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November 7, 2011

Mr. Patrick J. Alford, Planning Manager
City of Newport Beach, Community Development Department
3300 Newport Boulevard
P.O. Box 1768
Newport Beach, California 92658-8915

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Subject: Draft Environmental Impact Report (EIR) (State Clearinghouse No. 2009031061)
for the proposed Newport Banning Ranch Project

Dear Mr. Alford:

Mesa Consolidated Water District (Mesa Water) has reviewed the Draft Environmental Impact Report (Draft EIR) for the proposed Newport Banning Ranch project (SCH# 2009031061). We thank you for the opportunity to review the Draft EIR and appreciate your consideration of our comments as they relate to the proposed water supply for the project. We offer the following comments at this time and look forward to your response:

Project Description:

We understand that the proposed project site consists of approximately 401 acres of land. Approximately 40 acres of the project site are located within the incorporated boundary of the City of Newport Beach, and approximately 361 acres are in unincorporated Orange County within the City's Sphere of Influence. The entire site is within the Coastal Zone, as established by the California Coastal Act.

As proposed, the project would involve the development of the approximately 401 acre site with 1,375 residential dwelling units (du); 75,000 square feet (sf) of commercial uses, a 75-room resort inn with ancillary resort uses, and approximately 51.4 gross acres for active and passive park uses including a 26.8 gross acre public Community Park. Approximately 252.3 gross acres (approximately 63 percent) would be retained in permanent open space. The project site's existing surface oil production activities located throughout the site would be consolidated into approximately 16.5 acres. The remaining surface oil production facilities would be abandoned/re-abandoned, remediated for development, and/or remediated and restored as natural open space.

As stated in the Draft EIR (see page 4.15-9), water service in the City of Newport Beach (City) is provided by three purveyors: the City, the Irvine Ranch Water District, and Mesa Water. The project site historically received water service from Mesa Water. The project site is located adjacent to the water service areas of the City and Mesa Water. Water supply and service for the Newport Banning Ranch project is proposed to be provided by the City (i.e., a LAFCO service reorganization will be required), which relies greatly on imported water.

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General Comments:

The following comments are provided based on our review of the information provided in the Draft EIR regarding the proposed water supply for the project and the associated environmental impacts with the use of imported water as currently proposed. The Draft EIR's analysis is currently inadequate as it does not consider an appropriate range of feasible alternatives or mitigation measure (in fact completely ignores) in the form of the provision of water to the project through Mesa Water, which can provide the water supply to the project through 100% local water sources. The provision of local water to the proposed project via Mesa Water, as opposed to through imported water sources via the City as is proposed under the project, would reduce significant environmental impacts associated with the proposed project. Substantial revisions and recirculation of the Draft EIR is required to correct these deficiencies.

Use of imported water by the proposed project would create an unnecessary consumption of energy (see CEQA Guidelines Appendix F), which exacerbates the state and region's air quality emissions and production of greenhouse gas emissions, which in turn exacerbates global climate change and associated environmental impacts. Additionally, provision of imported water would also continue to contribute to the general degradation of the Bay Delta area, in which southern California relies on imported water through the State Water Project.

Specific Comments:

1. The Draft EIR Fails to Consider a Reasonable Range of Alternatives

CEQA Guidelines Section 15126.6(c) states that:

The range of the potential alternatives to the proposed project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects.

The EIR identifies significant and unavoidable impacts associated with greenhouse gas emissions and air quality. As the City's water supply is heavily reliant on imported water, the use of the City's water to provide domestic water service to the site would result in an unnecessary consumption of energy, the production of which results in state and regional air quality emissions and greenhouse gas emissions. As Mesa Water relies solely on local groundwater sources (as discussed below), the use of Mesa Water service would result in an incremental reduction in the severity of the significant and unavoidable impacts related to air quality and greenhouse gas emissions. Additionally, an alternative that would include the use of Mesa Water in lieu of the City's water service would not conflict with any of the stated project objectives. Finally, because existing Mesa Water distribution facilities are located adjacent to the project site, the use of Mesa Water service at the project site would be feasible. Therefore, the Draft EIR was deficient as it failed to include an alternative that would have considered the use of Mesa Water, which would have been a feasible alternative that would not have conflicted with the project objectives.

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2. **Use of Imported Water versus Local Water is an Inefficient and Unnecessary Consumption of Energy**

The Draft EIR identifies significant and unavoidable impacts associated with air quality and greenhouse gas emissions. A comparison of energy demands associated with the provisions of water to the proposed project via the City (imported water) versus Mesa Water (local water) has been conducted and is summarized below. This comparison demonstrates that provision of water to the project through the City would result in an inefficient and unnecessary consumption of energy. This is inconsistent with CEQA Guideline 15126.4(a)(1) which states:

An EIR shall describe feasible measures which would minimize significant adverse impacts, including where relevant, inefficient and unnecessary consumption of energy.

The Draft EIR is deficient as it does not identify feasible mitigation measures which would minimize the significant air quality and greenhouse gas emissions impacts that were identified. There is no analysis of alternative water sources for the proposed project, which is one of the most important issues facing Southern California today. As demonstrated in Attachment A, provision of water to the project site by Mesa Water can be accomplished in a more energy efficient manner than is currently proposed, and the Draft EIR does not identify this as a mitigation measure for air quality and greenhouse gas emissions impacts. In fact, calculations of energy consumption at Mesa Water for groundwater extraction with colored water treatment of some of that groundwater show energy consumption values that are significantly lower than using imported water as a portion of the water supply. See Table 1:

Table 1: Energy Intensities of Different Water Supplies (Mesa Water, 2011)

Supply	Percent	Total kWh/af	Notes
Imported State Water Project	62%	3,000	5 and 10 year averages for imported water supplies in Metropolitan Water District 2010 Regional Urban Water Management Plan (RUWMP).
Imported Colorado River Aqueduct	38%	2,000	5 and 10 year averages for imported water supplies in Metropolitan Water District 2010 Regional Urban Water Management Plan (RUWMP).
MWD Treatment Imported Water	100%	490	
Imported Weighted Average		3,105	Includes treatment energy
Groundwater	100%	650	Energy to pump

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Table 1: Energy Intensities of Different Water Supplies (Mesa Water, 2011)

Supply		Percent	Total kWh/af	Notes
Current CWTF Treated Groundwater			1,550	Energy to treat the colored water that is pumped. Not included in clear water.
Future CWTF Treated Groundwater		38%	1,100	Upgraded system to start up in 2012
Groundwater Replenishment Activities by OCWD				
2012-2014	Santa Ana River Diversions	60.7%	50	
	Future imported water purchases	10.1%	3,105	
	Groundwater Replenishment System Operation	29.1%	1,441	
	Total Groundwater Weighted Average		1,542	Pumping + CWTF (38%) + replenishment (62%)
2015-2020	Santa Ana River Diversions	54.5%	50	
	Future imported water purchases	9.1%	3,105	
	Groundwater Replenishment System Operation	36.4%	1,441	
	Total Groundwater Weighted Average		1,585	Pumping + CWTF (38%) + replenishment (62%)
2020-onward	Santa Ana River Diversions	50.8%	50	
	Future imported water purchases	8.5%	3,105	
	Groundwater Replenishment System Operation	40.7%	1,441	
	Total Groundwater Weighted Average		1,610	Pumping + CWTF (38%) + replenishment (62%)

