southern California Edison Company Account Representative.

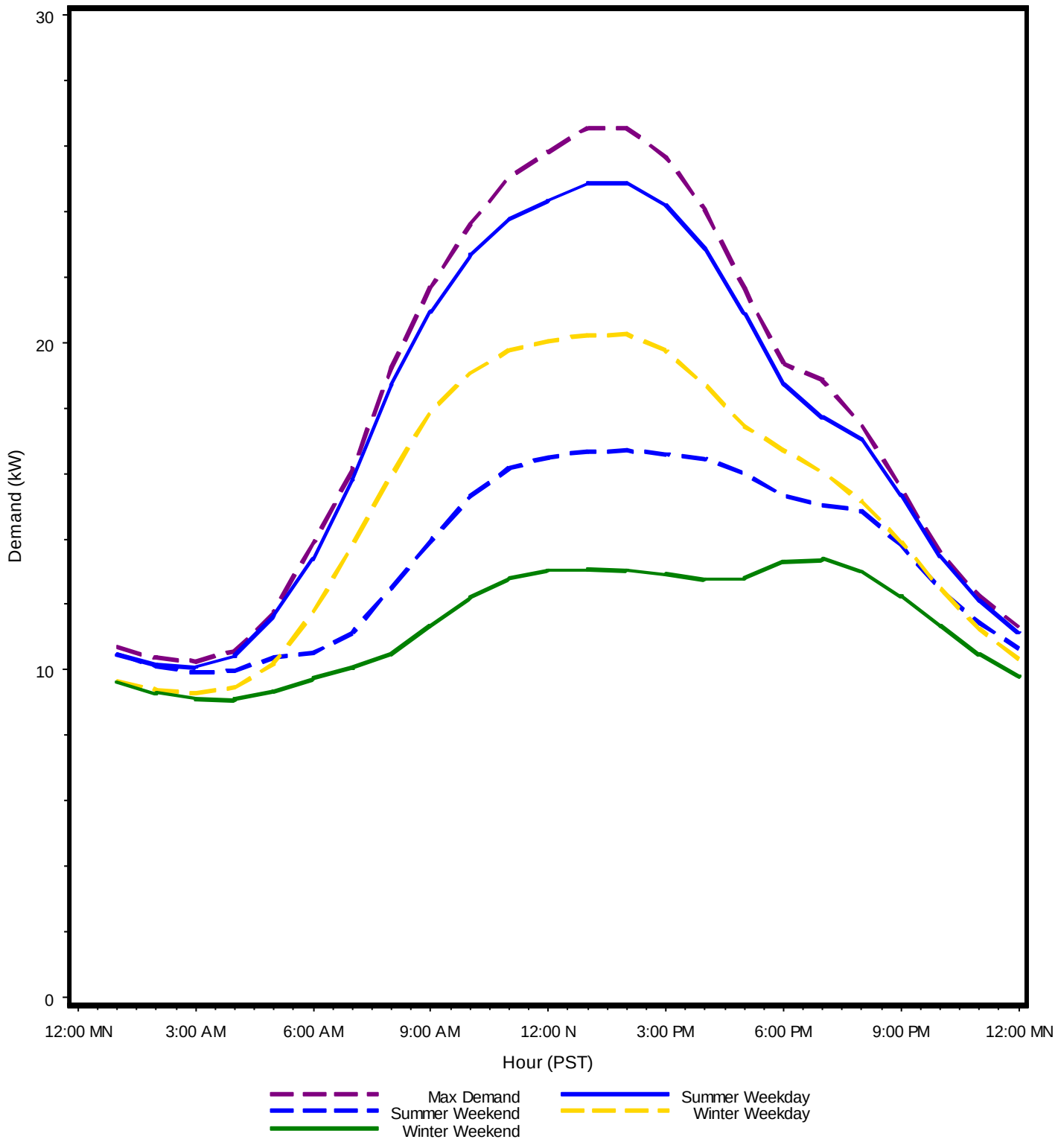
Appendix A

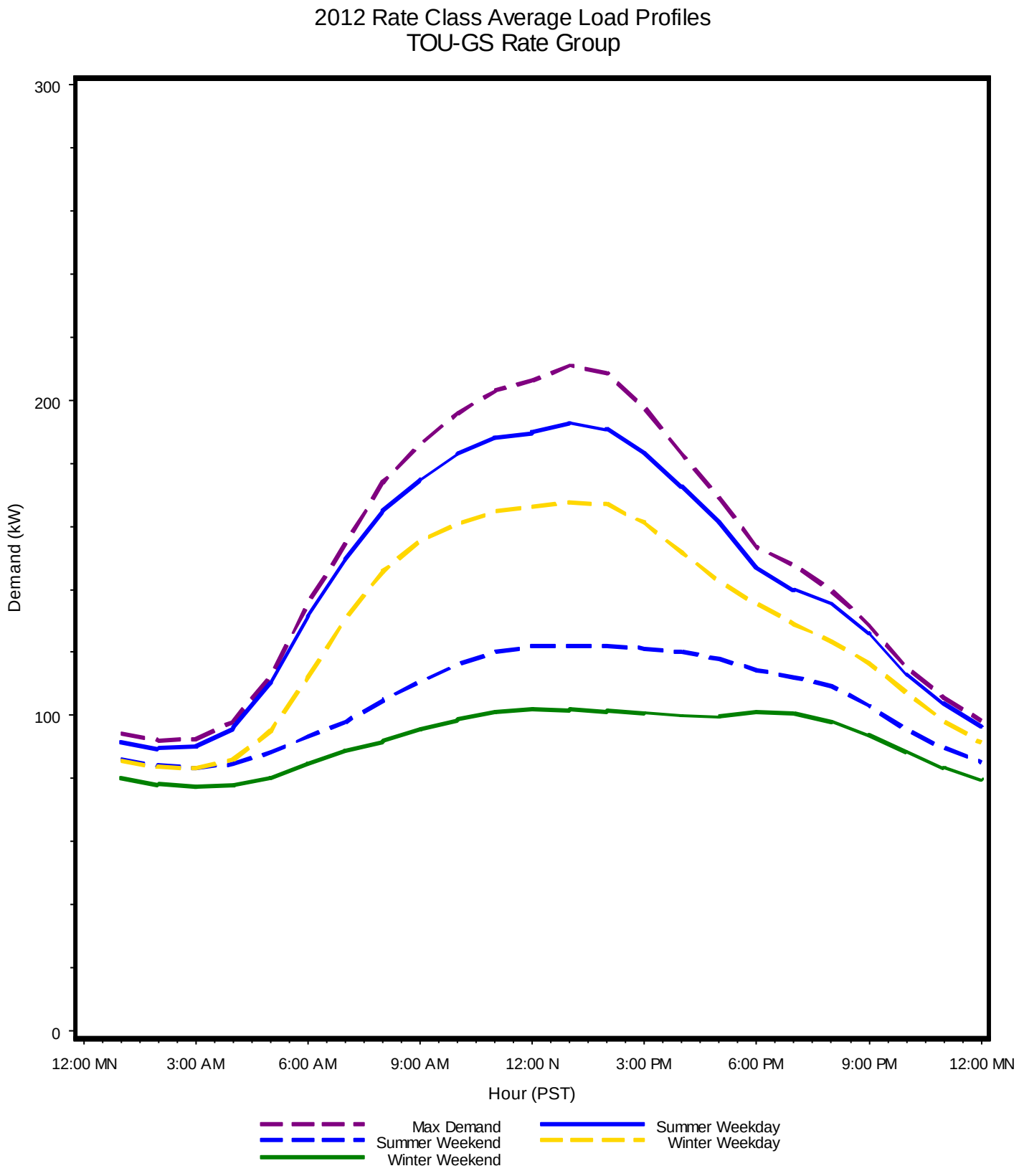
Rate Class Average Load Profiles

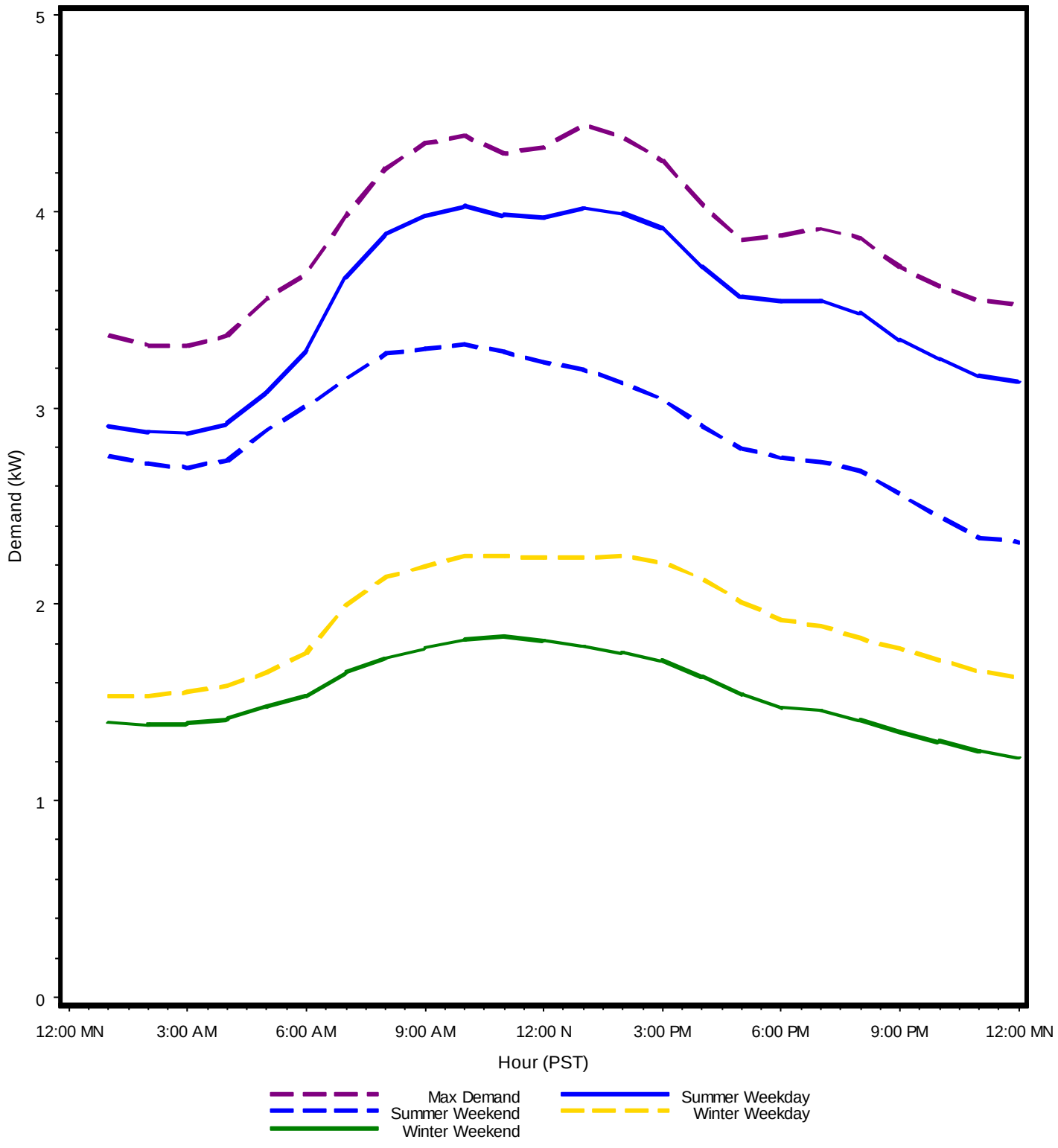

2012 Rate Class Average Load Profiles
Domestic Rate Group
Demand (kW)
1.6
1.5
1.4
1.3
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
12:00 MN
3:00 AM
6:00 AM
9:00 AM
12:00 N
3:00 PM
6:00 PM
9:00 PM
12:00 MN
Hour (PST)
Max Demand
Summer Weekend
Winter Weekend
Summer Weekday
Winter Weekday

