The Path to Climate-Safe California: Net-negative Emissions by 2030

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BE SURE TO WASH YOUR HANDS AND ALL WILL BE WELL.

COVID '19

RECESSION

CLIMATE CHANGE
COVID19 and Climate Change: opportunity amidst devastation?

- Heed science and experts
- Advance preparation saves lives
- Tipping points happen quickly, abruptly
- We are only as resilient as the most vulnerable
- Healthy ecosystems sustain life and make us more resilient
- Shared responsibility: “We” not “me”
- Individuals make a difference and we need coordinated government action
- We can act quickly, invest billions and change behavior with political will
<5.5% projected drop in 2020 emissions due to pandemic; must now double each year

Lenzen et al PLOS ONE July 2020 15 (7): e0235654 DOI: 10.1371/journal.pone.0235654
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/
Our house is on fire, the “hellscape is here,” and Californians are afraid…
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-
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 CO2e 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…

https://www.ipcc.ch/sr15/
https://www.ipcc.ch/sr15/chapter/summary-for-policy-makers/
Abrupt ecosystem collapse likely this decade starting in tropical oceans
Deep emissions cuts this decade could save thousands of species

Trisos et al. *Nature*, April 2020 High % of species exposed to harmful climate conditions at same time - potentially lead to sudden die-offs of biodiversity
West Antarctic ice shelves unhinging—portends 10 ft of sea level rise

Enormous curved crevasses near the Pine Island Glacier shear margin. (Brooke Medley/NASA)

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
>1/3 of global methane increase due to fracking
More than half of increase from US fossil fuel production

Methane 86x stronger than CO2 as warming compound over 10-20 year lifespan

“Reducing methane now can provide an instant way to slow global warming”

~R. Howarth, Cornell University

Saunois et al, Earth Syst. Sci. Data, 12, 1561–1623, July 2020 https://doi.org/10.5194/essd-12-1561-2020
Western US now in global warming-induced severe megadrought

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

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

Australian pyrocumulus fire clouds that create dry lighting, igniting more fires
9 of 15 global tipping points underway now… domino effect to uninhabitable ‘hothouse’ climate if we don’t act soon…

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

“We have underestimated the risks of unleashing irreversible changes, where the planet self-amplifies global warming. This is what we [are starting to see] already at 1°C global warming. Scientifically, this provides strong evidence for declaring a state of planetary emergency, to unleash world action that accelerates the path towards a world that can continue evolving on a stable planet.”

“...with consequences for all future generations.”

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


https://sverigesradio.se/avsnitt/1425542

https://medium.com/@rchrdhy/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 aggressivel pursue carbon neutral energy by 2030 & hope for ‘some luck’ for a tolerable climate.”

Increasing health impacts especially to most vulnerable communities; extreme heat most deadly

http://www.who.int/globalchange/en/
Leleiveld et al., Cardiovascular, March 2020
Hoffman et al. Climate Jan 2020
Bekkar et al JAMA June 2020
Climate inaction is bankrupting our economy

- ~$80 billion in insured and uninsured losses in California in 2018 alone due to wildfires
- Climate change threatens U.S. financial markets including insurance and mortgage markets, pension funds, and other financial institutions

- One year delay in adopting the (conservative IPCC) 1.5°C pathway globally costs >$5 trillion (in 2020)
- Damages from delayed GHG reductions in the US now cost ~$600 billion per year (in 2020)

https://medium.com/@ben.m.sanderson/a-last-chance-to-meet-climate-targets-37a2b7a02ff9
The climate reality is outpacing outdated science and policy.

Leaders are now stepping up.
New Proposed National Climate Targets…. 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
Governor Newsom: We are in a climate emergency, must fast-track goals

California must lead for the country and the world to secure a climate-safe future
Need more aggressive policies and accelerated timelines in CA now!

Climate-Safe California
Campaign for Rapid Decarbonization

www.theclimaterecenter.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)

One Next Step? Governor Newsom 2020 Executive Order that accelerates these timelines to 2030
Two Climate-Safe California guiding principles:

1- Ensure a just transition for workers

- Support workers dependent on fossil fuel enterprises
- Continue creating jobs for building, construction and other trades as we solve climate change together

2- Prioritize climate justice

- Climate-safe policies must ensure that lower-income communities are no longer disproportionately harmed by fossil fuel development, production, and use.
- Policies must prioritize lower income & communities of color -- > climate justice is racial justice.
- Policies must ensure everyone is able to participate in the clean energy economy.
California’s measured GHG emissions: where we are & where we need to go by 2030

www.climatesafeca.org

Million Metric Tons (MMT) CO2e Per Year

- 1990 baseline (431 MMT)
- 2017 actual (424 MMT)
- 40% below 1990 by 2030 - current CA law (259 MMT)
- 2030 Goal (a): 80% below 1990 levels (86 MMT)
- 2030 Goal (b): Additional sequestration/year thru healthy soils, habitat restoration (-100 MMT)
- 2030 Goal (a + b): Drawdown started (sequestration greater than emissions) (-14 MMT)
KEY POLICIES REQUIRED BY SCIENCE TO REACH NET-NEGATIVE EMISSIONS BY 2030

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

www.climatesafeca.org
1- Accelerate phase out of fossil fuel development, production and use

• Immediately **halt new oil & gas drilling** and infrastructure development; **start plugging abandoned wells**, and, **establish health and safety zones** from active wells

• Ensure significantly greater **GHG-free transportation and mobility**, starting with a phase-out of fossil fuel powered vehicles beginning no later than 2025 & '**no new ICE registrations** by no later than 2030

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

• **Electrify almost everything** with **massive GHG-reduction in new and older buildings**
Rapidly Transition to Sustainable Mobility

• Begin **phase out of fossil fuel powered vehicles**—cars, trucks, buses, ships—by no later than 2025; Permit **no new ICE vehicle registrations** by no later than 2030

• Flip priorities: invest 80%+ of Caltrans $ in non-GHG sustainable modes of transportation by 2025

• Invest in affordable housing near jobs

• Invest in clean mass transit

• Accelerate telecommuting for workforce, students, business and government

Zero Emissions Vehicles & charging stations have grown-- but need much more!

