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# Accelerating the Pace of Change: Net-Negative Emissions by 2030

One-Tam Summit

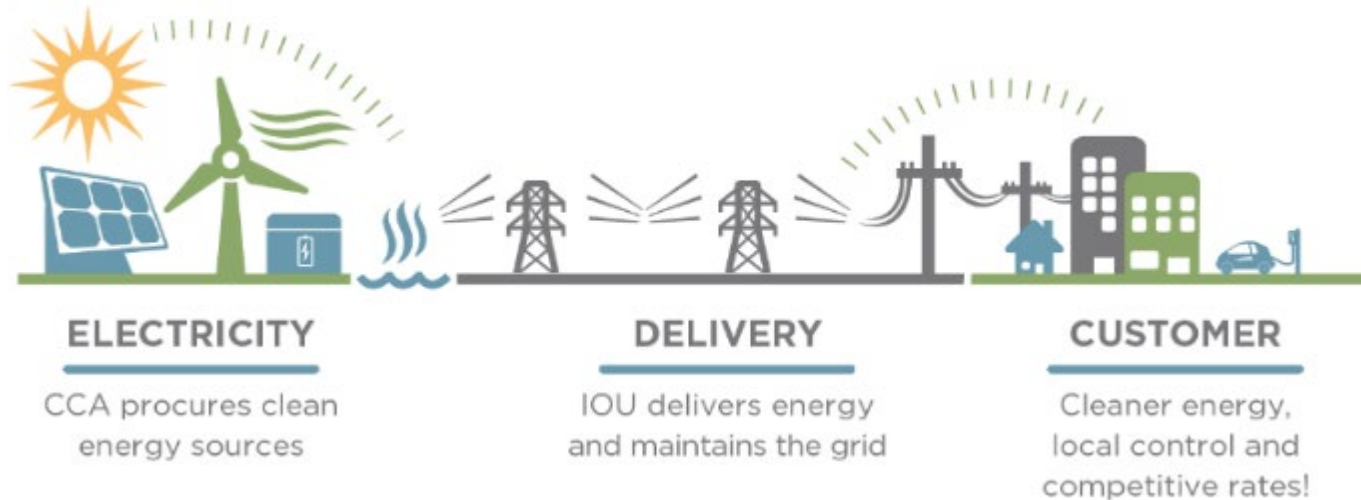
October 29, 2020

Ellie Cohen and Team, The Climate Center

[www.theclimatecenter.org](http://www.theclimatecenter.org) [ellie@theclimatecenter.org](mailto:ellie@theclimatecenter.org)

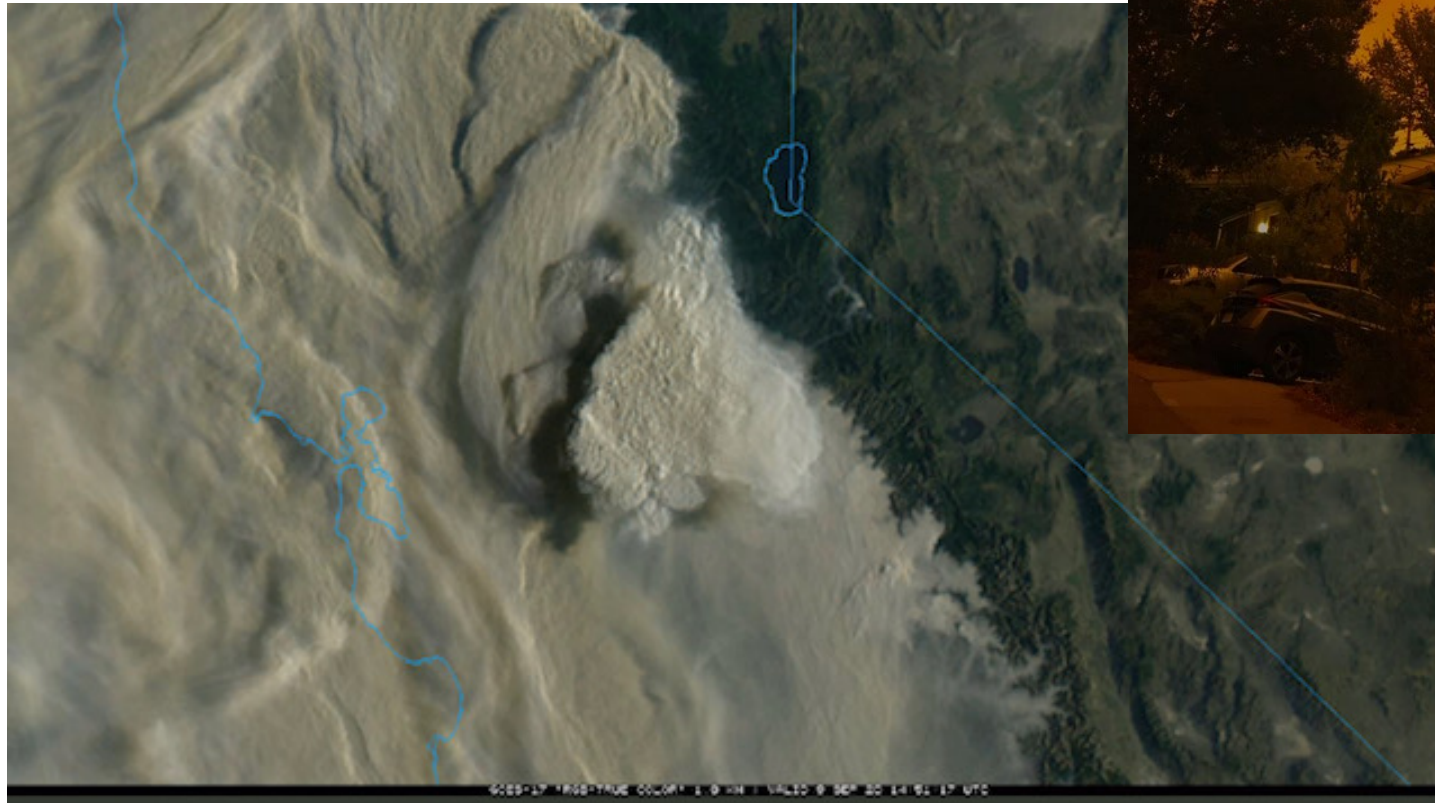
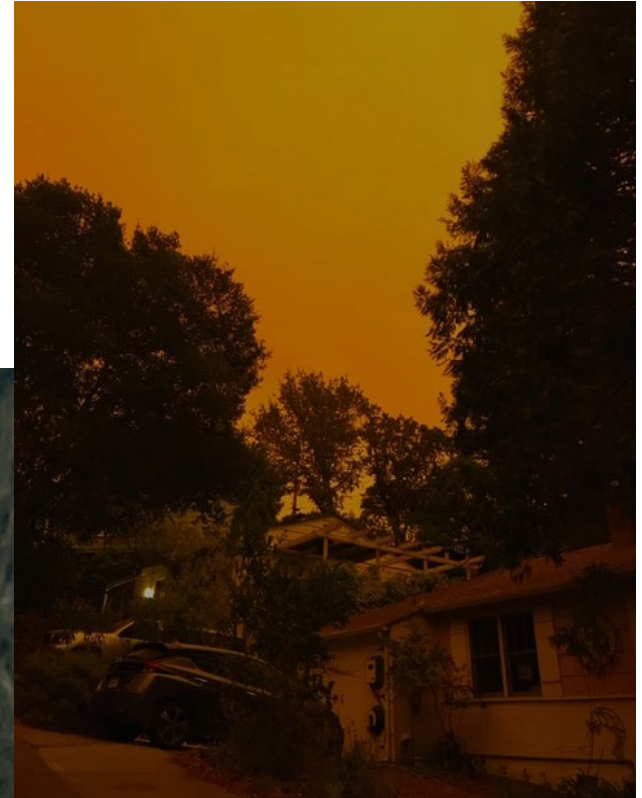


# Mission: Speed and scale greenhouse gas reductions



**Key role in growing Community Choice Energy:  
21 CCAs serving 11 million Californians- ¼ of  
state- with 88% clean energy today!**

# Our house is on fire, the “hellscape is here,” and Californians are afraid...



Sept 9, 2020 GOES WEST Satellite image of Northern California; Orange skies over Bay Area

<https://www.latimes.com/opinion/story/2020-09-09/wildfires-record-temperatures-hellscape-climate-change-greenland-rising-seas>



