

WATERSMART: DROUGHT RESPONSE PROGRAM: DROUGHT CONTINGENCY PLANNING
FOR FISCAL YEAR 2017
BOR-DO-17-F009

TECHNICAL PROPOSAL
SOUTHERN CALIFORNIA EDSION CATALINA WATER SYSTEM
DROUGHT CONTINGENCY PLAN

Los Angeles County, California
Santa Catalina Island

Version:
February 2017

Prepared for:
Department of the Interior
Bureau of Reclamation, Policy, and Administration

Prepared by:
Southern California Edison

Table of Contents

1.0 Executive Summary	3
2.0 Background Data	6
Objective Statement	6
Background	6
Water System Overview	11
3.0 Project Description	14
Schedule Estimate.....	15
4.0 Evaluation Criteria	15
E.1.1 Evaluation Criterion A: Need for a Drought Contingency Plan.....	15
E.1.2 Evaluation Criterion B: Inclusion of Stakeholders.....	18
E.1.3 Evaluation Criterion C: Project Implementation.....	19
E.1.4 Evaluation Criterion D: Nexus to Reclamation	22
5.0 Supporting Documentation	23
D.2.2.6 Letters of Support and Collaboration.....	23
D.2.2.7 Required Permits or Approvals	23
D.2.2.8 Official Resolution	23
D.2.2.9 Project Budget	23
D.3 Unique Entity Identifier	26
6.0 List of Appendices.....	27
References	28

1.0 Executive Summary

Date: February 2017

Applicant Name: Southern California Edison – Catalina

Applicant City, County, State: Avalon, Los Angeles County, California

Project Location: Catalina Water Service Area; Santa Catalina Island, California

Project Name: Catalina Drought Contingency Plan

Project Duration: 24 months

Total Estimated Costs: \$ 200,000

Non-Federal Entity Costs: \$ 0 by SCE

Federal Entity Costs: \$200,000 by USBR

Federal Facility: The project is not located on a Federal Facility.

Funding Group: Task A

Southern California Edison (SCE) as the sole owner and operator of all water supplies and water infrastructure on Santa Catalina Island, seeks support to build long-term resiliency to the ongoing drought and climate change. SCE has identified the United States Bureau of Reclamation, Drought Response Program, Drought Contingency Plan as a project that will directly contribute to the goals of this Drought Response funding opportunity. As with any emergency and to the extent possible, proactive planning is far more cost effective than emergency response. According to FEMA, mitigation, that is taking steps ahead of time to prevent known impacts from a natural disaster such as a drought, saves four dollars for every one dollar expended. Applying this same principle through a collaborative approach with Island stakeholders and incorporating ongoing drought mitigation planning efforts, SCE proposes to formalize its Drought Contingency Plan to meet the Drought Response Program Framework developed by USBR.

The purpose of this proposal is to obtain funding from the Department of the Interior, Bureau of Reclamation, Policy, and Administration to facilitate timely completion of these initiatives while minimizing the rate impacts to the small and disadvantaged customer base on Catalina Island.

The six required elements for the Drought Contingency Plan are as follows:

- Drought Monitoring
- Vulnerability Assessment
- Mitigation Actions
- Response Actions
- Operational and Administrative Framework
- Plan Update Process

The plan will consider all of the distribution systems on the island as summarized in Table 1-1

Table 1-1: Catalina Island Water Utility System Overview

System	Historical Percent (%) of Island Water Use
Avalon / Middle Ranch	81%
West End	4%
Isthmus	7%
Blackjack-Airport	1%
White's Landing	4%
Toyon	3%

Figure 1-1: Catalina Island Water Facilities



SCE requests a cost share reduction or waiver as is allowed per the application guidelines based on the following conditions being met:

- Financial Hardship based on the median household income within the study area of 42,000 per the City of Avalon Income Survey, 2016.

The USBR should prioritize this project as it supports the need of community with a water supply that is severely at risk due to these identified risk factors:

- Current drought impacts result in 25% -50% water use reduction
- Isolated Island community with no other water source
- Stakeholder tension due to the current water shortage crisis
- Public health concerns associated with water use resulting from levels of rationing

Table 1-2: Milestone Schedule

Task Name	Finish
Notice of Grant Award	6/1/17
Due Diligence	8/9/17
30%	1/20/18
60%	6/20/18
90%	12/26/18
100%	3/31/19
Implementation	5/1/19
Project Close Out	6/1/19

The total cost to complete these project is estimated at \$200,000.00.

2.0 Background Data

2.1 Objective

Southern California Edison (SCE) has identified the need for a Drought Contingency Planning project that will directly contribute to the goals of this Drought Response funding opportunity. SCE understands that through this grant opportunity Reclamation seeks to support collaborative planning efforts that use a proactive approach to build long-term resiliency to drought. Drought Contingency Plans developed under this program are required to include participation by multiple stakeholders to encourage more comprehensive plans that address issues important to different sectors (e.g., agricultural, municipal, and environmental). Participation by multiple stakeholders will also broaden support for mitigation and response actions identified in the plans. In addition, Drought Contingency Plans developed under this FOA must include consideration of climate change impacts to water supplies, in order to support long term resiliency to climate change.