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3. Reduction in Energy Consumption Will Reduce Regional Air Emissions, Including Greenhouse Gas Emissions

The reduction in energy consumption that can be accomplished through the continued provision of water by Mesa Water will result in reduction in energy consumption that will have a corresponding reduction in the generation of air emissions, including greenhouse gas emissions, which are significant when considering the long-term provision of water to the project. When considering the additional 613.5 acre feet per year of water demand projected for the Newport Banning Ranch development and the projected GHG production of approximately 0.24 metric tons CO₂ per acre foot of water delivered from Mesa Water using entirely groundwater resources, the total GHG production to service the Newport Banning Ranch from Mesa Water is projected to be approximately 147.7 metric tons CO₂ per year. This reduction in greenhouse gas emissions would help meet the State's overall greenhouse gas emission reduction goals mandated by the State and is consistent with the provisions of CEQA Guideline 15126.4(a) which states:

Consistent with section 15126.4(a), lead agencies shall consider feasible means, supported by substantial evidence and subject to monitoring or reporting, of mitigating the significant effects of greenhouse emissions. Measures to mitigate the significant effects of greenhouse gas emissions may include, among others:

(2) Reductions in emissions resulting from a project through implementation of project features, project design, or other measures, such as those described in Appendix F

Again, the Draft EIR is deficient with respect to this section of the CEQA Guidelines as it does not analyze the potential greenhouse gas emissions reductions associated with provision of water to the project by Mesa Water. Provision of local water sources to supply the project is feasible and can readily be provided by Mesa Water. Utilizing local water sources would result in an incremental reduction in the significant effects of greenhouse gas emissions by reducing the energy demands as compared to provision of imported water to serve the project. However, there is no analysis of this feasible measure in the Draft EIR, and therefore, the Draft EIR is inadequate with respect to this provision of the CEQA Guidelines.

4. Use of Imported Water Will Continue to Contribute to Impacts to the Bay Delta Ecosystem

The Draft EIR is deficient as it fails to include an alternative or mitigation measure that would utilize Mesa Water service for the project site in order to reduce, indirectly, the impacts to the Bay Delta that occur with imported water supplied through the State Water Project. The impacts on the Bay Delta by using imported water are well known and are identified in the Draft EIR (e.g., see EIR page 4.15-5).

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Impacts on the Bay Delta associated with the use of imported water, which would be completely avoided by the use of local water supplies, are extensive. High profile species impacted by the State Water Project include the delta smelt, anadromous salmonids, and giant garter snake; however, many species are impacted by activities within the Bay Delta associated with the State Water Project.

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Large numbers of delta smelt are lost to entrainment in the Central Valley Project (CVP) and State Water Project (SWP) water export facilities. In addition, the CVP and SWP water export facilities and other diversions export phytoplankton, zooplankton, nutrients, and organic material that would otherwise support the base of the food web in the Delta, this reducing food availability for delta smelt. The risk of entrainment to delta smelt varies seasonally and among years. The greatest entrainment risk has been hypothesized to occur during winter when pre-spawning adults migrate into the Delta in preparation for spawning. (Moyle, 2002; USBR, 2004).

Access to most of the historical upstream spawning habitat for Chinook salmon and steelhead trout has been eliminated or degraded by manmade structures (e.g., dams and weirs) associated with water storage, conveyance, flood control, and diversions and exports for municipal, industrial, agricultural, and hydropower purposes. Upstream diversions and dams have decreased downstream flows and altered the seasonal hydrological patterns. Reduced flows from dams and upstream water diversions result in spawning delays, increased straying, and increased mortality of out-migrating juveniles. (Yoshiyama et al., 1998; DWR, 2005).

Provision of local water by Mesa Water should be considered a feasible alternative or mitigation measure to the proposed project. However, the Draft EIR did not consider this measure or alternative, which is inconsistent with the primary purpose of CEQA.

5. The Draft EIR Fails to Identify Conflicts with City of Newport Beach General Plan and California Coastal Commission Policies

Table 4.11-7 of the Draft EIR provides a consistency analysis for the project with certain City and State policies. The Draft EIR fails to identify that the project's use of the City's imported water would conflict with a policy of the California Coastal Commission and the City's General Plan. Page 4.11-33 of the Draft EIR states that a Coastal Act Policy includes that new developments shall "minimize energy consumption..." The corresponding consistency analysis does not consider the unnecessary and inefficient consumption of energy that would occur associated with the use of the City's imported water instead of Mesa Water's locally produced water. Additionally, Page 4.11-28 of the Draft EIR identifies LU Policy 6.4.10 of the City of Newport Beach General Plan Land Use Element that would:

Require that any development of Banning Ranch achieve high levels of environmental sustainability that reduce pollution and consumption of energy, water, and natural resources to be accomplished through . . . infrastructure design and other techniques.

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Again, the corresponding analysis does not identify the potential use of Mesa Water service in order to reduce the consumption of energy that would occur in association with utilizing imported water from the City's water supply. The failure to identify these potential conflicts with policies analyzed in the Draft EIR resulted in a deficiency in the analysis of greenhouse gas emissions.

6. **The City Cannot Make the Findings Pursuant to CEQA Section 21081(3)(a) that are Necessary in Order to Approve the Project**

Pursuant to CEQA 21081(3) (a), the City must be able to make certain findings with respect to the significant impacts, mitigation measures, and alternatives to the proposed project before being able to approve the project. Specifically, the City must be able to make the following finding with respect to the provision of water by the City, as proposed, instead of by Mesa Water:

"Specific economic, legal, social, technological, or other considerations, including considerations for the provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or alternatives identified in the environmental impact report." Furthermore, as stated in 21081.5 "In making the findings required by paragraph (3) of subdivision (a) of Section 21081, the public agency shall base its findings on substantial evidence in the record."

Section 15021(a) (2) "A public agency should not approve a project as proposed if there are feasible alternatives or mitigation measures available that would substantially lessen any significant effects that the project would have on the environment."

Section 15021(b) "In deciding whether changes in a project are feasible, an agency may consider specific economic, environmental, legal, social, and technological factors."

The provision of local water to serve the project is a feasible alternative that would substantially lessen the significant effects of the proposed project on the environment. The City cannot reject this environmentally superior alternative/mitigation measure because it will not be able to find that provision of water to the project site is infeasible for economic, legal, social, or technological considerations. Regarding the required findings that are identified above:

Economic. The economic cost of provision of local water to the project by Mesa Water would be no greater than would be by the City.

