

# SALTON SEA RESTORATION AND RENEWABLE ENERGY INITIATIVE



## EXECUTIVE WHITE PAPER

### FRAMEWORK FOR A SMALLER BUT SUSTAINABLE SALTON SEA

DRAFT • July 2015

Prepared for Imperial Irrigation District and County of Imperial



**IID**

*A century of service.*





## THE NEED FOR VISION AND IMMEDIATE ACTION

“We have a lot of projects that are shovel-ready, what we don’t have is a comprehensive vision...of how a restoration plan will co-exist with all the other needs.”

Keali’i Bright

Deputy Secretary of the Resources Agency

Western Water May/June 2015

**This Executive White Paper provides that comprehensive vision.**

# THE NEED FOR VISION AND IMMEDIATE ACTION

## The Salton Sea is shrinking.

By mid-century, the Salton Sea is expected to shrink by about 100 square miles – an area approximately the size of the City of Sacramento. If California does not take immediate action, we will find ourselves facing an environmental catastrophe.

Southern California and much of the Southwestern United States will suffer dust storms not seen since the Great Depression as well as hydrogen sulfide “burps” that affect air quality throughout Southern California.

It is also likely that much of the Pacific Flyway, one of the environmental treasures of the Americas, will collapse due to the destruction of one of its primary resting places for migrating waterfowl.

Imperial Irrigation District and Imperial County believe that we must create and maintain a smaller but sustainable Salton Sea. That reconfigured sea will limit fugitive dust emissions, preserve and create avian habitat, and create economic opportunity for one of California’s poorest areas. This solution will also preserve the Quantification Settlement Agreement water transfers that are critical for Southern California’s water supply reliability.

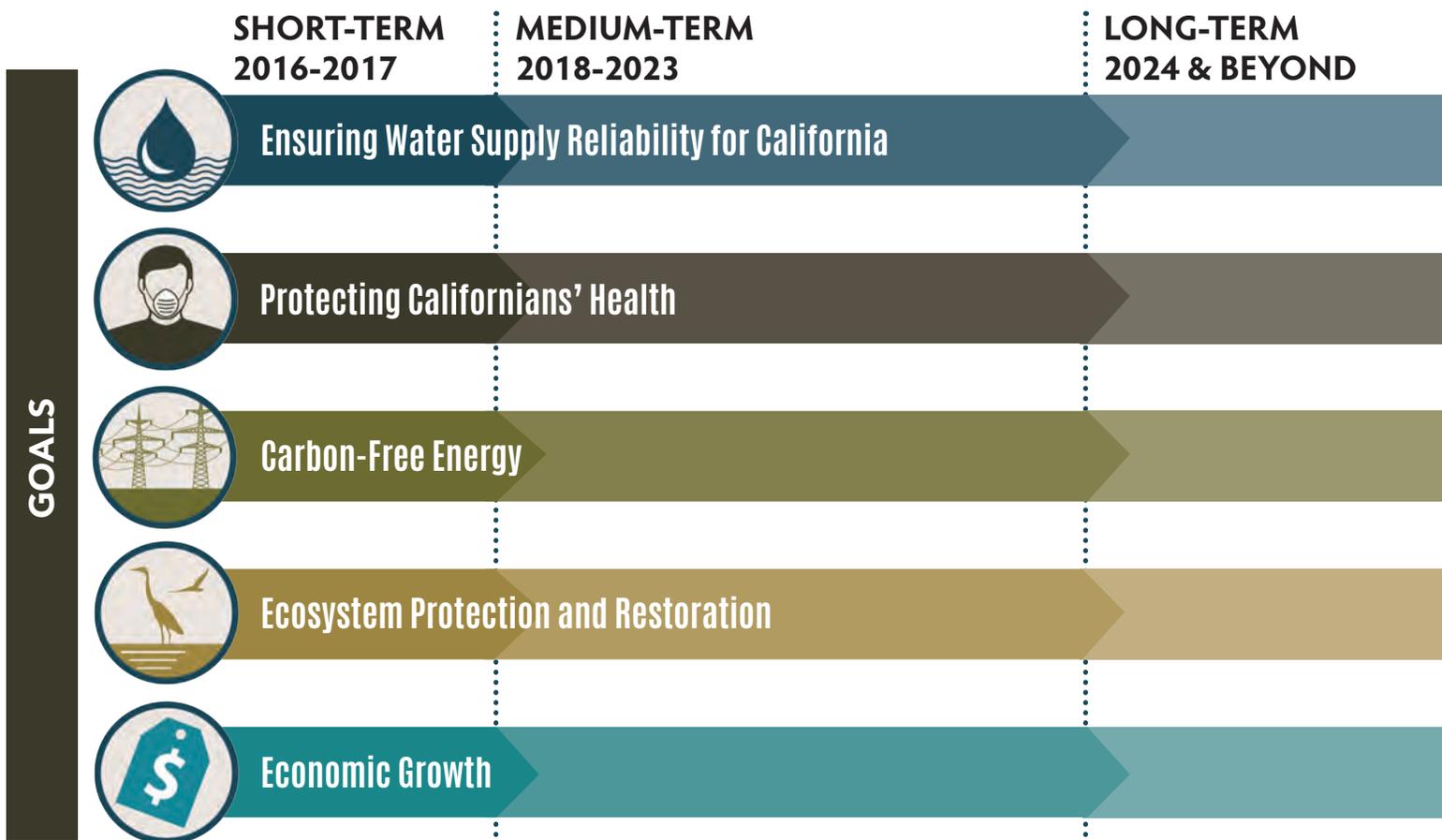
The time for studies has passed. Now is the time for action. We urge the State of California to join us in implementing the plan proposed in this framework, beginning immediately.

IID and Imperial County believe that there are five overall goals for the Salton Sea and adjacent areas:

### 1. Ensuring Water Supply Reliability for California.

Ensuring the stability of the largest agriculture-to-urban transfer by fulfilling California’s obligation to restore the Salton Sea, thereby allowing California to continue to live within its Colorado River 4.4 Plan for the use of water from the Colorado River. This framework provides the starting point and structure for moving forward with that promise made in 2003.

**2. Protecting Californians’ Health.** Protecting human health from fugitive dust emissions from newly exposed playa at the Salton Sea is imperative, for both moral and economic reasons. Implementation of the plan proposed by IID and the county will prevent these dust emissions from reaching millions of people across Southern California and in Mexico,



as well as the thousands of people in the communities next to the sea who will be immediately affected.

**3. Carbon-Free Energy.** Ongoing climate change requires that California achieve the governor's executive order for a greenhouse gas reduction target of 40 percent below 1990 levels by 2030 and meet the governor's inaugural goal of increasing the renewable portfolio standard to 50 percent by 2030. Implementing the plan proposed by IID and the county will help move California toward carbon-free energy generation, which is the ultimate solution to combat climate change.

**4. Ecosystem Protection and Restoration.** As the trustee for California's natural resources, the state must protect and manage water quality in the Salton Sea so as to protect its environmental value: (i) foraging and resting habitat for local water and shore birds, (ii) foraging and resting habitat for migratory birds, (iii) habitat for threatened and endangered species. This framework provides the foundation to implement projects that provide such protection for the Salton Sea ecosystem.

**5. Economic Growth.** Developing sustainable economic growth for the people of Imperial and Riverside Counties is essential to meeting the other goals for the Salton Sea. Renewable energy – particularly geothermal – provides well-paying jobs that can serve to grow the local economy. In addition, this framework will protect farmland, tourism and other pillars of the local economy.

This framework provides the foundational steps necessary to achieve these goals, in terms of governance, restoration, renewable energy development and financing. This framework identifies the structure for an overarching approach needed for restoration of the Salton Sea. This approach divides implementation into the following three phases: **Short-term** (2016-2017), **Medium-term** (2018-2023), and **Long-term** (2024+). In each phase, the governance, restoration, renewable energy development and finance milestones are outlined. This suite of actions is reasonably calculated to restore the Salton Sea, is financially viable, and can be implemented through the use of adaptive management. Once further developed and funded by the State of California, the framework will lead to restoration serving the public interest and benefit all Californians.

