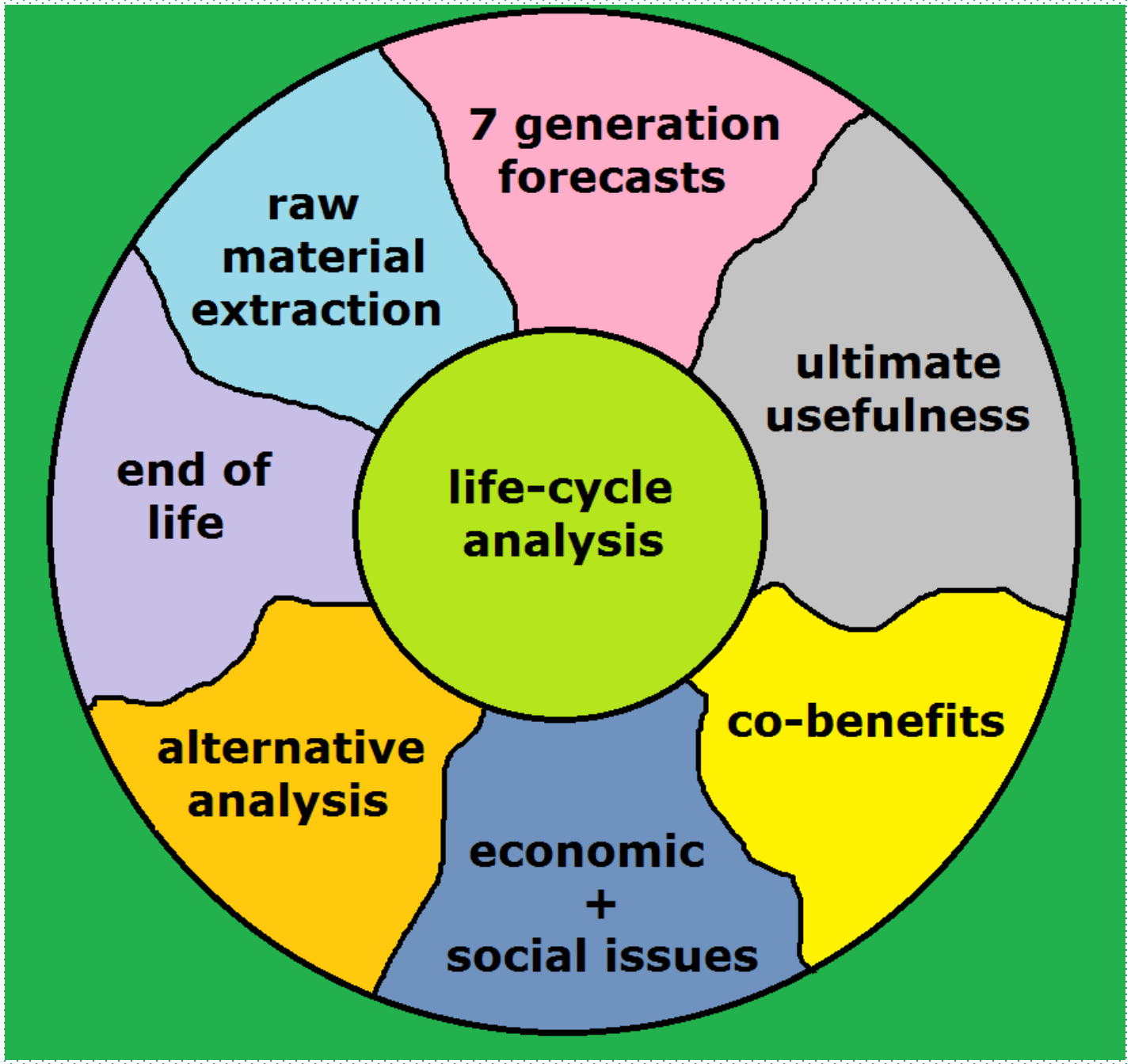
