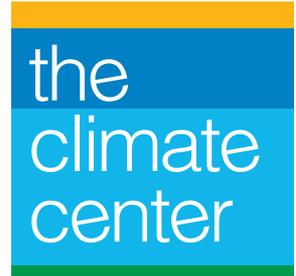




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# No More Business as Usual: Climate-Safe CA & the Path to Net-negative Emissions by 2030

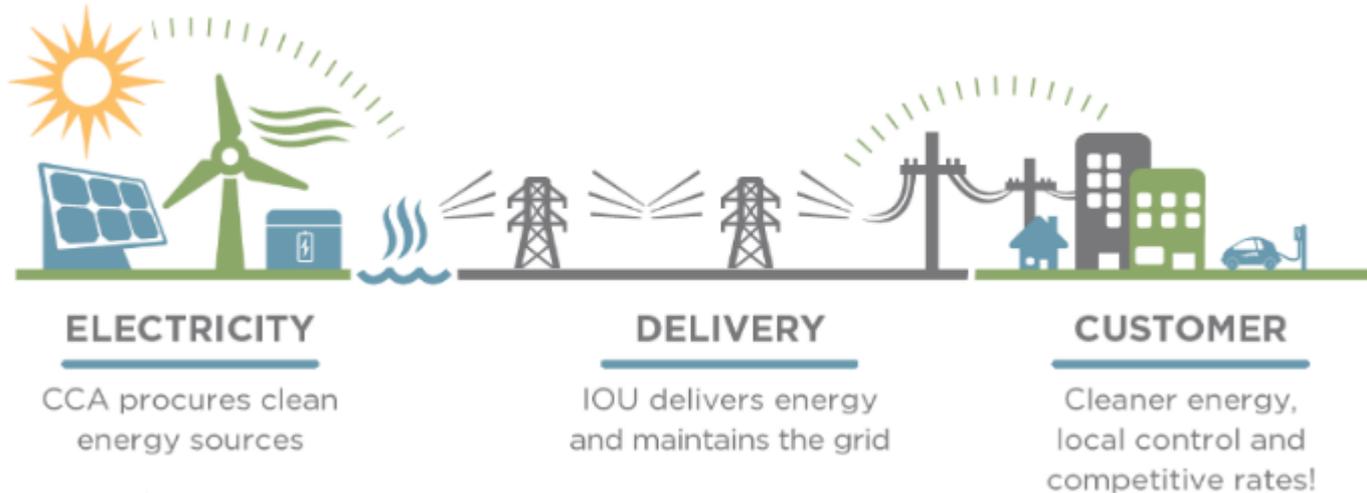


Environmental Forum of Marin, FORUM 2020 Lecture, Sept. 15, 2020

Ellie Cohen and The Climate Center Staff

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

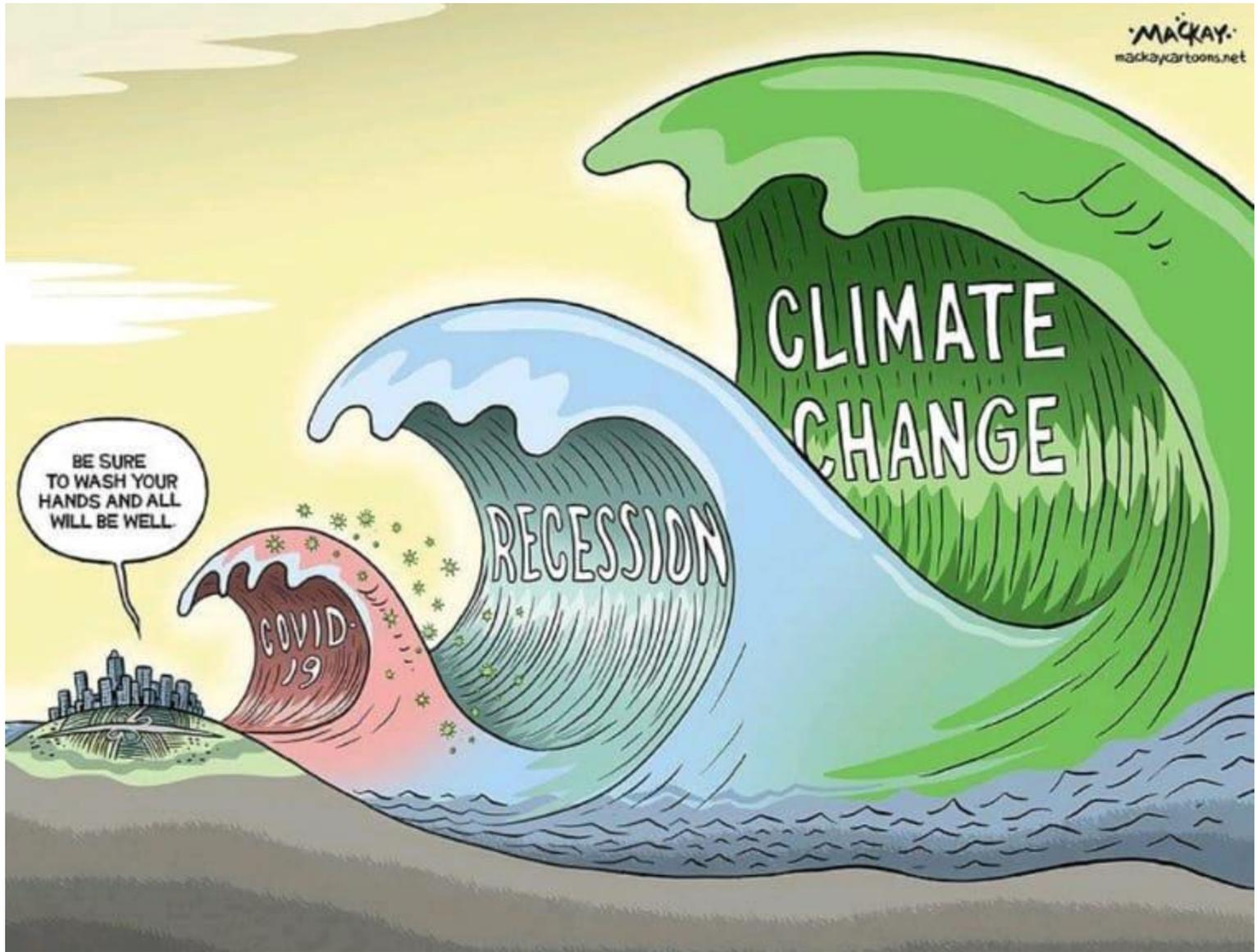
# Mission: Speed and scale greenhouse gas reductions



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

<https://theclimatecenter.org/our-work/community-choice/>

<https://cal-cca.org/cca-impact/>

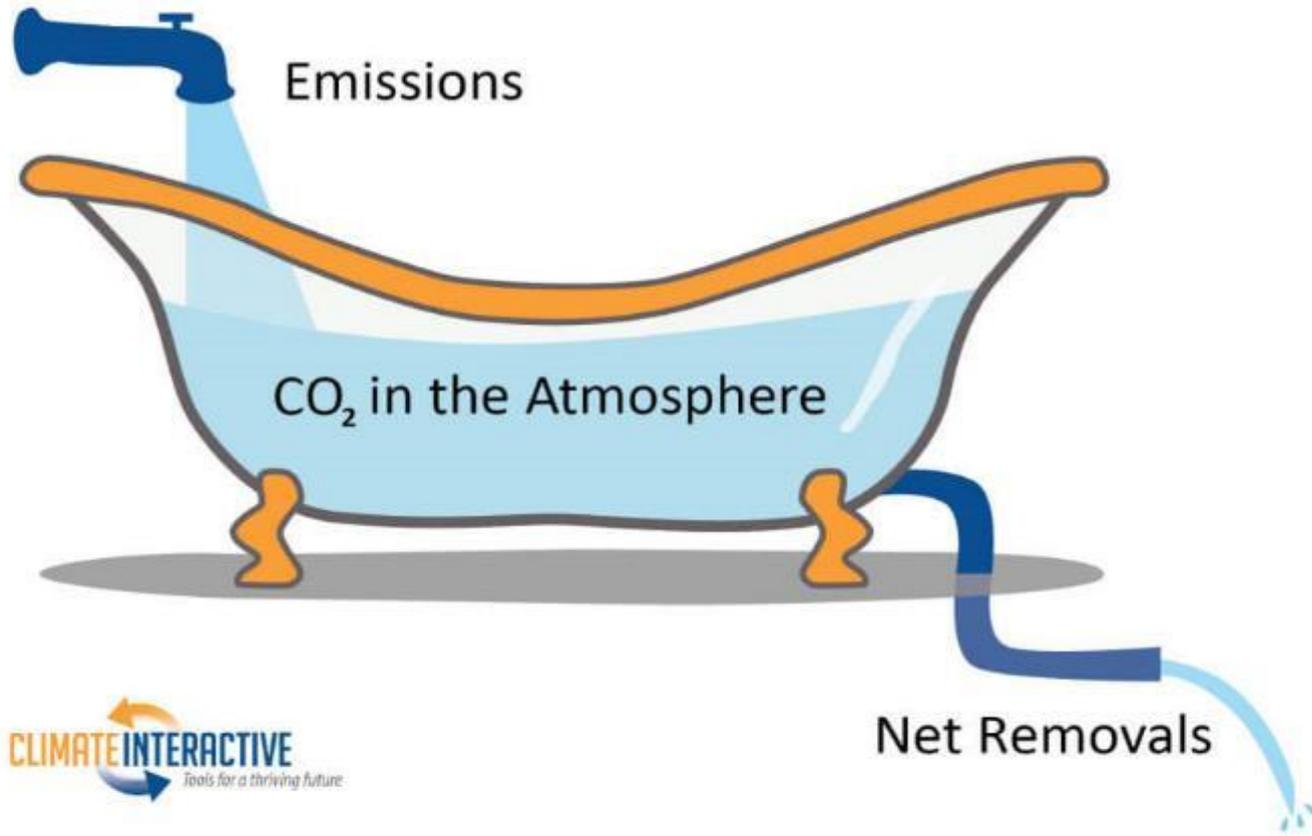


# COVID19 and Climate Change Lessons & Opportunities

- Heed science and experts
- Advance preparation saves lives
- Tipping points happen quickly, abruptly
- Healthy ecosystems sustain life and make us more resilient
- We are only as resilient as the most vulnerable
- Shared responsibility: “We” not “me”
- Individuals make a difference and we need coordinated government action
- We can act quickly, invest trillions and change behavior with political will



