13
ENERGY RESOURCES

13.1 INTRODUCTION

This section addresses the potential impacts of the proposed Santa Clarita Valley Sanitation District (SCVSD) Chloride Compliance Project (proposed project) to energy resources. The section includes a description of the environmental setting to establish baseline conditions for energy resources and services provided to the SCVSD; a summary of the regulations related to energy resources; and an evaluation of the proposed project's potential effects on energy consumption, new energy supplies, and energy efficiency policies.

13.2 ENVIRONMENTAL SETTING

Southern California Edison (SCE) provides energy services to the Santa Clarita Valley (SCV), including SCVSD facilities, through six distribution facilities. SCE produces electricity from different sources, including solar, geothermal, hydroelectric, natural gas, and nuclear.

The Valencia Water Reclamation Plant (VWRP) uses electricity to operate equipment and facilities including pumps, sludge collection equipment, filter presses, and compressors. The VWRP electrical demand was approximately 19.3 gigawatt-hours (GWh) during fiscal year 2010-2011 (FY 2010-11). The Saugus Water Reclamation Plant (SWRP) is also served by SCE. The SWRP electrical demand was approximately 4.2 GWh during FY 2010-11.

13.3 REGULATORY BACKGROUND

13.3.1 California Energy Action Plan II Update

The California Energy Action Plan II Update is the state's principal energy planning and policy document (California Energy Commission 2005, 2008). The plan identifies state-wide energy goals; describes a coordinated implementation plan for state energy policies; and identifies specific action areas to ensure that California's energy is adequate to meet demand, affordable, technologically advanced, and environmentally sound. In accordance with this plan, the highest priority actions to address California's increasing energy demands are energy efficiency and demand response (i.e., reduction of customer energy usage during peak periods to address system reliability and support the best use of energy infrastructure). Additional priorities include the use of renewable power sources and distributed generation (i.e., relatively small power plants at or near centers of high demand). To the extent that these actions are unable to satisfy the increasing energy and capacity needs, the plan supports clean and efficient fossil fuel-fired generation.

In 2002, California established its Renewable Portfolio Standard with the goal of increasing the percentage of renewable energy in the state's electricity mix to 20 percent by 2017. The Renewable Portfolio Standard is a flexible, market-driven policy to ensure that the public benefits of wind, solar, biomass, and geothermal energy continue to be realized as electricity markets become more competitive. The policy ensures that a minimum amount of renewable energy is included in the portfolio of electricity resources serving a state or country. By increasing the required minimum amount over time, the Renewable Portfolio Standard puts the electricity industry on a path toward increasing sustainability. The California Energy Commission subsequently recommended increasing the renewable energy goal to 33 percent by 2020. Because much electricity demand growth is expected to be met by increases in natural gas-fired generation, reducing consumption of electricity and diversifying electricity generation resources are significant plan elements to reduce natural gas demand.

13.4 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

13.4.1 Thresholds of Significance

The criteria used to determine the significance of impacts related to energy resources are based on Appendix F of the CEQA Guidelines. The proposed project would result in a significant impact if it would result in any of the following:

- Cause a substantial increase in overall or per capita energy consumption.
- Cause wasteful or unnecessary consumption of energy.
- Require construction of new sources of energy supplies or additional energy infrastructure capacity, the construction of which could cause significant environmental effects.
- Conflict with applicable energy efficiency policies or standards.

13.4.1.1 Energy Consumption and Efficiency

The thresholds of significance for energy resources have been combined into one impact statement.

Impact 13-1: The proposed project could cause a substantial increase in overall or per capita energy consumption, cause wasteful or unnecessary consumption of energy, require construction of new sources of energy supplies or additional energy infrastructure capacity, or conflict with applicable energy efficiency policies or standards.

Alternative 1 – MF/RO With Brine Disposal via Pipeline

MF/RO and UV Disinfection Facilities, RO Product Water Conveyance System to SWRP, and Brine Disposal System (Pipeline to JOS)

The microfiltration/reverse osmosis (MF/RO) facilities at the VWRP, the potential ultraviolet (UV) disinfection facilities at the VWRP and/or SWRP, the RO product water conveyance system facilities, and the brine disposal system facilities are described in Section 6.7.1. The VWRP and SWRP facilities are currently powered by electricity distributed by SCE via the regional grid.