Sunday

# Los Angeles Times

\$3.66 DESIGNATED AREAS HIGHER © 2020 WST ++ SUNDAY, SEPTEMBER 13, 2020 latimes.com

# California's climate apocalypse

Fires, heat, air pollution: The calamity is no longer in the future — it's here, now

## Oregon residents standing ground

BY RICHARD READ,  
MOLLY HENNESSY-FISKE  
AND MELISSA ETEHAD

MOLALLA, Ore. —  
Christine VanOeveren grab-

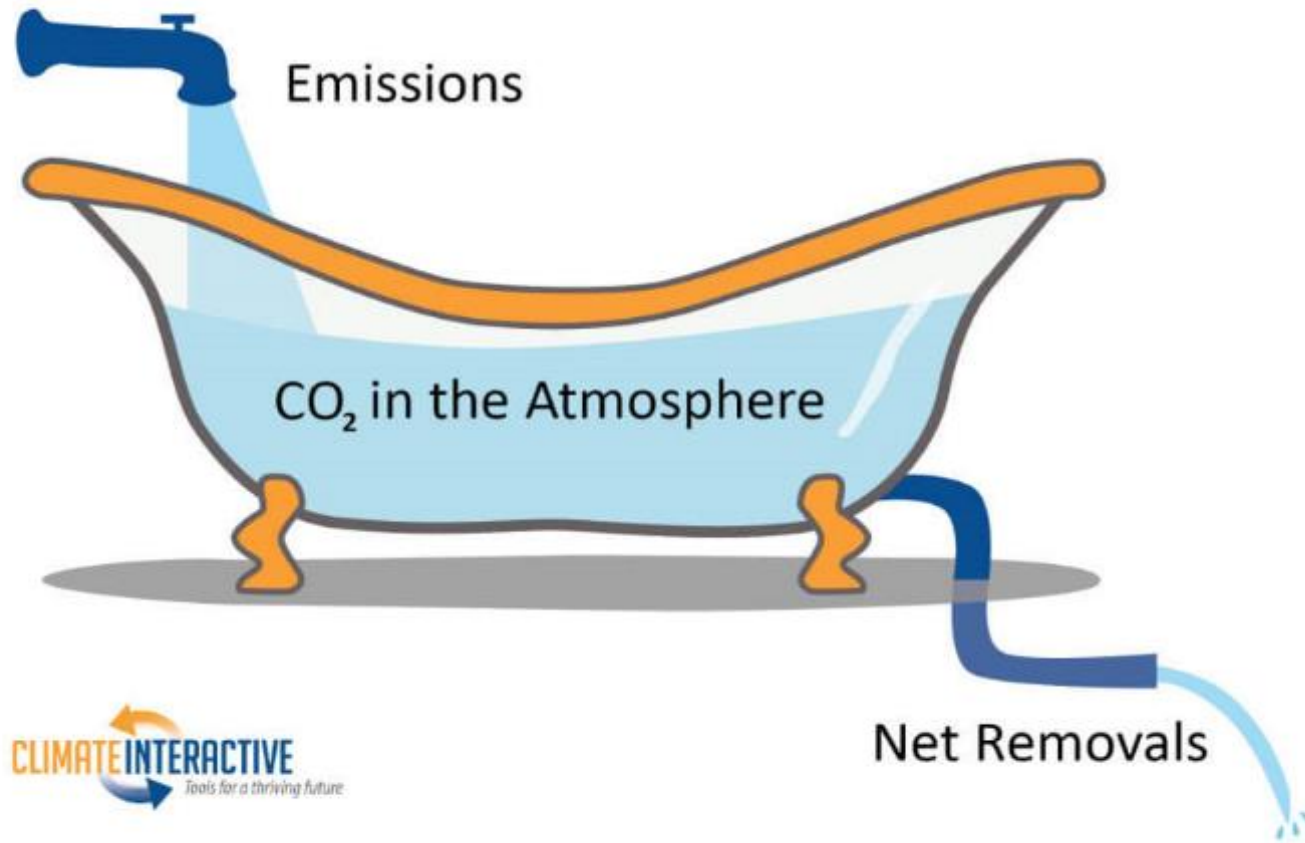


BY SUSANNE RUST  
AND TONY BARBOZA

In 2001, a team of international scientists projected that during the next 100 years, the planet's inhabitants would witness higher maximum temperatures, more hot days and heat waves, an increase in the risk of forest fires and "substantially degraded air quality" in large metropolitan areas as a result of climate change.

In just the past nearly two decades after the third United Nations Intergovernmental Panel on Climate Change report was issued, heat records were

# 5.5% projected drop in emissions 2020



Overall framing by Dr. John Sterman, MIT Sloan

<https://grist.org/climate/the-world-is-on-lockdown-so-where-are-all-the-carbon-emissions-coming-from/>

<https://www.climateinteractive.org/tools/climate-bathtub-simulation/>  
<https://www.carbonbrief.org/analysis-coronavirus-set-to-cause-largest-ever-annual-fall-in-co2-emissions>

# Current global climate goals are inadequate

## UN IPCC 1.5C Report- Oct 2018

- Emissions must decline by 45% by 2030 to meet 1.5C (2.7°F) limit
- Up to 1000 Gt CO<sub>2</sub>e must be removed from atmosphere over the decades ahead
- Achieve net-zero emissions by 2050



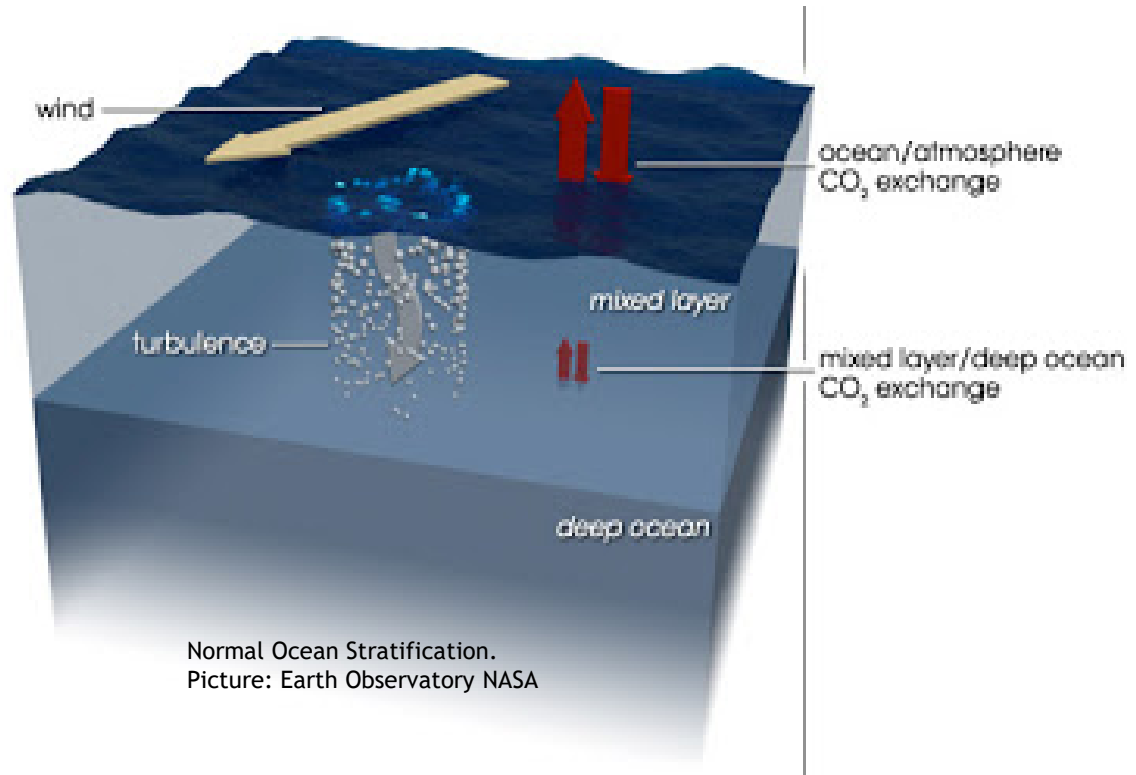
**UN operates by consensus so goals are conservative and not enough.**

**We must do more sooner per new science...**

# Top layer of ocean heating up & thickening, warm currents moving poleward => more drought, intense storms, fisheries changes, O2 depletion & less CO2 absorption

