

The Catalina Island Sustainability Plan and Action Items

**Ensuring an
economically
&
environmentally
sustainable
future for
Catalina**

**Produced
by the
Sustainability Action Group**

CATALINA ISLAND *A Living Laboratory for Sustainability*

This document presents a plan for the Santa Catalina Island to be self sufficient in infrastructure by 2020 and be a sustainable model for communities around the world with as small an environmental footprint as we can manage.

Catalina is an experiment in balancing the wants and needs of people with the health of an ecosystem. With a population of approximately 3,500 residents, the Island's *City of Avalon* faces all the challenges of a tourist-based economy and a gateway community to a treasured natural recreation area. In 2003, the City of Avalon completed a visioning process through which becoming a "model ecological town" emerged as a priority.

Almost 90 percent of the Island is managed by the *Catalina Island Conservancy* and has been set aside to preserve rare and endemic plants and animals and provide visitors an experience of wild California in one of the state's largest swaths of protected open space.

The Santa Catalina Island Company holds more than 10% of the Island's real estate and operates hotels, restaurants, event destinations, and tours.

The Island's West End is home to the *University of Southern California's Wrigley Institute for Environmental Studies* which conducts world class research and education across a wide range of conservation and sustainability issues.

Southern California Edison currently provides power, water and gas services to the Island, and has exhibited a commitment to developing alternative sources of energy and wise use of natural resources.

This unique collection of stakeholders which also includes the *Chamber of Commerce* came together and formed the Sustainable Action Group.

The Islands relative isolation, manageable governance structure, and its visiting public of adults, families and children provides an exceptional opportunity to test and showcase new technologies and the accompanying educational outreach to support their adoption and use.

As a microcosm for the state, nation, and the world, Catalina Island offers itself as a living laboratory—a venue where new technologies can be tested, refined and then scaled for widespread use.

We are located 22 miles off the Southern California Coast. Less than a two-hour journey from the heart of Los Angeles—the nation's second largest metropolitan area—the Island is a regional, national and international destination that welcomes approximately one million visitors a year.



CREATING A SUSTAINABLE FUTURE

Our Action Plan for the Future

To achieve our goals, we are taking a step-by-step approach and seeking other appropriate business, government and organizational partners. The following is a priority list of the 6 key action areas we will proceed with simultaneously:

Reduce electricity use: In partnership with SCE, we are looking to significantly reduce electricity use, starting with a lighting swap-out. In a one day marathon, we will try to replace as many lights as possible with more efficient ones, measuring the impact – before and after. Some commercial businesses have already seen their electricity consumption decline by over 25%, simply by changing their lights. Our goal is to reduce electricity consumption 25% by 2015.

Convert waste to energy: In partnership with SCE, LA County and others, we will work to deploy the newest generation of environmentally responsible waste-to-energy technologies. Our goal is to have a system installed by the end of 2012 that is reliable enough, with sufficient capacity, so that SCE can look to a future in which their diesel generators are only used for back up.

Reduce water use: We will work with the local water system management company to implement a water efficiency program. The goal is to reduce current fresh water use at least 10% by 2010.

Replace saltwater system: We will work with the local water and sewage system management companies, to replace the saltwater dual system with a secondary or tertiary treated water system. We expect to develop a plan and timeframe in early 2009, with implementation by 2015.

Solar and Wind: We will work with SCE and vendors to develop plans for installing solar and wind technologies on the Island. Our goal is to supply a significant portion of the Island's needs with solar and wind, supported by battery storage by 2015.

A Transportation Plan: We will work with transportation planners, the government and local companies to develop alternative transport options and a comprehensive transportation plan for the Island that will include a timeframe and implementation options. We expect to have this plan in place by the end of 2009.

A Sustainable Action Plan:

- Reduce electricity use
- Convert waste to energy
- Reduce water use
- Replace saltwater system with secondary treated water
- Develop solar and wind opportunities
- Develop a transportation plan

SUSTAINABILITY ACTION GROUP *Mission*

The community strives to use technologies, products and practices that are energy efficient, reduce pollution and waste, conserve water and protect the environment. The community seeks to reduce its dependency on fossil fuels, both in the generation of electricity and in powering vehicles, with a comprehensive energy plan.

