TOWN OF APPLE VALLEY

TOWN COUNCIL STAFF REPORT

To: **Honorable Mayor and Town Council** **Date: June 12, 2018**

From: **Carol Miller**
Assistant Director of Community Development
Community Development Department
Item No: 8

Subject: **ADOPT RESOLUTION NO. 2018-22, A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF APPLE VALLEY, CALIFORNIA, APPROVING THE 2016 CLIMATE ACTION PLAN UPDATE AND ENERGY ACTION PLAN**

T.M. Approval:_____ **Budgeted Item:** ☒ **Yes** ☐ **No** ☐ **N/A**

RECOMMENDED ACTION:
Adopt Resolution No. 2018-22, approving the Town of Apple Valley 2016 Climate Action Plan Update and Energy Action Plan.

SUMMARY:
In accordance with the adopted Climate Action Plan (CAP), staff conducted the Plan's three (3) year review of the Greenhouse Gas Reduction measures to determine if the targets were being reached. This update is the second three (3) year update since the Plans adoption in 2010. Based on the review, minor implementation changes are proposed to the 2016 Measures to reflect the evolving needs and successes of Apple Valley's carbon dioxide (CO_2e) reduction efforts over the past three (3) years.

The purpose of the Energy Action Plan (EAP) is to guide the Town of Apple Valley toward attainable long-term energy conservation in its municipal operations. Apple Valley has implemented a range of past energy efficiency measures that demonstrate leadership and commitment to improving energy efficiency. This EAP, created in partnership with Southern California Edison (SCE), assesses the Town's past and current electricity usage and trends, identifies reduction goals, and identifies actions and strategies to achieve long-term economic and environmental goals that benefit the local government and community.

ANALYSIS:
Climate Action Plan
The Climate Action Plan was adopted by the Town Council on July 13, 2010, and subsequently amended on December 14, 2010. The Plan was designed to be updated every three (3) years to respond to advances in technology, emerging policy reforms, and

the Town's efforts to reduce greenhouse gas emissions. This update identifies the next steps for the reduction plan based on the progress of the past three (3) years. The updated Plan identifies which actions will continue, which will be dropped, as well as proposing new actions to be added.

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.

To summarize the data, community-wide gas emissions illustrated a reduction while municipal gas emissions increased. Energy consumption increased in both sections, while the greatest reduction was achieved in solid waste. The next three (3) year review to will be in 2019, which will again provide comparisons of data to determine if the Town is achieving the 2019 reduction targets.

Based on the Climate Action Plan's review, minor implementation changes are proposed to the 2016 Measures to reflect the evolving needs and successes of Apple Valley's carbon dioxide (CO_2e) reduction efforts the past three (3) years. The 2016 CAP update complies with the California Air Resources Board (CARB) recommended reduction target.

Energy Action Plan

The purpose of this Energy Action Plan (EAP) is to guide the Town of Apple Valley toward attainable long-term energy conservation in its municipal operations. Apple Valley has implemented a range of past energy efficiency measures that demonstrate leadership and commitment to improving energy efficiency. This EAP, created in partnership with Southern California Edison (SCE), assesses the Town's past and current electricity usage and trends, identifies reduction goals, and identifies actions and strategies to achieve long-term economic and environmental goals that benefit the local government and community.

The Town of Apple Valley participates in the High Desert Regional Energy Leader Partnership (HDR) with other cities in the High Desert to promote energy efficiency on a regional basis. The program is a collaborative effort between SCE, the Clean Energy Organization, and local governments that supports local governments in identifying and

addressing energy efficiency opportunities in municipal facilities, such as retrofits and enrollment in demand response programs. It promotes sustainability in community planning, provides training for community leaders on conservation and best practices, and offers community outreach resources and events promoting rebates, incentives, and energy-saving tips.

The Energy Leadership Partnership (ELP) is a tiered program based on four levels of energy savings achievement:

- 1st level: Valued Partner Level
- 2nd level: Silver Level: Town must achieve 5% kWh savings
- 3rd level: Gold Level: Town must achieve 10% kWh savings
- 4th level: Platinum Level: Town must achieve 20% kWh savings

As the Town meets threshold criteria based on cumulative energy savings at municipal facilities and community-wide, it can advance to the next tier and receive increased SCE incentives to help reach energy-saving milestones. Currently, the Town has achieved 10% kWh savings, so it is at Gold Level. This EAP is part of Town's effort to move up to Platinum Level.

ATTACHMENTS:

1. Resolution No. 2018-22
2. 2016 Climate Action Plan Update (Under separate Link on Agenda Page for Online Version.)
3. Energy Action Plan 2016

RESOLUTION NO. 2018-22

A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF APPLE VALLEY, CALIFORNIA, ADOPTING THE TOWN OF APPLE VALLEY CLIMATE ACTION PLAN UPDATE AND ENERGY ACTION PLAN

WHEREAS, the Town of Apple Valley adopted its General Plan on August 11, 2009; and

WHEREAS, the Town of Apple Valley certified the General Plan Environmental Impact Report (SCH #2008091077) on August 11, 2009; and

WHEREAS, the Town of Apple Valley adopted the Climate Action Plan on July 13, 2010, and subsequently amended on December 14, 2010; and

WHEREAS, in accordance with the adopted Climate Action Plan, an update was prepared for the Plan's sixth (6) year review; and

WHEREAS, the Energy Action Plan is to guide the Town of Apple Valley toward attainable long-term energy conservation in its municipal operations and is part of Town's effort to move up to Platinum Level; and

WHEREAS, the Climate Action Plan Update and Energy Action Plan are consistent with the General Plan, insofar as it implements its policies and programs relating to the reduction of greenhouse gas emissions; and

WHEREAS, the General Plan Air Quality Element, Program 1.A.1 requires that the Town "adhere to existing and future greenhouse gas and global warming rules, regulations and requirements".

NOW, THEREFORE, BE IT RESOLVED, that in consideration of the evidence received and for the reasons discussed by the Town Council at said hearing, the Town Council of the Town of Apple Valley, California orders, determines and resolves as follows:

Section 1. The Town Council hereby approves and adopts the Town of Apple Valley Climate Action Plan update, appended to this Resolution as Exhibit A.

Section 2. The Town Council hereby approves and adopts the Town of Apple Valley Energy Action Plan, appended to this Resolution as Exhibit B.

Section 3. Effective Date. This Resolution shall become effective immediately upon adoption by the Town Council of the Town of Apple Valley.

APPROVED and **ADOPTED** by the Town Council of the Town of Apple Valley this 12th day of June, 2018.

Art Bishop, Mayor

ATTEST:

