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# On the Path by 2025 to a Climate-Safe California. We can do it!

Ellie Cohen, The Climate Center

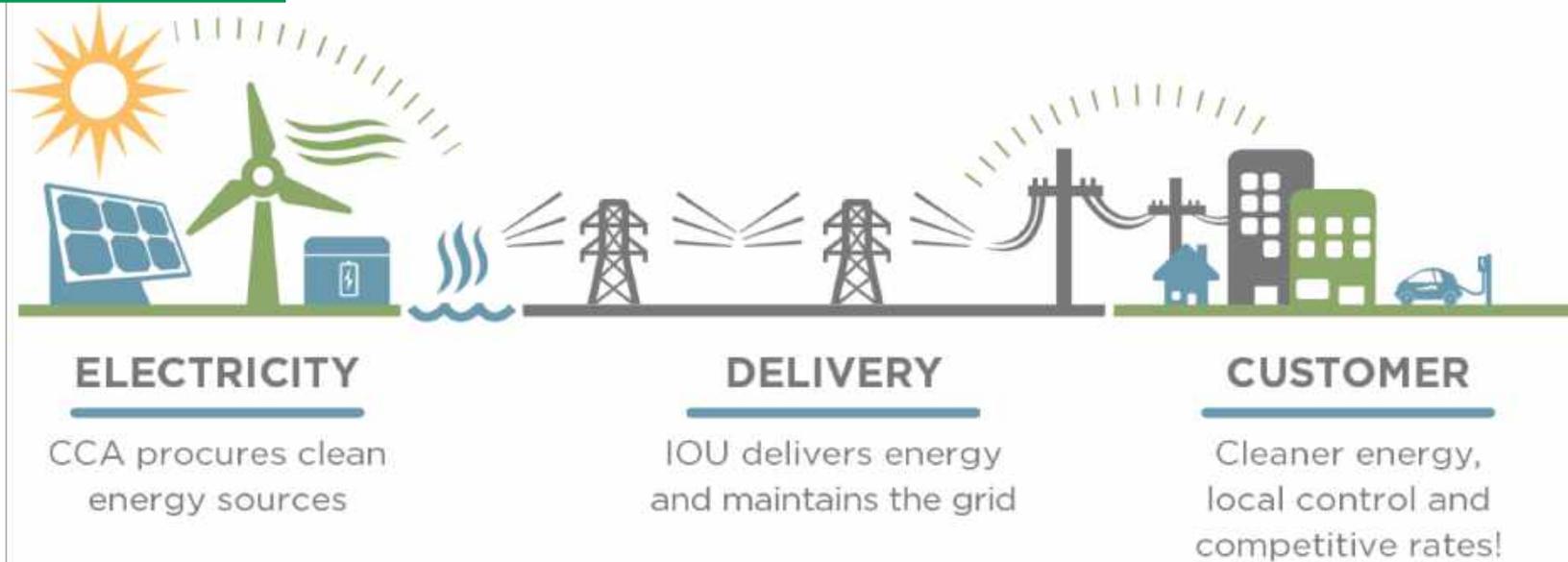
BayCAN

February 20, 2020

[www.theclimatecenter.org/rapid-decarb](http://www.theclimatecenter.org/rapid-decarb)

the  
climate  
center

# Mission: Speed and scale greenhouse gas reductions



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

<https://theclimatcenter.org/our-work/community-choice/>  
<https://cal-cca.org/cca-impact/>



Australian pyrocumulus fire clouds that created dry lightning, igniting more fires