The purpose of this proposal is to request funding to offset the capital required to ensure timely completion of this drought response initiative with minimal impacts to the small customer base on Catalina Island.

2.2 Background

In 1962, Southern California Edison (SCE) acquired all water utility infrastructure and all water rights for Santa Catalina Island from the Santa Catalina Island Company (SCIC). Southern California Edison also supplies Electric and Gas utilities to the island.

Some of the unique challenges faced by developing and operating the water utility on Catalina Island include:

- Location: located 22 miles off the California mainland with no physical connections to the mainland; Island is limited to domestic water resources
- Infrastructure: Aging infrastructure
- Population: Steady population growth since 1970s, placing strain on limited resources and aging infrastructure
- Customers: A small customer base compared to water system operational demands; 2016 survey results identify the City of Avalon as a Disadvantaged Community (City of Avalon 2016)
- Demand: Seasonal fluctuations in tourist counts cause water sales to significantly increase during peak season summer months.
- Climate: A semi-arid climate with normally sparse rainfall
- Topography: Quick changes in elevation, steep hillsides, and canyons cause rainfall to runoff the soil and flow into the ocean. Topography also creates many challenges for operating or extending pipelines to connect remote locations to the larger and more

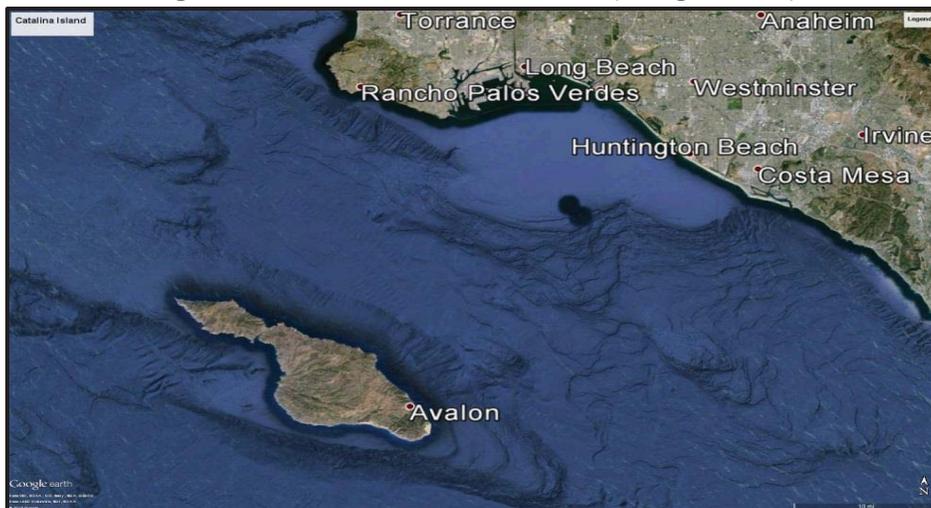
reliable supply systems. Alluvial deposits of silt, sand, and gravel that can form significant aquifers are normally found only in the narrow canyon bottoms and are only a few tens of feet thick

- Preservation: Nearly all of the island's land is managed to preserve the natural environment

2.2.1 Location

Santa Catalina Island is situated 22 miles off the coast of Southern California, southwest of Los Angeles in Los Angeles County, California. The island has an area of 75 square miles. While the majority of the population resides in the small town of Avalon, remote developments and campgrounds require water to be delivered island-wide. All water development must occur from island resources as it is impracticable to connect the island to other water resources on the mainland.

Figure 2-1: Catalina Island Location (Google Earth)



2.2.2 Infrastructure

Like many other water systems, aging infrastructure and components yield energy and water inefficiencies, and can adversely impact the local environments. Some of these inefficiencies include the manual monitoring of subsystems (meters, pressures stations, weather stations, treatment systems, and reservoir level), an inability to isolate water losses, and increased reliance on operator intervention rather than an automatic set point/alarm/action. The impact of aging infrastructure magnifies with a growing population, fluctuating demand, and more stringent regulatory requirements.

2.2.3 Population

In 2010, the United States Census Bureau recorded the population of Catalina Island at 4,096 and it is estimated to be higher than that today. In the last forty years, the population has increased

on average 28.9% per decade. Applying this average trend to the year 2020, the population is estimated to be roughly 5,279.