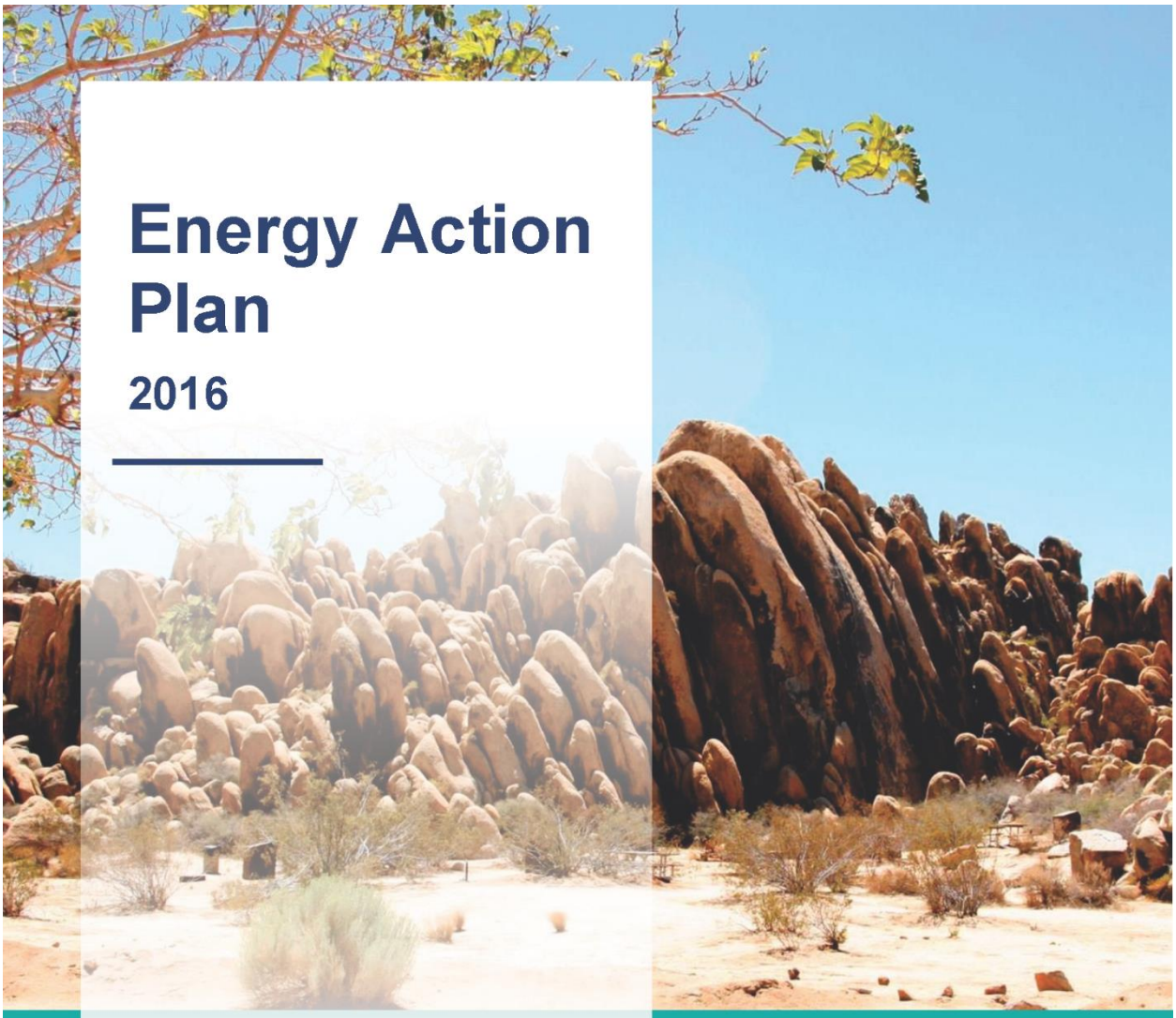
La Vonda M. Pearson, Town Clerk

EXHIBIT A

CLIMATE ACTION PLAN 2016 UNDER SEPARATE LINK ON AGENDA PAGE FOR ONLINE VERSION

EXHIBIT B

ENERGY ACTION PLAN



Energy Action Plan

2016

SOUTHERN CALIFORNIA EDISON®

Town of Apple Valley

APRIL 2018

Terra Nova Planning & Research Inc.
42635 Melanie Place, Suite 101
Palm Desert, CA 92211

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I. EXECUTIVE SUMMARY

The California Global Warming Solutions Act (Assembly Bill 32) and Senate Bill 32 set targets to decrease greenhouse gas (GHG) emissions statewide to 1990 levels by the years 2020 and 2030. Reducing greenhouse gas emissions to 1990 levels means cutting approximately 30% from business-as-usual emissions levels projected for 2020 and 2030, or about 15% and 40% from today's levels.

The Town of Apple Valley recognizes the impact carbon emissions have on global climate change and is aiming to reduce its electricity energy consumption and GHG emissions to become a more sustainable community.

This Energy Action Plan (EAP) is an important step towards achieving a more sustainable community. It demonstrates the Town's commitment to pursue electricity energy efficiency and reduce greenhouse gas (GHG) emissions. The main goal of this EAP is to provide a roadmap for the Town to reduce GHG through reductions in electricity energy used in municipal facility buildings and operations. This EAP identifies past electricity reduction measures that have been implemented and measures that currently are in effect, all of which will contribute to energy reduction goals. In addition, this EAP identifies other potential energy reduction measures that the Town will consider for future implementation.

The Town's long term vision for energy efficiency focuses on three primary objectives:

1) **Reduce the Town's carbon footprint and its adverse effect on the environment based on AB 32 and SB 32 reduction targets;**
2) **Conserve energy at local government facilities; and**
3) **Raise energy conservation awareness in the local community and improve the quality of life in Town.**

The year 2005 was selected as a baseline, based on the Town's adopted Climate Action Plan, and this EAP establishes electricity energy consumption targets of 15% below 2005 levels by 2020 and 40% below 2005 levels by 2030.

The analysis shows that, for municipal facilities, electricity consumption increased from 3,504,630 to 5,672,990 kWh between 2013 and 2016, which is a 2,168,360 kWh (62%) increase in a three-year period. To reach the 2020 and 2030 reduction targets, the Town must achieve maximum electric usage of 1,430,762 kWh by 2020 and 1,009,950 kWh by 2030.

Exhibit 1
Location Map

II. INTRODUCTION

A. Purpose of the Energy Action Plan

The purpose of this Energy Action Plan (EAP) is to guide the Town of Apple Valley toward attainable long-term energy conservation in its municipal operations. Apple Valley has implemented a range of past energy efficiency measures that demonstrate leadership and commitment to improving energy efficiency. This EAP, created in partnership with Southern California Edison (SCE), assesses the Town's past and current electricity usage and trends, identifies reduction goals, and identifies actions and strategies to achieve long-term economic and environmental goals that benefit the local government and community.

B. Apple Valley Profile

The Town of Apple Valley is located in the Victor Valley in southwest San Bernardino County, approximately 95 miles northeast of Los Angeles. It encompasses 78 square miles and lies in the high desert at an elevation of 3,000 feet above mean sea level. Surrounding communities include the cities of Victorville, Hesperia, and Adelanto, and the unincorporated community of Lucerne Valley. Interstate-15 borders the Town on the west and connects the region with Los Angeles to the south, and Barstow, Las Vegas, and Salt Lake City to the north.

The Town has developed most densely around major roadways, including State Highway 18. Development includes a mix of residential, commercial, and industrial uses, including a strong health care sector. In 2017, the population of Apple Valley was 74,701 residents.[1] It includes approximately 26,690 housing units, the majority (77%) of which consist of single-family detached homes. The average household size is 2.99 persons per household. The median home sales price for existing homes is $210,000, which is $73,500 lower than that of San Bernardino County.[2] The largest job sector is Education, which accounts for 45.5% of total jobs in the City (2015). In 2016, the median household income was $47,134.[3]

C. Program Background

Beginning in 2009, the Town of Apple Valley performed multiple energy-efficiency projects through its Energy Efficiency and Conservation Block Grant Program (EECBG). The EECBG was a national program operated by the U.S. Department of Energy (DOE) from 2009 to 2015 that provided grants and technical assistance to local governments, states, and territories to support a wide variety of energy efficiency and renewable energy activities. It was funded by the American

[1] Table 2: E-5 City/County Population and Housing Estimates January 1, 2017, California Department of Finance.
[2] Profile of the Town of Apple Valley, Southern California Association of Governments, May 2017.
[3] Ibid.

Reinvestment and Recovery Act (ARRA or Recovery Act).[4, 5] The Town utilized the EECBG funds ($641,200) for the construction of parking lot shade structures with a grid-tied solar photovoltaic array to generate power for Town Hall.

During the same time period, the Town partnered with the California Energy Commission, a State agency that provided the Town with funding and professional support for its conservation goals. Since 2010, the Town has also participated in multiple "Best Practice Activities" to reduce greenhouse gas emissions and save energy.