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Legal. There are no legal barriers to the provision of water by Mesa Water. Similar to the proposed project, annexation of service would be required through LAFCO.

Social. There are no social effects associated with Mesa Water providing water supply/service to the project.

Technological. Mesa Water has the ability to serve the project site without any additional technological considerations as compared to the City providing such service.

In the Orange County Local Agency Formation Commission (LAFCO) letter dated April 7, 2009, in which LAFCO commented on the Notice of Preparation (NOP), LAFCO stated that:

"..Project Description" should adequately address all other related changes of organization affecting any public agencies in the project area that may result from the development of the proposed planned communities and annexation to the City of Newport Beach. These should include, but are not limited to the discussion of the concurrent annexation of the area to the Mesa Water and/or the Costa Mesa Sanitary District."

"Water: The project area is currently not within the boundary of an agency that provides retail water services. The two agencies providing retail water services to surrounding areas are the City of Newport Beach and Mesa Water. The Draft EIR should identify and evaluate plans for the extension and delivery of retail water services to the project area."

Thus LAFCO, the agency with responsibility of identifying utility district and municipal annexations "create planned, orderly and efficient patterns of development (Govt. Code §56668)" has identified Mesa Water as one agency that may be in a position to provide orderly and efficient service to the Banning Ranch Development.

Conclusion:

In conclusion, the Draft EIR is deficient in that it does not include an alternative or a mitigation measure that would have evaluated the potential reduction of energy and other corresponding impact reductions associated with annexation into the Mesa Water for water service, which can serve the project with 100% groundwater resources. Use of local water supplies would: 1) reduce energy demand/consumption of the project (reference CEQA Guidelines Appendix F); 2) the reduced energy consumption would reduce state and region-wide air quality and greenhouse gas emissions; 3) reduction in GHG would reduce potential significant impacts associated with global climate change identified in the Draft EIR; and, 4) local water supplies would reduce impacts to the Bay Delta associated with the use of imported water through the State Water Project. Recirculation of the Draft EIR is required in order to provide a thorough analysis of these issues as it relates to the provision of water to the project. This is clearly stated in CEQA Guideline 15088.5(a) which states:

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"A lead agency is required to recirculate an EIR when significant new information is added to the EIR after public notice is given of the availability of the draft EIR for public review under Section 15087 but before certification."

Pursuant to CEQA Guideline 15088.5(a) (3), significant new information includes:

"A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the significant environmental impacts of the project, but the project proponents decline to adopt it.."

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In order to reduce the Project's cumulatively considerable contribution to the global GHG inventory, and its significant and unavoidable GHG emissions impact, the following feasible mitigation should be included in the EIR (Section 4.11.8 Mitigation Program):

MM 4.11.6 To reduce energy consumption and related greenhouse emissions, the City shall assure that domestic water service to the Project is provided to the greatest extent feasible from locally-produced groundwater sources rather than imported water supplies.

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Mesa Water encourages you to consider inclusion in the EIR analysis Costa Mesa Sanitary District's annexation to the project area. Costa Mesa Sanitary District promotes zero waste strategies to comply with SB 1016 and innovative wastewater technologies and solutions to protect the environment.

We thank you for the consideration of our comments and look forward to review of the re-circulated Draft EIR addressing these issues.

Sincerely,



Paul E. Shoenberger, P.E.
General Manager

Attachment A: Energy Consumption TM1

c: City of Costa Mesa
Costa Mesa Sanitary District
Orange County Local Agency Formation Commission

Attachment A

Technical Memo for Energy Intensity Analysis for Mesa Consolidated Water District

1. Introduction

Due to the geography and scarcity of water, Southern California relies on imported water and local water supplies for both potable and non-potable users. Mesa Consolidated Water District (Mesa Water) provides water service to more than 110,000 customers in an 18 square mile area. The service area includes the City of Costa Mesa, parts of Newport Beach, and some unincorporated sections of Orange County, including the John Wayne Airport. Mesa Water currently uses a mix of local groundwater and imported water from Northern California and the Colorado River. Starting next year, Mesa Water will use no imported water and projects that they will not need to use imported water at any point in the foreseeable future. A map of Mesa Water’s service area is shown below in **Figure 1**.

This technical memorandum provides a brief analysis of the energy required to import and treat imported water from the State Water Project (SWP) as well as energy required to extract and treat for color local groundwater. In this memo, the GHG emissions associated with that energy consumption are also estimated.

Energy consumption rates are known as energy intensity, which is the total amount of energy, calculated on a whole-system basis, required for the use of a given amount of water in a specific location. **Table 1** below shows the energy intensities for each water supply used by Mesa Water.

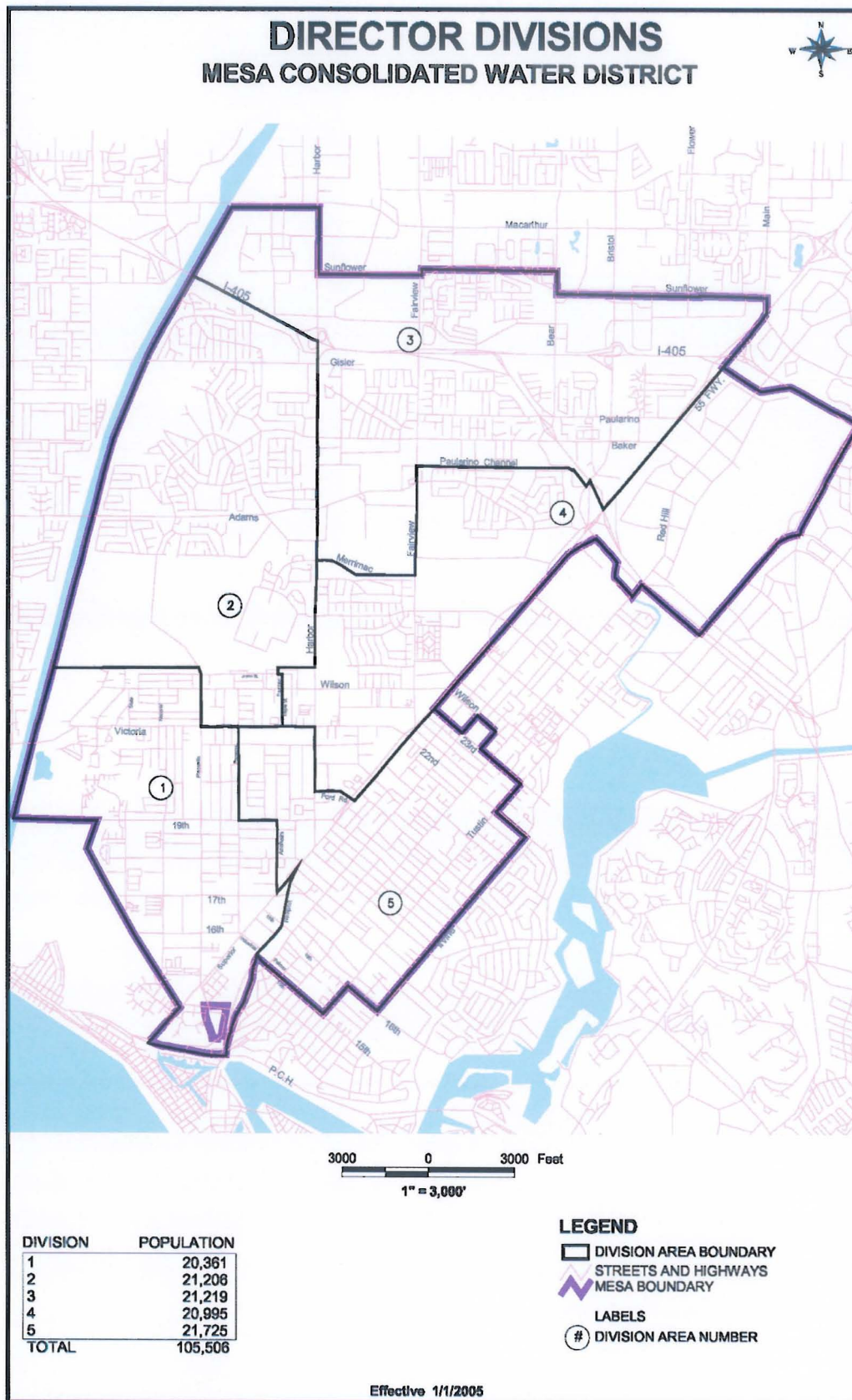
Table 1: Energy Intensities of Different Water Supplies (Mesa Water, 2011)