# 5.5% projected drop in emissions due to pandemic; need >double annually & start drawdown from atmosphere



Overall framing by Dr. John Sterman, MIT Sloan

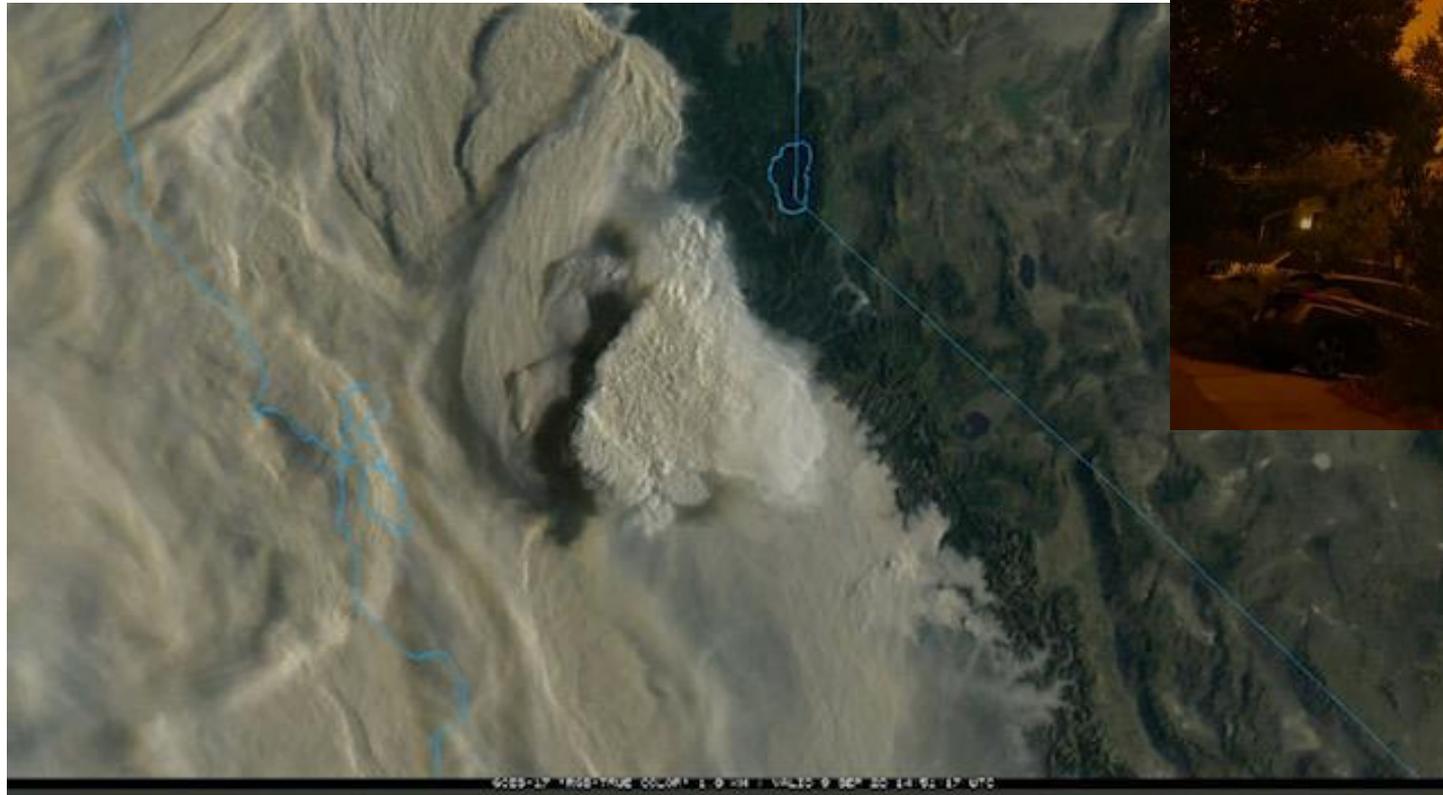
<https://grist.org/climate/the-world-is-on-lockdown-so-where-are-all-the-carbon-emissions-coming-from/>

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

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



Photo: Miki Goralsky



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

SUNDAY, SEPTEMBER 13, 2020

latimes.com

\$3.66 DESIGNATED AREAS HIGHER © 2020 WST ††

# 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 month, nearly two decades after the first United Nations Intergovernmental Panel on Climate Change report was issued, heat records were

# 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...**

<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



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

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

Jacox et al. **Thermal displacement by marine heatwaves**. *Nature*, August 2020; 584 (7819): 82 DOI: [10.1038/s41586-020-2534-z](https://doi.org/10.1038/s41586-020-2534-z)

# 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)

<https://www.washingtonpost.com/climate-environment/2020/09/14/glaciers-breaking-antarctica-pine-island-thwaites/>

# 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

Turetsky et al. Nature Geoscience | VOL 13 | February 2020

<https://www.sciencedaily.com/releases/2020/02/202003151152.htm>

<https://www.nationalgeographic.com/science/2020/02/arctic-thawing-ground-releasing-shocking-amount-dangerous-gases/>

# >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*



<https://www.nytimes.com/2020/07/14/climate/methane-emissions-record.html>

Sauniois et al, Earth Syst. Sci. Data, 12, 1561–1623, July 2020 <https://doi.org/10.5194/essd-12-1561-2020>

Jackson et al, Eniro Research Letters, July 2020 <https://iopscience.iop.org/article/10.1088/1748-9326/ab9ed2>

Höglund-Isaksson et al. *Enviro Research Communications*, 2020; 2 (2): 025004 DOI: [10.1088/2515-7620/ab7457](https://doi.org/10.1088/2515-7620/ab7457)

Hmeil et al *Nature* Vol 578 Feb 2020 <https://www.nature.com/articles/s41586-020-1991-8>

Howarth. *Biogeosciences*, 2019 DOI: [10.5194/bg-16-3033-2019](https://doi.org/10.5194/bg-16-3033-2019)

<https://therealnews.com/stories/methane-emissions-fossil-fuels-vastly-underestimated>

# Western US now in global warming-induced severe megadrought

- 2000 to 2018 was 2<sup>nd</sup> 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/)  
<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 lightning, igniting more fires*

# 100+ years of fire suppression: Need controlled burns, mechanical thinning, TEK (Traditional Ecological Knowledge) applied at scale



<https://www.cnn.com/2020/09/05/us/california-mammoth-pool-reservoir-camp-fire/index.html><https://insideclimatenews.org/news/11092020/western-wildfires-big-blowup-forest-policy>

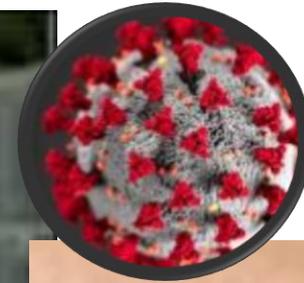
# Land use changes and more pollution – increases impacts, reduces resilience



<https://www.npr.org/2020/09/11/897692090/how-big-oil-misled-the-public-into-believing-plastic-would-be-recycled>

These are polyacrylic fibers- microplastics in soil. *Credit: Anderson Abel de Souza Machado*