**“The impacts of  
climate change  
are proving to be  
worse than we  
predicted...  
driving more  
vicious cycle of  
warming.”**

-co-author Michael  
Mann, PhD





# Abrupt ecosystem collapse: die-offs biodiversity could start this decade in tropical oceans

Deep emissions cuts this decade could save thousands of species



Jan 2016 common murre carcasses near Whittier, AK, David B. Irons

Trisos et al. *Nature*, April 2020

High % of species will be exposed to harmful climate conditions at about the same time - potentially lead to sudden die-offs of biodiversity



# Abrupt permafrost thaw doubles previous est.CO2/methane emissions

Not in any climate models  
including IPCC 1.5C  
report... “How realistic are  
our projections” without  
permafrost feedbacks?  
“We can definitely stave off  
the worst consequences if  
we act in the next decade”

—Merritt Turetsky, PhD

# Western US now in global warming-induced severe megadrought

- Threatens dustbowl & ag economy by as early as 2027 in California
- 2015 drought cost ~\$2.7 billion and 20k lost ag jobs in California
- 2000 to 2018 was 2<sup>nd</sup> driest in 1200 years



<https://www.washingtonpost.com/weather/2020/04/16/southwest-megadrought-climate-change/>  
[Williams et al. Science Apr 17 2020](#)  
<https://www.scientificamerican.com/article/drought-takes-2-7-billion-toll-on-california-agriculture/>



# Fall fire weather days have doubled since 1980 in California

but can reverse trend with major GHG reductions

Goss et al Environmental Research Letters Mar 2020

<https://www.latimes.com/california/story/2020-03-19/the-west-is-in-an-expanding-20-year-drought-that-a-march-miracle-will-do-little-to-change>

*Australian pyrocumulus fire clouds that create dry lighting, igniting more fires*



# Increasing health impacts especially to most vulnerable communities; extreme heat most deadly; recent smoke storm ~1200+ addl deaths for 65+ yr olds



<http://www.who.int/globalchange/en/>

Leleiveld et al., Cardiovascular, March 2020; Hoffman et al. Climate Jan 2020  
Bekkar et al JAMA June 2020

<https://www.nytimes.com/2020/06/18/climate/climate-change-pregnancy-study.html>

<https://amp-sacbee-com.cdn.ampproject.org/c/s/amp.sacbee.com/news/california/fires/article245947495.html>;

<http://www.g-feed.com/2020/09/indirect-mortality-from-recent.html>

# 5.5 million Californians live within one mile of oil & gas wells

- 81,500 active and idle oil and gas wells in CA
- High rates of asthma, respiratory diseases and cancer



Inglewood Oil Field © Gary Kavanagh 2017

# Climate inaction is bankrupting our economy

- Climate change threatens U.S. financial markets including insurance and mortgage markets, pension funds, and other financial institutions
- ~\$80 billion in insured and uninsured losses in California in 2019 alone due to wildfires
- **\$80 billion invested in California will generate ~725,000 jobs**
- **Investments in clean energy generate more than 2x the jobs as in fossil fuels**



<https://www.accuweather.com/en/weather-news/california-wildfires-will-cost-tens-of-billions-accuweather-estimates/612548>

<https://www.nytimes.com/2020/09/08/climate/climate-change-financial-markets.html>

Political Economy Research Institute [https://www.peri.umass.edu/images/CA-EconRecProgram-6-12-20\\_Final.pdf](https://www.peri.umass.edu/images/CA-EconRecProgram-6-12-20_Final.pdf)

World Resources Institute <https://www.wri.org/blog/2020/07/economic-benefits-climate-action-us>



## RAISING THE ALARM

Evidence that tipping points are under way has mounted in the past decade. Domino effects have also been proposed.



**A. Amazon rainforest**  
Frequent droughts

**B. Arctic sea ice**  
Reduction in area

**C. Atlantic circulation**  
In slowdown since 1950s

**D. Boreal forest**  
Fires and pests changing

**E. Coral reefs**  
Large-scale die-offs

**F. Greenland ice sheet**  
Ice loss accelerating

**H. Permafrost**  
Thawing

**I. West Antarctic ice sheet**  
Ice loss accelerating

**J. Wilkes Basin, East Antarctica**  
Ice loss accelerating

**9 of 15 global tipping points underway now... domino effect to uninhabitable 'hothouse' climate if we don't act soon...**

Lenton, Rockstrom, Gaffney, Rahmstorf, Richardson, Steffen, Schyellnhuber.

**Nature**, Nov 27 2019

<https://www.nature.com/articles/d41586-019-03595-0>

<https://www.sciencedaily.com/releases/2019/11/191127161418.htm>

**“We have underestimated the risks off unleashing irreversible changes ...We are seeing strong evidence already for declaring a state of planetary emergency...**

**We don't want to push the 'on' buttons of runaway global warming.**

**The next decade is our window...with consequences for all future generations.”**



- Johan Rockström, Director, Potsdam Institute for Climate Impacts Research, 2019

<https://www.sciencedaily.com/releases/2019/11/191127161418.htm>

<https://sverigesradio.se/avsnitt/1425542>

<https://medium.com/@rchrthy/johan-rockstr%C3%B6ms-10-point-agenda-for-saving-the-world-unofficial-transcript-431261f885c6>

# The science is clear—after assessing 5 million climate pathways:

**“We must aggressively pursue carbon neutral energy by 2030 & hope for ‘some luck’ for a tolerable climate.”**





# Carbon neutrality or net zero CO<sub>2</sub>e emissions- is it enough?

Balance  
carbon emissions  
with carbon  
removal

(transition to a "post-carbon  
economy").

**NO!**

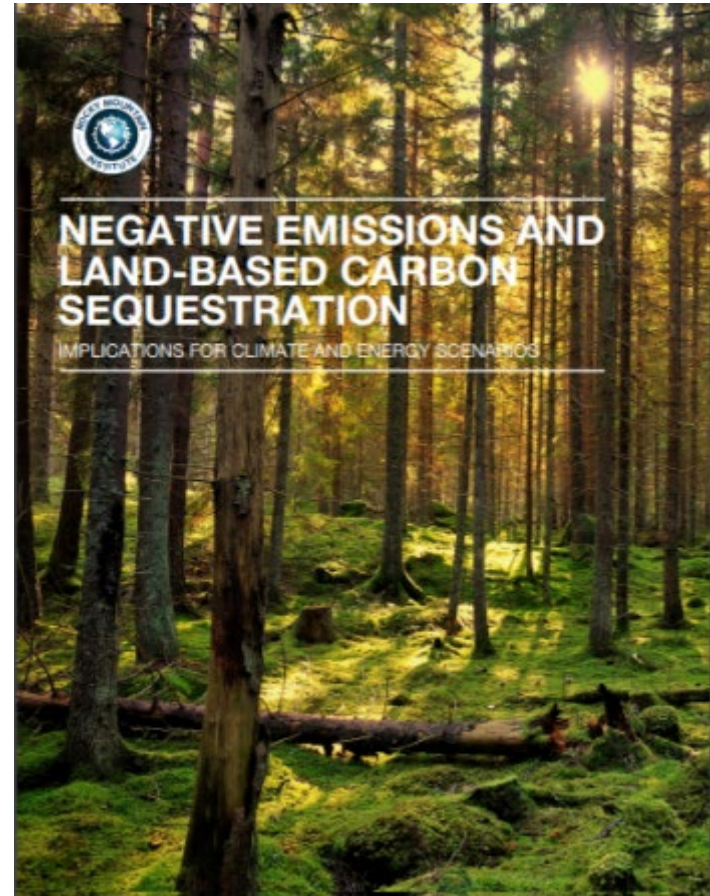


# GOAL: Net “negative” emissions

Bring atmospheric  
CO2 back down (e.g.  
to 350ppm)

--reverse some (not  
all) of the impacts

(“overshoot” pathway- the faster we do this, the more  
impacts we can avoid.)