# UN IPCC 1.5C Report- Oct 2018

**Required consensus => most conservative**  
**New findings => inadequate, need to do more**

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



# ABRUPT PERMAFROST THAW

**Doubles previous est.CO2/methane emissions**

**Not in any climate models including IPCC 1.5C report**

**Must act in next decade to stave off worst consequences**

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

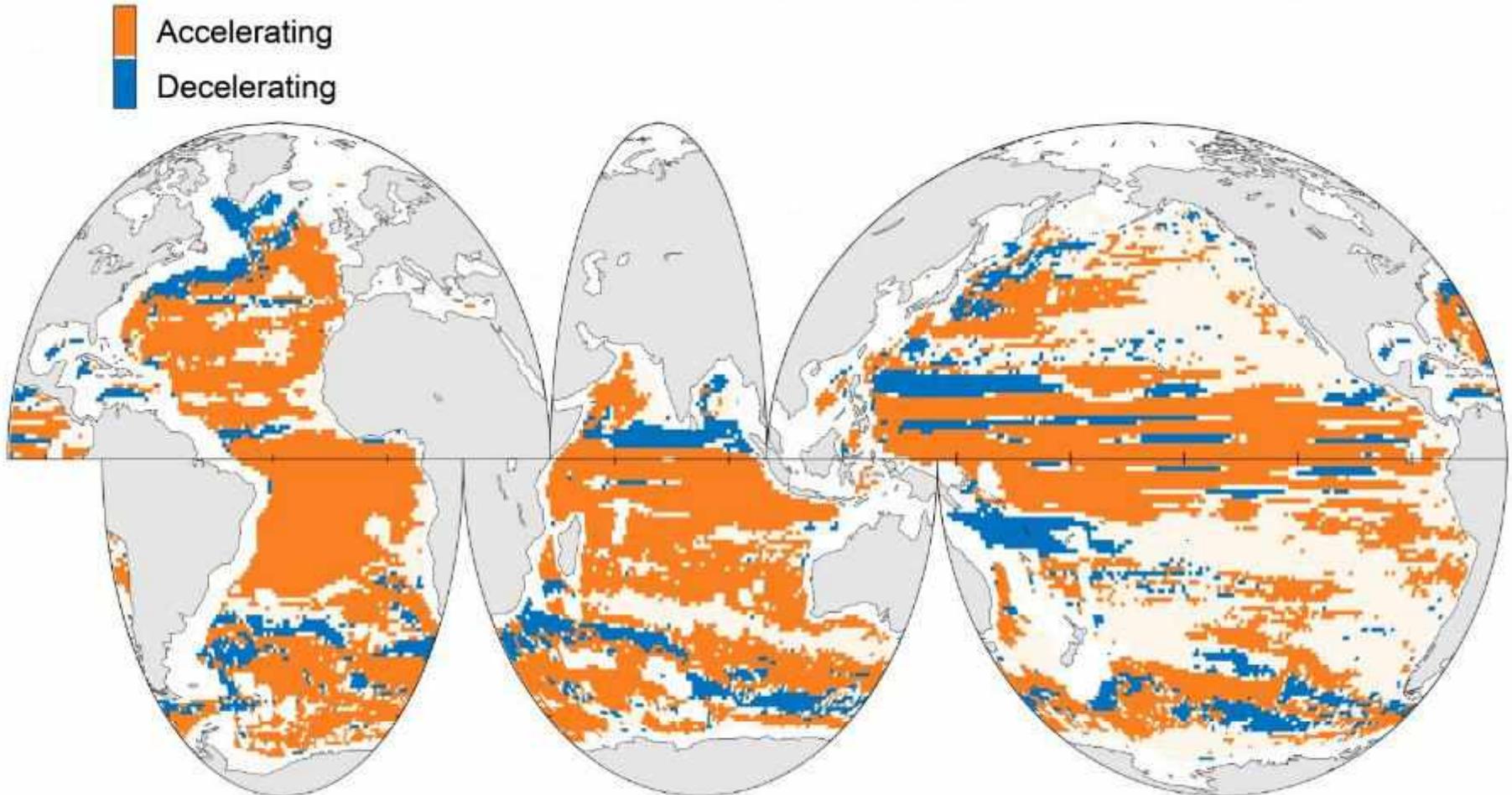
<https://www.sciencedaily.com/releases/2020/02/200203151152.htm>

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

# 76% of world's oceans speeding up

Wasn't expected until 2100; Earth more sensitive to climate change?