## IMPLEMENTATION PLAN

The Implementation Plan is divided into three phases. Governance, finance, and restoration milestones are outlined in each:

- **Short-term (2016-2017)** Projects that are shovel ready and have immediate impact.
- **Medium-term (2018-2023)** Projects that will take effect when the Salton Sea water supply changes.
- **Long-term (2024+)** Projects that will sustain the goals of the plan for long-term human, ecosystem, and economic health.

# THE NEED FOR VISION AND IMMEDIATE ACTION

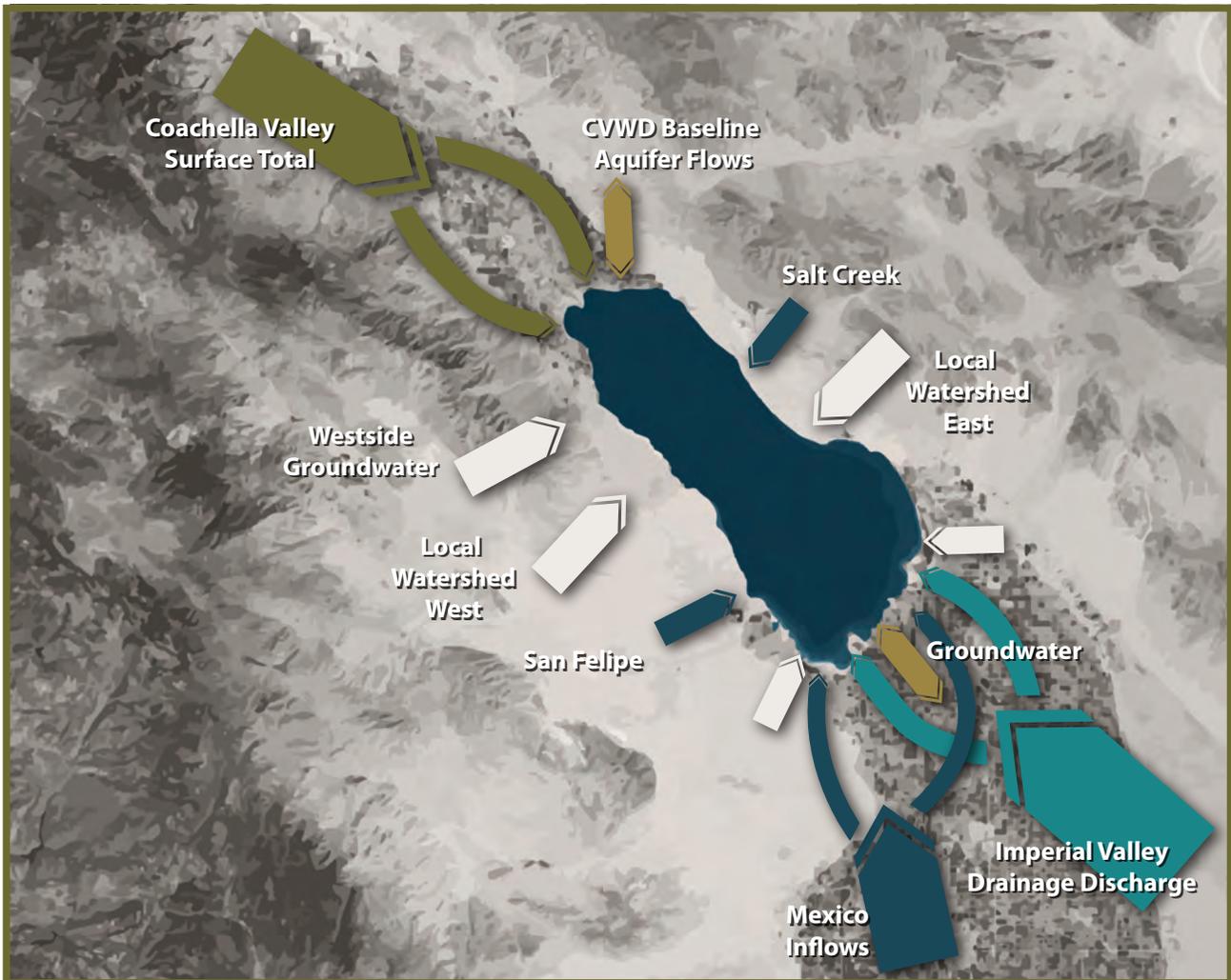
In the early 2000s, California made a series of calculated decisions to reduce the state's usage of Colorado River water to the 4.4 million acre-feet/year entitlement resulting from the "Law of the River," while also meeting the needs of urban Southern California for a reliable water supply.

By 2003, key water agencies recognized that California could only achieve the Colorado River 4.4 Plan goals by conserving agricultural water in the Imperial and Coachella Valleys, which would result in less water flowing into the Salton Sea, and then transferring the conserved water to new uses in urban Southern California. Knowing that accomplishing the 4.4 Plan would lead to less flows

## Key Elements of the Quantification Settlement Agreement (QSA)

- California reduces water usage from the Colorado River to 4.4 million acre-feet per year
- Urban Southern California gets a reliable water supply by obtaining via water transfers the waters that were sustaining the Salton Sea
- IID protects the Salton Sea ecosystem with mitigation water for 15 years, providing a bridge to the State of California's plan to restore the Salton Sea
- State of California to develop, adopt and then fund a restoration plan within 15 years

## Current Salton Sea Water Sources



## The View from Interior

Jennifer Gimbel, Deputy Assistant Secretary for Water and Science, recently said: "When the QSA came online [in 2003] we saw that flows to the sea declined because of the fallowing – we knew that was going to happen.

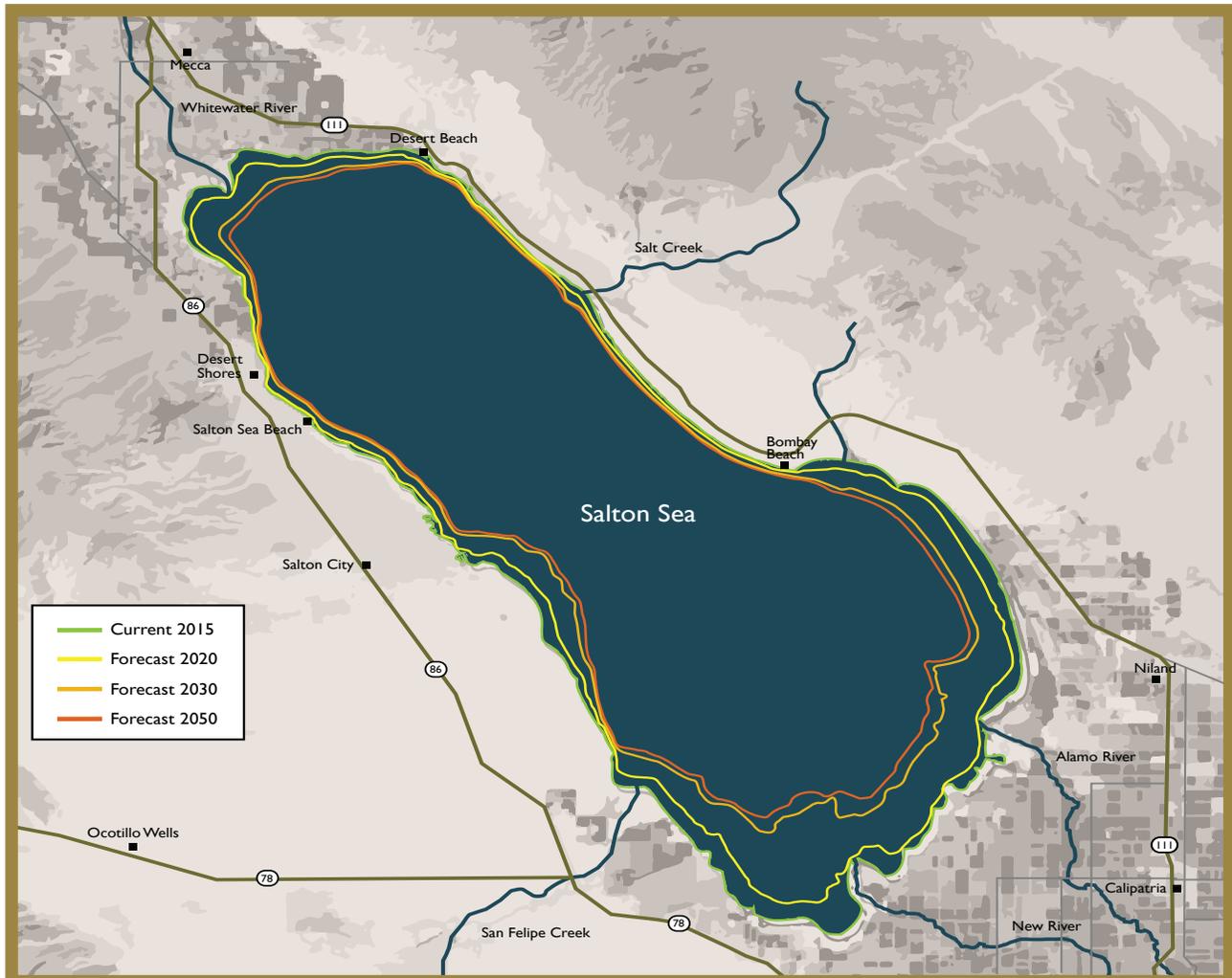
We were hoping that a 15-year buffer period would give the state enough time to figure out how to deal with these various issues."