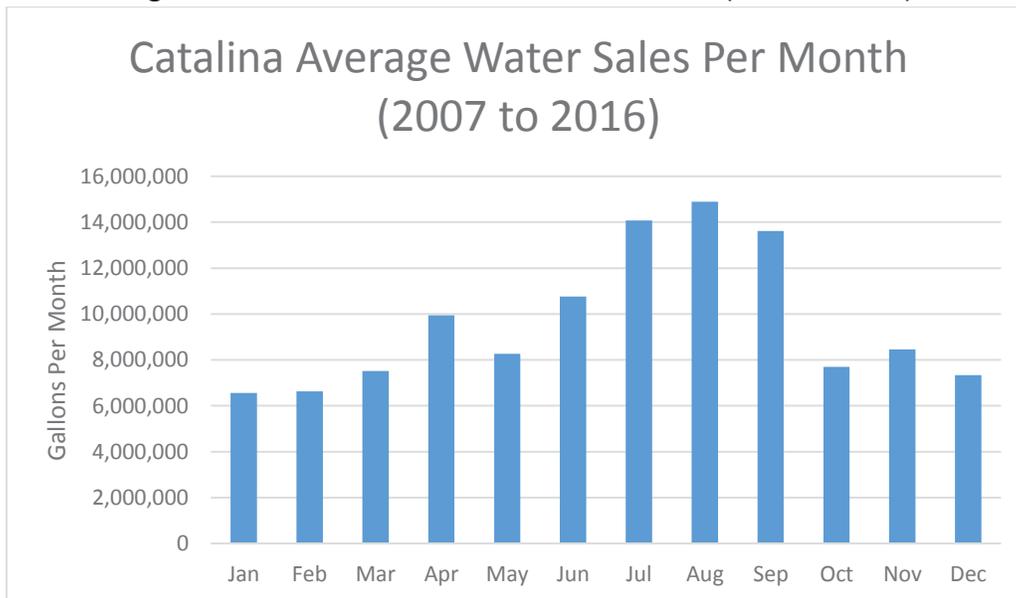
2.2.4 Customers

There are only 2,000 or so water service accounts across all of SCE’s Catalina water system. During the peak demand periods, when visitor travel to the island is at its highest (holidays, weekends, and the summer months), the population can swell to over 10,000 on a given day (Catalina Island Chamber of Commerce and Visitors Bureau 2016). In 2015 alone, 974,640 tourists visited the island, with the majority visiting between June and September (Catalina Island Chamber of Commerce and Visitors Bureau). The variation between tourists and residents provide unique challenges in best developing a system to support the surge in demand while minimally impacting the small customer rate base. On October 4, 2016, City of Avalon City Council reported Community Wide Income Survey Results that proves the City of Avalon is a Disadvantaged Community. The Survey report is included in Appendix 3.

2.2.5 Demand

June through September typically correlate with peak season on the island, while October through May are considered off-season. The gallons sold per month increases by 71% on average when comparing off-season to peak-season. This variability further magnifies the issues experienced by antiquated components during peak seasons. The island economy relies heavily on tourism and the increased water demand during the peak season.

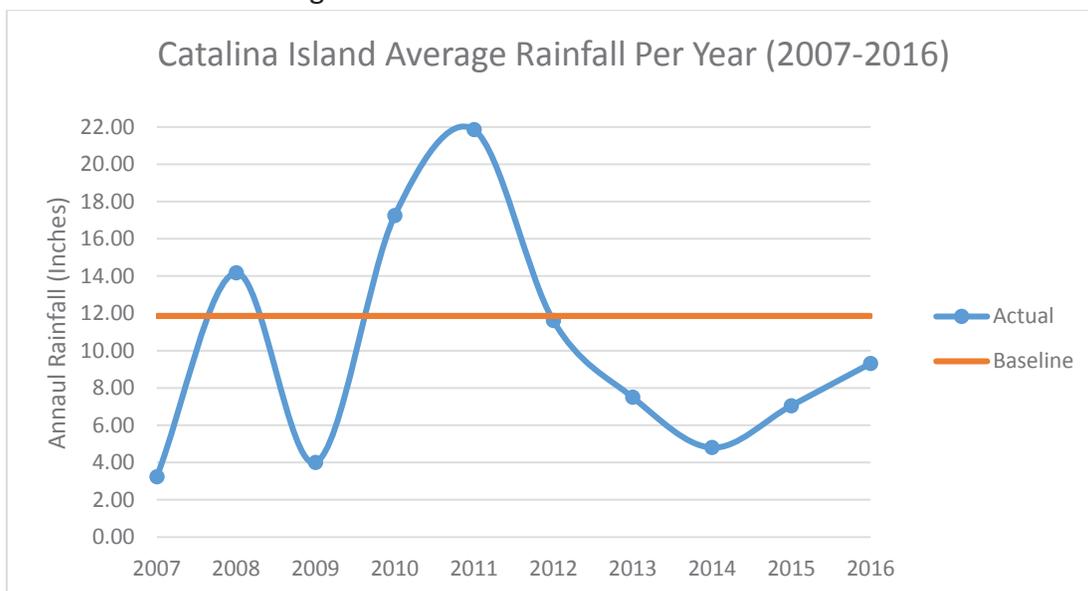
Figure 2-2: Catalina Island Water Sales Trends (2007 to 2016)



2.2.6 Climate

Santa Catalina Island enjoys a Mediterranean climate that is characterized by warm temperatures throughout the year. The close proximity to Pacific Ocean keeps the highs and lows more tolerable compared to the California mainland. Based on data obtained from the Western Regional Climate Center, the annual average maximum temperature and average minimum temperature from 1948 through May 2016 was 67.7°F (19.8 °C) and 53.6°F (12 °C), respectively. While warm year-round, slightly warmer temperatures have still been recorded during the traditional summer months (June to August). Catalina ocean temperatures are some of the warmest of all California. This attractive climate contributes to the increase water demand during the peak season. Historic annual precipitation on Catalina Island is 11.86 inches per year (U.S. Climate Data 2017). However, the amount of annual rainfall can vary widely making the island susceptible to prolonged droughts. Due to the current historic Catalina drought, rainfall has been significantly less; since 2013, Catalina achieved 40% less rainfall per year on average compared to the baseline of 11.86 inches. This has led to the reservoir levels being at their lowest in recorded history. The drought impacts on the island water resources have further magnified the issues experienced by antiquated components, particularly during peak seasons.