# 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

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

# 5.5 million Californians live within one mile of oil or gas wells: *environmental racism*

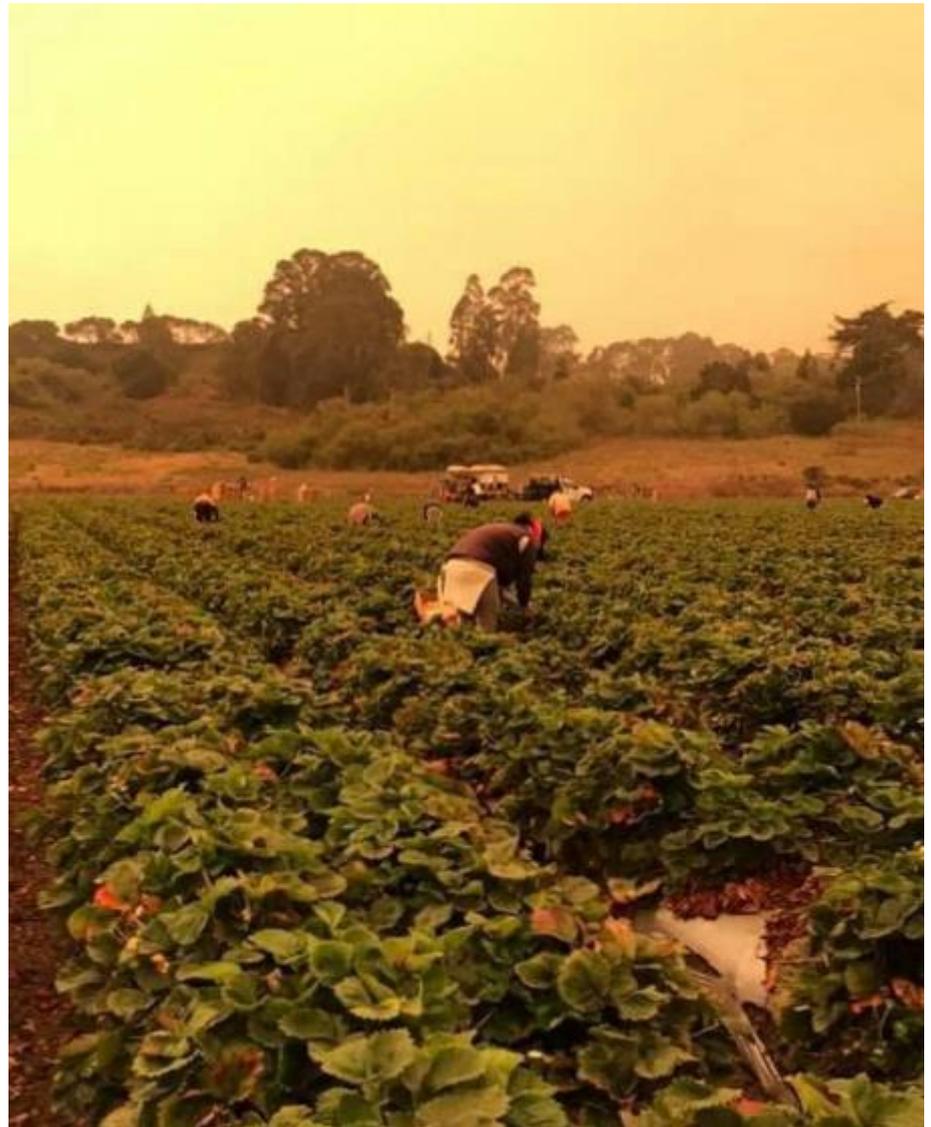
- California is 7<sup>th</sup> largest oil producing and 3rd largest refining state in the country
- Western States Petroleum Association, most powerful corporate lobby in CA, spent \$8.8 million on lobbying in 2019 alone
- 81,500 active and idle oil and gas wells, pumps, refineries and pipes produce high rates of asthma, respiratory diseases and cancer



Inglewood Oil Field © Gary Kavanagh 2017

# Farmworkers on the frontline of climate change

#wefeedyou



United Farm Workers  
@UFWupdates

<https://twitter.com/UFWupdates/status/1304419702110912513/photo/1>

<https://www.nytimes.com/2020/08/25/climate/california-farm-workers-climate-change.html>

the  
climate  
center

## 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

@nature

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

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

**G. 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** 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.”

**“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.”



# Climate inaction is bankrupting our economy

- ~\$80 billion in insured and uninsured losses in California in 2019 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) 1.5C pathway globally costs >\$5 trillion (in 2020)
- Damages from delayed GHG reductions in the US now cost ~\$600 billion per year (in 2020)



<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>

<https://medium.com/@ben.m.sanderson/a-last-chance-to-meet-climate-targets-37a2b7a02ff9>

Sanderson, B.M., O'Neill, B.C. Assessing the costs of historical inaction on climate change. *Sci Rep* 10, 9173 (2020). <https://doi.org/10.1038/s41598-020-66275-4>

# 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!**

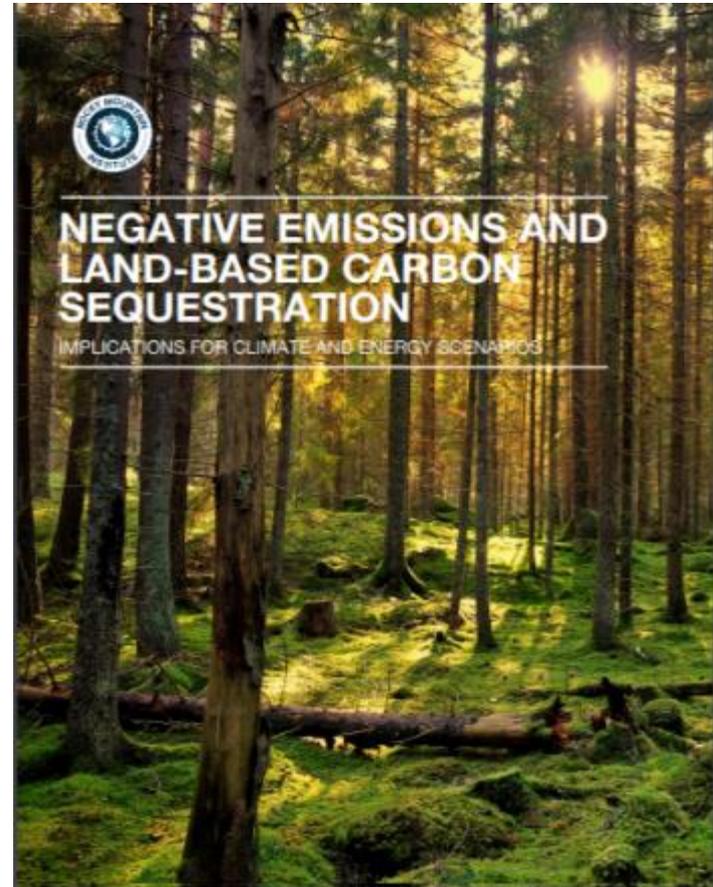


# GOAL: Net “negative” emissions

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.... 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

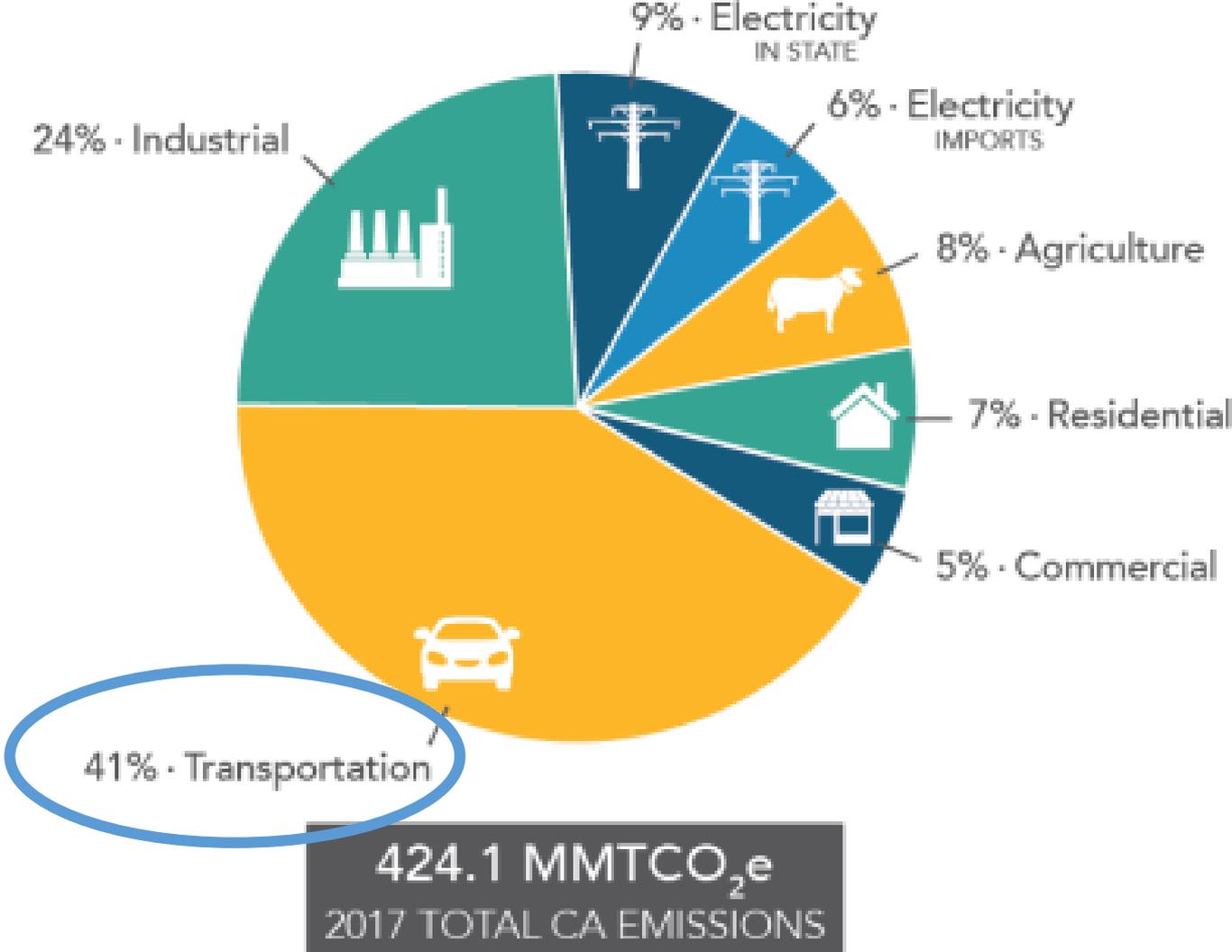
<https://climatecrisis.house.gov/> June 30, 2020

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

# Governor Newsom: We are in a climate emergency, must fast-track goals



# California Measured Emissions 2017



# SUVs: 2nd biggest cause of emissions rise (2010-2018)

SUV sales doubled over past decade; SUV drivers rank 7th in world for CO2 emissions, more than UK & Netherlands combined