*Western Water May/June 2015*

into the sea, the State of California committed to developing and funding a restoration plan for the Salton Sea within 15 years. IID only agreed to the QSA based on the written commitment by the State of California to restore the Salton Sea if it were proven to be feasible.

Thirteen years have passed since the QSA was signed and there is no solution for the Salton Sea. There is an emerging consensus – by environmental groups, labor and environmental justice advocates, by IID and the County of Imperial, by most water agencies that are parties to the QSA, and by the Brown administration – that it is feasible to restore the Salton Sea so that it is smaller but still sustainable for future generations.

## Shrinking of the Salton Sea



# THE NEED FOR VISION AND IMMEDIATE ACTION

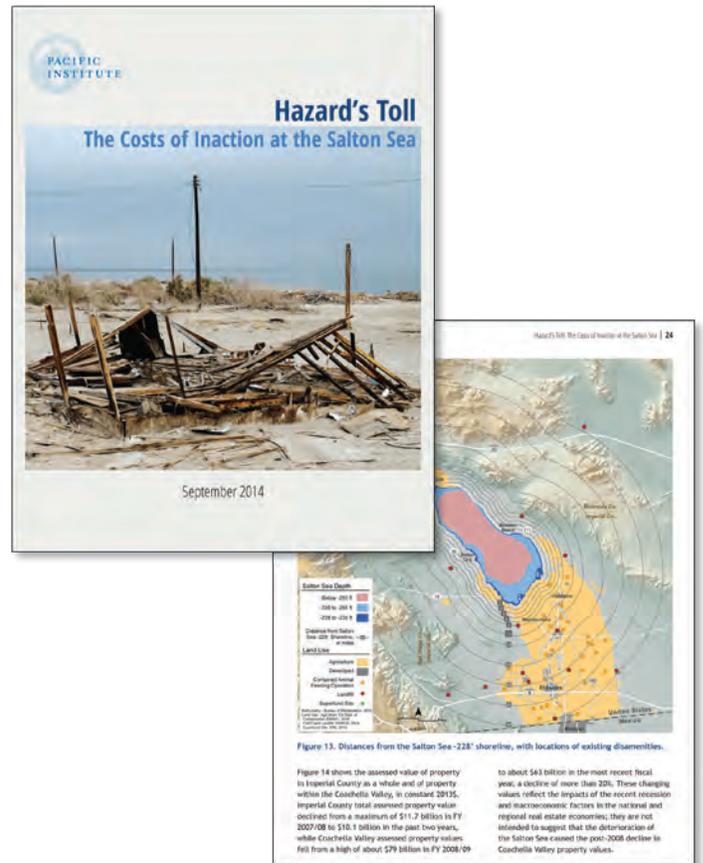
This consensus is emerging just in time. In 2018, the extraordinary water deliveries by IID that have sustained the Salton Sea – at the direct cost of jobs in the Imperial Valley – will end. The Salton Sea will be smaller (back to its pre-World War II size) and rapidly increase in salinity. The human health risks and salinity levels that stress the sea’s ecosystems will be higher.

The time for action is now. The State of California must redeem its promise and – working with IID, the County of Imperial and other willing parties – embark on the restoration of the Salton Sea so that it becomes smaller and sustainable.

The choice before us is whether the Salton Sea will collapse, bringing with it the environmental and public health catastrophe described by the Pacific Institute in Hazard’s Toll, or whether the Salton Sea – just like California’s 4.4 Plan – will have a “soft landing” and continue to be one of the treasures of California’s natural heritage.

The Brown administration has convened a task force to work with IID and Imperial County in developing a plan to restore the Salton Sea as soon as possible. Specifically:

- First, there is a pressing need to take action in the short-term (2016-2017) to implement projects that have already completed the planning, approval and design process and that demonstrate the concepts being used to advance restoration actions and/or promote geothermal energy development that will actually serve to restore the Salton Sea ecosystem, protect air quality, and/or provide renewable energy.
- Second, in order to avoid some of the dust emissions resulting in harmful human health consequences and to sustain ecosystem values of the Salton Sea, the first five years after the end of mitigation water deliveries (2018-2023) must involve substantial investment in new projects to offset the adverse effects of surface elevation recession. Development of renewable energy projects will help fund the habitat restoration and assist in the state’s achievement of a 40 percent greenhouse gas reduction and attainment of the 50 percent renewable portfolio standard goal. Third, beyond 2023, the State of California needs to guide the adaptive management of restoration efforts through a truly collaborative approach involving the state, IID, Imperial County and other local agencies, and the United States.