Figure 2-3: Catalina Island Rainfall Trends



Recent drought cycles have impacted the water resources available and in turn required customers to ration their water use. Feedback from the community previously is that businesses cannot sustain any lower than 25% water reduction and that even at this level, this can only be a temporary condition and not recurring as currently experienced. The primary indicator for water resources on the island is the Thompson Reservoir, also referred to as Middle Ranch Reservoir (MRR). Due to recent rain events, as of February 9, 2017, the Middle Ranch Reservoir water level was 287 Acre Feet (25% full).

Table 2-1: Water Rationing, Stage and Mandatory Use Reduction (2013-Current)

Thompson Reservoir Water Level (acre-feet)	Mandatory Conversation and Rationing	Mandatory Water Use Reduction	Date Activated
600+	Not Applicable	Not Applicable	Not Applicable
300-599	Stage 1	Not Applicable	June 2013
200-299	Stage 2	25%	August 2014
50-199	Stage 3	25%-50%	September 2016
0-49	Stage 4	75%	Not Applicable

Sources: (Southern California Edison, *Catalina Island: Stage 2 Mandatory Water Conservation and Rationing Fact Sheet*; Avalon City Council; Southern California Edison, “Catalina Island Water Services”).

2.2.7 Topography

Water resource development is hampered by the scarcity of roads, rugged topography, and designation of a conservation area. Steep canyons and elevation changes characterize the majority of the cross-island terrain. There are few locations with significant aquifers. For this reason the production wells located adjacent to the Middle Ranch Reservoir (elevation 668 feet), and auxiliary treatment (elevation 1019 feet) and storage (elevation 1,420 feet) systems support the majority of island customers at the lesser elevations. During drought periods, the primary demand area of Avalon is supported by a desalination treatment facility located at Pebbly Beach in the City of Avalon (elevation 30 feet). Infrastructure limitations complicated by the rugged topography prevent desalinated water supply to all the customers normally served by the Middle Ranch production wells. The Catalina Island water system is comprised of a number of small, isolated systems and one large service area around the City of Avalon. The isolated systems are miles apart and difficult to access. Operators rely on four wheel drive vehicles to transport across the rugged terrain, dirt roads, and steep grades access water system facilities. Tanks, wells, pump stations and pipelines all require regular monitoring and maintenance, much of which is performed manually in the remote areas. This is very time consuming and requires vehicle travel throughout the nature preserve, as frequent as daily.

2.2.8 Preservation

The challenges of adding new systems, pipelines, wells, tanks, are furthered by the development limitations associated with the land owned by the Catalina Island Conservancy (roughly 88% of the island). In this area, any future development requires lengthy review processes with strict limitations on construction and operation to ensure no adverse impact to the local environment.

2.3 Water System Overview

The Avalon System is detailed in Table 2-2 showing its relationship to the multiple systems that make up the Catalina Island Water Utility. The purpose of this initiative is to build long-term resilience to the ongoing drought and reduce the need for emergency response actions by better enabling the Catalina Island community to cope with and respond to the drought.

Table 2-2: Catalina Island Water Utility System Overview

System	Description
Avalon	<p style="text-align: center;"><u>Middle Ranch Reservoir & Wells</u></p> <ul style="list-style-type: none"> • Highest production capacity • Supports Avalon, Hamilton Cove, and Middle Ranch Distribution • Severely Impacted by Drought <p style="text-align: center;"><u>Desalination Facility</u></p> <ul style="list-style-type: none"> • Moderate production capacity • Primary system for Avalon (not including Hamilton Cove) during drought cycles • Not impacted by drought; experiences production and storage constraints
West End	<ul style="list-style-type: none"> • Supports Howlands, Two Harbors Distribution • Severely Impacted by Drought
Isthmus	<ul style="list-style-type: none"> • Small production capacity, meets demand • Supports MGT, Cottonwood, Sweetwater Distribution • Severely Impacted by Drought
Blackjack-Airport	<ul style="list-style-type: none"> • Small production capacity, meets demand • Supports Airport Distribution • Severely Impacted by Drought
White's Landing	<ul style="list-style-type: none"> • Small production capacity, meets demand • Supports Whites Landing Distribution • Severely Impacted by Drought
Toyon	<ul style="list-style-type: none"> • Small production capacity, meets demand • Supports Toyon Distribution • Severely Impacted by Drought

Figure 2-4: Catalina water system



3.0 Project Description

SCE, in cooperation with Catalina Island stakeholders and the USBR proposes to complete a Drought Contingency Plan according to the six required elements of a Drought Contingency Plan based on the 10-Step Drought Planning Process developed by the NDMC,³ which has been applied by states, tribes, and countries around the world. Building on this approach, Reclamation has added a requirement that Drought Contingency Plans incorporate climate change information as part of conducting a Vulnerability Assessment. These requirements include the six elements of a Drought Contingency Plan and will comprise the major milestones of the Plan as described below.