[https://www.rmi.org/wp-content/uploads/2018/11/RMI\\_Negative\\_Emissions\\_Scenarios\\_Report\\_2018.pdf](https://www.rmi.org/wp-content/uploads/2018/11/RMI_Negative_Emissions_Scenarios_Report_2018.pdf)

**The climate reality  
is outpacing  
outdated science  
and policy.**

**Leaders are now  
stepping up.**

# New Proposed National Climate Targets.... But California is behind!

*All include some versions of just transition and closing the climate gap*

## BIDEN-SANDERS UNITY TASK FORCE

- **Eliminate carbon pollution from power plants by 2035**
- Net-zero new buildings by 2030
- Get agriculture to net-zero

## HOUSE SELECT COMMITTEE ON CLIMATE CRISIS

- Net-zero emissions by 2050
- Net-zero emissions in power sector by 2040
- **100% ZEVs-cars and light trucks-by 2035**

## SENATE SELECT COMMITTEE ON CLIMATE CRISIS

- Net-zero emissions globally by 2050
- **Invest 2% annually of GDP w/ 40% to low income communities**  
*Note: 2% of CA 2019 GSP \$3.2 trillion = \$64 billion*

## DNC CLIMATE COMMITTEE

- Near-zero emissions by 2040
- **100% clean renewable energy by 2030 in electricity generation, buildings, and transportation**
- 100% zero-carbon new bldgs by 2025
- \$10-\$16 trillion in fed expenditures over next decade

<https://www.democrats.senate.gov/climate-report> August 25, 2020

<https://joebiden.com/wp-content/uploads/2020/07/UNITY-TASK-FORCE-RECOMMENDATIONS.pdf> July 8, 2020

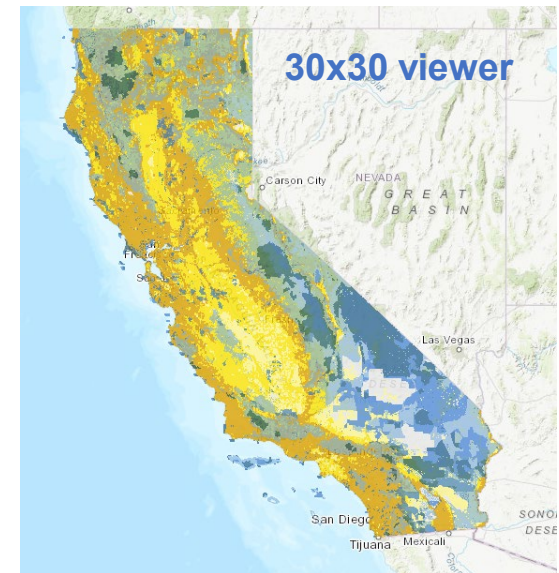
<https://climatecrisis.house.gov/> June 30, 2020

<https://www.dnccclimate.org/the-platform> June 4, 2020



# Thank you Governor Newsom: “We are in a climate emergency” “We must fast-track goals” “our goals are inadequate”

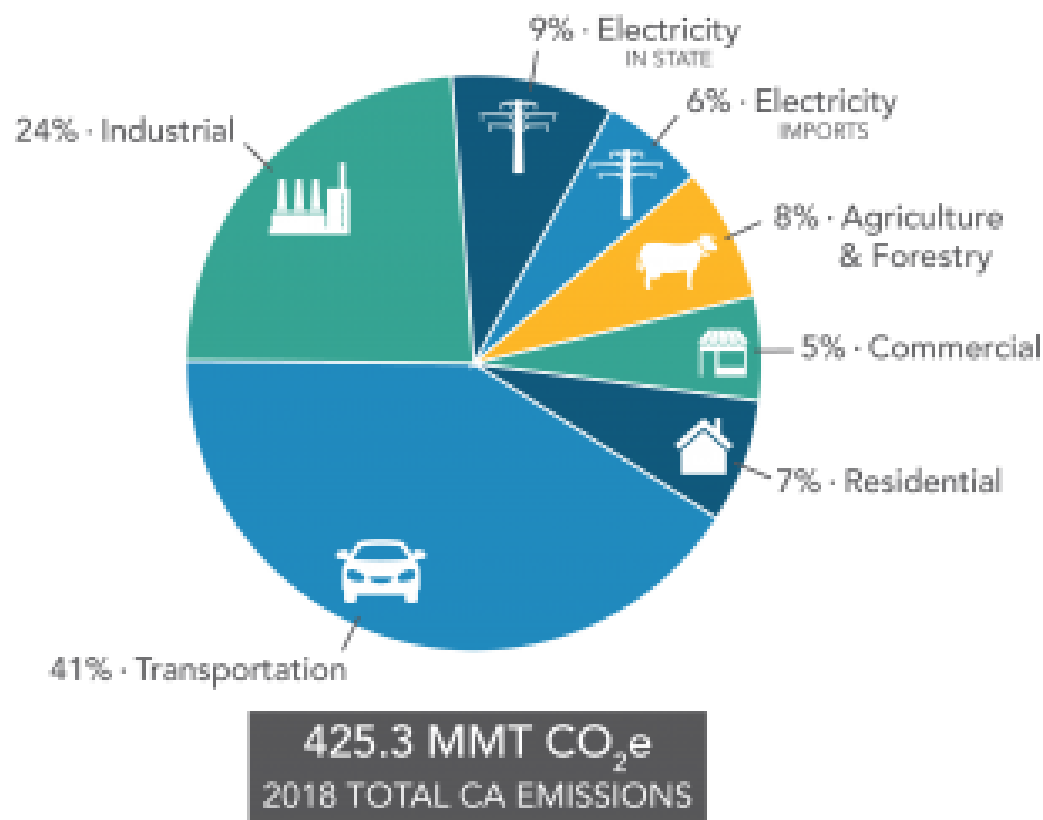
New Exec Orders: 100% ZEV new car sales by 2035  
& protect 30% of land & waters by 2030...but...



<https://defenders.maps.arcgis.com/apps/webappviewer/index.html?id=8fa934ebbee54431bdc53d0873ab14>

<https://www.gov.ca.gov/2020/09/23/governor-newsom-announces-california-will-phase-out-gasoline-powered-cars-drastically-reduce-demand-for-fossil-fuel-in-californias-fight-against-climate-change/> Sept. 23 2020  
<https://calmatters.org/environment/2020/09/california-governor-climate-emergency/> Sept. 11 2020

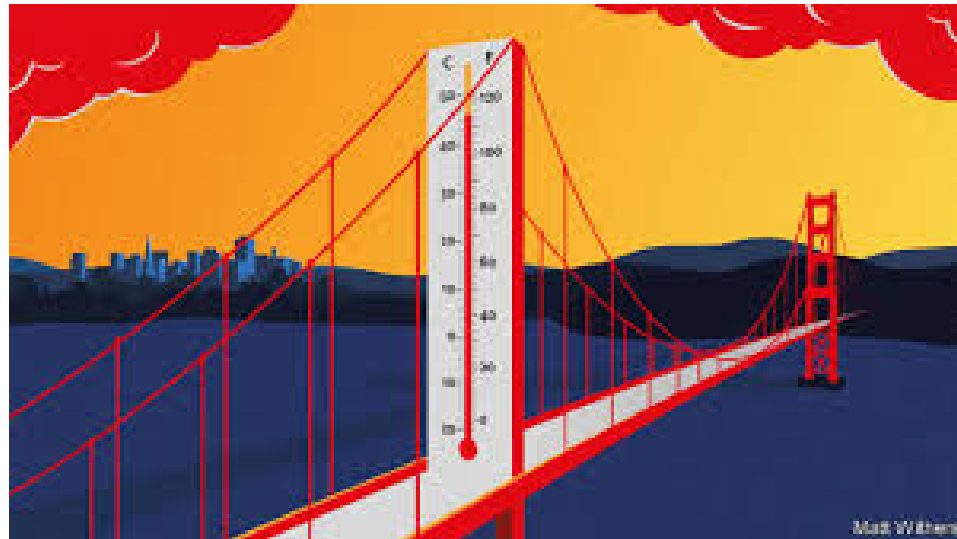
# California Measured Emissions 2018



<https://ww2.arb.ca.gov/ghg-inventory-data>

<https://www.latimes.com/california/story/2020-10-19/californias-greenhouse-gas-emissions-rose-slightly-in-2018>

# The nation and the world are looking to California to lead for a climate-safe future



# Need more aggressive policies and accelerated timelines in CA now!



## Climate-Safe California Campaign for Rapid Decarbonization

[www.theclimatecenter.org](http://www.theclimatecenter.org)

**GOAL:** By 2025, CA will have enacted the bold policies required by science to dramatically reduce emissions, start drawdown and secure resilient communities by 2030, inspiring global action