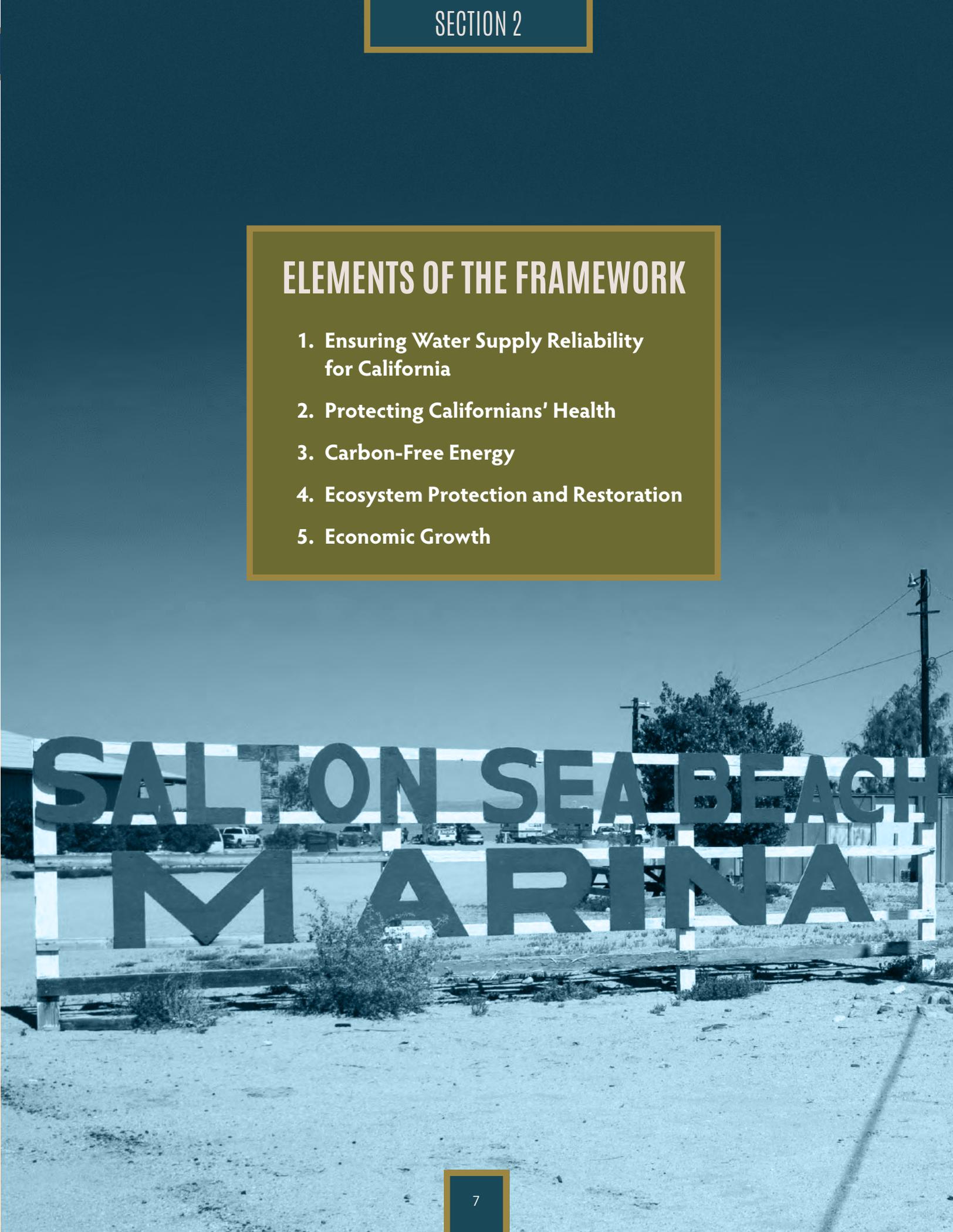


## Hazard's Toll 2045 Predictions

- Californians could face more than \$29 billion in costs, ranging from lower property values to dramatically higher health care costs for respiratory illnesses.
- Up to 100 tons of dust added into the air per day.
- The total population of the air basin (currently about 650,000) will nearly double.
- The lake will be filled with algae, bacteria, and viruses, providing no value to birds or people.

## ELEMENTS OF THE FRAMEWORK

1. Ensuring Water Supply Reliability for California
2. Protecting Californians' Health
3. Carbon-Free Energy
4. Ecosystem Protection and Restoration
5. Economic Growth



SALTON SEA BEACH  
MARINA



## Ensuring Water Supply Reliability for California

For decades, California used approximately 5.2 million acre-feet/year of water from the Colorado River. That water supply was critical for the urbanization of Southern California. Indeed, the Metropolitan Water District of Southern California was largely formed in order to bring water from the Colorado River to meet the increasing needs of the Southland. In the late 1990s, though, with increasing water demands in Arizona and Nevada, the other Colorado River Basin states and the United States combined forces to place California on a “water diet.” California would be forced to live within its allocation of 4.4 million acre-feet/year from the Colorado River.

Limiting California’s diversions from the Colorado River to 4.4 million acre-feet/year could have had dire consequences. Most notably, urban water users in the Southern California coastal plain have junior allocations to Colorado River water within California; thus, they would most likely have had their supplies of Colorado River water cut off in order for California to satisfy the demands of the other Colorado River Basin states. A reduction in deliveries of approximately 800,000 acre-feet/year from the Colorado River would have significantly increased the demand in Southern California for water exported from the Sacramento-San Joaquin River Delta. However, many fish species that reside in or that migrate through the Delta are listed as threatened or endangered under the Federal and California Endangered Species Acts and are adversely affected by exports of water from the Delta. Thus, limiting California’s diversion of water from the Colorado River to 4.4 million acre-feet/year could have caused great hardship in coastal Southern California, caused significant adverse effects on fish species in the Delta, or both.

Instead, California found its way to a “soft landing.” Under the terms of the Quantification Settlement Agreement, IID agreed to sell

approximately 400,000 acre-feet/year of water to the San Diego County Water Authority, Coachella Valley Water District and the Metropolitan Water District of Southern California, thereby softening the adverse impacts of California reducing its diversions of water from the Colorado River to 4.4 million acre-feet/year. Moreover, IID and SDCWA also agreed to provide an average of approximately 60,000 acre-feet/year of mitigation water to the Salton Sea from 2003 through 2018. This supply of water replaces water that would have otherwise fed the Salton Sea and sustained its ecosystem by maintaining salinity at levels that would have occurred without the transfer. In this way, the mitigation water helps provide a “soft landing” for the fish and wildlife dependent on the Salton Sea. The parties to the QSA believed that, by 2018, it would be clear whether it would be possible to restore the Salton Sea; if so, then the restoration efforts would be able to soften the effects of the “water diet.”

The Salton Sea, as described in numerous reports, is one of California’s environmental treasures. The QSA transfers have clearly had an adverse effect on the sea, one that will accelerate after 2018 when IID no longer has the obligation to provide mitigation water. If the QSA were to fall apart, urban areas in Southern California would be required to impose dramatic restrictions in water use. Alternatively, there could be much greater exports from the Sacramento-San Joaquin Delta to meet the needs of urban Southern California, which would probably lead to the extirpation of several threatened or endangered species or dramatic reductions in water availability for Silicon Valley. The only way to ensure water supply reliability for California is to fully implement all of the QSA, which means continuing the water transfer to coastal Southern California and funding by the State of California for the restoration of the Salton Sea.





## Protecting Californians' Health

During the period from 2018 through approximately 2045, the elevation of the Salton Sea is expected to decline by about 12 feet, from about -238 feet mean sea level to about -250 feet mean sea level. This reduction in the elevation of the Salton Sea is expected to expose about 26,400 acres of playa from 2018 to 2025, another 23,400 acres of playa from 2025 through 2035, and yet an additional 7,100 acres of playa between 2035 and 2045.

### Projected Exposed Playa

Year	Area	Difference					
		2018	2020	2025	2030	2035	2040
2018	6,879	--	--	--	--	--	--
2020	12,657	5,778	--	--	--	--	--
2025	33,278	26,399	20,622	--	--	--	--
2030	49,665	42,786	37,008	16,386	--	--	--
2035	56,691	49,812	44,035	23,413	7,026	--	--
2040	60,928	54,049	48,271	27,649	11,263	4,236	--
2045	63,794	56,915	51,137	30,515	14,129	7,103	2,866

The greatest threat to human health produced by the newly exposed playa is fugitive dust that causes massive dust clouds in the surrounding inhabited areas. The accompanying figure illustrates the existing dust problem, which will only become worse as more and more playa is exposed.

While areas around the Salton Sea differ in the quantity of fugitive dust that will be generated upon dewatering, presently both state and federal air quality and public health officials believe that the fugitive dust emissions from these large areas of exposed playa will substantially worsen air quality in the Imperial and Coachella Valleys. The already-high incidence of asthma hospitalizations in Imperial County alone is almost 17 per 10,000 population, compared to the overall California rate of 11 per 10,000 population. Additional fugitive dust emissions will exacerbate and increase these health impacts and are likely to cause a public health disaster. Moreover, the level of toxicity of these fugitive dust emissions is currently unknown, but there is a likelihood of unhealthy concentrations of PCBs (polychlorinated biphenyls) and other elements such as cadmium, chromium, lead, and selenium.

Addressing fugitive dust emissions can be accomplished in two key ways:

1. Shoreline pools and shallow water habitat (average depth of 2 feet), riparian habitat and wetlands can be constructed to keep playa areas covered with water and/or vegetation that also provides food and cover to shorebirds and other species that reside in or migrate through the Salton Sea area, thereby limiting fugitive dust emissions.
2. Exposed playa can be covered by a variety of renewable energy facilities, including but not limited to extensive photovoltaic arrays, solar gradient ponds, biofuel ponds (generally algae), and geothermal power plants.

Most of the playa that will be exposed due to declining inflows into the Salton Sea over the next 30 years can be managed through the creation of habitat. In this way, a great deal of the potential adverse effects on public health can be avoided while also providing habitat that will be essential to sustaining the Pacific Flyway.



