Climate Action Plan Update

2016

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Town of Apple Valley

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I. EXECUTIVE SUMMARY

The 2016 Climate Action Plan (CAP) Update seeks to ensure the reduction measures proposed and implemented in the CAP continue to support the Town's greenhouse gas emissions reduction target of 15% below 2005 levels by 2020. The CAP, which was originally adopted in 2010, was designed to be revised every 3 years to respond to advances in technology, emerging policy reforms, and to build upon the successes of Apple Valley's efforts to reduce greenhouse gas emissions. This represents the second update to the original document.

This CAP includes general information about greenhouse gases and climate change, a comparison of the 2013 and 2016 inventories, the 2020 forecast under business-as-usual conditions, and updates to the proposed reduction measures that will enable to Town to achieve the targeted reduction level, thereby doing its part to limit statewide greenhouse gas emissions that contribute to climate change.

In addition, this CAP introduces a recently mandated statewide reduction target of 40% below 2005 levels by 2030, per Senate Bill 32 (SB 32), which was written into law in 2016 and intends to build upon the reduction efforts set forth in Assembly Bill 32 (AB 32)[1]. The California Air Resources Board (CARB) determined that in addition to achieving GHG reductions from cleaner fuels and vehicles, California must also reduce vehicle miles traveled (VMT). To achieve a VMT reduction of 40% below 1990 levels, CARB has proposed a VMT reduction of 7% below projected VMT levels in 2030[2].

As described below, the Climate Action Plan is divided into community-wide emissions and municipal-specific emissions.

Community-Wide Emissions

The original 2010 CAP 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 the year 2020. Total community-wide emissions in 2005 were estimated to be 748,524 tons of CO_2e; thus, the Town's reduction target was 636,245 tons of CO_2e by 2020. The 2010 CAP concluded that Apple Valley must reduce greenhouse gas emissions by a minimum of 112,279 tons of CO_2e by 2020 in order to meet the reduction target of 15% below 2005 levels.

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1 It should be noted that reduction target years for AB 32 and SB 32 are 15% and 40% below 1990 levels, respectively. The Town of Apple Valley made the decision to use 2005 as the baseline year, instead of 1990, because ARB released a statement around the time of the Adoption of AB 32 that *"In recognition of the importance of local governments in the successful implementation of AB 32… (The ARB) recommends a greenhouse gas emissions 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."* Current levels, at the time, were for the year 2005.

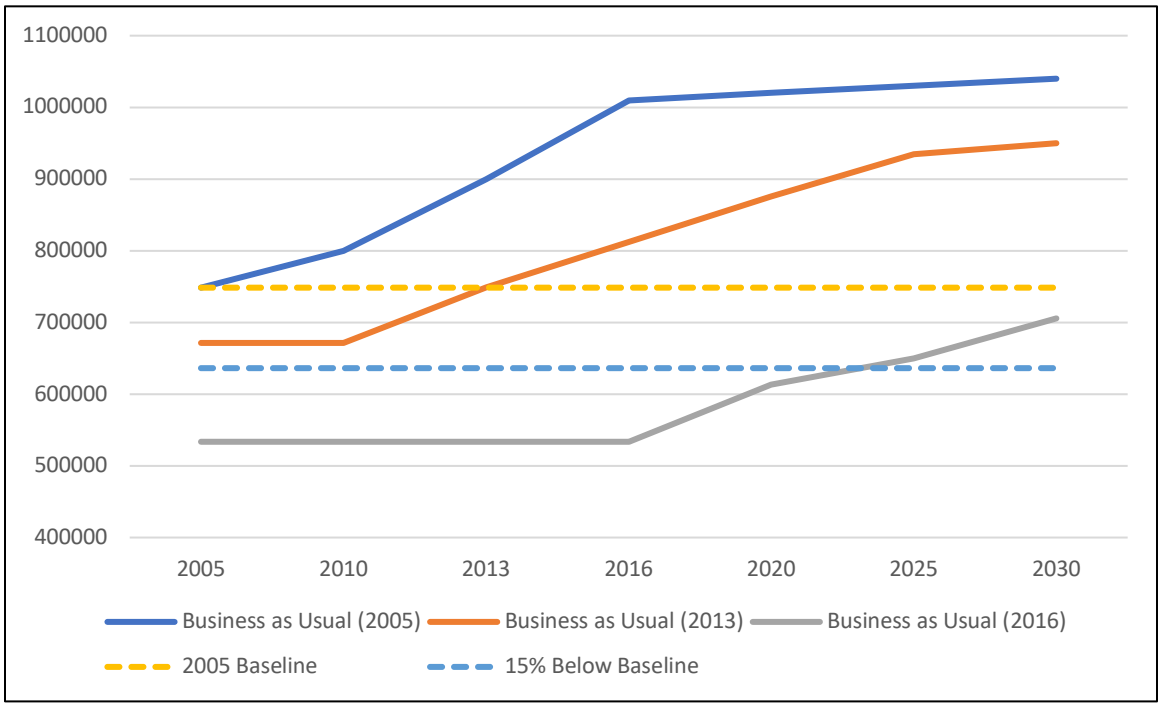
2 "California's 2017 Climate Change Scoping Plan," prepared by CARB. November 2017.

Apple Valley has made great strides in reducing community-wide GHG emissions since the implementation of the 2010 CAP. Total community-wide emissions in 2013 were estimated to be 671,429 tons of CO_2e, which was a 77,095-ton reduction in CO2e from 2005. Based on 2013 community-wide emissions, Apple Valley needed to reduce greenhouse gas emissions by a minimum of 35,184 tons of CO_2e by 2020 in order to meet the reduction target of 15% below 2005 levels.

Results of the 2016 greenhouse gas inventory prepared for the current CAP update indicate that community-wide CO_2e emissions are approximately 532,765 tons, which translates to a 138,664-ton reduction from 2013 CO_2e emissions and a 215,759-ton reduction from 2005 CO_2e emissions. This means that the Town has exceeded the 2020 target of 15% below 2005 CO_2e emissions levels by 103,480 tons.

Chart 1 below shows Apple Valley's community-wide GHG trend under business-as-usual conditions, the 2005 baseline level, and the 15% reduction target.

Chart 1: Community-Wide GHG Trend 2016 Update



To achieve the new statewide VMT reduction target of 40% below 2005 levels by 2030, as set forth by SB 32, the Town must reduce the community-wide VMTs to 7% below projected VMT levels in 2030. This translates to a total of 996,178,718 VMT by 2030 (74,981,197 VMT is 7% of the 2030 projection of 1,071,159,915 VMT)[3].

[3] 2030 community wide VMT projections were based on a 1.6% growth rate, consistent with community wide growth projections in Chapter 3, using 2016 community wide VMT numbers as the base (875,130,655 VMT).

Municipal-Specific Emissions

As with the community-wide analysis, the municipal-specific inventory was prepared using the year 2005 as the baseline, and a greenhouse gas emissions reduction target of 15% below 2005 levels by 2020. Total municipal-specific emissions in 2005 were estimated to be 2,138 tons of CO_2e; thus, the Town's municipal reduction target is 1,817 tons of CO_2e by 2020. The 2010 CAP concluded that Apple Valley must reduce municipal-specific greenhouse gas emissions by a minimum of 321 tons of CO_2e by 2020 in order to meet the reduction target of 15% below 2005 levels.

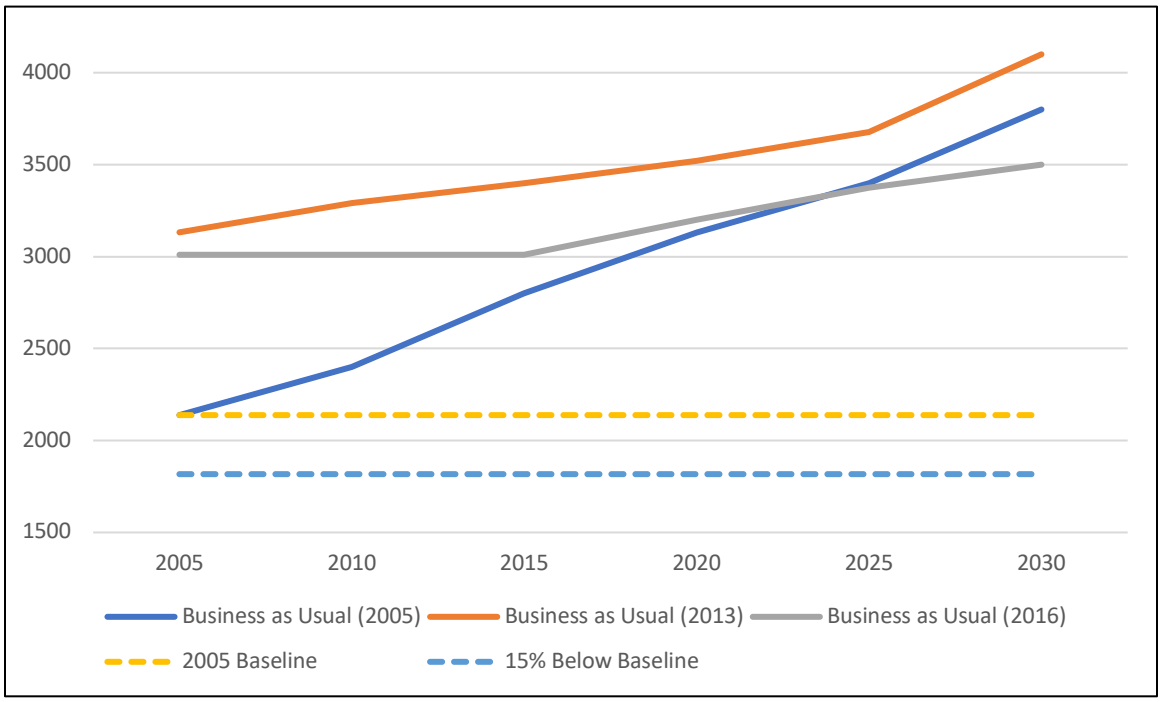
Total municipal-specific emissions in 2013 were estimated to be 3,132 tons of CO_2e, which was a 994-ton increase in CO2e from 2005. This increase was due to the addition of new municipal buildings, which is further discussed in the Methodology section of this document. Based on 2013 municipal-specific emissions, Apple Valley needed to reduce greenhouse gas emissions by a minimum of 1,315 tons of CO_2e by 2020 in order to meet the reduction target of 15% below 2005 levels.

Results of the 2016 CAP update indicate that municipal-specific CO_2e emissions are approximately 3,010 tons, which translates to an 181-ton reduction from 2013 CO_2e emissions and a 872-ton increase from 2005 CO_2e emissions[4]. This means that the Town has been successful in reducing emissions since 2013, but must also reduce municipal-specific emissions by a minimum of 1,193 tons of CO_2e by 2020 in order to meet the reduction target of 15% below 2005 levels.

Chart 1 below shows Apple Valley's municipal GHG trend under business-as-usual conditions, the 2005 baseline level, the 15% reduction target, and the 40% reduction target.

[4] The Methodology section of this document provides detailed explanations for the municipal increase by each emission sector. The primary reason for the increase is due to the addition of town-owned facilities throughout the years, which have inevitably resulted in a net increase of emissions.

Chart 2: Municipal GHG Trend 2016 Update



To achieve the new VMT reduction target of 40% below 2005 levels by 2030, as set forth by SB 32, the Town must reduce municipal VMTs to 7% below projected VMT levels in 2030. This translates to a total of 543,660 VMT by 2030 (a reduction of 40,921 VMT is 7% of the 2030 projection of 584,581 VMT)[5].

[5] 2030 municipal VMT projections were based on a 1.6% growth rate, consistent with community wide growth projections in Chapter 3, using 2016 municipal VMT numbers as the base (477,599 VMT).

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.[6] 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. Current climate models predict that by 2100, reductions in precipitation in the southwestern United States, coupled with rises in temperatures as much as 5°F, and associated increases in evapotranspiration could result in changes in water runoff in the Colorado River Basin of up to 20 percent. According to the United States Geological Survey (USGS), a 5°F increase in temperatures could reduce Colorado River Basin flow anywhere from 5 to 45 percent by 2050.[7]

The coast of California is likely to see a rise in sea level that could threaten shorelines and 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.

Since 1970, CO_2 emissions have increased by about 90%, with emissions from fossil fuel combustion and industrial processes contributing about 78% of the total greenhouse gas emissions increase from 1970 to 2011. According to the IPCC, total cumulative CO_2 emissions have

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

[7] "Effects of Climate Change and Land Use on Water Resources in the Upper Colorado River Basin, Fact sheet 2010-3123," U.S. Geological Survey, 2011.

increased by a factor of 2 from about 910 gigaton CO_2e equivalent ($GtCO_2eq$) for the period 1750 – 1970 to about 2,000 $GtCO_2$ for the period from 1750 – 2010, or an increase of 1,090 $GtCO_2$ in only the past four decades.[8] Total anthropogenic GHG emissions were the highest in human history from 2000 to 2010 and reached 49 (± 4.5) $GtCO_2eq$ per year in 2010.

California is the second largest greenhouse gas contributor in the U.S. and the sixteenth largest in the world. In 2004, California produced 492 million metric tons of CO_2 equivalent (MMTCO2e), which was approximately 7% of all U.S. emissions. However, in 2015, California's total emissions were 440.4 $MMTCO_2e$, representing an overall decrease of 10% since peak levels in 2004. During the 2000 to 2015 period, per capita GHG emissions in California continued to drop from a peak in 2001 of 14.0 tons per person to 11.3 tons per person in 2015, a 19% decrease.[9] This decrease may be due to increases in the effectiveness of energy conservation in buildings (Title 24 requirements) and the increased use of renewable energy, including solar generation, hydropower, and wind energy.

The transportation sector remains the largest source of GHG emissions in the state, accounting for 37% of California's emissions in 2015. Regulations and improved fuel efficiency of the state's vehicle fleet will drive down emissions over time, but population growth, lower fuel prices, improved economic conditions and higher employment rates are potential factors that may increase fuel use.[10]

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 (December 2017), carbon dioxide concentrations in the atmosphere are around 405 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

[8] "Climate Change 2014: Mitigation of Climate Change, Working Group III Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change" IPCC 2014.

[9] "California Greenhouse Gas Emission Inventory: 2000-2015," California Environmental Protection Agency Air Resources Board, June 6, 2017.

[10] Ibid.

between 180 and 300 ppm, making present day atmospheric CO_2 levels substantially greater than at any point in the past 650,000 years.[11] 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

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 (HFCs) 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.

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. They are not known to have adverse health effects.

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

[11] "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.

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 2016 with an effective date of January 1, 2017. California's Building Energy Efficiency Standards are updated on an approximately three-year cycle, meaning the next update will occur in 2019 and will go into effect on January 1, 2020.

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's proposal to implement these regulations was approved in September 2004. Its implementation was expected to 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. The ARB has determined that absent AB 32 and other California climate change laws, California's projected 2020 greenhouse gas emissions would be 596[12] $MMTCO_2e$. On December 6, 2007, ARB approved the statewide greenhouse gas limit for carbon dioxide equivalent in the amount of 427 $MMTCO_2e$. Accordingly, to satisfy the requirements of AB 32, California needs to reduce its overall 2020 emissions for all sectors by 169 $MMTCO_2e$, or 28.3 percent below the "business as usual" 2020 projection of 596 million $MMTCO_2e$. 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 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.* "[13]

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.

More recently Senate Bill 32 (SB 32), signed into law in 2016, expands upon AB 32, requiring California to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030. The Air Resources Board has determined that contributions from policies and programs, such as renewable energy and energy efficiency, are helping to achieve the near-term 2020 target, but longer-term targets, such as 2030, cannot be achieved without land use decisions that allow more efficient use and management of land and infrastructure[14]. Therefore, community-wide actions that reduce VMT, in addition to statewide incentives, are necessary to meet transportation sector-specific goals and achieve the 2030 target under SB 32. In its 2017 Climate Change Scoping Plan, CARB determined that VMT reductions of 7% below projected VMT levels in 2030 are necessary. A 7% VMT reduction translates to a reduction, on average, of 1.5 miles/person/day from projected levels in 2030. According to the 2017 Scoping Plan, it is recommended that local governments consider policies to reduce VMT to help achieve these reductions, including:

- land use and community design that reduces VMT;
- transit oriented development;
- street design policies that prioritize transit, biking, and walking; and
- increasing low carbon mobility choices, including improved access to viable and affordable public transportation and active transportation opportunities.

[12] CARB Scoping Plan, *Table 1,* December 2008.
[13] CARB Scoping Plan, *Introduction – Proposed Measures,* December 2008.
[14] "California's 2017 Climate Change Scoping Plan," prepared by CARB. November 2017.

III. CURRENT EMISSIONS AND REDUCTION TARGETS

A. Introduction

Establishing a greenhouse gas baseline allows for projecting an emission 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 (CO_2e). 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 N_2O 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 systems. 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 2016 Climate Action Plan update are modeled after those presented in the previous 2010 CAP and 2013 CAP update. Wherever possible, the same data sources were contacted so that accurate and meaningful comparisons could be made between 2005 (baseline year analyzed in 2010 CAP), 2013, and 2016 data. Where data was unavailable and assumptions were made in the 2010 and 2013 CAPs, attempts were made to acquire actual data for 2016 to reflect current conditions and set the stage for more precise comparisons in future CAP updates. Where 2016 data was unavailable, the same assumptions as those made in the 2013 CAP were used. Previous CAP methodologies are provided in Appendix E 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 for this CAP update was collected for the calendar year 2016. Where 2016 calendar year data was unavailable, it was obtained for the closest year possible. Specifically, natural gas records for individual municipal facilities were from Fiscal Year 2015/16.

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 2015 Version III.1.2 software (September 2015) has been updated to incorporate the methods and principles of the Local Government Operations Protocol (LGOP), International Panel of Climate Change 2nd Assessment, and the Statewide Energy Efficiency Collaborative (SEEC), 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 2016.

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.

C. 2016 Community-Wide Emissions

Emissions Summary

The table below provides a comparison of 2005 and 2013 GHG emissions, as estimated in the 2010 and 2013 Apple Valley Climate Action Plans, and 2016 emissions as estimated in the current 2016 update. As shown below, 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. In 2016, community wide emissions for the town were estimated to be 533,576 tons of CO_2e. Between 2013 and 2016, there was a decrease of 137,853 tons over the 3-year period. The inventory includes emissions generated within the entire Town of Apple Valley from electricity, natural gas, propane, vehicles, transit buses, and decomposition of solid waste. Municipal-specific emissions generated by streetlights and traffic signals were also included in the Table 1 because the electricity data provided by SCE was included in the community-wide non-residential sector and cannot be extricated from it (See the "Electricity" section, below). The data and methodology used to estimate these emissions are described below.

Table 1
Community-Wide GHG Emissions Summary
2005, 2013, and 2016 Comparison

Sector	2005 Tons CO_2e	2013 Tons CO_2e	2016 Tons CO2e
Residential	141,417	144,325	111,640
Commercial	38,039	50,145	40,213
Industrial	7,118	1,368	570*
Transportation	510,676	461,357	369,798
Solid Waste	43,932	8,500	10,345
Pumping Facilities	5,956	4,081	**
Streetlights and Signals	1,386	1,653	769
Total	**748,524**	**671,429**	**532,765**

*Only accounts for natural gas emissions for the industrial sector, given that industrial electricity was provided in the non-residential "lump sum" from SCE.
** Pumping facilities emissions were provided in the non-residential "lump-sum" from SCE. Specific emissions for pumping facilities were not provided in 2016.

Chart 3: Community-wide GHG Emissions Summary

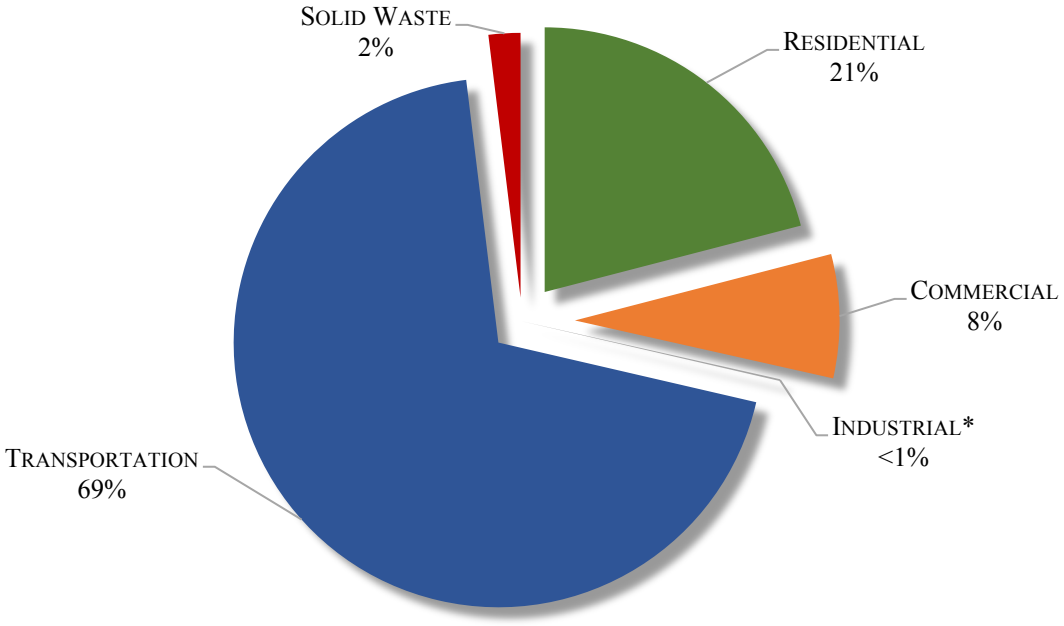


Table 2
Community-Wide GHG Emissions Summary per Capita
2005, 2013, and 2016 Comparison

Sector	2005 Tons CO_2e	Per Capita 2005	2013 Tons CO_2e	Per Capita 2013	2016 Tons CO2e	Per Capita 2016
Residential	141,417	2.22	144,325	2.06	111,640	1.51
Commercial	38,039	0.60	50,145	0.71	40,213	0.54
Industrial	7,118	0.11	1,368	0.02	570	0.01
Transportation	510,676	8.01	461,357	6.57	369,798	5.00
Solid Waste	43,932	0.69	8,500	0.12	10,345	0.14
Pumping Facilities	5,956	0.09	4,081	0.06	*	*
Streetlights and Signals	1,386	0.02	1,653	0.02	769	0.01
Total	**748,524**	**12**	**671,429**	**10**	**532,765**	**7**

*Pumping facilities emissions were provided in the non-residential "lump-sum" from SCE. Specific emissions for pumping facilities were not provided in 2016.