# CLIMATE-SAFE CALIFORNIA

Accelerate existing state goals  
to achieve by 2030:

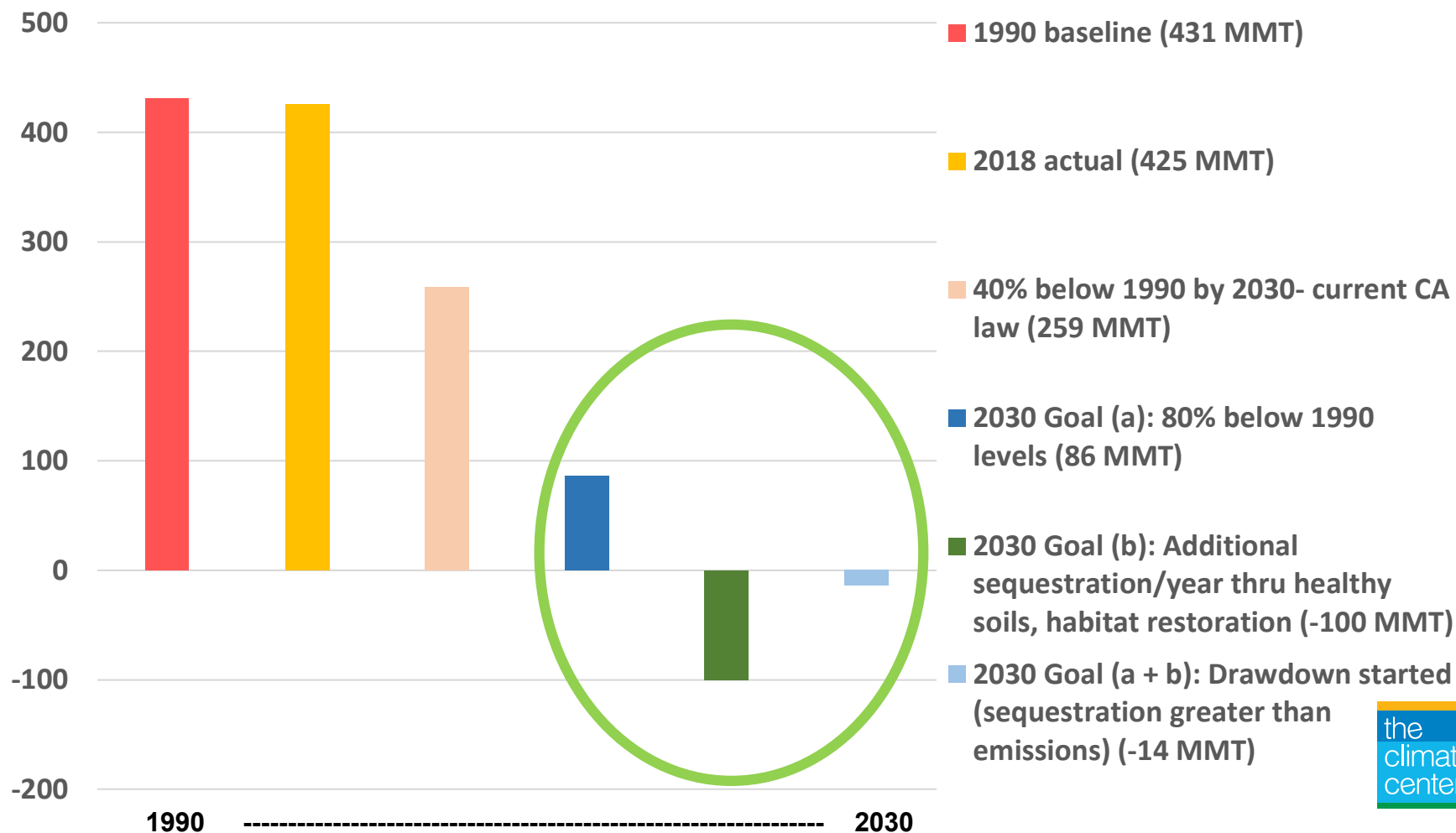
- 80% below 1990 GHG levels ([Schwarzenegger 2005 EO by 2050](#))
- Net-negative emissions (*sequestration greater than emissions, CA becomes net carbon sink*) ([Brown 2018 EO by 2045](#))



# California's measured GHG emissions: where we are & where we need to go by 2030

[www.climatesafeca.org](http://www.climatesafeca.org)

## Million Metric Tons (MMT) CO<sub>2</sub>e Per Year



# Guiding principles for Climate-Safe CA targets, policies and programs

- 1- Based on the **latest science**
- 2- Ensure a **just transition** for fossil fuel workers
- 3- Prioritize **climate justice** and ensure lower-income communities are no longer disproportionately harmed by fossil fuels



Photo: Stand.LA, by KPCC AirTalk

# KEY POLICIES REQUIRED BY SCIENCE TO REACH NET-NEGATIVE EMISSIONS BY 2030

1. Accelerate the phase-out of fossil fuel development, production and use
2. Increase sequestration
3. Invest in community resilience
4. Fund climate action

[www.climatesafeca.org](http://www.climatesafeca.org)



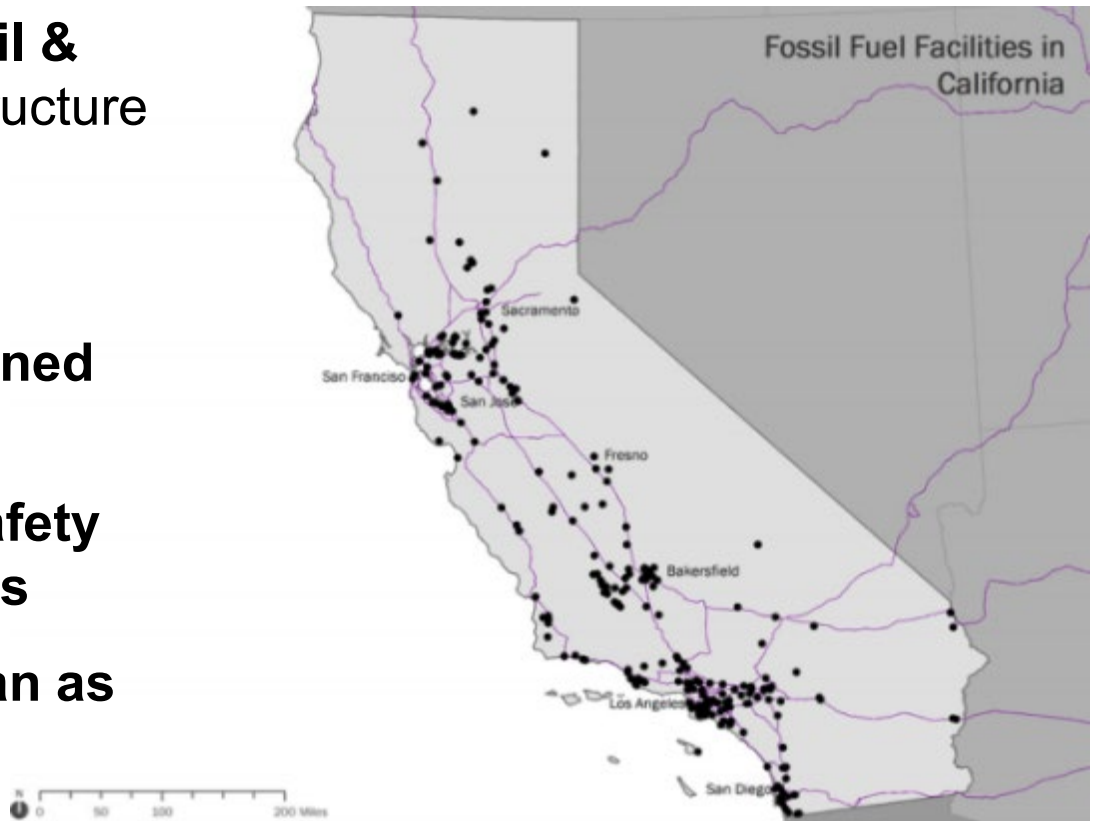
# 1- Accelerate phase out of fossil fuel development, production and use

- **Secure 100% GHG-free, decentralized electricity & energy storage by 2030**



# Launch Just Transition efforts now & rapidly phase out fossil fuel production, refineries

- Immediately **halt new oil & gas drilling** and infrastructure development
- **Ban fracking**
- **Start plugging abandoned wells**
- Establish **health and safety zones** from active wells
- Use **Diablo Canyon plan** as model



# Rapidly Transition to Sustainable Mobility

## Move to GHG-free transportation and mobility

- Begin phase out of fossil fuel powered vehicles--cars, trucks, buses, ships soon; **No new gas vehicle registrations by 2030** (EO N-79-20)
- Flip priorities: **invest 80%+ of Caltrans \$ in non-GHG sustainable modes of transportation**, not freeways, by 2025
- Invest in **affordable housing near jobs**
- Invest in **clean mass transit**
- Accelerate **telecommuting for workforce**, students, business and government



ClimatePlan

Alliance of Nurses for  
Healthy Environments  
Bringing Science and Passion to the Environmental Health Movement

<https://www.climateresolve.org/wp-content/uploads/2019/06/CR-Transpo-Doc.pdf>

October 22, 2020

California Department of Transportation

# Zero Emissions Vehicles & charging stations

## --need much more!

- ZEVs = 2% (567k) of CA light cars & trucks (29m total)
- **Must double current CA goals to 10+ million ZEVs and 500k charging stations by 2030**
- Prioritize low income communities
- And get many more people out of cars!



