

The San Diego Foundation's Climate Initiative



Presented by Emily Young, PhD
September 2009



The San Diego Foundation's *Climate Initiative*

Work with government, business, and the community at large to advance regional efforts to curb greenhouse gas emissions and reduce our vulnerability to some of the most harmful effects of climate change



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Our Partners



Zell Family Foundation TSX Group, Inc Platt/Whitelaw Architects, Inc.



Orca, Hervey Family, Beyster Family, Hattie Ettinger Conservation



FreakingNews.com

*While climate change
is a global issue,
all solutions are
ultimately local*

California is on the leading edge of
efforts to address climate change

1. Global Warming Solutions Act, SB 375, and related legislation
2. Executive Order S-13-08 to assess impacts and draft statewide adaptation strategy

Local implications...

1. Greenhouse gas emissions



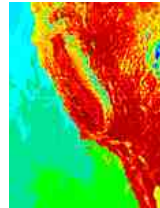
mitigation strategies



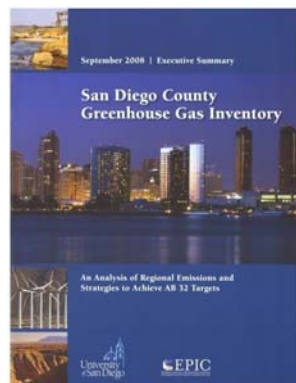
2. Climate change impacts



adaptation strategies

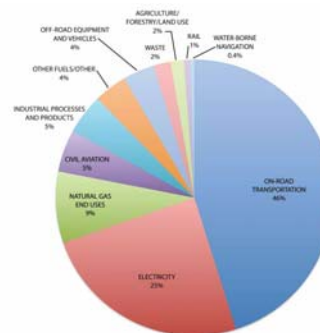


Our region's "Carbon Footprint" and reduction mandates



Source:
www.sandiego.edu/epic/ghginventory

Figure 13. Theoretical GHG Reduction Targets for San Diego County



Impacts of Climate Change and Adaptation Strategies

“\$2.5 trillion is at risk from extreme weather events, sea level rise, and wildfires...” *2009 California Climate Adaptation Strategy*, 8/3/09

“Current building, land use and planning practices assume a continuation of climate as it has been known in the past.” *National Research Council*, 3/12/09



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Our Region Is Uniquely Vulnerable to Climate Change

- Mild climate and expanding population
- 70 miles of coastline
- Exceptional combination of beaches, canyons, mountains, & deserts
- Unique hot-spot for biodiversity, with many already threatened species
- Severe existing wildfire conditions
- International border with Tijuana
- Reliance on imports for up to 95% of our water needs



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Focus 2050 Study

Primary Question:

What will our region look like in 2050 due to climate change, if current trends continue?

(King County model)

- To understand the unknown costs and risks associated with a changing climate
- To build sense of urgency around agreed upon set of facts



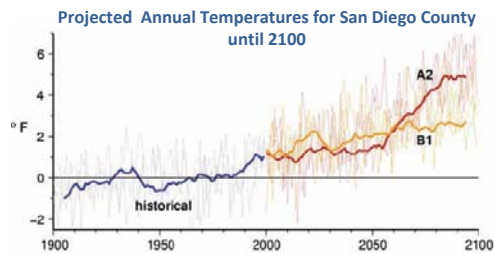
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Regional Climate Change

**Average annual temperatures will be between
1.5 & 4.5°F higher by 2050**

- Early November will “feel” like September currently does.
- Our region will become even more vulnerable to drought.

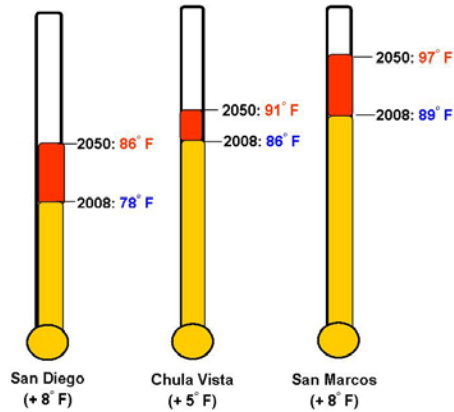


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Regional Climate Change

Expected difference in August average temperature by 2050



Average *annual* temperature increase will rise by 1.5 and 4.5 degrees warmer, but peak summer temperatures will be considerably higher.