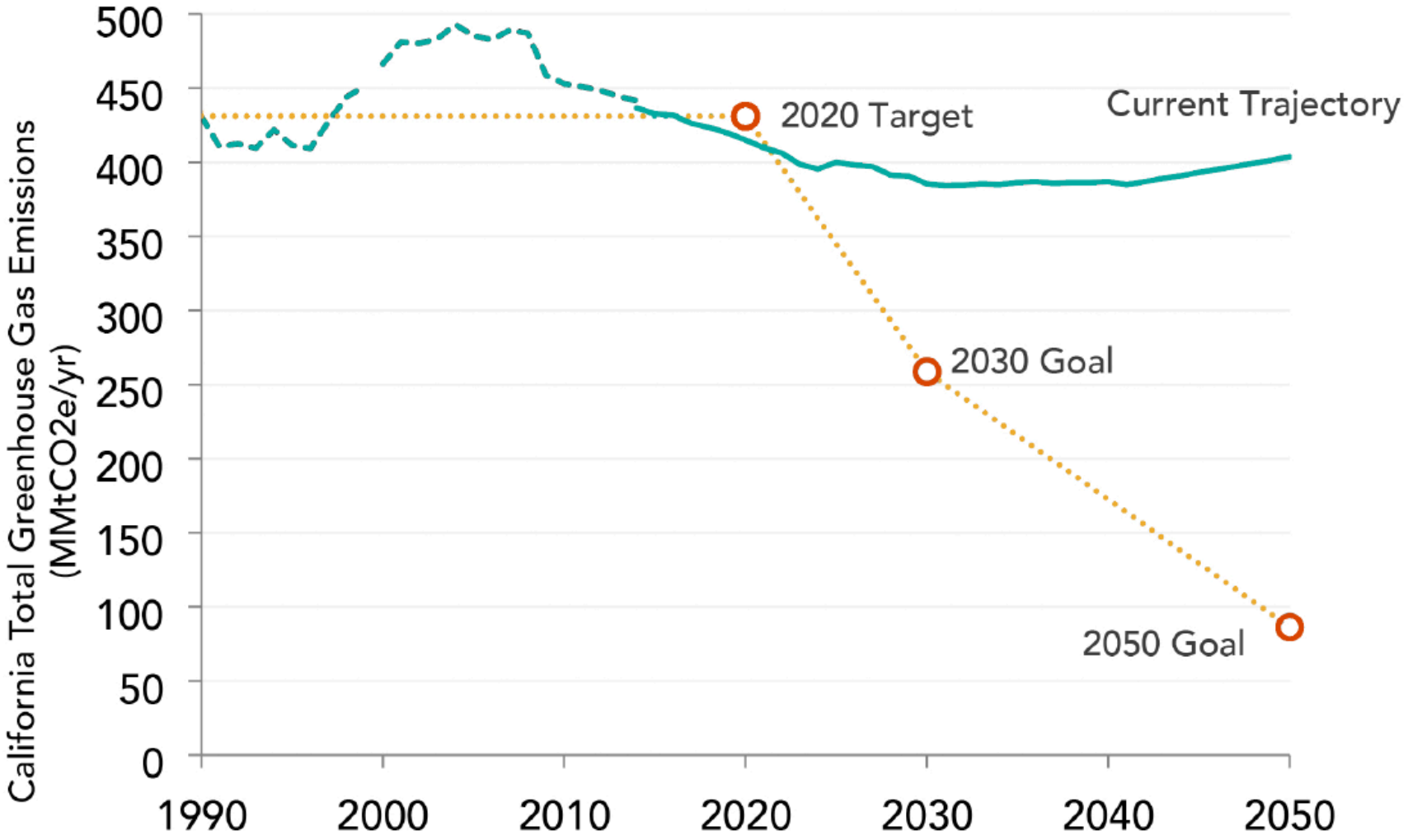
Carbon Capture and Sequestration