In 2010, the first Apple Valley Climate Action Plan (CAP) was prepared using year 2005 energy usage data as a baseline. It established a greenhouse gas emissions reduction target of 15% below 2005 levels by 2020. A CAP update was prepared in 2013, which demonstrated that community-wide GHG emissions decreased from 748,524 to 671,429 tons of carbon dioxide equivalent (CO_2e) from 2005 to 2013, a 10% decrease over the 8-year period.[6] Conversely, municipal GHG emissions increased from 2,138 to 3,191 tons of CO_2e from 2005 to 2013, a 49% increase in GHG over the 8-year period. As described below, the increase was not due to building inefficiency, but rather due to a significant increase in the number and size of Town facilities and population.

The most recent CAP update quantifies year 2016 energy usage and GHG emissions and maintains the GHG reduction targets of 15% and 40% for 2020 and 2030 years, respectively, based on AB 32 and SB 32. According to the 2016 update, community-wide and municipal GHG emissions has decreased from 671,429 to 352,765 (47.46%) and from 3,191 to 3,010 (5.68%) tons of CO_2e from 2013 to 2016, respectively, over the 3-year period.

D. State and Regional Policy Drivers

California EAP

California's 2003 Energy Action Plan requires that utilities make energy efficiency the top priority to meet customer needs before turning to other sources like renewable energy and natural gas.[7, 8] According to California's Golden Energy Efficiency Opportunity Report (2015), since 2003, the state's efficiency efforts have cut total electricity demand by nearly one-fifth, saved nearly 50,000 gigawatt hours (GWh) of electricity (equivalent to the electricity needed to power over half of California's households in 2013), and saved more than 1,000 million therms (MMth) of natural gas.[9] These efficiency savings have avoided carbon dioxide emissions equivalent to the annual emissions from more than 6 million cars.[10]

4 National Evaluation of The Energy Efficiency and Conservation Block Grant Program (2015).
5 San Bernardino County, California, funds by Department of Energy; https://projects.propublica.org/recovery/locale/california/san-bernardino/dept/8900, Accessed November 2017.
6 Table 1 and Table 6 – GHG Emissions Summary 2005 and 2013 Comparison, Town of Apple Valley Climate Action Plan (2013).
7 CEC, the California Public Utilities Commission, and the California Consumer Power and Financing Authority, Energy Action Plan, 2003, p. 4, www.energy.ca.gov/energy_action_plan/index.html (accessed May 16, 2015).
8 California's Golden Energy Efficiency Opportunity: Ramping up success to save Billions and Meet Climate Goals (August 2015).
9 California's Golden Energy Efficiency Opportunity: Ramping up success to save Billions and Meet Climate Goals (August 2015).
10 Ibid.

Energy efficiency is a critical element of California's energy policy that can reduce the need for new electricity generation. Established in 2003 by the state's principal energy agencies, the loading order policy directs that California's energy demands be met first by efficiency and demand response before new energy generation is considered. The loading order is a core component of diverse, reliable, low-carbon energy supplies. Highly efficient products and practices increasingly bundle with modern digital communication and control features, which promise to provide highly enhanced functionality for customers as well as valuable and much-needed grid flexibility. At sufficient scale, energy efficiency can reduce the need for both fossil fuel and renewable generation, thus increasing system flexibility while lowering costs of all energy supply scenarios.

California has long been a leader in advancing appliance and building energy efficiency. Over the last 40 years, California has implemented cost-effective appliance and building energy efficiency standards that have saved consumers billions of dollars. Statewide efficiency and conservation impact analysis shows that the cumulative annual efficiency and conservation savings for electricity were estimated to surpass 95,000 GWh by 2016.[11] This amount of energy savings is equivalent to the annual carbon dioxide emissions produced by more than 7 million automobiles and equivalent to the amount of energy produced annually by more than 31,500 MW power plants.

California is a leader in developing policies to reduce GHG emissions, and these policies are some of the drivers behind the completion of GHG inventories and energy efficiency planning at the local level. Other key efforts are described below.

Assembly Bill 32 (AB 32)
California Assembly Bill 32, the California Global Warming Solutions Act, has triggered many of the recent statewide efforts involving environmental and energy efficiency initiatives and their ensuing strategic plans. Signed into law on August 27, 2006 by Governor Arnold Schwarzenegger, AB 32 requires that the California Air Resources Board (CARB) pursue the following greenhouse gas emissions reductions through regulations and market mechanisms:

- GHG emissions reduction to 2000 levels by 2010;
- GHG emissions reduction to 1990 levels by 2020 (25% total reduction); and
- GHG emissions reduction to 80% below 1990 levels by 2050.[12]

The Town has adopted numerous energy efficiency measures to reduce greenhouse gas emissions to help contribute toward achieving the state's energy goals prescribed by AB 32. Specifically, energy efficiency measure MO-22 of the 2010 and 2013 Apple Valley Climate Action Plans encourages the Town to reduce energy use at all Town facilities by 15% by 2020.[13]

[11] Energy Efficiency Tracking Progress - California Energy Commission; http://www.energy.ca.gov/renewables/tracking_progress/documents/energy_efficiency.pdf; Accessed December 2017.
[12] Online News from the Office of Governor-Executive Order S-3-05; https://www.gov.ca.gov/news.php?id=1861; Accessed December 2017.
[13] Town of Apple Valley – Climate Action Plan 2010 and Climate Action Plan Update 2013.

Senate Bill 32 (SB 32)
On September 8, 2016, Governor Edmund G. Brown Jr. strengthened the AB 32 commitment, signing SB 32 by Senator Fran Pavley and AB 197 by Assemblymember Eduardo Garcia, which require the state to cut emissions at least 40 percent below 1990 levels by 2030 and invest in the communities hardest hit by climate change.[14]

In the updated 2016 Apple Valley Climate Action Plan, the Town included SB 32 reduction targets which will encourage the Town to reduce energy use at all Town facilities by 40% by 2030.

Senate Bill 375 (SB 375)
California Senate Bill 375, the Sustainable Communities and Climate Protection Act of 2008 (SB 375), incorporates planning activities into GHG emissions reduction goals in order to develop sustainable communities statewide. As part of the Legislative Advocacy Program (2009), the Town of Apple Valley must develop a new Energy Efficiency program and other programs, such as Conservation Block Grant as a means of achieving GHG emissions targets and energy usage reductions.[15] The Town of Apple Valley is adapting to the new political environment in the County of San Bernardino by creating a plan of action for energy efficiency through the EAP.

California Title 24
Title 24 of the California Code of Regulations (CCR) reflects a mandatory standard set forth by the State of California; it calls for effective monitoring of energy efficiency for buildings that have been newly constructed or altered since 1978. The regulations within Title 24 cover structural, electrical, mechanical, and plumbing systems in an effort to reduce the state's overall energy consumption. Utility rebates and incentives are often based on the amount of energy saved above Title 24 baseline consumption levels.

California Green Building Standards Code (CALGreen)
The California Green Building Standards Code (CALGreen) provides minimum standards in green building construction and practices that decrease waste, reduce energy usage, and conserve resources for projects throughout the state. At a minimum, CALGreen requires that all new buildings reduce water consumption, divert construction waste from landfills, and utilize low-emitting materials; all new buildings over 10,000 square feet must also be adequately commissioned. CALGreen standards are mandatory for most of the new construction projects taking place, and they use Title 24 as a guideline for determining energy efficiency requirements. The EAP will provide Town staff with a framework for how to successfully meet the 2010 energy efficiency standards mandated by CALGreen.

California Long-Term Energy Efficiency Strategic Plan (CEESP)
The California Long-Term Energy Efficiency Strategic Plan (CEESP) is a joint effort between the California Public Utilities Commission (CPUC) and its regulated utilities statewide; it is an effort to fund activities that lead to long-term sustainable changes in energy efficiency. As of 2004, investor-owned utilities such as Southern California Edison (SCE) must use funding generated

[14] Online News from the Office of Governor-Governor Brown Signs Historic Climate Change Legislation; https://www.gov.ca.gov/news.php?id=19522; Accessed December 2017.
[15] 2009 Legislative Advocacy Program; http://www.applevalley.org/home/showdocument?id=3269; Accessed November 2017.

through a public goods charge imposed on ratepayers to support programs for energy efficiency, low-income services, renewable energy, and public interest research and development.[16] Programs such as the Southern California Edison Strategic Plan Strategies Program are ratepayer-funded and provide guidelines for electricity efficiency using near-term, mid-term, and long-term strategies.