Photo: Jonathan Turley

<https://www.iea.org/newsroom/news/2019/october/growing-preference-for-suvs-challenges-emissions-reductions-in-passenger-car-mark.html>

# CA isn't counting all of our emissions

## Consumption-based, out-of-boundary emissions from embedded goods & services

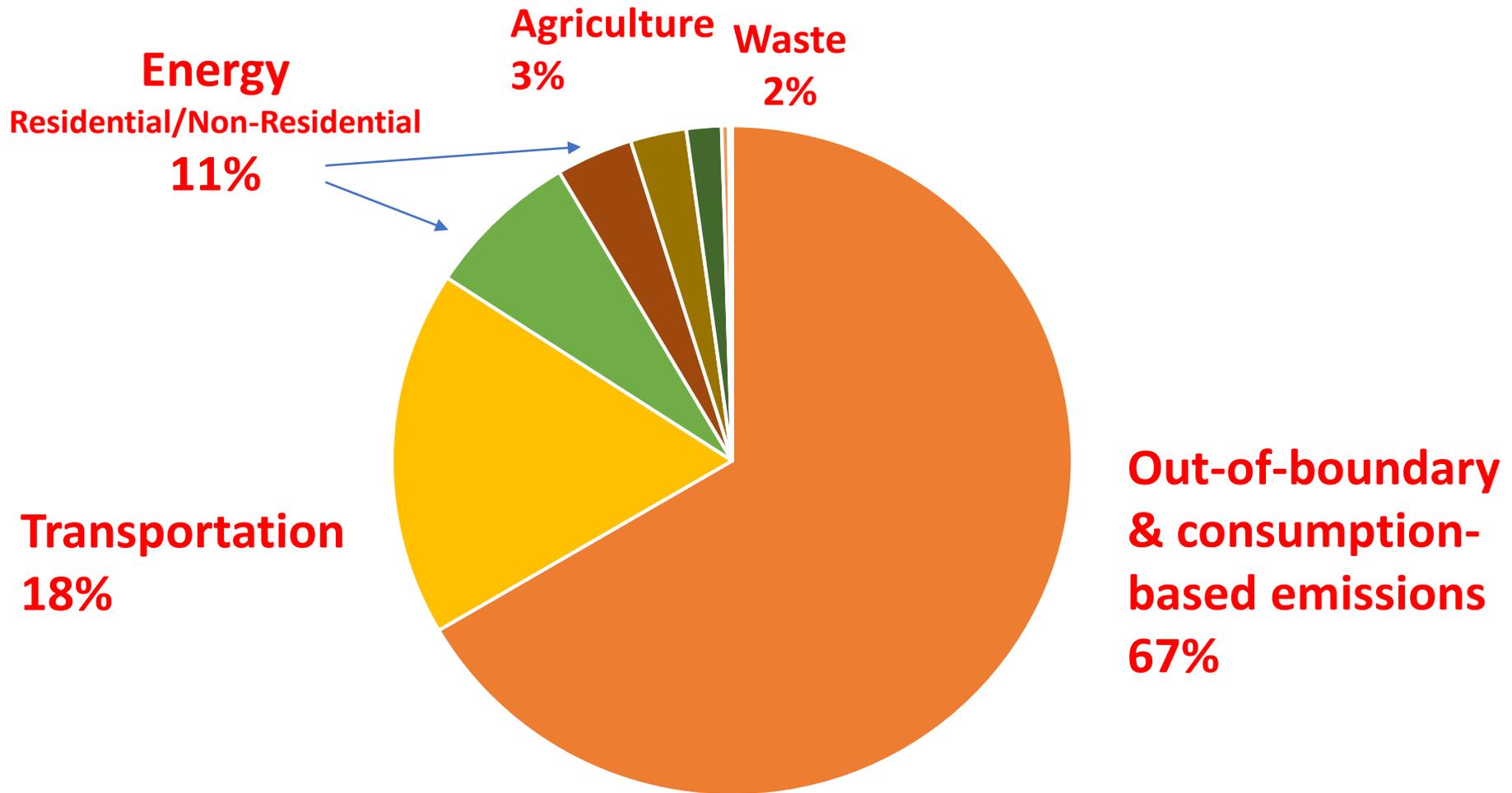
- Product & food manufacturing & disposal (waste) outside boundary
- Air travel & other transportation outside boundary
- Emissions from production of natural gas and fuels; foreign fuels refined in California



Photo: Ellie Cohen

<https://www.baaqmd.gov/about-air-quality/research-and-data/emission-inventory/consumption-based-ghg-emissions-inventory>