Supply	Percent	Total kWh/af	Notes
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Imported Weighted Average		3,105	Includes treatment energy
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	Groundwater Replenishment System Operation	29.1%	1,441	
	Total Groundwater Weighted Average		1,542	Pumping + CWTF (38%) + replenishment (62%)
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	Total Groundwater Weighted Average		1,585	Pumping + CWTF (38%) + replenishment (62%)
2020 – Onward	Santa Ana River Diversions	50.8%	50	
	Future imported water purchases	8.5%	3,105	
	Groundwater Replenishment System Operation	40.7%	1,441	
	Total Groundwater Weighted Average		1,610	Pumping + CWTF (38%) + replenishment (62%)

Figure 1. Mesa Water Service Area (Mesa Water Website, 2011)



As the population grew within Mesa Water District’s service area, Mesa Water has increased supply of water to customers. A significant effort has been increasing the use of groundwater and reducing the dependence on imported water as the supplies for Mesa Water’s customers. **Figure 2** below shows the annual water from imported and groundwater sources, over the past 44 years with projections of water supply from these sources over the next 5 years.

Figure 2. Total Distributed Water by Water Source - Mesa Consolidated Water District

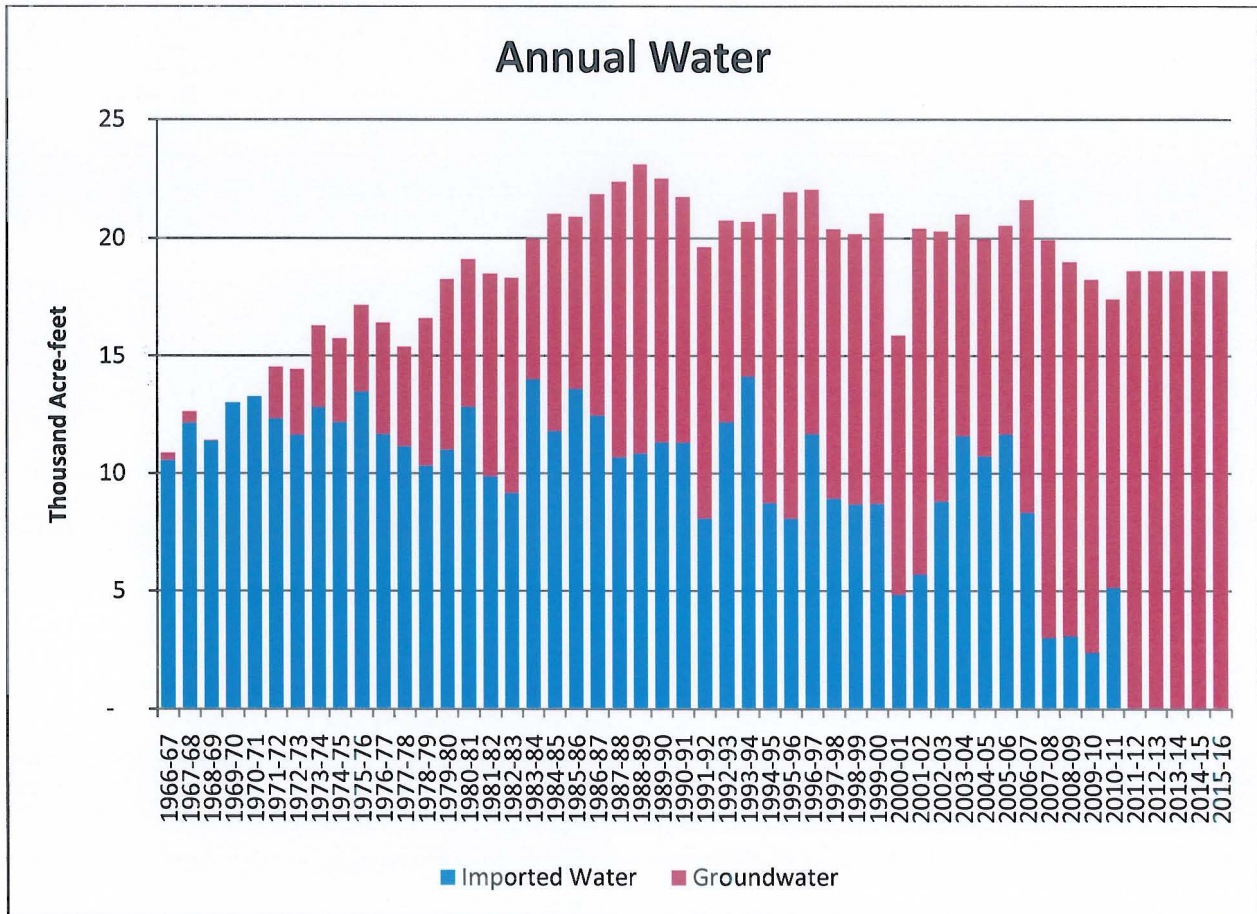
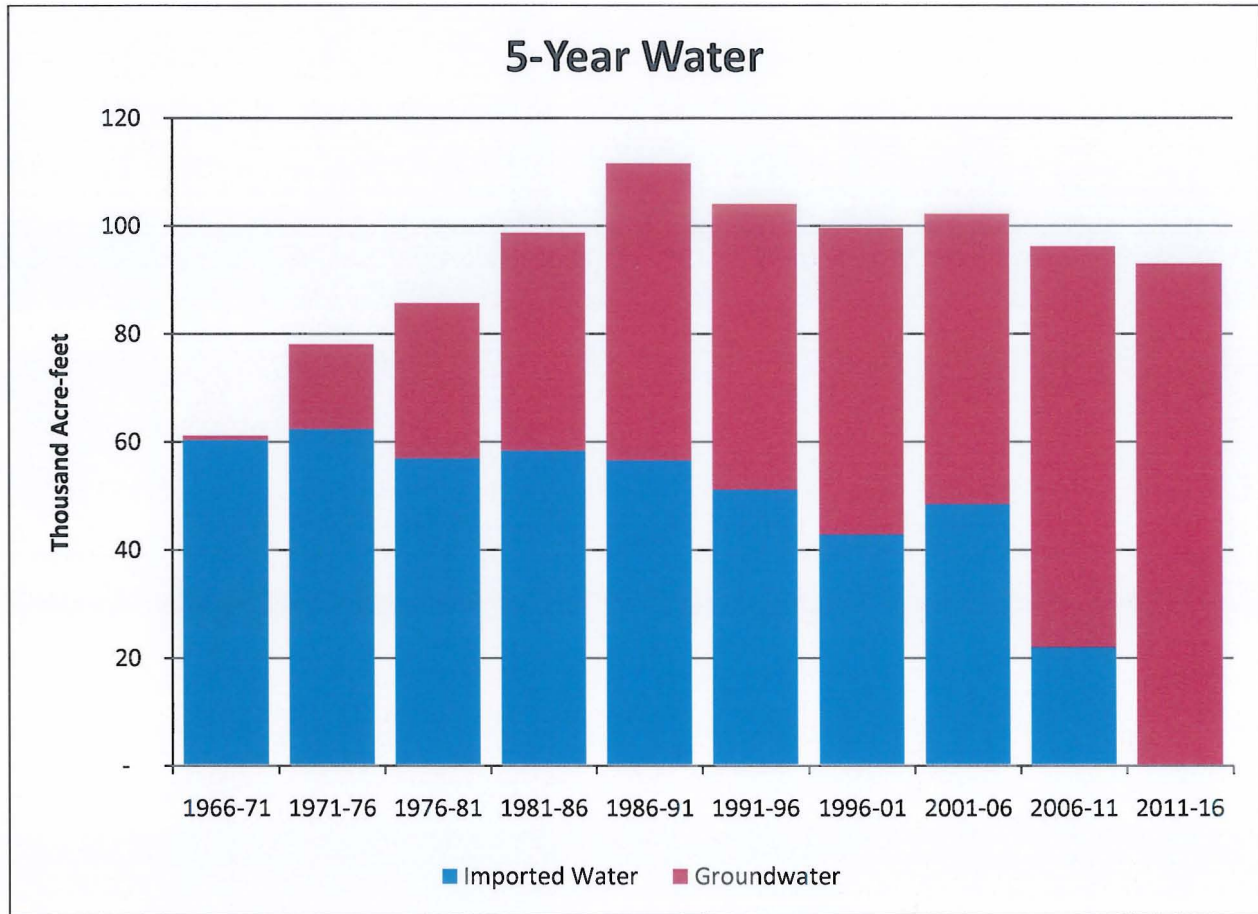