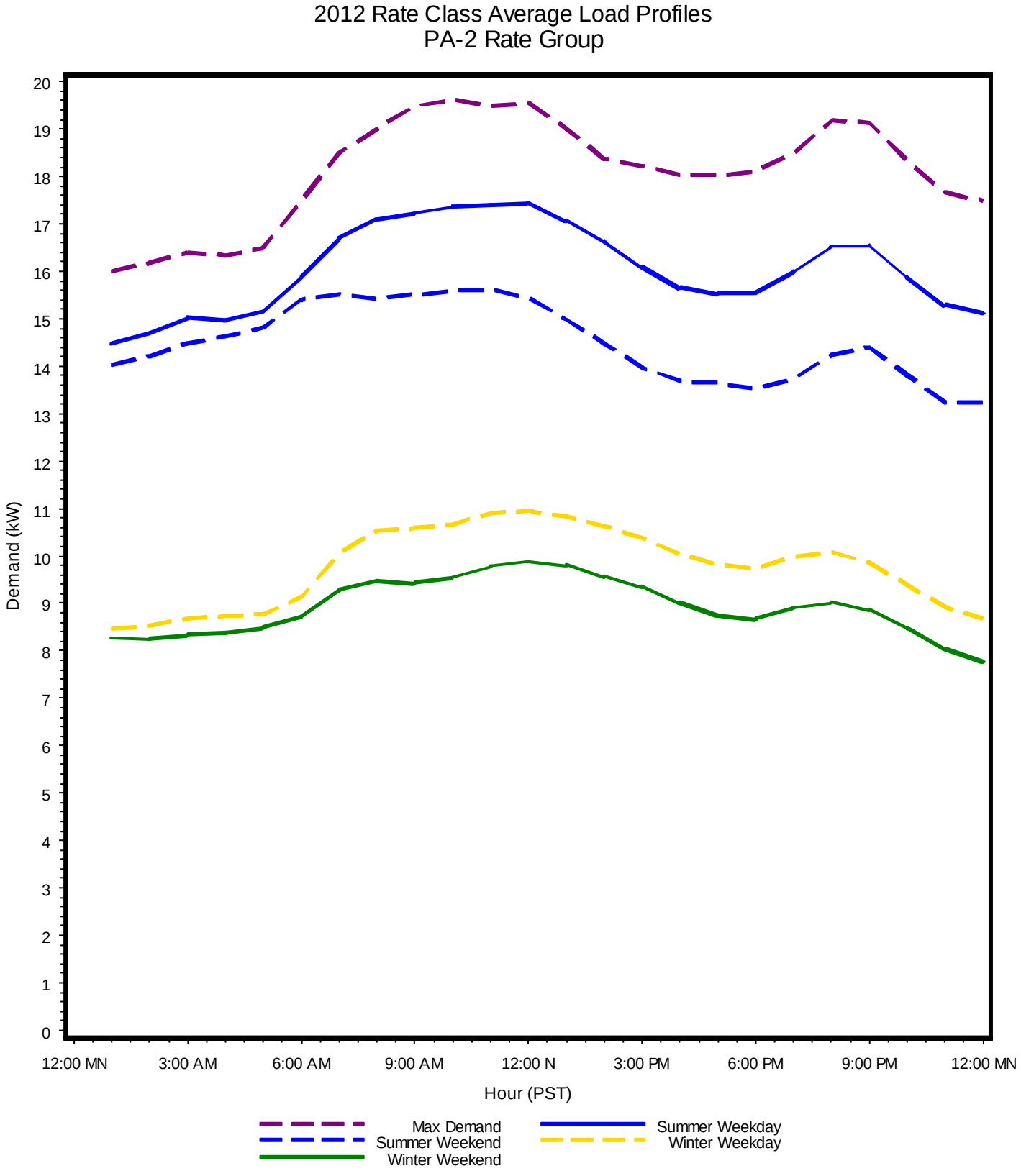

2012 Rate Class Average Load Profiles
GS-1 Rate Group
3
2
1
0
Demand (kW)
12:00 MN
3:00 AM
6:00 AM
9:00 AM
12:00 N
3:00 PM
6:00 PM
9:00 PM
12:00 MN
Hour (PST)
Max Demand
Summer Weekend
Winter Weekend
Summer Weekday
Winter Weekday

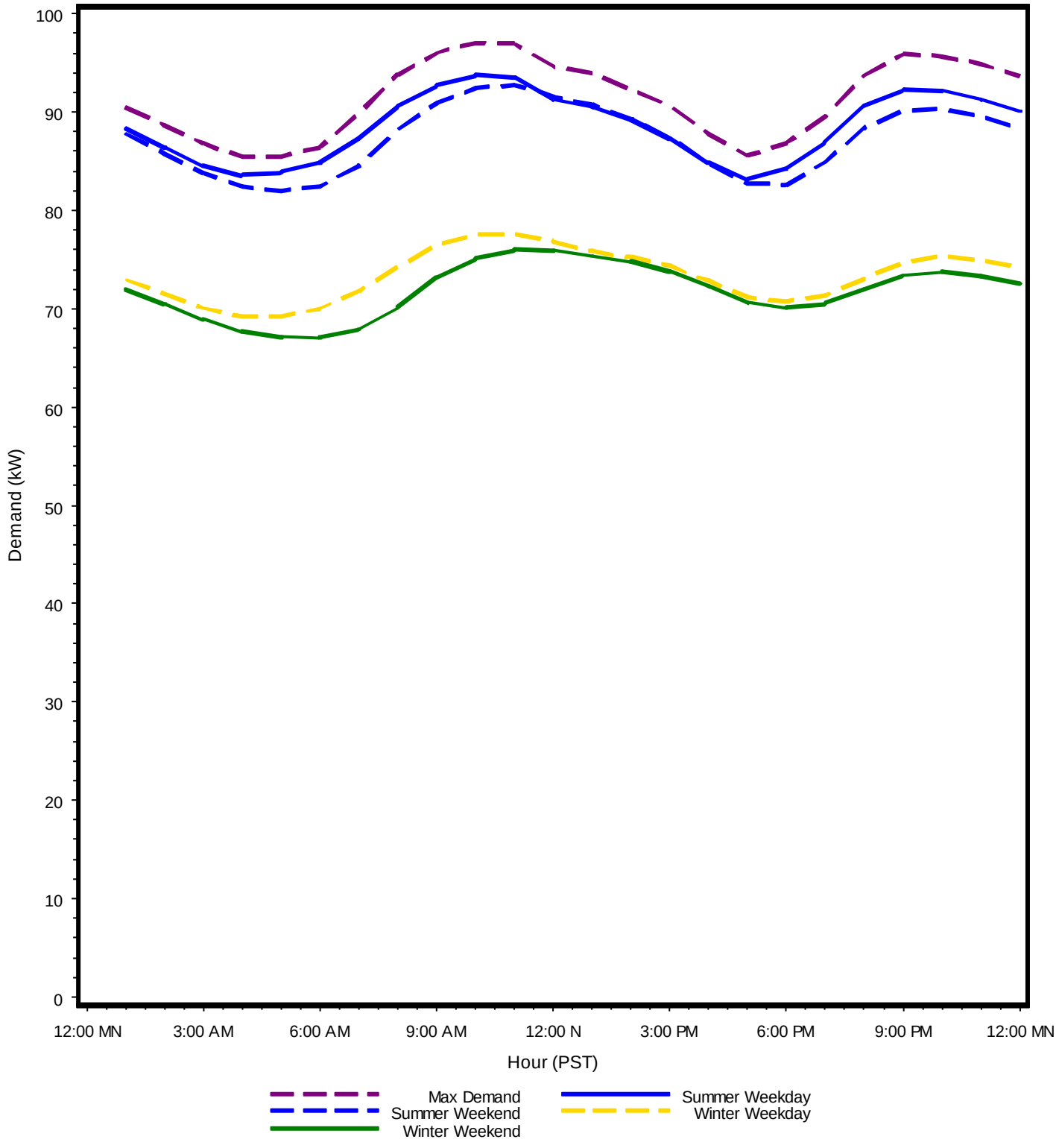

2012 Rate Class Average Load Profiles
TC-1 Rate Group
Demand (kW)
0.493
12:00 MN
3:00 AM
6:00 AM
9:00 AM
12:00 N
3:00 PM
6:00 PM
9:00 PM
12:00 MN
Hour (PST)
Max Demand
Summer Weekend
Winter Weekend
Summer Weekday
Winter Weekday