Some construction activities would require connections to existing power sources and would slightly increase short-term electricity demand onsite. However, the increase in energy demand would be temporary and would comply with all applicable federal, state, and local energy efficiency policies and standards. Furthermore, most construction activities, including excavation and grading, would be powered by diesel engines and not by electricity.

Energy demands during construction of the RO product water and brine disposal pipelines would consist primarily of diesel-powered construction equipment and trucks. Pipeline construction may require nighttime lighting. Because portable diesel powered light standards would be used in any nighttime construction, the construction activities would not require any additional infrastructure to supply electricity.

The VWRP and SWRP energy use for fiscal year 2011-2012 (FY 2011-12) was 18.6 GWh per year and 4.3 GWh per year, respectively, for a total of 22.9 GWh per year. As previously noted, this alternative may or may not include UV disinfection facilities, which affects operational energy consumption. The scenario without UV disinfection facilities is used in this analysis because it would result in the highest energy usage. Alternative 1 would require an additional 10.7 GWh per year at the VWRP and 0.4 GWh per year at the offsite brine pump station. The combined energy increase of 11.1 GWh per year is shown in Table 13-1.

Table 13-1. Alternative 1 Energy Consumption

	Energy Consumption (GWh/year)		
Process	**VWRP**	**SWRP**	**Offsite**
UV Disinfection Facilities	-	-	-
MF/RO Facilities	9.7[a]	-	-
RO Product Water Pipeline to SWRP (Pump Station)	0.6	-	-
Brine Disposal Pipeline to JOS (Pump Stations)	0.4	-	0.4
Total Power Required	**10.7**	**0.0**	**0.4**
Total Power Required for Alternative 1: 11.1 GWh/year			

[a] Power required for the MF/RO facilities was calculated based on design flow averaged over 10 years, assuming 3 years of drought.

Source: SCVSD 2013.

This additional demand would increase energy usage by approximately 58 percent at the VWRP. Power would be provided by SCE from the existing grid. Because the existing electrical substation at the VWRP is capable of providing the additional energy required for the onsite facilities, SCE would not need to provide new or upgraded infrastructure to serve the site.

Operational activities would comply with applicable energy efficiency policies and standards. SCVSD would install energy-efficient equipment (e.g., pumps and motors) to the maximum extent practicable to minimize the proposed project's energy consumption. Furthermore, because the proposed project is intended to meet receiving water quality standards, the associated energy requirements would not be a wasteful use of energy or conflict with local or state energy efficiency plans or policies.

The VWRP and SWRP serve a population of 247,000. The increased energy needed to implement the proposed project would be approximately 11.1 GWh per year. If this amount were distributed equally among the population served by the WRPs, it would equate to approximately 45 kWh per capita per year, a 0.7-percent increase from 6,721 kWh per year (State of California

2008-2012) to 6,766 kWh per year. This energy increase is equivalent to every person in the service area operating one ceiling fan (150 watts) for approximately 4 hours per day, 75 days per year (Estimating Appliance and Home Electronics Energy Use, Department of Energy, August 2012). This slight increase in regional energy usage to implement a public service to be shared by the entire population is not significant.

The increased energy usage required to operate the proposed project would not represent a wasteful use of energy, require new energy sources, represent a considerable increase when compared on a per capita basis, or conflict with applicable energy policies and standards. Impact would be less than significant.

Impact Summary

The construction and operation of Alternative 1 would not cause a substantial increase in overall or per capita energy consumption, cause wasteful or unnecessary consumption of energy, require construction of new sources of energy supplies or additional energy infrastructure capacity, or conflict with applicable energy efficiency policies or standards. The construction and operational impact would be less than significant.

Mitigation Measures: None Required.

Significance Level After Mitigation: Less Than Significant Impact.

Alternative 2 – MF/RO With Brine Disposal via DWI

MF/RO and UV Disinfection Facilities, RO Product Water Conveyance System to SWRP and Brine Disposal System (DWI)

The MF/RO facilities at the VWRP, the potential UV disinfection facilities at the VWRP and/or SWRP, and the RO product water conveyance system facilities would be the same as described for Alternative 1. The brine disposal system facilities are described in Section 6.7.1.