## Developing Carbon-Free Energy

The Brown administration has properly ordered the State of California to reduce greenhouse gases by 40 percent below 1990 levels by 2030 in order to mitigate California's contribution towards climate change.

Further, the governor has declared it a goal to achieve a 50 percent renewable portfolio standard by 2030. The lands at the southern part of the Salton Sea within Imperial County that will be exposed due to the reduction in sea elevations are ideally suited to renewable energy development, primarily solar and geothermal, but also including more "cutting-edge" technologies, such as biofuels based on algae.

Recently, Governor Brown stated that California must "take measures against an uncertain future which may well be something no one ever wants. We are talking about extinction." Renewable energy from geothermal and solar, both of which are abundant in the Imperial and Coachella Valleys, will be essential for California as the state moves to meet the 50 percent renewable portfolio standard goal. The Imperial and Coachella Valleys are known to have the largest undeveloped geothermal resource in California; these valleys also average 360 cloudless days each year, making them ideal for solar energy development. Geothermal energy provides "baseload" energy (the type of power needed 24/7/365), while solar energy provides needed "peaking power" (the type of power needed on hot summer afternoons). In this way, geothermal and solar energy complement each other well and, in combination, provide a reliable platform for the new renewable energy resources that are needed for California to meet the 50 percent renewable portfolio standard goal.

To correspond with three phases of implementation, the optimal goal for renewable energy development at the Salton Sea would include the following:

**Short-Term** (2016-2017): The development process for approximately 500 MW of solar and other renewables and 520 MW of geothermal would be initiated.

**Medium-Term** (2018-2023): The construction of facilities and the transmission of approximately 1,500 MW of solar and other renewables and 1,250 MW of geothermal would be in process with several facilities on-line.

**Long-Term** (2024+): The construction of facilities and the transmission of approximately 2,000 MW of solar and other renewables and 1,700 MW of geothermal would be in process with all completed by 2030.

Presently, there is approximately 550 MW of available transmission capacity out of the Imperial Valley. This capacity will be sufficient to serve new renewable energy development until approximately 2020, which will provide sufficient time to permit and construct the necessary transmission facilities to allow for the generation and transmission of a total of 1,750 MW of new renewable energy by about 2025.

Geothermal energy is especially important as California attempts to move to a carbon-free economy. It is estimated that moving water – primarily through the Central Valley Project and the State Water Project – consumes approximately 19 percent of California's total energy use. This demand continues all day, year-round and so is ideally suited to a renewable source like geothermal energy, which can provide base load, while other renewable sources provide peaking power during summer afternoons or at other unpredictable times. The use of such renewable power – particularly if it substitutes for energy generated from coal – could be financed through the proceeds from the cap and trade program and/or by the sale of carbon credits directly.

The available renewable energy that could be provided by the Imperial Valley may be as much as 4,000 MW, but a total of 3,000 MW could feasibly be developed by 2030. It is likely that the least-cost/lowest-carbon/greatest generation option will involve a combination of geothermal and photovoltaic energy sources.



## Ecosystem Protection and Restoration

The chief threatened or endangered species that resides in or adjacent to the Salton Sea is the desert pupfish, which is both a federally and California listed endangered species. As the Salton Sea recedes and becomes more saline, the pupfish population will either find itself in hypersaline environments that are beyond its tolerance (leading to extirpation) or will be isolated in relatively low salinity habitats such as irrigation drains, shoreline pools and tributaries to the Salton Sea, resulting in population fragmentation and an increased likelihood of extirpation due to fluctuations in salinity or other factors. In either case, without active management and the establishment of suitable habitat, the pupfish population will face significant threats to its continued existence at the Salton Sea.

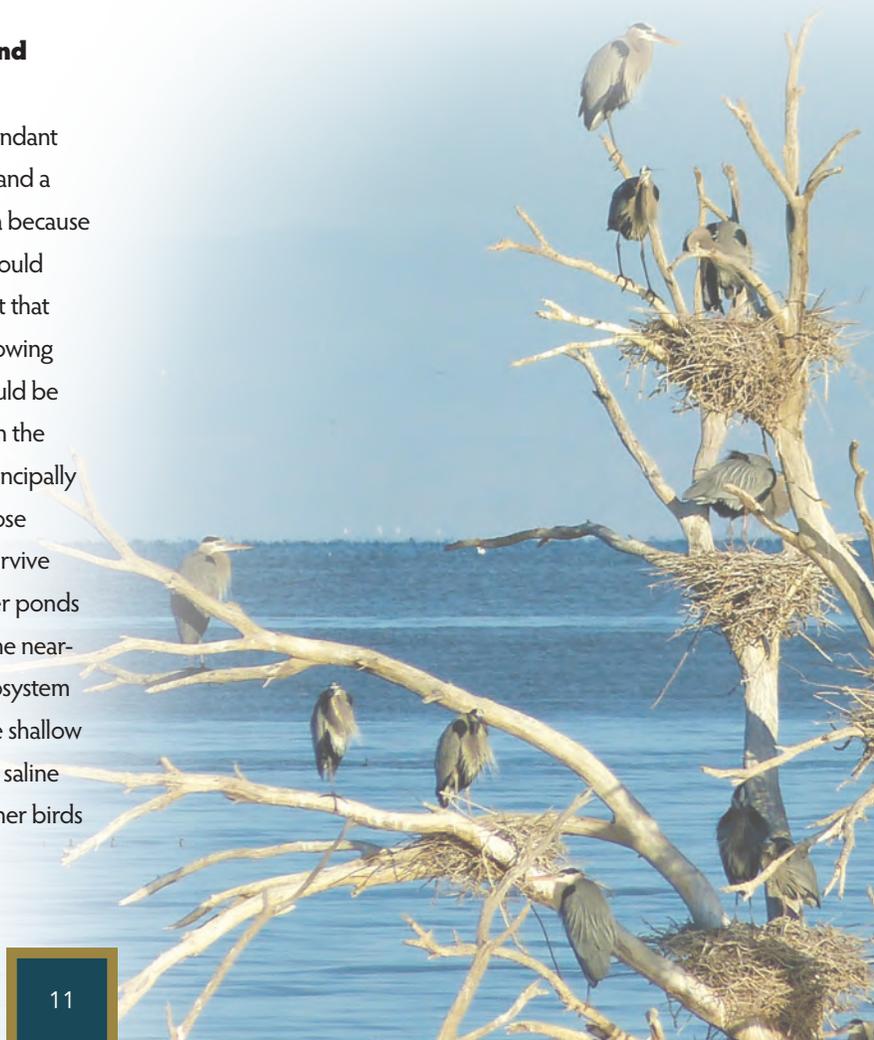
IID is coordinating with CDFW and the USFWS regarding the construction of drainage channels to connect otherwise-isolated pupfish populations and the construction and management of low-salinity pools at the mouths of the New and Alamo Rivers to provide habitat for the pupfish populations.

### **Food and resting habitat for migratory and local water and shore birds.**

Other fish and marine ecosystem components that were once abundant in the Salton Sea and provided food for local and migratory birds and a recreational resource for humans have all died-off in the Salton Sea because of the increasing salinity. The ponds proposed in the framework would replace some of the shallow water and nearly ocean-salinity habitat that once supported these fish and birds. Some of the fresher water flowing from the Imperial and Coachella Valleys toward the Salton Sea would be diverted and conveyed into a series of shallow and deep ponds on the newly exposed playa. Circulation between these ponds would principally use gravity to cascade water from ponds on the upper playa to those lower-exposed playa. The new pond habitat would allow fish to survive the harsh conditions of summer heat and winter chills in the deeper ponds and provide a greater abundance of forage for piscivorous birds. The near-marine conditions of the new ponds would also support other ecosystem components. Wading birds and dabbling waterfowl would use the shallow portions of the ponds to replace some of the habitats lost to more saline habitats in the Salton Sea. The receding sea would also support other birds and a set of different invertebrates as its salinity increases.



The desert pupfish (*Cyprinodon macularius*) and dozens of species of local and migratory birds that call the Salton Sea home will be at risk from rising salinity levels and dwindling habitat.





