Where we are and Where we are going

The four stages of climate change denial

- It’s not happening

- It’s not happening
- **YES IT IS !**

- It’s not happening
- **YES IT IS !**
- **It’s not us**

- It’s not happening
- **YES IT IS !**
- **It’s not us**
- **YES IT IS !**

- It’s not happening
- **YES IT IS !**
- **It’s not us**
- **YES IT IS !**
- **It’ll be good for us**

- It’s not happening
- **YES IT IS !**
- **It’s not us**
- **YES IT IS !**
- **It’ll be good for us**
- **NO IT WON’T !**

- It’s not happening
- **YES IT IS !**
- **It’s not us**
- **YES IT IS !**
- **It’ll be good for us**
- **NO IT WON’T !**
- **There isn’t anything we can do about it**

- It’s not happening
- **YES IT IS !**
- **It’s not us**
- **YES IT IS !**
- **It’ll be good for us**
- **NO IT WON’T !**
- **There isn’t anything we can do about it**
- **YES THERE IS !**

- It’s not happening
- **YES IT IS !**
- **It’s not us**
- **YES IT IS !**
- **It’ll be good for us**
- **NO IT WON’T !**
- **There isn’t anything we can do about it**
- **YES THERE IS !**
- **… BUT IT WON’T BE EASY…**

NATIONAL SECURITY AND THE THREAT OF CLIMATE CHANGE

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To the reader,

During our decades of experience in the U.S. military, we have addressed many national security challenges, from containment and deterrence of the Soviet nuclear threat during the Cold War to terrorism and extremism in recent years.

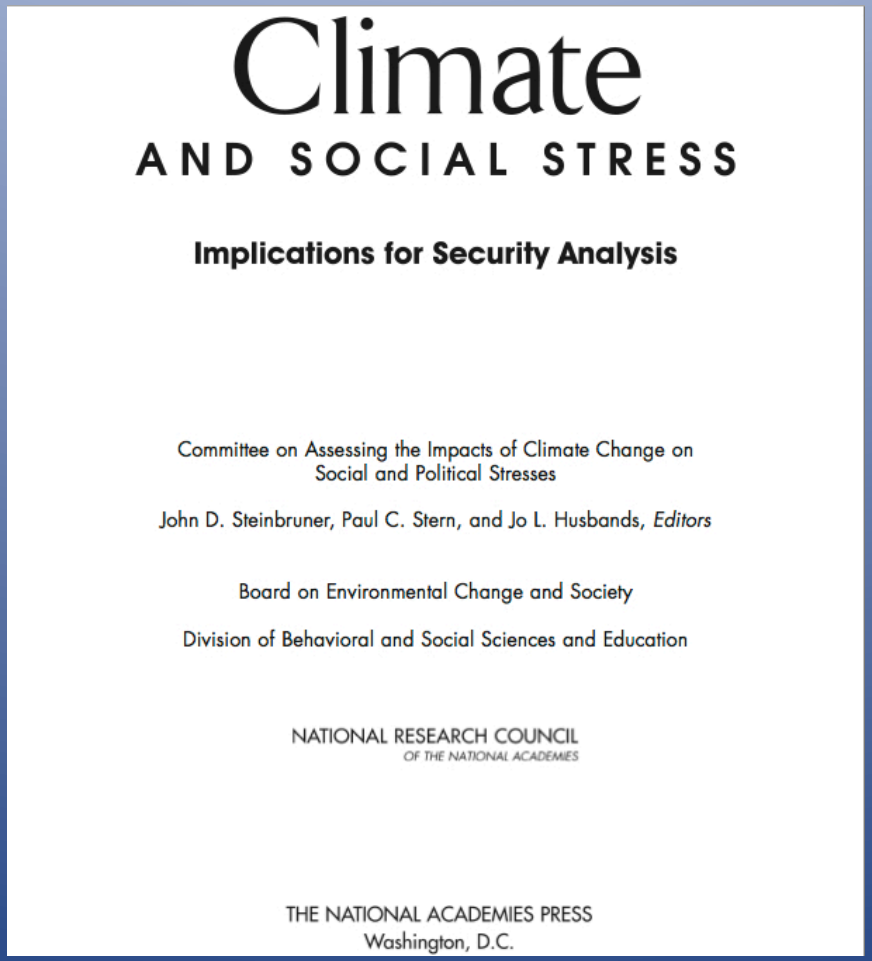
Global climate change presents a new and very different type of national security challenge.