Photo: Ellie Cohen

Florian Knobloch et al. 'Net emission reductions from electric cars and heat pumps in 59 world regions over time.' *Nature Sustainability* (2020). DOI: 10.1038/s41893-020-0488-7  
<https://www.latimes.com/business/story/2019-12-01/electric-vehicle-sales-in-california-on-the-rise-but-is-it-enough-to-reach-the-5-million-goal-by-2030>  
<https://www.dmv.ca.gov/portal/uploads/2020/06/2019-Statistic-for-Publication-1.pdf>  
<https://centerforjobs.org/ca/zev-reports/states-progress-on-5-million-zero-emission-vehicles-zev-by-2030-2019-results-2>  
<https://www.energy.ca.gov/data-reports/energy-insights/zero-emission-vehicle-and-charger-statistics>



# Electrify buildings and increase efficiency; phase out fossil gas

- Buildings = ~25% of CA's GHG emissions
- 20+ California cities have enacted **methane** gas bans for new buildings
- Enact zero-emission codes by 2022 for new buildings



Electric Induction Stove-Shutterstock

<https://www.curbed.com/platform/amp/2020/2/4/21112234/home-power-range-stove-electrification-natural-gas>

Embodied Carbon in Construction Calculator-  
<https://www.buildingtransparency.org/en/>

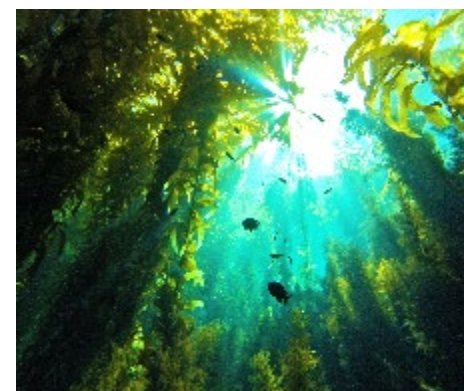
<https://www.forbes.com/sites/pikeresearch/2020/02/06/new-solutions-emerge-for-embodied-carbon-in-buildings/#4e65204e5c88>

## 2- Increase Sequestration

- **Sequester addl. 100+ MMT CO<sub>2</sub>e annually** in healthy soils, forests and vegetation annually by 2030-- starting no later than 2022
  - Carbon farming and gardening
  - Climate-smart habitat restoration and management on land/coast
  - Enhance protected habitats



Carbon Farming, Marin



Kelp forests



Point Blue STRAW project

<https://www.marincarbonproject.org/carbon-farming>  
<https://www.carboncycle.org/carbon-farming/>  
<https://www.pointblue.org/our-work/restoration/>

# Carbon farming on working land potential sequestration at scale

~20m acres = ~100 MMT/year CO<sub>2</sub>e, increasing annually

## CARBON FARM PLANNING in Marin

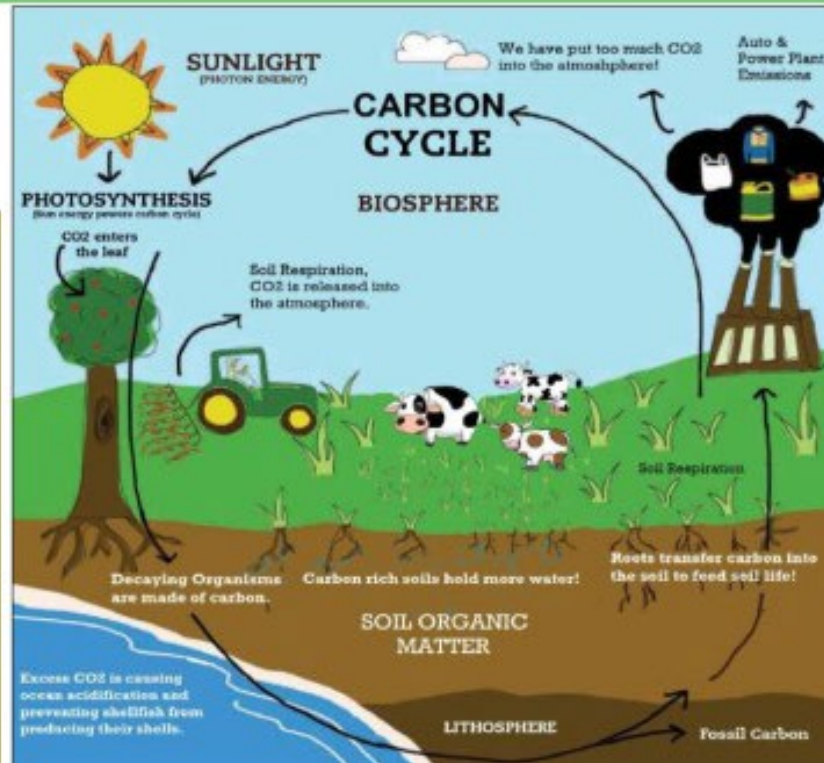
**Assistance is available for farmers and ranchers!**

Plan for carbon sequestration and climate adaptation conservation practices with Marin RCD!

### Potential List of Conservation Practice(s)\* in a Carbon Farm Plan:

- Compost Application • Anaerobic Digester
- Silvopasture/ Shrub & Tree Establishment
  - Windbreak/ Shelterbelt/ Hedgerow
  - Riparian and Wetland Restoration
  - Filter Strips • Grassed Waterways
    - Forage & Biomass Planting
    - Rangeland Management
- Prescribed Grazing and Range Planting
  - Nutrient Management
- Residue & Tillage Management, No-Till
  - Cover Crops

\*NRCS Standard Conservation Practices



## MARIN CARBON PROJECT

### Carbon Cycle Institute



Marin est cost of roughly \$500/acre-- \$10.5 billion for 21M acres over 10 years with multiple co-benefits for resilience, water, biodiversity and more



# Riparian restoration potential at scale

## Major potential for CO<sub>2</sub>e sequestration and other benefits



See Point Blue: <https://www.pointblue.org/our-work/restoration/>. Photo: Point Blue's STRAW program; Lewis, D.J., et al. 2015. Creek carbon: Mitigating GHGs through riparian restoration. UC Coop Ext, Marin County. Novato, CA. 26 pgs. [http://ucanr.edu/sites/Grown\\_in\\_Marin/files/224684.pdf](http://ucanr.edu/sites/Grown_in_Marin/files/224684.pdf);



# 3- Invest in Community Resilience

- Fund implementation of resilience plans in all California counties and cities by 2025 (SB379)
- Implement *clean* energy community microgrids with battery storage including EV's, starting with critical facilities in lower income communities by 2021



<https://microgridknowledge.com/tribal-microgrid/>

# Let's create a decentralized and integrated power grid

## Community Energy Resilience



**1000s of local electricity systems,  
linked over the “macro grid”**

# Changes from CPUC & CEC

- Fast-track current rulemaking to accelerate opening of microgrid market
- Revise regulations so thousands of small-scale clean energy providers can sell to others, while creating new local jobs
- Enhance community energy resilience using “mobile storage” – Evs!
- Prioritize clean energy resilience/access to incentive programs for lower income communities



California's climate and electricity crises require clean energy community microgrids