Implications for Environmental Justice

Number One Environmental Justice Priority


7 generation forecasts
ultimate usefulness
co-benefits
economic + social issues
alternative analysis
end of life
raw material extraction
life-cycle analysis

California Off-Track in Race to Meet 2030 and 2050 Climate Goals



Source: California Air Resources Board

HECA

NEWS & UPDATE

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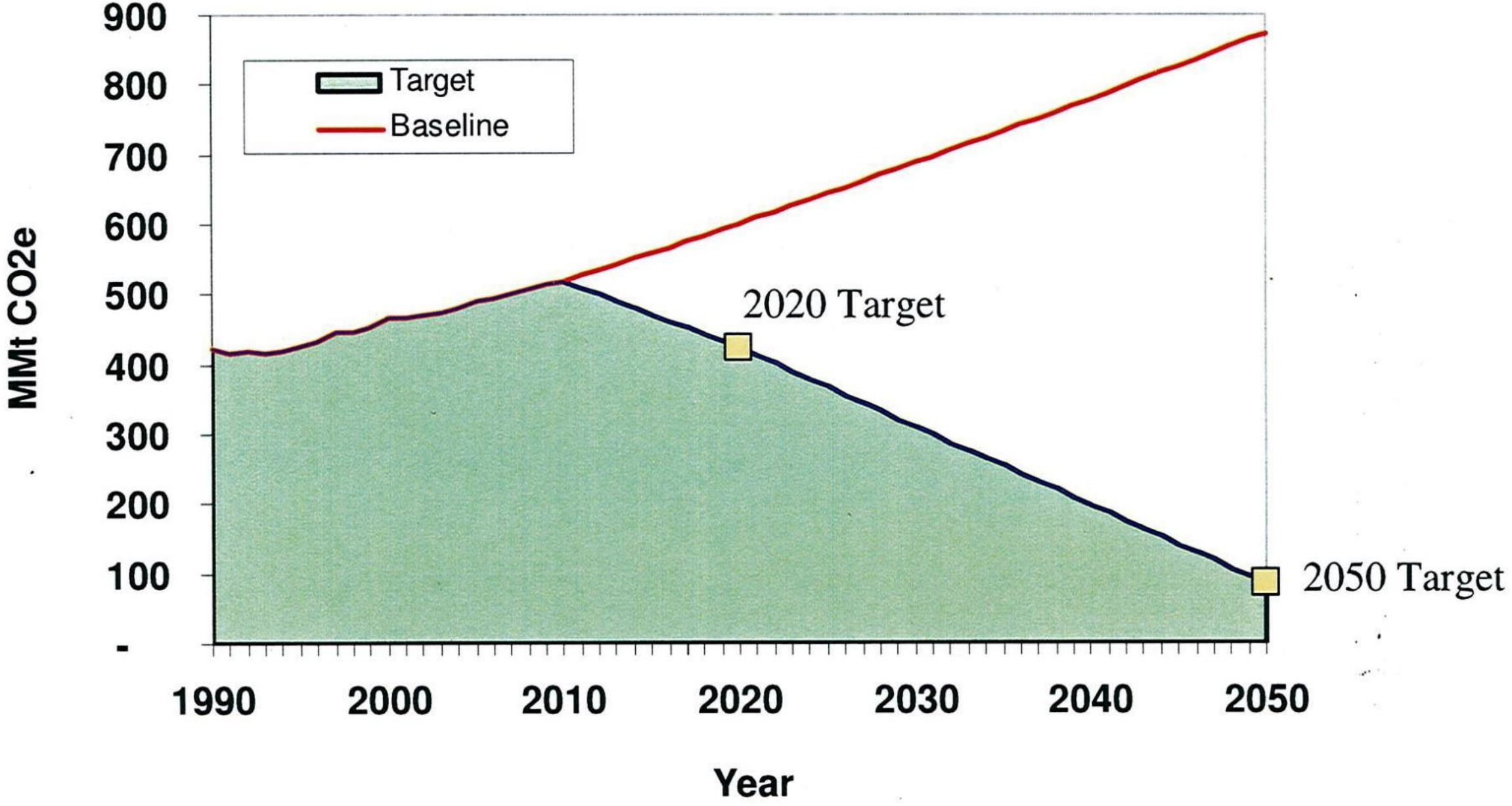
Spring/Summer 2013

A New Solution for Low-Carbon Power

HECA Helps Meet California's Overall Energy Needs

"Ninety percent of the plant's CO2 emissions will be captured and stored....which will enable the production of 5 million additional barrels of oil. This CO2 removal is equivalent to taking 650,000 cars off the road...."