## Economic Growth

Imperial and Riverside Counties' strategic location near large population centers, their abundance of natural resources, readily available workforce and large tracts of vacant lands make them an ideal location for renewable energy development. In addition to spurring new jobs, harnessing the renewable energy resources found in the immediate Salton Sea region can help California meet its ambitious clean energy goals while at the same time generating funds that can be leveraged to help finance habitat restoration and air quality management projects.

The U.S. Bureau of Land Management has designated the region surrounding the Salton Sea as the West Chocolate Mountains Renewable Energy Evaluation Area, citing its ideal location for new solar and geothermal development. The Salton Sea Known Geothermal Resource Area itself possesses an estimated 1,700 MW of undeveloped energy. Solar energy development creates substantial economic benefits through temporary construction jobs and some permanent jobs. By contrast, geothermal power plants not only create construction jobs and a larger number of permanent jobs

than solar energy, they also have a number of additional economic benefits. In particular, geothermal power plants generate revenue through sales taxes, property taxes, mine taxes, business taxes, lease rental payments, royalties to federal, state, and county governments, employee salaries and benefits, and payments to local vendors for products and services. Every 100 MW of geothermal power developed there are 170 permanent jobs supported and over 600 construction and manufacturing jobs. Particularly in the Imperial and Coachella Valleys, these economic benefits would have a very beneficial effect on employment and quality of life, because the unemployment rate in Imperial County is among the highest in the nation.

In addition to these direct economic benefits, restoration of the Salton Sea will offer recreational opportunities like fishing, hunting, bird watching and camping. With a feasible and realistic restoration plan in place, there can and will be the investment in facilities needed to serve tourism and visitors. Those investments will, in turn, attract new investments in the tourism, housing and real estate sectors.



## Governance

Current law designates the Secretary of the Natural Resources Agency and the Salton Sea Authority as the responsible agencies for developing a feasible plan to restore the Salton Sea. However, up to now, the state's proposed \$9 billion plan developed in 2007 has effectively shut down that effort.

To restore the Salton Sea, the State of California must recognize that a smaller but sustainable sea is feasible at a significantly lower cost that provides for realistic restoration efforts and components. The Natural Resources Agency and the Salton Sea Authority must be more nimble so that they can lead an effort in which each type of resource and each type of situation is managed effectively working closely with each federal, state and local agency necessary for each phase and component of restoration. IID and the county believe that a collaborative and cooperative effort among many agencies, with the Natural Resources Agency being ultimately responsible and accountable for progress, offers better prospects for success than the "top-down" bureaucratic model that has been used for the past 15 years.

Specifically, in terms of controlling fugitive dust emissions and protecting the ecosystem, IID and the county, working with the Air Resources Board, the Imperial County Air Pollution Control District and the South Coast Air Quality Management District, the Department of Fish & Wildlife, the U.S. Fish & Wildlife Service, a number of environmental groups (notably, the Pacific Institute, Defenders of Wildlife, the Audubon Society and the Sierra Club), can and should take the lead roles. In terms of renewable energy, IID and the county propose to work with the Air Resources Board, the California Independent System Operator, and the Public Utilities Commission to ensure that renewable energy generated in Imperial County can be delivered to the rest of California. For other goals, a broader working group of stakeholders will be appropriate.

## Funding

It is clear that the state is responsible for the costs of restoring the Salton Sea; that was the basic bargain struck in 2003 to allow California to implement its Colorado River 4.4 Plan.

The Brown administration has expressed concerns that it is not feasible to fund the Salton Sea restoration entirely from the general fund, particularly if the costs of restoration total billions of dollars over a 10-year period. Yet, unless there is a better alternative, funding the restoration of the Salton Sea from the general fund will be the state's obligation.

IID and the county propose, as an alternative, that the State of California:

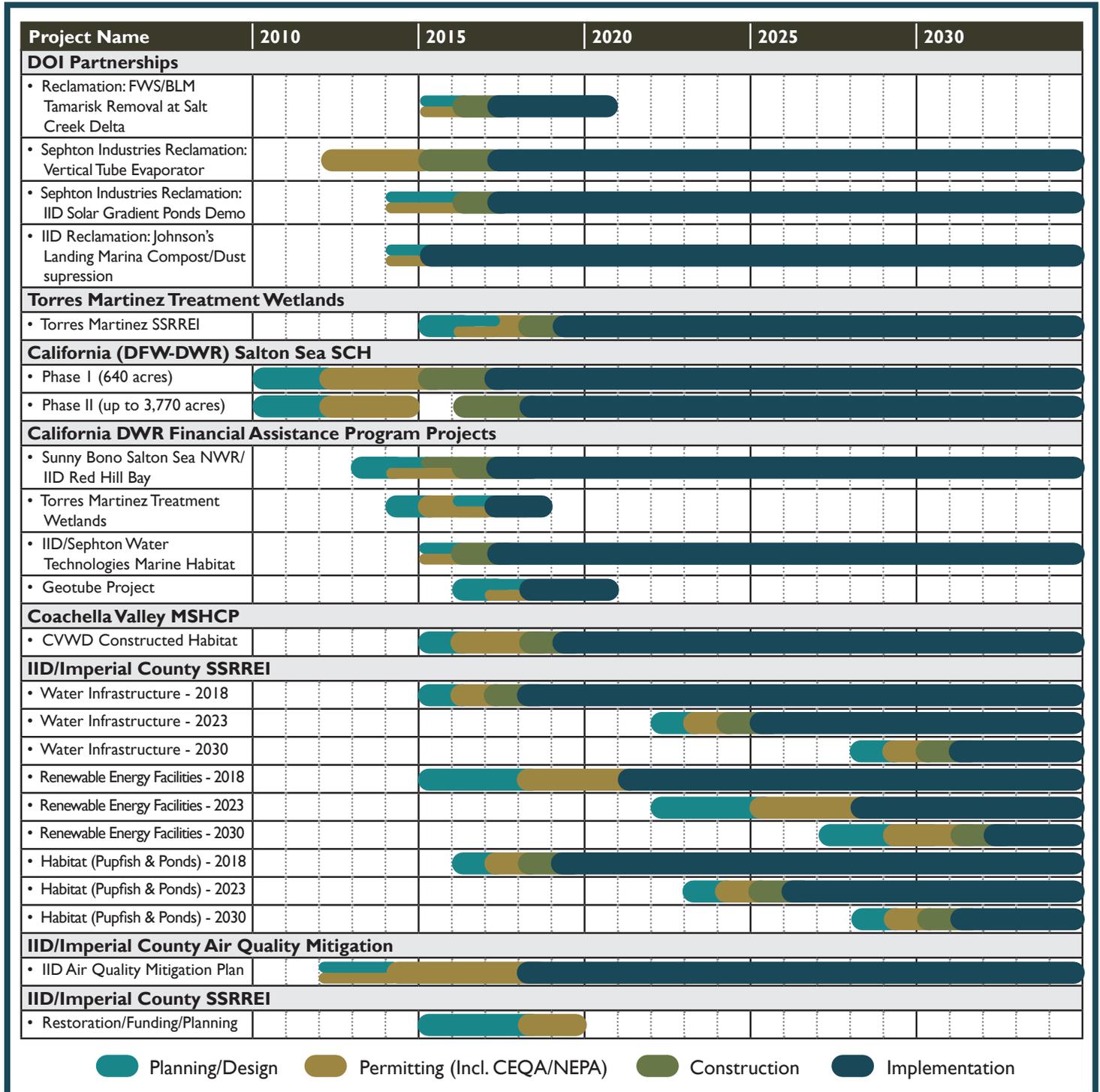
- Allocate \$150 million from Proposition 1 for immediate use at the Salton Sea during Fiscal Year 2015/2016.
- Invest approximately \$1 billion directly in the development of renewable energy in the Salton Sea, continuously appropriated over the next five years, as an equity stake in a public/private venture with IID, the County of Imperial and private renewable energy firms.
- Invest an additional \$1 billion through the issuance of revenue bonds over the next 10 years, to be paid back with interest over the subsequent 30 years. These bonds would be secured through proceeds from geothermal energy leases. As the holder of an equity stake in this venture, the State of California would earn interest on the investment and would also obtain repayment of principal over the life of the investment.
- Invest an additional \$1 billion in proceeds from "cap and trade" auctions within Imperial County from 2015 through 2025 under the auspices of SB 535 (DeLeon), ch. 830, Stats. 2012, which requires that at least 25 percent of the investment of cap and trade auctions be used for the benefit of disadvantaged communities.