Over many months and meetings, we met with some of the world's leading climate scientists, business leaders, and others studying climate change. We viewed their work through the lens of our military experience as warfighters, planners, and leaders. Our discussions have been lively, informative, and very sobering.

Carbon dioxide levels in the atmosphere are greater now than at any time in the past 650,000 years, and average global temperature has continued a steady rise. This rise presents the prospect of significant climate change, and while uncertainty exists and debate continues regarding the science and future extent of projected climate changes, the trends are clear.

The nature and pace of climate changes being observed today and the consequences projected by the consensus scientific opinion are grave and pose equally grave implications for our national security. Moving beyond the arguments

“This study was supported by the U.S. intelligence community.”



Climate

AND SOCIAL STRESS

Implications for Security Analysis

Committee on Assessing the Impacts of Climate Change on Social and Political Stresses

John D. Steinbruner, Paul C. Stern, and Jo L. Husbands, *Editors*

Board on Environmental Change and Society

Division of Behavioral and Social Sciences and Education

NATIONAL RESEARCH COUNCIL
OF THE NATIONAL ACADEMIES

THE NATIONAL ACADEMIES PRESS
Washington, D.C.

Ernst & Young Report:TopTen Risks To Insurers

NEW YORK, 12 MARCH 2008 – Potential climate change is the greatest strategic risk currently facing the property/casualty insurance industry…

The top two risks are:

1. Climate change: long-term, far-reaching and with significant impact on the industry…
2. Catastrophic events: rising costs and serious impact on earnings for insurers…

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From a report commissioned in part by Allianz - Insurance, Asset Management and Banking worldwide:

Climate change resulting from emissions of CO_2 and other greenhouse gases (GHGs) is widely regarded to be the greatest environmental challenge facing the world today. It also represents one of the greatest social and economic threats facing the planet and the welfare of humankind.

Exposed assets in Port Megacities - A global sea level rise of 0.5 m by 2050 is estimated to increase the value of assets exposed in all 136 port megacities worldwide by a total of $US 25,158 billion to $US28,213 billion in 2050. This increase is a result of changes in socio-economic factors such as urbanization and also increased exposure of this (greater) population to 1-in-100-year surge events through sea level rise.

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Welcome to the U.S. Climate Action Partnership (USCAP) Web Site

United States Climate Action Partnership (USCAP) is a group of businesses and leading environmental organizations that have come together to call on the federal government to quickly enact strong national legislation to require significant reductions of greenhouse gas emissions. USCAP has issued a landmark set of principles and recommendations to underscore the urgent need for a policy framework on climate change. More >

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MAJOR CORPORATIONS IN THE US CLIMATE ACTION PARTNERSHIP

AES (Global Power Company)

ALCOA

CHRYSLER

DOW CHEMICAL

DUKE ENERGY (Power Company)

DuPONT

EXCELON (Electric Utility Company)

FORD

GENERAL ELECTRIC

HONEYWELL

JOHNSON & JOHNSON

PEPSICO

PG&E

RIO TINTO (Mining)

SHELL

SIEMENS

WEYERHAUSER

[conspicuous by their absence: Exxon-Mobil and Koch Industries ! :-)]

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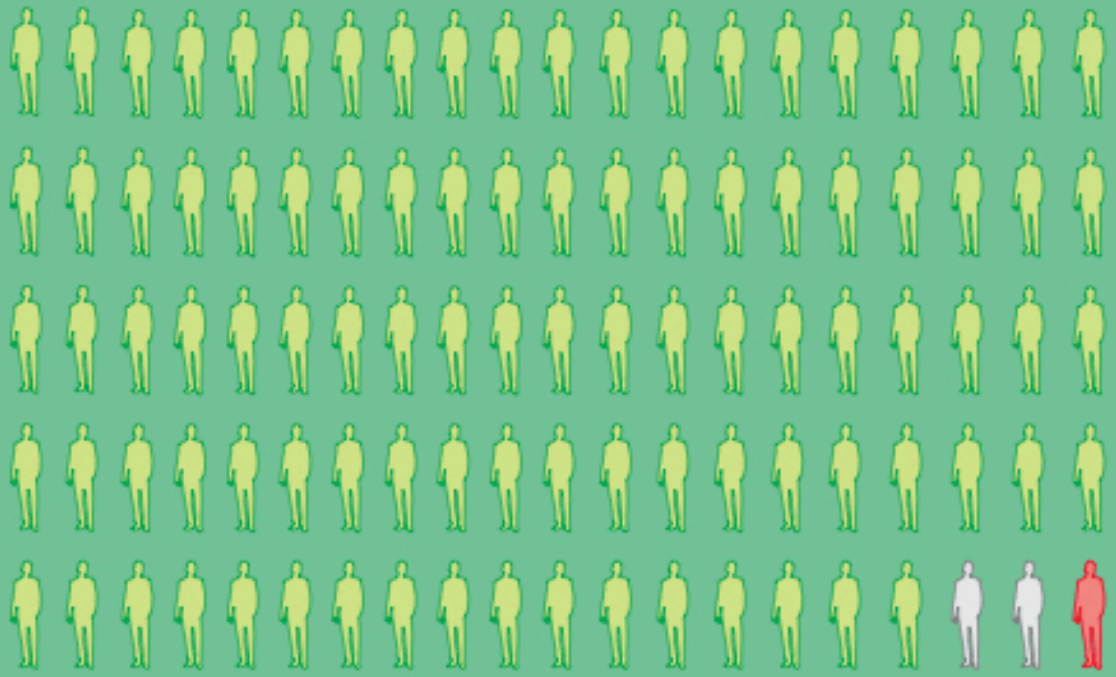
Study: U.S. Action on Climate Compatible With Strong Economic Growth