Electricity

Southern California Edison (SCE) provided community-wide electricity usage data for the 2010 and 2013 Climate Action Plans. Similar methodology was used for this 2016 Climate Action Plan update. SCE prepared an electricity usage report for all accounts in the Town for 2016 (see Appendix A). The table below compares 2005, 2013, and 2016 electricity usage. Annual electricity usage is described by sector and in terms of kilowatt-hours.

In the 2013 CAP, data suggested that the number of accounts and kilowatt-hours used by the commercial and industrial sectors reversed, within these two categories, from 2005 and 2013. SCE changed the way it groups and categorizes commercial and industrial accounts. For the purposes of the 2013 analysis, commercial and industrial data were combined to clarify the comparison.

In 2016, the method in which SCE presents data to a third party requestor changed significantly. In November 2014, the California Public Utilities Commission's (CPUC) established the Energy Data Request Program that only allows SCE to share community kWh usage with established aggregation rules.[15] The 15/20 and 5/25 Aggregation Rules are intended to protect customer confidentially by reducing the possibility of identifying customers through the release of usage information. Agricultural, commercial, and residential energy data are subject to the 15/20 Aggregation Rule. This rule stipulates that energy consumption data for each customer class must contain at least 15 customers with no single customer making up more than 20% of the total energy consumption. For the industrial sector, the 5/25 Aggregation Rule must be applied and stipulates that the customer class must contain at least 5 customers with no single customer making up more than 25% of the total energy consumption.

Based on the SCE report for Apple Valley for 2016, both agricultural and industrial sectors failed the aggregation rules. The data for the areas that fail the aggregation rules have to be omitted and therefore are not provided as separate data sets. In order to provide comparable analysis data, SCE provided the total of the agricultural, commercial, and industrial sectors, referred to as the "non-residential" sector, as a lump sum of 128,505,583 kWh, along with the total number of customers for the three sectors. The table below shows electricity usage for the residential sector for years 2005, 2013, and 2016. For the commercial and industrial sectors, 2016 electricity usage is comprised of a "non-residential" lump sum.

Between 2013 and 2016, the number of SCE accounts in Apple Valley increased by 1,483. Total annual electricity consumption decreased by 18,862,341 kwh and per-account usage decreased by 1,233 kWh. There was a total kWh decrease in the residential sector of 1,078 kWh. This is in part due to the increased efficiencies in SCE electricity production, but also the expansion of rooftop solar. From 2014 to 2017, the Town inspected 416 new photovoltaic systems meaning 104 new photovoltaic systems were implemented per year since the last CAP update. This resulted in a direct reduction of approximately 312 tons of CO2e[16], not including the emission reductions from photovoltaic systems built in 2017.

[15] California Public Utilities Commission D. 14-05-016.

[16] Per 2016 consumption rates, one residential unit demands 7,247 kWh per year, which emits approximately 1 ton of CO2e.

In the non-residential category, which includes the agricultural, commercial, and industrial sectors, the per account usage increased by 29,758 kWh. Per SCE, water pumping facilities were included in the "non-residential" lump sum amount, which could partially account for the increase in kWh in the non-residential sector. The streetlight and traffic signals sector's 2016 data was also provided by SCE. Information on 139 streetlight/traffic signal accounts was provided in 2016, compared to the 200 accounts provided by the Department in 2013. It should also be noted that this sector is also included in the municipal-specific emissions analysis.

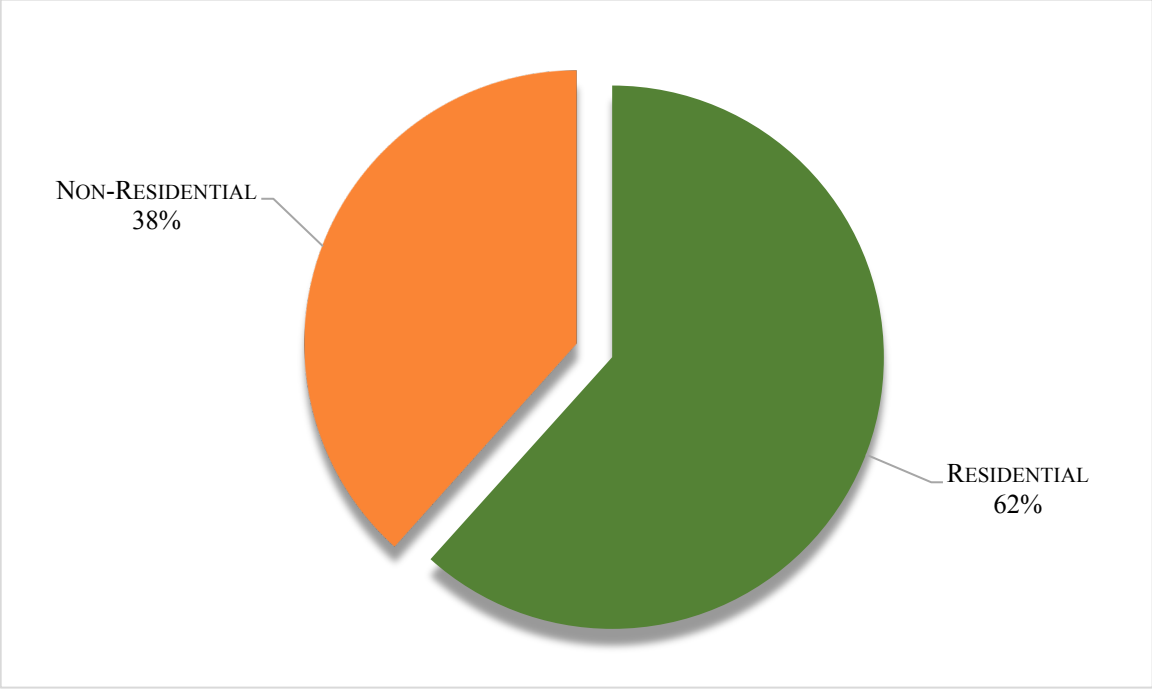
Table 3
Community-Wide Electricity Usage
2005, 2013, and 2016 Comparison

	2005			2013			2016		
	Annual kwh Consumed	**No. of Accounts**	**kwh per Account**	**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	206, 646,716	28,516	7,247
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**	**128,505,583**[1]	**1,630**	**78,838**
Streetlight and Traffic Signals	3,905,754	160	24,411	5,210,015	200	26,050	3,435,660	139	24,717
Water Pumping	16,783,859	96	174,832	12,625,027	92	137,228	****	****	****
Total:	**309,883,353**	**25,721**	**12,048**	**354,014,640**	**28,663**	**12,351**	**338,587,959**	**30,285**	**11,180**

Source: Southern California Edison. 2005 data is taken from Appendix B of 2010 Apple Valley Climate Action Plan. 2013 data is from taken from Appendix C of the 2014 Apple Valley Climate Action Plan. 2016 data is from "Electricity Use Report for Town of Apple Valley, Year 2016," SCE (Appendix A).
1. Total includes water pumping, commercial, and industrial sectors.

To determine the GHG emissions generated by community-wide electricity consumption in 2016, kWh values for each sector were entered into the CACP model. Electricity emissions factors for year 2016 are based on the Local Government Protocols (LGOP) Average Electricity Emission Factors Table G.7 and the latest U.S. EPA eGRID 2015 Summary Tables created in September 2015. The latest EPA eGRID shows the California-Mexico Power Area/Western Electricity Coordinating Council (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 2016 data is not yet available, the higher and more conservative emission factor of 630.89 lb/MWh was used for this analysis. According to the CACP 2015 Software, a total of 497,977 tons of CO_2e were emitted in 2016 from community-wide electricity. Of that, 469,229 tons of CO_2e was from the residential sector, and 28,748 tons of CO_2e was from the non-residential sector. Community-wide GHG emissions from electricity consumption are shown in the chart below.

Chart 4: Community-wide GHG Emissions for Electricity



Natural Gas

Southwest Gas Corporation provided natural gas usage data by quarter for commercial, residential, and industrial accounts in Apple Valley for the 2010 and 2014 CAPs, and provided the same information for 2016 (see Appendix B).

Data was categorized by customer class and provided in terms of therms, a standard unit for measuring heat energy. One therm is equal to 100,000 British thermal units (BTU), which is the energy equivalent of burning approximately 100 cubic feet of natural gas. A therm unit provides energy content, which varies due to variations in the mix of hydrocarbons.

Table 4
Community-Wide Natural Gas Usage
2005, 2013, and 2016 Comparison

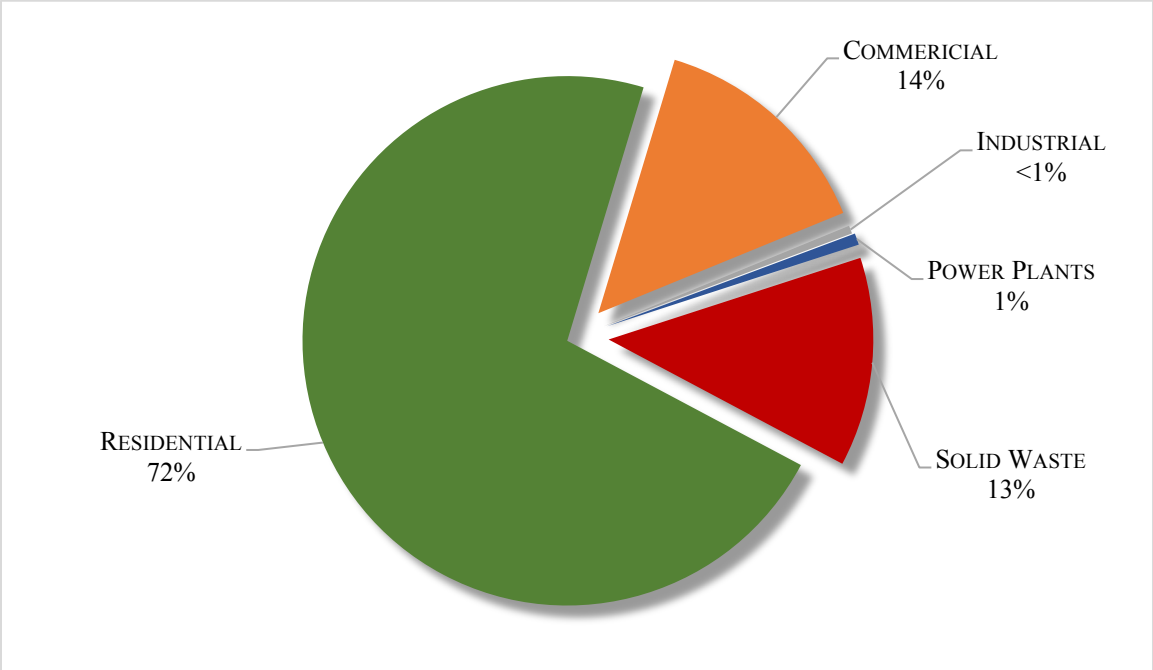
	2005 Annual therms Consumed	No. of Accounts	Therms per Account	2013 Annual therms Consumed	No. of Accounts	Therms per Account	2016 Annual therms Consumed	No. of Accounts	Therms per Account
Sector									
Residential	11,576,524	22,526	513	12,184,053	25,552	476	10,955,642	25,278	433
Commercial	1,574,978	991	1,589	2,241,636	1,200	1,868	2,156,904	1,165	1,851
Industrial	359,547	4	89,886	12,736	3	4,245	6,187	2	3,094
Water Pumping	*	*	*	2,177	3	725	*	*	*
Power Plant	*	*	*	*	*	*	107,527	12	8,961
Total:	**13,511,049**	**23,521**		**14,440,602**	**26,758**		**13,226,260**	**26,469**	**14,339**

As shown above, the number of natural gas accounts in Apple Valley increased by 3,237 (14%) between 2005 and 2013 and 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 accounted for 0.02% of all therms consumed in 2013.

The data show that the number of natural gas accounts in Apple Valley decreased by 289 between 2013 and 2016, and annual natural gas consumption decreased by 1,214,342 therms. This equates to an overall reduction of 284,789 therms from 2005 to 2016. The "water pumping" category was not provided by Southwest Gas for 2005 or 2016, but its contribution to total natural gas consumption is limited and only accounts for 0.02% of all therms consumed in 2013.

In summary, total community-wide natural gas usage was approximately 13,226,260 therms in 2016. According to the CACP 2015 Software, a total of 84,741 tons of CO_2e were emitted in 2016 from community-wide natural gas.

Chart 5: Community-wide Emissions from Natural Gas



Propane

The 2010 and 2013 CAPs assumed that all Apple Valley housing units not using natural gas relied on propane instead. The same assumptions and methodology were used to estimate 2016 community-wide propane usage. The California Department of Finance estimated there were 26,549 housing units in Apple Valley in 2016. Southwest Gas indicated there were 25,278 residential accounts. This suggests that 1,271 homes did not use natural gas, and it was assumed they used propane as an alternative fuel.

As was done in the 2010 and 2013 CAPs, it was assumed that the average home consumes 1,000 gallons of propane annually. Based on this assumption, an estimated 1,271,000 gallons of propane were consumed in Apple Valley in 2016, which is 564,000 gallons more than what was consumed in 2013. 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, 2013, and 2016 usage is the same.

There are number of reasons that may explain recent increases in propane consumption. According to a 2016 propane market analysis, U.S. production of propane from natural gas processing plants and refineries grew from 12.4 billion gallons to 19.6 billion gallons between 2005 and 2014.[17] Propane production could continue to increase in the future because it has a lower-carbon fossil fuel than other petroleum-based products (e.g. distillate fuel oil, kerosene, and gasoline) and is a cleaner-burning alternative. It also has a near-zero direct global warming potential and, therefore, may be preferred over natural gas in some applications. Additionally, a recent decline in propane prices has made it more competitive relative to electricity and natural gas.

The community-wide consumption of propane resulted in the emission of 7,175 tons of CO_2e in 2016.

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 (vehicle miles traveled, or 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. The 1.3% annual growth rate yielded 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.

In 2016, town-wide traffic counts had not been updated. Therefore, the same methodology used in 2013 was used to estimate the VMT for 2016. Between 2013 and 2016, the Apple Valley population increased from 70,436 to 73,925. To estimate the 2016 community-wide vehicle miles traveled, an annual growth rate of 1.57 % was applied to the 2013 number. The growth rate was derived by dividing the percent population change from 2013 to 2016 (4.7%) by 3 years, resulting in a 1.56% per year and rounded up to 1.6% for conservative analysis. The 1.6% annual growth

[17] 2016 Propane Market Outlook, prepared by ICF International, Inc.

rate yields an estimated 875,130,655 vehicle miles traveled in Apple Valley in 2016. It was assumed that 85% of VMT were gasoline and 15% were diesel. A comparison of 2005, 2013, and 2016 vehicle miles traveled is provided in Table 5.

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 or 2014 CAPs 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 the 2013 and 2016 updates, however, bus and route information was acquired from VVTA (see Appendix D). Based on this information and review of VVTA bus routes, it was estimated that VVTA buses traveled 658,637 miles in 2013 and 269,662 miles in 2016 in the Town. This reduction from 2013 to 2016 was confirmed with a VVTA official who explained that the assumption made in 2013 were overstating the actual number of buses traveling on their routes. For instance, one 15-mile route had an assumption that 75 buses were operating on the route when in reality the total number is closer to 5 to 6 buses[18].

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: 875,130,655 VMT for personal vehicles (656,347,991 VMT gasoline-powered and 131,269,598 VMT diesel-powered), and 269,662 VMT for transit (20,513 VMT gasoline-powered and 249,149 VMT are CNG-powered).

Using the CACP software, it was determined that in 2016, the transportation sector resulted in the emission of 368,995 tons of CO_2e from the combustion of gasoline, 908 tons of CO_2e from the combustion of diesel, and 24 tons of CO_2e from the use of CNG. This results in a total of 369,927 tons of CO_2e.

[18] Based on VVTA bus schedules and information provided by Shelly Cable at VVTA on November 22, 2017

Table 5
Community-Wide Vehicle Miles Traveled (VMT)
2005, 2013, and 2016 Comparison

	2005			2013			2016		
	Total VMT	Population	VMT/ Resident	Total VMT	Population	VMT/ Resident	Total VMT	Population	VMT/ Resident
Transportation									
Town-wide	776,790,000	63,754	12,184	861,349,070	70,173	12,275	875,130,655	73,925	11,838
Transit	1,500,000			658,637			269,662		
CNG				624,663			249,149		
Gasoline				33,974			20,513		

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. 2016 VMT is based on 2013 VMT plus 1.6% annual growth rate. Population data from U.S. Census Bureau and Department of Finance Report E-1.

As shown above, the number of vehicle miles traveled per resident is estimated to have increased by approximately 0.8% between 2005 and 2013. Between 2013 and 2016 there was a decrease of approximately 3.6%.

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 were delivered to landfills by the Apple Valley community in 2005. By 2012 (the year utilized for analysis purposes in the 2013 CAP), 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 of the 2013 CAP).

The data indicate that per capita solid waste disposal decreased from 1.19 to 0.65 tons per year from 2005 to 2012. This substantial decrease was 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 Victorville Materials Recovery Facility (MRF).

The Town has continued to implement 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 2016 data was obtained from CalRecycle's Local Government Information Center (LoGIC) Countywide Destination Detail (see Appendix C). This report provides information for the entire county by jurisdiction and destination point. For the 2016 year, the Town of Apple Valley's solid waste was deposited in seven landfills. The Azusa Land Reclamation Company. Landfill, Barstow Sanitary Landfill, El Sobrante Landfill, Landers Sanitary Landfill, Mid-Valley Sanitary Landfill, San Timoteo Sanitary Landfill, and Victorville Sanitary Landfill. Similar to the 2005 and 2012 years, nearly all the town's solid waste is disposed in the Victorville Landfill.

In 2016, the total tons disposed of by Apple Valley sources increased by 4,081 tons and 0.03 per resident. This increase is largely due to the population increase (3,752 persons); however, there is not a clear reason as to why there was a per capita increase between 2012 and 2016. In the overall, however, there was a disposal decrease of 25,551 tons total and 0.51 tons per resident from 2005 to 2016.

The CACP model was used to estimate GHG emissions generated by the decomposition of Apple Valley's solid waste in landfills. Assumptions used in the model's waste percentage breakdown of the 50,068 tons disposed includes the following: 17% paper products, 16% food waste, 7% plant debris, 22% wood/textiles, and 38% other waste. This mix is based on ClearPath's default community waste characterization factor set.

A comparison of 2005, 2012, and 2016 solid waste figures is shown in the table below.

Table 6
Community-Wide Solid Waste
2005, 2012, 2016 Comparison

	2005			2012 (2013 CAP)			2016		
Sector	**Tons Disposed**	**Population**	**Tons Per Resident**	**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	50,068	73,925	0.68

Source: 2005 data taken from p. III-7 of 2010 Apple Valley Climate Action Plan. 2013 data from Appendix C of the 2014 Apple Valley Climate Action Plan Update. 2016 data from "Annual Report Summary: Apple Valley 2016," (see Appendix C).

CACP model outputs indicate that the decomposition of the Town's waste in 2016 resulted in the generation of 10,345 tons of CO_2e.