Faster winds=> faster currents => ↑ wildlife impacts & weather extremes



After assessing 5 million climate pathways:

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



Lamontagne et al. Robust abatement pathways to tolerable climate futures require immediate global action. *Nature Climate Change*, March 2019

<https://www.sciencedaily.com/releases/2019/03/190311125353.htm>

# 11,000 scientists' warn: climate emergency

...To secure a sustainable future...decision-makers and all of humanity [must] promptly respond to [the] climate emergency and act to sustain life on planet Earth, our only home.”



Smoke from fires burning in California from satellite photos, Oct. 2017

-Ripple et. al. *World Scientists' Warning of a Climate Emergency*,  
*Bioscience*, November 2019

# 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

**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>

**“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, December, 2019



<https://sverigesradio.se/avsnitt/1425542>  
<https://medium.com/@rchrthy/johan-rockstr%C3%B6ms-10-point-agenda-for-saving-the-world-unofficial-transcript-431261f885c6>

# Are net zero CO<sub>2</sub>e emissions enough?

Balance  
carbon emissions  
with carbon  
removal

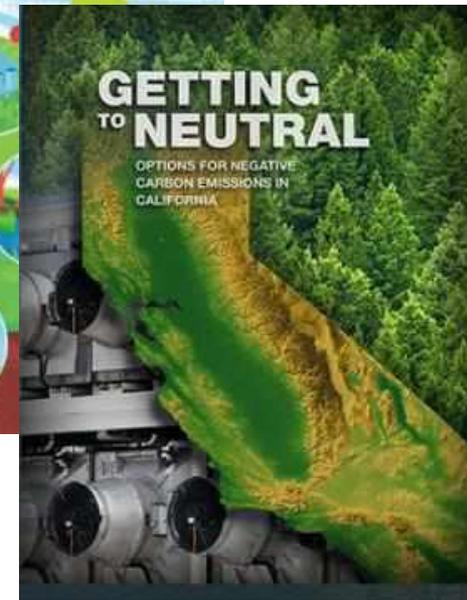
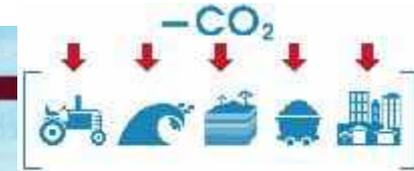
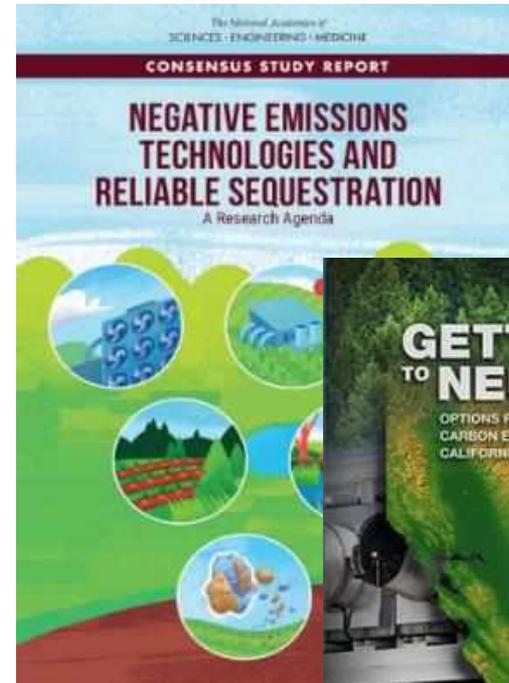
(transition to a "post-carbon  
economy").



# GOAL: Net-negative emissions soon

**Dramatically reduce emissions and continue bringing atmospheric GHGs back down to reverse some (not all) of the impacts**

(e.g. CO<sub>2</sub> at least below 350 ppm); “overshoot” pathway- the faster we do this, the more impacts we can avoid.)