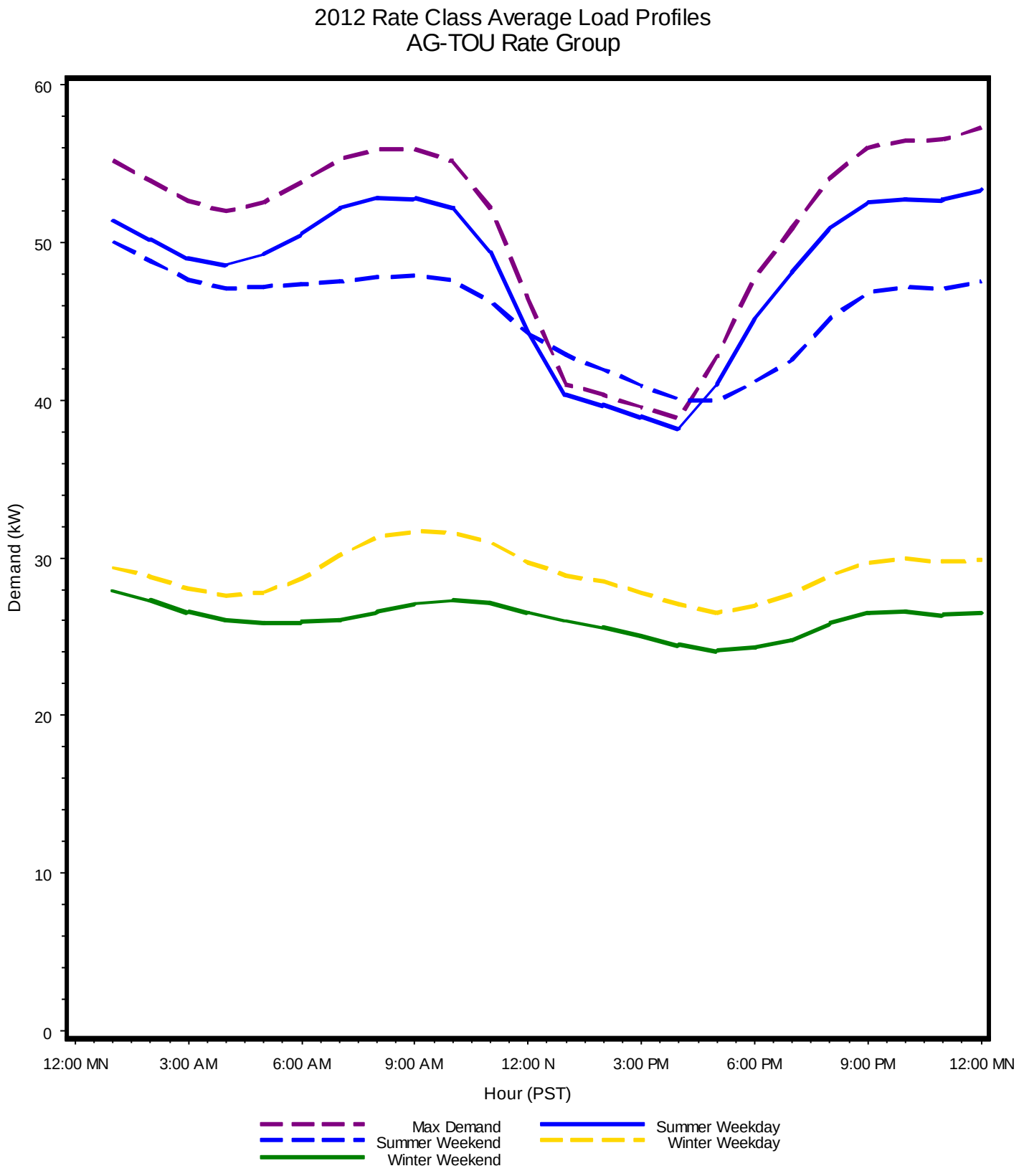

2012 Rate Class Average Load Profiles
GS-2 Rate Group
30
20
10
0
Demand (kW)
12:00 MN
3:00 AM
6:00 AM
9:00 AM
12:00 N
3:00 PM
6:00 PM
9:00 PM
12:00 MN
Hour (PST)
Max Demand
Summer Weekend
Winter Weekend
Summer Weekday
Winter Weekday

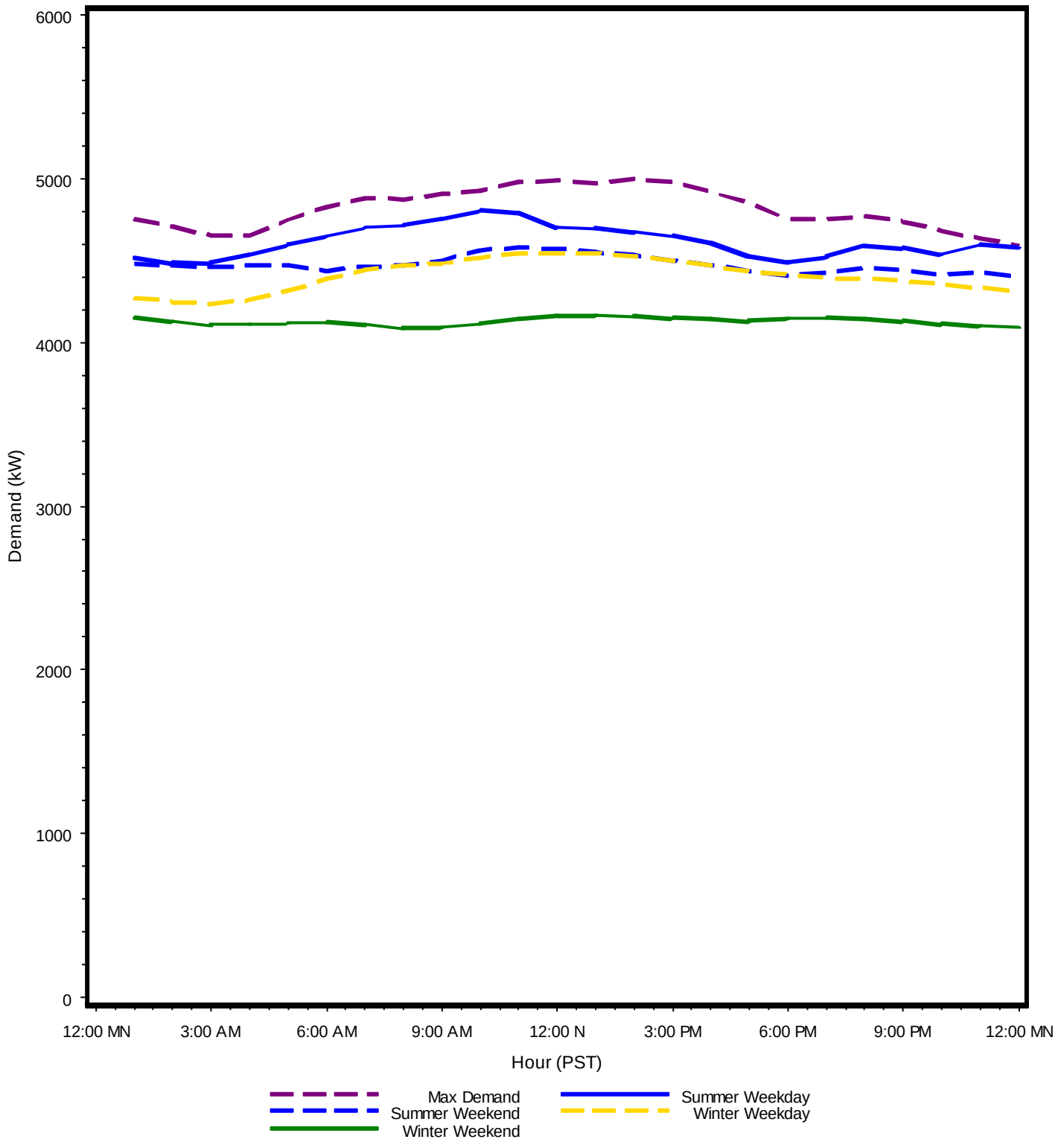

2012 Rate Class Average Load Profiles
TOU-GS Rate Group
300
200
100
0
Demand (kW)
12:00 MN
3:00 AM
6:00 AM
9:00 AM
12:00 N
3:00 PM
6:00 PM
9:00 PM
12:00 MN
Hour (PST)
Max Demand
Summer Weekend
Winter Weekend
Summer Weekday
Winter Weekday

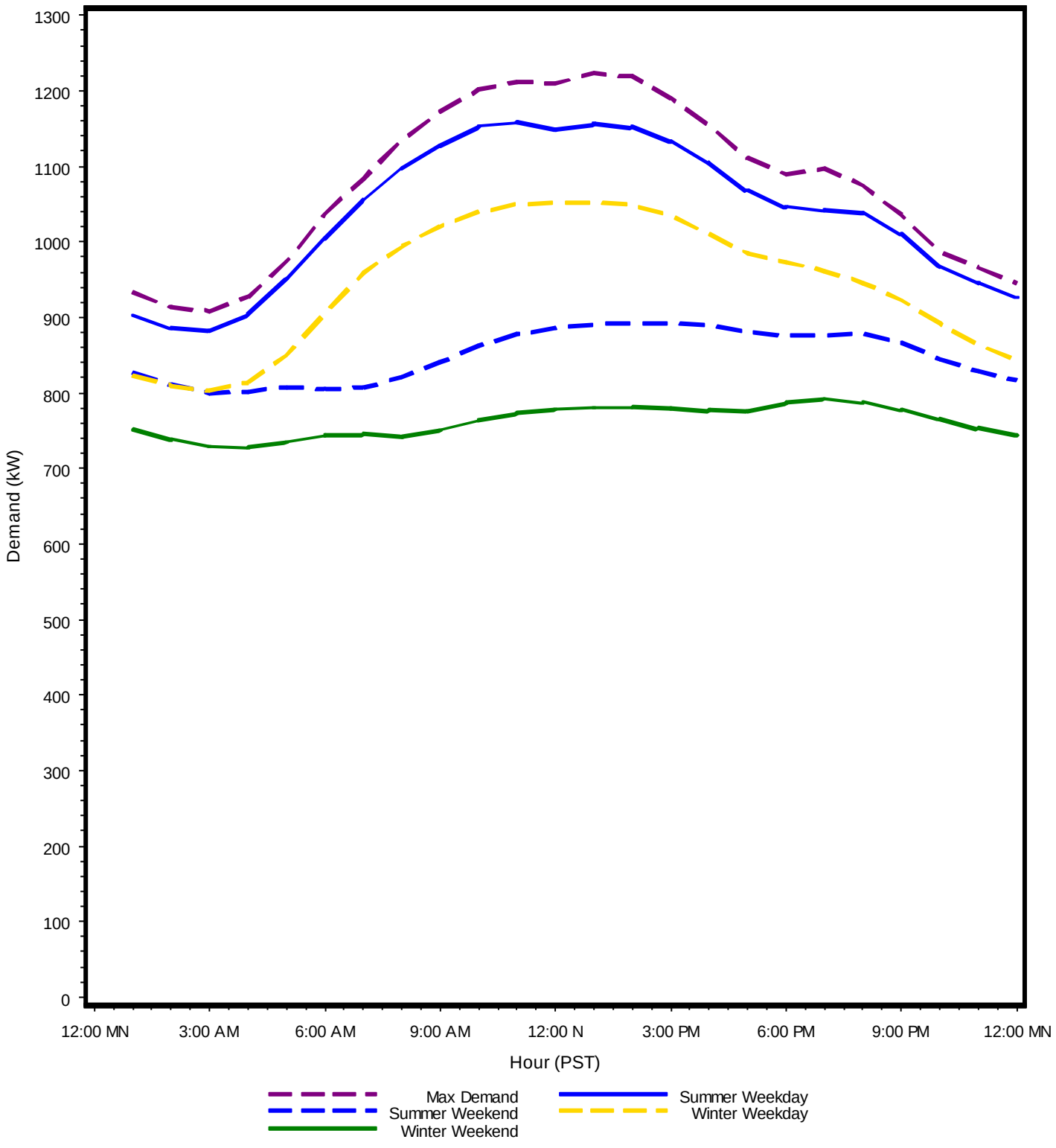

2012 Rate Class Average Load Profiles
PA-1 Rate Group
Demand (kW)
0
1
2
3
4
5
12:00 MN
3:00 AM
6:00 AM
9:00 AM
12:00 N
3:00 PM
6:00 PM
9:00 PM
12:00 MN
Hour (PST)
Max Demand
Summer Weekend
Winter Weekend
Summer Weekday
Winter Weekday