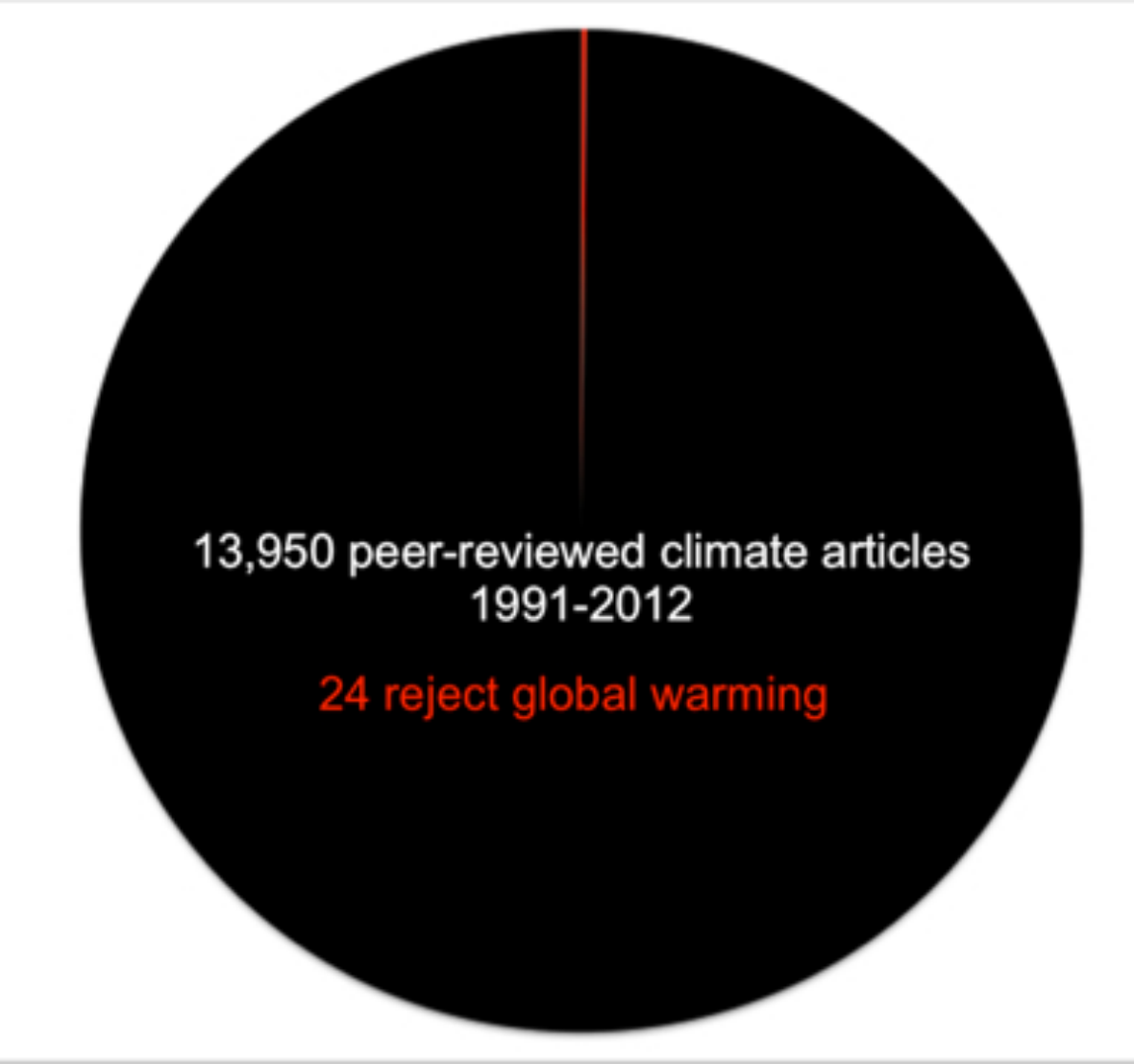
GDP will grow 70 to 71 percent through 2030 assuming the adoption of climate legislation similar to the Blueprint for Legislative Action, USCAP's set of recommendations for climate policy. In the absence of climate policy, U.S. GDP would grow 71 to 72 percent through 2030