E. Apple Valley's Commitment to Energy Efficiency

Climate Action Plan

As a producer of GHG emissions, the Town must take on many roles to help California meet its GHG emissions targets. The first Apple Valley Climate Action Plan (CAP), adopted in 2010, highlighted the Town's commitment to reducing GHG emissions in order to comply with the state's GHG reduction targets. The CAP was in response to AB 32 and its mandated reduction target of 15% below 2005 levels by 2020. It was updated in 2013 and 2016.

The updated 2016 Apple Valley CAP not only includes reduction targets based on AB 32, but also includes SB 32 reduction targets, as discussed above. AB 32 and SB 32 set the GHG reduction targets of 15% and 40% below 2005 levels for 2020 and 2030, respectively, for the Town.

Apple Valley Choice Energy

In April 2017, the Town implemented "Apple Valley Choice Energy" (AVCE) to offer a voluntary community choice aggregation (CCA) program for electric customers within its jurisdictional boundaries that currently take bundled electric service from SCE. The AVCE program provides electricity customers the opportunity to join together to procure electricity from competitive suppliers, with such electricity being delivered over SCE's transmission and distribution system. The primary objectives of the AVCE program are to provide cost competitive electric services, spur local economic development, and sustain long-term rate stability for residents and businesses through local control. The prospective benefits to consumers include increased renewable supply product options, stable and competitive electric rates, and the opportunity for public participation in determining which technologies are utilized to meet local electricity needs.

The program also has the potential to increase the proportion of energy generated and supplied by renewable resources. The resource plan includes procurement of renewable energy sufficient to meet California's prevailing renewable energy procurement mandate for all enrolled customers. For AVCE customers, the minimum renewable energy content is 35%. AVCE customers may also voluntarily participate in a 50 percent renewable supply option. Depending on the level of demand for the 50 percent renewable supply option, combined with renewable energy costs, the Town reserves the right to increase the renewable content of the voluntary supply option over time. The renewable energy content is derived from solar, wind, hydro, and geothermal sources primarily within California. AVCE plans to offer its customers a 100% renewable energy option in future years that will further reduce the overall impacts of GHG affecting climate change as a result of burning fossil fuels. AVCE's minimum 35% renewable energy content already exceeds the state mandate of 33% renewable energy content that will be required in the year 2020.

[16] California Energy Commission, "Implementing California's Loading Order for Electricity Resources," Staff Report, July 2005; http://www.energy.ca.gov/2005publications/CEC-400-2005-043/CEC-400-2005-043.PDF; Accessed November 2017.

In addition to supplying renewable energy, AVCE also promotes Net Energy Metering (NEM). NEM is for customers with rooftop solar and offers 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 program also has the potential to result in increased energy efficiency program investments and activities. The existing energy efficiency programs administered by the distribution utility are not expected to change as a result of AVCE program implementation.

Overall, the AVCE program is designed to increase energy savings and a further reduction in emissions due to expanded energy efficiency programs.

High Desert Regional Energy Leader Partnership (HDR)
The Town of Apple Valley participates in the High Desert Regional Energy Leader Partnership (HDR) with other cities in the High Desert to promote energy efficiency on a regional basis. The program is a collaborative effort between SCE, the Clean Energy Organization, and local governments that supports local governments in identifying and addressing energy efficiency opportunities in municipal facilities, such as retrofits and enrollment in demand response programs. It promotes sustainability in community planning, provides training for community leaders on conservation and best practices, and offers community outreach resources and events promoting rebates, incentives, and energy-saving tips.

The Energy Leadership Partnership (ELP) is a tiered program based on four levels of energy savings achievement:

- 1st level: Valued Partner Level
- 2nd level: Silver Level: Town must achieve 5% kWh savings
- 3rd level: Gold Level: Town must achieve 10% kWh savings
- 4th level: Platinum Level: Town must achieve 20% kWh savings

As the Town meets threshold criteria based on cumulative energy savings at municipal facilities and community-wide, it can advance to the next tier and receive increased SCE incentives to help reach energy-saving milestones. Curently, the Town has achieved 10% kWh savings so it is at Gold Level. This EAP is part of Town's effort to move up to Platinum Level.

Energy-Efficiency Projects
The Town recently completed the following projects that will help achieve long-term energy efficiency objectives.

Table 1
Recently Completed Energy-Efficiency Projects

Facility Name	Project Description	Completion Date	Approximate Annual Electricity Savings (kWh)	Capital Cost
Civic Center Aquatic Center	Installation of Smart Pump Control System – A variable speed drive.	Oct 2009	114,222	$21,420.94
James Woody Mini-gym and Community Center	Replacement of interior and exterior lighting with more efficient LED fixtures	May 2017	30,741	$57,807.60
Michael H. Martin gymnasium	Replacement of interior and exterior lighting with more efficient LED fixtures	January 2018	17,260.5	$28,821.60
Project# 221797	Lighting upgrade @ golf course 15200 Rancherias Rd	-	15699.53	$13,082.39
Project# 289085	Lighting upgrade @ CC aquatic ctr 14999 Dale Evans Pkwy	-	980.93	$1,320.71
Project# 221684	Window solar film @ CC complex DSB @ 14955 Dale Evan	-	5,940.33	$12,583.30
Project# 221683	Window solar film @ CC complex townhall @ 14955 Dale Evans	-	3,877.25	$8,435.61
Project# 222682	Lighting @ James Woody Auditorium @ 13467 Navajo Rd	-	1,1500.20	$3,917.73
Project# 222679	Lighting @ James Woody Gym @13413 Navajo Rd	-	1,182.65	$449.85
Project# 222683	Lighting @ James Woody mini gym 13467 Navajo	-	2,904	$1,121.78
Project# 289102	Window solar film @ Animal Shelter 22131 Powhatan rd	-	2261.04	$4,919.28
		Total:	**206,569.43**	**$149,513.21**

Recently Completed Energy-Efficiency Projects with High Desert Partnership

High Desert Partnership	Public Works Facility	December 11, 11	20,767.00	$1,930.00
High Desert Partnership	Upstream Hvac Equipment Incentive	June 9, 10	-	$2,930.40
High Desert Partnership	Town Of Apple Valley Pmp 1-25hp & 2-50hp	September 30, 16	13,571.25	$4,360.71
High Desert Partnership	Apple Valley	June 24, 15	20,879.05	$20,935.54
High Desert Partnership	Apple Valley	July 10, 15	22,486.54	$25,665.69
High Desert Partnership	Town Of Apple Valley-Mini Gym	July 3, 17	30,494.30	$4,201.79
		Total:	**108,198.13**	**$60,024.13**

As shown in the Table 1 above, the Town has completed 17 energy efficiency projects since 2009 and had saved approximately 314,767.56 kWh of electricity and $209,537.34.

III. MUNICIPAL ENERGY USAGE INVENTORY

This section quantifies electricity usage for municipal buildings, facilities, and operations for year 2016, and compares the same for calendar years 2005, 2013, and 2016. The 2005 data is from the 2010 Apple Valley Climate Action Plan (CAP) and constitutes the baseline against which later emissions are to be compared. The 2013 data is from the 2013 CAP update, and the 2016 data is from the 2016 CAP update.