<https://www.llnl.gov/news/new-lab-report-outlines-ways-california-could-reach-goal-becoming-carbon-neutral-2045> January 2020

[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)

<https://www.nap.edu/catalog/25259/negative-emissions-technologies-and-reliable-sequestration-a-research-agenda>

# Global Climate Action Leaders

**Finland:** Carbon neutrality by 2035 w/o carbon offsets

**Uruguay:** Carbon neutrality by 2030– major investments in wind and increased forest cover

**Norway:** Banning new Internal Combustion Engine (ICE) car sales in 2025

**Denmark:** Reduce GHGs to 70% below 1990 by 2030

**Copenhagen:** Carbon neutral by 2025 with econ growth

**Rhode Island:** 100% renewable energy by 2030

**Santa Monica:**

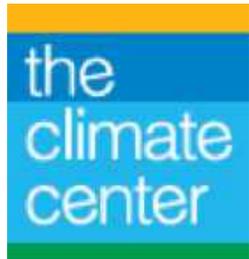
- 80% below 1990 carbon emissions by 2030
- Converting 50% ICE vehicle trips to walking or bikes/scooters/skateboard by 2030
- Water self-sufficiency by 2023; Zero waste by 2030

# State of California- some key climate policies

- ❖ SB 32 (2016): Reduce GHG emissions to **40% below 1990 levels by 2030**
- ❖ SB 100 (2018): Achieve **60% renewable energy by 2030** and **100% by 2045**
- ❖ Executive Order B-55-18 (2018): Achieve **carbon neutrality by 2045** and **maintain net-negative emissions after**

**Is this enough per the science and climate reality?**

**Need more aggressive policies and accelerated timelines now!**



**Climate-Safe California**  
**Campaign for Rapid Decarbonization**

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

By 2025, CA will have enacted the bold, accelerated policies required by the science to achieve net-negative emissions and resilient communities by 2030



# Ensure a secure transition for workers and their families

- Support workers and communities dependent on fossil fuel enterprises
- Prioritize lower income communities
- Addressing climate change creates good jobs for building, construction and other trades



<https://www.iddri.org/en/publications-and-events/blog-post/investing-just-transition>

# Goal: CA commits ASAP to accelerated decarbonization timeline & \$\$\$

- 80% below 1990 levels and net-negative emissions by 2030



# 1- 100% Clean Power by 2030

- Immediate stop to new drilling licenses
- 100% clean, distributed electricity & storage
- Phase out oil/gas production and subsidies
- 100% building electrification & efficiency





# 3- Sequestration

Sequester 100+ MMT CO<sub>2</sub>e annually in healthy soils and vegetation annually by 2030

- Carbon farming & gardening
- Habitat restoration on land and coast
- Multiple co-benefits



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/>

# 4- Climate-Safe Communities

- Fund implementation of resilience plans (eg SB 379) in all CA counties and cities by 2025
- Implement *clean* energy community microgrids with EV storage, starting with critical facilities in lower income communities by 2021