97 out of 100 climate experts agree humans are causing global warming.

Several independent surveys find 97% of climate scientists who are actively publishing peer-reviewed climate research agree that humans are causing global warming.



On top of this overwhelming consensus, National Academies of Science from all over the world also endorse the consensus view of human caused global warming, as expressed by the Intergovernmental Panel on Climate Change (IPCC).


13,950 peer-reviewed climate articles
1991-2012
24 reject global warming

Three Sinister Climate Scientists…

…behind the Great Global Warming Hoax **Conspiracy**

11

To suggest that the earth is ***round*** is almost **comical**; it is **absurd on its face**

13

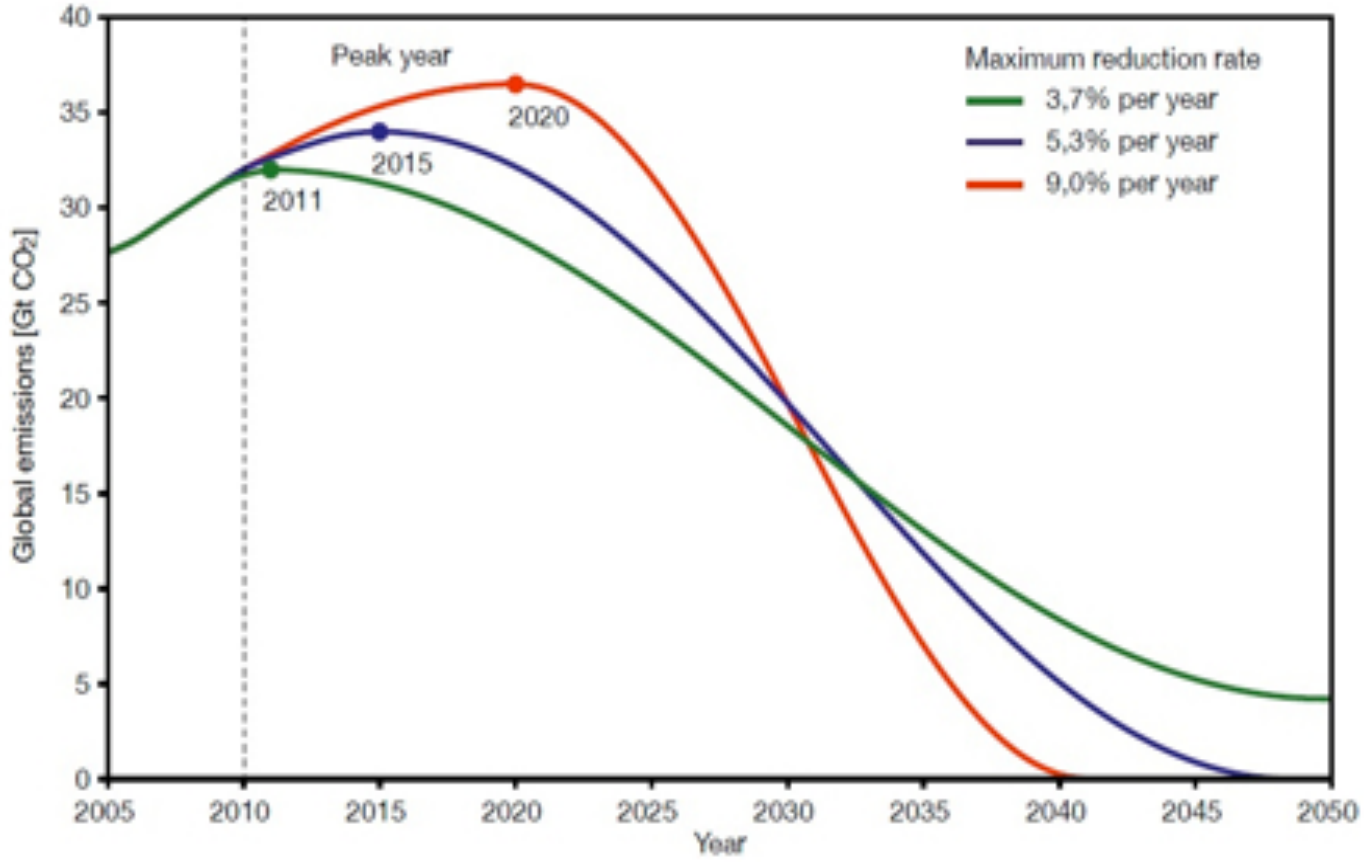
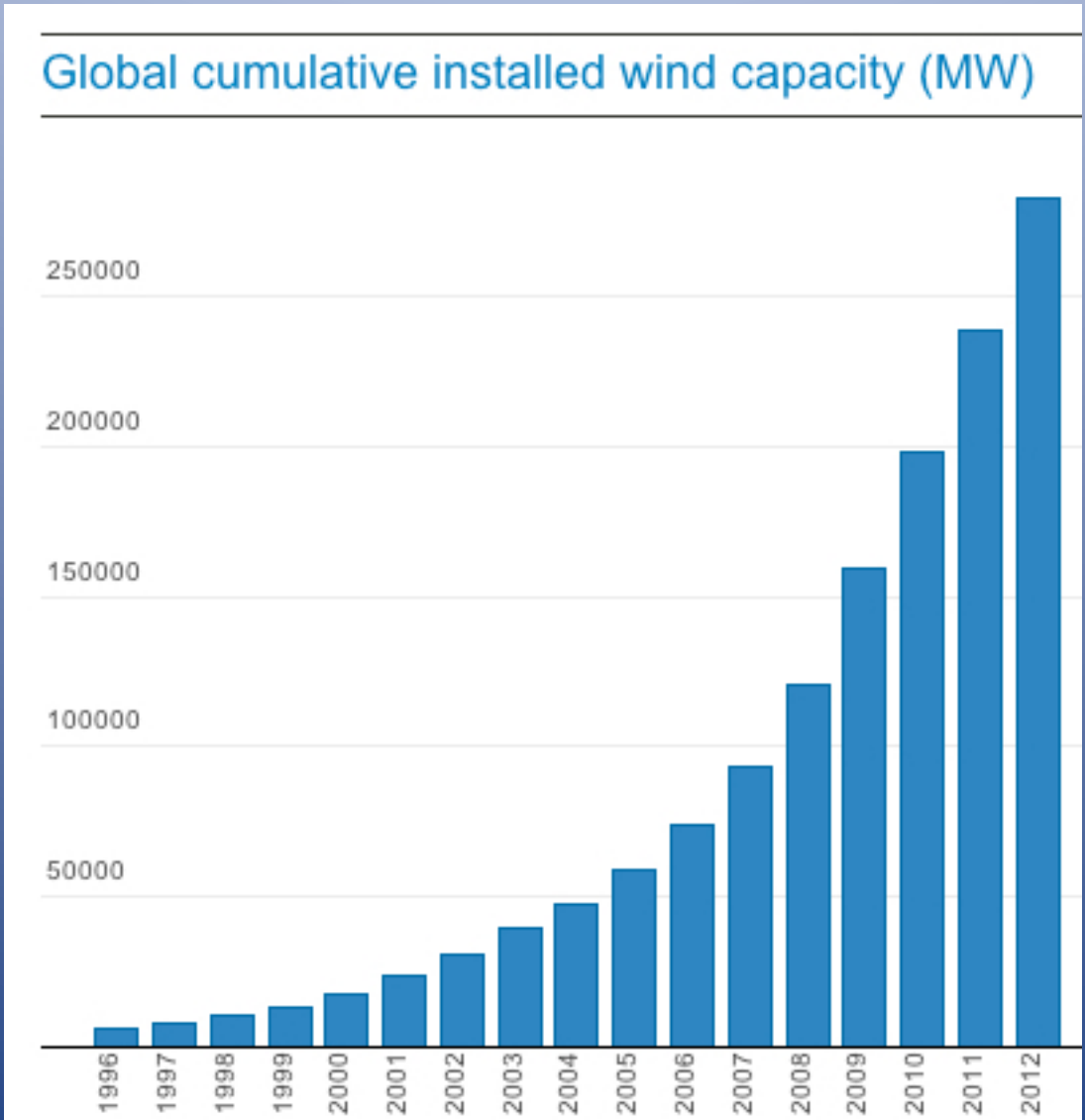


Figure 3: Three scenarios, , each of which would limit the total global emission of carbon dioxide from fossil-fuel burning and industrial processes to 750 Gt over the period 2010–2050.