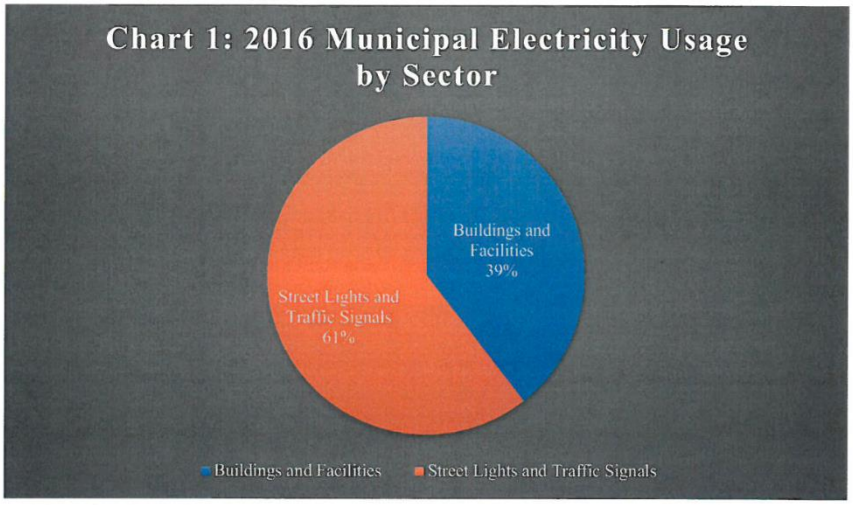
A. 2016 Municipal Electricity Usage

Total Municipal Electricity Usage
As shown in Table 2 and Chart 1, 2016 municipal electricity consumption totaled 5,672,990 kilowatt-hours (kwh). Of this, buildings and facilities consumed 2,237,330 kwh, and street lights and traffic signals consumed 3,435,660 kwh.

Table 2
2016 Municipal Electricity Usage by Sector

Sector	Annual kwh Consumed		Annual Cost	
	kwh	Percent of Total	Cost ($)	Percent of Total
Buildings and Facilities	2,237,330	39%	$269,331	93.4%
Street Lights and Traffic Signals	3,435,660	61%	$18,971	6.6%
Pumping Facilities*	---	---	---	---
Total:	**5,672,990**	**100%**	**$288,302**	**100%**

Source: Table 8-Municipal Electricity Usage from Apple Valley 2016 CAP.
* Per SCE, kwh consumed by water pumping facilities were included in the lump sum amount.



As shown in the Chart 1, in 2016 street lights and traffic signals consumed the majority of municipal electricity (approximately 61%). There are multiple municipal buildings and facilities in the Town that consumed only 39 percent of the municipal sector's electricity. To better assess the electric energy consumption in the municipal sector, electricity usage is analyzed below by facility.

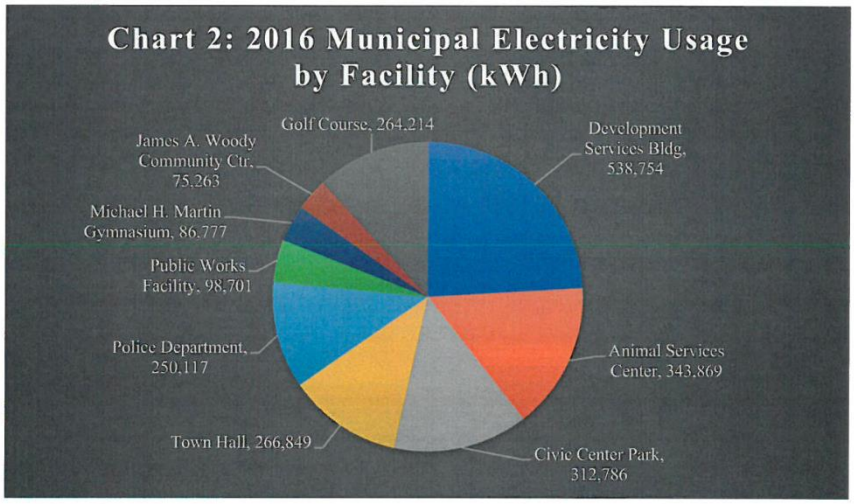
Municipal Electricity Usage by Facility

Electricity consumption at municipal buildings and facilities is shown in Table 3 and Chart 2. Facilities are listed by usage level, with the highest consumer at the top and the lowest consumer at the bottom. The Development Services Building, which includes the Conference Center, consumed the most electricity (24.1%) and resulted in the highest annual electricity costs (23.1%). The Animal Services Center consumed the second highest amount (15.3%) and resulted in the second highest (14.8%) annual costs.

Table 3
2016 Municipal Electricity Usage by Facility

Facility	Address	kwh Consumed		Annual Cost	
		kwh	Percent of Total	Cost ($)	Percent of Total
Development Services Building[1]	14975 Dale Evans	538,754	24.1%	$70,225	23.1%
Animal Services Center	22131 Powhatan	343,869	15.3%	$44,855	14.8%
Civic Center Park	14999 Dale Evans	312,786	14.0%	$39,275	12.9%
Town Hall	14955 Dale Evans	266,849	11.9%	$35,060	11.5%
Golf Course	15200 Rancherias	264,214	11.8%	$34,233	11.3%
Police Department	14931 Dale Evans	250,117	11.2%	$34,606	11.4%
Public Works Facility	13450 Nomwaket	98,701	4.4%	$16,354	5.4%
Michael H. Martin Gymnasium	13413 Navajo	86,777	3.9%	$16,343	5.4%
James A. Woody Community Ctr	13467 Navajo	75,263	3.4%	$12,613	4.2%
	Total:	**2,237,330**	**100.0%**	**$303,564**	**100.0%**

[1] includes Conference Center



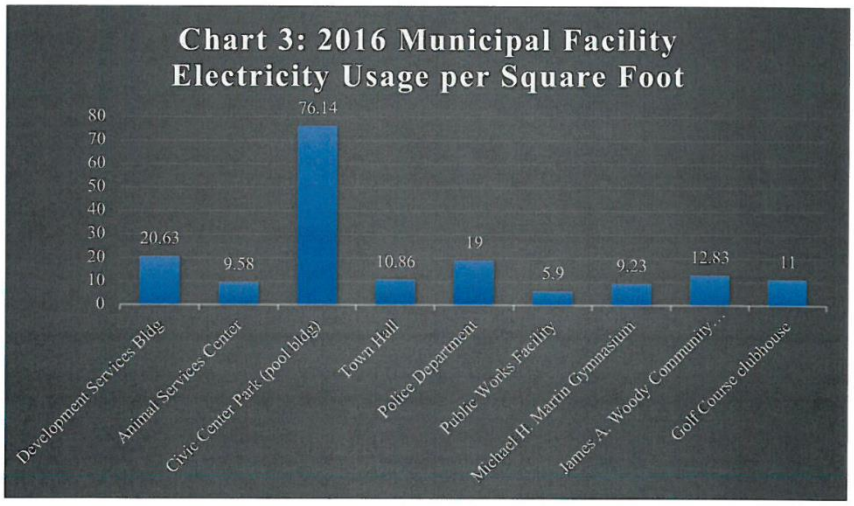
As shown in Chart 3, within the municipal sector, the Town's biggest consumer of electricity is the Development Services Building, which includes the Conference Center, located at 14975 Dale Evans. In 2016, it consumed approximately 538,754 kWh of electricity with total an anuual cost of approximately $70,225.

Table 4 and Chart 3, below, show electricity usage for each municipal facility by square foot. This approach provides a meaningful comparison of electricity usage of the various buildings. As shown, the animal services center is the largest facility (approximately 35,908 SF); however, on a per square footage basis, it is one of the lowest electricity consumers. The pool building at Civic Center Park is the smallest facility but has the highest electricity usage per square foot due to the equipment and activities/events it supports.