# *Example:* Marin measured emissions estimated to be 1/3 of all emissions in 2017



**~4,324,920 MT CO<sub>2</sub>e**

# 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.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*)

**One Next Step? Governor Newsom 2020 Executive Order  
that accelerates these timelines to 2030**



*Two guiding principles for all Climate-Safe CA policies:*

# 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

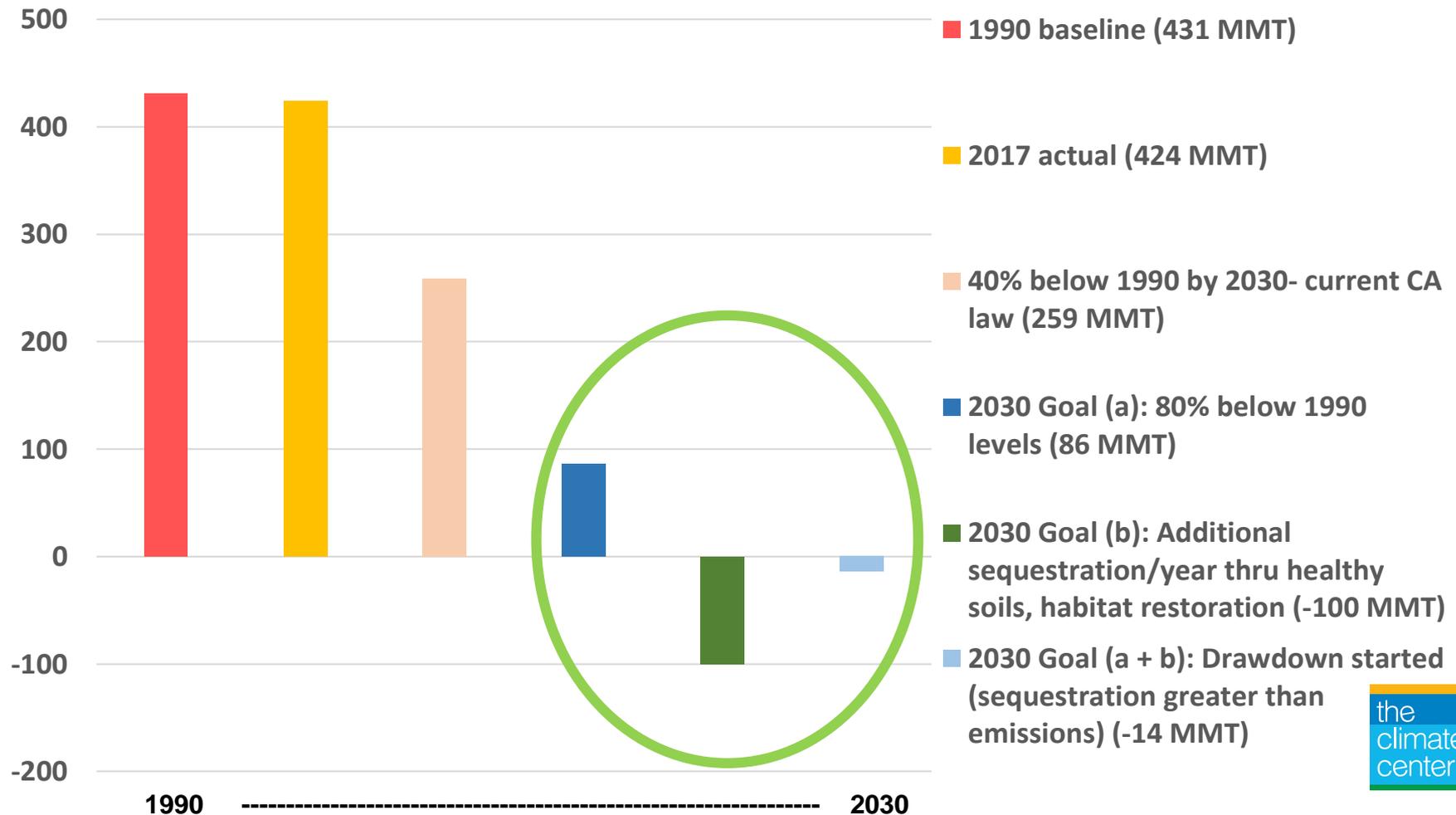


Photo: Stand.LA, by KPCC AirTalk

# 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



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

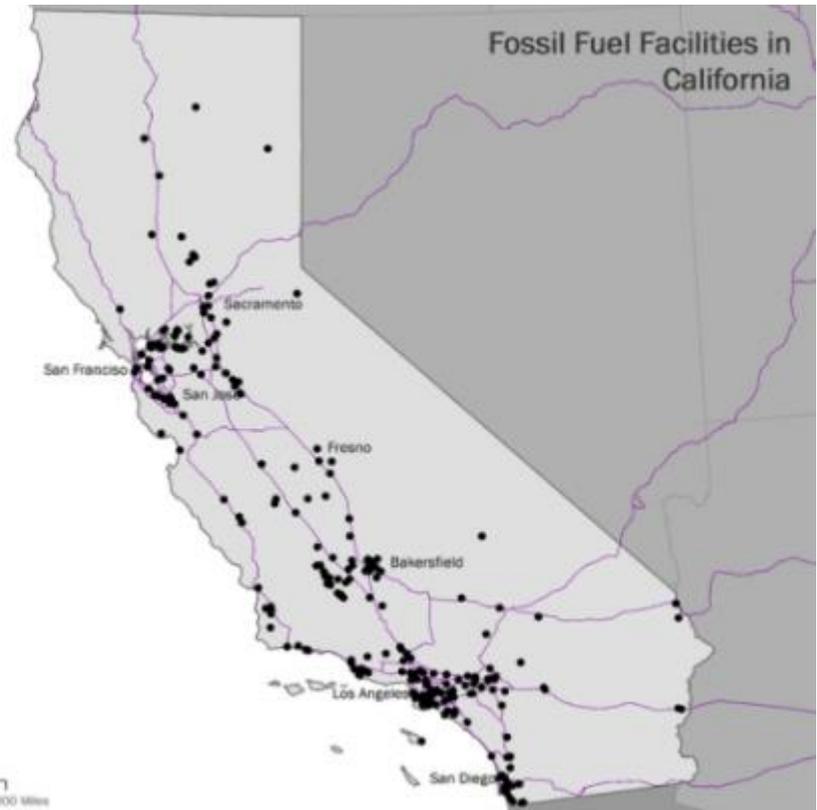
# 1- Accelerate phase out of fossil fuel development, production and use

- 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**
- **Secure 100% GHG-free, decentralized electricity & energy storage by 2030**
- Electrify almost everything with **massive GHG-reduction in new and older buildings**



# Launch Just Transition planning now to rapidly phase out fossil fuel production in CA & achieve 80% below 1990 GHGs by 2030

- Work with Building and Construction Trades, other unions, local governments, business, NGOs and community leaders to plan just transition
- Use Diablo Canyon plan as model
- Need win-win solutions



# 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, not freeways, 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
- Must more than double current CA goal to 10+ million ZEVs by 2030...
- Dramatically increase charging infrastructure (eg, thru public/private partnerships)
- And get many more people out of cars!

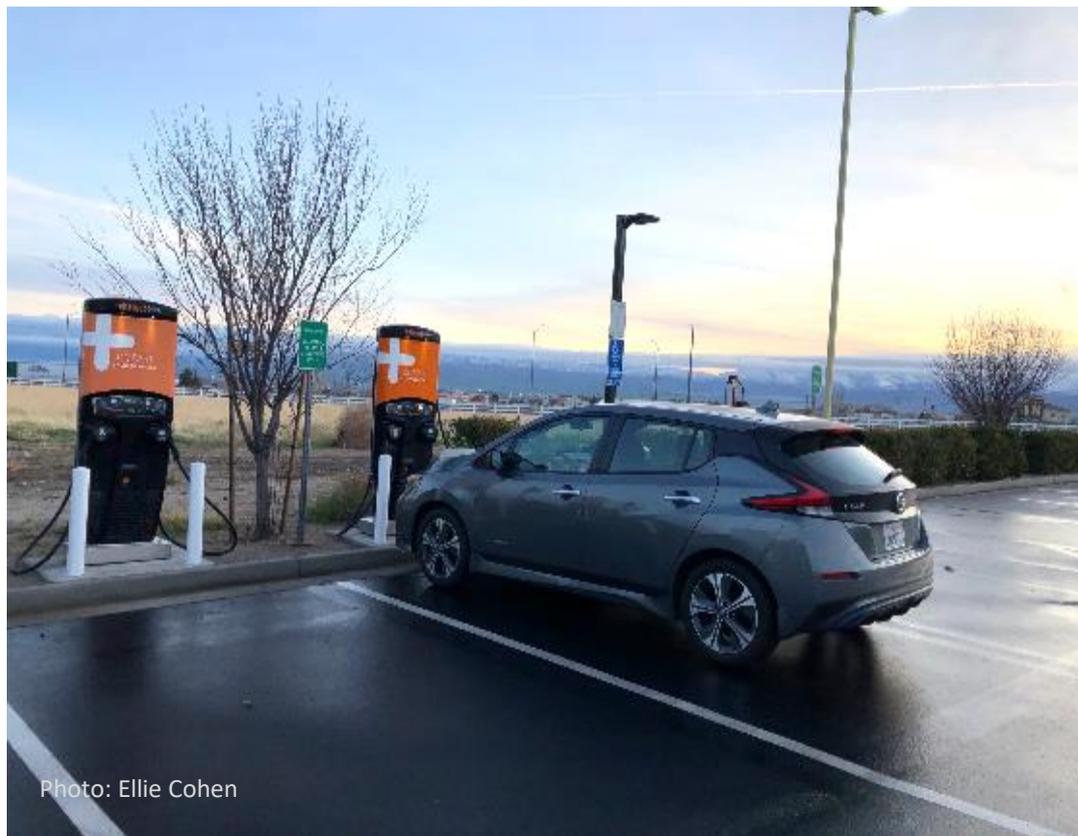


Photo: Ellie Cohen

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.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/wcm/connect/5aa16cd3-39a5-402f-9453-0d353706cc9a/official.pdf?MOD=AJPERES>  
<https://centerforjobs.org/ca/zev-reports/states-progress-on-5-million-zero-emission-vehicle-by-2030-q3-2019-results-2>

# Major increase in building electrification and efficiency

- Buildings = ~25% of CA's GHG emissions
- 20+ California cities have enacted **methane** gas bans for new buildings
- Enact zero-emission building codes by 2025



Electric Induction Stove-Shutterstock

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

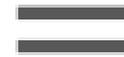
Embodied Carbon in Construction Calculator-  
<https://www.buildingtransparency.org/en/>

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



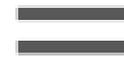
<http://www.buildingdecarb.org/>

# Ban Gas-Powered Lawn Equipment



1 hr lawn mower use

driving 300 miles  
from LA to Vegas



1 hr leaf blower use

driving 1100 miles  
from LA to Denver

## 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



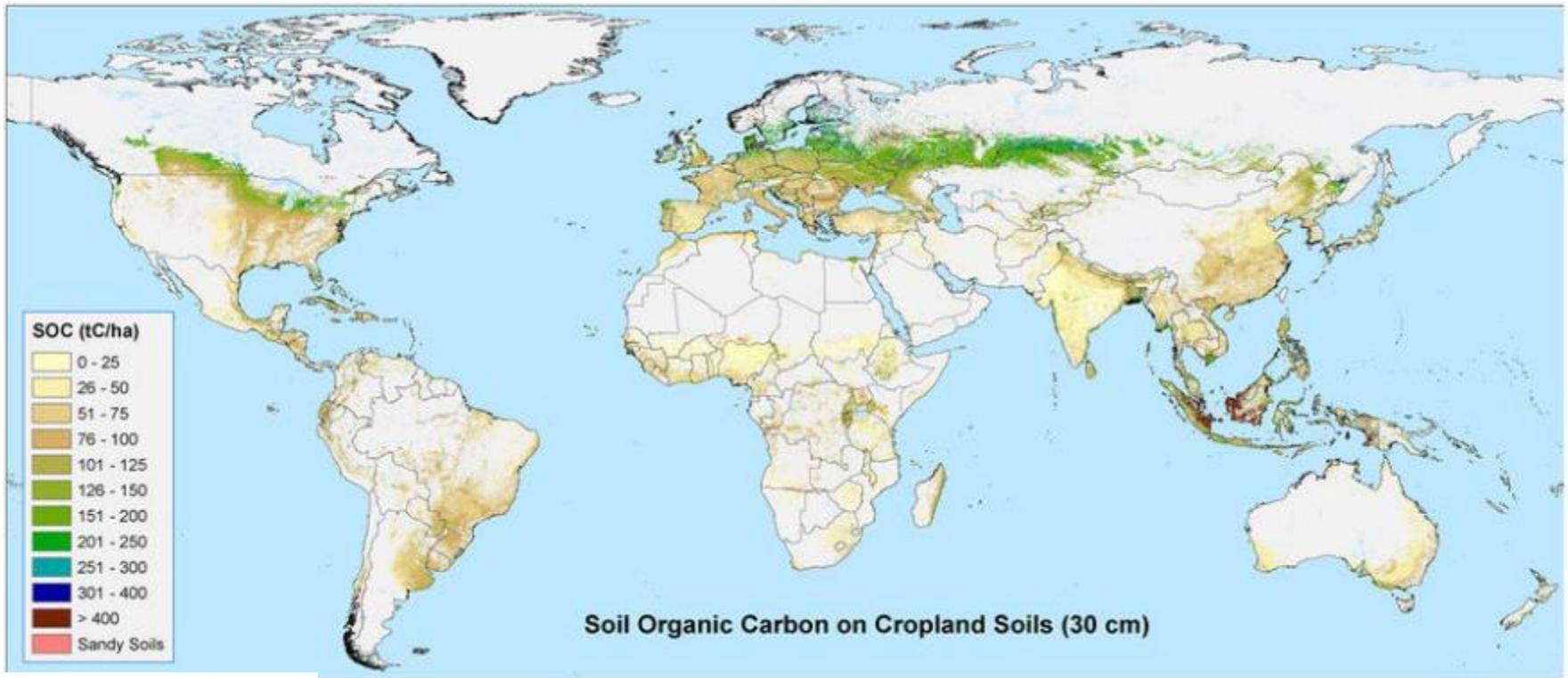
Kelp forests



Point Blue STRAW project

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

# Croplands could sequester ~1/5 of current annual emissions globally; healthy ag soils 5+ Gt/yr



Vermeulen et al. [A Global Agenda for Action on Soil Carbon](#). Nature Sustainability, Jan 2019

Bronson, Griscom, et al. [Natural Climate Solutions](#). PNAS October 2017 doi: 10.1073/pnas.1710465114

Zomer et al (TNC). [Global Sequestration Potential of Increased Organic Carbon in Cropland Soils](#). Scientific Reports, 2017.