D. 2016 Municipal Emissions

Emissions Summary

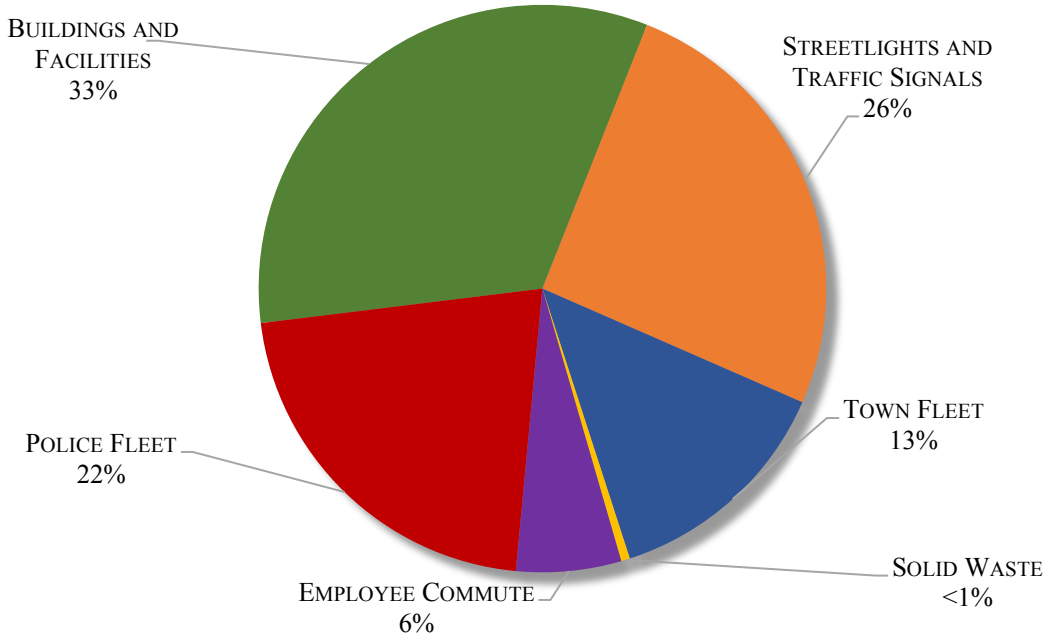
The Town's 2010 Climate Action Plan and 2013 CAP update included a municipal-specific greenhouse gas emissions inventory to determine emissions generated by Town-owned and operated facilities. It considered emissions resulting from the use of electricity and natural gas, transportation from employee 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 emissions for year 2016. The same methodology was used, to the greatest extent practical, to provide a meaningful comparison between 2005, 2013, and 2016 conditions. The table and chart below show total GHG emissions from municipal sources from 2005 to 2016.

Table 7
Municipal GHG Emissions Summary
2005, 2013, and 2016 Comparison

Sector	2005 Tons CO_2e	2013 Tons CO_2e	2016 Tons CO_2e
Buildings and Facilities	801	1,136	992
Streetlights and Traffic Signals	193	349	769
Wastewater Facilities	106	376	***
Employee Commute	347	281	180
Town Fleet	256	438	405
Police Fleet	364	600	649
Solid Waste	71	11	15
Total	**2,138**	**3,191**	**3,010**

Chart 6: Municipal GHG Emissions Summary 2016



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 streetlight and traffic signal sector of municipal emissions is part 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. In 2016, they accounted for 0.22% of community-wide emissions.

Electricity

Southern California Edison (SCE) provided electricity usage data for municipal accounts in 2005 and 2013. In 2016, SCE provided electricity usage data for municipal buildings and for streetlights and traffic signals. Pumping facilities had been aggregated in the lump sum amount for community-wide nonresidential data. A comparison of 2005, 2013, and 2016 usage is shown in the table below.

Table 8
Municipal Electricity Usage
2005, 2013, and 2016 Comparison

Sector	2005 kWh	2013 kWh	2016 kWh
Buildings & Facilities Existing in 2005[1]	842,006	531,076	724,943
Buildings & Facilities Built After 2005[1]	---	1,465,827	1,512,387
Subtotal:	842,006	1,996,903	2,237,330
Streetlights & Traffic Signals	543,201	725,619	3,435,660
Pumping Facilities	298,043	782,108	****
Total:	**1,683,250**	**3,504,630**	**5,672,990**

[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 Appendix C of the Apple Valley 2014 Climate Action Plan. 2016 data is from SCE (Appendix A)

As shown, electricity usage by municipal accounts increased by 1,821,380 kWh between 2005 and 2013. Between 2013 and 2016 electricity usage increased overall. It is important to note that the 2016 total did not break out pumping facilities since this amount was included in the lump sum total for community-wide electricity usage in the nonresidential sector provided by SCE.

Electricity usage by buildings and facilities in 2016 increased by 240,427 kWh over 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.

The additional buildings and facilities accounted for approximately 68% of electricity used by buildings and facilities in 2016. The Town's records show that the municipal facility that consumed the most electricity in 2016 was the Development Services Building including the conference center, which used 538,754 kWh, or approximately 24% of all municipal electricity. The second largest consumer was the Animal Services Building, which used 343,869 kWh or 15% of all municipal electricity.

The 2016 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 2016 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 2016.

Natural Gas

Southwest Gas provided natural gas usage data for municipal accounts for 2013 (see Appendix B). The table below compares natural gas consumption in 2005, 2013, and 2016.

Table 9
Municipal Natural Gas Usage
2005 and 2013 Comparison

Sector	2005 therms	2013 therms	2016 therms
Buildings and Facilities Existing in 2005[1]	81,211	75,658	73,028
Buildings and Facilities Built After 2005[1]	---	10,006	19,351
Total:	**81,211**	**85,664**	**92,379**

[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 of the 2014 CAP). 2016 data is from Kurt Edwards, Southwest Gas, October 16, 2017 (see Appendix B).

Natural gas consumption by buildings and facilities that existed in 2005 (the baseline year of the 2010 Climate Action Plan was 2,630 therms (4%) lower in 2016 than in 2013 and even 2005. The data indicate that natural gas usage by municipal buildings and facilities built after 2005 was 9,345 therms (48%) more in 2016 than in 2013.

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 6,927 therms of natural gas, or 7% of total municipal natural gas usage in 2016.

Southwest Gas usage reports show that the largest municipal consumer of natural gas in 2016 was the community pool located at 14-999 Dale Evans Parkway. It used 42,442 therms of natural gas, or 46% of all natural gas used by Town facilities. The second largest consumer of municipal natural gas was the Apple Valley Conference Center, a new 6,000 square foot building that was not part of the 2013 analysis, which consumed 17,253 therms or 19% of municipal natural gas in 2016. Therefore, although total usage increased, therms by building for buildings and facilities owned by the Town in both 2013 and 2016 decreased.

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 425 tons of CO_2e were emitted in 2016 from municipal use of natural gas.

Propane

As was true in 2005 and 2013, no municipal facilities use propane and, therefore, no GHG emissions resulted from propane use in 2016.

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.

In 2016, the Town owned 47 vehicles that used 41,078 gallons of gasoline. Annual consumption was 874 gallons per vehicle. Compared to 2013 this represents a decrease of 22 vehicles. There was an increase to fuel consumption of 243 gallons per vehicle. Based on the CACP modeling, operation of the municipal fleet in 2016 generated the emission of 361 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. 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.

In 2016, the Sheriff's Department operated 32 vehicles and used 73,960 gallons of fuel. Annual fuel consumption was 2,311 gallons per vehicle. In comparison with 2013, this represents a decrease of 4 vehicles and an increase of 606 gallons of fuel per vehicle. The CACP modeling indicates that operation of the police fleet generated 649 tons of CO_2e in 2016.

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 and 2016 figures from the Town Finance Department and Sheriff's Department were obtained for this update and the 2013 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 yield 521,455 total vehicle miles. Compared to 2005, this represents a reduction of 49,473 total vehicle miles. CACP modeling estimates that 2013 employee commutes resulted in the generation of 281 tons of CO_2e.

In 2016, the Town employed 87 full-time personnel. Similar to the 2010 and 2014 CAPs, it was assumed that they traveled 23 miles roundtrip to and from work. This resulted in 477,599 total vehicle miles. Compared to 2013, this represents a reduction of 43,856 total vehicle miles. CACP modeling estimates that 2016 employee commutes resulted in the generation 180 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 produced a total of 1,189 tons of CO_2e in 2016. A comparison of 2005, 2013, and 2016 emissions from the municipal transportation sector is provided in the table below.

Table 10
Municipal GHG Emissions from Transportation Sectors
2005, 2013, 2016 Comparison

Sector	2005 Tons of CO_2e	2013 Tons of CO_2e	2016 Tons of CO_2e
Town Municipal Fleet	256	438	360
Sheriff's Department Fleet	364	600	649
Town Employee Commute	347	281	180
Total:	**967**	**1,319**	**1,189**

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 was not available for the 2013 CAP update. Therefore, consistent with the methodology used in the 2010 CAP, the Town's community-wide 2013 per capita solid waste disposal figure (see Table 6) 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.

The same methodology was used for this update. The Town's community-wide 2016 per capita solid waste disposal figure (see Table 6) was multiplied by the number of Town employees. Assuming that 87 employees generated 0.68 tons of solid waste per employee, a total of 59.16 tons of solid waste was disposed by municipal employees in 2016. This resulted in the generation of 15 tons of CO_2e.

The reduction seen in the 2013 CAP update 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. The reduction seen in the 2013 CAP update 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). The reduction from 2013 to 2016 is primarily due to the fact that there are eight (8) fewer employees.

E. Reduction Targets

A reduction target provides a tangible goal for emission reduction efforts. Apple Valley's emissions reduction targets represent a percentage by which the community aims to decrease emissions, below the 2005 baseline, by 2020 and 2030.

Many factors were considered when selecting the 2020 reduction target. Ultimately, Apple Valley's 2020 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. More recently, the Town has set a new VMT reduction target at 7% below projected 2030 VMTs by 2030, which will be discussed separately from the 2020 reduction target.

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 a 15% reduction by 2020 the community-wide GHG emissions level would need to be reduced to 636,245 CO_2e and the municipal GHG emission level would need to be reduced to 1,817 CO_2e by 2020.

The Town has made great strides in reducing their overall community-wide and municipal emissions since the adoption of the CAP. So much so that BAU forecasts based on the Town's declining emissions trends are expected to achieve the 15% reduction target for 2020, as shown in the following table.

Table 11
GHG 2020 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 Forecast BAU (2016)	**410,718**	**1,337**
2020 Reduction Target (2005)	373,317	1,315
2020 Reduction Target (2013)	176,245	1,702
2020 Reduction Target (2016)	**Surpass by 225,527**	**Surpass by 480**

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.

To be in accordance with SB 32, the Town will need to reduce its projected 2030 VMT by 7%, which translates to a community wide total of 996,178,718 VMT (74,981,197 VMT is 7% of the 2030 projection of 1,071,159,915 VMT) and a municipal total of 543,660 VMT (a reduction of 40,921 VMT is 7% of the 2030 projection of 584,581 VMT) by 2030.

IV. GREENHOUSE GAS REDUCTION MEASURES AND PROGRAMS

This section describes general programs, policies, and specific actions that will move the Town in the direction of realizing GHG emission reductions. Section IV-A describes the Apple Valley Choice Energy program (AVCE). Sections IV-B through IV-D 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-E describes specific measures that yield quantifiable GHG reductions.

A. Apple Valley Choice Energy Program

Apple Valley is addressing issues relating to climate change through the implementation of Apple Valley Choice Energy (AVCE). This program, started in April 2017, allows residents within Apple Valley to receive energy with a higher "renewable" content than what is currently provided by the franchised utility (SCE). The minimum renewable energy content for AVCE customers is 35%. In addition, the program provides an alternate selection of 50% renewable energy content for those who choose to "opt-up" to that plan. AVCE's minimum 35% renewable energy content already exceeds the California state mandate of 33% renewable energy content that will be required in the year 2020. The renewable energy content is derived from solar, wind, hydro, and geothermal sources primarily within California. Apple Valley Choice Energy plans to offer customers a 100% renewable energy option in future years that will further reduce the overall impacts of greenhouse gases affecting climate change as a result of burning fossil fuels.

In addition to supplying renewable energy, AVCE actively promotes Net Energy Metering (NEM) for customers with rooftop solar by offering a premium buy-back rate that is nearly double the rate that they would receive from SCE. AVCE will also offer future incentives to Town residents and businesses for improvements that contribute to energy efficiency as well as develop programs to encourage implementation of energy conservation measures. The Town also participates in the High Desert Regional Partnership with the other cities in the High Desert to promote energy efficiency on a regional basis.

Reduction Measures

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.

B. 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.

Transportation Measures

MO-8. 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-9. Expand bikeways, walking paths and trails connecting residential neighborhoods to commercial projects, schools and other institutions, and transit.

MO-10. Prioritize roadway improvements for areas experiencing Level of Service D or worse.

MO-11. 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-12. A minimum of 50% of the Town's additional new vehicle purchases (not replacement vehicles) shall be hybrid or alternative fuel vehicles (if available for the use intended).

MO-13. Encourage Victor Valley Transit to install bicycle racks on all buses, and to operate an all-alternative fuel fleet.

MO-14. Encourage Apple Valley Unified School District to replace traditional fueled school buses with CNG fueled school buses upon new bus purchases.

MO-15. Encourage CalTrans to install carpool lanes on the High Desert Corridor.

MO-16. Consider the implementation of a Transportation Demand Management Ordinance for all employers with 50 or more employees working during any given shift.

MO-17. Specify rubberized and/or recycled asphalt in Town-initiated road pavement projects to the extent economically viable.

MO-18. Establish a Town employee carpooling program, including incentives (preferred parking, flex time incentives in addition to the Town's existing 9/80 work week, etc.) for participating employees.

MO-19. Provide employees with free public transit passes.

MO-20. Provide secure bicycle racks at all Town facilities.

Energy Efficiency Measures

MO-21. Reduce energy use at all Town facilities by 15% by 2020.

MO-22. 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-23. Encourage Liberty Utilities Apple Valley, Golden State, and other water purveyors to replace water systems with energy efficient motors, pumps and other equipment.

MO-24. Encourage VVWRA to replace wastewater systems with energy efficient motors, pumps and other equipment.

MO-25. 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-26. Consider the installation of green roofs on Town facilities.

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

MO-28. Reduce turf areas at Town facilities by 20% overall.

MO-29. Modernize facilities and equipment at the golf course when financially feasible, including the well pumps.

MO-30. Install semi-pervious surfaces which allow water to percolate at Town facilities to the extent economically feasible.

MO-31. Install timers for all ball field lighting on Town facilities.

MO-32. Consider a home weatherization and energy efficient appliance replacement grant program for existing residents including extremely low, very low and low-income households.

MO-33. Continue to require that improvements made under the Residential Rehabilitation Loan Program be energy efficient.

MO-34. Promote third-party energy efficiency programs, including the Energy Upgrade California program.

Renewable Energy Measures

MO-35. 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-36. 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-37. 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-38. Consider installing a CNG fueling station and establish a public access program for same.

MO-39. Consider replacing failing or failed traditional water heaters in Town facilities with solar water heaters.

MO-40. When it fails, consider replacing the municipal pool heater with a solar pool heating system.

Solid Waste Management Measures

MO-41. Require composting of all landscaping waste from Town facilities.

MO-42. Implement a two-sided copy policy at all Town offices.

MO-43. Provide recycling bins for all offices, and at all employee gathering points (lunch room, conference rooms, etc.).

MO-44. 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 CO_2e are avoided.
- For every ton of plastic film (in the form of Low Density Polyethylene LDPE) that is recycled, about 1.9 tons of CO_2e are avoided annually.
- For every ton of mixed general paper recycled about 4.3 tons of CO_2e are avoided.

C. 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 replacement of personal vehicles 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 cool roof.

CO-10. Increase insulation in walls and roof to a minimum R-30.

CO-11. Install weather-stripping on all doors and windows.

CO-12. Replace grass/turf areas with drought tolerant or native plants, or with decorative rock or gravel.

CO-13. Replace water fixtures (faucets, toilets, etc.) with high efficiency fixtures.

Renewable Energy Measures

CO-14. Replace water heater and/or pool heater with a solar water heating system.

CO-15. Install solar panels or photovoltaic system

CO-16. For apartment or condominium projects, install solar or photovoltaic systems on carport roofs.

Solid Waste Management Measures

CO-17. Install a home composting system.

CO-18. Increase recycling by 20%.

CO-19. For businesses, implement a two-sided copy policy.

D. 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 meet applicable California Title 24 Energy Efficiency Standards. 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 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 trees 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.

E. 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.[19]

[19] 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-15 CO-16 MO-34	Change in Energy Source	Expand Rooftop Solar	Rooftop solar and renewable energy production is expanded to replace 5% of forecast 2020 electricity. Total 2016 forecast 2020 electricity is 53,127 tons of CO2e equivalent (residential and non-residential). a savings of 2,656 tons of CO2e. Based on 2016 consumption, one residential unit demands 7,247 kWh per year, which generates approximately 1 ton of CO2e. To obtain the 5% reduction, 2,656 residential units would need to implement rooftop solar, or 664 residential units per year since the 2016 forecast.	Residential	2,656
ND-13 ND-14	Energy Efficiency: Appliances and Equipment	New Homes Natural Gas Efficiency	1,580 homes are projected to be built after 2016 by 2020 (24,668 units in 2016, applied 1.6% annual growth rate means 26,284 units by 2020). By 2020, these homes would have been under 2016 Building Codes or better, which will save at least 18% (123,145 therms) of overall natural gas use (684,140 therms or 433 therms per unit) due to energy efficient appliances that reduce natural gas use under BAU conditions.	Residential	655
MO-31 MO-32 MO-33	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 homes (the number of homes constructed before 2013 per DOF) would save 63,644,842 kwh per year.	Residential	8,534

Measure Number	Measure Type	Measure Name	Assumptions	Sector	CO_2e Reductions (tons)
MO-31 MO-32 MO-33	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	13,391
CO-7 through CO-14 MO-21, MO-22 MO-26 MO-36	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 commercial accounts of 58,304,859 kwh by 2020.	Commercial	7,818
CO-7 through CO-14 MO-22 MO-26 MO-27 MO-36	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 583 accounts (half of all commercial accounts for 2016 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 109,021 therms will be saved.)	Commercial	579
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	690

Measure Number	Measure Type	Measure Name	Assumptions	Sector	CO_2e Reductions (tons)
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	567
CO-7 through CO-14	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	273
CO-7 through CO-14	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	24
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-8	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-8 MO-10	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

Measure Number	Measure Type	Measure Name	Assumptions	Sector	CO_2e Reductions (tons)
MO-11 MO-13 MO-35 CO-4	Change in Fuel Type or Technology	Use CNG for Transit Bus	All transit bus miles (20,513 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	828
MO-11 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).[20]	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[21]	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-15 MO-16 MO-18 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

[20] 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.

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

Measure Number	Measure Type	Measure Name	Assumptions	Sector	CO_2e Reductions (tons)
MO-8 MO-10	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
MO-8 MO-10	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-19 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.[22] (864/6.9=125; 125x23x5x4x12= 690,000 VMT)	Transportation	1,413
ND-11 MO-9	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

[22] 4.769 million passenger miles at single occupancy equates to 2.981 million vehicle miles at an occupancy factor of 1.6.

Measure Number	Measure Type	Measure Name	Assumptions	Sector	CO_2e Reductions (tons)
MO-39 MO-40 CO-17 CO-18	Avoided Disposal to Landfill	Increase Recycling of Paper Products	20% (8,511 tons in 17% of total 50,068 tons of community waste) of paper products are recycled rather than disposed of in a landfill.	Solid Waste	7,035
CO-17	Avoided Disposal to Landfill	Compost Food Waste	20% (8,010 tons in 16% of total 50,068 tons of community waste) of food waste are composted rather than disposed of in a landfill.	Solid Waste	6,620
				TOTAL	**258,888**

2. Municipal-Specific

Measures are divided into the following sectors: buildings, streetlight, transportation[23], water and sewer, and solid waste management.

Measure Number	Measure Type	Measure Name	Assumptions	Sector	CO_2e Reductions (tons)
CO-15 CO-16 MO-26 MO-34	Change in Energy Source	Rooftop and Above Parking Solar	Half of all municipal building' energy demand (1,118,665 kwh; 2,237,330 kwh total) will be met through on-roof and above parking solar.	Buildings	150
MO-21 MO-22 MO-26 MO-27 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. 335,600 kwh will be avoided.	Buildings	45

[23] 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-21 ND-13 ND-14	Energy Efficiency: Buildings	Reduce Natural Gas Use	On average municipal buildings will use 15% less natural gas compared to BAU. 13,857 therms will be avoided.	Buildings	74
MO-11 MO-12 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	78
MO-18 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-19 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-8 MO-10	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-30	Change in Energy Source	Streetlights and Traffic Signals	50% of electricity used for streetlights and traffic signals will come from solar electricity, 1,717,830 kwh. (Based on 2016 SCE data).	Streetlight	195
MO-24 MO-37	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	23

Measure Number	Measure Type	Measure Name	Assumptions	Sector	CO_2e Reductions (tons)
MO-24 MO-37	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	6
MO-39 MO-40 CO-17 ND-27 ND-28	Avoided Disposal to Landfill	Increase Recycling of Paper Products, Compost Food Waste, and General Waste	20% (11.83 tons) of waste products are recycled rather than disposed of in a landfill. (Based on 2016 municipal waste numbers).	Solid Waste	10
				TOTAL	**659**

F. 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 measure assumptions and reduction calculations have been updated to reflect 2016 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 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.

