RAEL

Communicating Science:
A personal and anecdotal account

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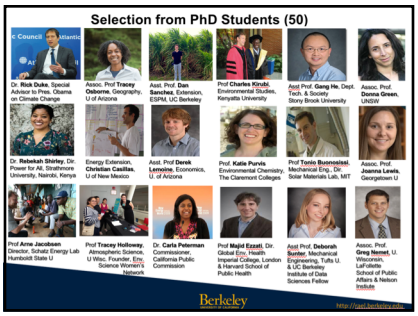
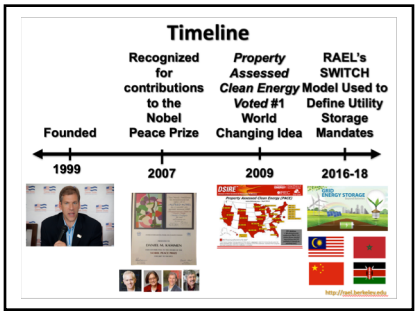
November 14, 2018

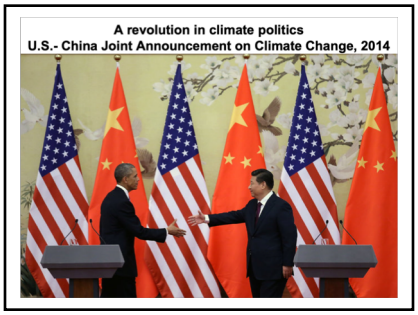


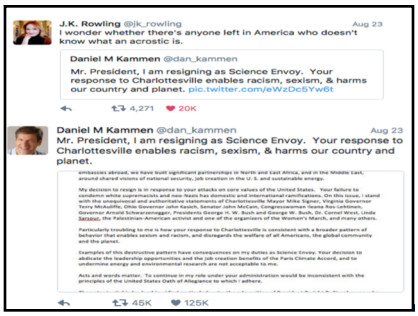
Resources:

Website: http://rael.berkeley.edu

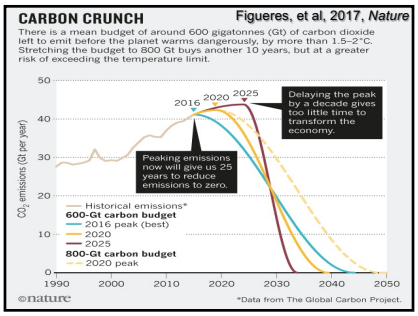
Twitter: @dan_kammen

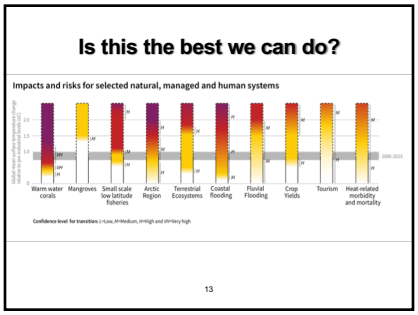


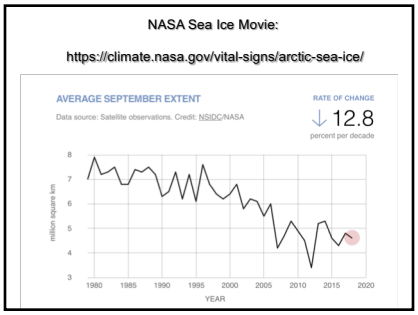



J.K. Rowling @jk_rowling Aug 23
I wonder whether there's anyone left in America who doesn't know what an acrostic is.
Daniel M Kammen @dan_kammen
Mr. President, I am resigning as Science Envoy. Your response to Charlottesville enables racism, sexism, & harms our country and planet. pic.twitter.com/eWzDc5Yw6t
4,271 20K
Daniel M Kammen @dan_kammen Aug 23
Mr. President, I am resigning as Science Envoy. Your response to Charlottesville enables racism, sexism, & harms our country and planet.
45K 125K

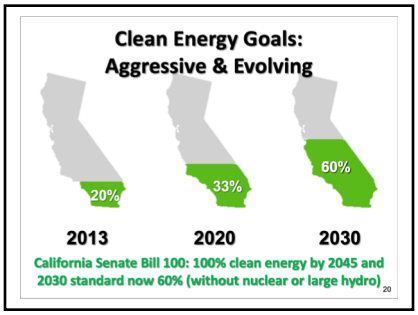
Important spaces for sole-authored work and teams both exist

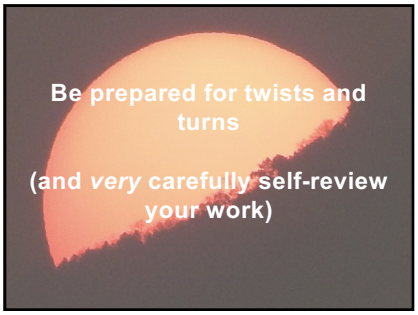

CARBON CRUNCH
Figueres, et al, 2017, Nature
There is a mean budget of around 600 gigatonnes (Gt) of carbon dioxide left to emit before the planet warms dangerously, by more than 1.5–2°C. Stretching the budget to 800 Gt buys another 10 years, but at a greater risk of exceeding the temperature limit.
Delaying the peak by a decade gives too little time to transform the economy.
Peaking emissions now will give us 25 years to reduce emissions to zero.
Historical emissions*
600-Gt carbon budget
2016 peak (best)
2020
2025
800-Gt carbon budget
2020 peak
CO2 emissions (Gt per year)
©nature
*Data from The Global Carbon Project.

