

Contemporary Issues Regarding Climate Change and Solutions

**Paul Belanger, Ph.D.,
Geologist/Paleoclimatologist**

Tuesday October 24th , 2017:

**“If we don’t act now, when?
And if we don’t act, who will?”**

Contemporary Issues Regarding Climate Change and Solutions

Tuesday October 24th , 2017:

- **Announcements**
- **Follow up: Economics**
- **How and When to Address Deniers**
- **Solutions**

Announcements

- <http://campaign.r20.constantcontact.com/render?m=1103133034549&ca=c6880277-99c4-4af1-b905-409f8a0d0495>



**Wednesday,
Oct 25th**
Beginning Bridge class is NOT meeting this week

**Thursday,
Oct 26th**
"Her Paris - Women Artists In The Age Of Impressionism" class BEGINS
9:30 - 11:30
JUC Sanctuary

OLLI West Friday Speaker Series

Refugees - In Their Own Words
with Shelley Murphy, PhD
and Sabe Kemer

Did you know that more than 50,000 refugees call Colorado home?



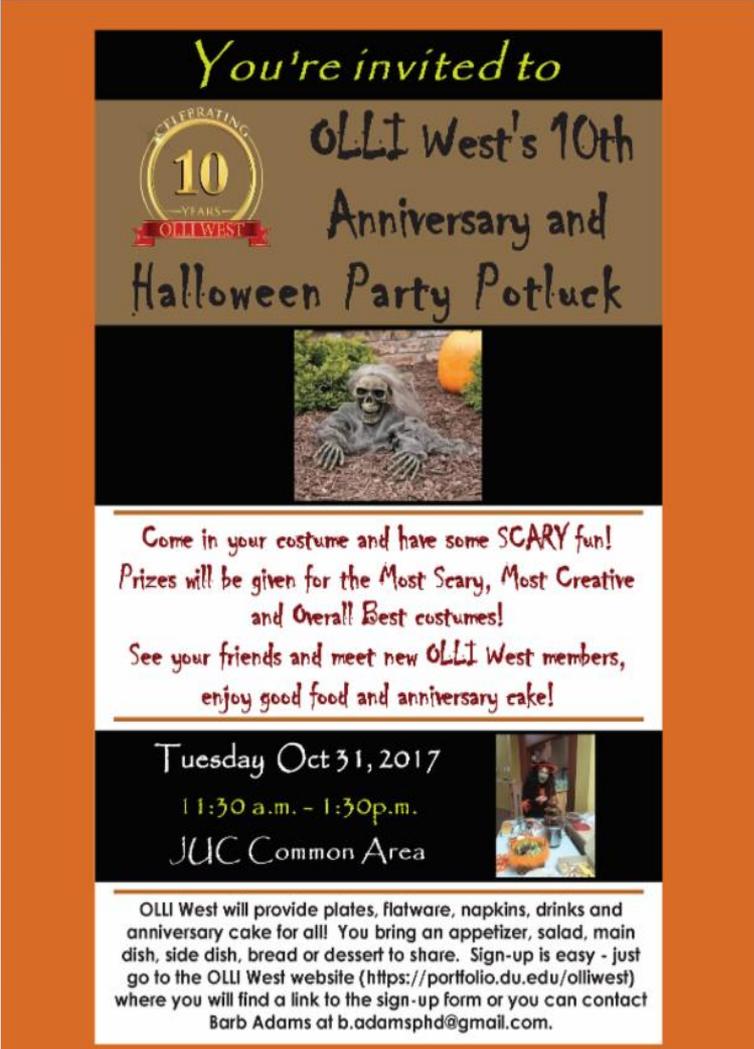
Yet most of us know little about them. Our presentation will serve as a space for a panel of refugees to share their compelling stories--personal testimonies of hardship, persecution and loss as well as their hopes, perseverance and determination. The panel will be made up of two refugees from Ethiopia (Sabe Kemer and Bill Boru) and two refugees from Iraq (Sahar Omar Taha Al Nimer and Maytham Alshadood) . Following their

When: Friday, October 27th
Time: 9:30 - 11:30
Where: Sanctuary at Jefferson Unitarian Church

Please Note - Guests can only be brought to one Friday presentation free of charge. If you have questions please contact Susan or Dara.

Announcements

- ***OLLI West 10th Anniversary and Halloween Party Potluck***
- ***To RSVP***
<https://form.jotform.com/72906429584164>



You're invited to

CELEBRATING 10 YEARS OLLI WEST

OLLI West's 10th Anniversary and Halloween Party Potluck



*Come in your costume and have some SCARY fun!
Prizes will be given for the Most Scary, Most Creative and Overall Best costumes!
See your friends and meet new OLLI West members, enjoy good food and anniversary cake!*

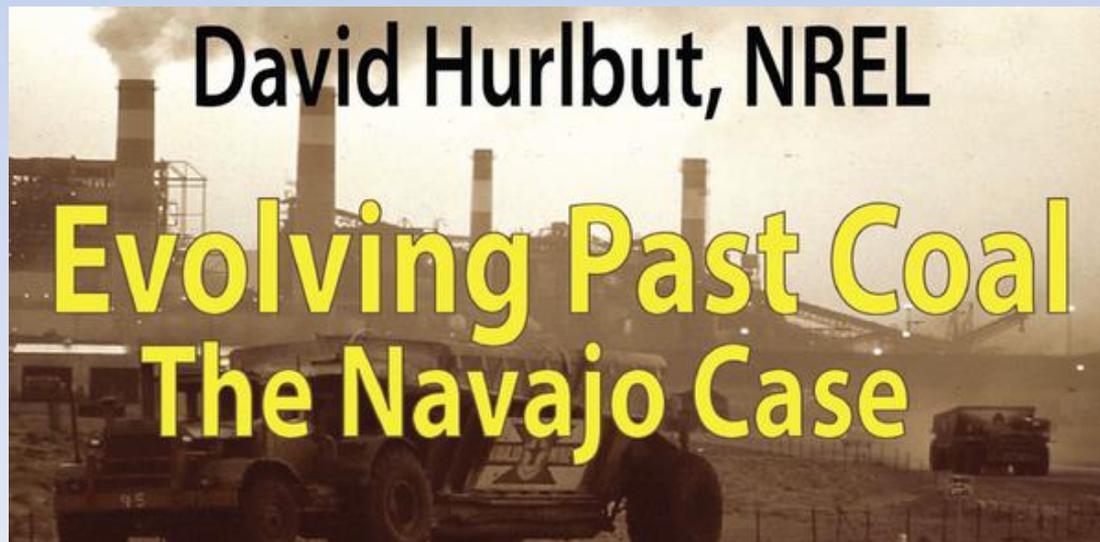
Tuesday Oct 31, 2017
11:30 a.m. - 1:30p.m.
JUC Common Area



OLLI West will provide plates, flatware, napkins, drinks and anniversary cake for all! You bring an appetizer, salad, main dish, side dish, bread or dessert to share. Sign-up is easy - just go to the OLLI West website (<https://portfolio.du.edu/ollwest>) where you will find a link to the sign-up form or you can contact Barb Adams at b.adamsphd@gmail.com.

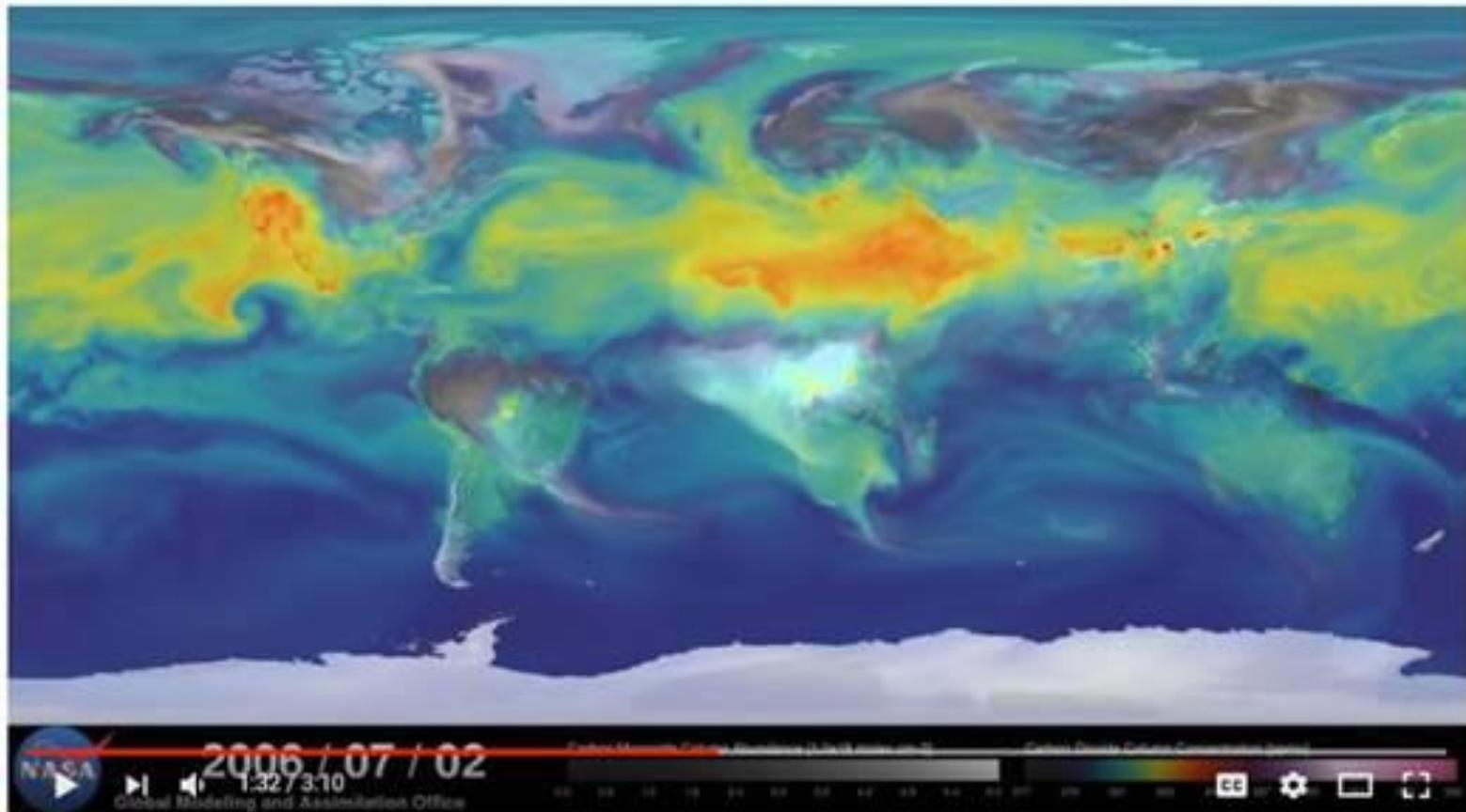
Colorado Renewable Energy Society: THIS THURSDAY: October 26th