## IMPLEMENTING THE FRAMEWORK FOR ACTION

With acceptance of the Framework and implementing agreements, implementation would occur in three phases extending through 2030. Implementation includes activities already under way, funded activities, and potential activities to be undertaken during this time.

## Integrated Project Schedule



## Approval by the State Water Resources Control Board - Late 2015

### Time is of the essence if the Salton Sea is to be saved.

The initial step is for the State of California, acting through the task force announced in the May Budget Reviser, to meet with IID and the county and further develop the general contours of this proposal, including the next steps to be taken to move forward with the implementation strategy outlined here. An implementing agreement between the State of California, IID and the county would then be submitted to the State Water Resources Control Board late in 2015, enabling the SWRCB to approve the implementing agreement by the end of 2015.

The implementing agreement would require the State of California to prepare an annual report to the SWRCB summarizing activities during the prior year, identifying any milestones for the year and describing whether and how those milestones were met. In the event that one or more milestones were not met, the annual report would be required to explain the reasons for that failure, the steps taken to remedy that failure, and the new timeline for implementation.

If this proposal and the implementing agreement are acceptable to the SWRCB, IID and the county believe that the SWRCB should require timely implementation of this proposal and the implementing agreement as a new condition of the Revised Water Rights Order 2002-0013.

### Phase I: 2016-2017

There are a number of projects that would advance the restoration of the Salton Sea that are ready to be constructed and implemented. Nevertheless, these projects have been delayed due to lack of funding or permitting issues. It is imperative to implement these “no regrets” projects as soon as possible in order to lessen – to the extent possible – the adverse effects of the declining Salton Sea elevation beginning in 2018. More importantly, there are a number of “proof of concept” projects where IID or others have proposed new ideas that go well beyond the current state of the science of restoration. Not only should these projects be subject to environmental analysis and permitting during Phase I, but they need to be implemented on the ground and subject to strict scientific scrutiny. IID and the county anticipate that, by the end of Phase I, assuming these projects move forward, there will be empirical evidence that would allow the parties to evaluate different restoration concepts and thereby refine the development of a restoration plan arising from the foundation of this proposal.

### Phase II: 2018-2023

With the start of the “no regrets” projects and a list of proven concepts, Phase II will involve a race to put these types of projects on the ground as quickly as the playa of the Salton Sea is exposed due to the end of delivery of mitigation water. Phase I will begin to prove restoration concepts; Phase II, by contrast, will attempt to scale these projects so that the types of projects that were constructed on 100 acres are now constructed on 1,000 or 5,000 acres. Building these large-scale projects will require additional environmental analysis and permitting, as well as substantial funding.

### Phase III: 2024 & Beyond

Over the long-term, it is estimated that the combination of climate change and the QSA transfers will result in a reduction of the size of the Salton Sea by about 65,000 acres, or about 100 square miles. For comparison purposes, that area is approximately the same size as the entire City of Sacramento. This proposal contemplates covering most of that acreage with water and vegetation habitat or by some form of renewable energy development.



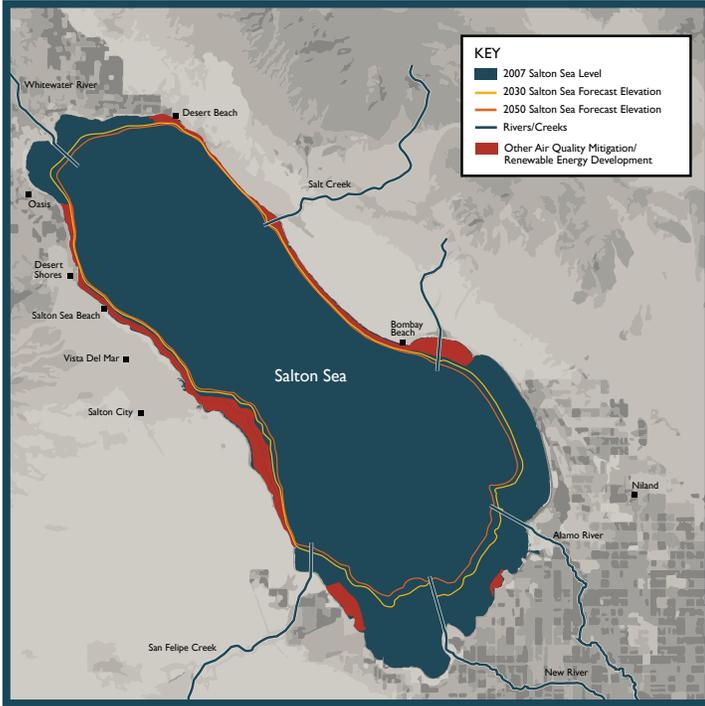
## POTENTIAL FUTURE OF THE SALTON SEA

This proposal is based upon significant and extensive analysis of the existing conditions of the Salton Sea, which involve land ownership, hydrology and water quality, biological resources, air quality conditions and renewable energy resources. This analysis was used to provide the foundational structure of restoration through a series of conceptual development scenarios that rely upon a preliminary analysis of opportunities, constraints and costs of the development of habitat restoration, air quality mitigation and renewable energy. With the development of the three phases of implementation of the plan proposed in this framework, it is possible to see the future for a smaller but sustainable Salton Sea. IID and the county believe that this future must include elements to protect air quality, to restore habitat, to develop renewable energy and to manage limited water supplies most effectively. Blending these considerations together leads IID and the county to propose a composite plan for the future of the Salton Sea.

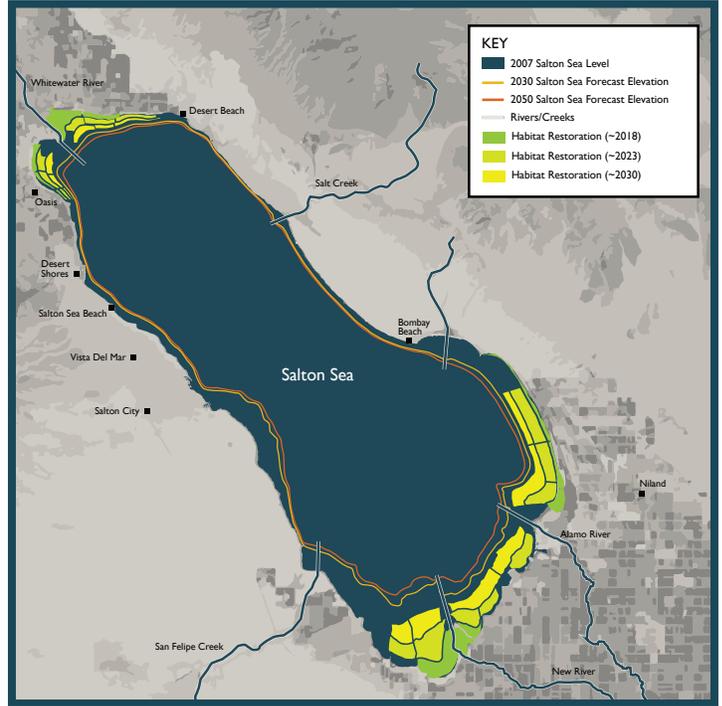
**The State of California must act now  
to save the Salton Sea.**