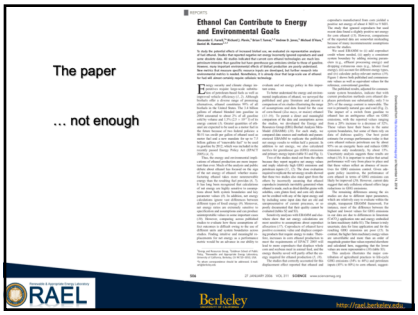

Is this the best we can do?
Impacts and risks for selected natural, managed and human systems
Warm water corals
Mangroves
Small scale low latitude fisheries
Arctic Region
Terrestrial Ecosystems
Coastal flooding
Fluvial Flooding
Crop Yields
Tourism
Heat-related morbidity and mortality
Confidence level for transition: L=Low, M=Medium, H=High and VH=Very high
13


NASA Sea Ice Movie:
https://climate.nasa.gov/vital-signs/arctic-sea-ice/
AVERAGE SEPTEMBER EXTENT
Data source: Satellite observations. Credit: NSIDC/NASA
RATE OF CHANGE
12.8
percent per decade
million square km
YEAR

NATION
Growth in green energy is gold for California, U.S.
Signed into law, September 10, 2018
Even the title is inaccurate/misleading


Clean Energy Goals: Aggressive & Evolving
20%
33%
60%
2013
2020
2030
California Senate Bill 100: 100% clean energy by 2045 and 2030 standard now 60% (without nuclear or large hydro)
20


Be prepared for twists and turns
(and very carefully self-review your work)


The paper
… not enough
Ethanol Can Contribute to Energy and Environmental Goals
RAEL
Berkeley

The press release

… getting better

1/26/06 – File #17343
Contact: Robert Sanders
(510) 643-6998
rsanders@berkeley.edu

Ethanol can replace gasoline at a savings, with very significant energy and environmental benefits possible from cellulosic sources

EMBARGOED FOR RELEASE UNTIL 2 PM. EST (11 A.M. PST) THURSDAY, JAN. 26, TO COINCIDE WITH PUBLICATION IN THE JOURNAL SCIENCE

Berkeley — Putting ethanol instead of gasoline in your tank saves oil and is probably no worse for the environment than burning gasoline, according to a new analysis by researchers at the University of California, Berkeley.

The researchers note, however, that new technologies now in development promise to make ethanol a truly "green" fuel with significantly less environmental impact than gasoline.

The analysis, appearing in this week's issue of *Science*, attempts to settle the ongoing debate over whether ethanol is a good substitute for gasoline and thus can help lessen the country's reliance on foreign oil and support farmers in the bargain. The UC Berkeley study weighs those arguments against other studies claiming that it takes more energy to grow the corn to make ethanol than we get out of ethanol when we burn it.

Dan Kammen and Alex Farrell of the Energy and Resources Group at UC Berkeley, with their students Rich Plevin, Brian Turner and Andy Jones along with Michael Offenhartz, a professor in the Goldman School of Public Policy, deconstructed six separate high-profile studies of ethanol. They assessed the studies' assumptions and then reanalyzed each after correcting errors, inconsistencies and outdated information regarding the amount of energy used to grow corn and make ethanol, and the energy output in the form of fuel and corn byproducts.

RAEL Berkeley http://rael.berkeley.edu

The science into action

… takes time

First Air Date: Sunday May 7, 2006
The Ethanol Solution

Dan Kammen and Dan Rather discuss ethanol vehicles

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You may never be done …

nature COMMUNICATIONS

COMMENT

OPEN

Europe's renewable energy directive poised to harm global forests

Timothy D. Searchinger[1], Tim Beringer[2], Bart Holtsmark[3], Daniel M. Kammen[4], Eric F. Lambin[5,6], Wolfgang Lucht[7,8], Peter Raven[9] & Jean-Pascal van Ypersele[6]

This comment raises concerns regarding the way in which a new European directive, aimed at reaching higher renewable energy targets, treats wood harvested directly for bioenergy use as a carbon-free fuel. The result could consume quantities of wood equal to all Europe's wood harvests, greatly increase carbon in the air for decades, and set a dangerous global example.

EU must not burn the world's forests for 'renewable' energy

A flaw in Europe's clean energy plan allows fuel from felled trees to qualify as renewable energy when in fact this would accelerate climate change and devastate forests

Cutting down trees for fuel releases carbon into the air that would otherwise remain locked up in the forest. Photograph: David Chesbrough

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