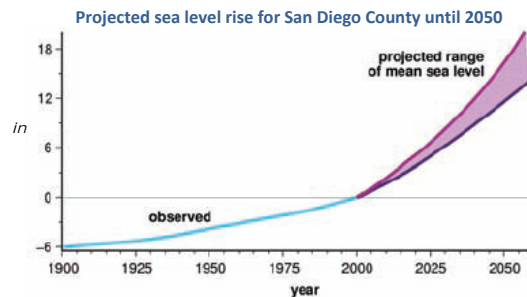
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Sea Level Rise

Conservative estimates are that sea level will rise by as much as 18 inches

This, combined with tidal and storm surges, will cause harm or loss of our sandy beach areas, wetlands, coastal commercial, municipal, & residential properties



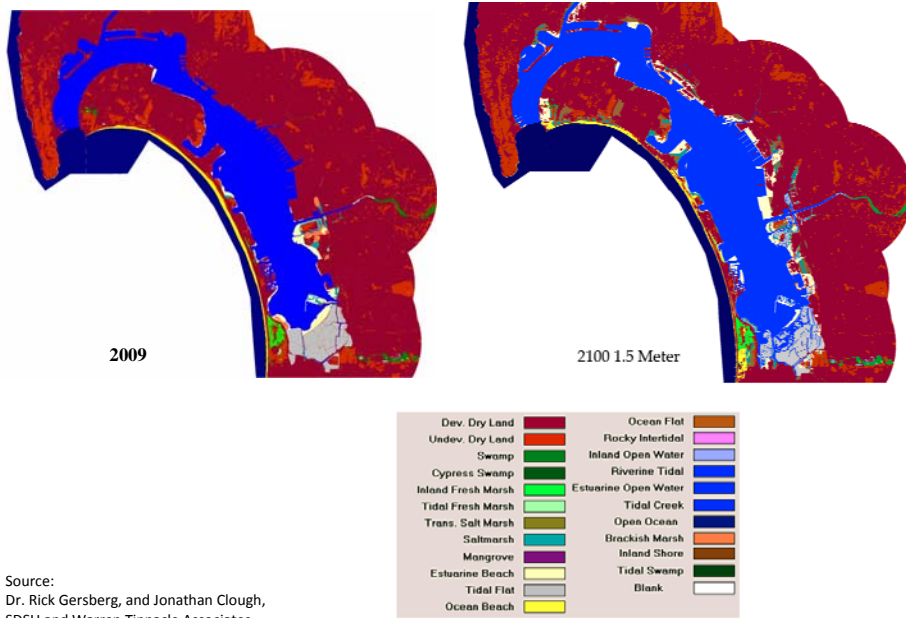
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**Sea Level Rise
by 2050 in
Mission Beach**



San Diego Bay



Source:
Dr. Rick Gersberg, and Jonathan Clough,
SDSU and Warren Tinnacle Associates



Water

Despite plans for water conservation, desalinization, and recycling, demand for fresh water will outstrip supply by 2050.

There will be growing potential for conflicts among multiple users.



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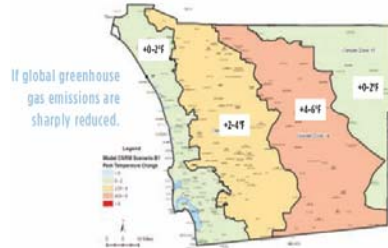


Electricity

Managing regional energy demand will be even more challenging by 2050

Peak electricity demand will increase by over 70% with warmer temperatures causing about 7%.

Projected change in summer daytime peak temperatures in San Diego County in the year 2050

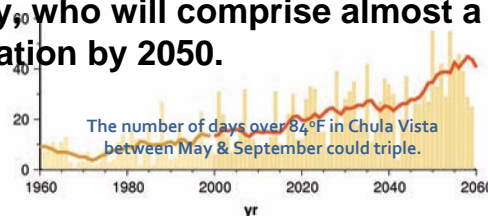


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Public Health

Increased heat and air pollution will take a toll on public health, particularly for the elderly, who will comprise almost a 1/4 of the population by 2050.



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Ecosystems

Plant and animal habitats in San Diego will be increasingly threatened due to

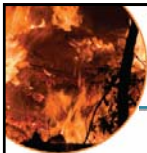
- climate change too rapid for some species to adapt
- increased wildfires & more intense droughts
- habitat fragmentation and urban sprawl



The southern Sagebrush Lizard is found only at elevations above 5,000 ft. With already reduced populations, they may disappear from local mountains that "top out" at 6,000 feet if temperatures continue to rise.



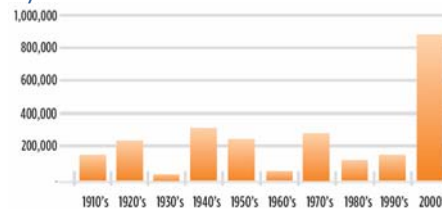
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Wildfires

Wildfires will become more frequent and intense due to warmer temperatures, drought and drier conditions, as well as potentially extended Santa Ana winds.