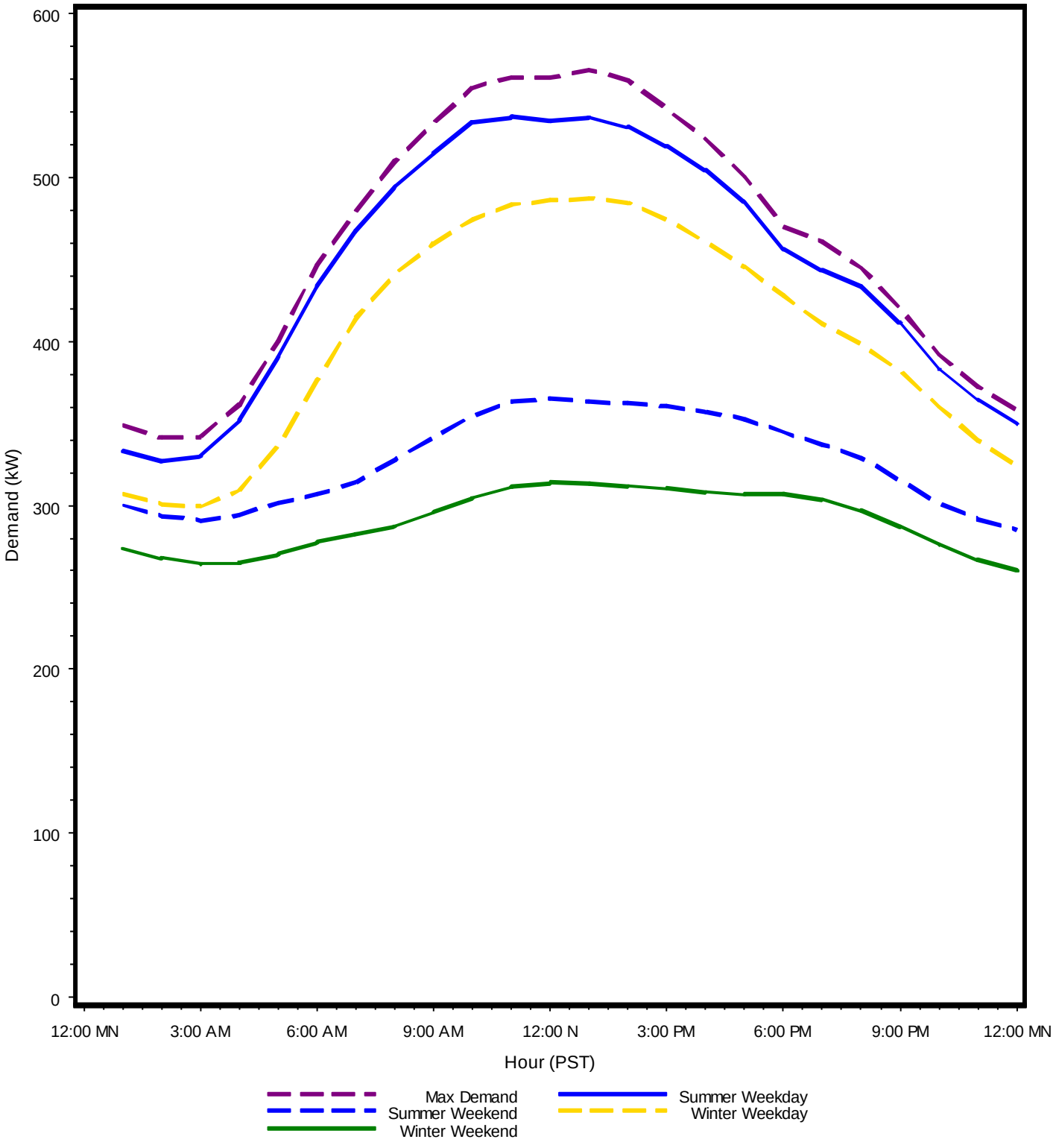

2012 Rate Class Average Load Profiles
PA-2 Rate Group
Demand (kW)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
12:00 MN
3:00 AM
6:00 AM
9:00 AM
12:00 N
3:00 PM
6:00 PM
9:00 PM
12:00 MN
Hour (PST)
Max Demand
Summer Weekend
Winter Weekend
Summer Weekday
Winter Weekday


2012 Rate Class Average Load Profiles
TOU-PA-5 Rate Group
Demand (kW)
100
90
80
70
60
50
40
30
20
10
0
12:00 MN
3:00 AM
6:00 AM
9:00 AM
12:00 N
3:00 PM
6:00 PM
9:00 PM
12:00 MN
Hour (PST)
Max Demand
Summer Weekend
Winter Weekend
Summer Weekday
Winter Weekday

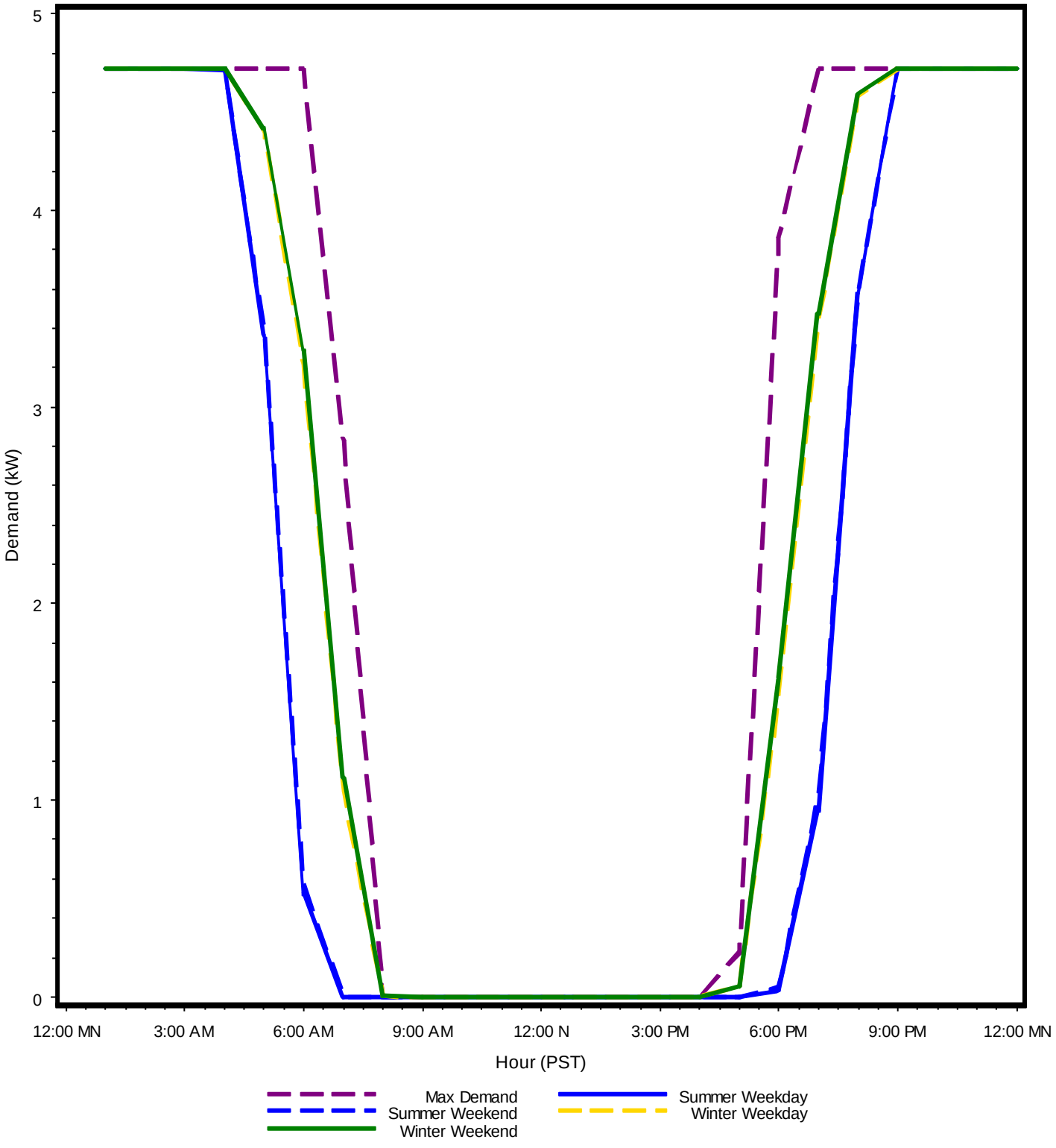

2012 Rate Class Average Load Profiles
AG-TOU Rate Group
Demand (kW)
60
50
40
30
20
10
0
12:00 MN
3:00 AM
6:00 AM
9:00 AM
12:00 N
3:00 PM
6:00 PM
9:00 PM
12:00 MN
Hour (PST)
Max Demand
Summer Weekend
Winter Weekend
Summer Weekday
Winter Weekday


2012 Rate Class Average Load Profiles
TOU-8-SUB Rate Group
6000
5000
4000
3000
2000
1000
0
Demand (kW)
12:00 MN
3:00 AM
6:00 AM
9:00 AM
12:00 N
3:00 PM
6:00 PM
9:00 PM
12:00 MN
Hour (PST)
Max Demand
Summer Weekend
Winter Weekend
Summer Weekday
Winter Weekday


2012 Rate Class Average Load Profiles
TOU-8-PRI Rate Group
Demand (kW)
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
12:00 MN
3:00 AM
6:00 AM
9:00 AM
12:00 N
3:00 PM
6:00 PM
9:00 PM
12:00 MN
Hour (PST)
Max Demand
Summer Weekend
Winter Weekend
Summer Weekday
Winter Weekday


2012 Rate Class Average Load Profiles
TOU-8-SEC Rate Group
600
500
400
300
200
100
0
Demand (kW)
12:00 MN
3:00 AM
6:00 AM
9:00 AM
12:00 N
3:00 PM
6:00 PM
9:00 PM
12:00 MN
Hour (PST)
Max Demand
Summer Weekend
Winter Weekend
Summer Weekday
Winter Weekday

2012 Rate Class Average Load Profiles
Street Lighting Rate Group



Appendix B
Description of Rate Groups

Domestic (Domestic Service)
For all residential service including lighting, heating, cooking, and power or combination thereof in a single-family accommodation; also to domestic farm service when supplied through the farm operator's domestic meter.

GS-1 (General Service Non-Demand)
Includes single- and three-phase general service including lighting and power, except that the customer whose monthly maximum demand, in the opinion of SCE, is expected to exceed 20 kW or has exceeded 20 kW in any three months during the preceding 12 months.

GS-2 (General Service - Demand)
Includes single- and three-phase general service including lighting and power customers whose monthly maximum demand registers, or in the opinion of SCE is expected to register, above 20 kW and below 200 kW. The customer whose monthly maximum demand, in the opinion of SCE, is expected to exceed 200 kW or has exceeded 200 kW for any three months during the preceding 12 months is ineligible for service under this Schedule. Customers that exceed the 200 kW will be placed in TOU-GS rate class.

TOU-GS (Time-Of-Use - General Service - Demand Metered)
Includes single- and three-phase general service including lighting and power customers whose monthly maximum demand registers, or in the opinion of SCE is expected to register, above 200 kW through 500 kW. The customers whose monthly Maximum Demand, in the opinion of SCE, is expected to exceed 500 kW or has exceeded 500 kW for any three months during the preceding 12 months is ineligible for service under this Schedule.

TOU-8 (Time-Of-Use - General Service – Large)
Includes general service, lighting and power, except agricultural water pumping accounts. This Schedule is mandatory for all customers whose monthly maximum demand, in the opinion of SCE, is expected to exceed 500 kW or has exceeded 500 kW in any three months during the preceding 12 months.

PA-1 (Power - Agricultural and Pumping Connected Load Basis)
Includes accounts where SCE determines that 70% or more of the customer's electrical usage is for general agricultural purposes or for general water or sewerage pumping and none of any remaining electrical usage is for purposes for which a domestic schedule is applicable.