Figure 3 shows the 5-year totals of water from different water sources over the last 44 years with projections for the next 5 years.

Figure 3: Total Distributed Water by Water Source 5-Year Sums - Mesa Consolidated Water District



2. Imported Water

The Metropolitan Water District imports water from the California State Water Project (SWP) and from the Colorado River Aqueduct (CRA) which requires a large amount of pumping energy to overcome the adverse geography. The SWP is a state-owned system, managed by the California Department of Water Resources. The SWP provides supplemental water for agricultural and urban uses. SWP facilities include 1,200-plus reservoirs, which have a total storage capacity of more than 42.7 million acre feet (AF), 22 pumping and generating plants, and nearly 660 miles of aqueducts (CA SWP Website, 2011). SWP facilities are shown below in **Figure 4**.

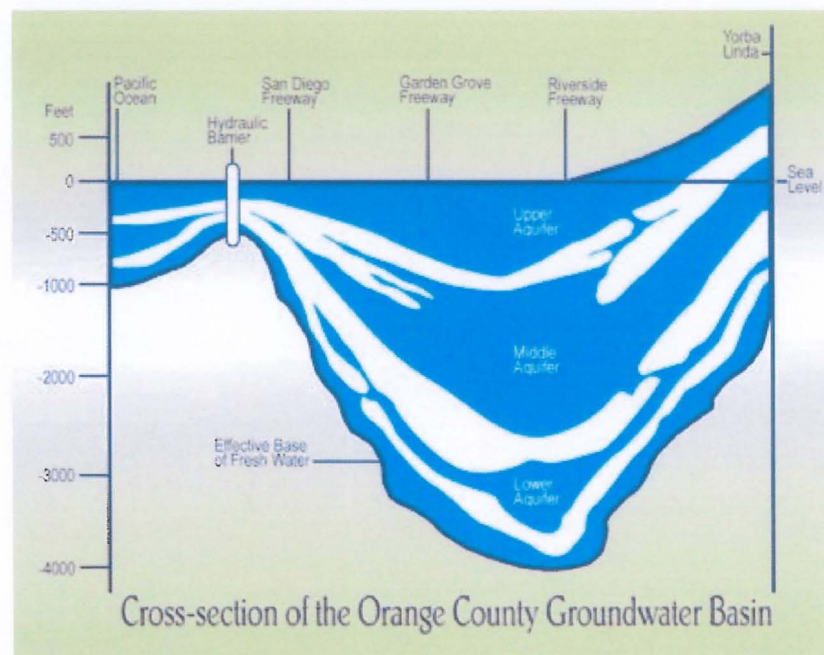
Figure 4. California State Water Project Facilities (CA SWP Website, 2011)


The SWP is the largest consumer of electrical energy in the state of California, requiring an average of 12.2 billion kWh per year to convey water through its aqueducts. On average, approximately 3,000 kWh is necessary to pump one AF of SWP water to southern California, and 2,000 kWh is required to pump one AF of water through the CRA to southern California (Wilkinson, 2007). For the last 5 years and 10 years, the average amount of CRA water brought to southern California has been approximately 38% of the total imported water and the amount of SWP water has been approximately 62% of the total. All water distributed to Mesa Water is treated by MWD, which requires approximately 490 kWh per AF to meet Title 22 requirements. Based on this, the weighted average energy intensity for water imported to Mesa Water is estimated to be approximately 3,105 kWh per AF (MWD, 2011). This energy intensity includes conveyance and treatment factors. Mesa Water's goal is to reduce their use of imported water to zero, solely relying on local groundwater supplies to meet demands. Mesa Water intends to meet this goal in 2012.