- ZEVs = 2.5% (655k) of CA cars (26m total)
- 33.4% increase from 2018 to 2019
- Need 2-3x more current CA goal to 15+ million ZEVs by 2030...
- Dramatically increase charging infrastructure (eg, thru public/private partnerships)
- 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.dmv.ca.gov/portal/wcm/connect/5aa16cd3-39a5-402f-9453-0d353706cc9a/official.pdf?MOD=AJPERES
2- Increase Sequestration

• Sequester addl. 100+ MMT CO2e 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**

[Sources:](https://www.marincarbonproject.org/carbon-farming)  
[https://www.carboncycle.org/carbon-farming/](https://www.carboncycle.org/carbon-farming/)  
[https://www.pointblue.org/our-work/restoration/]
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 storage including EV’s, starting with critical facilities in lower income communities by 2021

https://microgridknowledge.com/tribal-microgrid/
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.
Climate-Safe California
80% below 1990 levels and net-negative emissions by 2030

https://theclimatecenter.org/potential-pathways-to-a-climate-safe-california/
Investing in GHG reduction creates jobs and builds the economy

- $2.2 billion from CA’s Cap-and-Trade Program supported direct employment of 36,106 job years from 2013-2016
- 54% of the jobs were in building trades
- 11% in architecture and engineering, 10% in transportation

Recent studies about beneficial economic impact of climate investments

- $80 billion invested in California will generate ~725,000 jobs
- Investments in clean energy generate more than 2x the jobs as in fossil fuels
- Current California current emissions reduction goals yield an estimated $21 billion in economic and other benefits

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)
Building broad support for climate action

- Labor
- Environmental Justice
- Health Care
- Agriculture
- Real Estate
- Insurance
- Energy
- Environment
- Local Government
- Transportation
- Information Technology
- Recreation… and more
Over 500 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

*affiliations for identification purposes only*
“I applaud Climate-Safe California for recognizing that solving our climate crisis requires setting the bar high enough to actually meet the challenge. I endorse this effort to keep California on that course, leading our country and the world toward climate solutions.”

https://theclimatecenter.org/endorsementlist/
Mayor Pro Tem
Carmen Ramírez
City of Oxnard, public interest attorney

“[Climate-Safe California] is urgent and desperately needed. Also urgent is a just transition and safety net for those working in the fossil fuel industry. We must not leave people behind as seen in the coal industry.”

https://theclimatecenter.org/endorsementlist/
Carl Mears, PhD
UN IPCC Climate Scientist, Remote Sensing Systems

“The Climate Center’s suite of decarbonization policies are all required to stay below 2°C (3.6°F) warming & avoid dangerous climate chaos. We need aggressive, equitable policies in place now so society can transition to a fossil-fuel-free economy as quickly & safely as possible.”

https://theclimatecenter.org/endorsementlist/
“This campaign for a Climate-Safe California is not only crucial but it is scalable. The goal for a 2030 near term net-negative emissions target is not just something we should be striving for in California, but should be pushing the next administration [in Washington] to embrace as well.”

https://theclimatecenter.org/endorsementlist/
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/
ENDORSE CLIMATE-SAFE CALIFORNIA
www.climatesafecca.org

• A public pledge of support for California to accelerate aggressive climate policy
• Inspiring states and countries to greater action for a climate-safe Earth
This is the Governor’s “Winston Churchill” moment

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

(inspired by Winston Churchill)
What should Governor Newsom do?

• Declare a State of Climate Emergency

• Issue an Executive Order to achieve net-negative emissions with the start of drawdown and resilience for all California’s communities by no later than 2030

• Issue an Executive Order requiring that all climate policies align with most current science, include just transition, and close the climate justice gap

• Call a special emergency session of the state legislature on wildfire and climate, including health, housing and related issues, in 2020

• Direct staff to identify public and private start-up funding for wildfire and climate action by Dec 2020
CA first state to reach net negative emissions

Kickstarts nation & world into speed & scale climate action

February 2030
The Climate Center: Working for speed and scale greenhouse gas reductions, starting in California

www.theclimatecenter.org

- A climate and energy policy nonprofit founded in 2001
- Led efforts resulting in Sonoma County becoming the first county in the nation with all its cities and the county committed to measurable emission reductions
- Awarded multiple honors including the Climate Protection Award, U.S. Environmental Protection Agency
- Played key role in growing Community Choice Energy in California from two CCAs just five years ago to 21 today, serving over 11 million residents with 88% clean energy
- Launched the bold, science-based Climate-Safe California campaign to accelerate policy timelines and action for greenhouse gas reductions working with dozens of partners across the state

Thank you! ellie@theclimatecenter.org