Some construction activities would require connections to existing power sources and would slightly increase short-term electricity demand onsite. However, the increase in energy demand would be temporary and would comply with all applicable federal, state, and local energy efficiency policies and standards. Furthermore, most construction activities, including excavation and grading, would be powered by diesel engines and not by electricity.

Energy demands during construction of the RO product water pipeline, the DWI brine pipeline, and DWI site would consist primarily of diesel-powered construction equipment and trucks. Pipeline and well construction may require nighttime lighting. Because portable diesel powered light standards would be used in any nighttime construction, the construction activities would not require any additional infrastructure to supply electricity.

The VWRP and SWRP energy use for FY 2011-12 was 18.6 GWh per year and 4.3 GWh per year, respectively, for a total of 22.9 GWh per year. As previously noted, this alternative may or may not include UV disinfection facilities, which affects operational energy consumption. The scenario without UV disinfection facilities is used in this analysis because it would result in the highest energy usage. Alternative 2 would require an additional 10.7 GWh per year at the VWRP and 4.1 GWh per year at the offsite DWI wells. The combined energy increase of 14.8 GWh per year is shown in Table 13-2.

Table 13-2. Alternative 2 Energy Consumption

Process	Energy Consumption (GWh/year)		
	VWRP	SWRP	Offsite
UV Disinfection Facilities	-	-	-
MF/RO Facilities	9.7[a]	-	-
RO Product Water Pipeline to SWRP (Pump Station)	0.6	-	-
Brine Disposal Pipeline to DWI (Pump Station)	0.4	-	-
DWI Site (Injection Wells)	-	-	4.1
Total Power Required	**10.7**	**0.0**	**4.1**
Total Power Required for Alternative 2: 14.8 GWh/year			

[a] Power required for the MF/RO facilities was calculated based on design flow averaged over 10 years, assuming 3 years of drought.

Source: SCVSD 2013.

This additional demand would increase energy usage by approximately 58 percent at the VWRP. Power would be provided by SCE from the existing grid. Because the existing electrical substation at the VWRP is capable of providing the additional energy required for the onsite facilities, SCE would not need to provide new or upgraded infrastructure to serve the site.

Operational activities would comply with applicable energy efficiency policies and standards. SCVSD would install energy-efficient equipment (e.g., pumps and motors) to the maximum extent practicable to minimize the proposed project's energy consumption. Furthermore, because the proposed project is intended to meet receiving water quality standards, the associated energy requirements would not be a wasteful use of energy or conflict with local or state energy efficiency plans or policies.

The VWRP and SWRP serve a population of 247,000. The increased energy needed to implement the proposed project would be approximately 14.8 GWh per year. If this amount were distributed equally among the population served by the WRPs, it would equate to approximately 60 kWh per capita per year, a 0.9-percent increase from 6,721 kWh per year (State of California 2008-2012) to 6,781 kWh per year. This energy increase is equivalent to every person in the service area operating one ceiling fan (150 watts) for approximately 4 hours per day, 100 days per year (Estimating Appliance and Home Electronics Energy Use, Department of Energy, August 2012). This slight increase in regional energy usage to implement a public service to be shared by the entire population is not significant.

The increased energy usage required to operate the proposed project would not represent a wasteful use of energy, require new energy sources, represent a considerable increase when compared on a per capita basis, or conflict with applicable energy policies and standards. Impact would be less than significant.

Impact Summary

The construction and operation of Alternative 2 would not cause a substantial increase in overall or per capita energy consumption, cause wasteful or unnecessary consumption of energy, require construction of new sources of energy supplies or additional energy infrastructure capacity, or conflict with applicable energy efficiency policies or standards. The construction and operational impact would be less than significant.

Mitigation Measures: None Required.

Significance Level After Mitigation: Less Than Significant Impact.

Alternative 3 – MF/RO With Brine Disposal via Trucking

MF/RO and UV Disinfection Facilities, RO Product Water Conveyance System to SWRP, and Brine Disposal System (Trucking)

The MF/RO facilities at the VWRP, the UV disinfection facilities at the VWRP and SWRP, and the RO product water conveyance system facilities would be the same as described for Alternative 1. The brine disposal system facilities are described in Section 6.7.1.