<https://www.sacbee.com/opinion/california-forum/article245311865.html>

## 4- Fund climate action

Institute **progressive funding strategies to produce additional ~\$12-20+ billion/year** specifically for climate action such as:

- **Regulatory changes that open markets** *so private investments pay for much of what's needed*
- **Frequent Flyer Fee** e.g., \$2.4 billion *from \$10 per passenger x 240 million (CA in 2018)*
- **Fossil Fuel Severance Tax**
- Enhance Cap & Trade
- Green climate bonds
- Close tax loopholes and make tax code upgrades
- Progressive carbon taxes



# The suite of solutions and technologies exists today for California to enact now





# Over 600 endorsements of Climate-Safe California including:

- **ELECTEDS and APPOINTED**

- Congressmen Jared Huffman, Mike Thompson
- State Senators Henry Stern, Mike McGuire
- CA State Assoc of Counties,\* Chair, James Gore
- Mayor Protem, City of Oxnard,\* Carmen Ramirez
- Angelina Galiteva, CAISO Board member\*

- **ACADEMICS and ECONOMISTS**

- Dan Kammen, PhD, UC Berkeley\*
- Hunter Lovins
- Steve Weissman, PhD, UC Berkeley\*

- **BUSINESS**

- Joint Venture Silicon Valley
- Terry Tamminen, Seventh Generation Advisors\*
- Ygrene Energy

- **NGOs**

- Alliance of Nurses for Healthy Environments
- Center for Sustainable Energy
- Local Government Commission
- Mi Familia Vota

- **FAITH**

- Roman Catholic Diocese of Fresno



# Terry Tamminen

former CAL EPA Secretary under Governor Schwarzenegger



**“I strongly endorse the goal of Climate-Safe California to achieve net-negative emissions by 2030; 2050 is too late. The campaign’s focus on science, urgency, and policy is exactly what’s needed – and California must lead the way.”**

<https://theclimatecenter.org/endorsementlist/>

# Climate-Safe California Phase I

- Secure endorsements
- Establish new statewide Climate-Safe CA alliance with workers, healthcare, environment/ justice, businesses, local govt. & other partners – *build bridges across silos*
- Build power in Sacramento and secure early policy wins eg, Community Energy Resilience
- Engage experts to develop science-based pathways & policies to net-negative emissions by 2030
- Publish white papers, opinion columns with opinion leaders & other influencers
- Building regional partnerships
- **Raise \$25 million-- \$2 million to date; \$2m more by spring 2021**

# ENDORSE

## Climate-Safe California

[www.climatesafeca.org](http://www.climatesafeca.org)



Climate-Safe California  
Rapid Decarbonization Campaign  
**Endorsement Platform**

- A public pledge of support for California to accelerate aggressive climate policy
- Inspiring states and countries to greater action for a climate-safe Earth

# Ask Governor Newsom to accelerate climate action timelines now



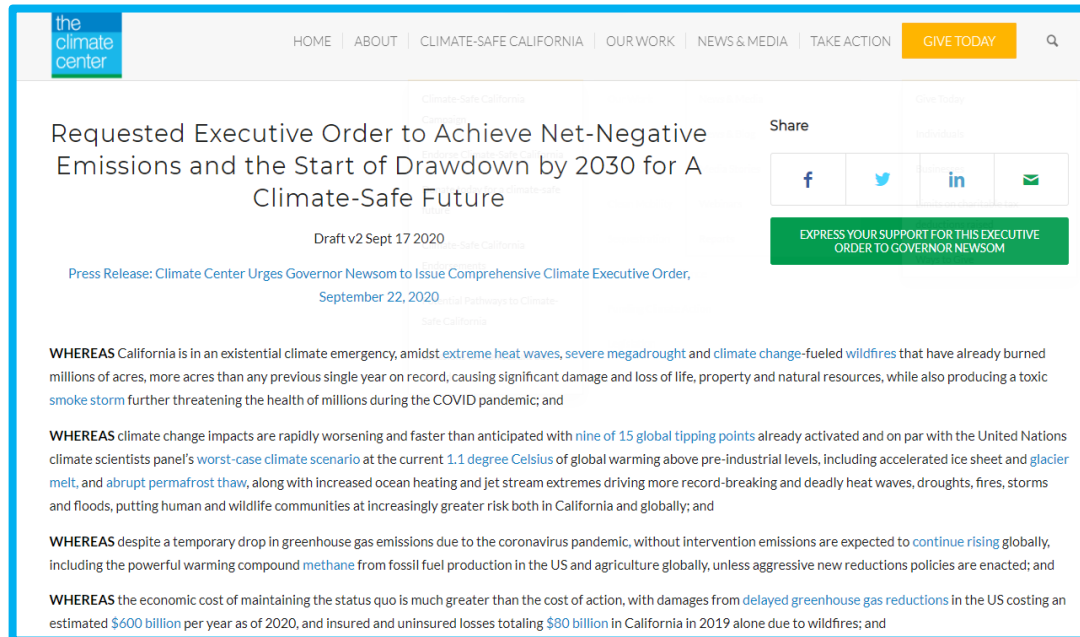
**Never in human history will so much be owed by so many to so few**

(inspired by Winston Churchill)



# Demand more from the Governor and the legislature!

- Declare formal climate emergency
- Issue more Exec Orders re climate, nature, justice
- Call special session of legislature
- Require options on securing \$20 billion/yr



The screenshot shows the Climate Center website with a navigation bar including links for HOME, ABOUT, CLIMATE-SAFE CALIFORNIA, OUR WORK, NEWS & MEDIA, TAKE ACTION, and a GIVE TODAY button. The main content area features a press release titled "Requested Executive Order to Achieve Net-Negative Emissions and the Start of Drawdown by 2030 for A Climate-Safe Future". The release is dated "Draft v2 Sept 17 2020" and "September 22, 2020". It includes a "Share" section with social media icons for Facebook, Twitter, LinkedIn, and Email. A green button below the share icons reads "EXPRESS YOUR SUPPORT FOR THIS EXECUTIVE ORDER TO GOVERNOR NEWSOM". The text of the press release begins with "WHEREAS California is in an existential climate emergency, amidst extreme heat waves, severe megadrought and climate change-fueled wildfires that have already burned millions of acres, more acres than any previous single year on record, causing significant damage and loss of life, property and natural resources, while also producing a toxic smoke storm further threatening the health of millions during the COVID pandemic; and". It continues with "WHEREAS climate change impacts are rapidly worsening and faster than anticipated with nine of 15 global tipping points already activated and on par with the United Nations climate scientists panel's worst-case climate scenario at the current 1.1 degree Celsius of global warming above pre-industrial levels, including accelerated ice sheet and glacier melt, and abrupt permafrost thaw, along with increased ocean heating and jet stream extremes driving more record-breaking and deadly heat waves, droughts, fires, storms and floods, putting human and wildlife communities at increasingly greater risk both in California and globally; and". It then states "WHEREAS despite a temporary drop in greenhouse gas emissions due to the coronavirus pandemic, without intervention emissions are expected to continue rising globally, including the powerful warming compound methane from fossil fuel production in the US and agriculture globally, unless aggressive new reductions policies are enacted; and". Finally, it concludes with "WHEREAS the economic cost of maintaining the status quo is much greater than the cost of action, with damages from delayed greenhouse gas reductions in the US costing an estimated \$600 billion per year as of 2020, and insured and uninsured losses totaling \$80 billion in California in 2019 alone due to wildfires; and".

the climate center

HOME | ABOUT | CLIMATE-SAFE CALIFORNIA | OUR WORK | NEWS & MEDIA | TAKE ACTION | GIVE TODAY

Requested Executive Order to Achieve Net-Negative Emissions and the Start of Drawdown by 2030 for A Climate-Safe Future

Draft v2 Sept 17 2020

Press Release: Climate Center Urges Governor Newsom to Issue Comprehensive Climate Executive Order, September 22, 2020

Share

f t in e

EXPRESS YOUR SUPPORT FOR THIS EXECUTIVE ORDER TO GOVERNOR NEWSOM

**WHEREAS** California is in an existential climate emergency, amidst extreme heat waves, severe megadrought and climate change-fueled wildfires that have already burned millions of acres, more acres than any previous single year on record, causing significant damage and loss of life, property and natural resources, while also producing a toxic smoke storm further threatening the health of millions during the COVID pandemic; and