3. Groundwater

Mesa Consolidated Water District extracts water from eight groundwater wells, from Orange County's groundwater basin which underlies central Orange County from Irvine to the Los Angeles County border and from Yorba Linda to the Pacific Ocean. A representative section of the Orange County groundwater basin is shown below in **Figure 5**. It is replenished by water from the Santa Ana River, which is the main contributor and imported water purchased from the Metropolitan Water District of Southern California.

Figure 5. Cross-section of the Orange County Groundwater Basin (Mesa Water Website, 2011)



The Orange County Groundwater Basin includes a portion of the aquifer where the water is an amber color resulting from the buried ancient redwood forests that used to grow in the area. In the early 1980's, Mesa Water District became the first water supplier in Orange County to treat and distribute colored water. In 1998, Mesa Water opened its Colored Water Treatment Facility (CWTF) and reduced the district's reliance on costly imported water. The facility produces and treats five million gallons of amber colored water per day via two groundwater wells. The facility also helps to keep the amber tinted water from seeping into our region's clear-water reserves.

As stated above in **Table 1**, the energy intensity to extract and distribute groundwater to consumers is approximately 650 kWh per AF. In addition to the energy intensity required to extract and pump groundwater, the total energy intensity of the groundwater includes replenishment from 3 different sources. Orange County Water District (OCWD) replenishes the groundwater basin by means of diverting Santa Ana River flows, purchasing imported water and recycling water via their Ground Water Replenishment System (GWRS). The energy intensities of these water sources are, respectively 50 kWh per AF, 3105 kWh per AF, and 1441 kWh per AF (OCWD, 2011). Note that the colored groundwater

is not actively replenished by OCWD and, therefore, use of this groundwater does not include the replenishment energy expended by OCWD. However, to use colored groundwater, it is necessary to treat it to remove the color. Currently, the CWTF treatment process adds about 1,550 kWh per AF to the energy intensity of extracted amber-colored groundwater. The efficiency of this treatment process will be improved by mid 2012 to only 1,100 kWh per AF (Mesa Water, 2011). Additionally, in 2012, Mesa Water will have the capability of treating sufficient quantities of colored groundwater to replace imported water in its entirety. Figures 2 and 3 show the groundwater use and imported water use for the last 44 years plus the projected uses for the next 5 years.

4. Energy Intensity

Energy consumption associated with using local groundwater supplies, even with some of those local groundwater supplies being treated to remove color, results in lower energy consumption than when importing water. The energy intensities from Table 1 were used to estimate the energy consumption associated with the different mixes of water supplies Mesa Water has used for the last 44 years. The energy consumption estimates were also applied to the projected water supplies Mesa Water is expecting to use for the next 5 years. **Figure 6** shows the estimated annual energy consumption for imported water and groundwater and the total estimated annual energy consumption. **Figure 7** shows the 5 year estimated energy consumption.

Figure 6. Estimated Annual Energy Consumption for Groundwater and Imported Water used by Mesa Water.

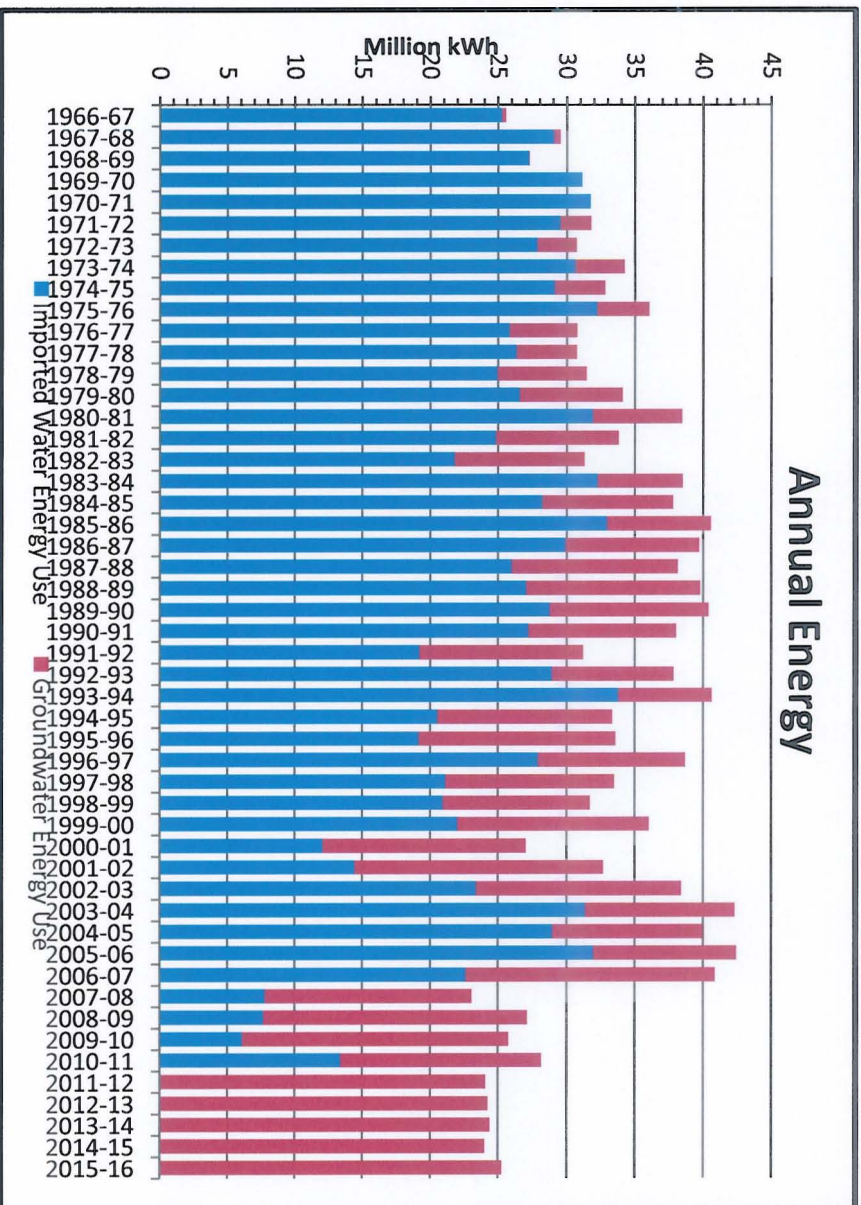
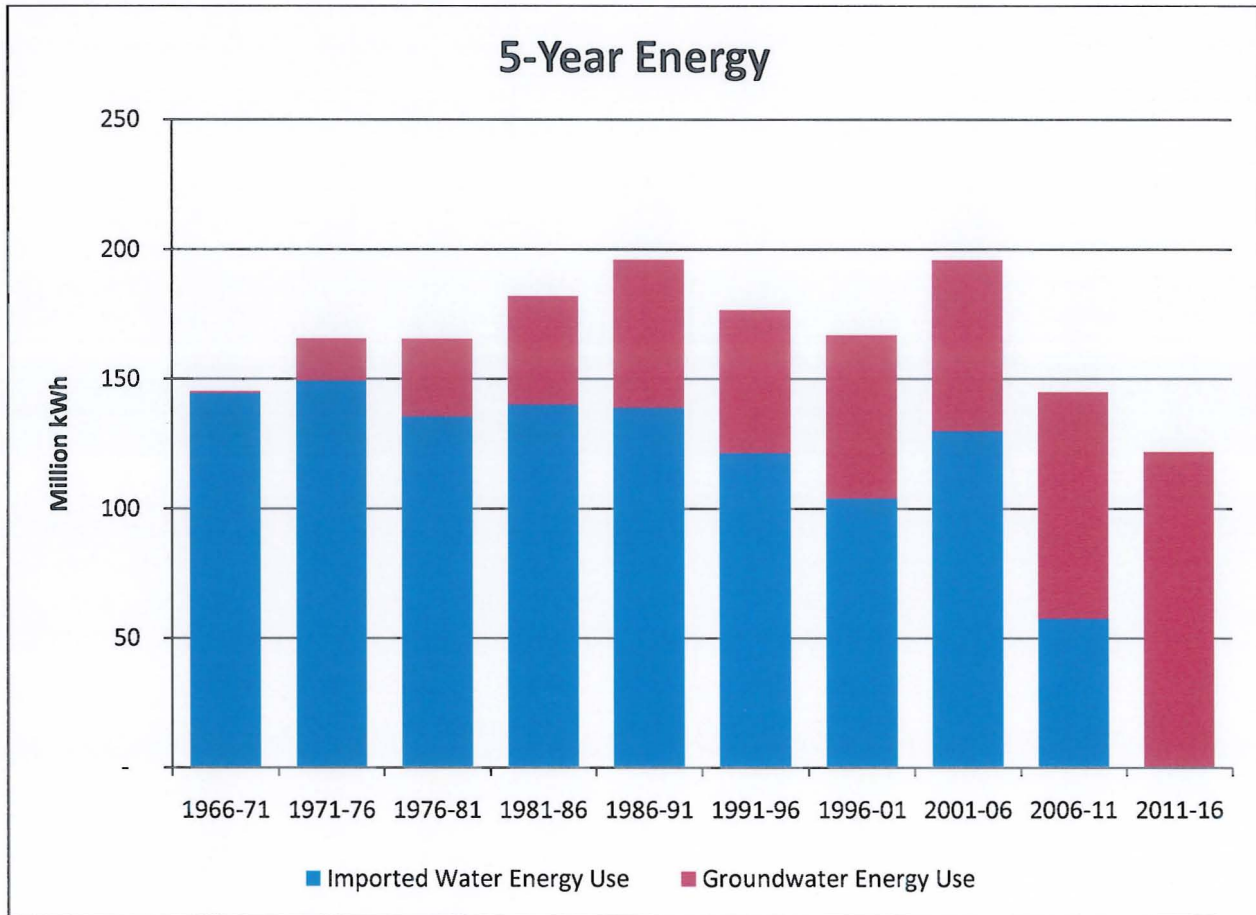