The proposed Catalina Island Drought Contingency Plan will address each of the six USBR required elements as follows:

1. Drought Monitoring— the plan will establish a process for monitoring near and long-term water availability, and a framework for predicting the probability of future droughts or confirming an existing drought. This includes a process for the collection, analysis, and dissemination of water availability and other drought-related data (e.g., precipitation, temperature, and streamflow levels, among other indicators). The plan will also explain how the data will be used to predict or confirm droughts, including identifying metrics and triggers (e.g., reservoir level reached at a specific reservoir and use of specific drought indices) that may be used to define stages of drought, to trigger mitigation or response actions, and to define the different stages or levels of severity of drought.
2. Vulnerability Assessment — the plan will include a vulnerability assessment evaluating the risks and impacts of drought. A vulnerability assessment is an assessment of the risks to critical resources within the planning area and the factors contributing to those risks. Assessments will drive the development of potential mitigation and response actions. The assessment will be based on a range of future conditions, including the effects of climate change.
3. Mitigation Actions— the plan will identify, evaluate, and prioritize mitigation actions and activities that will build long-term resiliency to drought and that will mitigate the risks posed by drought. Mitigation measures are actions, programs, and strategies implemented before drought to address potential risks and impacts. These actions are outside of regular water management activities and are intended to decrease sector vulnerabilities and reduce the need for response actions.
4. Response Actions— the plan will identify, evaluate, and prioritize response actions and activities that can be implemented quickly during a drought. Response actions are different than mitigation measures in that they are triggered during specific stages of drought to manage the limited supply and decrease the severity of immediate impacts. Response actions can be quickly implemented and provide expeditious benefits.
5. Operational and Administrative Framework—An operational and administrative framework will be developed to identify who is responsible for undertaking the actions necessary to implement each element of the plan, including communicating with the

public about those actions. At a minimum, the operational and administrative framework should identify roles, responsibilities, and procedures necessary to:

- Conduct drought monitoring
 - Initiate response actions, including emergency response actions
 - initiate mitigation actions
6. Plan Update Process — the plan must describe a process and schedule for monitoring, evaluating, and updating the plan.

3.1 Schedule Estimate

The project is estimated to take 24 months from grant award to complete as summarized in Table 3-1.

Table 3-1: Project Milestone Schedule

Task Name	Finish
Notice of Grant Award	6/1/17
Due Diligence	8/9/17
30%	1/20/18
60%	6/20/18
90%	12/26/18
100%	3/31/19
Implementation	5/1/19
Project Close Out	6/1/19

4.0 Evaluation Criteria

E.1.1. Evaluation Criterion A – Need for a Drought Contingency Plan

Describe the severity of the risks to water supplies that will be addressed in the Drought Contingency Plan.

Since 2000, Catalina Island customers have been subjected to numerous phases of conservation and rationing. Currently the customer is faced with Stage 3 Rationing as detailed in Table 2-1. Recent drought cycles have impacted the water resources available and in turn required customers to ration their water use. Feedback from the community previously is that businesses cannot sustain any lower than 25% water reduction and that even at this level, this can only be a temporary condition and not recurring as currently experienced. The primary indicator for water resources on the island is the Thompson Reservoir, also referred to as Middle Ranch Reservoir (MRR). As of February 9, 2017, the Middle Ranch Reservoir water level was 287 Acre Feet.

Table 2-1: Water Rationing, Stage and Mandatory Use Reduction (2013-Current)

Thompson Reservoir Water Level (acre-feet)	Mandatory Conversation and Rationing	Mandatory Water Use Reduction	Date Activated
600+	Not Applicable	Not Applicable	Not Applicable
300-599	Stage 1	Not Applicable	June 2013
200-299	Stage 2	25%	August 2014
50-199	Stage 3	25%-50%	September 2016
0-49	Stage 4	75%	Not Applicable

Sources: (Southern California Edison, *Catalina Island: Stage 2 Mandatory Water Conservation and Rationing Fact Sheet*; Avalon City Council; Southern California Edison, “Catalina Island Water Services”).

Because Catalina is an isolated island, in the event of an interruption to water supplies, there are no feasible alternative sources of water other than enhancements to existing systems to achieve greater production capacities through desalination or deeper groundwater wells.

Whether there are environmental concerns, such as existing or potential impacts to endangered, threatened or candidate species.

The proposed planning effort will not adversely affect the Santa Catalina Island fox or any other species listed under the Federal Threatened or Endangered Species Act. In fact, completing the Drought Contingency Plan may benefit local watersheds and this endangered species by potentially reducing water extractions. The Santa Catalina Island Fox is classified by the U.S. Fish and Wildlife Service as a threatened species (Fish and Wildlife Service 2016).

The County of Los Angeles has established Significant Ecological Areas (SEAs) throughout the island to protect biological resources. The Conservancy manages the majority (88 percent) of the island and, as part of the Conservancy management plan, there is limited human access and activities to minimize adverse effects to plants, wildlife, soils, and water quality.

“In addition to the County established SEAs, the County of Los Angeles considers the biological resources in the Santa Catalina Island Coastal Zones to be of significance. The management and review of biological resources in the Coastal Zones differs from the countywide Significant Ecological Area regulatory program. Biological resource management and regulation in the Santa Catalina Island Coastal Zone is implemented through the Santa Catalina Island Local Coastal Program”, (County of Los Angeles, Department of Regional Planning, Policy Map, February, 2015).