- <https://www.cres-energy.org/>
- <https://www.meetup.com/J-CRES/events/243961082/>
- Dave Hurlbut, NREL; Evolving Past
 - Thursday, October 26, 2017; 7:00 PM
 - [Jefferson Unitarian Church](#); 14350 W. 32nd Ave.
Golden, CO ([map](#))



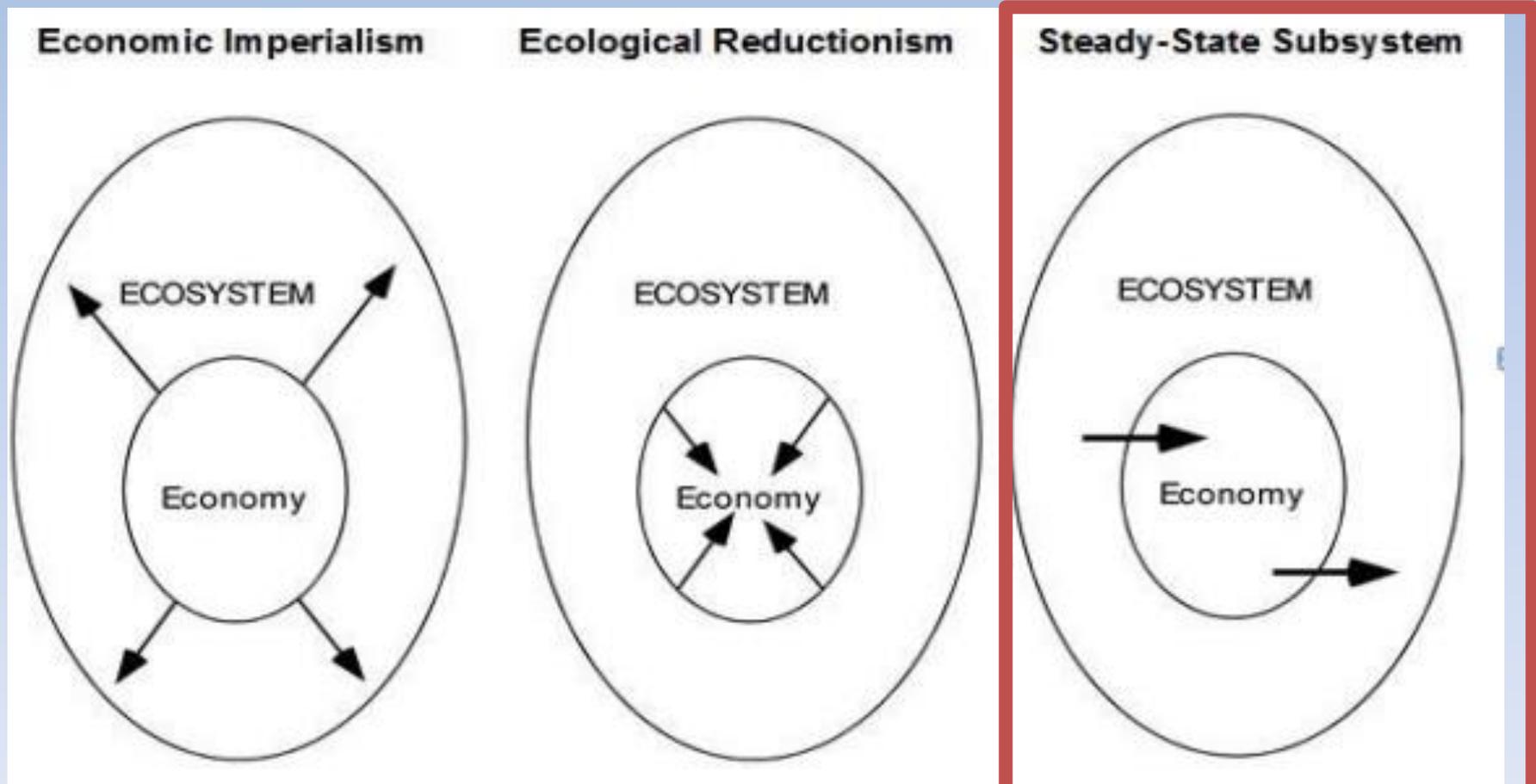
A YEAR IN THE LIFE OF CO₂

- NASA: <https://youtu.be/x1SgmFa0r04>



Economics – follow-up

- HERMAN DALY AND STEADY STATE ECONOMICS



Economics for a Full World: Herman Daly & Ecological Economics

David L. Carlson, Ph.D.

Adjunct faculty member

Korbel School of Int'l. Studies, DU

October 12, 2017

GO HERE FOR FULL SET OF SLIDES:

<http://denverclimatestudygroup.com/wp-content/uploads/2014/07/2017.10.12-PPT-for-Business-Ethics-Class.pdf>

Economics for a Full World: Herman Daly & Ecological Economics

David L. Carlson, Ph.D.

SELECTED SLIDES TO FOLLOW:

Adjunct faculty member

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October 12, 2017

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“Economics for a Full World”

Herman Daly

- I. Basic Vision: Economy as Subsystem of Ecosphere
- II. From Empty World to Full World: Limiting Factor Has Changed
- III. Limits to Growth & Optimal Scale of Economy in Full World
- IV. Three Strategies for Integrating Economy and Ecosystem
- V. Outline of Policies for a Steady-State Economy
- VI. The Larger Ethical and Ecological Context of Economics

Herman Daly profile

- Ecological economist and emeritus professor at the University of Maryland, School of Public Policy
- Former Senior Economist in the Environment Department of the World Bank
- Co-founded the *Ecological Economics* journal
- Recipient of many international prizes, including the 2014 *Blue Planet Prize* of the Asahi Glass Foundation
- Current staff member of the *Center for the Advancement of the Steady State Economy* (www.steadystate.org)

“The global economy is now so large that society can no longer pretend it operates within a limitless ecosystem. Developing an economy that can be sustained within the finite biosphere requires new ways of thinking.”

– Herman Daly

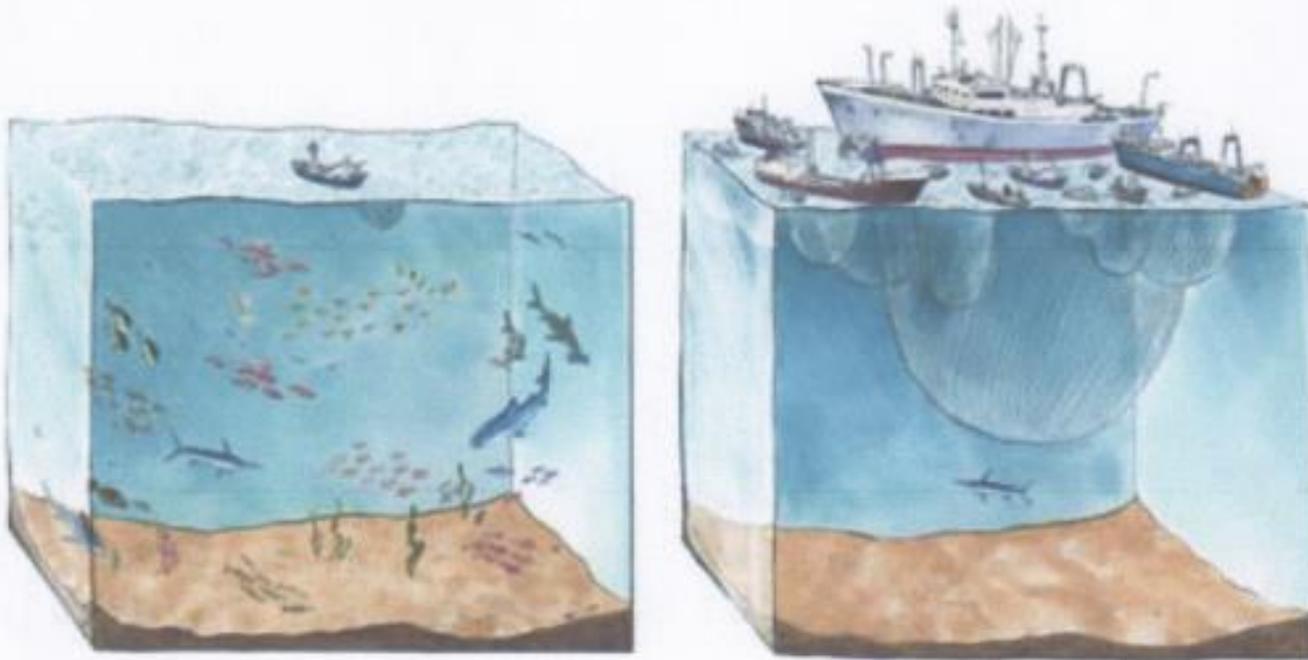
From “Economics in a Full World,” *Scientific American*,
Sept. 2005, 100-107