# Carbon farming on working land potential sequestration at scale Example: 15+m acres = at least 61 MMT/year CO<sub>2</sub>e, increasing annually

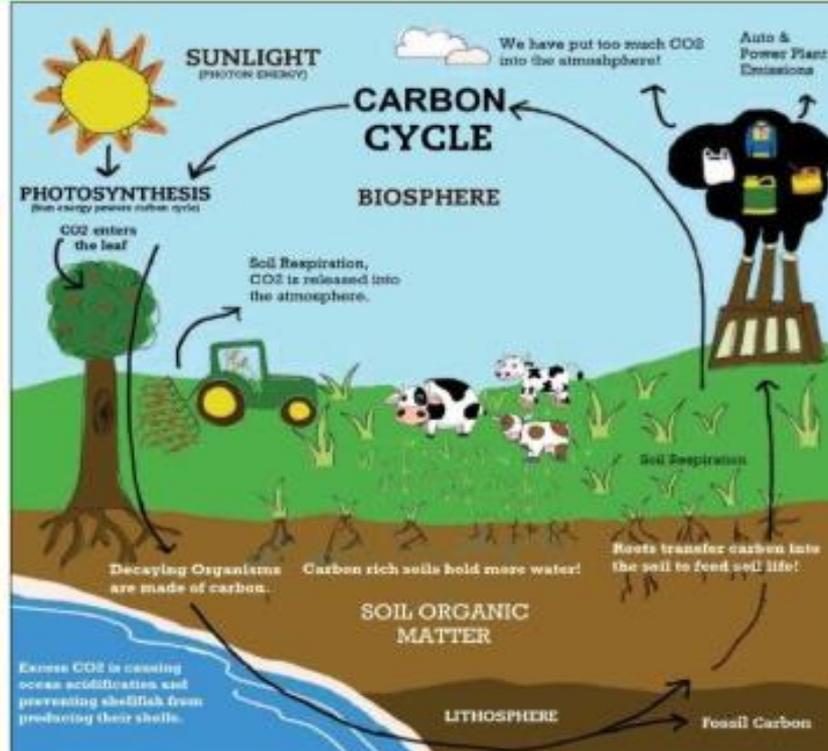
## CARBON FARM PLANNING in Marin

**Assistance is available for farmers and ranchers!**  
Plan for carbon sequestration and climate adaptation conservation practices with Marin RCD!

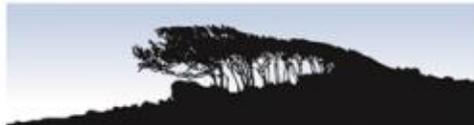
### Potential List of Conservation Practice(s)\* in a Carbon Farm Plan:

- 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 RESOURCE



CONSERVATION DISTRICT

MARIN CARBON PROJECT

Carbon Cycle Institute

the  
climate  
center

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);

# Climate Friday Virtual Town Hall- Soil as a climate solution

The image shows a YouTube video player interface. The video title is "Climate Friday Virtual Town Hall- Soil as a climate solution?". The video is currently at 12:38 of a 59:44 duration. The main content is a presentation slide titled "Carbon: The Key to Agricultural Productivity and Resilience". The slide features a central graphic of a blue archway representing soil nutrients. Inside the archway, a plant is growing in soil. The text inside the archway reads: "Soil carbon is the 'keystone' for all soil physical, chemical, and biological processes and properties." The nutrients listed around the archway are: Carbon, Nitrogen, Phosphorus, Potassium, Calcium, Magnesium, Sulfur, Zinc, Manganese, Chlorine, and Boron. The slide also includes a sun icon on the left and a cloud with rain and lightning on the right. The bottom of the slide says "Farm Productivity" and "Credit: Dr. D.C. Reicosky, ARS, Morris, MN". The video player includes a "MORE VIDEOS" button, a play button, a volume icon, and a "©CarbonCycleInstitute" watermark. The YouTube logo and other interface elements are visible at the bottom.

Torri Estrada, Executive Director of Carbon Cycle Institute  
Wendy Millet, Ranch Director of TomKat Ranch

<https://theclimatecenter.org/08-21-2020-climate-friday-virtual-town-hall/>  
Library of webinars: [www.theclimatecenter.org/webinars](http://www.theclimatecenter.org/webinars)

# 3- Invest in Community Resilience

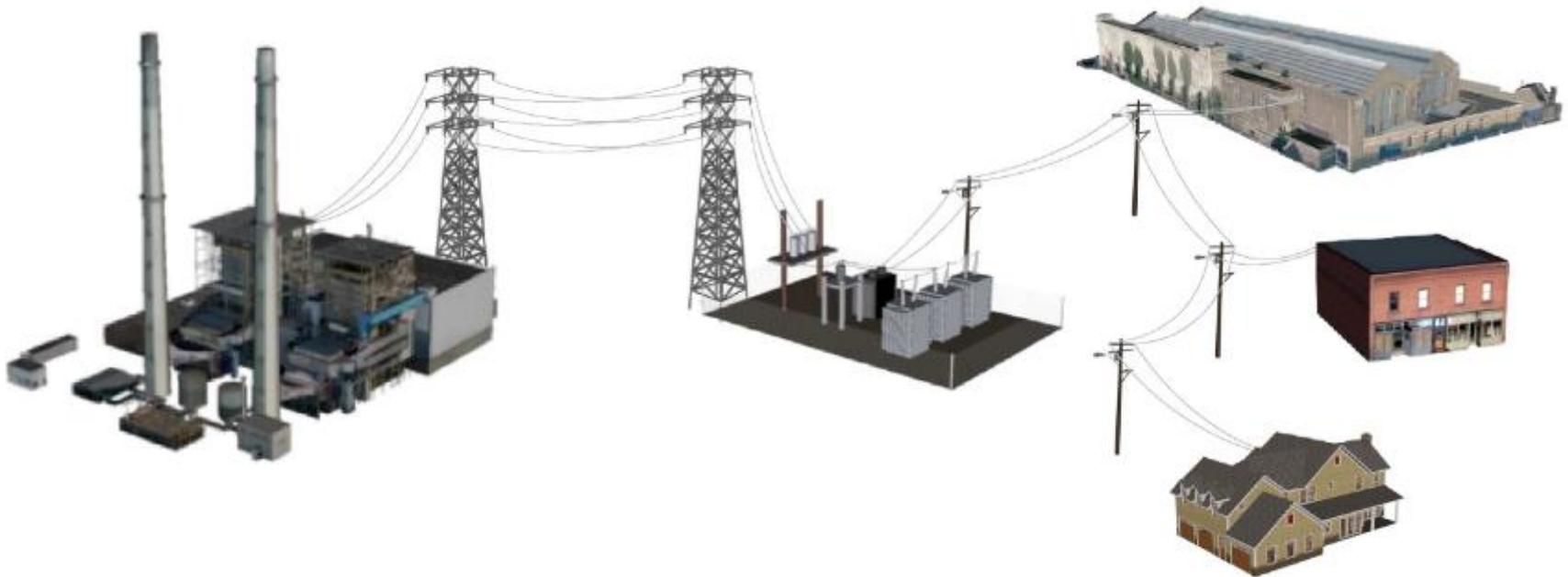
- Fund implementation of resilience plans in all California counties and cities by 2025 (SB379)
- Implement *clean* energy community microgrids with battery storage including EV's, starting with critical facilities in lower income communities by 2021