PA-2 (Power - Agricultural and Pumping Demand Metered)
Includes accounts where SCE determines that 70% or more of the customer's electrical usage is for general agricultural purposes or for general water or sewerage pumping and none of any remaining electrical usage is for purposes for which a domestic schedule is applicable. The Customer whose monthly Maximum Demand, in the opinion of SCE, is expected to, or has reached, 200 kW or above in any three months during the preceding 12 months shall have a Real Time Energy Meter (RTEM) or other type of interval meter installed and shall become ineligible for service under this Schedule. Upon such ineligibility a customer whose Maximum Demand is 500 kW or below shall be transferred to an applicable agricultural Time-of Use (TOU) rate schedule, while a customer whose Maximum Demand exceeds 500 kW will be transferred to Schedule TOU-8. However, in accordance with Schedule TOU-8, a large individual water agency or other large water pumping account with 70% or more of the water pumped used for agricultural purposes, must take service on a TOU agricultural class rate schedule.

TOU-PA-5 (Time-Of-Use Agricultural and Pumping - Demand Metered)
Includes accounts where SCE determines that: 70% or more of the customer's electrical usage is for general agricultural purposes or for general water or sewerage pumping or for oil pumping by customers with a Standard Industrial Classification (SIC) Code of 1311; none of any remaining electrical usage is for purposes for which a domestic schedule is applicable; and, the customer's account has 35 horsepower or more of total connected load or 35 kilowatts or more of Maximum Demand.

AG TOU (Time-Of-Use Agricultural and Pumping - Demand Metered)
Includes accounts where SCE determines that: 70% or more of the customer's electrical usage is for water pumping used for agricultural purposes, except where the customer's monthly Maximum Demand, is expected to exceed 500 kW or has exceeded 500 kW for any three months during the preceding 12 months. These accounts are time-of-use agricultural and pumping accounts that do not qualify for the TOU-PA-5 tariff.

TC-1 (Traffic Control Service)
Includes single- and three-phase service: for traffic directional signs or traffic signal systems located on streets, highways and other public thoroughfares and to railway crossing and track signals; for public thoroughfare lighting that is utilized 24 hours per day or is not controlled by switching equipment, such as tunnel or underpass lighting; and, to public authorities for the illumination of bus stop shelters located in the dedicated road right-of-way where such service is combined with other traffic control service as defined above.

STREET LIGHTING (Lighting - Street and Highway Company-Owned System)
Includes service for the lighting of streets, highways, and publicly-owned and publicly-operated automobile parking lots which are open to the general public

where SCE owns and maintains the street lighting equipment and associated facilities included under this schedule.

SOUTHWEST GAS CORPORATION
SOUTHERN CALIFORNIA DIVISION
TOWN OF APPLE VALLEY
2013 TOTAL USAGE (in therms)
AND YEAR-END CUSTOMERS

	Values	
Customer Class	**TOTAL USAGE**	**Sum of Customers**
Residential	12,184,053	25,552
Commercial	2,241,636	1,200
Industrial	12,736	3
Water Pumping	2,177	3
Grand Total	**14,440,602**	**26,758**

SOUTHWEST GAS CORPORATION
SOUTHERN CALIFORNIA
TOWN OF APPLE VALLEY REQUEST
2013 MONTHLY BILLED THERMS

Service Number	Service Address	January	February	March	April	May	June	July	August	September	October	November	December	Total
121-0290436	13643 Tonikan Rd	*Southwest Gas service to Town of Apple Valley at this address ended 05/21/10.*												
121-0290455	22411 US Highway 18	*Southwest Gas service to Town of Apple Valley at this address ended 11/30/11.*												
121-1113039	21989 US Highway 18 #2	*It doesn't appear that this was ever a Town of Apple Valley account, but there has been no service at this location since 2011.*												
121-1164919	14955 Dale Evans Pkwy	1,629	1,263	1,077	137	102	44	48	39	48	65	111	352	4,915
121-1182495	14931 Dale Evans Pkwy	300	254	202	32	23	10	15	51	40	35	102	177	1,241
121-0287643	13467 Navajo Rd	977	1,111	642	133	180	93	80	66	67	65	219	772	4,405
121-0288134	13413 Navajo Rd	1,233	1,044	714	43	70	0	0	1	0	5	94	969	4,173
121-1422428	14999 Dale Evans Pky	363	437	490	316	260	122	132	164	80	52	77	229	2,722
121-1426452	14999 Dale Evans Pky Pool	8,481	7,090	9,890	5,510	5,700	2,780	1,602	993	1,137	3,267	5,280	6,472	58,202
121-0109904	15200 Rancherias Rd	1,257	1,045	953	399	385	545	574	629	742	687	639	1,036	8,891
121-1152307	13450 Nomwaket Rd	309	243	209	42	41	16	10	12	13	20	49	151	1,115

* Addresses in yellow highlights were built after 2005, and therefore were not counted in the 2010 CAP.

Victor Valley Transit Authority
Bus Routes Serving Apple Valley

Route Number	Bus/Fuel Description	Total Bus Trips Around the Route Per Week*	Total Bus Trips Around the Route Per Year	Route Mileage Within Apple Valley** (full circuit, start to finish)	Total Bus Miles Traveled Around the Route Per Year
23	40 ft. buses (100% of buses use CNG)	47	2,444	7.0	17,108
40***	22 ft. buses (75% use CNG, 25% use gasoline)	93	4,836	15.6	75,442
41	40 ft. buses (100% of buses use CNG)	446	23,192	15.1	350,199
43	40 ft. buses (100% of buses use CNG)	188	9,776	15.9	155,438
47***	22 ft. buses (75% use CNG, 25% use gasoline)	93	4,836	12.5	60,450
	TOTAL:	867	45,084	66.1	658,637

* based onVVTA bus schedules & information provided by Shelly Cable at VVTA on April 8, 2014.
** estimates based on GoogleEarth mapping; only includes portion of the bus route located within Apple Valley limits.
*** Routes 40 and 47 are flex routes meaning they are fixed routes with the option to deviate to some locations in a specified radius if needed for curb-to-curb pick-up. VVTA does not track miles traveled off the fixed route. Data shown above is mileage along fixed routes. Actual mileage traveled along these routes is somewhat higher than shown.
Note: VVTA does not track mileage traveled by ADA-compliant buses, which provide curb-to-curb service on demand, not along a fixed route. Some ADA-compliant vehicles are 22-foot buses and some are vans. All are CNG or gasoline-powered; none are diesel-powered.

Annual Report Summary: Apple Valley (2012)

This Annual Report Summary is an official record of your CalRecycle Electronic Annual Report submission, except for your Venue/Event section information, which is contained in a separate report. You may reach that section from the Electronic Annual Report's left navigation bar.

Before submitting your report to CalRecycle, please take the time to review everything on this page to confirm it is complete and correct. If you need to modify some information, close this window to return to the Electronic Annual Report to make your corrections. Then, preview the report again.

Summary Generated On: Wednesday, July 31, 2013 at 8:12 AM

Summary

Jurisdiction: Apple Valley
Report Year Filed: 2012
Report Status: Submitted

Submitted Information

Date Report Submitted: Wednesday, July 31, 2013 at 8:12 AM
Report Submitted By: Sharon Mitchell (smitchell@burrtec.com)

Jurisdiction Contact

Jurisdiction Contact: Joseph Moon
Address: 14955 Dale Evans Pky Apple Valley, CA 92307
Phone Number: (760) 240-7000
Fax Number: (760) 240-7399
Email Address: JMoon@applevalley.org
Update Contact Info: http://www.calrecycle.ca.gov/LGCentral/Contacts/ContactChg.htm

Disposal Rate Calculation

Definition of Terms

Reporting-Year Disposal Amount (tons) – defaults to the total tonnage disposed in the Reporting-Year by a jurisdiction as reported to the Disposal Reporting System (DRS). Disposal contains all jurisdiction waste that was disposed in CA landfills, transformation facilities, and exported out-of-state. Any changes will require you submit a Reporting Year Disposal Modification Certification Sheet (PDF). See User's Guide or contact LAMD representative if uncertain.
Disposal Reduction Credits - the EAR calculator will subtract these credits from your requested total in the Reporting-Year Disposal Amount field. Requesting credits will require you submit a Reporting Year Disposal Modification Certification Sheet (PDF). Descriptions of these credits can be found on that sheet. See EAR User's Guide or contact LAMD representative if uncertain.
Reporting-Year Transformation Waste (tons) – defaults to the total tonnage of waste sent in the Reporting-Year by a jurisdiction to a CalRecycle-permitted transformation facility as reported to the Disposal Reporting System (DRS). Transformation is factored into the Per Capita rate only, and is not deductible. To eliminate the Per Capita credit for transformation tonnage, change the *Reporting-Year Transformation Waste (tons)* number to 0.00.
Reporting-Year Population – January 1st estimate of the number of inhabitants occupying a jurisdiction in the Reporting-Year as prepared by the California Department of Finance (DOF)
Reporting-Year Employment – the estimate of the annual average number of employees by jurisdiction in the Reporting-Year as prepared by the California Employment Development Department (EDD)
Additional Definitions - for additional definitions and/or acronym descriptions, see the LGCentral Glossary.

Reporting-Year Disposal Amount (tons):		45,986.79
Disposal Reduction Credits (Reported):		
Disaster Waste (tons):	0.00	
Medical Waste (tons):	0.00	
Regional Diversion Facility Residual Waste (tons):	0.00	
C&D Waste (tons):	0.00	
Class II Waste (tons):	0.00	
Out-of-State Export (Diverted) (tons):	0.00	
Other Disposal Amount (tons):	0.00	
Total Disposal Reduction Credit Amount (tons):		0
Total Adjusted Reporting-Year Disposal Amount (tons):		45,987.00

Reporting-Year Transformation Waste (tons): 00.01

REPORTING ENTITY	QUARTER	DESTINATION FACILITY	TRANSFORMATION TON
Los Angeles	2	Commerce Refuse-To-Energy Facility	00.01

Page 1 of 1 Export To Excel Count: 1

Reporting-Year Population: 70,033

Reporting-Year Employment: 12,580

Reporting-Year Calculation Results (Per Capita)

	Population		Employment	
	Target	Annual	Target	Annual
Disposal Rate without Transformation(pounds/person/day):		3.6		20.0
Transformation Rate (pounds/person/day):	1.3	0.0	7.2	0.0
The Calculated Disposal Rate (pounds/person/day):	6.6	3.6	36.0	20.0

Calculation Factors

If any boxes are checked, please complete, and sign the Reporting Year Disposal Modification Certification Sheet and mail, e-mail or FAX to CalRecycle within 7 business days of submitting your report. If you are only claiming report-year disposal deductions for waste transported to a certified Transformation facility, you do not need to fill out the certification request.

Although you will be able to submit your electronic Annual Report without completing this sheet, your Annual Report will not be deemed complete until this sheet is completed and received by CalRecycle. Contact your LAMD representative for details.

- ☐ Alternative disposal tonnage
- ☐ Deductions to DRS disposal tonnage

Questions and Responses

Rural Petition for Reduction in Requirements

Rural Petition For Reduction

1. ***Question:*** Was your jurisdiction granted a Rural Petition for Reduction by CalRecycle?
   For more information regarding Rural Petition For Reduction, go to Rural Solid Waste Diversion Home Page.

   Response

   No.

Disposal Rate Accuracy

Disposal Rate Accuracy

1. ***Question:*** Are there extenuating circumstances pertaining to your jurisdiction's disposal rate that CalRecycle should consider, as authorized by the Public Resources Code Section 41821(c)? If you wish to attach additional information to your annual report, please send those items or electronic files to your LAMD representative; include a brief description of those files below. If so, please use the space below to tell CalRecycle.

   Response

   No.