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

# PG&E planned new methane gas back-up generators

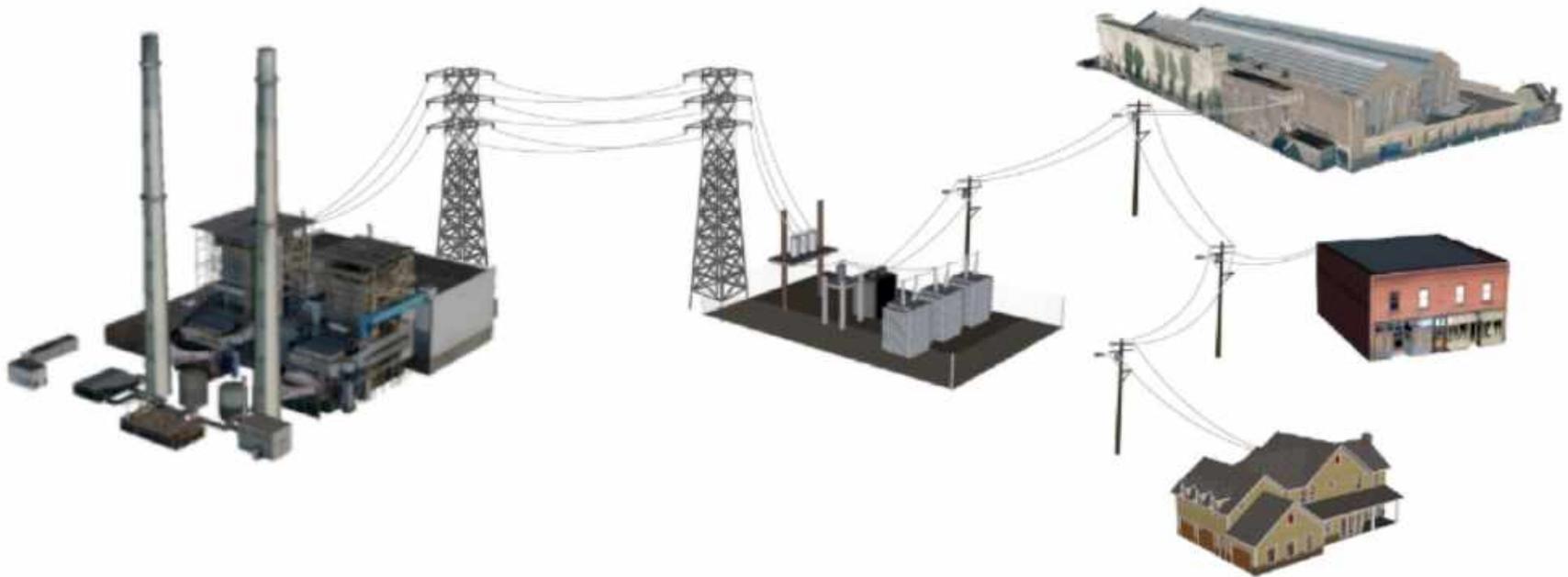
PG&E Substations for DGEMS Phase

Substation	Peak Load	Land Info (Sq ft.)		Latitude	Longitude
		Potential Land/Site Identified	Outside Substation Fence		
SAN RAFAEL	69.9	Y	62,000	37.9706527	-122.5272077
HIGHWAY	50.0	Y	85,000	38.16608965	-122.2535906
MOLINO	33.8	N		38.42533288	-122.8322634
ALTO	31.8	Y	96,500	37.89839799	-122.5249516
LAS GALLINAS A	33.4	N		38.02238116	-122.5381475
FORT BRAGG A	13.8	Y	15,000	39.43477268	-123.7994643
IGNACIO	30.5	Y	1,260,000	38.07665096	-122.5404603
WILLITS	15.2	Y	46,772	39.40556241	-123.3270646
CARQUINEZ	11.9	Y	63,600	38.09103762	-122.2483861
GREENBRAE	23.5	Y	50,000	37.93799601	-122.5143516
WINDSOR	22.3	Y	130,000	38.565927	-122.832315
KONOCTI	14.5	Y	61,570	38.93235913	-122.741004
BRUNSWICK	60.3	Y	71,330	39.23103074	-121.0349999
UKIAH	17.5	Y	73,181	39.14314429	-123.1918136
CLEAR LAKE	14.1	N		39.00783962	-122.8939866
TYLER	15.3	Y		40.13838296	-122.20884
CLOVERDALE	16.5	Y		38.79725991	-123.0103812
HIGHLANDS	24.7	Y	30,000	38.93702324	-122.6089758
MIDDLETOWN	15.5	Y	36,189	38.75277959	-122.6087491
BIG RIVER	4.0	N		39.31138519	-123.7865885