California GHG Emission Reduction Goal



La Paloma Generating Company, LLC
GHG Emissions over years (MT)

2012	2,095,949
2013	2,498,962
2014	2,501,899

CA Electrical Production and GHG emissions

	Now	2050
Total production	**300,000 GWh**	**600,000 GWh**
Total emissions	90 million MT of CO_2	18 million MT of CO_2
Avg emission rate	600 lb of CO_2 per MWh	60 lb of CO_2 per MWh
Feasible maximum	Less than 1,100 lb per MWh	Less than 200 lb (???) per MWh

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	CLAIM	REALITY
POWER OUTPUT TO THE GRID	300-350 MW	60 MW max
CO2 EMISSIONS	Capture 3 million tons	Release 300,000 tons
EMISSION RATE	300 lb CO2/MWh	1,270 lb CO2/MWh

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water	2.5 billion gallons per year
air pollutants	hundreds of tons of NOx and PM10
location	600 acres of prime farmland
trucking	900 one-way trips per day
residents	negative impact on four low-income communities

49 MW Biomass Plant in Delano

Is the energy from incinerating biomass carbon neutral?

Environmental Justice says NO!

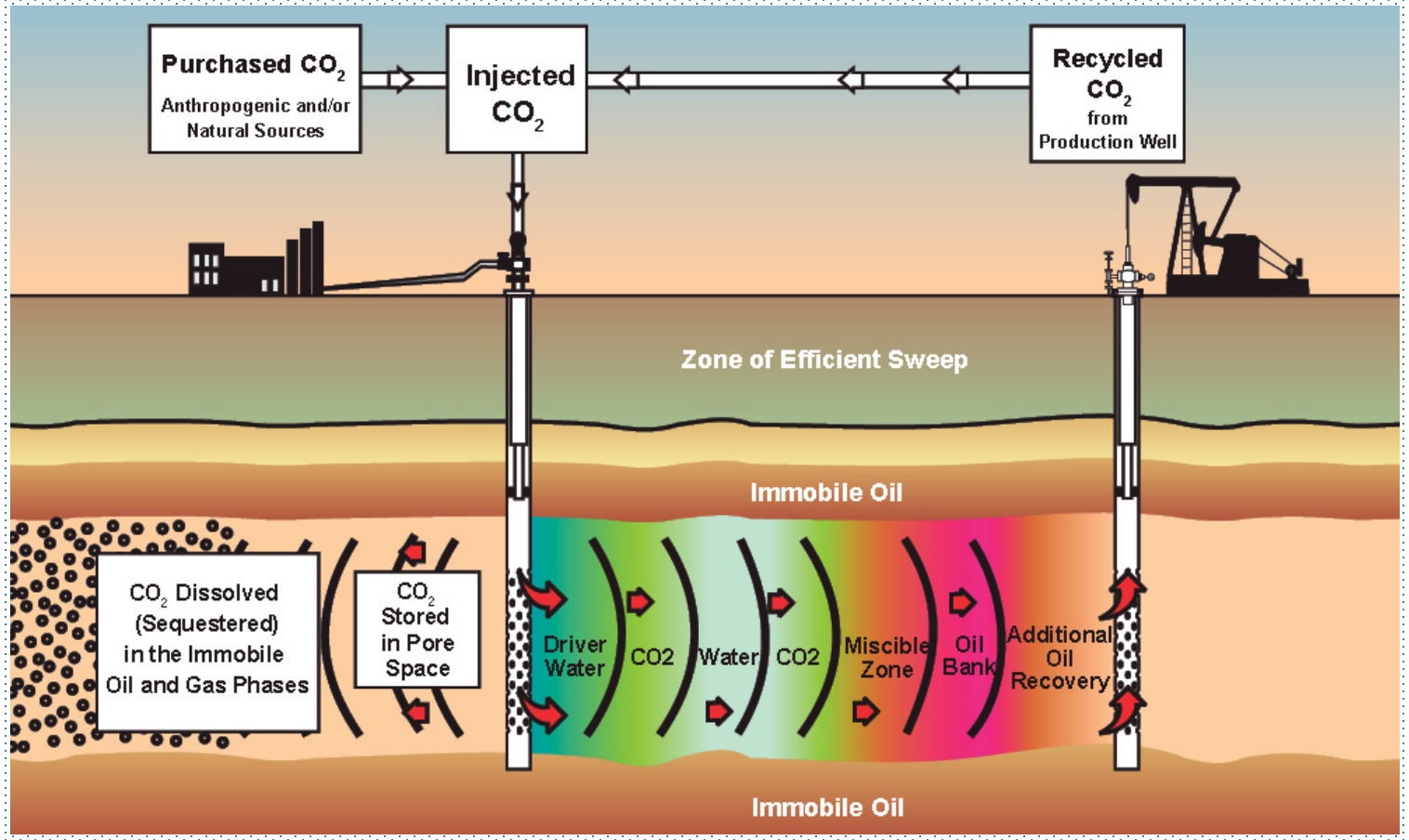
Solar, wind, and wave energy are carbon neutral.
A tree that takes 100 years to regrow is not.