Avalon Vision 2020

Activities of the Group:

- **Evaluating infrastructure needs for the Island**
- **Working together to identify long-term solutions**
- **Solving problems quickly and cost-effectively**
- **Setting a goal: long-term sustainability and low environmental impact**
- **Creating an implementation plan**
- **Looking for funding alternatives**
- **Creating near term opportunities**
- **Cooperating**

Group Accomplishments:

- **Collected data from numerous sources**
- **Created interactive spreadsheets linking demand and supply for energy, water and waste**
 - *Publicly available*
 - *Linked to numbers of residents and visitors*
- **Created flow diagrams to visualize infrastructure systems**
- **Created forecasts for future needs**
- **Evaluated future opportunities**

Group Processes:

- **Meeting every six weeks or as needed**
- **Developing baseline infrastructure needs**
- **Creating future visions**
- **Evaluating technology options**
- **Developing scenarios for alternative technology options**
- **Seeking inputs from the community, stakeholders, experts, companies and governmental agencies**

SAG Vision

Catalina Island's infrastructure will be self sufficient by 2020

- *No imports of fuel*
- *No exports of waste*

SAG Members:

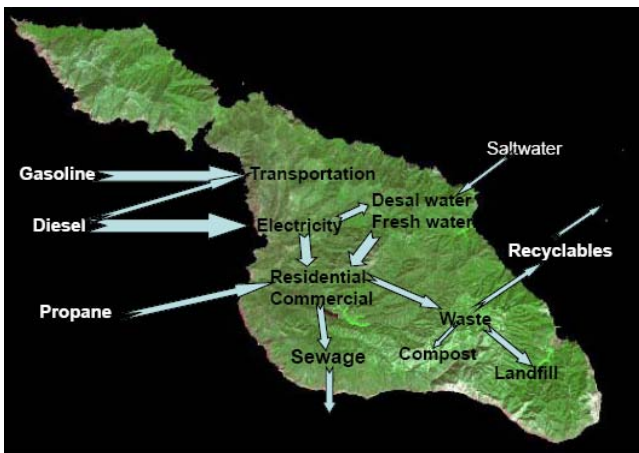
- **City of Avalon**
- **Catalina Island Chamber of Commerce**
- **Catalina Island Conservancy**
- **LA County**
- **Santa Catalina Island Company**
- **Southern California Edison**
- **University of Southern California**

TODAY *Catalina Island's Infrastructure is Unsustainable*

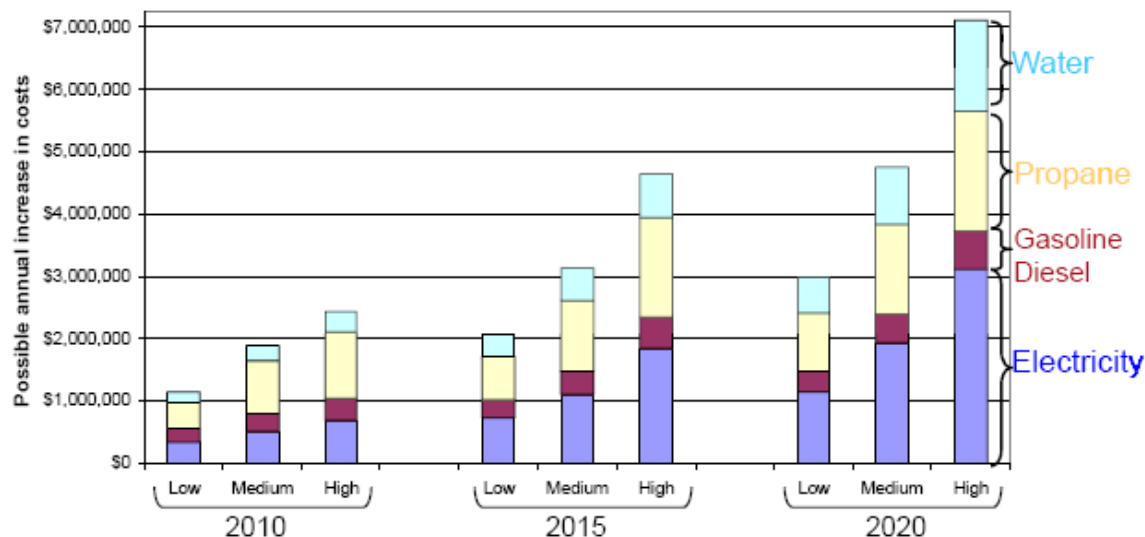
Catalina Island does not have the economic or natural resources to sustain its current infrastructure system into the future. The old infrastructure is in disrepair, with the salt water and waste water systems in need of substantial restoration or replacement. The costs of putting off infrastructure improvements are increasing steadily, along with the prices of gasoline, diesel and propane. The current practice of using diesel to generate electricity and gasoline for transport continues to extract heavy environmental and economic penalties. The landfill is near capacity, and fresh water availability is uncertain. What is certain is that Catalina's future infrastructure cannot and will not resemble its infrastructure today.