Planning Documents Assessment

Source Reduction and Recycling Element (SRRE)

1. ***Question:*** Does the SRRE need to be revised?

   Response

   No.

Household Hazardous Waste Element (HHWE)

2. ***Question:*** Does the HHWE need to be revised?

   Response

   No.

Non-Disposal Facility Element (NDFE)

3. ***Question:*** Describe below any changes in the use of nondisposal facilities, both existing and planned (e.g., is the jurisdiction using a different facility within or outside of the jurisdiction, has a facility closed, is a new one being planned).

   Response

   No Changes.

Non-Disposal Facility Element (NDFE)

4. ***Question:*** Are there currently any nondisposal facilities that require a solid waste facility permit located (or planned to be sited) in your jurisdiction that are not identified in your NDFE?

   Response

   No.

Areas of Concern / Conditional Approvals

Areas of concern

1. ***Question:*** Did CalRecycle require your jurisdiction to address any areas of concern when determining the adequacy of your solid waste planning documents, or any of their elements?

   Response

   No.

Conditional approvals

2. ***Question:*** Did CalRecycle give conditional approval to any of your solid waste planning documents, or any of their elements?

   Response

   No.

Additional Information

Additional Information

1. ***Question:*** Is there anything else you would like to tell CalRecycle about unique or innovative efforts by your jurisdiction to reduce waste generation and increase diversion, about your jurisdiction's public education efforts, or about specific obstacles to reaching your jurisdiction's diversion goal? If you wish to attach additional information to your annual report, please send those items or electronic files to your LAMD representative and include a brief description of those files below.

   Response

   No.

SRRE and HHWE Diversion Programs

1000-SR-XGC (Xeriscaping/Grasscycling)

Current Status: SO - Selected and Ongoing

Program Start Year: 1992
Report Year Diversion Tons: 598.00

Existed before 1990: Yes
Selected in SRRE: Yes
Owned or Operated: Yes

Selected Program Details: Grasscycling | Xeriscaping

Jurisdiction Notes

Grasscycling 92 acres of turf throughout Town parks is estimated to divert 598 tons of grass clippings. Public areas are xeriscaped with native and desert adaptive plants to reduce both organic waste and water use.

1010-SR-BCM (Backyard and On-Site Composting/Mulching)

Current Status: SO - Selected and Ongoing

Program Start Year: 1992
Report Year Diversion Tons: 43.20

Existed before 1990: No
Selected in SRRE: Yes
Owned or Operated: Yes

Jurisdiction Notes

Diversion amount based on backyard composting of 600 pounds annually by master composters in 144 Apple Valley households. Master Composter training continues in six different regions sponsored by the Mojave Desert & Mountain Recycling JPA. There was a Master Composter workshop held in Victorville in November 2012 in which 10 Apple Valley residents were trained. There were also 13 Apple Valley residents that attended a composting workshop held in Victorville in July 2012.

1020-SR-BWR (Business Waste Reduction Program)

Current Status: AO - Alternative and Ongoing

Program Start Year: 1992
Report Year Diversion Tons: 0.00

Existed before 1990: No
Selected in SRRE: No
Owned or Operated: No

Jurisdiction Notes

Commercial and multi-family newsletters were included in March and July, respectively, offering free on-site waste audits and encouraging customers to open recycling accounts.

1030-SR-PMT (Procurement)

Current Status: SO - Selected and Ongoing

Program Start Year: 1992
Report Year Diversion Tons: 0.00

Existed before 1990: No
Selected in SRRE: Yes
Owned or Operated: Yes

Jurisdiction Notes

Town's Green Purchasing Ordinance is still being implemented. Town's Human Resources and Finance Departments encourage the purchase of Recycled Content Products (RCP) when it is financially feasible. Town purchases RCP paper, lights, and carpet.

1040-SR-SCH (School Source Reduction Programs)

Current Status: AO - Alternative and Ongoing

Program Start Year: 1995
Report Year Diversion Tons: 0.00

Existed before 1990: No
Selected in SRRE: No
Owned or Operated: No

Jurisdiction Notes

None

1050-SR-GOV (Government Source Reduction Programs)

Current Status: SO - Selected and Ongoing
Program Start Year: 1992
Report Year Diversion Tons: 0.00
Existed before 1990: Yes
Selected in SRRE: Yes
Owned or Operated: Yes

Jurisdiction Notes

All Town staff printers and copy machines are defaulted to print double-sided and Town council agendas are now sent to council members electronically. All Town employees are asked to try to conserve paper by printing on both sides and only printing when necessary.

1060-SR-MTE (Material Exchange, Thrift Shops)

Current Status: SO - Selected and Ongoing
Program Start Year: 1992
Report Year Diversion Tons: 0.51
Existed before 1990: Yes
Selected in SRRE: Yes
Owned or Operated: No

Jurisdiction Notes

9 thrift stores continue to operate in the Town. Nike discontinued its free pickup of athletic shoes for recycling, so the Senior Center Thrift Store no longer saves those. However, the Victor Valley MRF added a USAgain donation bin to Recycle Alley in May 2012 for clothing and shoes available for Apple Valley residents to use (approximately 0.51 tons collected from Apple Valley in 2012)-- Note: USAgain bin material tonnage figures are not separated by jurisdiction at the MRF, so the total amount received at the MRF was divided between the City of Victorville and the Town of Apple Valley to calculate tonnage amounts for each City. The Town issued 408 yard sale permits in 2012.

2000-RC-CRB (Residential Curbside)

Current Status: SO - Selected and Ongoing
Program Start Year: 1994
Report Year Diversion Tons: 3623.11
Existed before 1990: No
Selected in SRRE: Yes
Owned or Operated: Yes

Selected Program Details: Single-family residences | Commingled (Single-stream) | Film Plastic | Glass | Metal | Miscellaneous paper (includes phone books, catalogs, magazines and other paper) | Newspaper | Office paper (white & colored ledger, computer paper, other office paper) | Plastic 1-2 | Plastic 3-7 | Uncoated corrugated cardboard and paper bags

Jurisdiction Notes

Curbside recycling program continues. Commingled, weekly automated curbside recycling service is provided to all single-family homes and small multi-family complexes on cart service. The Residential curbside program service includes either a 40-,60-, or 95- gallon trash barrel and a 60-gallon recycling barrel. Additional recycling barrels are provided to residents at no additional charge. Residents can choose to use a smaller trash barrel for a lower cost. In 2012, there was a 99% recycling participation rate for the residential curbside recycling program. Total tonnage processed through the Residential Curbside Recycling Program for 2012 was 5,042.81 tons, with 3,416.23 tons recovered. This corresponds to a 32.25 % residue rate and a 67.74 % recovery rate. Town residents are also given the option to receive residential bin service. Those residents opting to use residential bin service for trash are also allowed to get a recycling barrel for recyclables at no additional charge. Town residents on residential trash bin service may also be selected to be placed on a select route. In 2012, there was a 63.08 % recycling/select participation rate for Town residents with residential bins. Total curbside tonnage processed through curbside recycling program by residents with residential trash bins for 2012 was 215.50 tons, with 191.47 tons recovered. This corresponds to a 11.15 % residue rate and a 88.85 % recovery rate. The Town also has a residential bin select program where residential trash bins that are found to have a high percentage of recyclable materials are placed on a select route to have materials delivered and processed at the Victor Valley MRF. Total tonnage processed through the residential select bin program in 2012 was 51.55 tons, with 15.41 tons recovered. This corresponds to a 70.11 % residue rate and a 29.89 % recovery rate. All new customers signing up for trash service are mailed a "new start" flyer that includes curbside recycling information. Town expanded curbside program to include all mixed, rigid plastics in January 2005. Now accepting # 1 through # 7 rigid plastics. Note: Film plastics (bags) are not listed as an acceptable material to put in blue bin--due to difficulty of handling material and problems it creates at the Victor Valley MRF processing center. Nevertheless, this material is pulled out and recovered at the MRF during processing (approximately 8.86 tons recovered from residential sector included in tonnage figure above).

2010-RC-DRP (Residential Drop-Off)

Current Status: SO - Selected and Ongoing
Program Start Year: 1994
Report Year Diversion Tons: 36.65
Existed before 1990: No
Selected in SRRE: Yes
Owned or Operated: Yes

Jurisdiction Notes

Residents can use Town co-owned Victor Valley MRF to drop-off recyclable materials such as mixed paper, glass bottles, tin and aluminum cans, cardboard, scrap metal, CRTs. In April 2007, the Town, working in partnership with Burrtec Waste Industries, began a major push in publicizing use of the Victor Valley MRF as a Recycling drop off center: (1) the MRF's hours were extended to Monday through Friday from 8 am to 4 pm and new hours each Saturday from 8 am to noon, (2)a separate user friendly area, Recycle Alley, was created for the public to drop off OCC, glass, scrap metal, bottles, and cans, and (3) the VV MRF started accepting CRTs at the MRF. Aggressive advertising of Victor Valley MRF Recycle Alley continued in 2012. A total of 904 people utilized the VV MRF Recycle Alley to drop-off recyclable materials in 2012. Residential drop off tonnage received at the MRF totaled 46.26 tons-- of this total, approximately 17.96 tons of CRTs (reported in 9045) , 4.96 tons of scrap metal, and 22.95 tons of mixed recyclables including OCC, newspaper, mixed recyclables, mixed plastic, glass, and plastic bags were collected. (Note: Drop-off material tonnage figures are not separated by jurisdiction at the MRF, so the total amount received at the MRF was divided between the Town of Apple Valley and the City of Victorville to calculate tonnage amounts for each City). Free Shred Fests were held at the MRF with free confidential document shredding and compost/mulch giveaways for residents in February, May, August and November to encourage residents to visit the facility-- approximately 8.03 tons of confidential documents from 315 Town of Apple Valley residents were collected and shredded on-site at the VV MRF and then recycled. Residents were also given the opportunity to "tour" the MRF during the Third Annual Earth Day at the MRF event held on April 21, 2012. Confidential document shredding was also provided to 10 Apple Valley residents at this event (approximately 0.20 tons shredded and recycled). Residents can also self-haul C & D materials to the Victorville Landfill where self-hauled loads go through the landfill's CDSDP and recoverable materials are sorted and recycled. Apple Valley residents are also able to drop off recyclable materials, appliances, and electronic wastes (including CRTs) at a new Recycling Drop-Off Center located in the City of Victorville that opened in August 2010. Approximately 35 Apple Valley residents utilized this facility in 2012.

2020-RC-BYB (Residential Buy-Back)

Current Status: SO - Selected and Ongoing

Program Start Year: 1987
Report Year Diversion Tons: 2167.12

Existed before 1990: Yes
Selected in SRRE: Yes
Owned or Operated: Yes

Jurisdiction Notes

Diversion amount based on Department of Conservation reporting materials received from Apple Valley recycling centers, plus tonnage from the Victor Valley MRF buy-back center. There were 10 recycling centers in the Town in 2012. In 2012, 552.66 tons of aluminum, 830.26 tons of glass, 477.51 tons of PETE, 58.18 tons of HDPE, 3.86 tons of PS and other plastics, and 0.16 tons of bimetal was collected from these recycling centers. Town co-owned Victor Valley MRF has a public buy back center for CRV materials, newspaper, and corrugated cardboard. Tonnage listed was received from residential buy-back customers from the Town of Apple Valley at the Victor Valley MRF- approximately 244.49 tons received. (Note: Buy back material tonnage figures are not separated by jurisdiction at the MRF, so the total amount received was divided between the Town of Apple Valley and the City of Victorville to calculate tonnage amounts for each City).