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

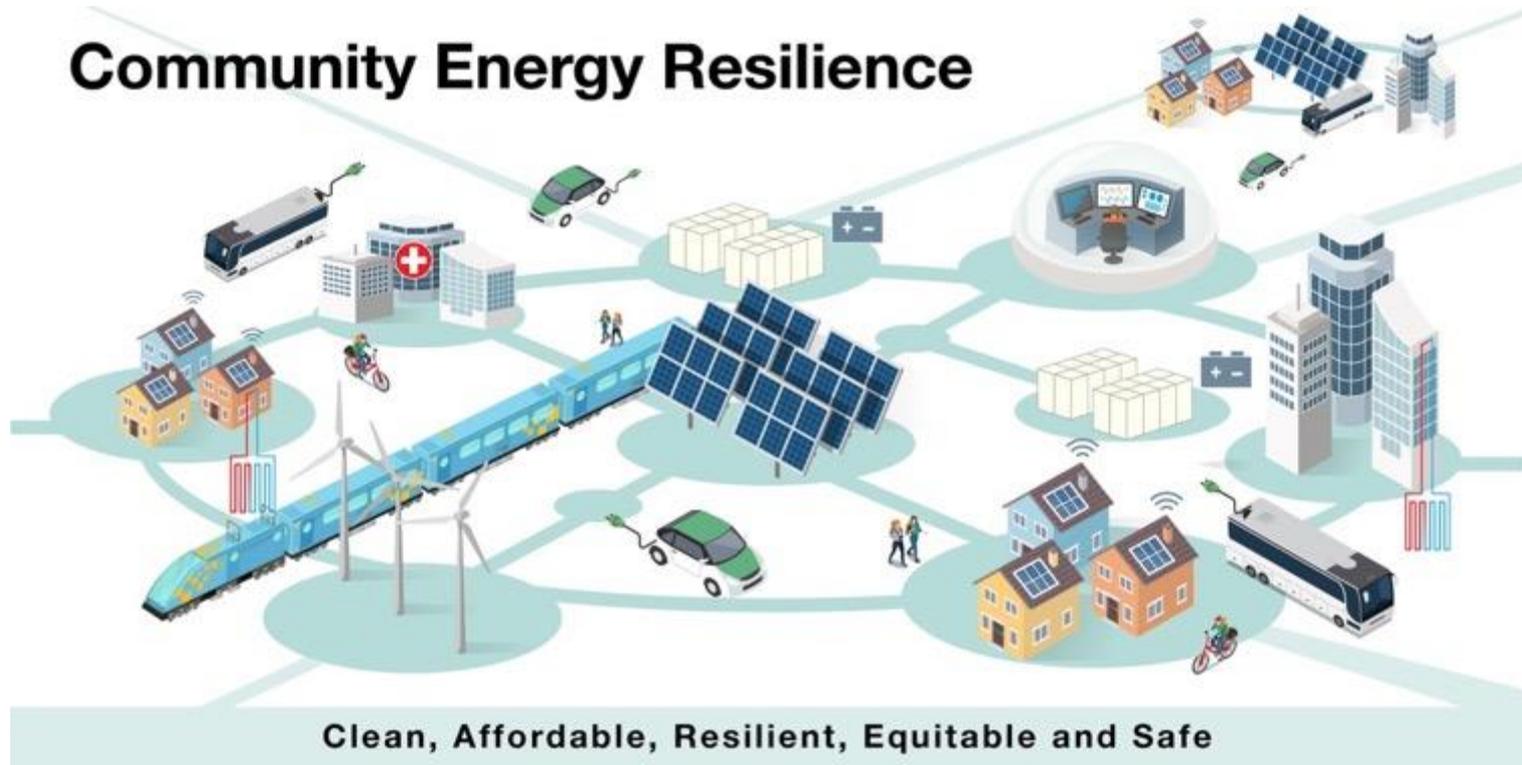
# Instead of perpetuating a 100-year old grid architecture...

..a transmission network prone to failure and likely to start wildfires..



# Let's create a decentralized and integrated power grid

## Community Energy Resilience



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

# Change CPUC Rules

- Fast-track current rulemaking to accelerate opening of microgrid market
- Revise regulations so thousands of small-scale clean energy providers can participate, while creating new local jobs
- Prioritize clean energy resilience for lower income communities



California's climate and electricity crises require clean energy community microgrids  
<https://www.sacbee.com/opinion/california-forum/article245311865.html>

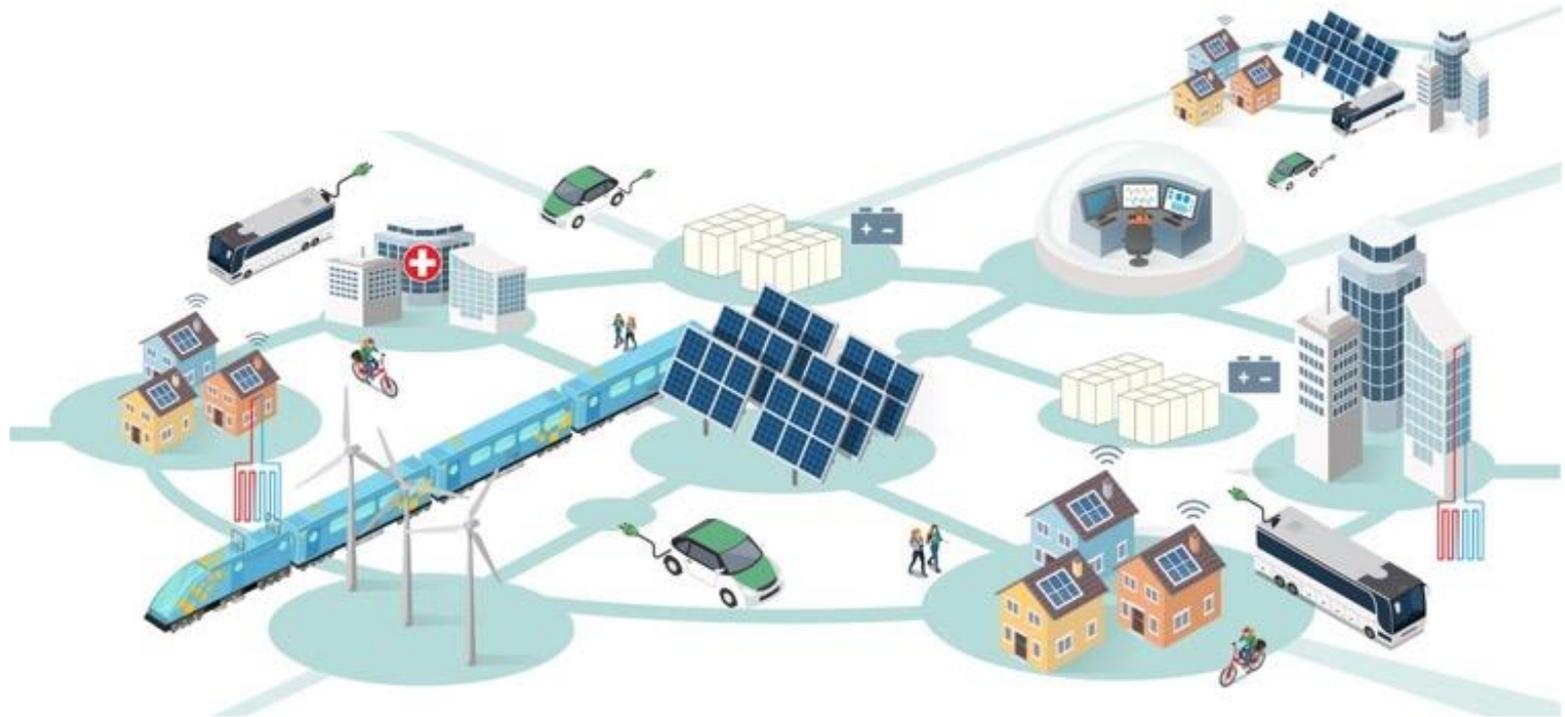
# 4- Fund climate action

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



# We have the solutions and technologies today!



# Investing in GHG reduction creates jobs and builds the economy

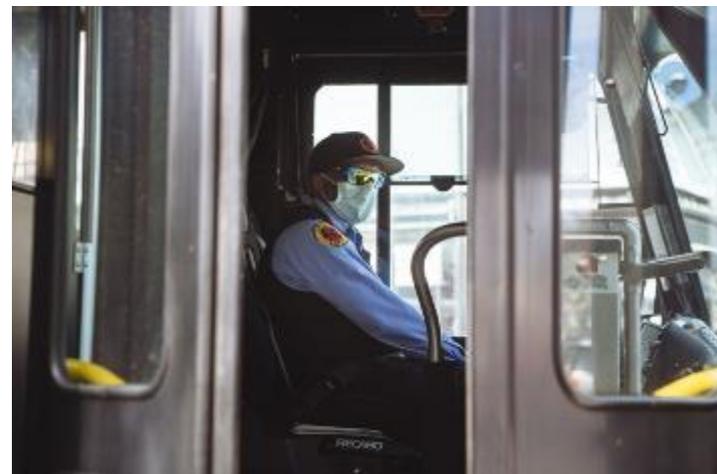
- **\$2.2 billion from CA's Cap-and-Trade Program supported direct employment of 36,106 job years from 2013-2016**
- 54% of the jobs were in building trades
- 11% in architecture and engineering, 10% in transportation



J.R. DeShazo et al. **Employment Benefits from California Climate Investments and Co-Investments.** UCLA Luskin Center for Innovation. Aug, 2018. <https://innovation.luskin.ucla.edu/publication/employment-benefits-from-california-climate-investments-and-co-investments/>

# Recent studies about beneficial economic impact of climate investments

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





# Over 550 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



# 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



# 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 by spring 2021**

# Congressman Jared Huffman

Member of House Select Committee  
on the Climate Crisis



**“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://theclimaticenter.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/>

# 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/>

# State Senator Henry Stern

*speaking at The Climate Center's Virtual Community  
Energy Resilience Summit, August 5, 2020*



**“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/>

# 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

**This is the Governor's "Winston Churchill" moment;  
ask him 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)

# 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 **Community Energy Resilience bills** come January
- Support **setbacks for oil/gas infrastructure** away from schools, homes
- Tell your legislators to support a clean, green and just **Climate Recovery Bond, regulatory changes and fees** for jobs and a climate-safe future
- Ask your **City Council** to develop, implement & *fund* a Community Energy Resilience Plan & Climate Action Plan