Planning for Sustainability

Tourism is critical to the Island's economic well-being, but sustaining the industry will likely increase the demand for resources and further strain the infrastructure. A viable future will only be possible by investing in a sustainable infrastructure system now.



Cost increase scenarios— residents and businesses could be paying \$7M a year more by 2020 for energy and water



WATER *Opportunities for the Future*

Replacing Saltwater with Secondary Treated Water

Dual-pipe infrastructure already exists on Catalina. Salt water is employed in the toilet system and other facilities in Avalon, although the corrosive effects of saltwater have been destroying the pipes. The current parallel plumbing system can be utilized to incorporate treated water. This *Secondary Treated Water* would be used in toilets, irrigation and other appropriate areas. Discussions with the LA County Dept of Health have already occurred in preparation for developing this system.

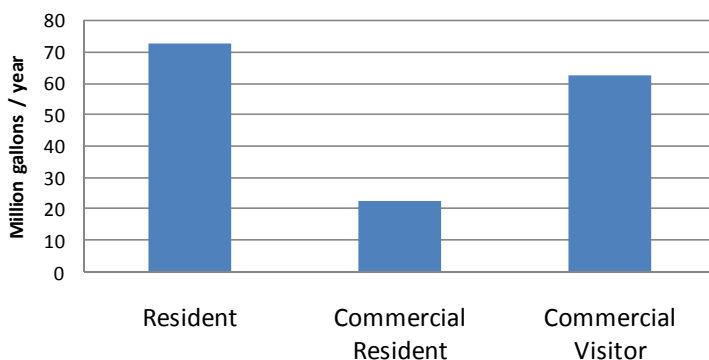
Desalination

Turning saltwater into freshwater is an energy intensive process, and must go hand in hand with major changes to Catalina Island's energy production system. If cleaner energy is available, desalination could have a significant role in a sustainable infrastructure system. Southern California Edison is already developing a more efficient system that will increase the potential importance of this option. It is needed, as future sources and availability of fresh water are becoming highly uncertain. Water costs, both economic and environmental, are likely to rise rapidly as new sources of freshwater are required. Desalination would help reduce these environmental stresses, and be a more effective way to maintain groundwater as a 'strategic reserve.'

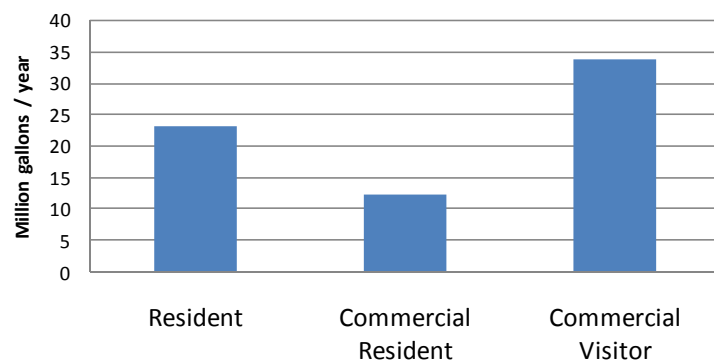
Efficiency Options:

A 10% reduction in water use is possible by introducing improved appliances, low flow faucets, dual toilets, waterless urinals, and the re-use of tertiary treated water for irrigation and fire suppression.

Annual Potable Water Usage



Annual Saltwater Usage



ELECTRICITY *Opportunities for the future*

Diversifying the Energy Portfolio

A reliable, clean and cost effective electricity supply can be ensured for Catalina Island, but only if the current diesel-centered system is revamped. Catalina Island will need a broad based, diverse package of electricity sources, which incorporates recent technological advances as well as some of the Island's currently unutilized resources.

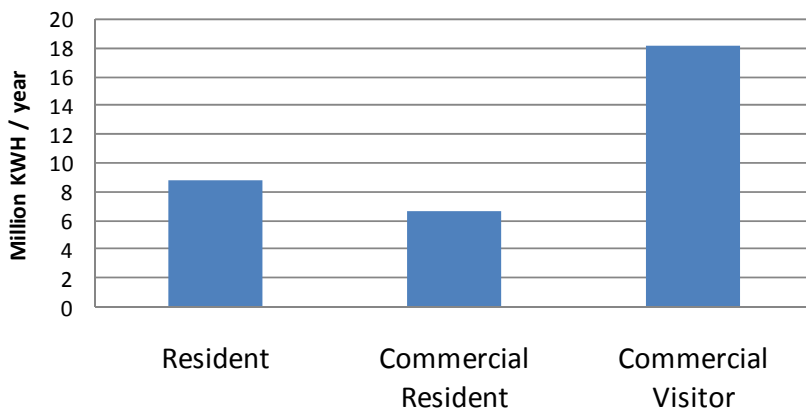
Working with Southern California Edison, this package will include some or all of the following currently available technologies and techniques:

- **Efficiency:** Reduce current electricity use by up to 25%.
- **Waste to Energy:** Convert solid waste to fuel for electricity and displace some diesel-generated energy.
- **Wind:** Create opportunities to site small scale wind turbines in key places on the Island.
- **Solar:** Develop opportunities to install photovoltaic systems, as well as solar water heating.
- **Biomass:** Explore opportunities for small scale algae production to make fuel for electricity.
- **Ocean energy:** Explore opportunities with SCE for new ocean energy technologies.

Efficiency Options:

Working with SCE, a reduction in up to 25% of electricity use is possible by improving lighting and heating equipment, and other appliances. All new buildings and building retrofits should meet sustainability criteria developed by USC. This criteria has been specially designed for Catalina, with the support of the Island Company and the Conservancy.

Annual Electricity Usage



DRAFT

DRAFT 23 December 2008

Putting WASTE to WORK

With the landfill near-capacity, we can efficiently convert waste to energy for electricity or transportation fuel using one of several different techniques. In doing so, we would reclaim Catalina's dump within 10 years. Incorporating waste to energy techniques into the long-term sustainable infrastructure system will eliminate exports of waste.

TRANSPORTATION *Opportunities for the future*

A Community-Oriented Transportation System

Catalina's separation from the mainland and relative small size offers a unique opportunity to re-think public and private transportation options. By incorporating a more robust and sustainable public transport system, and working closely with local private and public transit companies, Catalina Island could become a model for sustainable communities everywhere.

Public Transport

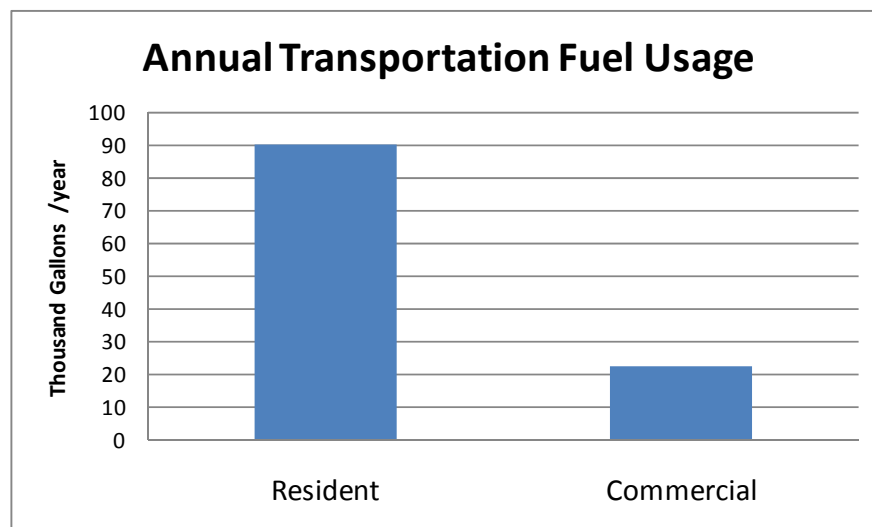
An expanded and environmentally friendly public transport system is an important key. Residents need to be given a convenient and affordable reason to leave their cars and trucks at home, and visitors should have an alternative that provides affordable access through town and the interior of Catalina.

Autoettes – Shifting to Electric

The private autoette industry can be encouraged and incentivized to introduce electric autoettes. A replacement of the current gasoline-guzzling model to a cleaner , quieter electric model could be accompanied by a concerted effort to increase their overall usage. Potentially, electric autoettes could replace most private cars and trucks on the Island.

Demonstrating the way forward:

The successful implementation of a sustainable transport system would draw interest, and visitors, from across the world. This offers a unique opportunity to align Catalina Island's environmental requirements with its economic aspirations.



WANT TO HELP? *Contact us*

We are looking for partners who are interested in working with us to:

- **Pilot new technologies,**
- **Implement technology options,**
- **Develop innovative plans and programs,**
- **Provide grants and financing alternatives,**
- **Publicize our activities, and**
- **Help make Catalina sustainable.**

To Contact Us

If you are interested in working with us you can contact the Sustainable Action Group at:

CatalinaSAG@gmail.com