Whether there are local economic losses (past, ongoing, or potential) associated with drought conditions (e.g., business, agriculture, reduced real estate values) and tensions between stakeholders.

While the local economic losses due to the ongoing drought have not been statistically analyzed there has been a continued rise in tension levels of the residents and business owners over the continual water rationing and concern about future lack of water availability. These concerns are raised monthly at the City Council Meetings, in local newspaper articles and by word of mouth.

Describe existing or potential drought conditions to be addressed in the Drought Contingency Plan.

Will the proposed plan or plan update address a geographic area that is currently suffering from drought or which has recently suffered from drought? Please describe existing or recent drought conditions, including when and how long the area has experienced drought conditions.

The Drought Contingency Plan will cover the entire island of Catalina. The severity of the multi-year (since 2000) ongoing drought. Table 201 identifies that mandatory conservation or rationing efforts have been in effect since June 2013. The recent storms have somewhat alleviated the crisis however the Middle Ranch Reservoir (indicator of groundwater sources) is currently at 27 percent of capacity (as of February 9, 2017).

Describe any projected increases to the frequency, severity, or duration of drought in the geographic area resulting from climate change. Please provide support for this response (e.g., reference a recent climate change analysis, if available).

Drought persistence is favored across the desert regions of California due to less forecasted short term precipitation, and a dry tilt in the FMA seasonal outlook. Also, much of California receives water from snowmelt from the western Sierra Nevada Range, however, Catalina Island is isolated and therefore incapable of receiving this water supply.

Describe the status of any existing planning efforts. Please explain how this Project relates to other planning efforts ongoing or recently completed in the planning area and how this effort will complement, not duplicate ongoing or completed planning efforts. For plan updates, please explain how the update builds on and adds value to the existing plan.

The proposed project will complement SCE ongoing planning efforts and planning efforts by other stakeholders by collaborating with and building consensus with local stakeholders.

E.1.2. Evaluation Criterion B—Inclusion of Stakeholders

SCE proposes that the implementation of the planning process will be inclusive and incorporate a diverse range of stakeholders and participants that include a mix of both internal and external stakeholders.

A preliminary list of stakeholders that have expressed interest and or support in participating include the following:

- City of Avalon
- Catalina Chamber of Commerce
- Catalina Consortium
- Catalina Island Conservancy
- Catalina Island Company
- Avalon Rotary Club
- USC Wrigley Marine Science Center
- Boy Scouts of America
- Southern California Edison

Upon receipt of award of the grant, SCE with the support of USBR will undertake to ensure participation using internal and external resources to reach out to all interested participants

SCE will seek full engagement of all interested participants and stakeholders and further understanding as to the level of participation and contribution to the planning process.

SCE may seek to engage USBR resources and outside resources to collaborate and guide in the planning process, public outreach meetings and final documents.

E.1.3. Evaluation Criterion C—Project Implementation

Once SCE has been informed that a proposal submitted under this FOA has been selected for funding, Reclamation will enter into a financial assistance agreement with SCE, documenting the requirements and conditions related to the provision of financial assistance. Following finalization of the financial assistance agreement, the following Drought Contingency Planning steps will be implemented:

- Establishment of a Drought Planning Task Force.—SCE will be referred to as the planning lead. At the outset of the planning process, the planning lead will develop a Drought Planning Task Force (Task Force) made up of interested stakeholders within the planning area that want to actively participate in developing the Drought Contingency Plan. The Task Force will be comprised of a diverse membership representing multiple interests in the planning area.
- Development of a detailed work plan.—The detailed work plan will be developed by the planning lead and the Task Force in consultation with Reclamation and will describe in detail how the various tasks included in developing or updating the plan will be accomplished, along with a detailed work schedule, and the responsibilities of Reclamation (Reclamation will provide input on this element), the planning lead, the Task Force, and other interested stakeholders. The work plan will be submitted to Reclamation for review and acceptance before substantive work on the Drought Contingency Plan begins, and may be updated as conditions warrant.
- Development of a communication and outreach plan.—As part of the detailed work plan, the planning partners will develop a communication and outreach plan which will explain how stakeholders and the public will be involved in the planning process, including providing input on the drafting of the Drought Contingency Plan and providing feedback to the Task Force. Participation could occur through public meetings, webinars, public notices, and other forums or approaches.

Draft drought contingency plans and plan updates developed under this FOA will be submitted to Reclamation for review and acceptance at least 30 days before completion of the period of performance. The purpose of Reclamation’s review is to ensure that the plan or plan update meets program requirements.

The proposed Catalina Island Drought Contingency Plan will address each of the six USBR required elements as follows:

1. Drought Monitoring Requirement: The plan will establish a process for monitoring near and long-term water availability, and a framework for predicting the probability of future droughts or confirming an existing drought. This includes a process for the collection, analysis, and dissemination of water availability and other drought-related data (e.g., precipitation, temperature, and streamflow levels, among other indicators). The plan will

also explain how the data will be used to predict or confirm droughts, including identifying metrics and triggers (e.g., reservoir level reached at a specific reservoir and use of specific drought indices) that may be used to define stages of drought, to trigger mitigation or response actions, and to define the different stages or levels of severity of drought.