# Other actions you can take:



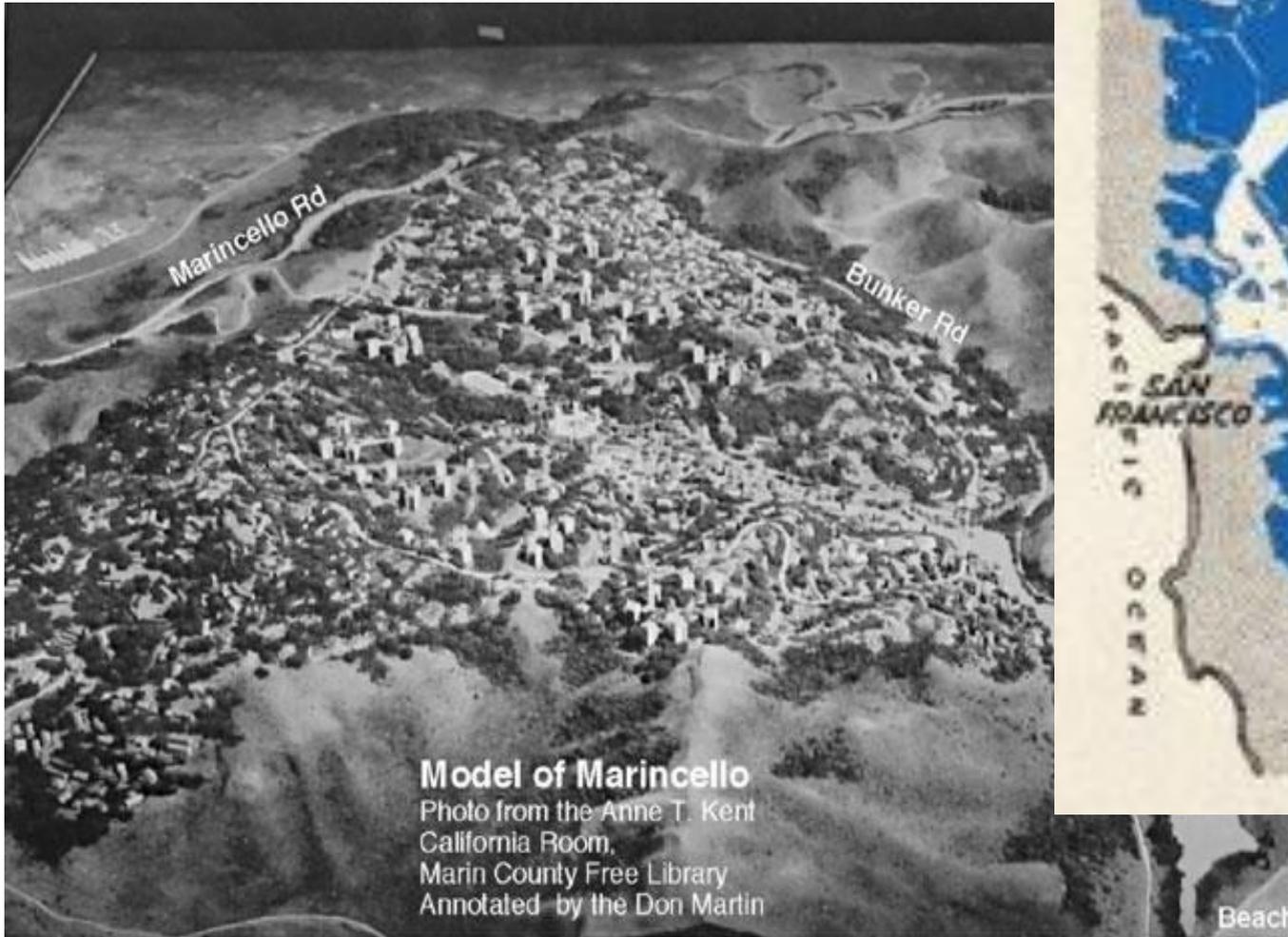
- [Purchase/lease solar](#), wind or 100% green power
- Ditch the SUV and make your next car an EV, plan to use it as back-up power source, or ditch your car! [www.resilientneighborhoods.org](http://www.resilientneighborhoods.org)
- Use mass transit, shared transit, e-bikes and other micro-mobility
- Reduce airplane travel and enjoy staycations
- Work from home and support 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 can– and are– making a difference!**



**Be bold, take risks and innovate for  
a healthy, equitable future**

# WE HAVE CHOICES



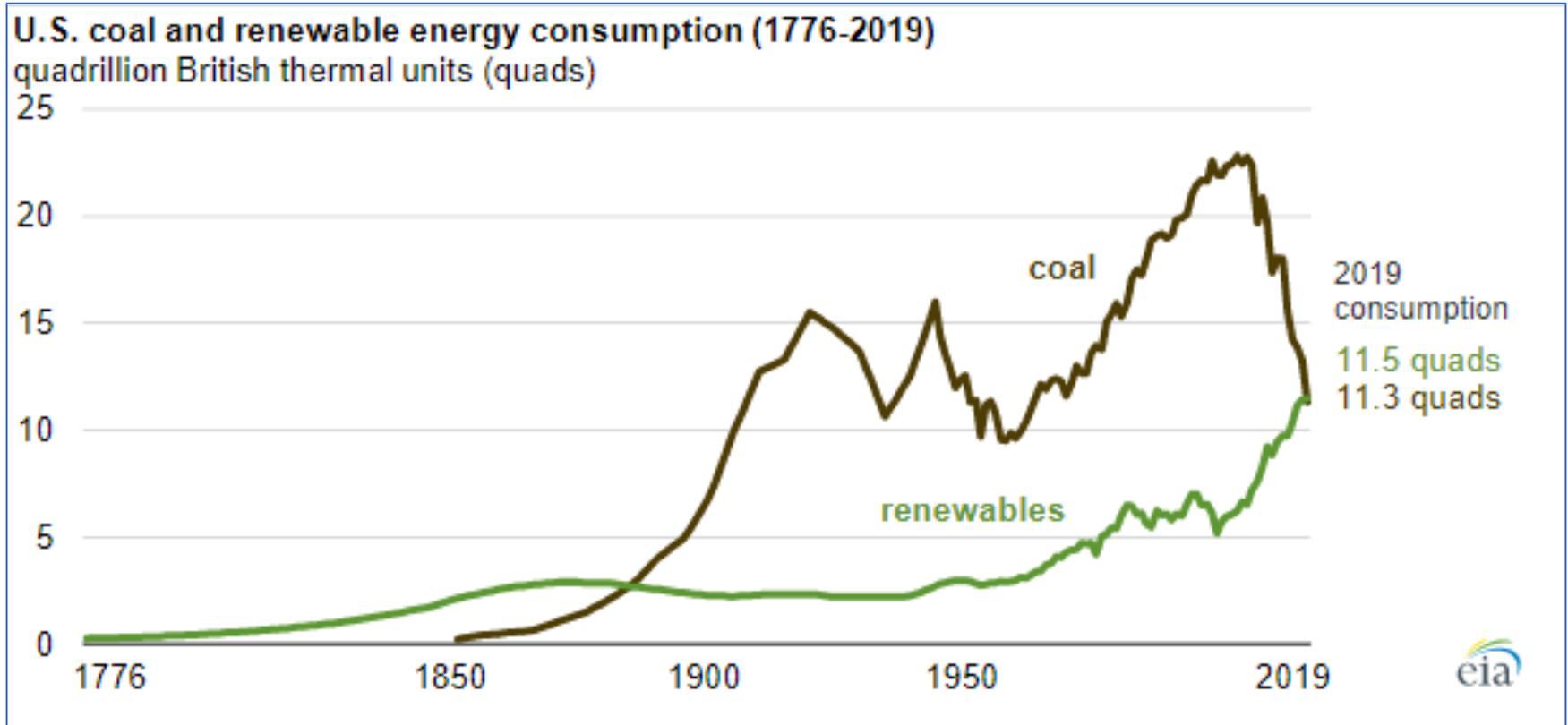


**One person can make a difference!**



Together we make an even bigger difference!!

# U.S. RENEWABLES PRODUCE MORE ELECTRICITY THAN COAL for first time in 130 YEARS in 2019 SOLAR GROWS 32% & WIND 20%



U.S. Energy Information Administration

[U.S. renewable energy consumption surpasses coal for the first time in over 130 years](https://pvbuzz.com/renewables-produce-more-electricity-than-coal/) May 28 2020

[https://pvbuzz.com/renewables-produce-more-electricity-than-coal/](https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_es1a) 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



**NORFOLK, Va.** — High vertical waters are sprouting heads low spots in the streams here, so people can judge if the risk of floods that increasingly inundate these roads are too deep to drive through.

Five hundred miles down the Atlantic Coast, the only road to Tybee Island, Ga., is disappearing beneath the sea several times a year, cutting the town off from the mainland.

And another 500 miles on, in Fort Lauderdale, Fla., increased tidal flooding is forcing the city to spend millions of dollars to protect its historic district.

These warnings are no longer theoretical. The inundation of the coast has begun. The sea has crept up to the point that a high tide and a brisk wind are all it takes to send water pouring into streets and homes.

Federal scientists have documented a sharp jump in this nuisance flooding — often called “sunny-day flooding” — along both the East Coast and the Gulf Coast in recent years. The sea is now so near the beach in many places that they believe the problem is likely to worsen as climate change progresses, the scientists say.

“Once impacts become noticeable, they’re going to be upon you quickly,” said William V. Sweet, a scientist with the National Oceanic and Atmospheric Administration in Silver Spring, Md., who is among the leaders in research on sea-level rise.

Scientists say these rains are also a consequence of human greenhouse emissions.

“Once impacts become noticeable, they’re going to be upon you quickly,” said William V. Sweet, a scientist with the National Oceanic and Atmospheric Administration in Silver Spring, Md., who is among the leaders in research on sea-level rise.

The background features a close-up of Saturn's rings, with a bright, glowing light streak cutting across the scene from the bottom left towards the top right. A white mouse cursor arrow is positioned on the right side of the slide, pointing upwards.

# Thank you!

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