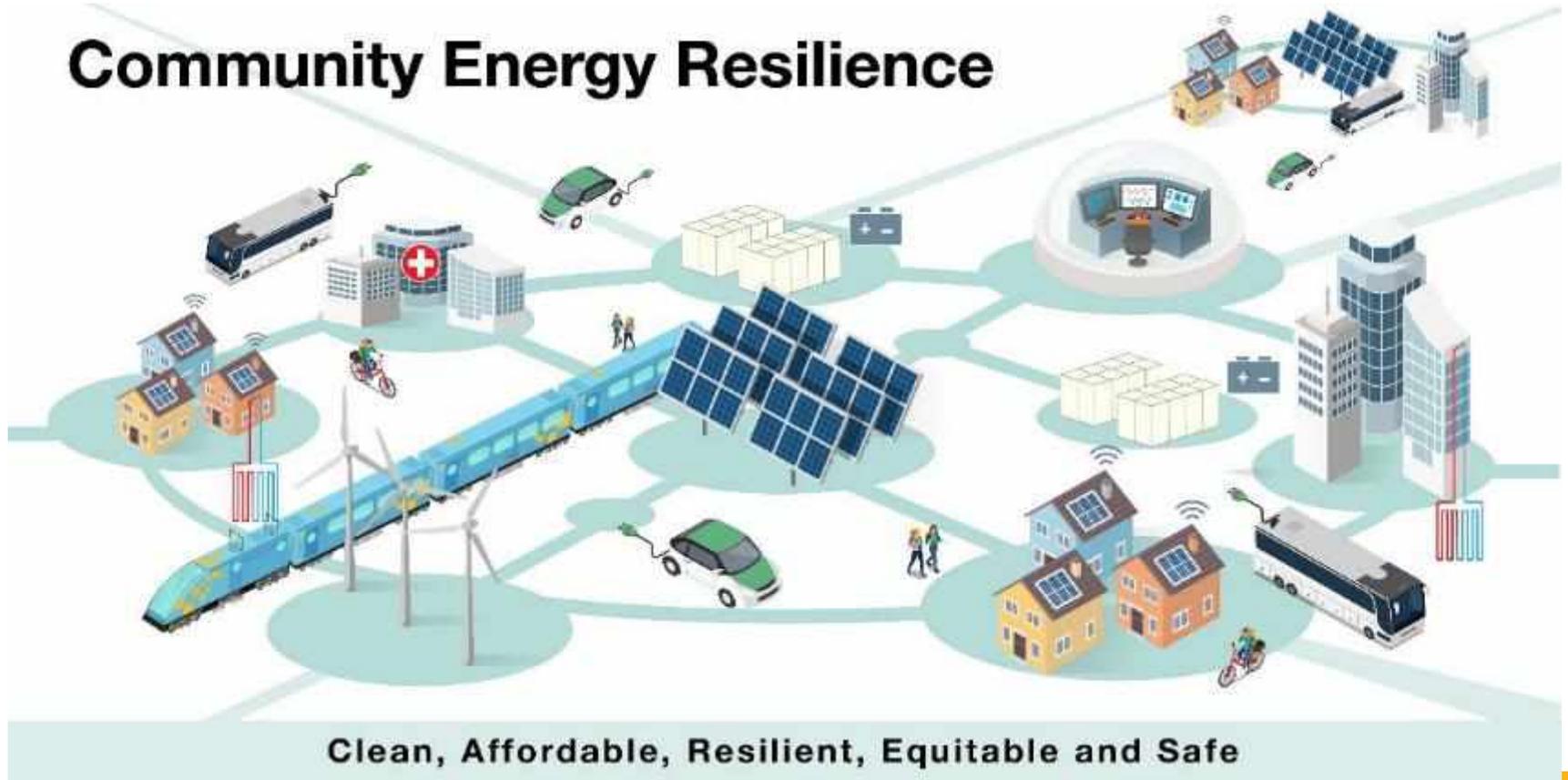
# Instead of perpetuating a 100-year old grid architecture...

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



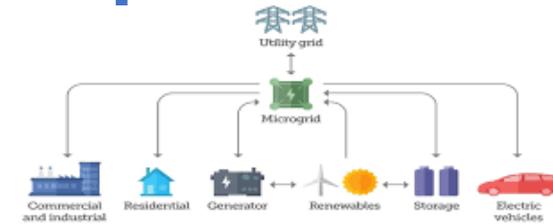
...let's build a new integrated,  
decentralized grid