Requirement Response: SCE initiated and implemented the Catalina Groundwater Management and Sustainability Program (CGMSP) to better understand and manage the precious groundwater resources on the island. Although Catalina is not included in the Department of Water Resources Groundwater Basin Map, groundwater basins make up the primary source of drinking water supply for the island. There are about 65 major and minor topographic basins on Santa Catalina Island that can be considered as watersheds. Only six of these watersheds have developed groundwater resources, with the largest residing within the Middle Ranch well field. Locations for water resource development are limited by the existing road system and the Catalina Island Conservancy's goal of minimizing any impact to the environment, including land disturbance and impacts of water resource development on plants and animals. In addition, it may be developed to incorporate additional or alternative triggers for drought mitigation and response actions than those currently in place. A result of the CGMSP will be monitoring aquifer response to precipitation events and local groundwater pumping. SCE has proactively applied for an additional USBR grant- F012 for the installation of additional SCADA equipment island-wide. The SCADA project addresses the precipitation aspect by measuring, reporting and recording at the SCE Control Center. The installation of a weather station at the Middle Ranch well field will provide a suite of data to more fully understand the impacts of natural and mechanical extractions. The current CGMSP involves data automatically recorded on data loggers located within the well that can be downloaded to a laptop computer.

2. Vulnerability Assessment Requirement: The plan will include a vulnerability assessment evaluating the risks and impacts of drought. A vulnerability assessment is an assessment of the risks to critical resources within the planning area and the factors contributing to those risks. Assessments will drive the development of potential mitigation and response actions. The assessment will be based on a range of future conditions, including the effects of climate change.

Requirement Response: It is SCE's intention to collaborate with the Task Force on the vulnerability assessment per the grant guidelines. Incorporating existing data and completed reports, SCE envisions collaboratively assessing critical utility resources that will drive the development of potential mitigation response actions to be taken collectively. Future drought conditions will be assessed through data gathering from reputable resources. SCE is optimistic that this project provides inputs that enhances water basin and asset management and collaboration with stakeholders.

3. Mitigation Actions Requirement: The plan will identify, evaluate, and prioritize mitigation actions and activities that will build long-term resiliency to drought and that will mitigate

the risks posed by drought. Mitigation measures are actions, programs, and strategies implemented before drought to address potential risks and impacts. These actions are outside of regular water management activities and are intended to decrease sector vulnerabilities and reduce the need for response actions.

Requirement Response: While SCE has initiated several drought mitigation actions, projects, feasibility studies and engineering assessments to mitigate future drought risks, the results of these measures will be available for future incorporation into the overall agreed upon drought mitigation planning and strategy moving forward.

4. Response Actions Requirement: The plan will identify, evaluate, and prioritize response actions and activities that can be implemented quickly during a drought. Response actions are different than mitigation measures in that they are triggered during specific stages of drought to manage the limited supply and decrease the severity of immediate impacts. Response actions can be quickly implemented and provide expeditious benefits.

Requirement Response: SCE will collaborate on the existing plan and support efforts to update or reprioritize as mutually agreed upon by the Task Force.

5. Operational and Administrative Framework Requirement: An operational and administrative framework will be developed to identify who is responsible for undertaking the actions necessary to implement each element of the plan, including communicating with the public about those actions.

Requirement Response: SCE will participate in the creation of an operational and administrative framework that will identify roles, responsibilities, and procedures necessary to:

- Conduct drought monitoring
- Initiate response actions, including emergency response actions
- Initiate mitigation actions

6. Plan update process: The plan must describe a process and schedule for monitoring, evaluating, and updating the plan.

Requirement Response: SCE will collaborate with Task Force members to complete this requirement.

SCE has and will continue to identify staff to collaborate on the Drought Contingency Plan. Staff currently working on the effort include SCE engineering staff, hydrogeology staff, project management staff, technical specialist staff and public affairs staff.

E.1.4. Evaluation Criterion D: Connection to Reclamation Project Activities

Connection to Reclamation Project Activities are not currently recognized by this project. Catalina is an isolated system without access to mainland southern California. As such reclamation project connections are not possible.

5.0 Supporting Documentation

D.2.2.6 Letters of Support and Collaboration

The project has received widespread support from local, state and federal resources including the following and attached in Appendix 2:

- Randall Herrel, President & CEO, Santa Catalina Island Company
- Alan Lowenthal, Representative, Congress of the United States, House of Representatives, 47th District, California
- Jim Luttjohann, President & CEO, Catalina Island Chamber of Commerce
- Patrick O'Donnell, Assembly Member, 70th District, California Legislature

SCE continues to attend recurring Avalon City Council Meetings to provide critical water information to island stakeholders. It is SCE's intention to continue to develop and collaborate water resource management data with key island stakeholders so that the precious water resources on the island are used to their best and highest purpose for all inhabitants of the island: resident, visitor, and native plant and animal species. SCE is optimistic that this project provides inputs that enhances water management to help mitigate the impact of future droughts on the island. This is a key step to achieve higher levels of water management and conservation within the Catalina Water System.

D.2.2.7 Required Permits or Approvals

No permits or approvals are anticipated for the proposed project.