Some Signs of a Full World

- Ecological footprint (6.35 Earths needed to support global population at USA per capita level)
- The Anthropocene Age (Paul Crutzen) – human activity impacts earth’s geology & ecosystems
- No longer “More and Better” – we must choose (Bill McKibben, in Intro to *Deep Economy*)
- “The Great Collision” – Gus Speth

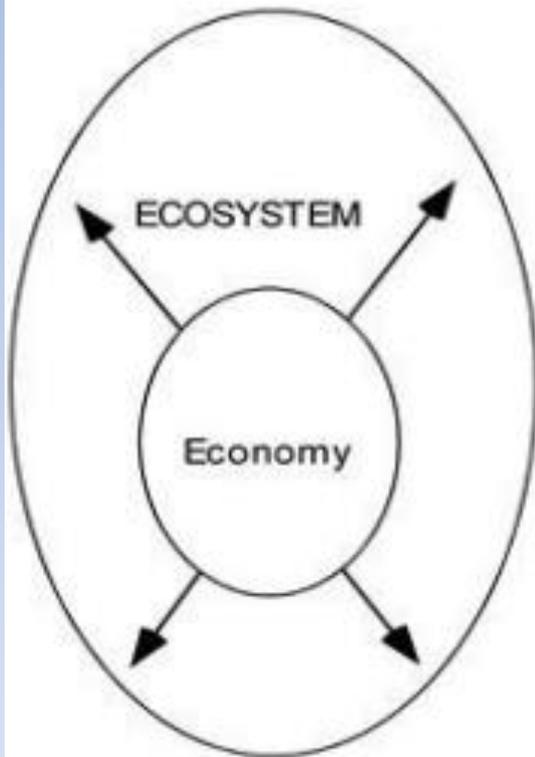
II. The Limiting Factor Has Changed

Figure 2

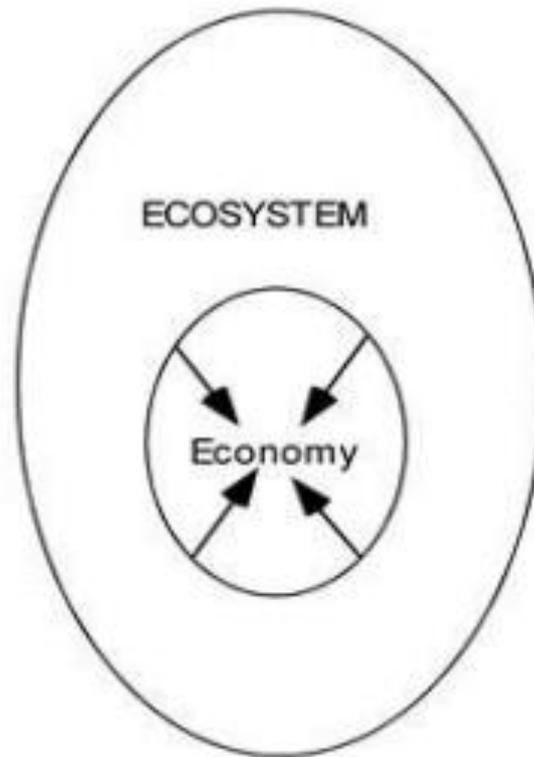


IV. Three Strategies for Integrating Economy and Ecosystem

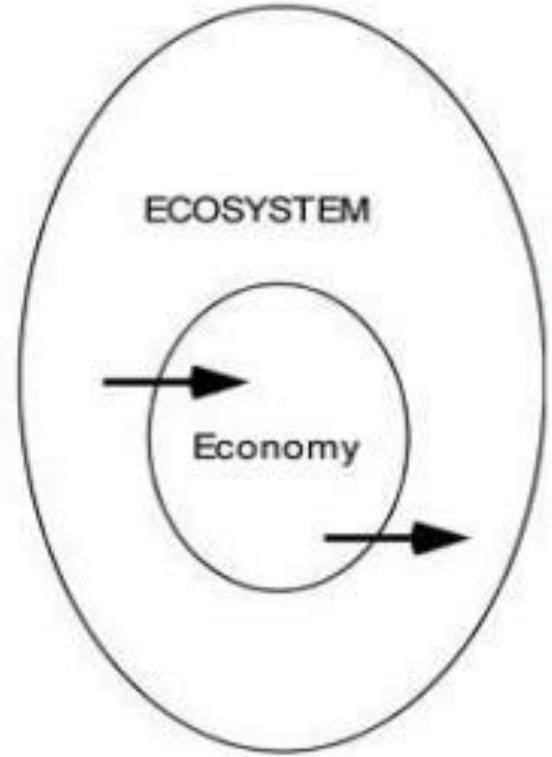
Economic Imperialism



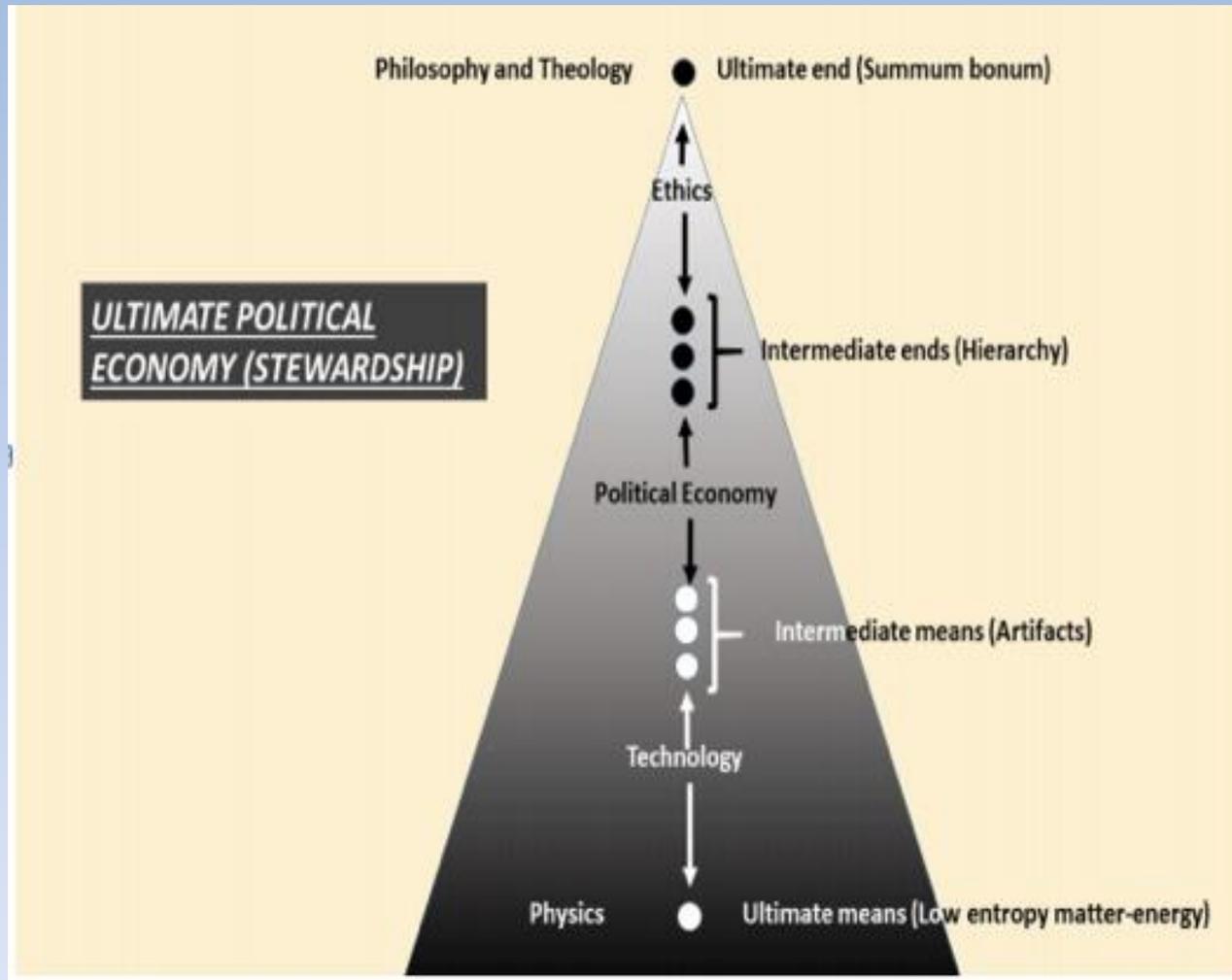
Ecological Reductionism



Steady-State Subsystem



VI. The Larger Ethical & Ecological Context of Economics



Selected Resources in Ecological Economics and Sustainability

- Crutzen, Paul (2002). "Geology of Mankind." *Nature* 415:23.
- Costanza, Robert et al. (1997). "The Value of the World's Ecosystem Services and Natural Capital." *Nature* 387: 253-259.
- _____ (2014). "Changes in the Global Value of Ecosystem Services." *Global Environmental Change* 26: 152-158.
- Daily, Gretchen, ed. (2007). *Nature's Services: Societal Dependence on Natural Ecosystems*. Washington D.C., Covelo, CA, and London: Island Press.
- Daly, Herman E. (2005). "Economics in a Full World." *Scientific American* September 2005, 100-107.
- _____ (2007). *Ecological Economics and Sustainable Development: Selected Essays of Herman Daly*. Cheltenham, UK and Northampton, MA: Edward Elgar.
- Daly, Herman E. and John B. Cobb, Jr. (1994). *For the Common Good: Redirecting the Economy Toward Community, the Environment, and a Sustainable Future*. 2nd. ed. updated and expanded. Boston: Beacon Press
- Daly, Herman E. and Joshua Farley (2011). *Ecological Economics: Principles and Applications*. 2nd. ed. Washington D.C., Covelo, CA, and London: Island Press.
- DeMartino, George (2000). *Global Economy, Global Justice: Theoretical Objections and Policy Alternatives to Neoliberalism*. London and New York: Routledge.
- Dr. Seuss (1971). *The Lorax*. (A video was available at <http://www.youtube.com/watch?v=QKHar6X3Nnw> .)
- Hardin, Garrett (1968). "The Tragedy of the Commons." *Science* 162: 1243-1248.
- _____ (1998). "Extensions of 'Tragedy of the Commons'." *Science* 280: 682-683.
- Hawken, Paul, Amory Lovins, and L. Hunter Lovins (1999). *Natural Capitalism: Creating the Next Industrial Revolution*. Boston, New York & London: Little, Brown & Company.
- Sen, Amartya (2013). "The Ends and Means of Sustainability." *Journal of Human Development and Capabilities* 14(1): 6-20. [The author argues that "sustainability" entails human agency and the freedom to choose as well as meeting basic human needs]

How To Deal With Deniers

- Education through Skeptical Science:

<https://skepticalscience.com/>

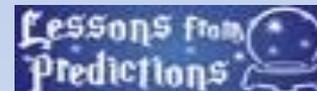
– Week 6 – Responding to denial

<https://www.youtube.com/watch?v=CtSk03efSqQ&feature=youtu.be>

Week 6 overview	https://youtu.be/gJ0xTCDNmo
Vocal Minority	https://youtu.be/uKWDGIBKIGc
Worldview Backfire Effect	https://youtu.be/CtSk03efSqQ
<i>From the experts: Moving past barriers to change</i>	https://youtu.be/9It19Fht50g
Inoculation Theory	https://youtu.be/K3YngyVdyrl
Sticky science	https://youtu.be/TM-zNO02phw
Flu Shots	https://youtu.be/wfq0Xrgsn_4
<i>From the experts: Debunking</i>	https://youtu.be/4pg0fDdo85l
<i>From the experts: Climate metaphors</i>	https://youtu.be/UBa0f4uoQm0
Week 6 wrap up	https://youtu.be/2sxxv2R09jOI

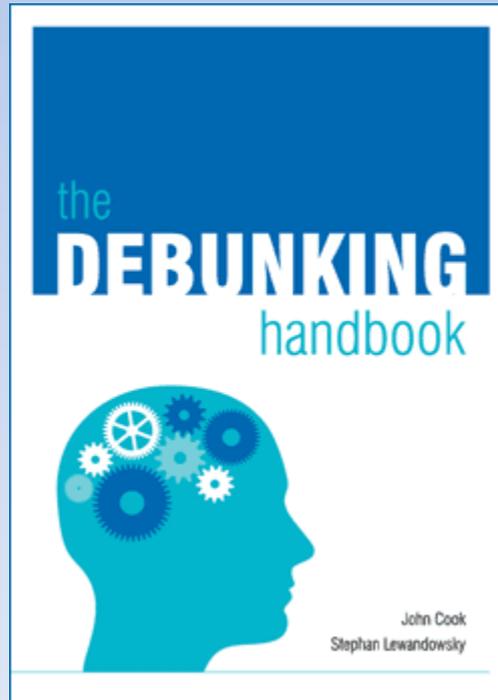
How To Deal With Deniers

- Education through Skeptical Science:
<https://skepticalscience.com/>



How To Deal With Deniers

- **Skeptical Science Debunking handbook:**
 - <https://skepticalscience.com/Debunking-Handbook-now-freely-available-download.html>



How To Deal With Deniers

- **Skeptical Science: Course**
- **Making Sense of Climate Science Denial**
 - <https://www.edx.org/course/making-sense-climate-science-denial-uqx-denial101x-5>
 - **Full list of Videos:**
<https://skepticalscience.com/denial101x-videos-and-references.html>



How To Deal With Deniers

- **Facts, Myths vs. Emotions**
- **Using emotion in discussing climate change**
 - Climate and social scientists offer suggestions on how - and how *not* - to discuss climate change.
 - <https://www.yaleclimateconnections.org/2017/10/using-emotion-discussing-climate-change/>
- Vs. (see email): **Responding to Climate Change Deniers with Simple Facts and Logic**

For Example – THIS on the pluses of installing solar panels:

- Solar panels can still absorb ambient sunlight, even on cloudy days or in regions that get less bright sun. What's more, today's solar panels are more energy efficient than ever. Newer systems like the "LG NeOn R" maximize sunlight absorption and generate the maximum possible output — as much as 26 percent more than other comparably sized solar panels. This higher efficiency means that solar panels can work in virtually any climate and every season.
- Solar panels are getting smaller, more powerful and more efficient. High-efficiency panels take up less space because fewer panels are required to produce the electricity needed to power a home. So even a smaller home could have enough roof space to fit the number of panels needed to generate the necessary power to meet that home's energy needs.
- Installation is getting easier: New models streamline the process further, eliminating the need to install a separate inverter. Most solar panels require a separate inverter to bring electricity into your house, but new panels from LG, for instance, incorporate the inverter, simplifying and accelerating the solar panel installation process.
- Most installations warrant product and workmanship for 25/10 years. One leading solar player, LG, even offers an industry-leading, 25-year product and power warranty. And unlike a furnace or an air conditioning system, a solar installation has no moving parts to wear out and typically requires little maintenance and repair.
- Solar panels are becoming smaller, sleeker and more aesthetically pleasing. Higher-efficiency models are also offering increased flexibility of configuration. Instead of having to cover an entire roof with panels in a specific arrangement in order to generate power, modern options allow homeowners to arrange panels to meet their personal sense of aesthetics. Adding solar power to a home offers homeowners many benefits, from reducing energy costs, to increasing a home's value and helping the environment, Ballentine says. "Overall, it's a decision most homeowners feel positively about once they've made it." The NREL notes in its study: "Buyers of homes with (solar panel) systems are more satisfied than are comparison buyers. A significantly higher percentage ... indicate they would buy the same houses again."

Vs. THIS stating Myths (it reinforces the Myths):

- **Myth 1: Solar panels only work if you live in a warm, sunny climate.**
- While solar panels work best when they get a lot of sun, a lack of bright sun doesn't mean they're not working. Panels can still absorb ambient sunlight, even on cloudy days or in regions that get less bright sun. What's more, today's solar panels are more energy efficient than ever. Newer systems like the "LG NeOn R" maximize sunlight absorption and generate the maximum possible output — as much as 26 percent more than other comparably sized solar panels. This higher efficiency means that solar panels can work in virtually any climate and every season.
- **Myth 2: You need a lot of roof space for solar panels.**
- Just like other technologies (think microchips), solar panels are getting smaller, more powerful and more efficient. High-efficiency panels take up less space because fewer panels are required to produce the electricity needed to power a home. So even a smaller home could have enough roof space to fit the number of panels needed to generate the necessary power to meet that home's energy needs.
- **Myth 3: Installation is a long, drawn-out hassle.**
- While adding solar panels to a home isn't a DIY project, installation usually takes only a day or two. New models streamline the process further, eliminating the need to install a separate inverter. Most solar panels require a separate inverter to bring electricity into your house, but new panels from LG, for instance, incorporate the inverter, simplifying and accelerating the solar panel installation process.
- **Myth 4: If something goes wrong, you're on your own.**
- As with any major investment, homeowners should make sure they understand the manufacturer and installer warranties for their solar panels, including how long the coverage lasts and what types of problems are covered. One leading solar player, LG, even offers an industry-leading, 25-year product and power warranty. And unlike a furnace or an air conditioning system, a solar installation has no moving parts to wear out and typically requires little maintenance and repair.
- **Myth 5: Solar panels will look big, bulky and ugly on the roof.**
- Solar panels are becoming smaller, sleeker and more aesthetically pleasing. Higher-efficiency models are also offering increased flexibility of configuration. Instead of having to cover an entire roof with panels in a specific arrangement in order to generate power, modern options allow homeowners to arrange panels to meet their personal sense of aesthetics....