Global cumulative installed wind capacity (MW)
250000
200000
150000
100000
50000
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012

In Australia, Wind Power Is Already Cheaper Than Fossil Fuels, And Solar Is Right Behind

By **Jeff Spross** on Feb 10, 2013 at 10:00 am

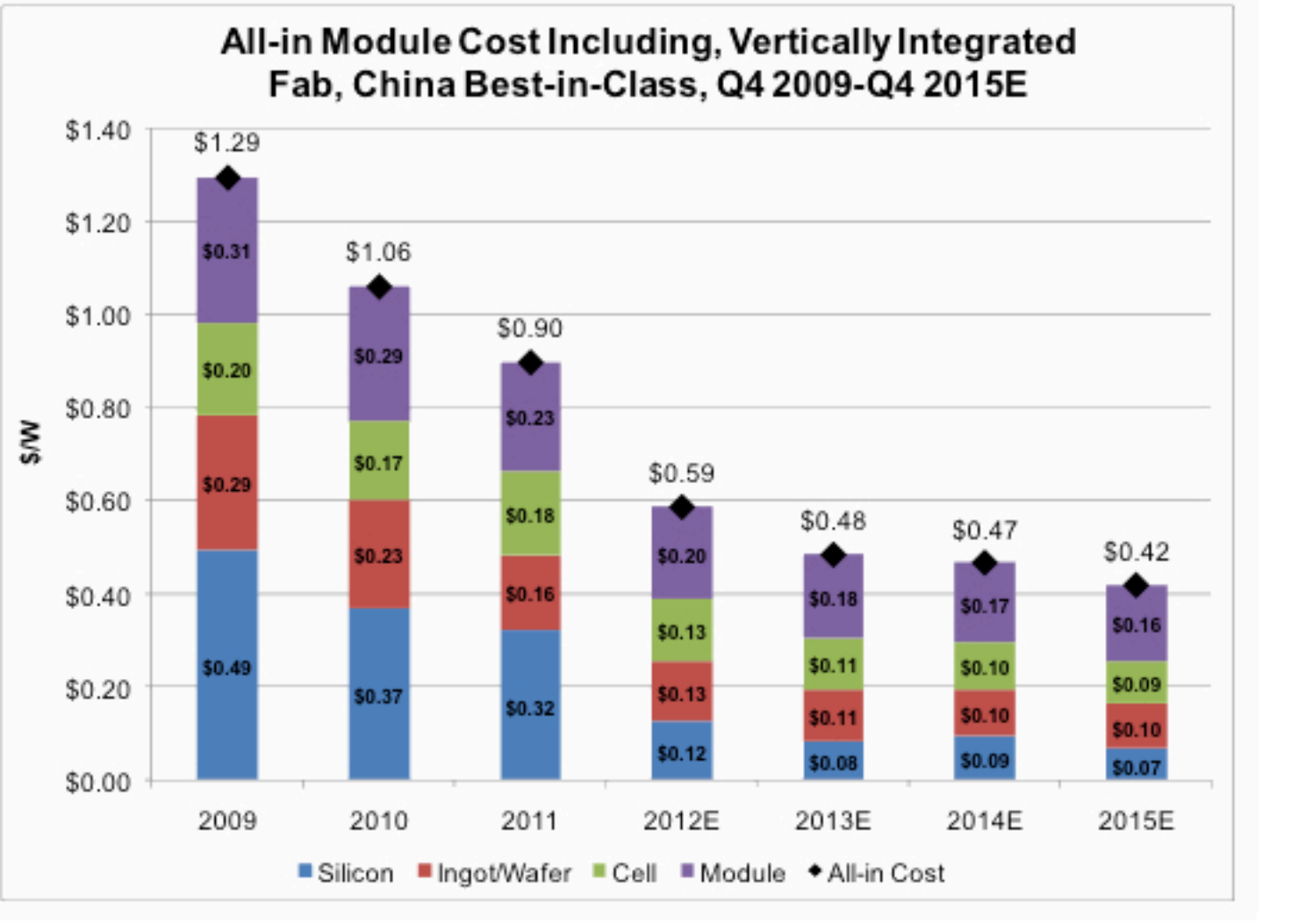
1,305
Tweet
17k
Like
(64)

According to the latest research from Bloomberg New Energy Finance, electricity from wind power can now be supplied more cheaply in Australia than power from either coal or natural gas — and solar and other forms of renewable energy aren't far behind.