D.2.2.8 Official Resolution

An official, signed Resolution dated February 10, 2017 authorizing SCE to submit a grant application to and execute a Cooperative Agreement with the Bureau of Reclamation for implementation of the proposed project. The resolution agrees to use the funds identified in this funding plan for the proposed project. The official resolution is included in Appendix 1.

D.2.2.9 Project Budget

The completed budget forms are electronically attached and include: SF-424 Application for Federal Assistance, SF-424A Budget Information – Non-Construction Programs, SF-424D Assurances – Non-Construction Programs

Request for a Cost Share Waiver

SCE and Catalina Island stakeholders request a waiver of the non-federal cost share requirement due to significant financial hardship and support of Federal representatives. The City of Avalon, where the majority of the islands population resides and which makes up the majority of the water demand on the island (80.5%), recently complete a comprehensive income survey of the residents of the City of Avalon and the results show conclusively that the City’s population is disadvantaged. On October 4, 2016, City of Avalon City Council reported Community Wide Income Survey Results that proves the City of Avalon is a Disadvantaged Community with a yearly median household income of \$42,000, reference Appendix 3 for Survey Report.

Due to the statistical margin of error in Census Data compounded by the additional difficulty of access to the remote island community to collect accurate income data, the City of Avalon elected to conduct a comprehensive third party population-weighted income survey to gain an accurate representation of the income level in the community. The results of this comprehensive survey did prove to invalidate the Census Data and is currently being circulated by the City of Avalon to State and Federal agencies for adoption. The preparation and presentation of statistically valid income surveys may be accepted by the State of California and Federal agencies as alternatives to Census Data that may not reflect the current demographics of a community.

Funding Plan & Letters of Commitment

No other federal or state funds have been requested or received to complete the proposed project to date. The funds requested from Reclamation will allow SCE to act as Planning Lead on the Drought Contingency Plan and procure resources to aid in the completion of the plan.

Table 5-1: Summary of Non-Federal and Federal Funding Sources

Budget Table: Funding Source Percentage		
Funding Sources	% of Total Project Cost	Funding Amount
Non-Federal Entity: Southern California Edison (SCE)	0%	\$ 00.00
Federal Entity: U.S. Bureau of Reclamation (USBR)	100%	\$ 200,000.00
Total Project	100%	\$ 200,000.00

Total Costs

Total costs for the proposed project are \$200,000 which will be funded by Federal Entity:

Federal Entity: U.S. Bureau of Reclamation (USBR). This is detailed in Table 5-2.

6.0 List of Appendices

1. Application Forms
 - a. Official Resolution
2. Letters of Support [placeholder] attached electronically to not impact page count
3. Catalina Island DAC DUC Synopsis and Community Wide Income Survey Results

References

- Avalon Catalina AP, California. Western Regional Climate Center, November 11, 2016, <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7910>
- California Department of Water Resources. California's Groundwater: Bulletin 118, Groundwater Basin Maps and Descriptions, 2017, <http://www.water.ca.gov/groundwater/bulletin118/gwbasins.cfm>
- Catalina Groundwater Management and Sustainability Program, Groundwater Monitoring Equipment Installation Report, Dudek, April 2016
- Catalina Island Chamber of Commerce and Visitors Bureau. "Monthly Visitor Count Report", 2016, <http://4205sz1w6g4r3r9u8ubg171a-wpengine.netdna-ssl.com/wp-content/uploads/2016/01/Cruise-Cross-Channel-VISITOR-COUNTS-Spreadsheet-Oct-2016.pdf>.
- "Catalina Island Stage 2/3 Water Rationing Update", October 18, 2016, [http://www.cityofavalon.com/filestorage/3186/4683/Avalon_City_Council_Presentation_161018_\(FINAL\).pdf](http://www.cityofavalon.com/filestorage/3186/4683/Avalon_City_Council_Presentation_161018_(FINAL).pdf).
- City of Avalon. City of Avalon: 2030 General Plan/Local Coastal Plan, June 2013, http://www.cityofavalon.com/filestorage/3182/3213/2030_General_Plan_Adopted.pdf.
- City of Avalon. City Council. Results of Community Wide Income Survey and Next Steps, October 4, 2016.
- County of Los Angeles, Department of Regional Planning, Policy Map, February, 2015 http://planning.lacounty.gov/sea/gp_2035_2014-FIG_9-3_significant_ecological_areas.pdf
- Fish and Wildlife Service, Department of the Interior. Federal Register, Volume 81, Number 156, August 12, 2016. <https://www.gpo.gov/fdsys/pkg/FR-2016-08-12/pdf/2016-18778.pdf>.
- Oberlander Consulting, LLC., "Santa Catalina Island, Water Resource Assessment, Water Management, and Safe Annual Yield", May 2016.
- Santa Catalina Island Company. Catalina Island History, 2017, <http://www.visitcatalinaisland.com/island-info/history>.
- Santa Catalina Island. History of Catalina Island, 2017, <http://www.santacatalinaisland.com/channel/History-of-Santa-Catalina-Island/1658>.
- U.S. Climate Data. Climate Avalon – California, 2017, <http://www.usclimatedata.com/climate/avalon/california/united-states/usca0055>