Table 4
2016 Municipal Facility Electricity Usage per Square Foot

Facility	Square Feet	Electricity Usage (kWh)	kWh per square foot
Development Services Building[1]	26,115	538,754	20.63
Animal Services Center[2]	35,908	343,869	9.58
Civic Center Park (pool building)	4,108	312,786	76.14
Town Hall	24,581	266,849	10.86
Golf Course clubhouse	24,000	264,214	11.00
Police Department	13,163	250,117	19.00
Public Works Facility	16,711	98,701	5.90
Michael H. Martin Gymnasium	9,400	86,777	9.23
James A. Woody Community Ctr	5,866	75,263	12.83
TOTAL:	**159,852**	**2,237,330**	---

[1] Includes 19,943 sf building and 6,172 sf Conference Center
[2] Includes 18,886 sf building and 17,022 sf of kennels, corrals, sallyport, and canopies

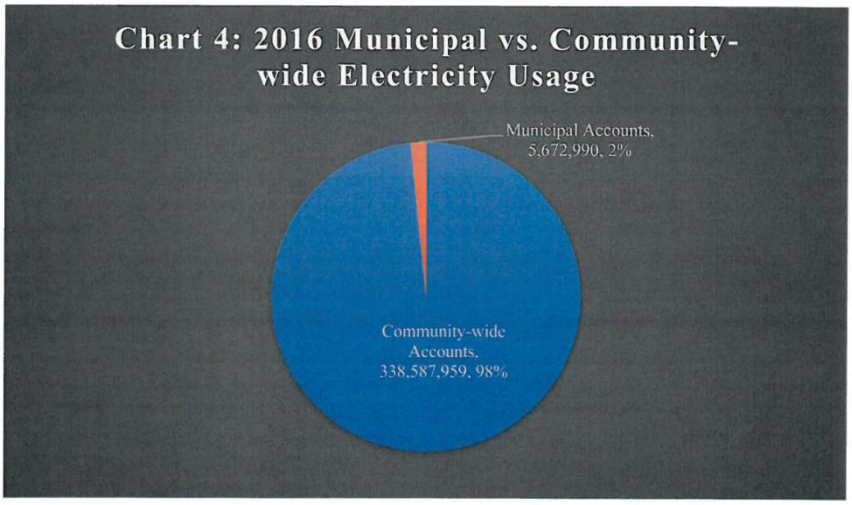


B. Municipal vs. Community-wide Electricity Usage

Table 5 and Chart 4 compare municipal electricity usage and community-wide usage. Community-wide usage includes both municipal accounts and all other accounts (residential, commercial, industrial) within the Town boundaries. Municipal accounts are a subset of community-wide accounts. In 2016, community-wide accounts consumed 98% of all electricity used in Apple Valley, and municipal facilities and operations consumed 2%.

Table 5
2016 Municipal vs. Community-wide Electricity Usage

	Electricity Consumed (kWh)	Percentage of Total
Community-wide Accounts	338,587,959	98%
Municipal Accounts	5,672,990	2%
Total:	**344,260,949**	**100.0%**



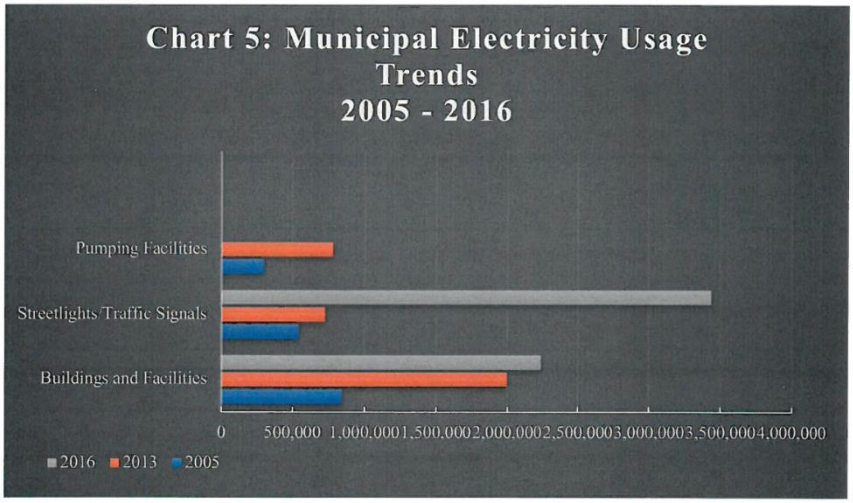
C. Municipal Electricity Usage Trends

Table 6 and Chart 5 compare total municipal electricity usage for years 2005, 2013, and 2016. Between 2005 and 2013, usage increased by 1,821,380 kWh (108%); this increase was partly due to the construction, acquisition, and/or remodeling of several buildings and facilities between 2005 and 2013. Between 2005 and 2016, usage increased by 1,257,603 kWh (74%).

Table 6
Municipal Electricity Usage Trends, 2005 - 2016

	2005	2013		2016	
	kWh Consumed	kWh Consumed	% Change 2005 -2013	kWh Consumed	% Change 2005-2016
Buildings and Facilities	842,006	1,996,903	+137%	2,237,330	+166%
Streetlights/Traffic Signals	543,201	725,619	+34%	3,435,660	+533%
Pumping Facilities	298,043	782,108	+162%	---*	---*
Total:	**1,683,250**	**3,504,630**	**+108%**	**5,672,990**	**+237%**

* Electricity usage at pumping facilities was not reported by SCE as a separate category in 2016.



IV. ENERGY-EFFICIENCY GOALS AND STRATEGIES

This section identifies Apple Valley's energy-efficiency goals and strategies. Among these are projects that will result in annual electricity savings and additional projects, policies, and programs that should be implemented to further reduce electricity usage by municipal facilities and operations.

A. Electricity Reduction Targets

The Apple Valley 2010 CAP establishes the Town's goal of reducing energy usage at all Town facilities by 15% by 2020. The 2013 and 2016 CAP updates reconfirm the same reduction target. The year 2005 was designated as the baseline against which all future electricity usage is to be compared.

Electricity usage targets are calculated below. To achieve its AB 32 electricity reduction goal, the Town would need to reduce electricity consumption to a maximum of 1,430,762 kWh annually at municipal facilities.

Table 7
Municipal Electricity Reduction Target Based on AB 32

Reduction Goal:	15% below 2005 levels by 2020
2005 kWh consumed:	1,683,250 kWh
kWh to be eliminated:	252,488 kWh
Usage Target (maximum):	**1,430,762 kWh by 2020**

The Town has set a reduction goal of 15% and 40% by 2020 and 2030, repectively; however, as discussed above, the electricity usage by municipal accounts increased by 1,821,380 kWh between 2005 and 2013. Since 2005 (baseline), municipal electricity usage has increase by 1,821,380 and 3,989,740 kWh, respectively.

Table 8 shows reductions in electricity consumption based on the following eight percentage reduction targets: 5%, 10%, 15%, 20%, 25%, 30%, 35%, and 40%. Overall, a target helps support the Town's goal to reduce GHG emissions and coincides with the state's 2020 and 2030 goals of GHG emissions reductions as stipulated in AB 32 and SB 32. The EAP provides an understanding as to the type of projects and their corresponding expected electricity (kWh) savings that the Town can undertake over time to reach these reduction goals.

Table 8
Potential Reductions in Electricity Consumption
Based on Various Percentage Reduction Goals

2005 Baseline kWh Consumption	Reduction Target	Target kWh Reduction	Total kWh Consumption after Reduction
1,683,250	5%	84,162.5	1,599,088
	10%	168,325.0	1,514,925
	15%	252,487.5	1,430,763
	20%	336,650.0	1,346,600
	25%	420,812.5	1,262,438
	30%	504,975.0	1,178,275
	35%	589,137.5	1,094,113
	40%	673,300.0	1,009,950

Looking forward at the Town's potential for electricity savings, a reduction of 15% by 2020 and 40% by 2030 from the 2005 baseline is an appropriate and attainable goal. A 15% reduction in electricity consumption by 2020 using a 2005 baseline results in 1,430,763 fewer kWh consumed. However, as indicated in Section III, several sizeable Town facilities were built, acquired, or remodeled after 2005, including the construction of the Development Services, Animal Services, and community center pool buildings. After 2013, the town acquired the conference center. These 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 Center (which includes the Conference Center), which used 538,754 kWh, or approximately 24% of all electricity by municipal buildings. The second largest consumer was the Animal Services Building, which used 343,869 kWh or 15% of all electricity by municipal buildings.