Some construction activities would require connections to existing power sources and would slightly increase short-term electricity demand onsite. However, the increase in energy demand would be temporary and would comply with all applicable federal, state, and local energy efficiency policies and standards. Furthermore, most construction activities, including excavation and grading, would be powered by diesel engines and not by electricity.

Energy demands during construction of the RO product water pipeline and the truck loading and unloading terminals would consist primarily of diesel-powered construction equipment and trucks. Pipeline and terminal construction may require nighttime lighting. Because portable diesel powered light standards would be used in any nighttime construction, the construction activities would not require any additional infrastructure to supply electricity.

The VWRP and SWRP energy use for FY 2011-12 was 18.6 GWh per year and 4.3 GWh per year, respectively, for a total of 22.9 GWh per year. Alternative 3 would require an additional 8.0 GWh per year at the VWRP, 0.2 GWh per year at the SWRP, and 9.6 GWh per year for offsite brine trucking. The combined energy increase of 17.8 GWh per year is shown in Table 13-3.

Table 13-3. Alternative 3 Energy Consumption

	Energy Consumption (GWh/year)		
Process	**VWRP**	**SWRP**	**Offsite**
UV Disinfection Facilities	0.6	0.2	-
MF/RO Facilities	6.9[a]	-	-
RO Product Water Pipeline to SWRP (Pump Station)	0.5	-	-
Brine Trucking	-	-	9.6[b]
Total Power Required	**8.0**	**0.2**	**9.6**
Total Power Required for Alternative 3: 17.8 GWh/year			

[a] Power required for the MF/RO facilities was calculated based on design flow averaged over 10 years, assuming 3 years of drought.

[b] Power required for brine trucking was calculated based on GWh equivalent of diesel consumption.

Source: SCVSD 2013.

This additional demand would increase energy usage by approximately 43 percent at the VWRP and by approximately 5 percent at the SWRP. Power would be provided by SCE from the existing grid. Because the existing electrical substations at the VWRP and SWRP are capable of providing the additional energy required for the onsite facilities, SCE would not need to provide new or upgraded infrastructure to serve the sites.

Operational activities would comply with applicable energy efficiency policies and standards. SCVSD would install energy-efficient equipment (e.g., pumps and motors) to the maximum extent practicable to minimize the proposed project's energy consumption. Furthermore, because the proposed project is intended to meet receiving water quality standards, the associated energy requirements would not be a wasteful use of energy or conflict with local or state energy efficiency plans or policies.

The VWRP and SWRP serve a population of 247,000. The increased energy needed to implement the proposed project would be approximately 17.8 GWh per year. If this amount were distributed equally among the population served by the WRPs, it would equate to approximately 72 kWh per capita per year, a 1.1-percent increase from 6,721 kWh per year (State of California 2008-2012) to 6,792 kWh per year. This energy increase is equivalent to every person in the service area operating one ceiling fan (150 watts) for approximately 4 hours per day, 120 days per year (Estimating Appliance and Home Electronics Energy Use, Department of Energy, August 2012). This slight increase in regional energy usage to implement a public service to be shared by the entire population is not significant.

The increased energy usage required to operate the proposed project would not represent a wasteful use of energy, require new energy sources, represent a considerable increase when compared on a per capita basis, or conflict with applicable energy policies and standards. Impact would be less than significant.

Impact Summary

The construction and operation of Alternative 3 would not cause a substantial increase in overall or per capita energy consumption, cause wasteful or unnecessary consumption of energy, require construction of new sources of energy supplies or additional energy infrastructure capacity, or conflict with applicable energy efficiency policies or standards. The construction and operational impact would be less than significant.

Mitigation Measures: None Required.

Significance Level After Mitigation: Less Than Significant Impact.

Alternative 4 – Phased AWRM

Phase I

UV Disinfection Facilities, Salt Management Facilities, and Supplemental Water System to VWRP

The UV disinfection facilities at the VWRP and SWRP would be the same as described for Alternative 1. The salt management and supplemental water system facilities are described in Section 6.7.1.