The mature forest is carbon neutral. Removing biomass for energy ultimately removes sequestered forest soil carbon.

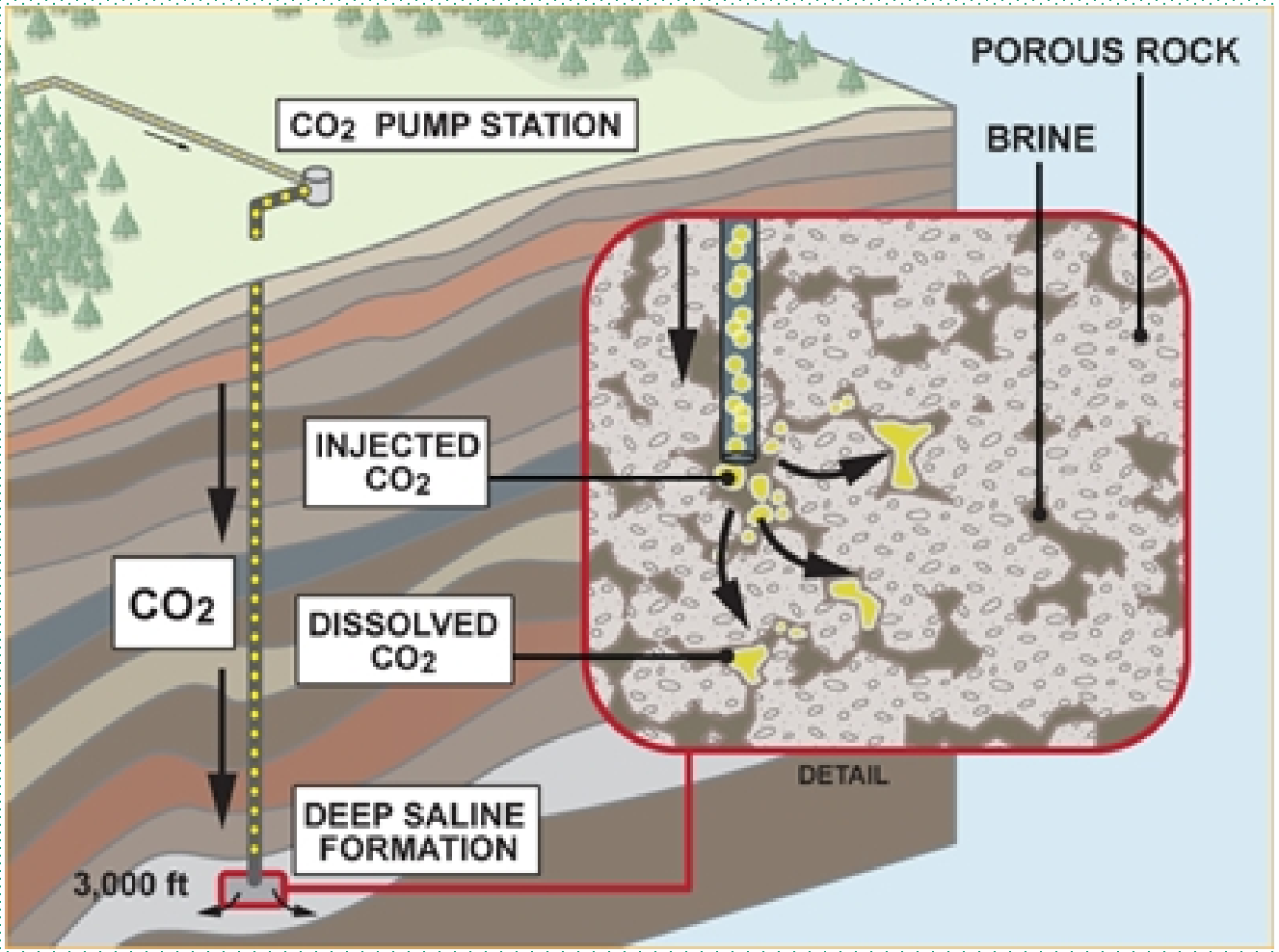
Put the biomass into the soil.