The updated 2016 community-wide reduction measures set forth above have the potential to result in a 258,888 CO_2e reduction. Under business as usual conditions (2016), GHG emissions are projected to be 410,718 tons of CO2e in 2020. A reduction of 258,888 tons of CO2e exceeds the 15% reduction target, bringing the 2020 emission level to 151,830 tons of CO2e with implementation of the 2016 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 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 were 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.

The updated 2016 municipal-specific reduction measures set forth above have the potential to result in a 659 CO_2e reduction. Under business as usual conditions (2016), GHG emissions are projected to be 1,337 tons of CO2e in 2020. A reduction of 659 ton of CO2e exceeds the 15% reduction target, bringing the 2020 emission level to 678 tons of CO2e with implementation of this CAP.

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 is 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.

<u>Municipal Activities</u>

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 (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 the AV Choice Energy program.
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 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. 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 2010 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. The same methodology was used in the 2016 CAP update.

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 – SCE Data

PARAMETERS:

Request ID 'SCE186213024'
Requestor 'Town of Apple Valley'
Billing Period Between '2016-01-01' AND '2016-12-31'
City Name (Apple Valley)

Total Usage (KWH)

		Year
City	Rate Category	2016
Apple Valley	Residential	206,646,716
Apple Valley	Non-Residential	128,505,583

Customer Name	ustomer BPI	CSS Customer Number	Serv Acct Number	UUT Exempt	State Tax Exempt	Serv Acct BP
APPLE VALLEY, TOWN OF	0063382726	756	998270	N	N	0050000914
APPLE VALLEY, TOWN OF	0063382726	756	1470144	N	N	0050627597
APPLE VALLEY, TOWN OF	0063382726	756	1470145	N	N	0050627783
APPLE VALLEY, TOWN OF	0063382726	756	1470147	N	N	0050627974
APPLE VALLEY, TOWN OF	0063382726	756	1470148	N	N	0050628093
APPLE VALLEY, TOWN OF	0063382726	756	1470149	N	N	0050628168
APPLE VALLEY, TOWN OF	0063382726	756	1470151	N	N	0050628257
APPLE VALLEY, TOWN OF	0063382726	756	1470152	N	N	0050628318
APPLE VALLEY, TOWN OF	0063382726	756	1470156	N	N	0050628368
APPLE VALLEY, TOWN OF	0063382726	756	1470157	N	N	0050628447
APPLE VALLEY, TOWN OF	0063382726	756	1779418	N	N	0050740165
APPLE VALLEY, TOWN OF	0063382726	756	1980191	N	N	0051138028
APPLE VALLEY, TOWN OF	0063382726	756	2728098	N	N	0052767395
APPLE VALLEY, TOWN OF	0063382726	756	2728099	Y	N	0052767520
APPLE VALLEY, TOWN OF	0063382726	756	2728100	N	N	0052767778
APPLE VALLEY, TOWN OF	0063382726	756	2728101	N	N	0052767957
APPLE VALLEY, TOWN OF	0063382726	756	2728102	N	N	0052768080
APPLE VALLEY, TOWN OF	0063382726	756	2728104	N	N	0052768184
APPLE VALLEY, TOWN OF	0063382726	756	2728105	N	N	0052768455

APPLE VALLEY, TOWN OF	0063382726	756	2728111	N	N	0052769062
APPLE VALLEY, TOWN OF	0063382726	756	2728113	N	N	0052769261
APPLE VALLEY, TOWN OF	0063382726	756	4330015	N	N	0053320687
APPLE VALLEY, TOWN OF	0063382726	756	4344348	N	N	0053402589
APPLE VALLEY, TOWN OF	0063382726	756	5506372	N	N	0054672468
APPLE VALLEY, TOWN OF	0063382726	756	9030945	N	N	0054714731
APPLE VALLEY, TOWN OF	0063382726	756	9521422	N	N	0055403403
APPLE VALLEY, TOWN OF	0063382726	756	10845054	N	N	0050076558
APPLE VALLEY, TOWN OF	0063382726	756	10920492	N	N	0050205313
APPLE VALLEY, TOWN OF	0063382726	756	11203526	N	N	0050033917
APPLE VALLEY, TOWN OF	0063382726	756	11236757	N	N	0050086196
APPLE VALLEY, TOWN OF	0063382726	756	11236758	N	N	0050086199
APPLE VALLEY, TOWN OF	0063382726	756	11236759	N	N	0050086242
APPLE VALLEY, TOWN OF	0063382726	756	11293924	N	N	0050199384
APPLE VALLEY, TOWN OF	0063382726	756	11326570	N	N	0050331718
APPLE VALLEY, TOWN OF	0063382726	756	13818354	N	N	0050673144
APPLE VALLEY, TOWN OF	0063382726	756	15872695	N	N	0051391471
APPLE VALLEY, TOWN OF	0063382726	756	16500102	N	N	0051788971
APPLE VALLEY, TOWN OF	0063382726	756	16539533	N	N	0052051592
APPLE VALLEY, TOWN OF	0063382726	756	16588609	N	N	0052386238

APPLE VALLEY, TOWN OF	0063382726	756	16588610	N	N	0052386298
APPLE VALLEY, TOWN OF	0063382726	756	20531242	N	N	0052701879
APPLE VALLEY, TOWN OF	0063382726	756	20547161	N	N	0052789967
APPLE VALLEY, TOWN OF	0063382726	756	22221257	N	N	0051934877
APPLE VALLEY, TOWN OF	0063382726	756	23048853	N	N	0051642783
APPLE VALLEY, TOWN OF	0063382726	756	23105212	N	N	0052090640
APPLE VALLEY, TOWN OF	0063382726	756	27256489	N	N	0052571250
APPLE VALLEY, TOWN OF	0063382726	756	27256539	N	N	0052571429
APPLE VALLEY, TOWN OF	0063382726	756	27546818	N	N	0051649513
APPLE VALLEY, TOWN OF	0063382726	756	27546860	N	N	0051649689
APPLE VALLEY, TOWN OF	0063382726	756	27546867	N	N	0051649768
APPLE VALLEY, TOWN OF	0063382726	756	27560713	N	N	0051773716
APPLE VALLEY, TOWN OF	0063382726	756	27733742	N	N	0050245194
APPLE VALLEY, TOWN OF	0063382726	756	27733757	N	N	0050245489
APPLE VALLEY, TOWN OF	0063382726	756	27733789	N	N	0050245731
APPLE VALLEY, TOWN OF	0063382726	756	27733801	N	N	0050245786
APPLE VALLEY, TOWN OF	0063382726	756	30468116	N	N	0052870797
APPLE VALLEY, TOWN OF	0063382726	756	30473156	N	N	0052908006
APPLE VALLEY, TOWN OF	0063382726	756	30473173	N	N	0052908391

APPLE VALLEY, TOWN OF	0063382726	756	30473181	N	N	0052908449
APPLE VALLEY, TOWN OF	0063382726	756	32240869	N	N	0052715314
APPLE VALLEY, TOWN OF	0063382726	756	32267069	N	N	0053010547
APPLE VALLEY, TOWN OF	0063382726	756	33065237	N	N	0053296183
APPLE VALLEY, TOWN OF	0063382726	756	33065316	N	N	0053296880
APPLE VALLEY, TOWN OF	0063382726	756	36742954	N	N	0053886598
APPLE VALLEY, TOWN OF	0063382726	756	37580258	N	N	0070661324
APPLE VALLEY, TOWN OF	0063382726	756	37580303	N	N	0070661376
APPLE VALLEY, TOWN OF	0063382726	756	39021385	N	N	0073093212
APPLE VALLEY, TOWN OF	0063382726	756	43554801	N	N	0080922200
APPLE VALLEY, TOWN OF	0063382726	756	43554850	N	N	0080922320
APPLE VALLEY, TOWN OF	0063382726	756	43864718	N	N	0081375511
APPLE VALLEY, TOWN OF	0063382726	756	43864745	N	N	0081375528
APPLE VALLEY, TOWN OF	0063382726	756	45975219	N	N	0084505365
APPLE VALLEY, TOWN OF	0063382726	756	45975240	N	N	0084505405
APPLE VALLEY, TOWN OF	0063382726	756	46229468	N	N	0084880849
APPLE VALLEY, TOWN OF	0063382726	756	46229469	N	N	0084880870

APPLE VALLEY, TOWN OF	0063382726	756	46229471	N	N	0084880872

Customer Name	Customer BP Number	CSS Customer Number	No. of Service Accounts	Annual Max kW		
APPLE VALLEY, T	0063382726	756	139	304		
APPLE VALLEY, T	**0063382726**	**756**	**139**	**of Max kW:**		

Rate	No. of Service Accounts	Annual Max kW	Annual kWh	Annual Revenue	
AL-2	5	304	144,003	$6,048	
LS-1-ALLNITE	5	0	329,983	$80,643	
LS-2	5	0	38,688	$2,269	
LS-3	3	0	12,521	$1,146	
LS-3-B	27	0	117,671	$8,284	
OL-1	2	0	2,388	$441	
TC-1	36	0	145,479	$19,809	
TOU-GS1A	37	7	40,250	$14,222	
TOU-GS1B	1	23	9,779	$1,918	
TOU-GS1B-AE	1	19	52,334	$5,963	
TOU-GS2B	6	158	1,454,349	$138,840	
TOU-GS2B-AE	1	53	87,580	$11,100	
TOU-GS2R	1	90	235,435	$23,824	
TOU-PA2A	2	36	26,727	$7,540	
TOU-PA2B	6	64	556,001	$42,858	
TPA2-SOP1	1	141	182,472	$25,528	
Total	**139**	**Max kW: 304**	**3,435,660**	**$390,433**	

LS-1-ALLNITE	5	0	329,983	$80,643
LS-2	5	0	38,688	$2,269
LS-3	3	0	12,521	$1,146
LS-3-B	27	0	117,671	$8,284
TC-1	36	0	145,479	$19,809
	76		644,342	$112,151

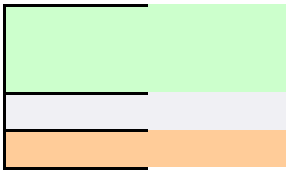
SA Established Date	SA Name	Meter (1-5)	Cust Acct Number	Rate	Serv Acct Address	Serv Acct City	Zip
7/24/1990	HWY 18- KA	222011-8355	13880117	TC-1	18184 Us Highway 18	Apple Valley	92307
4/30/1991	HWY 18-KA	222011-8355	13880117	LS-3-B	18184 Highway 18-Ls3	Apple Valley	92307
4/30/1991	MONDAMON	222012-6157	13880117	LS-3-B	18 E/O Mndamon Av P	Apple Valley	92307
4/30/1991	PIUTE S/O I	211010-0573	13880117	LS-3-B	Sbd18vctv Piute L	Apple Valley	92307
4/30/1991	HWY 18- RA	211010-0573	13880117	TC-1	Sbd18vctv Rnchras L	Apple Valley	92307
4/30/1991	HWY 18- DA	211010-0573	13880117	LS-3-B	Sbd18vctv Avinn L P	Apple Valley	92307
4/30/1991		222013-9090	13880117	LS-3-B	W/S Kiowa S/18	Apple Valley	92307
4/30/1991	HWY 18-NA	222010-8037	13880117	LS-3-B	Hwy 18 / Navajo Rd	Apple Valley	92307
9/1/1991		222014-0962	13880117	TC-1	19290 Yucca Loma Rd	Apple Valley	92307
9/1/1991		222013-6025	13880117	TC-1	73 Apple Valley Rd Sig	Apple Valley	92308
7/24/1990		222013-9090	13880117	TC-1	833 Plant D3	Apple Valley	92307
9/1/1991	BEAR VALL	211010-0224	13880117	TC-1	73 Kiowa Sig	Apple Valley	92308
4/30/1991	HWY 18- AP	222013-9798	13880117	LS-3-B	Av Rd-By Alpha Beta	Apple Valley	92307
1/16/1990			13880117	LS-1-ALLNITE	Various	Apple Valley	92307
9/1/1991	BEAR VALL		13880117	LS-2	Various	Apple Valley	92307
9/1/1991	BEAR VALL		13880117	LS-2	Navajo/Bear Valley	Apple Valley	92307
7/24/1990	HWY 18- AP	211010-0538	13880117	TC-1	73 Wika-18 Sgl	Apple Valley	92307
4/13/1990	BEAR VALL	222010-6727	13880117	TC-1	Jess Ranch Parkway	Apple Valley	92308
7/24/1990	HWY 18-DA	211010-0569	13880117	TC-1	Apple Valley Inn-18	Apple Valley	92307

7/24/1990	HWY 18-NA	222010-796	13880117	TC-1	73 Navajo-18 Sgl	Apple Valley	92308
7/24/1990	HWY 18-RA	222013-739	13880117	LS-3-B	Rancherias Road	Apple Valley	92307
3/19/1993	BEAR VALL	222012-619	13880117	TC-1	73 Navajo Sig	Apple Valley	92308
3/19/1993	DALE EVAN	211010-057	13880117	TC-1	73 Bell Mountain-Quarry Sgl	Apple Valley	92307
12/29/1993	NAVAJO / P	222012-610	13880117	TC-1	12465 Navajo Rd	Apple Valley	92308
2/23/1995	BEAR VALL	222011-832	13880117	TC-1	19201 Bear Valley Rd	Apple Valley	92308
6/3/1995	BEAR VALL		13880117	LS-2	19020 Bear Valley Rd	Apple Valley	92308
3/22/1996	HWY 18- TA	222010-798	13880117	LS-3-B	18857 1/2 Highway-18 Ls3	Apple Valley	92307
3/22/1996	HWY 18- TA	222010-798	13880117	TC-1	18857 1/2 Highway-18	Apple Valley	92307
6/13/1996	HWY 18- CE	222013-911	13880117	TC-1	22398 1/2 Highway-18	Apple Valley	92307
6/6/1996	HWY 18 -BA	222013-739	13880117	LS-3-B	20251 1/2 Highway-18 Ls3	Apple Valley	92307
6/14/1996	HWY 18-QU	222011-834	13880117	LS-3-B	22095 1/2 Highway-18 Ls3	Apple Valley	92307
6/13/1996	HIGHWAY-1	222010-513	13880117	LS-3-B	22398 1/2 Highway-18 Ls3	Apple Valley	92307
6/7/1996	HWY 18- BA	222013-739	13880117	TC-1	20251 1/2 Highway-18	Apple Valley	92307
6/14/1996	HWY 18-QU	222011-834	13880117	TC-1	22095 1/2 Highway-18	Apple Valley	92307
1/1/1998	L5-TR 1528		82118464	LS-1-ALLNITE	Sitting Bull / Quail	Apple Valley	92308
7/29/1999	CENTRAL/E		13880117	LS-2	14101 Central	Apple Valley	92307
7/29/1999	CENTRAL/E	222013-603	13880117	TC-1	14101 Central Rd	Apple Valley	92307
12/1/1999	L7 T4 8476		82118464	LS-1-ALLNITE	Ivanpah / Ottawa	Apple Valley	92307
11/18/1999	APPLVALLY	222010-800	13880117	TC-1	19299 Sitting Bull	Apple Valley	92308

11/18/1999		222010-5149	13880117	LS-3-B	19299 Sitting Bull Ls3	Apple Valley	92308
5/13/2002	HWY 18- CC	222012-6074	13880117	TC-1	18394 Highway-18	Apple Valley	92307
5/13/2002	HWY 18 CO	222012-6074	13880117	LS-3-B	18394 Highway-18 Ls3	Apple Valley	92307
5/9/2003	TR 14846		82118464	LS-1-ALLNITE	Sitting Bull / Deep Creek	Apple Valley	92307
9/30/2003	NAVAJO/SI	222012-6109	13880117	TC-1	12916 Navajo Rd	Apple Valley	92308
10/16/2003	NAVAJO SI	222012-6109	13880117	LS-3-B	12916 Navajo Rd B	Apple Valley	92308
1/19/2006		222010-6740	13880117	LS-3-B	19385 Sitting Bull Rd Ls-3	Apple Valley	92308
1/19/2006		222010-6740	13880117	TC-1	19385 Sitting Bull Rd	Apple Valley	92308
3/20/2006		222010-8046	13880117	LS-3-B	19260 Seneca Rd Ls3	Apple Valley	92307
3/20/2006		222012-6157	13880117	LS-3-B	15473 Mondamon Rd Ls-3	Apple Valley	92307
3/20/2006		222012-6157	13880117	TC-1	15473 Mondamon Rd	Apple Valley	92307
3/22/2006		222010-8016	13880117	TC-1	19260 Seneca Rd	Apple Valley	92307
4/27/2006		222010-5148	13880117	LS-3-B	19294 Shoshonee Rd Ls3	Apple Valley	92307
4/27/2006		222010-5148	13880117	TC-1	19294 Shoshonee Rd	Apple Valley	92307
4/27/2006		222010-7983	13880117	LS-3-B	14798 Mandan Rd Ls-3	Apple Valley	92307
4/26/2006		222010-8046	13880117	TC-1	14798 Mandan Rd	Apple Valley	92307
10/15/2007		222012-6034	13880117	TC-1	12267 Apple Valley Rd	Apple Valley	92308
10/12/2007		222012-6034	13880117	LS-3-B	19420 Bear Valley Rd Ls-3	Apple Valley	92308
10/12/2007		222012-6034	13880117	TC-1	19420 Bear Valley Rd	Apple Valley	92308

10/12/2007		222012-6034	13880117	LS-3-B	12267 Apple Valley Rd Ls3	Apple Valley	92308
9/22/2008		222010-8035	308509785	TC-1	13505 Navajo Rd	Apple Valley	92308
9/26/2008		222010-8035	308509785	LS-3-B	13505 Navajo Rd Ls-3	Apple Valley	92308
3/2/2009		222013-6021	313277105	LS-3-B	22499 Bear Valley Rd Ls3	Apple Valley	92308
3/3/2009		222013-6021	313353153	TC-1	22499 Bear Valley Rd	Apple Valley	92308
8/23/2010	LAFCO 3156		334238953	LS-1-ALLNITE	Various	Apple Valley	92308
8/15/2011	DEEP CREE	222011-8653	339204406	LS-3-B	12100 Deep Creek Pkwy Ls3	Apple Valley	92308
8/15/2011	DEEP CREE	222012-3318	339204653	TC-1	12100 Deep Creek Rd	Apple Valley	92308
1/1/2009	SAFETY LIG		13880117	LS-2	12465 Navajo Rd	Apple Valley	92308
5/18/2015		322010-3266	376500088	TC-1	12101 Mohawk Rd	Apple Valley	92307
5/18/2015		322010-4001	376500088	LS-3-B	12101 Mohawk Rd Ls3	Apple Valley	92307
7/24/2015		322010-3967	376500088	TC-1	15709 Apple Valley Rd	Apple Valley	92308
7/24/2015		322010-3966	376500088	LS-3-B	15709 Apple Valley Rd Ls-3	Apple Valley	92308
12/5/2016		322010-4703	13880117	LS-3	18908 Yucca Loma Rd Ls3	Apple Valley	92308
12/5/2016		322010-4756	13880117	TC-1	18908 Yucca Loma Rd Tc-1	Apple Valley	92308
2/15/2017		222014-0501	13880117	TC-1	19231 Yucca Loma Rd	Apple Valley	92307
2/15/2017		222011-0957	13880117	LS-3	19231 Yucca Loma Rd Ls-3	Apple Valley	92307

2/15/2017		222012-8009	13880117	LS-3	19290 Yucca Loma Rd Ls-3	Apple Valley	92307



Contact Level	Contact BPID	Main Contact Name	Contact Phone	Contact Mobile	Contact Email	Annual Max kW	Annual kWh	Annual Revenue
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	3,594	$508
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	3,030	$299
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	2,047	$224
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	1,162	$190
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	2,658	$417
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	3,232	$263
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	2,997	$262
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	3,562	$276
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	3,793	$520
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	4,386	$575
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	3,284	$476
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	5,578	$693
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	4,514	$343
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	286,843	$68,945
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	14,436	$847
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	5,184	$302
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	2,437	$396
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	4,853	$615
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	4,245	$557

CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	2,449	$398
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	4,013	$290
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	9,519	$1,040
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	1,100	$325
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	4,059	$544
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	5,706	$696
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	7,776	$452
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	2,398	$234
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	4,098	$548
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	5,052	$637
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	3,293	$265
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	3,038	$261
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	3,997	$315
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	4,515	$585
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	4,573	$590
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	684	$237
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	5,184	$302
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	3,560	$498
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	21,312	$5,533
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	4,961	$624

CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	5,021	$319
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	3,366	$486
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	3,879	$289
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	348	$118
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	4,006	$538
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	14,054	$640
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	5,227	$328
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	4,364	$574
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	3,943	$285
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	3,640	$273
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	5,305	$659
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	5,070	$635
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	4,010	$286
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	4,799	$609
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	3,666	$276
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	4,969	$629
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	5,147	$639
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	3,839	$281
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	2,963	$446

CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	4,600	$306
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	3,943	$529
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	4,279	$294
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	5,737	$411
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	5,427	$671
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	20,796	$5,810
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	5,605	$337
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	2,440	$506
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	6,108	$367
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	2,603	$411
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	7,471	$405
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	3,113	$456
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	5,417	$333
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	4,417	$448
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	2,386	$499
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	1,158	$279
CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	1,921	$223

CU	0080701146	Joseph Moon	7612407000	7606628588	Jmoon@applevalley.Org	0	6,183	$475

SIC	NAICS	NAICS Desc	ESS. USE	Essential Use Category	Rotating Outage Group	XFMR Structure	Circuit	Substation
9225	922198	And Safety-T	N		N001	4750291E	KASOTA	Victorville
			N		N001	4750291E	KASOTA	Victorville
			N					
			N		A063	327589S	SYMERON	Rancho
9225	922198	And Safety-T	N		N001	4750295E	LAKOTA	Rancho
			N		A076	5517629	KNOLLS	Rancho
			N		A035	63387S	PRAYER	Savage
			N		N001	18899CTC	MARIANNA	Rancho
9225	922198	And Safety-T	N		A053	2043298E	JESS	Apple Valley
9225	922198	And Safety-T	N					
9225	922198	And Safety-T	N		N001	2260067E	LAKOTA	Rancho
9225	922198	And Safety-T	N		A070	4665034E	KIOWA	Apple Valley
			N					
			N					
			N					
			N					
9225	922198	And Safety-T	N		N001	1782060E	KASOTA	Victorville
9225	922198	And Safety-T	N		N001	5403021	DEEP CREEK	Apple Valley
9225	922198	And Safety-T	N					

9225	922198	And Safety-T	N		N001	1738389E	MARIANNA	Rancho
			N		A063	2085237E	SYMERON	Rancho
9225	922198	And Safety-T	N		A070	52504CTC	KIOWA	Apple Valley
9225	922198	And Safety-T	N		N001	4350543E	NDERWORLI	STYX P.T.
9225	922198	And Safety-T	N		A070	263207S	KIOWA	Apple Valley
9225	922198	And Safety-T	N		A065	4006519E	PAHUTE	Apple Valley
			N					
			N		N001	1756508E	LAKOTA	Rancho
9225	922198	And Safety-T	N		N001	1756508E	LAKOTA	Rancho
9225	922198	And Safety-T	N		A079	1600155E	SPEAR	Apple Valley
			N		A063	2085237E	SYMERON	Rancho
			N		N001	4234730E	MARIANNA	Rancho
			N		A079	1600155E	SPEAR	Apple Valley
9225	922198	And Safety-T	N		A063	2085237E	SYMERON	Rancho
9225	922198	And Safety-T	N		N001	4234730E	MARIANNA	Rancho
			N					
			N					
9225	922198	And Safety-T	N		A079	4301988E	SPEAR	Apple Valley
			N					
9225	922198	And Safety-T	N		A053	5490252	JESS	Apple Valley

			N		A053	5490252	JESS	Apple Valley
9225	922198	And Safety-T	N		N001	4344262E	LAKOTA	Rancho
			N		N001	4344262E	LAKOTA	Rancho
			N					
9225	922198	And Safety-T	N					
			N					
			N		A065	5519939	PAHUTE	Apple Valley
9225	922198	And Safety-T	N		A065	5519939	PAHUTE	Apple Valley
			N		A057	25865CIT	YUCCA LOMA	Rancho
			N		N001	363095S	KASOTA	Victorville
9225	922198	And Safety-T	N		N001	363095S	KASOTA	Victorville
9225	922198	And Safety-T	N		A057	25865CIT	YUCCA LOMA	Rancho
			N		A053	27921CIT	JESS	Apple Valley
9225	922198	And Safety-T	N		A053	27921CIT	JESS	Apple Valley
			N		A053	25852CIT	JESS	Apple Valley
9225	922198	And Safety-T	N		A053	25852CIT	JESS	Apple Valley
9225	922198	And Safety-T	N		A035	5530130	PRAYER	Savage
			N		A053	4503071E	JESS	Apple Valley
9225	922198	And Safety-T	N		A053	4503071E	JESS	Apple Valley

			N		A035	5530130	PRAYER	Savage
9225	922198	And Safety-T	N		N001	4052591E	MARIANNA	Rancho
			N		N001	4052591E	MARIANNA	Rancho
			N		A077	5595068	COCHISE	Apple Valley
9225	922198	And Safety-T	N		A077	5595068	COCHISE	Apple Valley
			N					
			N		N001	4069767E	DELORO	Apple Valley
9225	922198	And Safety-T	N		N001	4069767E	DELORO	Apple Valley
			N					
9225	922198	And Safety-T	N		A070	1721930E	KIOWA	Apple Valley
			N		A070	1721930E	KIOWA	Apple Valley
9225	922198	And Safety-T	N					
			N					
			N		A035	5573451	PRAYER	Savage
9225	922198	And Safety-T	N		A035	5573451	PRAYER	Savage
9225	922198	And Safety-T	N		A035	5573419	PRAYER	Savage
			N		A035	5573419	PRAYER	Savage

			N		A053	2043298E	JESS	Apple Valley

ABANK	DR?	EE Last 2 Years?
VICTOR	N	N
VICTOR	N	N
	N	N
VICTOR	N	N
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VICTOR	N	N

Cust Name	Cust Num	Serv Acct Num	Cust Acct Num	Sic Code
APPLE VALLEY, TOWN OF	756	1308422	28004695	7999
APPLE VALLEY, TOWN OF	756	3457436	28004695	8322
APPLE VALLEY, TOWN OF	756	19879473	234659332	9111
APPLE VALLEY, TOWN OF	756	20818176	240221739	9221
APPLE VALLEY, TOWN OF	756	28194229	283596310	7999
APPLE VALLEY, TOWN OF	756	34793566	323076083	752
APPLE VALLEY, TOWN OF	756	35403640	326692258	9111
APPLE VALLEY, TOWN OF	756	37202242	336920194	9229

Current Rate	Meter Num	Service Street Addr	City Name	Zip
TOU-GS2B-AE	223000-002776	13413 NAVAJO RD	APPLE VALLEY	92308
TOU-GS1B-AE	223000-003634	13467 NAVAJO RD	APPLE VALLEY	92308
TOU-GS2R	259000-077064	14955 DALE EVANS PKWY	APPLE VALLEY	92307
TOU-GS2B	259000-000887	14931 DALE EVANS PKWY	APPLE VALLEY	92307
TOU-GS2B	259000-001787	14999 DALE EVANS PKWY	APPLE VALLEY	92307
TOU-GS2B	259000-000356	22131 POWHATAN RD	APPLE VALLEY	92308
TOU-GS2B	259000-001034	14975 DALE EVANS PKWY	APPLE VALLEY	92307
TOU-GS2B	259000-009988	13450 NOMWAKET RD	APPLE VALLEY	92308

Bill Amt (Sum)	kWh Usage (Sum)	Maximum kW (Max)
$16,342.92	86,777	42
$12,612.66	75,263	22
$35,060.00	266,849	93
$34,605.74	250,117	70
$39,274.71	312,786	77
$44,854.76	343,869	90
$70,224.60	538,754	162
$16,353.78	98,701	32

Cust Name	Cust Num	Serv Acct Num	Cust Acct Num	Sic Code	Current Rate
APPLE VALLEY, TOWN OF	756	1308422	28004695	7999	TOU-GS2B-AE
APPLE VALLEY, TOWN OF	756	1308422	28004695	7999	TOU-GS2B-AE
APPLE VALLEY, TOWN OF	756	1308422	28004695	7999	TOU-GS2B-AE
APPLE VALLEY, TOWN OF	756	1308422	28004695	7999	TOU-GS2B-AE
APPLE VALLEY, TOWN OF	756	1308422	28004695	7999	TOU-GS2B-AE
APPLE VALLEY, TOWN OF	756	1308422	28004695	7999	TOU-GS2B-AE
APPLE VALLEY, TOWN OF	756	1308422	28004695	7999	TOU-GS2B-AE
APPLE VALLEY, TOWN OF	756	1308422	28004695	7999	TOU-GS2B-AE
APPLE VALLEY, TOWN OF	756	1308422	28004695	7999	TOU-GS2B-AE
APPLE VALLEY, TOWN OF	756	1308422	28004695	7999	TOU-GS2B-AE
APPLE VALLEY, TOWN OF	756	1308422	28004695	7999	TOU-GS2B-AE
APPLE VALLEY, TOWN OF	756	1308422	28004695	7999	TOU-GS2B-AE
APPLE VALLEY, TOWN OF	756	1308422	28004695	7999	TOU-GS2B-AE
APPLE VALLEY, TOWN OF	756	3457436	28004695	8322	TOU-GS1B-AE
APPLE VALLEY, TOWN OF	756	3457436	28004695	8322	TOU-GS1B-AE
APPLE VALLEY, TOWN OF	756	3457436	28004695	8322	TOU-GS1B-AE
APPLE VALLEY, TOWN OF	756	3457436	28004695	8322	TOU-GS1B-AE
APPLE VALLEY, TOWN OF	756	3457436	28004695	8322	TOU-GS1B-AE
APPLE VALLEY, TOWN OF	756	3457436	28004695	8322	TOU-GS1B-AE
APPLE VALLEY, TOWN OF	756	3457436	28004695	8322	TOU-GS1B-AE
APPLE VALLEY, TOWN OF	756	3457436	28004695	8322	TOU-GS1B-AE
APPLE VALLEY, TOWN OF	756	3457436	28004695	8322	TOU-GS1B-AE
APPLE VALLEY, TOWN OF	756	3457436	28004695	8322	TOU-GS1B-AE
APPLE VALLEY, TOWN OF	756	3457436	28004695	8322	TOU-GS1B-AE
APPLE VALLEY, TOWN OF	756	3457436	28004695	8322	TOU-GS1B-AE
APPLE VALLEY, TOWN OF	756	3457436	28004695	8322	TOU-GS1B-AE
APPLE VALLEY, TOWN OF	756	19879473	234659332	9111	TOU-GS2R
APPLE VALLEY, TOWN OF	756	19879473	234659332	9111	TOU-GS2R
APPLE VALLEY, TOWN OF	756	19879473	234659332	9111	TOU-GS2R
APPLE VALLEY, TOWN OF	756	19879473	234659332	9111	TOU-GS2R
APPLE VALLEY, TOWN OF	756	19879473	234659332	9111	TOU-GS2R
APPLE VALLEY, TOWN OF	756	19879473	234659332	9111	TOU-GS2R
APPLE VALLEY, TOWN OF	756	19879473	234659332	9111	TOU-GS2R
APPLE VALLEY, TOWN OF	756	19879473	234659332	9111	TOU-GS2R
APPLE VALLEY, TOWN OF	756	19879473	234659332	9111	TOU-GS2R
APPLE VALLEY, TOWN OF	756	19879473	234659332	9111	TOU-GS2R
APPLE VALLEY, TOWN OF	756	19879473	234659332	9111	TOU-GS2R
APPLE VALLEY, TOWN OF	756	19879473	234659332	9111	TOU-GS2R
APPLE VALLEY, TOWN OF	756	19879473	234659332	9111	TOU-GS2R
APPLE VALLEY, TOWN OF	756	20818176	240221739	9221	TOU-GS2B
APPLE VALLEY, TOWN OF	756	20818176	240221739	9221	TOU-GS2B
APPLE VALLEY, TOWN OF	756	20818176	240221739	9221	TOU-GS2B
APPLE VALLEY, TOWN OF	756	20818176	240221739	9221	TOU-GS2B
APPLE VALLEY, TOWN OF	756	20818176	240221739	9221	TOU-GS2B
APPLE VALLEY, TOWN OF	756	20818176	240221739	9221	TOU-GS2B
APPLE VALLEY, TOWN OF	756	20818176	240221739	9221	TOU-GS2B
APPLE VALLEY, TOWN OF	756	20818176	240221739	9221	TOU-GS2B
APPLE VALLEY, TOWN OF	756	20818176	240221739	9221	TOU-GS2B
APPLE VALLEY, TOWN OF	756	20818176	240221739	9221	TOU-GS2B
APPLE VALLEY, TOWN OF	756	20818176	240221739	9221	TOU-GS2B
APPLE VALLEY, TOWN OF	756	20818176	240221739	9221	TOU-GS2B
APPLE VALLEY, TOWN OF	756	20818176	240221739	9221	TOU-GS2B
APPLE VALLEY, TOWN OF	756	28194229	283596310	7999	TOU-GS2B
APPLE VALLEY, TOWN OF	756	28194229	283596310	7999	TOU-GS2B
APPLE VALLEY, TOWN OF	756	28194229	283596310	7999	TOU-GS2B

APPLE VALLEY, TOWN OF	756	28194229	283596310	7999	TOU-GS2B
APPLE VALLEY, TOWN OF	756	28194229	283596310	7999	TOU-GS2B
APPLE VALLEY, TOWN OF	756	28194229	283596310	7999	TOU-GS2B
APPLE VALLEY, TOWN OF	756	28194229	283596310	7999	TOU-GS2B
APPLE VALLEY, TOWN OF	756	28194229	283596310	7999	TOU-GS2B
APPLE VALLEY, TOWN OF	756	28194229	283596310	7999	TOU-GS2B
APPLE VALLEY, TOWN OF	756	28194229	283596310	7999	TOU-GS2B
APPLE VALLEY, TOWN OF	756	28194229	283596310	7999	TOU-GS2B
APPLE VALLEY, TOWN OF	756	28194229	283596310	7999	TOU-GS2B
APPLE VALLEY, TOWN OF	756	28194229	283596310	7999	TOU-GS2B
APPLE VALLEY, TOWN OF	756	34793566	323076083	752	TOU-GS2B
APPLE VALLEY, TOWN OF	756	34793566	323076083	752	TOU-GS2B
APPLE VALLEY, TOWN OF	756	34793566	323076083	752	TOU-GS2B
APPLE VALLEY, TOWN OF	756	34793566	323076083	752	TOU-GS2B
APPLE VALLEY, TOWN OF	756	34793566	323076083	752	TOU-GS2B
APPLE VALLEY, TOWN OF	756	34793566	323076083	752	TOU-GS2B
APPLE VALLEY, TOWN OF	756	34793566	323076083	752	TOU-GS2B
APPLE VALLEY, TOWN OF	756	34793566	323076083	752	TOU-GS2B
APPLE VALLEY, TOWN OF	756	34793566	323076083	752	TOU-GS2B
APPLE VALLEY, TOWN OF	756	34793566	323076083	752	TOU-GS2B
APPLE VALLEY, TOWN OF	756	34793566	323076083	752	TOU-GS2B
APPLE VALLEY, TOWN OF	756	34793566	323076083	752	TOU-GS2B
APPLE VALLEY, TOWN OF	756	34793566	323076083	752	TOU-GS2B
APPLE VALLEY, TOWN OF	756	35403640	326692258	9111	TOU-GS2B
APPLE VALLEY, TOWN OF	756	35403640	326692258	9111	TOU-GS2B
APPLE VALLEY, TOWN OF	756	35403640	326692258	9111	TOU-GS2B
APPLE VALLEY, TOWN OF	756	35403640	326692258	9111	TOU-GS2B
APPLE VALLEY, TOWN OF	756	35403640	326692258	9111	TOU-GS2B
APPLE VALLEY, TOWN OF	756	35403640	326692258	9111	TOU-GS2B
APPLE VALLEY, TOWN OF	756	35403640	326692258	9111	TOU-GS2B
APPLE VALLEY, TOWN OF	756	35403640	326692258	9111	TOU-GS2B
APPLE VALLEY, TOWN OF	756	35403640	326692258	9111	TOU-GS2B
APPLE VALLEY, TOWN OF	756	35403640	326692258	9111	TOU-GS2B
APPLE VALLEY, TOWN OF	756	35403640	326692258	9111	TOU-GS2B
APPLE VALLEY, TOWN OF	756	35403640	326692258	9111	TOU-GS2B
APPLE VALLEY, TOWN OF	756	35403640	326692258	9111	TOU-GS2B
APPLE VALLEY, TOWN OF	756	37202242	336920194	9229	TOU-GS2B
APPLE VALLEY, TOWN OF	756	37202242	336920194	9229	TOU-GS2B
APPLE VALLEY, TOWN OF	756	37202242	336920194	9229	TOU-GS2B
APPLE VALLEY, TOWN OF	756	37202242	336920194	9229	TOU-GS2B
APPLE VALLEY, TOWN OF	756	37202242	336920194	9229	TOU-GS2B
APPLE VALLEY, TOWN OF	756	37202242	336920194	9229	TOU-GS2B
APPLE VALLEY, TOWN OF	756	37202242	336920194	9229	TOU-GS2B
APPLE VALLEY, TOWN OF	756	37202242	336920194	9229	TOU-GS2B
APPLE VALLEY, TOWN OF	756	37202242	336920194	9229	TOU-GS2B
APPLE VALLEY, TOWN OF	756	37202242	336920194	9229	TOU-GS2B
APPLE VALLEY, TOWN OF	756	37202242	336920194	9229	TOU-GS2B
APPLE VALLEY, TOWN OF	756	37202242	336920194	9229	TOU-GS2B
APPLE VALLEY, TOWN OF	756	37202242	336920194	9229	TOU-GS2B

Meter Num	Service Street Addr	City Name	Zip	Billing Month Year	Meter Read Date
223000-002776	13413 NAVAJO RD	APPLE VALLEY	92308	Jan 2016	1/28/2016
223000-002776	13413 NAVAJO RD	APPLE VALLEY	92308	Feb 2016	2/29/2016
223000-002776	13413 NAVAJO RD	APPLE VALLEY	92308	Mar 2016	3/30/2016
223000-002776	13413 NAVAJO RD	APPLE VALLEY	92308	Apr 2016	4/28/2016
223000-002776	13413 NAVAJO RD	APPLE VALLEY	92308	May 2016	5/27/2016
223000-002776	13413 NAVAJO RD	APPLE VALLEY	92308	Jun 2016	6/28/2016
223000-002776	13413 NAVAJO RD	APPLE VALLEY	92308	Jul 2016	7/28/2016
223000-002776	13413 NAVAJO RD	APPLE VALLEY	92308	Aug 2016	8/26/2016
223000-002776	13413 NAVAJO RD	APPLE VALLEY	92308	Sep 2016	9/27/2016
223000-002776	13413 NAVAJO RD	APPLE VALLEY	92308	Oct 2016	10/27/2016
223000-002776	13413 NAVAJO RD	APPLE VALLEY	92308	Nov 2016	11/29/2016
223000-002776	13413 NAVAJO RD	APPLE VALLEY	92308	Dec 2016	12/28/2016
223000-002776	13413 NAVAJO RD	APPLE VALLEY	92308	Jan 2017	1/27/2017
223000-003634	13467 NAVAJO RD	APPLE VALLEY	92308	Jan 2016	1/28/2016
223000-003634	13467 NAVAJO RD	APPLE VALLEY	92308	Feb 2016	2/29/2016
223000-003634	13467 NAVAJO RD	APPLE VALLEY	92308	Mar 2016	3/30/2016
223000-003634	13467 NAVAJO RD	APPLE VALLEY	92308	Apr 2016	4/28/2016
223000-003634	13467 NAVAJO RD	APPLE VALLEY	92308	May 2016	5/27/2016
223000-003634	13467 NAVAJO RD	APPLE VALLEY	92308	Jun 2016	6/28/2016
223000-003634	13467 NAVAJO RD	APPLE VALLEY	92308	Jul 2016	7/28/2016
223000-003634	13467 NAVAJO RD	APPLE VALLEY	92308	Aug 2016	8/26/2016
223000-003634	13467 NAVAJO RD	APPLE VALLEY	92308	Sep 2016	9/27/2016
223000-003634	13467 NAVAJO RD	APPLE VALLEY	92308	Oct 2016	10/27/2016
223000-003634	13467 NAVAJO RD	APPLE VALLEY	92308	Nov 2016	11/29/2016
223000-003634	13467 NAVAJO RD	APPLE VALLEY	92308	Dec 2016	12/28/2016
223000-003634	13467 NAVAJO RD	APPLE VALLEY	92308	Jan 2017	1/27/2017
259000-077064	14955 DALE EVANS PKWY	APPLE VALLEY	92307	Jan 2016	1/12/2016
259000-077064	14955 DALE EVANS PKWY	APPLE VALLEY	92307	Feb 2016	2/10/2016
259000-077064	14955 DALE EVANS PKWY	APPLE VALLEY	92307	Mar 2016	3/11/2016
259000-077064	14955 DALE EVANS PKWY	APPLE VALLEY	92307	Apr 2016	4/12/2016
259000-077064	14955 DALE EVANS PKWY	APPLE VALLEY	92307	May 2016	5/11/2016
259000-077064	14955 DALE EVANS PKWY	APPLE VALLEY	92307	Jun 2016	6/10/2016
259000-077064	14955 DALE EVANS PKWY	APPLE VALLEY	92307	Jul 2016	7/12/2016
259000-077064	14955 DALE EVANS PKWY	APPLE VALLEY	92307	Aug 2016	8/10/2016
259000-077064	14955 DALE EVANS PKWY	APPLE VALLEY	92307	Sep 2016	9/9/2016
259000-077064	14955 DALE EVANS PKWY	APPLE VALLEY	92307	Oct 2016	10/11/2016
259000-077064	14955 DALE EVANS PKWY	APPLE VALLEY	92307	Nov 2016	11/9/2016
259000-077064	14955 DALE EVANS PKWY	APPLE VALLEY	92307	Dec 2016	12/12/2016
259000-077064	14955 DALE EVANS PKWY	APPLE VALLEY	92307	Jan 2017	1/10/2017
259000-000887	14931 DALE EVANS PKWY	APPLE VALLEY	92307	Jan 2016	1/12/2016
259000-000887	14931 DALE EVANS PKWY	APPLE VALLEY	92307	Feb 2016	2/10/2016
259000-000887	14931 DALE EVANS PKWY	APPLE VALLEY	92307	Mar 2016	3/11/2016
259000-000887	14931 DALE EVANS PKWY	APPLE VALLEY	92307	Apr 2016	4/12/2016
259000-000887	14931 DALE EVANS PKWY	APPLE VALLEY	92307	May 2016	5/11/2016
259000-000887	14931 DALE EVANS PKWY	APPLE VALLEY	92307	Jun 2016	6/10/2016
259000-000887	14931 DALE EVANS PKWY	APPLE VALLEY	92307	Jul 2016	7/12/2016
259000-000887	14931 DALE EVANS PKWY	APPLE VALLEY	92307	Aug 2016	8/10/2016
259000-000887	14931 DALE EVANS PKWY	APPLE VALLEY	92307	Sep 2016	9/9/2016
259000-000887	14931 DALE EVANS PKWY	APPLE VALLEY	92307	Oct 2016	10/11/2016
259000-000887	14931 DALE EVANS PKWY	APPLE VALLEY	92307	Nov 2016	11/9/2016
259000-000887	14931 DALE EVANS PKWY	APPLE VALLEY	92307	Dec 2016	12/12/2016
259000-000887	14931 DALE EVANS PKWY	APPLE VALLEY	92307	Jan 2017	1/10/2017
259000-001787	14999 DALE EVANS PKWY	APPLE VALLEY	92307	Jan 2016	1/12/2016
259000-001787	14999 DALE EVANS PKWY	APPLE VALLEY	92307	Feb 2016	2/10/2016
259000-001787	14999 DALE EVANS PKWY	APPLE VALLEY	92307	Mar 2016	3/11/2016