Some construction activities would require connections to existing power sources and would slightly increase short-term electricity demand onsite. However, the increase in energy demand would be temporary and would comply with all applicable federal, state, and local energy efficiency policies and standards. Furthermore, most construction activities, including excavation and grading, would be powered by diesel engines and not by electricity.

Energy demands during construction of the salt management and supplemental water system facilities would consist primarily of diesel-powered construction equipment and trucks. Pipeline, well field, and pump station construction may require nighttime lighting. Because portable diesel powered light standards would be used in any nighttime construction, the construction activities would not require any additional infrastructure to supply electricity.

The VWRP and SWRP energy use for FY 2011-12 was 18.6 GWh per year and 4.3 GWh per year, respectively, for a total of 22.9 GWh per year. Phase I of Alternative 4 would require an additional 0.6 GWh per year at the VWRP, 0.2 GWh per year at the SWRP, and 16.4 GWh per year at the offsite salt management and supplemental water system facilities. The energy for supplemental water is based on the energy required to import additional replacement water from the Central Valley of California, which otherwise would not occur without the use of supplemental water for this alternative. The combined energy increase of 17.2 GWh per year is shown in Table 13-4.

Table 13-4. Alternative 4 – Phase I Energy Consumption

	Energy Consumption (GWh/year)		
Process	**VWRP**	**SWRP**	**Offsite**
UV Disinfection Facilities	0.6	0.2	-
Extraction Wells (East and West Piru Well Fields)	-	-	5.3
Blended Water System (Pump Stations)	-	-	4.5
Supplemental Water System	-	-	6.6
Total Power Required	**0.6**	**0.2**	**16.4**
Total Power Required for Alternative 3: 17.2 GWh/year			

Source: SCVSD 2013.

This additional demand would increase energy usage by approximately 3 percent at the VWRP and by approximately 5 percent at the SWRP. Power would be provided by SCE from the existing grid. Because the existing electrical substations at the VWRP and SWRP are capable of providing the additional energy required for the onsite facilities, SCE would not need to provide new or upgraded infrastructure to serve the sites.

Operational activities would comply with applicable energy efficiency policies and standards. SCVSD would install energy-efficient equipment (e.g., pumps and motors) to the maximum extent practicable to minimize the proposed project's energy consumption. Furthermore, because the proposed project is intended to meet receiving water quality standards, the associated energy requirements would not be a wasteful use of energy or conflict with local or state energy efficiency plans or policies.

The VWRP and SWRP serve a population of 247,000. The increased energy needed to implement the proposed project would be approximately 17.2 GWh per year. If this amount were distributed equally among the population served by the WRPs, it would equate to approximately 70 kWh per capita per year, a 1.0-percent increase from 6,721 kWh per year (State of California 2008-2012) to 6,801 kWh per year. This energy increase is equivalent to every person in the service area operating one ceiling fan (150 watts) for approximately 4 hours per day, 117 days per year (Estimating Appliance and Home Electronics Energy Use, Department of Energy, August 2012). This slight increase in regional energy usage to implement a public service to be shared by the entire population is not significant.

The increased energy usage required to operate the proposed project would not represent a wasteful use of energy, require new energy sources, represent a considerable increase when compared on a per capita basis, or conflict with applicable energy policies and standards. Impact would be less than significant.

Impact Summary – Phase I

The construction and operation of Phase I of Alternative 4 would not cause a substantial increase in overall or per capita energy consumption, cause wasteful or unnecessary consumption of energy, require construction of new sources of energy supplies or additional energy infrastructure capacity, or conflict with applicable energy efficiency policies or standards. The construction and operational impact would be less than significant.

Mitigation Measures: None Required.

Significance Level After Mitigation: Less Than Significant Impact.

Phase II

MF/RO Facilities, RO Product Water Conveyance System to Ventura County, and Brine Disposal System

The MF/RO facilities at the VWRP would be similar to those described for Alternative 1 but, under this alternative, would be smaller in size. The RO product water conveyance system and brine disposal system facilities are described in Section 6.7.1. The brine disposal system would rely on a pipeline, DWI, or trucking – each of which was previously analyzed for Alternatives 1, 2, and 3, respectively, but there would be lower peak brine flow to manage so the diameter of the pipeline, number of wells, and peak number of truck trips would be smaller. For this alternative, brine disposal via trucking was assumed because it has a greater energy demand than the other brine disposal options.