EOR with CO2 Sequestration

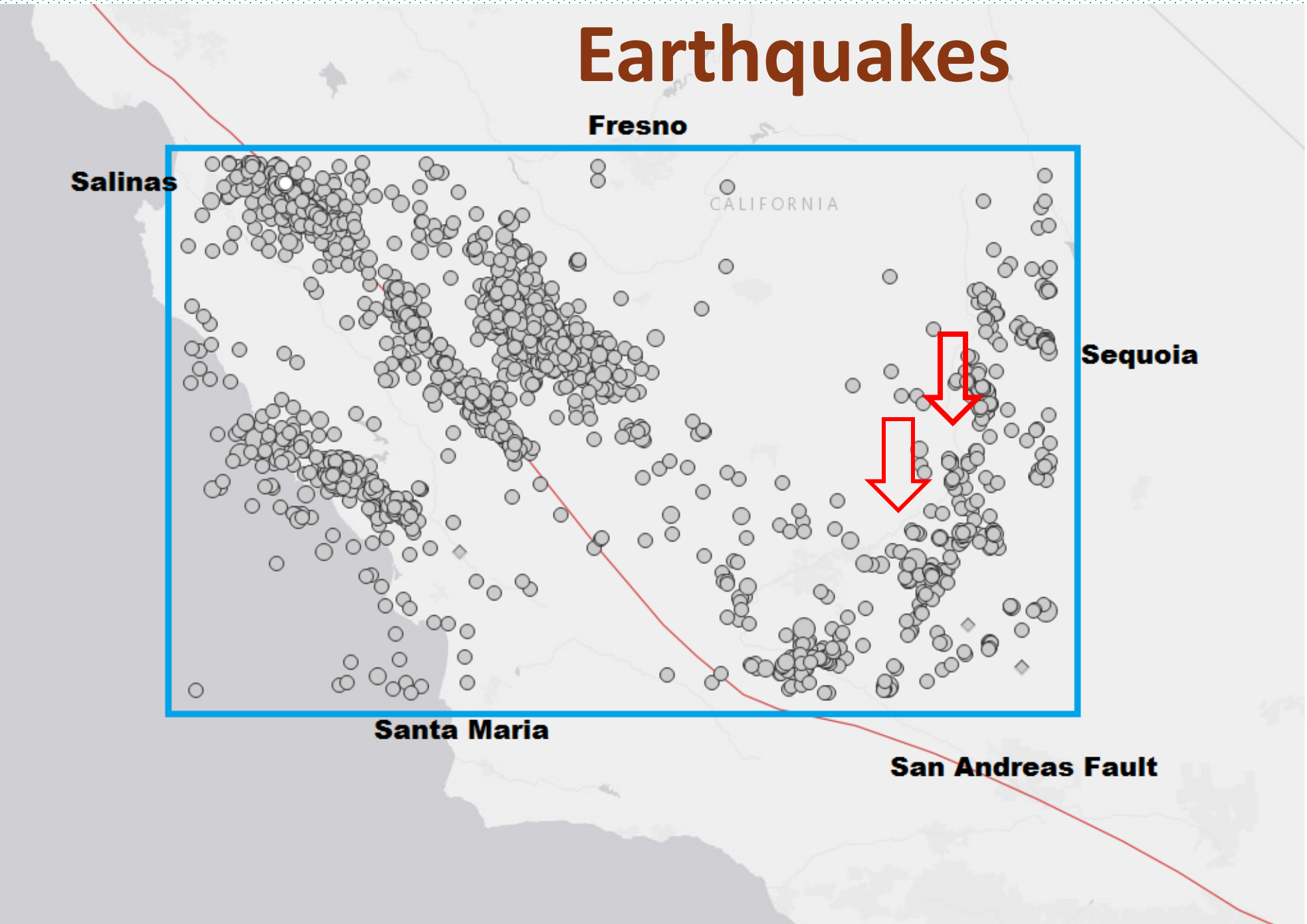
Monumental Fail!!