2030-RC-OSP (Commercial On-Site Pickup)

Current Status: SO - Selected and Ongoing

Program Start Year: 1992
Report Year Diversion Tons: 1603.73

Existed before 1990: Yes
Selected in SRRE: Yes
Owned or Operated: Yes

Selected Program Details: Large Generators (4.0 cy/week) | Multi-family residences | Commingled (Single-stream) | Film Plastic | Glass | Metal | Miscellaneous paper (includes phone books, catalogs, magazines and other paper) | Newspaper | Office paper (white & colored ledger, computer paper, other office paper) | Plastic 1-2 | Plastic 3-7 | Uncoated corrugated cardboard and paper bags

Jurisdiction Notes

The Town continued to operate and promote its extensive commercial and multi-family recycling programs. The Commercial Recycling Route (CRR) is a separate collection program using 1.5 to 3 cubic yard dumpsters to collect commingled recyclables (clean paper, empty bottles and cans, and plastics # 1-7). In 2012, the CRR program processed 647.05 tons of materials, recovering 575.00 tons. This corresponds to a 88.86 % recovery rate and a 11.14 % residue rate. The Commercial Select Route (CSL) is a program that uses selective routing to concentrate "clean" trash accounts onto one route. Businesses such as offices or retail--with mostly paper and minimal amounts of food or green waste--are all routed together. These "clean trash" loads are then sent to the Victor Valley Materials Recovery Facility to be sorted. In 2012, the Commercial Select Program processed 1,012.97 tons of materials, recovering 309.96 tons. This corresponds to a 30.60 % recovery rate and a 69.40% residue rate. Town multi-family recycling program includes multi-family recycling bin and barrel service. In 2012, the multi-family recycling program processed 518.94 tons of materials, recovering 461.14 tons. This corresponds to a 88.86% recovery rate and a 11.14 % residue rate. In 2012, Similar to the Commercial select route program, Town multi-family accounts on trash bin service that had "clean" trash were placed on a select route. In 2012, the multi-family select program processed

172.95 tons of materials, recovering 53.67 tons. This corresponds to a 31.03% recovery rate and a 68.97% residue rate. At the end of 2012, 59.09 % of Apple Valley commercial accounts and 82.06 % of Apple Valley multi-family accounts were participating in the Town's Recycling and/or Select programs. The Roll-off Recycling Route is a program to collect separated recyclables in roll-off containers. The Roll-off Recycling Route (RRR) processed 14.87 tons of materials, recovering 10.62 tons. This corresponds to a 71.42 % recovery rate and a 28.58 % residue rate. The Roll-off Select Route (RSL) is a program targeted at "clean" trash compactors and roll-offs. Trash compactors that have large percentages of clean, dry paper (and minimal amounts of food or other material which would make sorting difficult) are sent to the City's Victor Valley MRF. Loads are dumped and recoverable materials are pulled out. Residue is sent to the landfill. In 2012, the Roll-off Select Route processed 61.33 tons of materials, recovering 37.34 tons. This corresponds to a 60.88 % recovery rate and a 39.12 % residue rate. A total of 1,447.73 tons of recyclable materials were recovered through the Town's commercial, multi-family, and industrial recycling programs in 2012. Through a partnership between the Town, Burrtec Waste's AVCO hauling division, and the VV MRF, a commercial on-site pickup buy-back program is available to commercial businesses in the high desert. Businesses store their recyclable materials in compactors or roll-offs and Burrtec Waste collects these materials and delivers it to the VV MRF. Customers are billed directly by Burrtec Waste for their hauling fees. The tonnage from these commercial customers is tracked by the MRF and customers are sent monthly checks for their recyclable materials. A total of approximately 156 tons of recyclable materials were received from Apple Valley businesses through this program. Town's franchised waste hauler, Burrtec Waste, visits businesses to promote participation in Town's commercial recycling program and development of "in-house" programs for other materials. Solid Waste Surveys are performed for businesses by Burrtec Waste Municipal Program Coordinator and Waste Consultants. Burrtec Waste Recycling Coordinator also provides recycling training for business employees on how to participate in commercial recycling program and to answer any questions that employees may have about the program. In 2012, Burrtec Waste staff conducted approximately 28 waste surveys for Apple Valley commercial customers. At the end of 2012, 135 of 156 Apple Valley multi-family accounts with a minimum of 5 units were recycling through the Town's commercial recycling route program with Burrtec Waste, and the remaining 21 accounts did not have recycling service through the Town's program (this corresponds to a 86.54 % recycling participation rate for multi-family accounts subject to AB 341). At the end of 2012, 133 of 188 Apple Valley commercial accounts with 4 or more yards of service per week were recycling through the Town's recycling route programs with Burrtec Waste, and the remaining 55 accounts did not have recycling service through the Town's programs (this corresponds to a 70.74 % recycling participation rate for commercial accounts subject to AB 341). At the end of 2012, 18 of 22 Apple Valley roll-off accounts were recycling through the Town's roll-off recycling programs with Burrtec Waste, and the remaining 4 accounts did not have recycling service through the Town's programs (this corresponds to a 81.82 % recycling participation rate for roll-off accounts subject to AB 341).

2040-RC-SFH (Commercial Self-Haul)

Current Status: SO - Selected and Ongoing

Program Start Year: 1995
Report Year Diversion Tons: 0.00

Existed before 1990: No
Selected in SRRE: Yes
Owned or Operated: No

Jurisdiction Notes

The Town does not have the capability of tracking commercial self-haul.

2050-RC-SCH (School Recycling Programs)

Current Status: SO - Selected and Ongoing

Program Start Year: 1995
Report Year Diversion Tons: 0.05

Existed before 1990: No
Selected in SRRE: Yes
Owned or Operated: No

Jurisdiction Notes

All Apple Valley schools have recycling bins and free classroom cans for recycling purposes. Different schools invest differing amounts of time in separating out the collected recycling. "Earth Day at the MRF" was held for the third time in April to promote awareness of the facility and its offerings. This was coupled with a school newspaper contest for regional schools and cash prizes for the schools with the highest tonnage. One Apple Valley school participated in this newspaper drive contest, collecting 0.05 tons of newspaper.

2060-RC-GOV (Government Recycling Programs)

Current Status: SO - Selected and Ongoing

Program Start Year: 1992
Report Year Diversion Tons: 0.00

Existed before 1990: Yes
Selected in SRRE: Yes
Owned or Operated: Yes

Jurisdiction Notes

The Town no longer accepts athletic shoes for recycling, since Nike discontinued its pickup program. The Victor Valley MRF is now collecting shoes through a USAgain donation bin. All other recycling continues in Town offices and at events. Town employees have a trash and recycling container at every desk and new employees are told about the Town's office recycling programs (i.e. what materials can be placed into recycle containers).

2070-RC-SNL (Special Collection Seasonal (regular))

Current Status: SO - Selected and Ongoing
Program Start Year: 1992
Report Year Diversion Tons: 5.06
Existed before 1990: Yes
Selected in SRRE: Yes
Owned or Operated: Yes

Jurisdiction Notes

Special collections allow residents to drop off appliances/metal and mattresses at scheduled times during the year. Approximately 2.34 tons of mattresses collected at annual mattress collection day (March 2012). Additionally, Burrtec Waste collects mattress through Residential Bulky Item Pick-Up program (approximately 99 mattresses collected in 2012-- 2.72 tons).

2080-RC-SPE (Special Collection Events)

Current Status: AO - Alternative and Ongoing
Program Start Year: 1997
Report Year Diversion Tons: 0.00
Existed before 1990: No
Selected in SRRE: No
Owned or Operated: Yes

Jurisdiction Notes

Special collections allow residents to drop off appliances and mattresses at scheduled times during the year. Town residents are also given two free bulky-item pick-ups per year with up to five items per pickup.

3010-CM-RSG (Residential Self-haul Greenwaste)

Current Status: SO - Selected and Ongoing
Program Start Year: 2000
Report Year Diversion Tons: 590.74
Existed before 1990: No
Selected in SRRE: Yes
Owned or Operated: No

Jurisdiction Notes

This figure includes both commercial and residential self-haul to American Organics.

3030-CM-CSG (Commercial Self-Haul Greenwaste)

Current Status: SO - Selected and Ongoing
Program Start Year: 1996
Report Year Diversion Tons: 590.74
Existed before 1990: No
Selected in SRRE: Yes
Owned or Operated: No

Jurisdiction Notes

This figure includes both commercial and residential self-haul to American Organics.

3070-CM-OTH (Other Composting)

Current Status: NI - Selected and Not Implemented
Program Start Year: 10
Report Year Diversion Tons: 0.00
Existed before 1990: No
Selected in SRRE: Yes
Owned or Operated: No

Jurisdiction Notes

None

4020-SP-TRS (Tires)

Current Status: AO - Alternative and Ongoing

Program Start Year: 1996
Report Year Diversion Tons: 68.41

Existed before 1990: No
Selected in SRRE: No
Owned or Operated: Yes

Jurisdiction Notes

Code Enforcement collected 6,180 tires (approximately 68.41 tons) tires during two tire amnesty day events.

4030-SP-WHG (White Goods)

Current Status: AO - Alternative and Ongoing

Program Start Year: 1996
Report Year Diversion Tons: 41.81

Existed before 1990: No
Selected in SRRE: No
Owned or Operated: Yes

Jurisdiction Notes

Code Enforcement accepted 1.66 tons of appliances for recycling during the annual Appliance Day event (February 2012). Appliances are also accepted free of charge throughout the year at the MRF, however, no records are kept concerning material origin. Burrtec Waste also collected 40.15 tons of tin/white goods from Town commercial accounts in 2012.

4040-SP-SCM (Scrap Metal)

Current Status: SO - Selected and Ongoing

Program Start Year: 2000
Report Year Diversion Tons: 29.83

Existed before 1990: No
Selected in SRRE: Yes
Owned or Operated: No

Jurisdiction Notes

The MRF reported receiving 138.66 tons of scrap metal throughout the year from residential and commercial collection programs (tonnage reported in programs 2000 and 2030). From Code Enforcement's five neighborhood cleanups and the Town's two community clean-up days, 10.06 tons of metal for recycling was collected in addition to the white goods. Town's franchised hauler, Burrtec Waste, collected 11.31 tons of metal from residential customers through Bulky Item Pick-Up program and 8.46 tons of metal from commercial accounts.

4050-SP-WDW (Wood Waste)

Current Status: SO - Selected and Ongoing

Program Start Year: 1990
Report Year Diversion Tons: 0.00

Existed before 1990: Yes
Selected in SRRE: Yes
Owned or Operated: Yes

Jurisdiction Notes

Although Apple Valley does not have a program for wood waste collection at the VV MRF, wood waste was recovered from Apple Valley roll-off select and commercial select loads in 2012. Of the 12 wood shipments that were sent to American Organics for chipping in 2012, 7.08 tons were allocated as originating from the Town of Apple Valley. (Note: Tonnage allocations are based on monthly waste characterizations; tonnage included in 2030 program tonnage).