How To Deal With Deniers

- **Changing minds on a changing climate**
 - Reddit online commenters point to reasons they went from being climate contrarians to having confidence in mainstream climate science.
 - <https://www.yaleclimateconnections.org/2017/04/changing-minds-on-a-changing-climate/>

How To Deal With Deniers

- **What Americans Really Think About Climate Change**
 - Polls and studies reveal it's the long, tiring grind that changes opinions about global warming.
 - <https://www.theatlantic.com/science/archive/2017/04/climate-polling-burnout/523881/>

13 Misconceptions About Global Warming

- Humorous: <https://youtu.be/OWXoRSIxyIU>



How To Deal With Deniers

- Facts, Myths vs. Emotions



How the Republican Party turned against climate science: 10 years of history 2006-2016

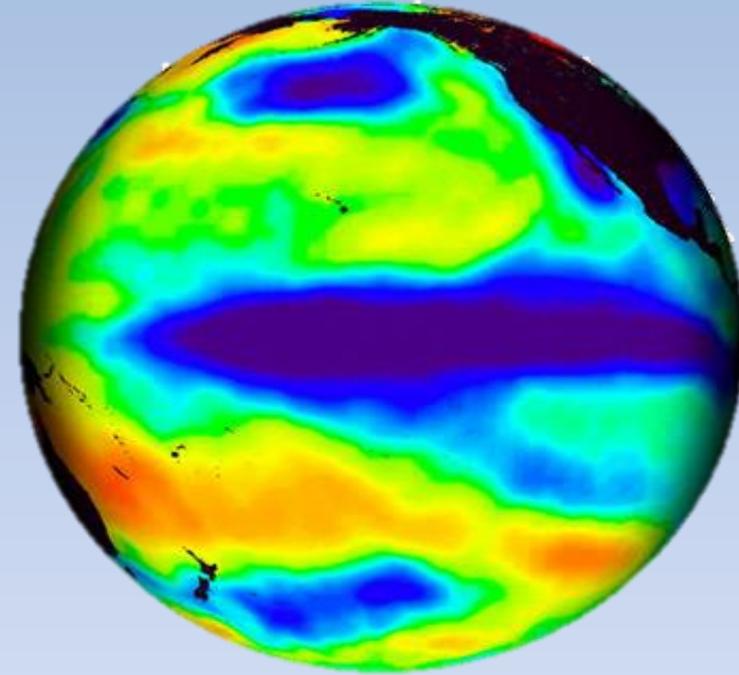
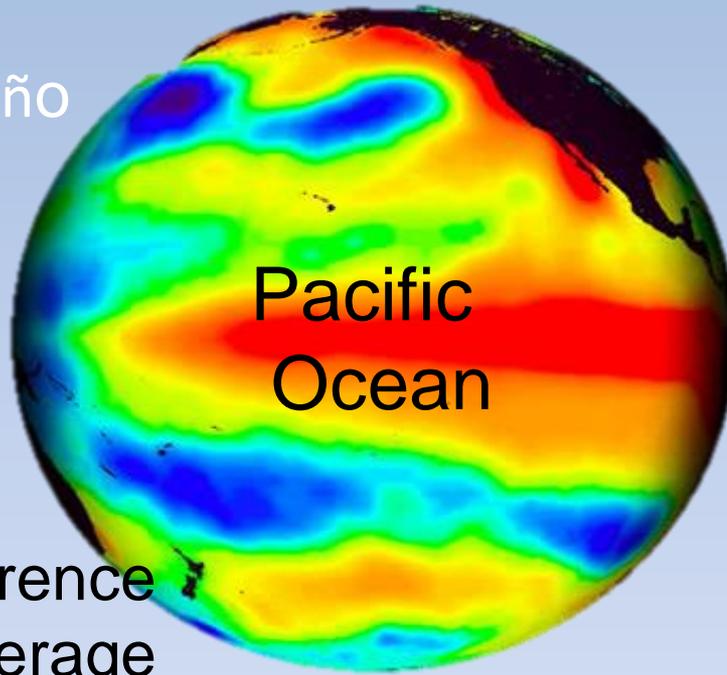
- <https://youtu.be/O4Q8Nm4ksVU> - 11 minutes
- As Warren Hamilton described at OLLI Friday lecture series on 10/13, the next 4 slides address a common denier claim as reiterated by Senator Cruz; video starts here (8:13 minutes):
<https://youtu.be/O4Q8Nm4ksVU?t=493>

Irregular natural oscillation: Warm El Niño Pacific releases ocean heat to air. Cool La Niña is less cloudy, water absorbs more solar heat, atmosphere keeps less

El Niño

La Niña

El Niño

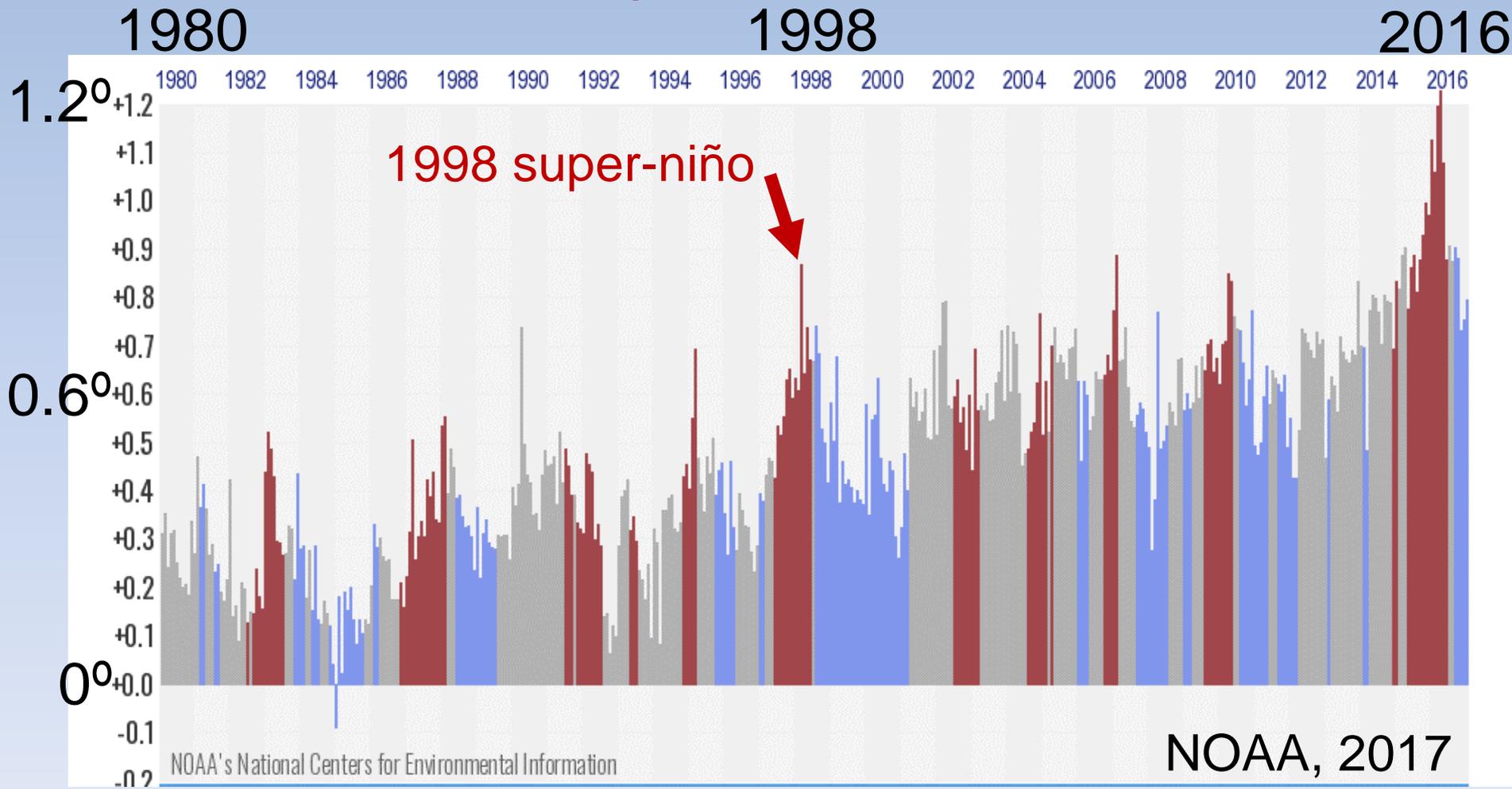


Extreme difference
from average
surface-water T, °C

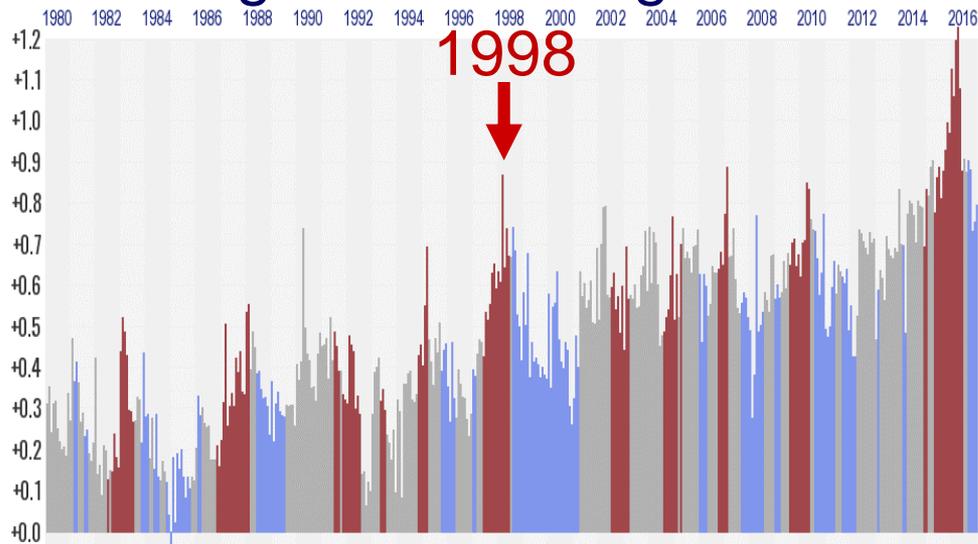


No two are the same; both types continue but are much changing with broad ocean warming; future patterns are debated

Lesson #1 in How To Lie With Statistics: to misstate a trend, pick an extreme outlier like the 1998 super-niño peak, and claim it to be new baseline. Extreme highs 1998-2014 are \leq 1998, but general trend is still upward – even tho this is only ~2% of the ocean-mediated total warming