Should we just pump it deep into the ground?



Earthquakes



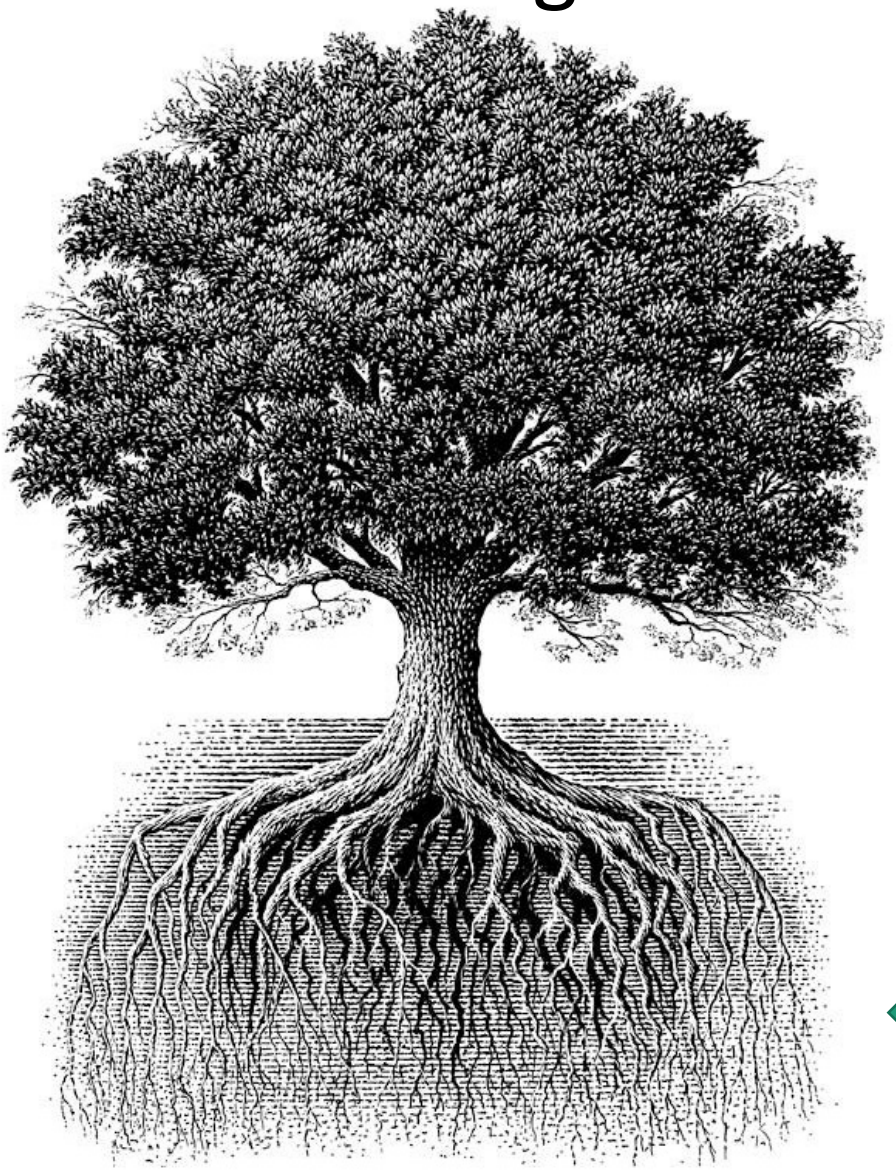
In Central California from Santa Maria to Fresno and Salinas to Sequoia