Figure 7. Estimated 5-Year Energy Consumption for Groundwater and Imported Water used by Mesa Water.



5. Greenhouse Gas Emissions

A greenhouse gas (GHG) is a gas in an atmosphere that absorbs and emits radiation within the thermal infrared range. One GHG is carbon dioxide. Carbon dioxide is the primary GHG produced during electricity production. GHG emission factors or rates associated with electricity consumption are an estimate of the amount of carbon dioxide (CO₂) emitted per kilowatt-hour of electricity. The Pacific Gas and Electric Company (PG&E) has the most readily available published estimates of average GHG emission factors since 2003. PG&E estimates average emission factors each year since 2003 based upon all the sources of electricity that PG&E delivered to customers during a specific year. PG&E was among the earliest companies to voluntarily quantify and report its GHG emissions using rigorous, publicly-vetted GHG reporting stands. Prior to 2003, there were no commonly-accepted guidelines to report the GHG emission factors from a utility. Prior to 2003 it is possible to calculate GHG emissions from electricity use by using a factor from a study published in 1990 by Lawrence Berkeley National Laboratory which cites an emission factor of 0.566 lbs CO₂/kWh. The average GHG emission factors which PG&E has produced since 2003 have been authorized by the California Public Utilities Commission in Decision 06-12-032. GHG emission factors from electricity use provided by PG&E are shown below in Table 2.

Table 2. GHG Emission Factors from Electricity Use Provided by PG&E

Greenhouse Gas Emission Factors		
Emission Type	Emission Factor	
	Year	lbs CO ₂ /kWh
Historical Emissions	1990	0.566
	2003	0.620
	2004	0.566
	2005	0.489
	2006	0.456
	2007	0.636
	2008	0.641
	2009	0.575
Current Emissions	2010	0.559
	2011	
Future Emissions (Estimated)	2012	0.453
	2013	0.431
	2014	0.412
	2015	0.391
	2016	0.370
	2017	0.349
	2018	0.328
	2019	0.307
	2020	0.290

Using an emission factor of 0.566 for all years before 1990, linearly interpolating between 1990 and 2003, and using the designated GHG emission factor for each corresponding year above, the GHG emissions from electricity use by Mesa Water District for each water supply over the past 44 years are shown below in **Figures 8 and 9**. **Figure 8** shows estimated annual emissions. **Figure 9** shows estimated 5-year emissions.

Figure 8. Estimated Annual GHG Emissions from Electricity Use by Mesa Water for Each Water Supply