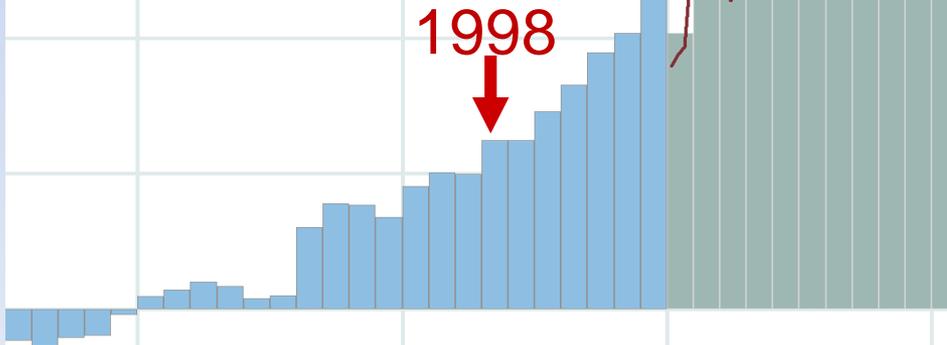


Surface air T, 1980-2016,
~2% of global warming

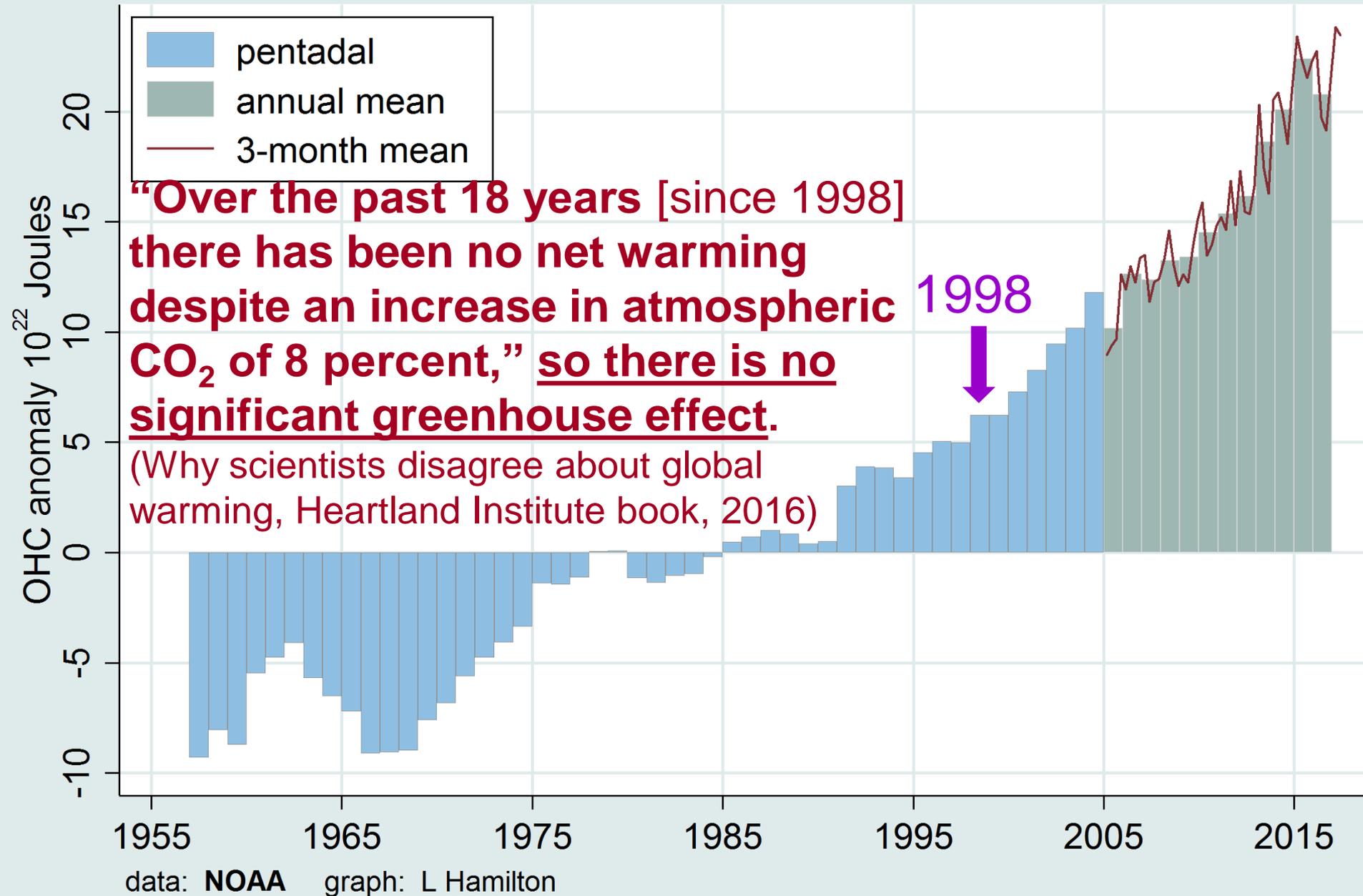


Most science deniers
state that **warming**
stopped in 1998 – and
continue to ignore 2016

Warming of upper 2 km of
oceans, 1980-2016, ~90%
of global warming

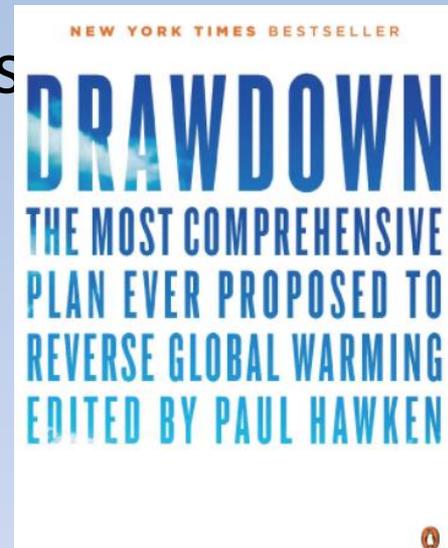


Ocean heat content 0–2000 meters, Jan 1957 to Jun 2017



Colorado Renewable Energy Society – YouTube of selected talks:

- Drawdown CRES YouTube video:
Drawdown: Ways out of the Climate Crisis
Paul Hawken, Chip Comins:
<https://youtu.be/4XrFnK1RrLE>
- Other Drawdown links:
 - <http://www.drawdown.org/>
 - <http://www.drawdown.org/solutions>
 - <https://www.facebook.com/projectdrawdown>



SOLUTIONS to Address Climate Change Issues: Implies an Acknowledgement that We Need to Do Something! WHAT?

- **De-Carbonize our Energy Needs:**
 - **Electricity,**
 - **Transportation,**
 - **Farming,**
 - **Living (cooking/heating)**
 - **and Manufacturing**
- **Mitigate**
- **Adapt**

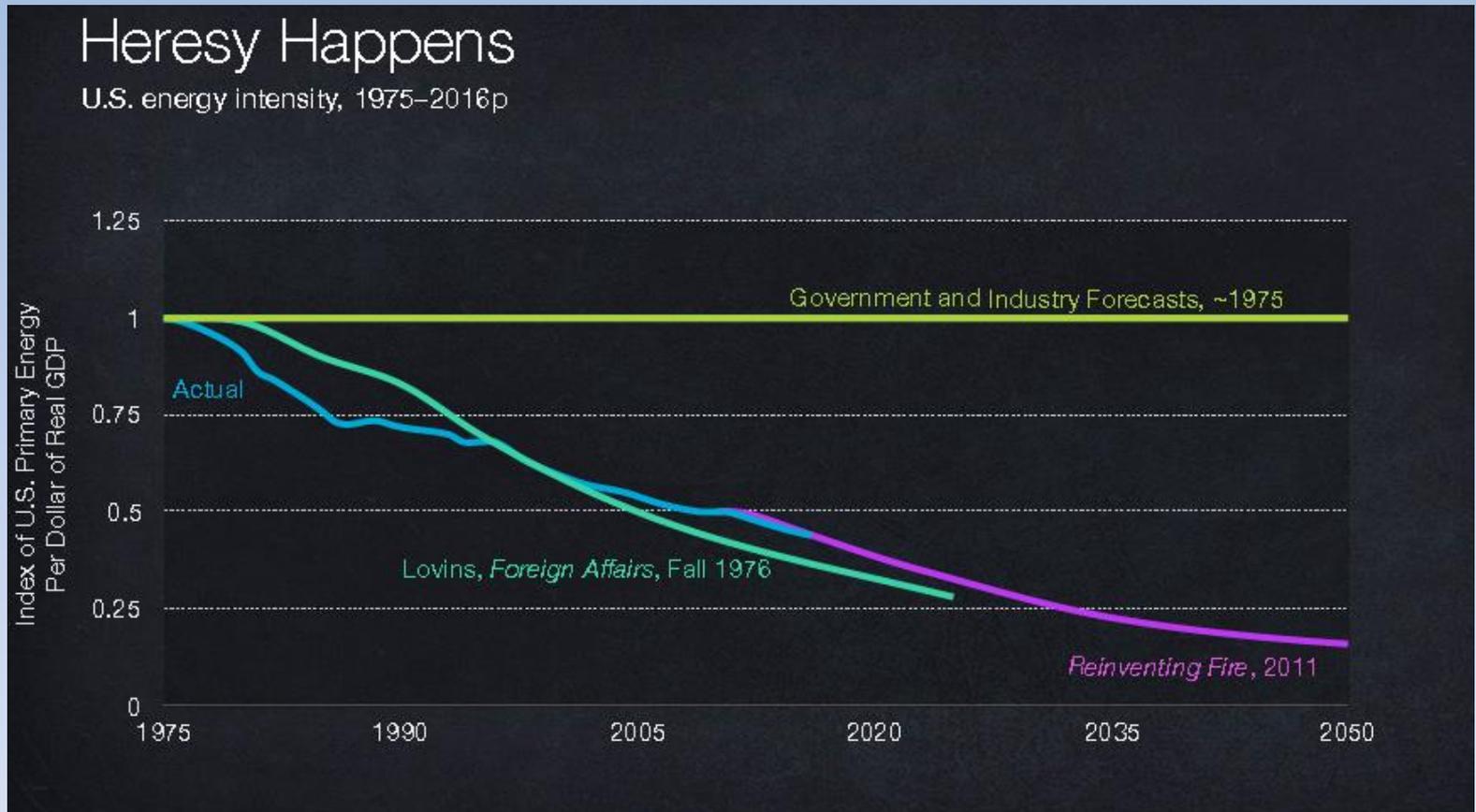
SOLUTIONS to Address Climate Change Issues: Implies an Acknowledgement that We Need to Do Something! WHAT?