## Community Energy Resilience

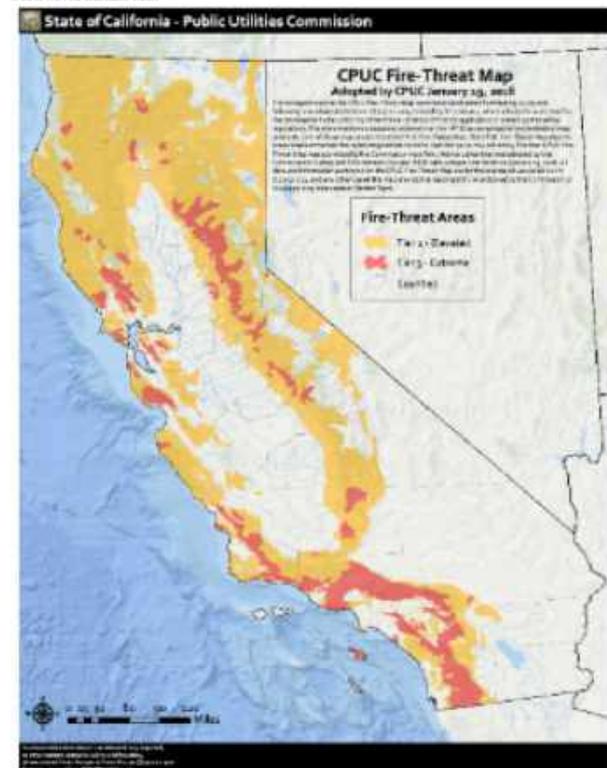


# ...starting with critical facilities serving lower income communities and homes for medically dependent

- 49 major state government buildings
- 92 refrigerated food warehouses
- 147 digital TV transmitters
- 225 local emergency operational centers
- 273 AM towers
- 535 urgent care facilities
- 570 hospitals
- 728 colleges and universities
- 1,013 law enforcement facilities
- 1,751 passenger transportation terminals
- 1,193 cell towers
- 3,182 nursing homes
- 3,139 emergency medical service facilities
- 3,209 fire stations & equipment depots
- 10,465 public schools
- 12,388 child care centers



Source: LG CNS  
© 2016, The Pew Charitable Trusts





# COMMUNITY ENERGY RESILIENCE SUMMIT

How forward-thinking communities are addressing energy  
resilience without relying on fossil fuels

**Monday, May 18, 2020**  
**University Union, Sacramento State**

<https://theclimatecenter.org/cer-summit-2020/>

# Support Community Energy Resilience



## **Fund *Community Energy Resilience Planning***

- ▶ New effort to provide funding and expert support to all California local governments to plan and implement local energy resilience
- ▶ Prioritize lower income communities

## **Enact Utility Reform: Transition to Open Access Distribution System Operator Model**

- ▶ Transition to a “wires-only” utility that provides a platform for decentralized energy and independent clean energy sales
- ▶ Make electric distribution utilities a more resilient, decentralized future grid

*And support AB 345: Environmental Justice – includes setback distance for all oil & gas operations from schools, hospitals*

# 5- Funding Climate Action

- New progressive financing mechanisms to produce additional \$20+ billion/year specifically for climate action
  - Frequent flyer fee e.g., \$2.4 billion from \$10 per passenger x 240 million (in CA in 2018)
  - Green bonds
  - Progressive carbon taxes (e.g., fee and dividend)



# Climate-Safe California

Clean, Healthy, Equitable, Resilient and Affordable



# Climate-Safe California Phase I:

- Establish and support a diverse statewide Rapid Decarbonization Partnership
- Develop science-based pathways & policies
- Establish legislative advocacy presence in Sacramento
- Identify and mobilize climate opinion leaders and other influencers
- Mobilize target communities through house meetings and social media
- Launch a strategic communications effort

**Raise \$25 million-- \$2m by summer**

# We can– and are– making a difference!



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

# Renewable energy now doubling every 5.5 years globally; 4x more than 10 years ago

- Solar 26x more than 10 yrs ago
- Clean energy w/ hydropower = 26.3% of total electricity produced globally



Global Trends in Renewable Investment 2019

<http://fs-unep-centre.org/research/report>

Johan Rockström et al. **A roadmap for rapid decarbonization.** *Science*, 2017; 355 (6331): 1269

DOI: [10.1126/science.aah3443](https://doi.org/10.1126/science.aah3443)

# 30 major cities globally have peaked their GHG emissions



Credit: Mrtom-uk

Oct 2019: Global GHGs must peak by 2020 in order to limit global temperature rise to 1.5°C.