259000-001787	14999 DALE EVANS PKWY	APPLE VALLEY	92307	Apr 2016	4/12/2016
259000-001787	14999 DALE EVANS PKWY	APPLE VALLEY	92307	May 2016	5/11/2016
259000-001787	14999 DALE EVANS PKWY	APPLE VALLEY	92307	Jun 2016	6/10/2016
259000-001787	14999 DALE EVANS PKWY	APPLE VALLEY	92307	Jul 2016	7/12/2016
259000-001787	14999 DALE EVANS PKWY	APPLE VALLEY	92307	Aug 2016	8/10/2016
259000-001787	14999 DALE EVANS PKWY	APPLE VALLEY	92307	Sep 2016	9/9/2016
259000-001787	14999 DALE EVANS PKWY	APPLE VALLEY	92307	Oct 2016	10/11/2016
259000-001787	14999 DALE EVANS PKWY	APPLE VALLEY	92307	Nov 2016	11/9/2016
259000-001787	14999 DALE EVANS PKWY	APPLE VALLEY	92307	Dec 2016	12/12/2016
259000-001787	14999 DALE EVANS PKWY	APPLE VALLEY	92307	Jan 2017	1/10/2017
259000-000356	22131 POWHATAN RD	APPLE VALLEY	92308	Jan 2016	1/13/2016
259000-000356	22131 POWHATAN RD	APPLE VALLEY	92308	Feb 2016	2/11/2016
259000-000356	22131 POWHATAN RD	APPLE VALLEY	92308	Mar 2016	3/14/2016
259000-000356	22131 POWHATAN RD	APPLE VALLEY	92308	Apr 2016	4/13/2016
259000-000356	22131 POWHATAN RD	APPLE VALLEY	92308	May 2016	5/12/2016
259000-000356	22131 POWHATAN RD	APPLE VALLEY	92308	Jun 2016	6/13/2016
259000-000356	22131 POWHATAN RD	APPLE VALLEY	92308	Jul 2016	7/13/2016
259000-000356	22131 POWHATAN RD	APPLE VALLEY	92308	Aug 2016	8/11/2016
259000-000356	22131 POWHATAN RD	APPLE VALLEY	92308	Sep 2016	9/12/2016
259000-000356	22131 POWHATAN RD	APPLE VALLEY	92308	Oct 2016	10/12/2016
259000-000356	22131 POWHATAN RD	APPLE VALLEY	92308	Nov 2016	11/10/2016
259000-000356	22131 POWHATAN RD	APPLE VALLEY	92308	Dec 2016	12/13/2016
259000-000356	22131 POWHATAN RD	APPLE VALLEY	92308	Jan 2017	1/11/2017
259000-001034	14975 DALE EVANS PKWY	APPLE VALLEY	92307	Jan 2016	1/12/2016
259000-001034	14975 DALE EVANS PKWY	APPLE VALLEY	92307	Feb 2016	2/10/2016
259000-001034	14975 DALE EVANS PKWY	APPLE VALLEY	92307	Mar 2016	3/11/2016
259000-001034	14975 DALE EVANS PKWY	APPLE VALLEY	92307	Apr 2016	4/12/2016
259000-001034	14975 DALE EVANS PKWY	APPLE VALLEY	92307	May 2016	5/11/2016
259000-001034	14975 DALE EVANS PKWY	APPLE VALLEY	92307	Jun 2016	6/10/2016
259000-001034	14975 DALE EVANS PKWY	APPLE VALLEY	92307	Jul 2016	7/12/2016
259000-001034	14975 DALE EVANS PKWY	APPLE VALLEY	92307	Aug 2016	8/10/2016
259000-001034	14975 DALE EVANS PKWY	APPLE VALLEY	92307	Sep 2016	9/9/2016
259000-001034	14975 DALE EVANS PKWY	APPLE VALLEY	92307	Oct 2016	10/11/2016
259000-001034	14975 DALE EVANS PKWY	APPLE VALLEY	92307	Nov 2016	11/9/2016
259000-001034	14975 DALE EVANS PKWY	APPLE VALLEY	92307	Dec 2016	12/12/2016
259000-001034	14975 DALE EVANS PKWY	APPLE VALLEY	92307	Jan 2017	1/10/2017
259000-009988	13450 NOMWAKET RD	APPLE VALLEY	92308	Jan 2016	1/13/2016
259000-009988	13450 NOMWAKET RD	APPLE VALLEY	92308	Feb 2016	2/11/2016
259000-009988	13450 NOMWAKET RD	APPLE VALLEY	92308	Mar 2016	3/14/2016
259000-009988	13450 NOMWAKET RD	APPLE VALLEY	92308	Apr 2016	4/13/2016
259000-009988	13450 NOMWAKET RD	APPLE VALLEY	92308	May 2016	5/12/2016
259000-009988	13450 NOMWAKET RD	APPLE VALLEY	92308	Jun 2016	6/13/2016
259000-009988	13450 NOMWAKET RD	APPLE VALLEY	92308	Jul 2016	7/13/2016
259000-009988	13450 NOMWAKET RD	APPLE VALLEY	92308	Aug 2016	8/11/2016
259000-009988	13450 NOMWAKET RD	APPLE VALLEY	92308	Sep 2016	9/12/2016
259000-009988	13450 NOMWAKET RD	APPLE VALLEY	92308	Oct 2016	10/12/2016
259000-009988	13450 NOMWAKET RD	APPLE VALLEY	92308	Nov 2016	11/10/2016
259000-009988	13450 NOMWAKET RD	APPLE VALLEY	92308	Dec 2016	12/13/2016
259000-009988	13450 NOMWAKET RD	APPLE VALLEY	92308	Jan 2017	1/11/2017

Stmt Rate	Bill Amt	Kwh Usage	City Tax	State Tax	Maximum kW	Billing Days
TOU-GS2B-AE	$717.62	3,942	$0.00	$1.14	16	30
TOU-GS2B-AE	$670.94	3,762	$0.00	$1.09	14	32
TOU-GS2B-AE	$719.31	2,578	$0.00	$0.75	22	30
TOU-GS2B-AE	$910.06	3,794	$0.00	$1.10	29	29
TOU-GS2B-AE	$957.71	3,451	$0.00	$1.00	34	29
TOU-GS2B-AE	$2,300.44	14,768	$0.00	$4.28	42	32
TOU-GS2B-AE	$2,380.52	16,863	$0.00	$4.89	38	30
TOU-GS2B-AE	$1,970.68	10,603	$0.00	$3.07	38	29
TOU-GS2B-AE	$2,079.62	9,605	$0.00	$2.79	42	32
TOU-GS2B-AE	$1,175.58	5,188	$0.00	$1.50	38	30
TOU-GS2B-AE	$906.60	3,709	$0.00	$1.08	30	33
TOU-GS2B-AE	$719.85	3,652	$0.00	$1.06	18	29
TOU-GS2B-AE	$833.99	4,862	$0.00	$1.41	18	30
TOU-GS2B-AE	$678.92	4,182	$0.00	$1.21	13	30
TOU-GS2B-AE	$742.28	4,492	$0.00	$1.30	16	32
TOU-GS2B-AE	$753.84	4,579	$0.00	$1.33	16	30
TOU-GS2B-AE	$762.80	4,734	$0.00	$1.37	16	29
TOU-GS2B-AE	$752.44	4,573	$0.00	$1.33	16	29
TOU-GS2B-AE	$1,335.12	7,627	$0.00	$2.21	22	32
TOU-GS2B-AE	$1,512.17	8,847	$0.00	$2.57	22	30
TOU-GS2B-AE	$1,544.61	9,255	$0.00	$2.68	22	29
TOU-GS2B-AE	$1,409.13	8,069	$0.00	$2.34	22	32
TOU-GS2B-AE	$904.32	5,690	$0.00	$1.65	19	30
TOU-GS2B-AE	$820.31	5,139	$0.00	$1.49	19	33
TOU-GS2B-AE	$675.32	4,257	$0.00	$1.23	13	29
TOU-GS2B-AE	$721.40	3,819	$0.00	$1.11	16	30
TOU-GS2R	$2,954.44	24,770	$0.00	$6.83	74	32
TOU-GS2R	$2,316.40	19,663	$0.00	$5.18	64	29
TOU-GS2R	$2,143.28	18,495	$0.00	$4.56	64	30
TOU-GS2R	$1,900.11	17,722	$0.00	$3.85	61	32
TOU-GS2R	$1,633.16	14,267	$0.00	$2.62	67	29
TOU-GS2R	$2,377.63	17,525	$0.00	$4.00	77	30
TOU-GS2R	$3,682.62	24,253	$0.00	$6.55	93	32
TOU-GS2R	$4,095.50	24,781	$0.00	$7.04	93	29
TOU-GS2R	$3,466.66	21,991	$0.00	$6.04	86	30
TOU-GS2R	$3,206.54	22,498	$0.00	$6.04	80	32
TOU-GS2R	$2,523.54	20,296	$0.00	$5.53	77	29
TOU-GS2R	$2,463.19	21,546	$0.00	$5.63	70	33
TOU-GS2R	$2,296.93	19,042	$0.00	$5.06	64	29
TOU-GS2B	$1,925.80	16,726	$0.00	$4.85	35	32
TOU-GS2B	$1,793.52	15,404	$0.00	$4.47	37	29
TOU-GS2B	$2,018.90	17,400	$0.00	$5.05	43	30
TOU-GS2B	$2,080.44	17,899	$0.00	$5.19	45	32
TOU-GS2B	$2,076.85	16,482	$0.00	$4.78	50	29
TOU-GS2B	$3,069.55	20,858	$0.00	$6.05	69	30
TOU-GS2B	$4,334.62	26,040	$0.00	$7.55	70	32
TOU-GS2B	$4,313.83	25,291	$0.00	$7.33	69	29
TOU-GS2B	$4,173.69	24,413	$0.00	$7.08	67	30
TOU-GS2B	$3,024.56	20,476	$0.00	$5.94	51	32
TOU-GS2B	$2,033.58	16,464	$0.00	$4.77	51	29
TOU-GS2B	$1,989.02	17,430	$0.00	$5.05	45	33
TOU-GS2B	$1,771.38	15,234	$0.00	$4.42	37	29
TOU-GS2B	$3,092.42	26,755	$0.00	$7.76	67	32
TOU-GS2B	$2,701.89	23,276	$0.00	$6.75	64	29
TOU-GS2B	$2,730.70	23,825	$0.00	$6.91	64	30

TOU-GS2B	$2,781.18	24,799	$0.00	$7.19	64	32
TOU-GS2B	$2,615.15	21,438	$0.00	$6.22	67	29
TOU-GS2B	$2,812.42	22,181	$0.00	$6.43	64	30
TOU-GS2B	$3,858.32	25,135	$0.00	$7.29	74	32
TOU-GS2B	$3,720.50	23,364	$0.00	$6.78	77	29
TOU-GS2B	$3,584.49	23,838	$0.00	$6.91	74	30
TOU-GS2B	$3,231.90	25,259	$0.00	$7.33	64	32
TOU-GS2B	$2,667.11	23,834	$0.00	$6.91	64	29
TOU-GS2B	$2,954.22	28,628	$0.00	$8.30	64	33
TOU-GS2B	$2,524.41	20,454	$0.00	$5.93	64	29
TOU-GS2B	$2,273.45	18,406	$0.00	$5.34	51	30
TOU-GS2B	$2,258.91	19,722	$0.00	$5.72	48	29
TOU-GS2B	$2,272.00	20,774	$0.00	$6.02	45	32
TOU-GS2B	$2,211.26	18,937	$0.00	$5.49	48	30
TOU-GS2B	$2,249.09	18,821	$0.00	$5.46	51	29
TOU-GS2B	$3,681.45	26,482	$0.00	$7.68	77	32
TOU-GS2B	$4,942.57	29,485	$0.00	$8.55	80	30
TOU-GS2B	$4,946.41	30,812	$0.00	$8.94	77	29
TOU-GS2B	$5,511.55	33,526	$0.00	$9.72	90	32
TOU-GS2B	$4,311.09	26,562	$0.00	$7.70	86	30
TOU-GS2B	$3,217.95	29,906	$0.00	$8.67	74	29
TOU-GS2B	$3,640.26	38,038	$0.00	$11.03	70	33
TOU-GS2B	$3,338.77	32,398	$0.00	$9.40	67	29
TOU-GS2B	$3,695.94	33,200	$0.00	$9.63	74	32
TOU-GS2B	$3,575.12	32,288	$0.00	$9.36	80	29
TOU-GS2B	$3,911.99	36,570	$0.00	$10.61	83	30
TOU-GS2B	$4,059.58	38,347	$0.00	$11.12	86	32
TOU-GS2B	$4,124.81	36,599	$0.00	$10.61	96	29
TOU-GS2B	$5,951.05	44,595	$0.00	$12.93	130	30
TOU-GS2B	$9,485.66	56,619	$0.00	$16.42	162	32
TOU-GS2B	$9,484.93	58,422	$0.00	$16.94	155	29
TOU-GS2B	$8,380.31	53,520	$0.00	$15.52	134	30
TOU-GS2B	$6,733.30	46,401	$0.00	$13.46	122	32
TOU-GS2B	$3,816.03	35,946	$0.00	$10.42	88	29
TOU-GS2B	$3,590.07	35,325	$0.00	$10.24	77	33
TOU-GS2B	$3,415.81	30,922	$0.00	$8.97	78	29
TOU-GS2B	$854.86	5,876	$0.00	$1.70	16	30
TOU-GS2B	$873.96	5,663	$0.00	$1.64	19	29
TOU-GS2B	$874.03	6,393	$0.00	$1.85	16	32
TOU-GS2B	$964.60	6,311	$0.00	$1.83	22	30
TOU-GS2B	$945.15	6,001	$0.00	$1.74	22	29
TOU-GS2B	$1,486.17	8,376	$0.00	$2.43	32	32
TOU-GS2B	$2,010.04	10,259	$0.00	$2.98	32	30
TOU-GS2B	$2,062.62	10,897	$0.00	$3.16	32	29
TOU-GS2B	$2,079.83	11,545	$0.00	$3.35	32	32
TOU-GS2B	$1,463.50	8,171	$0.00	$2.37	26	30
TOU-GS2B	$950.34	6,306	$0.00	$1.83	22	29
TOU-GS2B	$887.26	6,860	$0.00	$1.99	16	33
TOU-GS2B	$901.42	6,043	$0.00	$1.75	19	29

kW Amt	Non Time Related	Time Related kW	Billing Kvar	Summer Billing	Summer Onpeak	Summer Onpeak
$238.70	$238.70	$0.00	0	0	0	0
$211.54	$211.54	$0.00	0	0	0	0
$332.42	$332.42	$0.00	0	0	0	0
$438.19	$438.19	$0.00	0	0	0	0
$513.74	$513.74	$0.00	0	0	0	0
$1,289.28	$646.32	$642.96	0	27	3,101	42
$1,287.06	$586.72	$700.34	0	30	3,197	38
$1,287.06	$586.72	$700.34	0	29	2,160	38
$1,422.54	$648.48	$774.06	0	32	2,580	42
$653.87	$586.72	$67.15	0	4	380	27
$463.20	$463.20	$0.00	0	0	0	0
$277.92	$277.92	$0.00	0	0	0	0
$278.55	$278.55	$0.00	0	0	0	0
$193.95	$193.95	$0.00	0	0	0	0
$241.76	$241.76	$0.00	0	0	0	0
$241.76	$241.76	$0.00	0	0	0	0
$241.76	$241.76	$0.00	0	0	0	0
$241.76	$241.76	$0.00	0	0	0	0
$641.62	$338.55	$303.07	0	27	1,614	19
$745.14	$339.68	$405.46	0	30	1,966	22
$745.14	$339.68	$405.46	0	29	2,084	22
$698.88	$339.68	$359.20	0	32	1,747	19
$333.89	$293.36	$40.53	0	4	283	16
$293.36	$293.36	$0.00	0	0	0	0
$200.72	$200.72	$0.00	0	0	0	0
$247.60	$247.60	$0.00	0	0	0	0
$774.41	$774.41	$0.00	0	0	0	0
$730.24	$730.24	$0.00	0	0	0	0
$730.24	$730.24	$0.00	0	0	0	0
$696.01	$696.01	$0.00	0	0	0	0
$764.47	$764.47	$0.00	0	0	0	0
$884.12	$884.12	$0.00	0	9	834	0
$1,083.45	$1,083.45	$0.00	0	32	2,518	0
$1,083.45	$1,083.45	$0.00	0	29	3,261	0
$1,001.90	$1,001.90	$0.00	0	30	2,382	0
$932.00	$932.00	$0.00	0	22	1,966	0
$897.05	$897.05	$0.00	0	0	0	0
$815.50	$815.50	$0.00	0	0	0	0
$746.40	$746.40	$0.00	0	0	0	0
$484.98	$484.98	$0.00	0	0	0	0
$559.07	$559.07	$0.00	0	0	0	0
$649.73	$649.73	$0.00	0	0	0	0
$679.95	$679.95	$0.00	0	0	0	0
$755.50	$755.50	$0.00	0	0	0	0
$1,424.60	$1,049.42	$375.18	0	9	2,154	69
$2,346.82	$1,080.80	$1,266.02	0	32	5,843	70
$2,328.00	$1,065.36	$1,262.64	0	29	6,412	69
$2,251.23	$1,034.48	$1,216.75	0	30	6,168	67
$1,431.57	$787.44	$644.13	0	22	3,559	51
$787.44	$787.44	$0.00	0	0	0	0
$694.80	$694.80	$0.00	0	0	0	0
$571.74	$571.74	$0.00	0	0	0	0
$928.39	$928.39	$0.00	0	0	0	0
$967.04	$967.04	$0.00	0	0	0	0
$967.04	$967.04	$0.00	0	0	0	0