- **Examples from Amory Lovins Wirth Chair talk this year – select slides here:**



<http://www.ucdenver.edu/academics/colleges/SPA/researchandoutreach/wirthchair/Documents/Amory%20Lovins%20slides%20Oct%206%202017.pdf>

SOLUTIONS to Address Climate Change Issues: Implies an Acknowledgement that We Need to Do Something! WHAT?



<http://www.ucdenver.edu/academics/colleges/SPA/researchandoutreach/wirthchair/Documents/Amory%20Lovins%20slides%20Oct%206%202017.pdf>

SOLUTIONS to Address Climate Change Issues: Implies an Acknowledgement that We Need to Do Something! WHAT?

Renewables replacing \$38b/y kerosene market



Powering a home with just 27 watts of solar PV

25 W incandescent lamp (~210–250 lm) shown for comparison, not PV-powered



Photo courtesy of Lawrence Berkeley National Laboratory

~25-watt DC superefficient appliance package (LBNL), shown with 40 W PV panel

- 1 x 400 lm LED bulb (5 W), 1 x 300 lm LED tube (3 W)
- 1 x 23-inch / 56-cm LED-backlit LCD TV (12–13 W)
- 1 x 10-inch / 25-cm table fan (5 W), 1 x clock radio, 1 x mobile phone charger (~2 W)

<http://www.ucdenver.edu/academic/outreach/wirthchair/Documents/20Oct%206%202017.pdf>

SOLUTIONS to Address Climate Change Issues: Implies an Acknowledgement that We Need to Do Something! WHAT?

Combine for ~3–6x-more-efficient pots?



Kelly Kettle
Pre-World War II “volcano” kettle (UK) (new version shown): Interior chimney is surrounded by water, maximizing heat transfer; boils in minutes



Newey & Bloomer “Simplex” kettle (UK)
Bottom rim and coil better capture heat before it escapes around the sides; saves ~1/3 fuel



Belkraft Vacuumatic nearly-waterless cookware (Canada)
7-ply walls; bring to boil, turn off, and close steam valve, then water-sealed lid recycles condensate to finish cooking



Maravić electric conduction cooktop + smart controls + stay-flat-bottom pots (Croatia/Switzerland)
3x heat transfer, soon 4x with new features



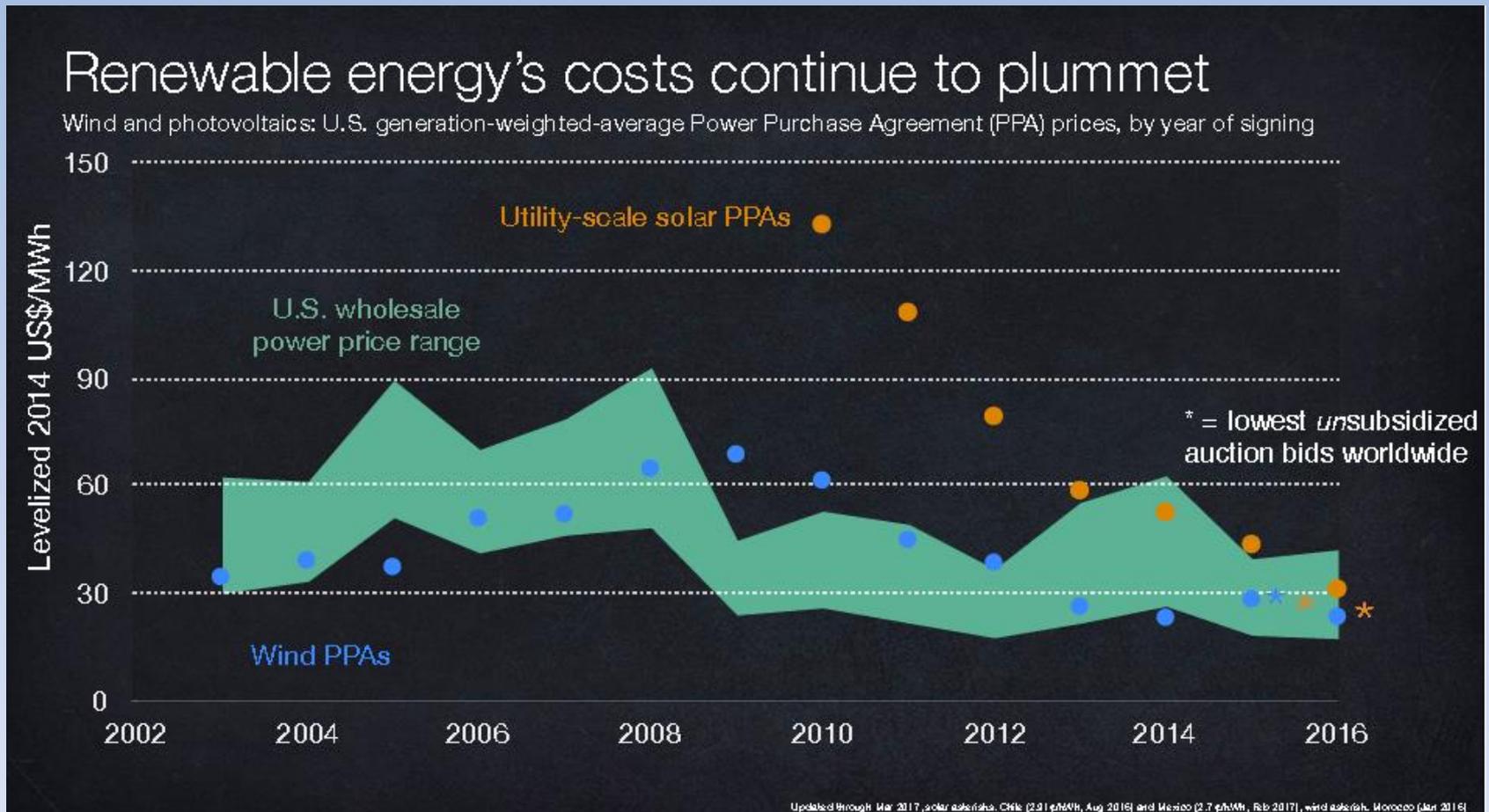
Thermal Cookware (Australia)
Low-emissivity-coated vacuum cavity; loses ~3–4K/h and cooks for hours with no further heat



Kuhn/Rikon double-walled, doubled-lidded pot (Switzerland)
Save ~1/3 of fuel; also pressure-cookers

<http://www.ucdenver.edu/academics/colleges/SPA/researchandoutreach/wirt/hchair/Documents/Amory%20Lovins%20slides%20Oct%2006%202017.pdf>

SOLUTIONS to Address Climate Change Issues: Implies an Acknowledgement that We Need to Do Something! WHAT?



<http://www.ucdenver.edu/academics/colleges/SPA/researchandoutreach/wirthchair/Documents/Amory%20Lovins%20slides%20Oct%206%202017.pdf>

SOLUTIONS to Address Climate Change Issues: Implies an Acknowledgement that We Need to Do Something! WHAT?

- **Volunteer:**
 - **COSEIA (CO Solar Energy Industry Assoc.)**
- **Upcoming conference:** COSEIA definitely needs help for the next few weeks. Particularly in advance of, and including, COSEIA's "Clean Energy Means Business Summit" Nov 7-8. <http://coseia.org/>
<https://www.cleanenergymeansbusiness.com/>

They should write "CEMB Volunteer" in the subject line and email to both Rebecca rcantwell@coseia.org and Keelin kkelly@coseia.org

We need folks to boost attendance by making calls, setup and breakdown, and more.



SOLUTIONS to Address Climate Change Issues: Implies an Acknowledgement that We Need to Do Something! WHAT?

- **Personal things you can do**
 - **Get involved**
 - **Go to meetings, volunteer**
 - **Continue educating yourself**
 - **Make some commitments regarding**
 - Conservation/reducing your Carbon Footprint
 - Get Solar – it's an investment
 - If you have 2 cars make your primary one an Electric Vehicle (EV) and have your Internal Combustion Engine (ICE) car be a hybrid
 - LOTS of economic advantages: minimal maintenance, ~115 mpg equivalent
 - If I paid Xcel for the 20,000 miles for my Leaf = ~\$500.00
 - With solar panels – house and EV 11.4% return for first year
 - Etc.

EVs no Emissions



**Steve Stevens with Tesla X
90 kWh = 300 mile range**

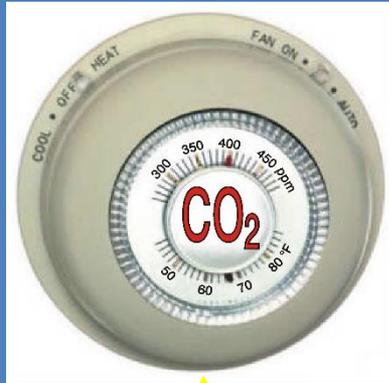


**Paul Belanger & Phil Nelson with
their Nissan Leafs
30 kWh = 107 mile range**

**Ron Larson with Tesla S
75 kWh = 250 mile range**



What Can Town, Cities and Communities DO?