<https://www.businessgreen.com/news/3082404/c40-30-major-cities-have-already-peaked-their-emissions>

# CA first state to reach net negative emissions

Kickstarts nation & world into speed & scale climate action

February 2030





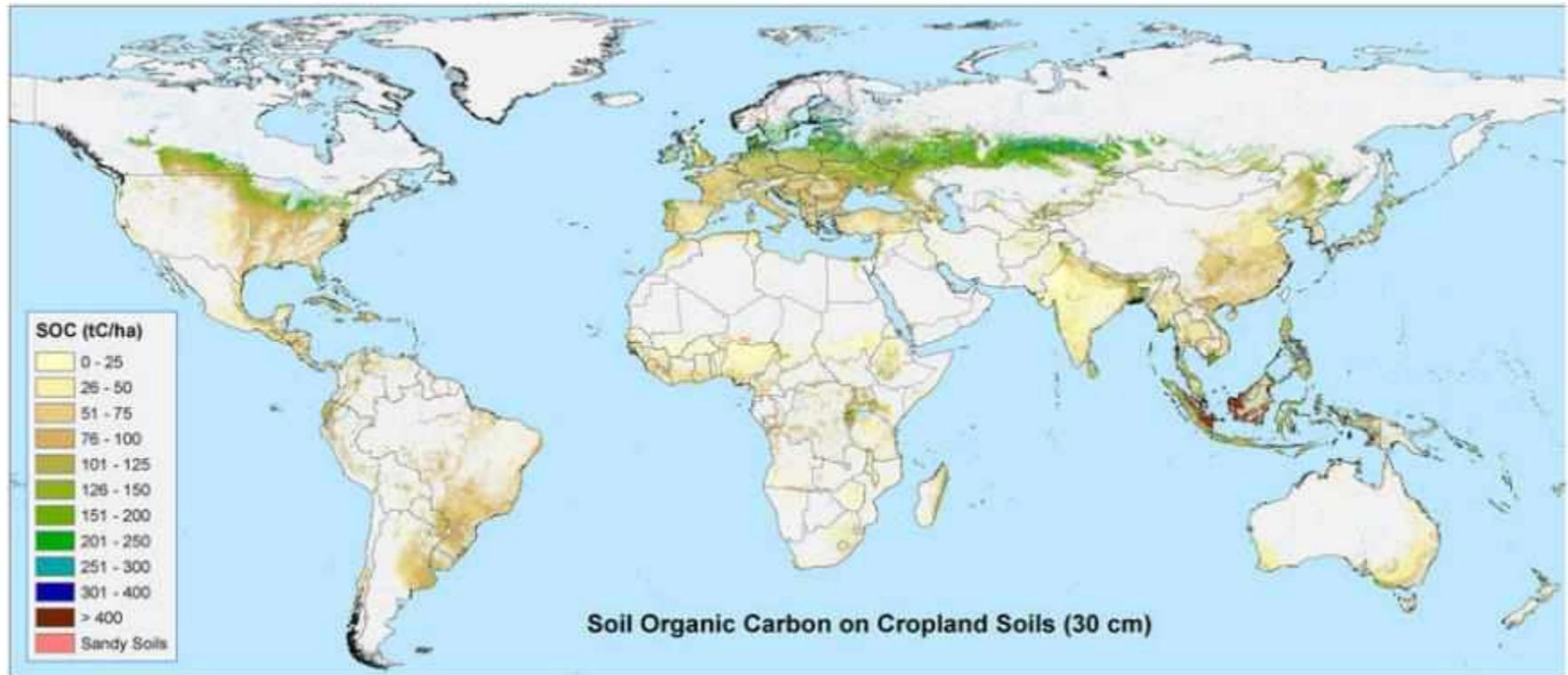
**Thank you!**

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



# E.g.: Croplands could sequester ~1/5 of current annual emissions globally

*Healthy ag soils could sequester 5+ Gt/yr or 50% of 2050 UN goal*



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* Nov 2017.