(Around 18,000 sq mi)

* there have been 2434 earthquakes since January 1975 above 3.0
* 200 quakes above 4.0
* 23 quakes above 5.0
* 3 quakes above 6.0

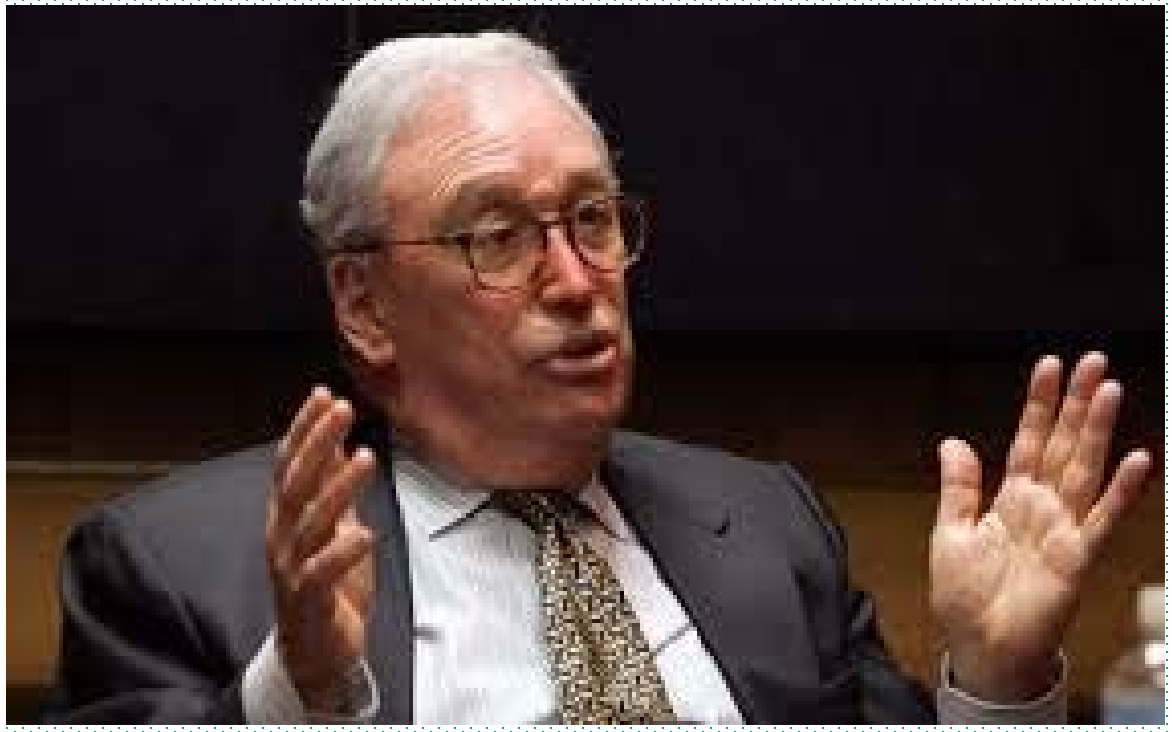
One acre of degraded forest

plant photosynthesis absorbs 3 tons of carbon



Soil respiration releases 2 tons of carbon

1 ton of additional carbon sequestered



Who gets to decide?