Population Growth and Electricity Consumption
It is important to understand how energy consumption would change between 2016 and 2020 if Town operations continued at a business-as-usual pace (i.e., if energy efficiency were to continue based solely on existing facility stock and energy-using systems, and assumptions made about the Town's growth, per the San Bernandino County Economic Forecast as published by the Department of Transportation).

This analysis is based on the assumption that as population increases, the need for additional services (and Town employees) will also likely increase. In order to understand the type of impact these variables have on energy consumption, changes in population were analyzed. Information on the population for the Town was collected from various sources which provide population data since 2005 and future population for 2020 and 2030. Using the 2005 population and electricity consumption, a 4,842.65 kWh/person (electric energy consumption per person) was derived, below, which was further used to forcast the electricity consumption for 2020 and 2030 (Table 9).

Table 9
Effect of Population Change on Energy Electricity Consumption

Year	Population	Projected Electricity Consumption (kWh)
2005	64,338	311,566,603
2006	67,791	328,288,284
2007	69,594	337,019,587
2008	69,731	337,683,030
2009	70,109	339,513,553
2010	69,326	335,721,756
2011	70,089	339,416,700
2012	70,501	341,411,873
2013	70,875	343,223,025
2014	71,362	345,581,397
2015	71,980	348,574,157
2016	72,553	351,348,997
2020	73,393	355,416,825
2030	73,445	355,668,643

Sources: - Population and Housing Unit Estimates by United States Census Bureau; https://www.census.gov/programs-surveys/popest.html; Accessed December 2017; Demographics by Town of Apple Valley; http://www.applevalley.org/services/economic-development/commercial/demographics; Accessed December 2017; 2015 UWMP Table 3-1 Retail: Population - Current and Projected by California Open Data Portal; https://data.ca.gov/dataset/urban-water-management-plans-uwmp-2015/resource/e9307517-e4d9-4e18-94b4-4b5276b4b733#{1; Accessed December 2017.

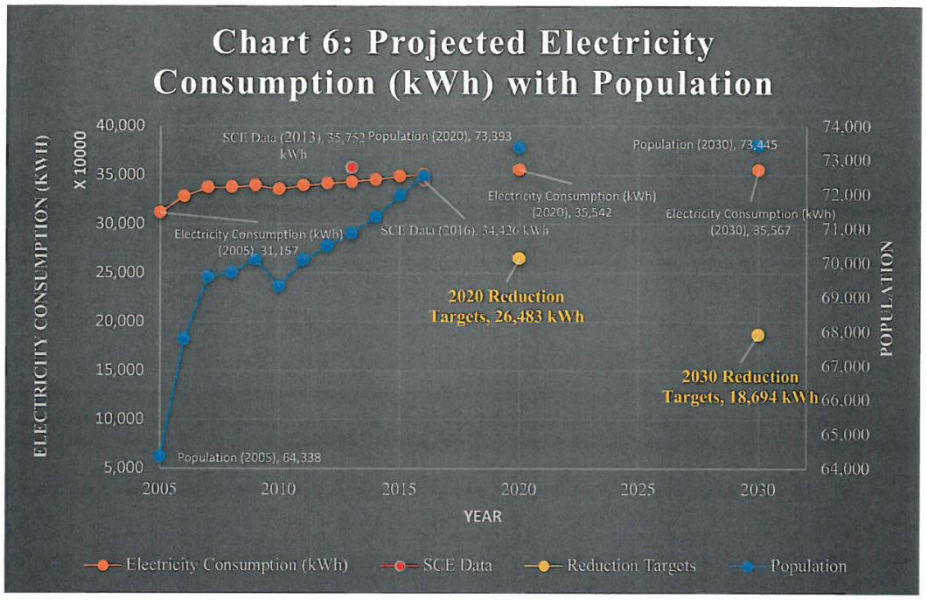


Table 10
Analysis of 2013 Projected And SCE Electric Energy Consumption

Projected	343,223,025
2013 consumption based on SCE	357,519,270
Difference	14,296,245 (increase)
Percentage Difference	4% increase

Table 11
Analysis of 2016 Projected And SCE Electric Energy Consumption

Projected	351,348,997
2016 consumption based on SCE	344,260,949
Difference	7,088,048 (decrease)
Percentage Difference	2% decrease

To further analyze the effect of population on electicity consumption, a comparison was made between the past and future population and electicity consumption. Based on 4,842.65 kWh/person, the projected electric energy consumption for 2013 was 343,223,025 kWh. The 2013 CAP data provided by SCE showed an electric energy consumption of 357,519,270 kWh in 2013 for the Town, which is higher than the projected per capita 2013 electric energy consumption by 14,296,245 kWh. Analysis of the electric users in the Town reveals that there are also other factors contributing to electric energy consumption which include: streetlights and signals, water pumping facilities, and other buildings and facilities which would has used electricity of up to 14,296,245 kWh.

By comparison, SCE-provided electric energy consumption of 344,260,949 kWh in 2016 for the Town is lower than the projected per capita 2016 electric energy consumption by 7,088,048 kWh (Table 11; Chart 6). In 2016, the total electric energy consumption was also lower than the 2013 CAP electric energy consumption by 1,3258,321 kWh (approximately 3.40%) (Table 3 and 8; 2016 AV CAP Updates).

For municipal facilities, the electric energy consumption increased from 3,504,630 to 5,672,990 kWh between 2013 and 2016, which is an increase of approximately 2,168,360 kWh (62%). Preparation of this document and suggested mitigation measures demonstrates the Town's commitment since 2010 to reduce electricity usage.

In 2020 and 2030, the projected population is 73,393 and 73,445 while electricity consumption is projected at 355,416,825 and 355,668,643 kWh (Table 10 and Chart 6). To reach the 2020 and 2030 reductions, the Town must achieve maximum electric usage of only 1,430,762 kWh by 2020 and 1,009,950 kWh by 2030 (Chart 6). The Town would need to implement more stringent measures to reduce electricity consumption and associated GHG.

Although future electricity consumption would increase, this energy action plan and recommended reduction measures would help to reach the reduction target set by AB 32 and SB 32.

B. Proposed Energy-Efficiency Projects

The following projects are currently proposed and will contribute to the Town's energy efficiency goals.

Table 12
Proposed Energy-Efficiency Projects

Facility Name	Project Description	Anticipated Completion Date	Estimated Annual Electricity Savings	Capital Cost
Apple Valley Town Hall	Replacement of interior and exterior lighting with more efficient LED fixtures	2018	111,236.8	$147,066
Apple Valley Development Services Building	Replacement of interior and exterior lighting with more efficient LED fixtures	2018	71,276.9	$89,602.80
Apple Valley Police Department Building	Replacement of interior and exterior lighting with more efficient LED fixtures	2018	32,731.5	$45,984
Animal Services Building	Replacement of interior and exterior lighting with more efficient LED fixtures	2018	50,082	$66,754.80
		Total:	**265,327.2**	**$349,408.40**

C. Funding Sources

Currenty, no projects have been identified in Town's budget for the energy efficiency projects. However, the Town will initate energy efficiency projects as the funding becomes available or as development occurs.

As discussed below, multiple funding sources are available through state, federal, and other local agencies for energy efficiency projects which the Town of Apple Valley can secure, and will continue to work with SCE to design prgrams to reduce greenhouse gas emissions.

SCE Incentives

Since 1886, SCE has provided electricity to much of the Southern California. SCE works with other organizations, for example the California Public Utilities Commission (CPUC) and industry stakeholders to adopt and implement more flexible energy efficiency program frameworks to reduce environmental footprints.