More Water Vapor
and Clouds

Warmer Air,
Warmer Water
(Global Warming)

Atmosphere
Biosphere
Hydrosphere
Cryosphere
(Climate Change)

HUMAN RESPONSES

Personal
Family, Friends, Neighbors
Town and City
State
National
International

Local City Plans

- <http://lakewood.org/sustainabilityplan/>
- <http://www.cityofgolden.net/live/sustainability-initiative/> and
<http://www.cityofgolden.net/government/boards-commissions/community-sustainability-advisory-board/>
- <https://www.denvergov.org/content/denvergov/en/office-of-sustainability/2020-sustainability-goals.html>
- MORE – APEN, PUEBLO, ETC.

SOLUTIONS to Address Climate Change Issues: Implies an Acknowledgement that We Need to Do Something! WHAT?

- **OTHER personal things you can do**

- John Avenson – home solutions: <http://www.avenson.net/>
- Steve Stevens – Beyond net zero: ethics, principles and practice - https://www.youtube.com/watch?v=8pbL_w8bJkQ&feature=youtu.be

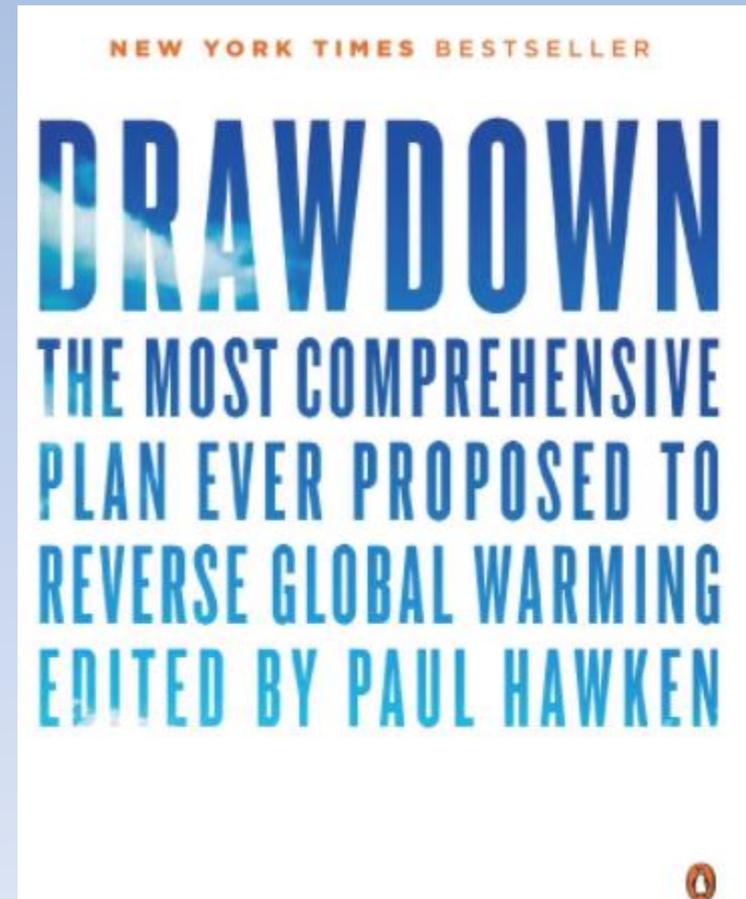
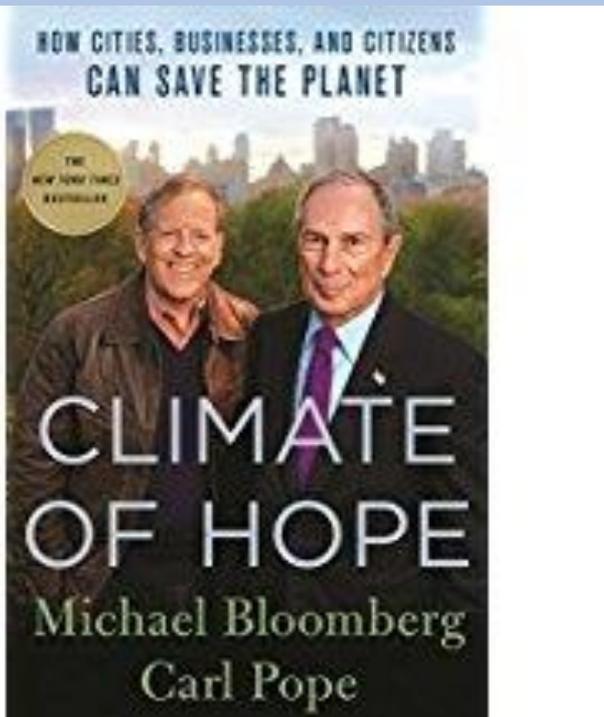
SOLUTIONS to Address Climate Change Issues: Implies an Acknowledgement that We Need to Do Something! WHAT?

- **Organizations:**
 - **350.org:** <https://350.org/>
 - **Conservation Colorado** <https://conservationco.org/>
 - **Citizens Climate Lobby**
<https://citizensclimatelobby.org/>

SOLUTIONS to Address Climate Change Issues: Implies an Acknowledgement that We Need to Do Something! WHAT?

- **Newsletters:**
 - **Climate Nexus** <http://climatenexus.org/>
 - **Desmogblog**
<https://www.desmogblog.com/>
 - **Other:**

- READ:
Climate of Hope – Solutions
Drawdown – and associated web
pages

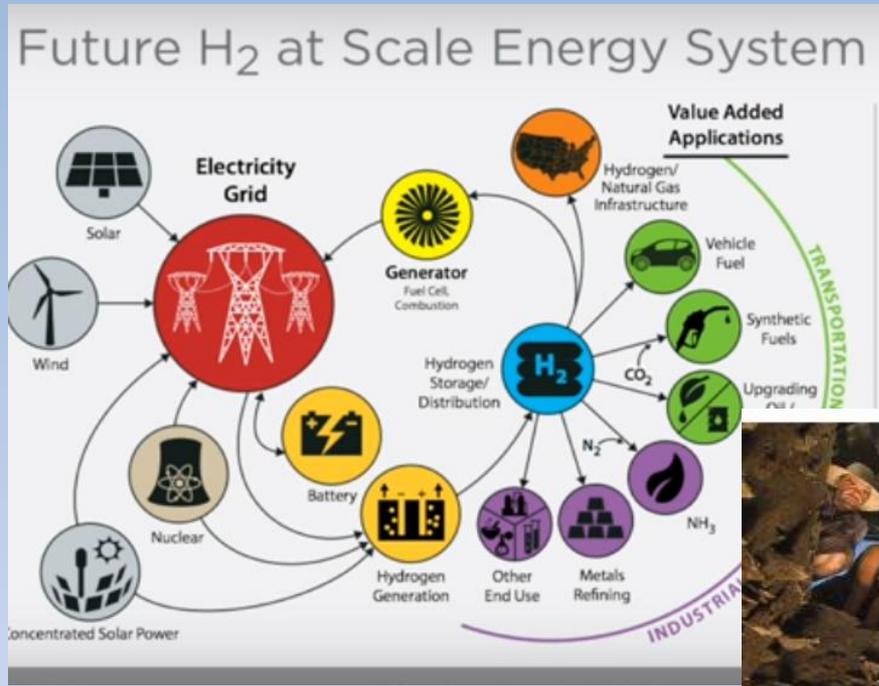


What Do I Do? (Personal)

What Do We Need to DO (Societal)

WHAT DO I DO		
	ACTIONS	ORGANIZATIONS
PERSONAL		
LOCAL		
CITY/COUNTY		
STATE		
REGIONAL		
NATIONAL		
GLOBAL		

MORE NEXT WEEK: ENERGY AND SEQUESTRATION OPTIONS



BIOCHAR

Biochar results from slowly baking biomass in the absence of oxygen. Retaining most of the feedstock's carbon, biochar can be buried for sequestration, while enriching soil.



BIOMASS

Biomass energy is a "bridge" solution for transitioning to 100 percent clean, renewable energy. Using sustainable feedstock—waste biomass or perennial crops—is crucial.

Web Links Energy/Other

- **U.S. Energy Information Administration** <https://www.eia.gov/>
- **CRES** <https://www.cres-energy.org/>
 - YouTube <https://www.youtube.com/channel/UCr81EUb2qVJVfmmIJMxEHVw>
 - NREL Presentation: GREG WILSON
<https://www.youtube.com/watch?v=7CDPHxcnq4c&t=23s>
 - Governor Ritter Presentation
<https://www.youtube.com/watch?v=agowW1QKwms&t=6s>
- <https://skepticalscience.com/How-Green-is-My-EV.html>
- <http://energysouldbe.org/>
 - Why Storage is Key for a Renewable Energy Future:
https://www.youtube.com/watch?v=Yc_hULwykvQ&t=13s
 - Clean Energy through Open Electricity Markets:
<https://www.youtube.com/watch?v=seGwTKTm38A>

In closing

**“ASK NOT WHAT YOU OUGHT TO DO, RATHER ASK WHAT YOU MUST DO!”
(attributed to a philosopher – please let me know who)**

AND

**For those that say “it can’t be done” I say: Stay out of the way of those that are
DOING IT!**

Climate of Hope

- p. 27:

**“If we don’t act now, when?
And if we don’t act, who will?”**

End of class slides October 24th , 2017



https://i.kinja-img.com/gawker-media/image/upload/t_original/ihsllhptnm4vb7wuvvgq.jpg