# POTENTIAL FUTURE OF THE SALTON SEA

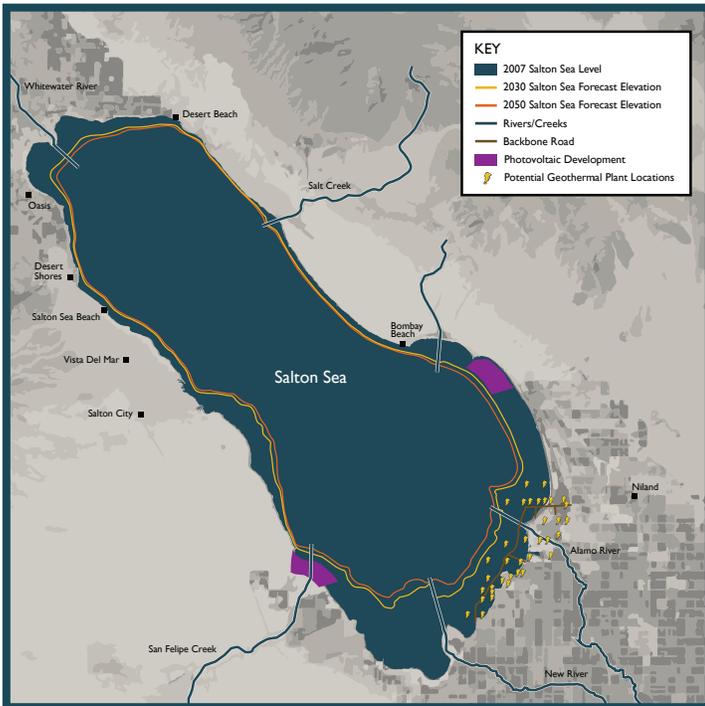
## Air Quality Mitigation



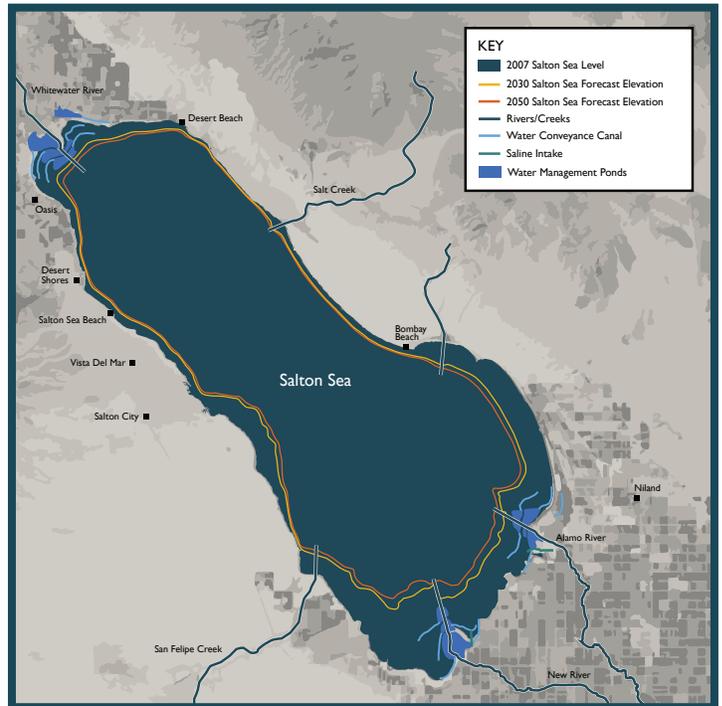
## Habitat Restoration



## Renewable Energy

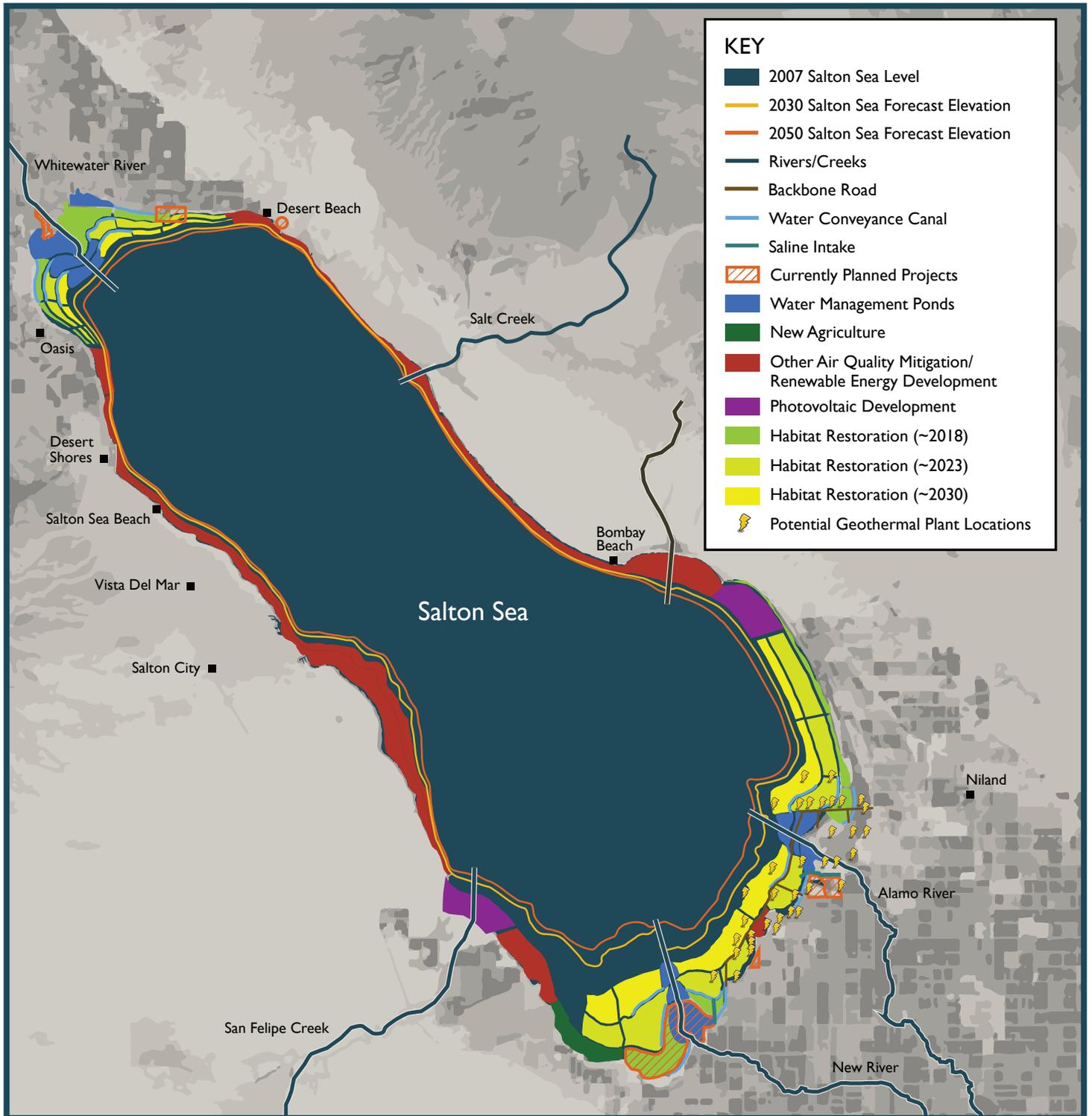


## Water Management



The layouts are intended to help decision makers and other stakeholders understand the complexity of future development on newly exposed playa, based on stated goals, requirements of each of the evaluated land uses, and the projected changes to the Salton Sea water elevation and shoreline. They are not presented as a project, proposal, development, or specific plan that is ready for implementation.

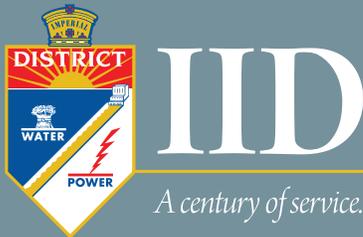
## Blended Solution



This graphic integrates the individual layouts on page 20. Currently planned projects are depicted by the shaded areas. Both the integrated image and the individual images show “blended solutions” that attempt to strike a balance of land uses rather than prioritize any specific land use. Current planned projects are shown in the shaded areas.



Visit us online at [www.renewablesforsalttonsea.com](http://www.renewablesforsalttonsea.com) or on Facebook at **SALTON SEA RESTORATION AND RENEWABLE ENERGY INITIATIVE**



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