4060-SP-CAR (Concrete/Asphalt/Rubble)

Current Status: SO - Selected and Ongoing

Program Start Year: 1990
Report Year Diversion Tons: 142.18

Existed before 1990: Yes
Selected in SRRE: Yes
Owned or Operated: No

Selected Program Details: Asphalt Paving | Brick | Concrete/cement | Gypsum Board/drywall | Mixed C + D | Rock, soils and fines

Jurisdiction Notes

This tonnage represents asphalt tonnage of C & D materials recycled from construction projects (130 tons). The Town also adopted a C & D ordinance in 2010 to align with the new CalGreen Code-- approximately 2.49 tons of material was reported as

diverted from the landfill from one LEED project in 2012. TPST Soil Recycler recycles contaminated soil- 9.69 tons of soil from Apple Valley recycled in 2012.

4090-SP-RND (Rendering)

Current Status: SO - Selected and Ongoing

Program Start Year: 1990
Report Year Diversion Tons: 0.25

Existed before 1990: Yes
Selected in SRRE: Yes
Owned or Operated: No

Jurisdiction Notes

Town businesses utilizes rendering companies for their waste cooking oil/grease(no tonnage figure available). Additionally, 0.25 tons of cooking oil was brought to the S.B. County HHW facilities by Apple Valley residents in 2012.

5000-ED-ELC (Electronic (radio ,TV, web, hotlines))

Current Status: SO - Selected and Ongoing

Program Start Year: 1992
Report Year Diversion Tons: 0.00

Existed before 1990: No
Selected in SRRE: Yes
Owned or Operated: Yes

Jurisdiction Notes

Same programs continue. In addition to the Town's website and recycling information, the joint powers authority also maintains a website with local information as does the county Zero Waste Communities organization. Through the Town's membership with the Mojave Desert & Mountain Recycling JPA, a comprehensive AB 341 education and outreach program was developed in 2012 that included targeted outreach to Apple Valley businesses and multi-family complexes-- included web banners on five online newspapers and the creation of an informational website that provides information about AB 341 compliance, Town and hauler contact information, recycling ideas, and items that are recyclable.

5010-ED-PRN (Print (brochures, flyers, guides, news articles))

Current Status: SO - Selected and Ongoing

Program Start Year: 1992
Report Year Diversion Tons: 0.00

Existed before 1990: Yes
Selected in SRRE: Yes
Owned or Operated: Yes

Jurisdiction Notes

Hard copies of information flyers and brochures are still maintained in public areas for the benefit of non-wired residents. Through the Town's membership with the Mojave Desert & Mountain Recycling JPA, a comprehensive AB 341 education and outreach program was developed in 2012 that included targeted outreach to Apple Valley businesses and multi-family complexes-- included informative press releases sent to local newspapers that produced AB 341 articles in five local newspapers, print advertisements in six local newspapers, multi-family tenant brochures, commercial property brochures, and industry organization media kits. Multi-family tenant brochures and commercial property brochures indirectly distributed to 9 property management companies who represent 1,780 multi-family tenants and 245 commercial properties in multiple High Desert communities (including Apple Valley) and directly distributed to 14 individual Apple Valley properties (encompassing 460 multi-family tenants and 150 commercial tenants).

5020-ED-OUT (Outreach (tech assistance, presentations, awards, fairs, field trips))

Current Status: SO - Selected and Ongoing

Program Start Year: 1991
Report Year Diversion Tons: 0.00

Existed before 1990: Yes
Selected in SRRE: Yes
Owned or Operated: Yes

Jurisdiction Notes

"Earth Day at the MRF" was held for the third time in April 2012 to promote awareness of the facility and its offerings. This was coupled with a school newspaper contest for regional schools and cash prizes for the schools with the highest tonnage. The Apple Valley Ranchos Water Company held a Conservation Spring Fair in May 2012- Town and Burrtec Waste had booths at the event with handouts on upcoming events and trash and recycling services offered by the Town. Burrtec Waste conducted an AB 341 Commercial Recycling presentation to the Apple Valley Chamber of Commerce in September 2012, informing Chamber members of the AB 341 regulation and how businesses and multi-family complexes can recycle in the

Town. In November 2012, Burrtec Waste also conducted an AB 341 Commercial Recycling presentation to the High Desert Hispanic Chamber of Commerce, in which several Town businesses are members, informing Chamber members of the AB 341 regulation and how businesses and multi-family complexes can recycle through Burrtec Waste in the High Desert. Through the City's membership with the Mojave Desert & Mountain Recycling JPA, a comprehensive AB 341 education and outreach program was developed in 2012 that included targeted outreach to Apple Valley businesses and multi-family complexes--included direct outreach to industry organizations, property management companies, businesses, and tenants in the form of focus group meetings and canvassing sessions.

5030-ED-SCH (Schools (education and curriculum))

Current Status: SO - Selected and Ongoing

Program Start Year: 1992
Report Year Diversion Tons: 0.00

Existed before 1990: Yes
Selected in SRRE: Yes
Owned or Operated: No

Jurisdiction Notes

Burrtec Waste Municipal Program Coordinator conducted an in-class recycling presentation for an Apple Valley preschool in June 2012 (approximately 80 students), informing students of what items are recyclable in the Town and the importance of recycling. Apple Valley Christian Academy received a tour of the Victor Valley MRF in December 2012 (approximately 20 students), acquainting students with its operation and the importance of recycling.

6010-PI-EIN (Economic Incentives)

Current Status: SO - Selected and Ongoing

Program Start Year: 1994
Report Year Diversion Tons: 0.00

Existed before 1990: No
Selected in SRRE: Yes
Owned or Operated: Yes

Selected Program Details: Deposit | Franchise Fee | Unlimited recycling | Variable can rate/Quantity based user fee

Jurisdiction Notes

Pay-as-you-throw trash rates continue as well as distribution of free residential recycling barrels.

6020-PI-ORD (Ordinances)

Current Status: SO - Selected and Ongoing

Program Start Year: 1990
Report Year Diversion Tons: 0.00

Existed before 1990: No
Selected in SRRE: Yes
Owned or Operated: Yes

Selected Program Details: C & D ordinance | Green building ordinance | Mandatory commercial recycling | Mandatory multi-family recycling | Mandatory residential recycling | Mandatory waste collection | Recycled content procurement

Jurisdiction Notes

In 2011, a C & D Ordinance regarding the California Green Building Code (CalGreen) was passed requiring building permit applicants with projects of 1,000 square feet or more to prepare a Waste Management Plan and show that they have recycled a minimum of 50% of construction debris from projects. A deposit of $500.00 to document compliance with the Town's Construction Debris Recycling Ordinance is also required for those projects not controlled by Conditions of Approval. No Town permit will be issued without completion of a Waste Management Plan. Mandatory Commercial Recycling Ordinance was also passed in 2011 to align with AB 341. It requires all commercial businesses generating 4 or more cubic yards of solid waste per week and all Multi-Family Dwellings with 5 or more units to reuse, recycle, compost, or otherwise divert material away from the landfill.

7000-FR-MRF (MRF)

Current Status: SO - Selected and Ongoing

Program Start Year: 1994
Report Year Diversion Tons: 0.00

Existed before 1990: No
Selected in SRRE: Yes
Owned or Operated: Yes

Jurisdiction Notes

The MRF reported a 65.13% recovery rate, recovering 5,041.84 tons out of 7,740.98 tons received at the facility (tonnages

reported in programs 2000 and 2030).

7010-FR-LAN (Landfill)

Current Status: AO - Alternative and Ongoing

Program Start Year: 2008
Report Year Diversion Tons: 4120.51

Existed before 1990: No
Selected in SRRE: No
Owned or Operated: No

Jurisdiction Notes

The Victorville Landfill located at 18600 Stoddard Wells Rd in Victorville is utilized by the Town of Apple Valley. Open Monday thru Saturday from 8am-5pm, this landfill is owned by the County of San Bernardino and operated by Burrtec Waste Industries (The County's contracted landfill operator) in 2012. In 2008, San Bernardino County began a Comprehensive Disposal Site Diversion Program at all of their landfills. This program diverts recyclable materials (metal, cardboard, glass, carpet, and tires); greenwaste, C & D waste, and fines for use as ADC; beneficial reuse materials (processed woody and green waste, concrete, and asphalt) used for erosion control on site and wet weather material/road base for access roads or tipping area deck on site; and Bio Mass materials (processed woody material sent to ColMac Energy Facility to be used for fuel to generate electricity). In 2012, 4,120.51 tons of materials originating from Apple Valley roll-off and self-hauled loads were diverted through the CDSDP at San Bernardino County landfills.

7030-FR-CMF (Composting Facility)

Current Status: SO - Selected and Ongoing

Program Start Year: 2000
Report Year Diversion Tons: 0.00

Existed before 1990: No
Selected in SRRE: Yes
Owned or Operated: No

Jurisdiction Notes

American Organics Composting Facility (formerly California Biomass) located at 20055 Shay Rd in Victorville is available for Town residents and businesses to utilize. Their operating hours are Mon-Sat 7am-4pm. Facility accepts material from private contractors, government agencies, haulers, and residents. Facility accepts green waste, wood waste, drywall, sod, brush, and food waste.

9000-HH-PMF (Permanent Facility)

Current Status: SO - Selected and Ongoing

Program Start Year: 1995
Report Year Diversion Tons: 42.09

Existed before 1990: No
Selected in SRRE: Yes
Owned or Operated: Yes

Jurisdiction Notes

San Bernardino County Fire HHW estimates that 17.18 tons of motor oil/oil products, 0.83 tons of oil filters, 13.01 tons of latex paint, 7.36 tons of oil base paints, and 3.34 tons of batteries were collected to be recycled at County HHW facilities by Apple Valley residents in 2012. Additionally, County HHW facilities have material exchange programs where unused chemicals can be brought in to be used by other residents (0.37 tons brought in by Apple Valley residents in 2012). Approximately 3,663 Apple Valley residents used these County HHW facilities in 2012.

9010-HH-MPC (Mobile or Periodic Collection)

Current Status: DE - Dropped in an earlier year

Program Start Year: 1987
Report Year Diversion Tons: 0.00

Existed before 1990: No
Selected in SRRE: No
Owned or Operated: No

Jurisdiction Notes

None

9040-HH-EDP (Education Programs)

Current Status: SO - Selected and Ongoing

Program Start Year: 1991
Report Year Diversion Tons: 0.00

Existed before 1990: No
Selected in SRRE: Yes
Owned or Operated: Yes

Jurisdiction Notes

Brochure and website information made available to the public.

9045-HH-EWA (Electronic Waste)

Current Status: SO - Selected and Ongoing

Program Start Year: 2002
Report Year Diversion Tons: 68.78

Existed before 1990: No
Selected in SRRE: No
Owned or Operated: Yes

Jurisdiction Notes

Approximately 68.78 tons of electronics (including CRTs) were brought to the HHW facility for recycling by Town residents.

9050-HH-OTH (Other HHW)

Current Status: AO - Alternative and Ongoing

Program Start Year: 2009
Report Year Diversion Tons: 1.66

Existed before 1990: No
Selected in SRRE: No
Owned or Operated: Yes

Jurisdiction Notes

Home-generated medical sharps are accepted at the S.B. County HHW centers and approved sharps containers supplied by the Town. Approximately 0.61 tons of sharps were collected at S.B. County HHW facilities in 2012. In 2012, 776 sharps containers were distributed to residents. Additionally, 0.25 tons of pharmaceuticals, 0.55 tons of fluorescent tubes, and 0.25 tons of compressed gas cylinders were brought to S.B. County HHW facilities by Apple Valley residents in 2012.