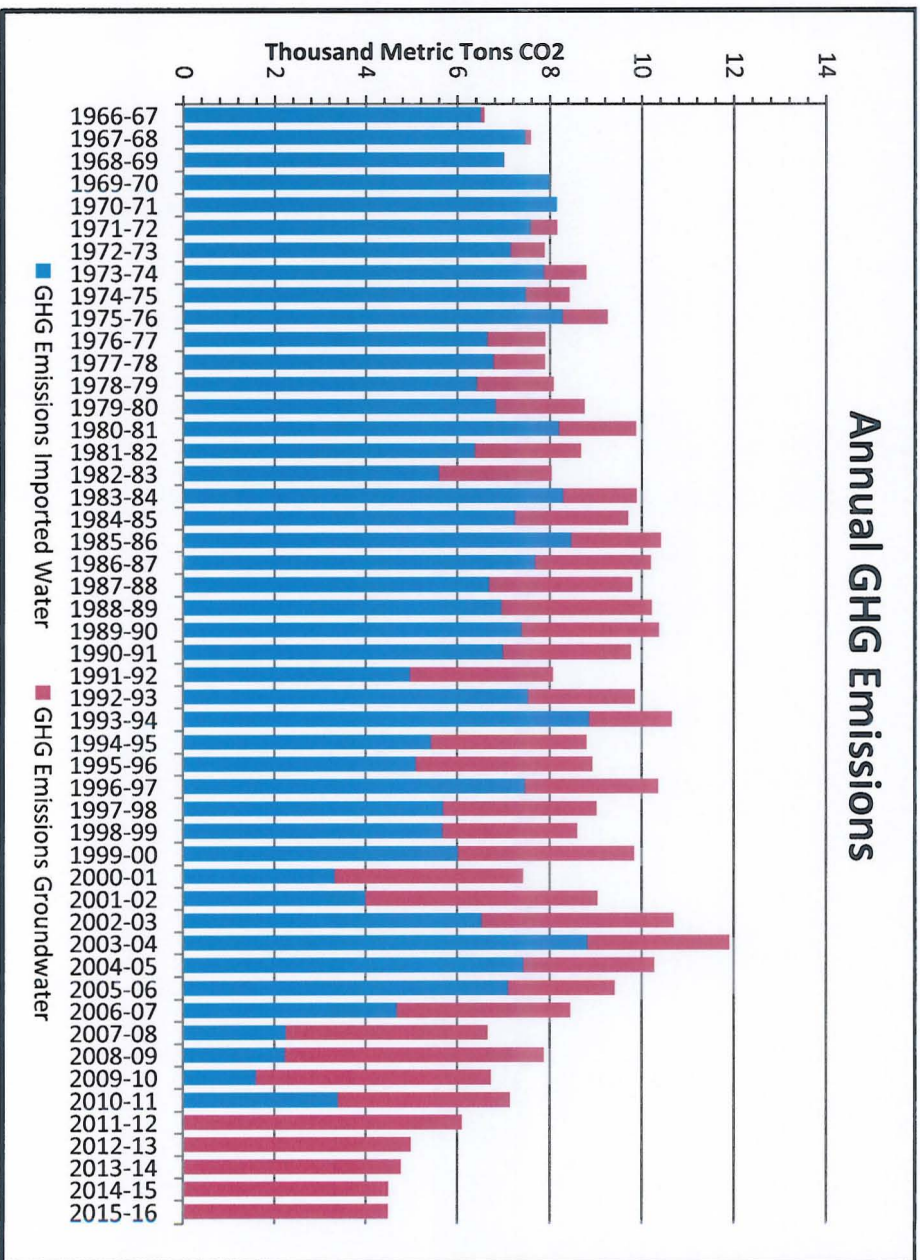
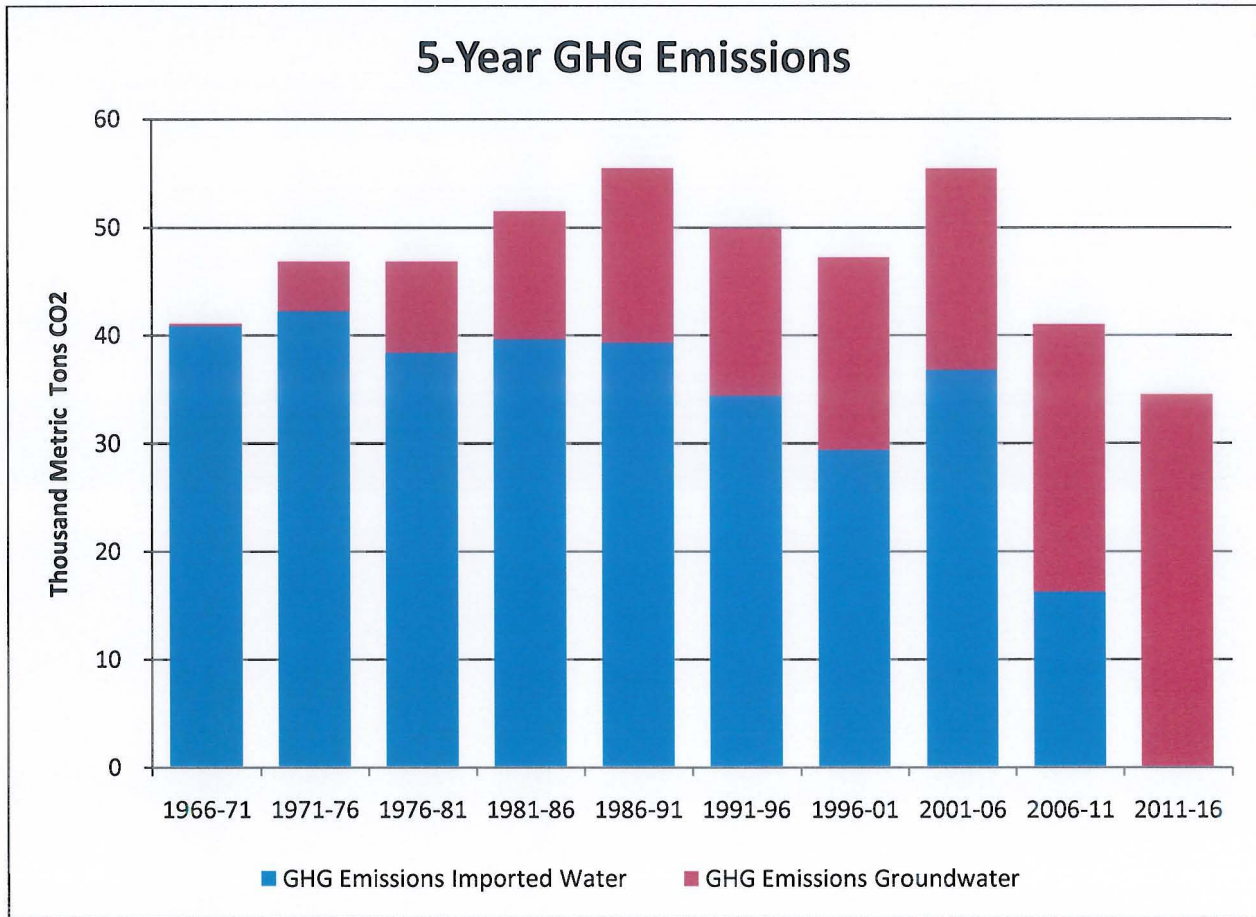


Figure 9. Estimated 5-Year GHG Emissions from Electricity Use by Mesa Water for Each Water Supply



6. Conclusion

The projected estimated energy consumption and GHG emissions for 2011-2016 is approximately 84% of the estimated energy consumption and GHG emissions for 2006-2011 and 62% of the estimated energy consumption and GHG emissions for 2001-2006. Mesa Consolidated Water District will conserve energy and reduce GHG emissions by using local groundwater resources rather than imported water through the California SWP. By developing the local groundwater supplies through investing in the colored water treatment plant, Mesa Water will reduce statewide energy consumption and GHG emissions by more than half from historical energy consumption and GHG emissions.

When considering the additional 613.5 acre feet per year of water demand projected for the Newport Banning Ranch development and the projected GHG production of approximately 0.24 metric tons CO2 per acre foot of water delivered from Mesa Water using entirely groundwater resources, the total GHG production to service the Newport Banning Ranch from Mesa Water is projected to be approximately 147.7 metric tons CO2 per year.

Note that all values presented in this document are based on operational analyses conducted by agencies referenced. All values are subject to change based on re-evaluation of current or future operations.

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