**WHEREAS** climate change impacts are rapidly worsening and faster than anticipated with nine of 15 global tipping points already activated and on par with the United Nations climate scientists panel's worst-case climate scenario at the current 1.1 degree Celsius of global warming above pre-industrial levels, including accelerated ice sheet and glacier melt, and abrupt permafrost thaw, along with increased ocean heating and jet stream extremes driving more record-breaking and deadly heat waves, droughts, fires, storms and floods, putting human and wildlife communities at increasingly greater risk both in California and globally; and

**WHEREAS** despite a temporary drop in greenhouse gas emissions due to the coronavirus pandemic, without intervention emissions are expected to continue rising globally, including the powerful warming compound methane from fossil fuel production in the US and agriculture globally, unless aggressive new reductions policies are enacted; and

**WHEREAS** the economic cost of maintaining the status quo is much greater than the cost of action, with damages from delayed greenhouse gas reductions in the US costing an estimated \$600 billion per year as of 2020, and insured and uninsured losses totaling \$80 billion in California in 2019 alone due to wildfires; and

**Our house is on fire. Ask at every level of government: are we doing enough?**



# Other actions you can take:



- **VOTE and volunteer**
- **Divest and invest** for a climate-safe future [gofossilfree.org](https://gofossilfree.org) & [fossilfreefunds.org](https://fossilfreefunds.org)
- **Support state legislative and regulatory actions:**
  - Community Resilience
  - Setbacks for oil/gas infrastructure away from schools, homes
  - Clean, green and just Climate Recovery Bond, regulatory changes, and fees to invest in jobs and a climate-safe future
- **Engage locally with your City Council and County Supervisors** to develop, implement & *fund* Community Energy Resilience Plans & Climate Action Plans



# Other actions you can take:



- [Purchase/lease solar](#), wind or 100% green power
- Ditch the SUV and make your next car an EV, plan to use it as back-up power source, or ditch your car! [www.resilientneighborhoods.org](http://www.resilientneighborhoods.org)
- Use mass transit, shared transit, e-bikes and other micro-mobility
- Reduce airplane travel and enjoy staycations
- Work from home and support universal internet & telecommuting policies
- Make energy efficiency/electrical improvements to your home, including wiring for EV charging [bayrenresidential.org/get-rebates](http://bayrenresidential.org/get-rebates)
- Switch to electric lawn equipment, electric/induction stoves, electric appliances & hot water heaters, and heat pumps
- Insulate home, install insulating windows & doors
- Eat locally grown, organic food; avoid industrially grown meats entirely
- Support climate-friendly natural and working lands, waters management
- Engage young people in education, habitat restoration & policy action
- Use less, waste less: refuse, reduce, reuse, take action!
- **SUPPORT THE CLIMATE CENTER!** [www.theclimatecenter.org](http://www.theclimatecenter.org)

# WE HAVE CHOICES







**One person can make a difference!**



**Together we make an even bigger difference!!**



# Exxon no longer in Dow; Peak oil already happened

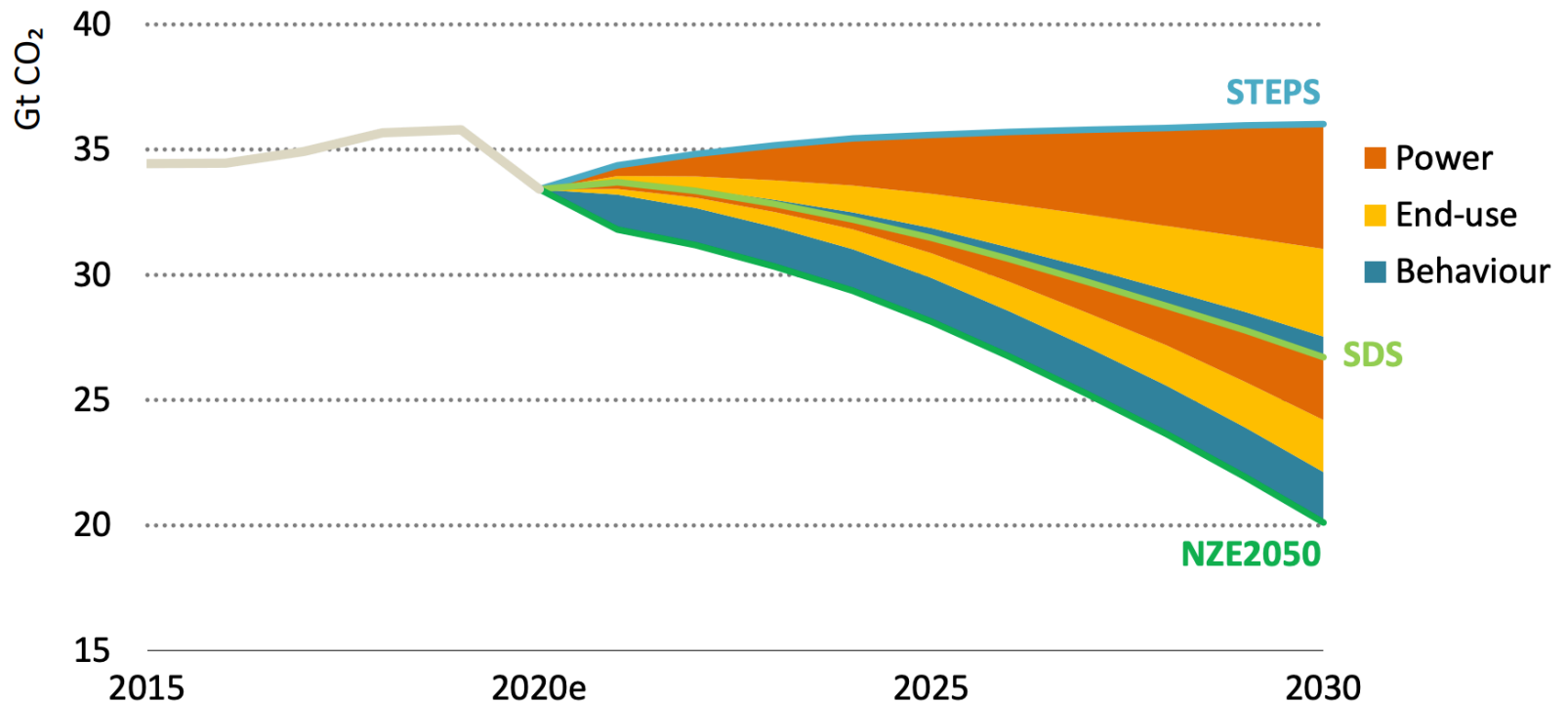
Exxon under pressure



<https://www.marketwatch.com/story/heres-what-exxons-removal-from-the-dow-says-about-the-energy-sector-2020-08-25> <https://www.cnbc.com/2020/08/25/exxon-mobil-replaced-by-a-software-stock-after-92-years-in-the-dow-is-a-sign-of-the-times.html>  
<https://energypost.eu/bp-outlook-2020-peak-oil-has-already-happened/>

# SOLAR NOW CHEAPEST ELECTRICITY GLOBALLY

## CO2 emissions from coal-fired power stations projected to decline by 75% between 2019 and 2030



<https://www.carbonbrief.org/solar-is-now-cheapest-electricity-in-history-confirms-iaea> Oct 13 2020

[U.S. renewable energy consumption surpasses coal for the first time in over 130 years](https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_es1a) May 28 2020

<https://pvbuzz.com/renewables-produce-more-electricity-than-coal/> Apr 27 2020

[https://www.eia.gov/electricity/monthly/epm\\_table\\_grapher.php?t=epmt\\_es1a](https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_es1a)



# CA first state to reach net negative emissions

Kickstarts nation & world into speed & scale climate action

February 2030



# Drawdown & resilience increasing despite record-breaking drought thanks to climate-friendly natural & working lands management

August 2035





# The New York Times

Wednesday, November 6, 2040

Global Climate Union  
Authorizes \$420 Trillion in  
Healthy Planet Accords;  
On Track to 350 PPM and a  
Safe Climate

**Sunrise party wins presidency**

Ecosystems, Economy & Communities Healthy & Resilient,  
Soils and Vegetation Sequestering Carbon at Scale; Wildlife  
Populations Recovering



# Thank you!

[ellie@theclimatecenter.org](mailto:ellie@theclimatecenter.org)  
[www.theclimatecenter.org](http://www.theclimatecenter.org)