$967.04	$967.04	$0.00	0	0	0	0
$1,012.37	$1,012.37	$0.00	0	0	0	0
$1,165.32	$973.38	$191.94	0	9	1,029	29
$2,059.20	$1,142.56	$916.64	0	32	3,080	45
$2,006.61	$1,188.88	$817.73	0	29	3,130	38
$1,858.74	$1,142.56	$716.18	0	30	2,855	32
$1,428.04	$988.16	$439.88	0	22	2,127	29
$988.16	$988.16	$0.00	0	0	0	0
$988.16	$988.16	$0.00	0	0	0	0
$988.95	$988.95	$0.00	0	0	0	0
$712.16	$712.16	$0.00	0	0	0	0
$725.28	$725.28	$0.00	0	0	0	0
$679.95	$679.95	$0.00	0	0	0	0
$725.28	$725.28	$0.00	0	0	0	0
$770.61	$770.61	$0.00	0	0	0	0
$1,693.88	$1,173.00	$520.88	0	12	2,768	77
$2,700.57	$1,235.20	$1,465.37	0	30	6,924	80
$2,598.96	$1,188.88	$1,410.08	0	29	7,452	77
$3,018.20	$1,389.60	$1,628.60	0	32	7,520	90
$2,308.79	$1,327.84	$980.95	0	19	4,181	86
$1,142.56	$1,142.56	$0.00	0	0	0	0
$1,080.80	$1,080.80	$0.00	0	0	0	0
$1,035.40	$1,035.40	$0.00	0	0	0	0
$1,025.39	$1,025.39	$0.00	0	0	0	0
$1,208.80	$1,208.80	$0.00	0	0	0	0
$1,254.13	$1,254.13	$0.00	0	0	0	0
$1,299.46	$1,299.46	$0.00	0	0	0	0
$1,450.56	$1,450.56	$0.00	0	0	0	0
$2,686.91	$1,977.17	$709.74	0	9	4,512	130
$5,408.68	$2,501.28	$2,907.40	0	32	12,940	162
$5,177.61	$2,393.20	$2,784.41	0	29	15,045	155
$4,481.39	$2,068.96	$2,412.43	0	30	12,624	134
$3,404.66	$1,883.68	$1,520.98	0	22	8,084	122
$1,358.72	$1,358.72	$0.00	0	0	0	0
$1,188.88	$1,188.88	$0.00	0	0	0	0
$1,205.29	$1,205.29	$0.00	0	0	0	0
$223.42	$223.42	$0.00	0	0	0	0
$287.09	$287.09	$0.00	0	0	0	0
$241.76	$241.76	$0.00	0	0	0	0
$332.42	$332.42	$0.00	0	0	0	0
$332.42	$332.42	$0.00	0	0	0	0
$705.25	$487.48	$217.77	0	12	932	32
$1,083.84	$494.08	$589.76	0	30	2,417	32
$1,083.84	$494.08	$589.76	0	29	2,718	32
$1,074.81	$494.08	$580.73	0	32	2,599	32
$697.30	$401.44	$295.86	0	19	1,286	26
$339.68	$339.68	$0.00	0	0	0	0
$247.04	$247.04	$0.00	0	0	0	0
$293.62	$293.62	$0.00	0	0	0	0

Summer Onpeak	Summer Onpeak	Summer Midpeak	Summer Midpk Kw	Summer Midpeak	Summer Midpeak	Summer Offpeak
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$56.72	$546.45	4,270	38	$78.10	$96.51	7,013
$58.47	$585.96	4,986	38	$91.19	$114.38	8,680
$39.51	$585.96	3,041	38	$55.62	$114.38	5,402
$47.19	$647.64	3,228	42	$59.04	$126.42	3,797
$6.95	$55.51	458	29	$8.38	$11.64	222
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$29.52	$247.20	2,007	22	$36.71	$55.87	3,092
$35.96	$339.24	2,596	22	$47.48	$66.22	4,285
$38.12	$339.24	2,900	22	$53.04	$66.22	4,271
$31.95	$292.98	2,286	22	$41.81	$66.22	4,036
$5.18	$32.90	406	19	$7.43	$7.63	185
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$24.73	$0.00	2,357	0	$72.81	$0.00	3,448
$67.68	$0.00	7,587	0	$231.68	$0.00	14,148
$100.40	$0.00	8,266	0	$257.35	$0.00	13,254
$67.06	$0.00	7,206	0	$221.94	$0.00	12,403
$50.39	$0.00	5,236	0	$158.07	$0.00	8,911
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$39.40	$319.19	2,490	62	$45.54	$55.99	3,122
$106.87	$1,079.40	7,020	62	$128.40	$186.62	13,177
$117.28	$1,063.98	7,439	66	$136.06	$198.66	11,440
$112.81	$1,033.14	7,119	61	$130.21	$183.61	11,126
$65.09	$540.66	4,336	50	$79.31	$103.47	6,851
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0

$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$18.82	$134.15	2,342	64	$42.84	$57.79	3,556
$56.33	$693.90	6,978	74	$127.63	$222.74	15,077
$57.25	$585.96	7,166	77	$131.07	$231.77	13,068
$52.22	$493.44	7,252	74	$132.64	$222.74	13,731
$38.90	$307.44	5,700	64	$104.25	$132.44	9,695
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$50.63	$445.25	3,204	67	$58.60	$75.63	6,084
$126.64	$1,233.60	8,234	77	$150.60	$231.77	14,327
$136.30	$1,187.34	8,802	74	$160.99	$222.74	14,558
$137.54	$1,387.80	8,958	80	$163.84	$240.80	17,048
$76.47	$839.88	5,166	74	$94.49	$141.07	6,559
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$82.52	$601.38	5,213	120	$95.35	$108.36	6,634
$236.67	$2,498.04	15,578	136	$284.92	$409.36	28,101
$275.17	$2,390.10	17,255	131	$315.59	$394.31	26,122
$230.89	$2,066.28	15,443	115	$282.45	$346.15	25,453
$147.86	$1,293.35	9,902	110	$181.11	$227.63	15,513
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$17.05	$185.04	1,052	29	$19.24	$32.73	1,862
$44.21	$493.44	2,854	32	$52.20	$96.32	4,988
$49.71	$493.44	3,099	32	$56.68	$96.32	5,080
$47.54	$493.44	3,041	29	$55.62	$87.29	5,905
$23.52	$253.92	1,622	22	$29.67	$41.94	2,466
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0

Summer Offpk Kw	Summer Offpeak	Summer Offpeak	Summer Soffpeak	Summer Soffpk	Summer Soffpeak	Summer Soffpeak
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$128.27	$0.00	0	0	$0.00	$0.00
0	$158.76	$0.00	0	0	$0.00	$0.00
0	$98.80	$0.00	0	0	$0.00	$0.00
0	$69.45	$0.00	0	0	$0.00	$0.00
0	$4.06	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$56.55	$0.00	0	0	$0.00	$0.00
0	$78.37	$0.00	0	0	$0.00	$0.00
0	$78.12	$0.00	0	0	$0.00	$0.00
0	$73.82	$0.00	0	0	$0.00	$0.00
0	$3.38	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$99.12	$0.00	0	0	$0.00	$0.00
0	$405.80	$0.00	0	0	$0.00	$0.00
0	$399.62	$0.00	0	0	$0.00	$0.00
0	$361.09	$0.00	0	0	$0.00	$0.00
0	$264.31	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$57.10	$0.00	0	0	$0.00	$0.00
0	$241.01	$0.00	0	0	$0.00	$0.00
0	$209.24	$0.00	0	0	$0.00	$0.00
0	$203.49	$0.00	0	0	$0.00	$0.00
0	$125.30	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00

0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$65.04	$0.00	0	0	$0.00	$0.00
0	$275.76	$0.00	0	0	$0.00	$0.00
0	$239.01	$0.00	0	0	$0.00	$0.00
0	$251.14	$0.00	0	0	$0.00	$0.00
0	$177.32	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$111.28	$0.00	0	0	$0.00	$0.00
0	$262.04	$0.00	0	0	$0.00	$0.00
0	$266.27	$0.00	0	0	$0.00	$0.00
0	$311.81	$0.00	0	0	$0.00	$0.00
0	$119.96	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$121.34	$0.00	0	0	$0.00	$0.00
0	$513.97	$0.00	0	0	$0.00	$0.00
0	$477.77	$0.00	0	0	$0.00	$0.00
0	$465.54	$0.00	0	0	$0.00	$0.00
0	$283.73	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$34.06	$0.00	0	0	$0.00	$0.00
0	$91.23	$0.00	0	0	$0.00	$0.00
0	$92.91	$0.00	0	0	$0.00	$0.00
0	$108.00	$0.00	0	0	$0.00	$0.00
0	$45.10	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00
0	$0.00	$0.00	0	0	$0.00	$0.00

Winter Billing	Winter Onpeak	Winter Onpeak Kw	Winter Onpeak	Winter Onpeak Kw	Winter Midpeak	Winter Midpk Kw
30	0	0	$0.00	$0.00	2,116	0
32	0	0	$0.00	$0.00	1,854	0
30	0	0	$0.00	$0.00	1,679	0
29	0	0	$0.00	$0.00	2,496	0
29	0	0	$0.00	$0.00	2,028	0
5	0	0	$0.00	$0.00	226	0
0	0	0	$0.00	$0.00	0	0
0	0	0	$0.00	$0.00	0	0
0	0	0	$0.00	$0.00	0	0
26	0	0	$0.00	$0.00	2,290	0
33	0	0	$0.00	$0.00	1,878	0
29	0	0	$0.00	$0.00	2,080	0
30	0	0	$0.00	$0.00	2,978	0
30	0	0	$0.00	$0.00	1,779	0
32	0	0	$0.00	$0.00	1,745	0
30	0	0	$0.00	$0.00	2,135	0
29	0	0	$0.00	$0.00	2,126	0
29	0	0	$0.00	$0.00	2,072	0
5	0	0	$0.00	$0.00	266	0
0	0	0	$0.00	$0.00	0	0
0	0	0	$0.00	$0.00	0	0
0	0	0	$0.00	$0.00	0	0
26	0	0	$0.00	$0.00	2,159	0
33	0	0	$0.00	$0.00	1,969	0
29	0	0	$0.00	$0.00	1,823	0
30	0	0	$0.00	$0.00	1,562	0
32	0	0	$0.00	$0.00	7,513	0
29	0	0	$0.00	$0.00	6,393	0
30	0	0	$0.00	$0.00	5,690	0
32	0	0	$0.00	$0.00	4,478	0
29	0	0	$0.00	$0.00	3,274	0
21	0	0	$0.00	$0.00	2,534	0
0	0	0	$0.00	$0.00	0	0
0	0	0	$0.00	$0.00	0	0
0	0	0	$0.00	$0.00	0	0
10	0	0	$0.00	$0.00	1,506	0
29	0	0	$0.00	$0.00	6,534	0
33	0	0	$0.00	$0.00	6,491	0
29	0	0	$0.00	$0.00	6,113	0
32	0	0	$0.00	$0.00	6,111	0
29	0	0	$0.00	$0.00	6,476	0
30	0	0	$0.00	$0.00	7,529	0
32	0	0	$0.00	$0.00	7,649	0
29	0	0	$0.00	$0.00	7,902	0
21	0	0	$0.00	$0.00	5,971	0
0	0	0	$0.00	$0.00	0	0
0	0	0	$0.00	$0.00	0	0
0	0	0	$0.00	$0.00	0	0
10	0	0	$0.00	$0.00	2,167	0
29	0	0	$0.00	$0.00	7,738	0
33	0	0	$0.00	$0.00	6,875	0
29	0	0	$0.00	$0.00	5,958	0
32	0	0	$0.00	$0.00	8,969	0
29	0	0	$0.00	$0.00	8,752	0
30	0	0	$0.00	$0.00	8,541	0

32	0	0	$0.00	$0.00	8,130	0
29	0	0	$0.00	$0.00	7,297	0
21	0	0	$0.00	$0.00	4,661	0
0	0	0	$0.00	$0.00	0	0
0	0	0	$0.00	$0.00	0	0
0	0	0	$0.00	$0.00	0	0
10	0	0	$0.00	$0.00	2,262	0
29	0	0	$0.00	$0.00	8,451	0
33	0	0	$0.00	$0.00	9,535	0
29	0	0	$0.00	$0.00	6,678	0
30	0	0	$0.00	$0.00	8,018	0
29	0	0	$0.00	$0.00	9,223	0
32	0	0	$0.00	$0.00	9,014	0
30	0	0	$0.00	$0.00	9,132	0
29	0	0	$0.00	$0.00	9,090	0
20	0	0	$0.00	$0.00	5,919	0
0	0	0	$0.00	$0.00	0	0
0	0	0	$0.00	$0.00	0	0
0	0	0	$0.00	$0.00	0	0
11	0	0	$0.00	$0.00	4,161	0
29	0	0	$0.00	$0.00	13,450	0
33	0	0	$0.00	$0.00	14,958	0
29	0	0	$0.00	$0.00	13,326	0
32	0	0	$0.00	$0.00	12,933	0
29	0	0	$0.00	$0.00	14,911	0
30	0	0	$0.00	$0.00	17,322	0
32	0	0	$0.00	$0.00	17,187	0
29	0	0	$0.00	$0.00	18,212	0
21	0	0	$0.00	$0.00	13,089	0
0	0	0	$0.00	$0.00	0	0
0	0	0	$0.00	$0.00	0	0
0	0	0	$0.00	$0.00	0	0
10	0	0	$0.00	$0.00	4,935	0
29	0	0	$0.00	$0.00	17,045	0
33	0	0	$0.00	$0.00	14,811	0
29	0	0	$0.00	$0.00	13,091	0
30	0	0	$0.00	$0.00	1,870	0
29	0	0	$0.00	$0.00	1,940	0
32	0	0	$0.00	$0.00	2,090	0
30	0	0	$0.00	$0.00	2,377	0
29	0	0	$0.00	$0.00	2,303	0
20	0	0	$0.00	$0.00	1,674	0
0	0	0	$0.00	$0.00	0	0
0	0	0	$0.00	$0.00	0	0
0	0	0	$0.00	$0.00	0	0
11	0	0	$0.00	$0.00	1,038	0
29	0	0	$0.00	$0.00	2,446	0
33	0	0	$0.00	$0.00	2,170	0
29	0	0	$0.00	$0.00	1,978	0

Winter Midpeak	Winter Midpeak	Winter Offpeak	Winter Offpk Kw	Winter Offpeak	Winter Offpeak Kw	Winter Soffpeak
$40.12	$0.00	1,826	0	$38.00	$0.00	0
$41.33	$0.00	1,908	0	$42.53	$0.00	0
$37.42	$0.00	899	0	$20.04	$0.00	0
$55.64	$0.00	1,298	0	$28.93	$0.00	0
$45.20	$0.00	1,423	0	$31.72	$0.00	0
$5.04	$0.00	158	0	$3.52	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$43.17	$0.00	1,838	0	$34.65	$0.00	0
$35.40	$0.00	1,831	0	$34.51	$0.00	0
$39.21	$0.00	1,572	0	$29.63	$0.00	0
$58.86	$0.00	1,884	0	$39.75	$0.00	0
$36.42	$0.00	2,403	0	$50.11	$0.00	0
$38.90	$0.00	2,747	0	$61.23	$0.00	0
$47.59	$0.00	2,444	0	$54.48	$0.00	0
$47.39	$0.00	2,608	0	$58.13	$0.00	0
$46.18	$0.00	2,501	0	$55.75	$0.00	0
$5.93	$0.00	648	0	$14.44	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$40.70	$0.00	2,657	0	$50.08	$0.00	0
$37.12	$0.00	3,170	0	$59.75	$0.00	0
$34.36	$0.00	2,434	0	$45.88	$0.00	0
$32.17	$0.00	2,257	0	$46.39	$0.00	0
$88.22	$0.00	17,257	0	$203.28	$0.00	0
$188.41	$0.00	13,270	0	$434.94	$0.00	0
$146.80	$0.00	12,805	0	$401.53	$0.00	0
$71.60	$0.00	13,244	0	$391.97	$0.00	0
$3.21	$0.00	10,993	0	$312.20	$0.00	0
$28.35	$0.00	8,352	0	$233.06	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$38.07	$0.00	4,879	0	$142.69	$0.00	0
$186.45	$0.00	13,762	0	$419.56	$0.00	0
$175.39	$0.00	15,055	0	$441.55	$0.00	0
$50.57	$0.00	12,929	0	$139.55	$0.00	0
$41.93	$0.00	10,615	0	$87.29	$0.00	0
$144.35	$0.00	8,928	0	$199.01	$0.00	0
$167.82	$0.00	9,871	0	$220.02	$0.00	0
$170.50	$0.00	10,250	0	$228.47	$0.00	0
$176.14	$0.00	8,580	0	$191.25	$0.00	0
$133.09	$0.00	7,121	0	$158.73	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$40.85	$0.00	3,563	0	$67.16	$0.00	0
$145.86	$0.00	8,726	0	$164.49	$0.00	0
$129.59	$0.00	10,555	0	$198.96	$0.00	0
$37.03	$0.00	9,276	0	$74.65	$0.00	0
$61.39	$0.00	17,786	0	$146.22	$0.00	0
$195.08	$0.00	14,524	0	$323.74	$0.00	0
$190.38	$0.00	15,284	0	$340.68	$0.00	0

$181.22	$0.00	16,669	0	$371.55	$0.00	0
$162.65	$0.00	14,141	0	$315.20	$0.00	0
$103.89	$0.00	10,593	0	$236.12	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$42.64	$0.00	5,475	0	$103.20	$0.00	0
$159.30	$0.00	15,383	0	$289.97	$0.00	0
$179.73	$0.00	19,093	0	$359.90	$0.00	0
$54.34	$0.00	13,776	0	$131.20	$0.00	0
$72.02	$0.00	10,388	0	$121.70	$0.00	0
$205.58	$0.00	10,499	0	$234.02	$0.00	0
$200.92	$0.00	11,760	0	$262.13	$0.00	0
$203.55	$0.00	9,805	0	$218.55	$0.00	0
$202.62	$0.00	9,731	0	$216.90	$0.00	0
$131.93	$0.00	8,507	0	$189.62	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$78.43	$0.00	6,495	0	$122.43	$0.00	0
$253.53	$0.00	16,456	0	$310.20	$0.00	0
$281.96	$0.00	23,080	0	$435.06	$0.00	0
$88.08	$0.00	19,072	0	$140.22	$0.00	0
$94.04	$0.00	20,267	0	$163.85	$0.00	0
$332.37	$0.00	17,377	0	$387.33	$0.00	0
$386.11	$0.00	19,248	0	$429.04	$0.00	0
$383.10	$0.00	21,160	0	$471.66	$0.00	0
$405.95	$0.00	18,387	0	$409.85	$0.00	0
$291.75	$0.00	15,147	0	$337.63	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$93.02	$0.00	7,967	0	$150.18	$0.00	0
$321.30	$0.00	18,901	0	$356.28	$0.00	0
$279.19	$0.00	20,514	0	$386.69	$0.00	0
$80.06	$0.00	17,831	0	$134.08	$0.00	0
$15.47	$0.00	4,006	0	$37.38	$0.00	0
$43.24	$0.00	3,723	0	$82.99	$0.00	0
$46.59	$0.00	4,303	0	$95.91	$0.00	0
$52.98	$0.00	3,934	0	$87.69	$0.00	0
$51.33	$0.00	3,698	0	$82.43	$0.00	0
$37.31	$0.00	2,856	0	$63.66	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$0.00	$0.00	0	0	$0.00	$0.00	0
$19.57	$0.00	1,759	0	$33.16	$0.00	0
$46.11	$0.00	3,860	0	$72.76	$0.00	0
$40.90	$0.00	4,690	0	$88.41	$0.00	0
$14.15	$0.00	4,065	0	$33.54	$0.00	0

Winter Soffpk Kw	Winter Soffpeak	Winter Soffpeak
0	$0.00	$0.00
0	$0.00	$0.00
0	$0.00	$0.00
0	$0.00	$0.00
0	$0.00	$0.00
0	$0.00	$0.00
0	$0.00	$0.00
0	$0.00	$0.00
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0	$0.00	$0.00
0	$0.00	$0.00
0	$0.00	$0.00

Appendix B – Southwest Gas Data

SOUTHWEST GAS CORPORATION

APPLE VALLEY INSIDE CITY LIMITS - 2016

JANUARY - JULY 29, 2016

	THERMS (YTD)	THERMS (MTD)	CUSTOMERS (YTD)	CUSTOMERS (MTD)
RESIDENTIAL GAS SALES	7,932,052	362,904	174,726	24,839
RESIDENTIAL A/C	708	57	14	2
RESIDENTIAL HEAT	34,780	968	870	125
LARGE COMMERCIAL GENERAL	151,945	3,927	56	8
COMMERCIAL GAS ENGINE	1,287	1	14	2
SMALL COMMERCIAL GENERAL	1,183,504	86,118	5,076	710
SMALL COMMERCIAL A/C	1,170	0	7	1
SMALL COMMERCIAL HEAT	164,161	3,634	3,072	431
INDUSTRIAL	4,230	330	14	2
POWER PLANTS	55,397	10,568	6	1
TOTAL	**9,529,234**	**468,507**	**183,855**	**26,121**

APPLE VALLEY OUTSIDE CITY LIMITS - 2016

JANUARY - JULY 29, 2016

	THERMS (YTD)	THERMS (MTD)	CUSTOMERS (YTD)	CUSTOMERS (MTD)
RESIDENTIAL GAS SALES	243,784	12,033	5,356	763
RESIDENTIAL HEAT	3,221	78	94	12
LARGE COMMERCIAL GENERAL	26,584	1,190	14	2
SMALL COMMERCIAL GENERAL	9,296	330	42	6
SMALL COMMERCIAL HEAT	471	0	14	2
TOTAL	**283,356**	**13,631**	**5,520**	**785**