Some construction activities would require connections to existing power sources and would slightly increase short-term electricity demand onsite. However, the increase in energy demand would be temporary and would comply with all applicable federal, state, and local energy efficiency policies and standards. Furthermore, most construction activities, including excavation and grading, would be powered by diesel engines and not by electricity.

Energy demands during construction of the RO product water conveyance system and brine disposal system facilities would consist primarily of diesel-powered construction equipment and trucks. Pipeline, DWI site, and pump station construction may require nighttime lighting. Because portable diesel powered light standards would be used in any nighttime construction, the construction activities would not require any additional infrastructure to supply electricity.

The VWRP and SWRP energy use for FY 2011-12 was 18.6 GWh per year and 4.3 GWh per year, respectively, for a total of 22.9 GWh per year. The energy demand of Phase II of Alternative 4 would require an additional 1.4 GWh per year at the VWRP and 10.5 GWh per year for offsite brine trucking. The combined energy increase for Phase II of Alternative 4 would be 11.9 GWh per year. The combined energy increase of 29.1 GWh per year for Phases I and II of Alternative 4 is shown in Table 13-5.

Table 13-5. Alternative 4 – Phase II Energy Consumption

	Energy Consumption (GWh/year)		
Process	**VWRP**	**SWRP**	**Offsite**
MF/RO Facilities	1.1	-	-
RO Product Water Conveyance System to Ventura County	0.3	-	-
Brine Trucking	-	-	10.5 [a]
Total Power Required for Phase II	**1.4**	**0.0**	**10.5**
Total Power Required for Phase I	**0.6**	**0.2**	**16.4**
Total Power Required for Alternative 4 – Phases I and II: 29.1 GWh/year			

[a] Power required for brine trucking was calculated based on GWh equivalent of diesel consumption.
Source: SCVSD 2013.

This additional demand for Phases I and II of Alternative 4 would increase energy usage by approximately 11 percent at the VWRP and by approximately 5 percent at the SWRP. Power would be provided by SCE from the existing grid. Because the existing electrical substations at the VWRP and SWRP are capable of providing the additional energy required for the onsite facilities, SCE would not need to provide new or upgraded infrastructure.

Operational activities would comply with applicable energy efficiency policies and standards. SCVSD would install energy-efficient equipment (e.g., pumps and motors) to the maximum extent practicable to minimize the proposed project's energy consumption. Furthermore, because the proposed project is intended to meet receiving water quality standards, the associated energy requirements would not be a wasteful use of energy or conflict with local or state energy efficiency plans or policies.

The VWRP and SWRP serve a population of 247,000. The increased energy needed to implement Alternative 4 – Phases I and II would be approximately 29.1 GWh per year. If this amount were distributed equally among the population served by the WRPs, it would equate to approximately 117 kWh per capita per year, a 1.7-percent increase from 6,721 kWh per year (State of California 2008-2012) to 6,838 kWh per year. This energy increase is equivalent to every person in the service area operating one ceiling fan (150 watts) for approximately 4 hours per day, 195 days per year (Estimating Appliance and Home Electronics Energy Use, Department of Energy, August 2012). This slight increase in regional energy usage to implement a public service to be shared by the entire population is not significant.

The increased energy usage required to operate the proposed project would not represent a wasteful use of energy, require new energy sources, represent a considerable increase when compared on a per capita basis, or conflict with applicable energy policies and standards. Impact would be less than significant.

Impact Summary – Phases I and II

The construction and operation of Phase I of Alternative 4 would not cause a substantial increase in overall or per capita energy consumption, cause wasteful or unnecessary consumption of energy, require construction of new sources of energy supplies or additional energy infrastructure capacity, or conflict with applicable energy efficiency policies or standards. The construction and operational impact would be less than significant.

The construction and operation of Phases I and II of Alternative 4 would not cause a substantial increase in overall or per capita energy consumption, cause wasteful or unnecessary consumption of energy, require construction of new sources of energy supplies or additional energy infrastructure capacity, or conflict with applicable energy efficiency policies or standards. The construction and operational impact would be less than significant.

Mitigation Measures: None Required.

Significance Level After Mitigation: Less Than Significant Impact**.**