As a main utility provider, SCE's main incentive is to reduce its greenhouse gas emissions and help the state to achieve its reduction targets of 15% and 40% below 2005 baseline by 2020 and 2030, respectively, and meet future grid reliability needs. To meet these incentives, SCE is introducing new programs and pilots (e.g. incentives and rebates, new construction assistance, new construction support, direct installation, HVAC programs, continuous energy improvement (CEI) offers and comprehensive whole home upgrades) to its residential, commercial, and industrial costomers.[17]

State Funding

The California Energy Commission was established in 1974 as the primary energy policy and planning agency in the State. Since 1996, the California Energy Commission has provided funding to utility providers and energy technologies for energy efficiency programs and research to reduce electricity usage through energy efficiency innovations and measures. For example, in 2018, more than $1 billion are avalible through the Electric Program Investment Charge (EPIC) Program.[18]

Federal Funding

The United State Department of Energy allocates billion of dollars each year for energy efficienvy programs. In early 2018, multiple funding oppurtunities were announced for energy efficiency and renewable energy programs.[19] Some federal programs are shown below, for which, the Town would be eligible.

Programs	Applications Deadline	Program Area/Strategic Objective	Funding Amount
Bringing Rapid Innovation Development to Green Energy (BRIDGE)	April 19, 2018 *Closed*	Applied Research and Development	$10 million
The EPIC Challenge: Accelerating the Deployment of Advanced Energy Communities, Phase II	Apr. 2018 – Jun. 2018 *Anticipated*	Technology Demonstration and Deployment	$44 million
Increasing Adoption of Emerging Clean Energy Technologies through Procuremen	Closed	Market Facilitation	$30 million

[17] SCE's 2017 Energy Efficiency Annual Report.
[18] Funding Opportunities for the Electric Program Investment Charge (EPIC) Program by Califonria Energy Commision; http://www.energy.ca.gov/contracts/epic.html#anticipated; Accessed April 2018.
[19] The U.S. Department of Energy-Energy Efficiency and renewable Energy Funding Oppurtunities Exchnage; https://eere-exchange.energy.gov/Default.aspx#Foald039aab9e-c42b-4a8a-bf67-85af26b0f2f6; Accessed April 2018.

Other

Numerous sources of funding for energy efficiency programs and green building are available at the local level for homeowners, industry, government organizations and nonprofits. For example, Interstate Renewable Energy Council and the National Association of State Energy Officials offer funding for local green building programs.[20]

Source of Funding	Description of the Program	Town of Apple Valley's Eligibility
Interstate Renewable Energy Council	The Database of State Incentives for Renewable Energy (DSIRE) is a comprehensive source of information on state, local, utility, and selected federal incentives that promote renewable energy. For: Government, Consumers, Industry, Nonprofits	Yes (Students/Researchers/Scientists/ Research Instrituition within the Town can apply for this sort of funding)
National Association of State Energy Officials	The National Association of State Energy Officials (NASEO) provides links to current funding opportunities for energy efficiency, renewable energy, sustainable development and related environmental projects	Yes (As a direct applicant)
California Energy Commission	The Local Government Commission (LGC) is a nonprofit, nonpartisan, membership organization that provides inspiration, technical assistance, and networking to community leaders who are working to create healthy, walkable, and resource-efficient communities.	Yes (As a direct applicant)

[20] United State Environmental Protection Agency.

D. Long-Term Strategies

The policies listed below are specifically aimed at reducing municipal electricity consumption and increasing awareness about energy efficiency. They are categorized and numbered in the same way as the 2017 CAP.

Energy Efficiency Measures

MO-1. Reduce energy use at all Town facilities by 15% by 2020.

MO-2. 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-3. Encourage Liberty Utilities Apple Valley, Golden State, and other water purveyors to replace water systems with energy efficient motors, pumps and other equipment.

MO-4. Encourage VVWRA to replace wastewater systems with energy efficient motors, pumps and other equipment.

MO-5. 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-6. Consider the installation of green roofs on Town facilities.

MO-7. Consider the installation of cool roofs on Town facilities.

MO-8. Reduce turf areas at Town facilities by 20% overall.

MO-9. Modernize facilities and equipment at the golf course when financially feasible, including the well pumps.

MO-10. Install semi-pervious surfaces which allow water to percolate at Town facilities to the extent economically feasible.

MO-11. Install timers for all ball field lighting on Town facilities.

MO-12. Consider a home weatherization and energy efficient appliance replacement grant program for existing residents including extremely low, very low and low-income households.

MO-13. Continue to require that improvements made under the Residential Rehabilitation Loan Program be energy efficient.

MO-14. Promote third-party energy efficiency programs, including the Energy Upgrade California program.

Renewable Energy Measures

MO-15. 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-16. 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-17. 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-18. Consider installing a CNG fueling station and establish a public access program for same.

MO-19. Consider replacing failing or failed traditional water heaters in Town facilities with solar water heaters.

MO-20. When it fails, consider replacing the municipal pool heater with a solar pool heating system.

V. IMPLEMENTATION TOOLS

A strategy for successful implementation of this EAP includes the following measures:

- Coordination
  The Town should continue to coordinate with Southern California Edison (SCE), Southern California Association of Governments (SCAG), San Bernardino County Council of Governments, other appropriate agencies, and neighboring jurisdictions to participate in the planning and implementation of regional-scale energy efficiency programs, data sharing efforts, and identification of funding sources for such programs.

- Integration
  The Town should integrate the goals and policies of this EAP into its local and regional plans and programs, including but not limited to its zoning code, Capital Improvement Plans, housing element updates, General Plan, engineering designs, and building programs.

- Assessment
  The Town should conduct walk-through assessments for all municipal facilities to identify opportunities for energy efficiency projects and improvements. Potential projects should be evaluated for financial feasibility and potential energy and cost savings, and should be prioritized and considered for implementation.

- Tracking
  The Town should regularly track and update its energy usage profile and GHG inventories. A standard format and template should be used to record community-wide and municipal energy usage data, descriptions of implemented energy efficiency projects and improvements, energy savings, costs, funding sources, and anomalies.

  One such program, Energy Star Portfolio Manager (ESPM), is a free online program that could be used to track energy use over time and is supported by the U.S. Environmental Protection Agency. SCE data can be automatically entered each month, and the energy efficiency of various buildings can be compared to similar buildings nationwide and can receive an "Energy Star Rating."

- Reporting
  A municipal employee(s) should be designated as an Energy Coordinator, with responsibility for implementing the above-described record-keeping actions and coordinating them with Town government departments, public and quasi-public agencies, and other appropriate organizations. Monthly and annual reports should be generated to track progress and identify issues of concern. Information should be easily accessible to Town decision-makers, the interested public, and other stakeholders. Annual reports outlining changes in energy use and cost should be sent to the Town Council for review.

- Funding
  The Town should continue to secure funding opportunities for proposed energy efficiency projects. Select Town staff should be informed about available funding resources on a routine basis.

- Adoption
  This EAP should be presented to Town Council for further review and considered for adoption.

E. Conclusion

Since 2005 electricity usage in the Town of Apple Valley has increased from 3,504,630 to 5,672,990 kWh. There are a number of possible factors for this, the main one being that the Town constructed and acquired large facilities/buildings and street lights and traffic signals which consume considerable electricity. Another reason is the continuous increase in population. In order to reach the State reduction target, the Town will have to continue to implement efficiency programs. Newer and more efficient technologies will have to be used to the greatest extent possible to increase efficiency, particularly at older buildings and facilities.

Although municipal electricty consumption has increased since 2005, the Town is still on track to exceed their overall reduction target of achieving 15% below 2005 greenhouse gas emissions by 2020. This is in part due to the increased efficiencies in SCE electricity production. As shown in the following table, the Town is expected to exceed the 2020 reduction target by 480 tons CO2e.

Table 13
GHG 2020 Reduction Targets
Tons CO2e

	Municipal
Baseline 2005	2,138
15% Below Baseline	1,817
2020 Forecast BAU (2005)	3,132
2020 Forecast BAU (2013)	3,519
2020 Forecast BAU (2016)	**1,337**
2020 Reduction Target (2005)	1,315
2020 Reduction Target (2013)	1,702
2020 Reduction Target (2016)	**Surpass by 480**

Source: Table 11, *Town of Apple Valley Climate Action Plan Update 2016*, prepared by Terra Nova Planning and Research, April 2018.

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