APPLE VALLEY INSIDE CITY LIMITS - 2016

JANUARY - OCTOBER 31, 2016

	THERMS (YTD)	THERMS (MTD)	CUSTOMERS (YTD)	CUSTOMERS (MTD)
RESIDENTIAL GAS SALES	9,013,451	380,727	249,592	24,939
RESIDENTIAL A/C	829	30	20	2
RESIDENTIAL HEAT	37,721	1,080	1,240	123
LARGE COMMERCIAL GENERAL	164,098	5,031	80	8
COMMERCIAL GAS ENGINE	1,287	0	20	2
SMALL COMMERCIAL GENERAL	1,451,479	99,796	7,214	712
SMALL COMMERCIAL A/C	1,176	6	10	1
SMALL COMMERCIAL HEAT	175,079	4,113	4,361	433
INDUSTRIAL	5,428	450	20	2
POWER PLANTS	84,554	9,234	9	1
TOTAL	**10,935,102**	**500,467**	**262,566**	**26,223**

APPLE VALLEY OUTSIDE CITY LIMITS - 2016

JANUARY - OCTOBER 30, 2017

	THERMS (YTD)	THERMS (MTD)	CUSTOMERS (YTD)	CUSTOMERS (MTD)
RESIDENTIAL GAS SALES	278,387	12,749	7,635	759
RESIDENTIAL HEAT	3,459	94	131	13
LARGE COMMERCIAL GENERAL	30,710	1,592	20	2
SMALL COMMERCIAL GENERAL	10,189	391	60	6
SMALL COMMERCIAL HEAT	471	0	20	2
TOTAL	**323,216**	**14,826**	**7,866**	**782**

APPLE VALLEY INSIDE CITY LIMITS - 2016

JANUARY - DECEMBER 30, 2016

	THERMS (YTD)	THERMS (MTD)	CUSTOMERS (YTD)	CUSTOMERS (MTD)
RESIDENTIAL GAS SALES	10,908,689	1,373,519	299,760	25,146
RESIDENTIAL A/C	934	74	24	2
RESIDENTIAL HEAT	46,019	6,549	1,498	130
LARGE COMMERCIAL GENERAL	194,934	23,746	96	8
COMMERCIAL GAS ENGINE	1,287	0	24	2
SMALL COMMERCIAL GENERAL	1,751,393	187,056	8,644	719
SMALL COMMERCIAL A/C	1,285	90	12	1
SMALL COMMERCIAL HEAT	208,005	27,446	5,233	443
INDUSTRIAL	6,187	442	25	2
POWER PLANTS	107,527	13,266	12	2
TOTAL	**13,226,260**	**1,632,188**	**315,328**	**26,455**

APPLE VALLEY OUTSIDE CITY LIMITS - 2016

JANUARY - DECEMBER 30, 2016

	THERMS (YTD)	THERMS (MTD)	CUSTOMERS (YTD)	CUSTOMERS (MTD)
RESIDENTIAL GAS SALES	335,833	40,082	9,167	771
RESIDENTIAL HEAT	4,068	468	155	12
LARGE COMMERCIAL GENERAL	37,925	5,252	24	2
SMALL COMMERCIAL GENERAL	11,874	1,225	72	6
SMALL COMMERCIAL HEAT	584	110	24	2
TOTAL	**390,284**	**47,137**	**9,442**	**793**

Appendix C – CalRecycle Data

Apple Valley	**12,852.55**
Azusa Land Reclamation Co. Landfill	11.45
Barstow Sanitary Landfill	25.68
El Sobrante Landfill	5.81
Landers Sanitary Landfill	24.56
Mid-Valley Sanitary Landfill	0.43
San Timoteo Sanitary Landfill	1.84
Victorville Sanitary Landfill	12,782.78

Appendix D – VVTA Data

Victor Valley Transit Authority						
Route Number	Bus/Fuel Description	Total Bus Trips Around the Route Per Day	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)	7	49	2,555	7.0	17,885
40***	22 ft. buses (75% use CNG, 25% use gasoline)	8	56	2,920	15.6	45,552
41	40 ft. buses (100% of buses use CNG)	15	105	5,475	15.1	82,673
43	40 ft. buses (100% of buses use CNG)	15	105	5,475	15.9	87,053
47***	22 ft. buses (75% use CNG, 25% use gasoline)	8	56	2,920	12.5	36,500
	TOTAL:	**53**	371	19,345	66.1	269,662

* based onVVTA bus schedules & information provided by Shelly Cable at VVTA on November 22, 2017.
** 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.

Appendix E
2010 CAP Methodology

Appendix E
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.[1]

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 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.

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

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 F
CACP Output Table

Id	Output Record Ids With Co2e	Inventory Record	Calculator	Gpc Scope	GPC Ref Number	Factor Profiles	Global Warming Potential	Category	Activity Source	Notes
71339	810548	Apple Vally Electricity Usage 2016 - Municipal	Emissions from Grid Electricity	Scope 2		SCE 2016	IPCC 4th Assessment	Buildings & Facilities		
71341	810563	Apple Vally Natural Gas Usage 2016 - Municipal	Emissions from Stationary Fuel Combustion	Scope 1		SCE 2016	IPCC 4th Assessment	Buildings & Facilities		

Created By	Created At	CO2 (MT)	CH4 (MT)	N2O (MT)	CO2e (MT)	Tags	Electricity Energy Equivalent (MMBtu)	Energy per Square Foot (MMBtu)	
plopez@terranovaplanning.com	2017 Nov 21 12:17am	496.4176787	0.030445111	0.011163207	500.5054422		7635.938567		0
plopez@terranovaplanning.com	2017 Nov 21 12:38am	489.793458	0.0461895	0.00092379	491.2234849				0

CO2e per Square Foot (MT)	Energy per Occupant (MMBtu)	CO2e per Occupant (MT)	Energy per Operating Hour (MMBtu)	Electricity Used	Daily Occupancy	Daily Operating Hours	Building Square Footage	Is this a Scope 3 Record?
0	87.76940881	5.752936118	954.4923208	2237330	87	8		
0	106.1827586	5.646246953	1154.7375		87	8		

CO2 lbs/MWh	CH4 lbs/GWh	N2O lbs/GWh	Energy Equivalent (MMBtu)	Fuel Type	Fuel Use
489.16	30	11			
489.16	30	11	9237.9	Natural Gas	92379

Id	Output Record Ids With Co2e	Inventory Record	Calculator	Gpc Scope	GPC Ref Number	Factor Profiles	Global Warming Potential	Category	Activity Source
72520	823571	Apple Vally Electricity Usage 2016 - Water Pumping	Emissions from Grid Electricity	Scope 2		SCE 2016	IPCC 4th Assessment	Water & Wastewater Treatment Facilities	

Notes	Created By	Created At	CO2 (MT)	CH4 (MT)	N2O (MT)	CO2e (MT)	Tags	Electricity Energy Equivalent (MMBtu)
	plopez@terranovaplanning.com	2017 Dec 15 07:21pm	2.383873429	0.000146202	5.36074E-05	2.403503494		36.66894198

Energy per Occupant (MMBtu)	CO2e per Occupant (MT)	Energy per MGD processed (MMBtu)	CO2e per MGD processed (MT)	Electricity Used	Daily Occupancy	Volume of Water Processed	CO2 lbs/MWh	CH4 lbs/GWh	N2O lbs/GWh
0.421482092	0.027626477	0	0	10744	87		489.16	30	11

Id	Output Record Ids With Co2e	Inventory Record	Calculator	Gpc Scope	GPC Ref Number	Factor Profiles	Global Warming Potential	Category	Activity Source	Notes
69205	785830	Apple Valley Police Fleet	Fleet Vehicle Emissions	Scope 1		SCE 2016 and Transportation Factor Set	IPCC 4th Assessment	Vehicle Fleet		
69275	786508	Apple Valley Town Fleet	Fleet Vehicle Emissions	Scope 1		SCE 2016 and Transportation Factor Set	IPCC 4th Assessment	Vehicle Fleet		

Created By	Created At	CO2 (MT)	CH4 (MT)	N2O (MT)	CO2e (MT)	Tags	Fleet Vehicle VMT	Fleet Energy Equivalent (MMBtu)	Biogenic CO2 (MT)	Biofuel CH4 (MT)
plopez@terranovaplanning.com	2017 Oct 5 03:27pm	649.3725754	4.4477E-06	0.000013114	649.3765946		395	9241.355729	0	0
plopez@terranovaplanning.com	2017 Oct 10 09:32pm	360.6623816	8.4418E-05	0.000179825	360.71808		4995.15	5132.661114	0	0

Biofuel N2O (MT)	Is This a Direct Entry Record?	Does this record represent outsourced services?	Fuel Type	Annual Fuel Use	Percent Biofuel in Blend	Annual Miles Traveled (VMT)	VMT Percent Passenger Vehicle (%)	VMT Percent Light Truck (%)
0	No	Government Owned	Gasoline	73960.43		395	70	30
0	No	Government Owned	Gasoline	41077.72	10	4995.15	50	50

Percent Heavy Truck (%)	Previously Calculated CO2	Previously Calculated CH4	Previously Calculated N2O	Previously Calculated Biogenic CO2	Previously Calculated Biofuel CH4	Previously Calculated Biofuel N2O	CO2 lbs/MWh	CH4 lbs/GWh
0							489.16	30
0							489.16	30

N2O lbs/GWh	Gas Passenger Vehicle Fuel Economy (MPG)	Gas Passenger Vehicle g CH4/mi	Gas PassengerVehicle g N2O/mi	Gas Light Truck Fuel Economy (MPG)	Gas Light Truck g CH4/mi	Gas Light Truck g N2O/mi
11	23.8	0.0028	0.029	17.5	0.031	0.043
11	23.8	0.0028	0.029	17.5	0.031	0.043

Gas Heavy Truck Fuel Economy (MPG)	Gas Heavy Truck g CH4/mi	Gas Heavy Truck g N2O/mi	Gas Transit Bus Fuel Economy (MPG)	Gas Transit Bus g CH4/mi	Gas Transit Bus g N2O/mi	Gas Para Transit Bus Fuel Economy (MPG)
16	0.0333	0.0134	14.5	0.0007	0.0004	18
16	0.0333	0.0134	14.5	0.0007	0.0004	18

Gas Para Transit Bus g CH4/mi	Gas Para Transit Bus g N2O/mi	Gas Motorcycle Fuel Economy (MPG)	Gas Motorcycle g CH4/mi	Gas Motorcycle g N2O/mi	Electric Vehicle Fuel Economy (MPGe)	Diesel Passenger Vehicle Fuel Economy (MPG)
0.133	0.002	15	0.07	0.007	36	30
0.133	0.002	15	0.07	0.007	36	30

Diesel Passenger Vehicle g CH4/mi	Diesel PassengerVehicle g N2O/mi	Diesel Light Truck Fuel Economy (MPG)	Diesel Light Truck g CH4/mi	Diesel Light Truck g N2O/mi	Diesel Heavy Truck Fuel Economy (MPG)	Diesel Heavy Truck g CH4/mi
0.0006	0.0005	27	0.001	0.0015	15	0.0051
0.0006	0.0005	27	0.001	0.0015	15	0.0051

Diesel Heavy Truck g N2O/mi	Diesel Transit Bus Fuel Economy (MPG)	Diesel Transit Bus g CH4/mi	Diesel Transit Bus g N2O/mi	Diesel Para Transit Bus Fuel Economy (MPG)	Diesel Para Transit Bus g CH4/mi	Diesel Para Transit Bus g N2O/mi
0.0048	30	0.197	0.175	20	0.002	0.0007
0.0048	30	0.197	0.175	20	0.002	0.0007

Diesel Motorcycle Fuel Economy (MPG)	Diesel Motorcycle g CH4/mi	Diesel Motorcycle g N2O/mi
32	0.007	0.0007
32	0.007	0.0007

Id	Output Record Ids With Co2e	Inventory Record	Calculator	Gpc Scope	GPC Ref Number	Factor Profiles	Global Warming Potential	Category	Activity Source	Notes
69206	785838	Apple Valley Employee Commute	Employee Commute	Scope 3		Transportation Factor Set	IPCC 4th Assessment	Employee Commute		

Created By	Created At	CO2 (MT)	CH4 (MT)	N2O (MT)	CO2e (MT)	Tags	Employee Commute VMT	Fuel Use (gal)
plopez@terranovaplanning.com	2017 Oct 5 03:29pm	176.1898832	0.001337277	0.013850371	180.3507257		477599	20067.18487

Employee Commute Energy (MMBtu)	Energy (MMBtu) Per Employee	CO2e (MT) per Employee	Is this a Direct Entry Record?	Fuel Type	Employee Annual VMT	Previously Calculated Fuel Use	Previously Calculated CO2
2508.398109	28.83216218	2.072996847	No	Gasoline	477599		

Previously Calculated CH4	Previously Calculated N2O	Percent VMT in Passenger Cars	Percent VMT in Light Trucks	Percent VMT in Heavy Trucks	Total Employees	Gas Passenger Vehicle Fuel Economy (MPG)	Gas Passenger Vehicle g CH4/mi
		100	0	0	87	23.8	0.0028

Gas PassengerVehicle g N2O/mi	Gas Light Truck Fuel Economy (MPG)	Gas Light Truck g CH4/mi	Gas Light Truck g N2O/mi	Gas Heavy Truck Fuel Economy (MPG)	Gas Heavy Truck g CH4/mi	Gas Heavy Truck g N2O/mi
0.029	17.5	0.031	0.043	16	0.0333	0.0134

Gas Transit Bus Fuel Economy (MPG)	Gas Transit Bus g CH4/mi	Gas Transit Bus g N2O/mi	Gas Para Transit Bus Fuel Economy (MPG)	Gas Para Transit Bus g CH4/mi	Gas Para Transit Bus g N2O/mi	Gas Motorcycle Fuel Economy (MPG)	Gas Motorcycle g CH4/mi
14.5	0.0007	0.0004	18	0.133	0.002	15	0.07

Gas Motorcycle g N2O/mi	Electric Vehicle Fuel Economy (MPGe)	Diesel Passenger Vehicle Fuel Economy (MPG)	Diesel Passenger Vehicle g CH4/mi	Diesel PassengerVehicle g N2O/mi	Diesel Light Truck Fuel Economy (MPG)	Diesel Light Truck g CH4/mi
0.007	36	30	0.0006	0.0005	27	0.001

Diesel Light Truck g N2O/mi	Diesel Heavy Truck Fuel Economy (MPG)	Diesel Heavy Truck g CH4/mi	Diesel Heavy Truck g N2O/mi	Diesel Transit Bus Fuel Economy (MPG)	Diesel Transit Bus g CH4/mi	Diesel Transit Bus g N2O/mi
0.0015	15	0.0051	0.0048	30	0.197	0.175

Diesel Para Transit Bus Fuel Economy (MPG)	Diesel Para Transit Bus g CH4/mi	Diesel Para Transit Bus g N2O/mi	Diesel Motorcycle Fuel Economy (MPG)	Diesel Motorcycle g CH4/mi	Diesel Motorcycle g N2O/mi
20	0.002	0.0007	32	0.007	0.0007

Id	Output Record Ids With Co2e	Inventory Record	Calculator	Gpc Scope	GPC Ref Number	Factor Profiles	Global Warming Potential	Category
71340	810557	Apple Valley Solid Waste Tonage for Municipal Buildings Generated in 2016	Waste Generation	Scope 3		Community Waste Characterization	IPCC 4th Assessment	Solid Waste Facilities

Activity Source	Notes	Created By	Created At	CO2 (MT)	CH4 (MT)	N2O (MT)	CO2e (MT)	Tags	Waste Generated (wet tons)	Total Waste Landfilled	Does the receiving landfill have Methane Collection?
		plopez@terranovaplanning.com	2017 Nov 21 12:35am		0.582116652		14.5529163		59.16	59.16	Yes

Percentage Mixed MSW	Percentage Newspaper	Percentage Office Paper	Percentage Corrugated Cardboard	Percentage Magazines / Third Class Mail	Percentage Food Scraps	Percentage Grass	Percentage Leaves	Percentage Branches	Percentage Dimensional Lumber
0	1.3	4.9	5.2	5.9	15.5	1.9	1.9	3.3	14.5

Id	Output Record Ids With Co2e	Inventory Record	Calculator	Gpc Scope	GPC Ref Number	Factor Profiles	Global Warming Potential	Category
71342	810575	Apple Vally Electricity Usage 2016 - Streetlights & Traffic Signals	Emissions from Grid Electricity	Scope 2		SCE 2016	IPCC 4th Assessment	Street Lights & Traffic Signals

Activity Source	Notes	Created By	Created At	CO2 (MT)	CH4 (MT)	N2O (MT)	CO2e (MT)	Tags
	Based on data received by SCE.	plopez@terranovaplanning.com	2017 Nov 21 12:40am	762.302549	0.04675173	0.017142301	768.579748	

Electricity Energy Equivalent (MMBTU)	Energy Cost	Energy per Streetlight	CO2e (MT) per Streetlight	Is this a Direct Entry Record?	Electricity Used	Number of Streetlights	Previously Calculated CO2	Previously Calculated CH4
11725.80205	0	84.35828811	5.529350705	No	3435660	139		

Previously Calculated N2O	CO2 lbs/MWh	CH4 lbs/GWh	N2O lbs/GWh
	489.16	30	11

Id	Output Record Ids With Co2e	Inventory Record	Calculator	Gpc Scope	GPC Ref Number	Factor Profiles	Global Warming Potential	Category	Activity Source	Notes
71354	810723	Apple Valley Employee Transit	Transit Fleet Emissions	Scope 1		SCE 2016 and Transportation Factor Set	IPCC 4th Assessment	Transit Fleet		

Created By	Created At	CO2 (MT)	CH4 (MT)	N2O (MT)	CO2e (MT)	Tags	Transit VMT	Transit Energy (MMBtu)	Biogenic CO2 (MT)	Biofuel CH4 (MT)	Biofuel N2O (MT)
plopez@terranovaplanning.com	2017 Nov 21 05:28pm	0	5.30292E-05	0.000549231	0.164996568		18939	0	0	0	0

Emissions per Passenger (MT CO2e / Passenger)	Emissions per Service Population (MT CO2e / Person)	Energy Per Passenger (MMBtu / Passenger)	Energy per Service Population (MMBtu / Person)	Is This a Direct Entry Record?	Fuel Type
0	0.001896512	0	0	No	Gasoline

Annual Fuel Use	Vehicle Type	Annual Miles Traveled	Electric CO2 Factor	Electric CH4 Factor	Electric N2O Factor	Previously Calculated CO2	Percent Biofuel Blend	Previously Calculated CH4	Previously Calculated N2O
	Passenger Vehicle	18939							

Previously Calculated Biogenic CO2	Previously Calculated Biofuel CH4	Previously Calculated Biofuel N2O	Passenger Boardings	Service Population (Residents and Workforce)		CO2 lbs/MWh	CH4 lbs/GWh	N2O lbs/GWh
					87	489.16	30	11

Gas Passenger Vehicle Fuel Economy (MPG)	Gas Passenger Vehicle g CH4/mi	Gas PassengerVehicle g N2O/mi	Gas Light Truck Fuel Economy (MPG)	Gas Light Truck g CH4/mi	Gas Light Truck g N2O/mi	Gas Heavy Truck Fuel Economy (MPG)
23.8	0.0028	0.029	17.5	0.031	0.043	16

Gas Heavy Truck g CH4/mi	Gas Heavy Truck g N2O/mi	Gas Transit Bus Fuel Economy (MPG)	Gas Transit Bus g CH4/mi	Gas Transit Bus g N2O/mi	Gas Para Transit Bus Fuel Economy (MPG)	Gas Para Transit Bus g CH4/mi	Gas Para Transit Bus g N2O/mi
0.0333	0.0134	14.5	0.0007	0.0004	18	0.133	0.002

Gas Motorcycle Fuel Economy (MPG)	Gas Motorcycle g CH4/mi	Gas Motorcycle g N2O/mi	Electric Vehicle Fuel Economy (MPGe)	Diesel Passenger Vehicle Fuel Economy (MPG)	Diesel Passenger Vehicle g CH4/mi	Diesel PassengerVehicle g N2O/mi
15	0.07	0.007	36	30	0.0006	0.0005

Diesel Light Truck Fuel Economy (MPG)	Diesel Light Truck g CH4/mi	Diesel Light Truck g N2O/mi	Diesel Heavy Truck Fuel Economy (MPG)	Diesel Heavy Truck g CH4/mi	Diesel Heavy Truck g N2O/mi	Diesel Transit Bus Fuel Economy (MPG)
27	0.001	0.0015	15	0.0051	0.0048	30

Diesel Transit Bus g CH4/mi	Diesel Transit Bus g N2O/mi	Diesel Para Transit Bus Fuel Economy (MPG)	Diesel Para Transit Bus g CH4/mi	Diesel Para Transit Bus g N2O/mi	Diesel Motorcycle Fuel Economy (MPG)	Diesel Motorcycle g CH4/mi
0.197	0.175	20	0.002	0.0007	32	0.007

Diesel Motorcycle g N2O/mi
0.0007