Total acreage historically burned by wildfires in San Diego County



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What Public Agencies Can Do



Develop inventory of local greenhouse gas emissions

Assess local vulnerabilities from climate change

Adopt targets for reducing emissions & prioritize areas for climate adaptation

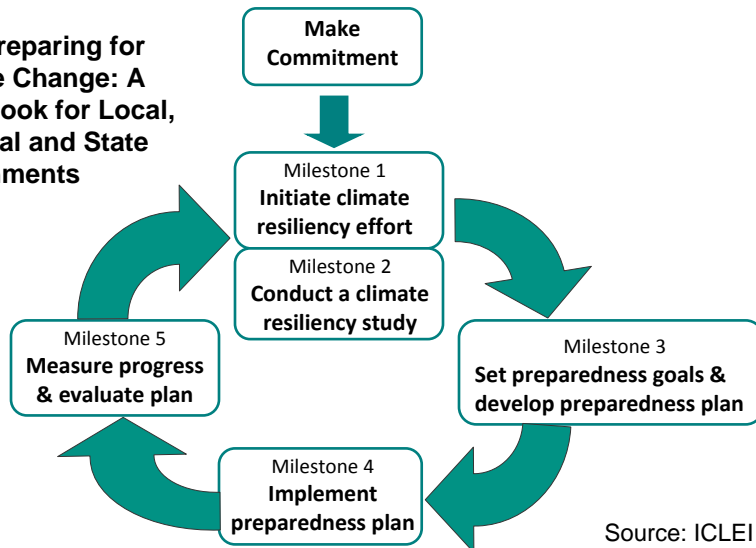
Enact programs and policies to reduce emissions and vulnerabilities to climate change

Assess progress and refine policies/programs

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ICLEI's Five Milestone Adaptation Planning Process

From **Preparing for Climate Change: A Guidebook for Local, Regional and State Governments**




Source: ICLEI

Adaptation Planning for the Port of San Diego

		Sea Level Rise	
		Risks for SD Bay & Waterfront	Adaptation Options
 <p>Sources: Dr. Rick Gersberg, SDSU/Karen Franz; San Diego Coastkeeper California Adaptation Strategy EPA Climate Ready Estuaries Sierra Club Cool Cities</p>	Inundation of coastal property and infrastructure	Hazard avoidance policies for future development; engineering & design for structural resilience	
	Wetland habitat and biodiversity loss	Create habitat buffer zones to allow migration inland (e.g., thru setbacks, density restrictions, land purchases); assisted species migration	
	Beach, cliff, and bluff erosion	Build natural buffers to protect coastline and let beaches move inland	
	Saltwater intrusion into coastal aquifers	Build natural buffers to protect coastline; design and engineer infrastructure (e.g. injection wells as barriers) to minimize intrusion	
	Diminished water quality from wetland loss and more concentrated urban runoff	Wetland habitat restoration to improve filtration; create habitat buffer zones (see above)	

The Adaptation-Mitigation Connection: Synergies

		Energy	
		Mitigation	Adaptation
 <p>Source: ICLEI</p>	Reduce emissions by expanding use of renewable sources	Reduce vulnerability to widespread power grid outages by encouraging distributed generation from multiple renewable sources (solar, wind, biogas, landfill methane, etc.)	
	Reduce emissions by improving efficiency of energy and water delivery systems	Reduce potential for grid overload and failure by decreasing demand	

The Adaptation-Mitigation Connection: Synergies



Water	
Mitigation	Adaptation
Reduce emissions by reducing water use (less energy required for treating and transporting water)	Conserve water so more is available during more frequent and severe droughts

Source: ICLEI

Local Action in San Diego Region

Greenhouse gas inventories

Carlsbad Chula Vista Encinitas Imperial Beach La Mesa National City Poway
 San Diego San Diego County of San Diego
 San Marcos Solana Beach Vista

SB375 Sustainable Communities Plan

SANDAG *

CA Climate Action Registry

Carlsbad Chula Vista Coronado

US Mayors Climate Protection Agreement

Chula Vista Del Mar El Cajon Imperial Beach La Mesa
 San Diego Solana Beach Vista

Climate Action Plans

Chula Vista San Diego
 SANDAG* Solana Beach*

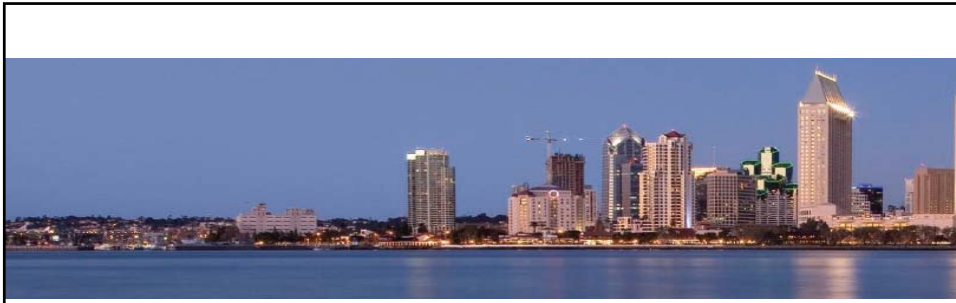
Climate Adaptation Plans

Chula Vista*



* Drafting

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