Older coal-fired power plants from the 70s and 80s still compete at lower prices than renewables — but only because their construction costs have depreciated. For the deployment of any new power generation in Australia, renewables now appear to be the way to go.

Australia currently charges polluters $23 in Australian dollars per metric ton of carbon they emit, but the study concluded that wind power would still undercut fossil fuels even without that correction of the market's failure to properly build in the costs of carbon pollution:

> **The study shows that electricity can be supplied from a new wind farm at a**


All-in Module Cost Including, Vertically Integrated Fab, China Best-in-Class, Q4 2009-Q4 2015E
$/W
$1.40
$1.20
$1.00
$0.80
$0.60
$0.40
$0.20
$0.00
$1.29
$0.31
$0.20
$0.29
$0.49
$1.06
$0.29
$0.17
$0.23
$0.37
$0.90
$0.23
$0.18
$0.16
$0.32
$0.59
$0.20
$0.13
$0.13
$0.12
$0.48
$0.18
$0.11
$0.11
$0.08
$0.47
$0.17
$0.10
$0.10
$0.09
$0.42
$0.16
$0.09
$0.10
$0.07
2009
2010
2011
2012E
2013E
2014E
2015E
Silicon
Ingot/Wafer
Cell
Module
All-in Cost

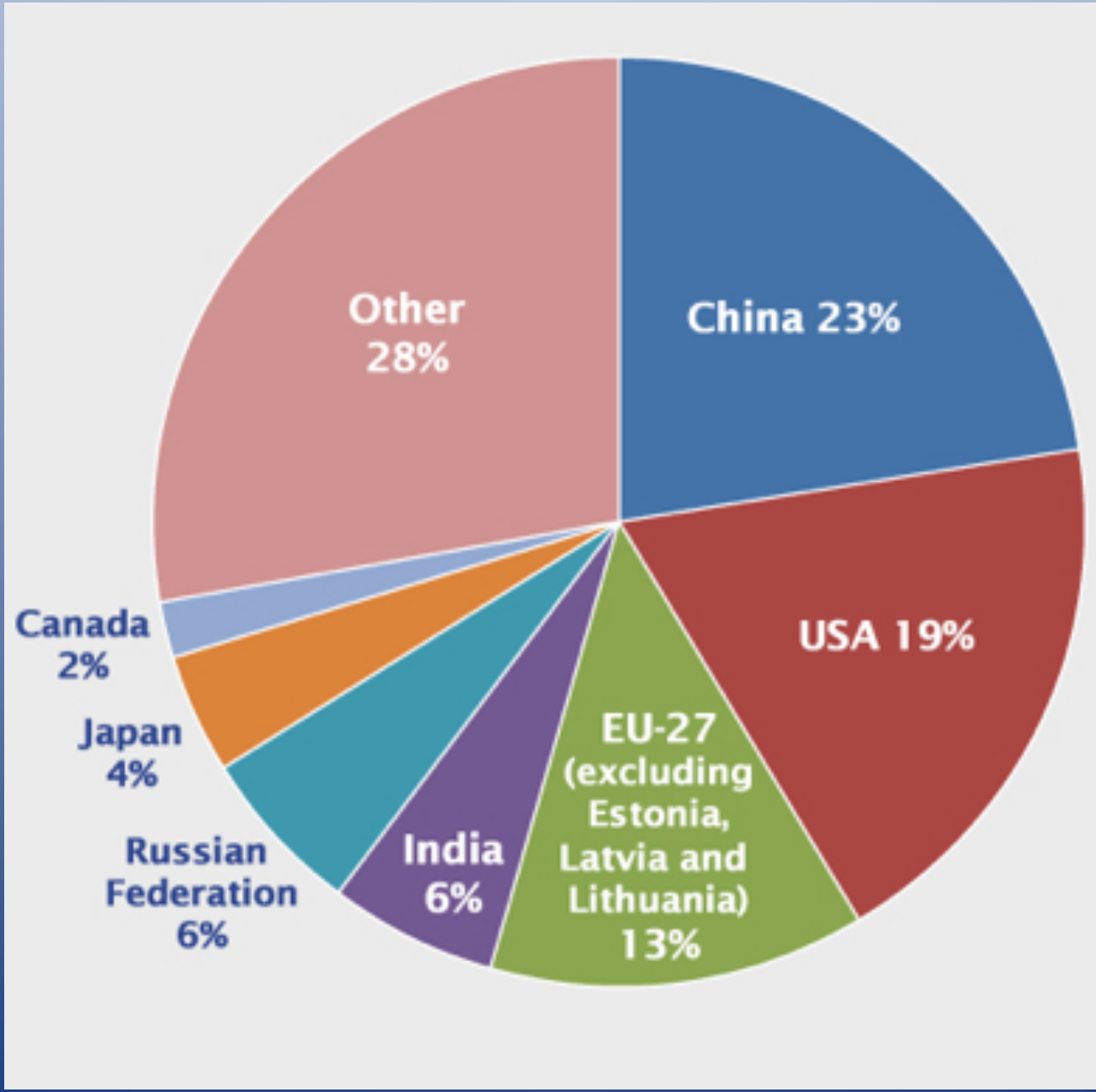
Science/Technology
will save us

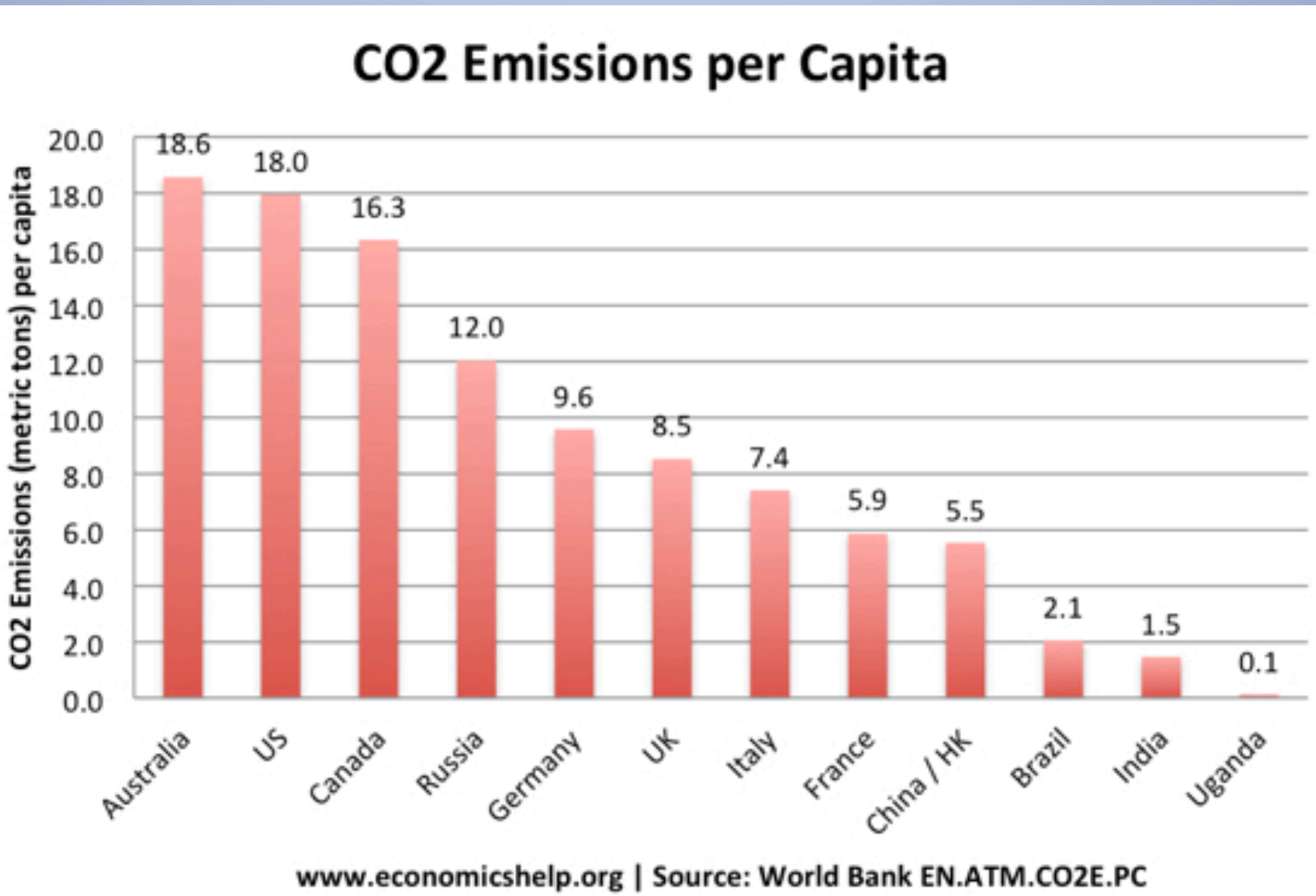
Science/Technology

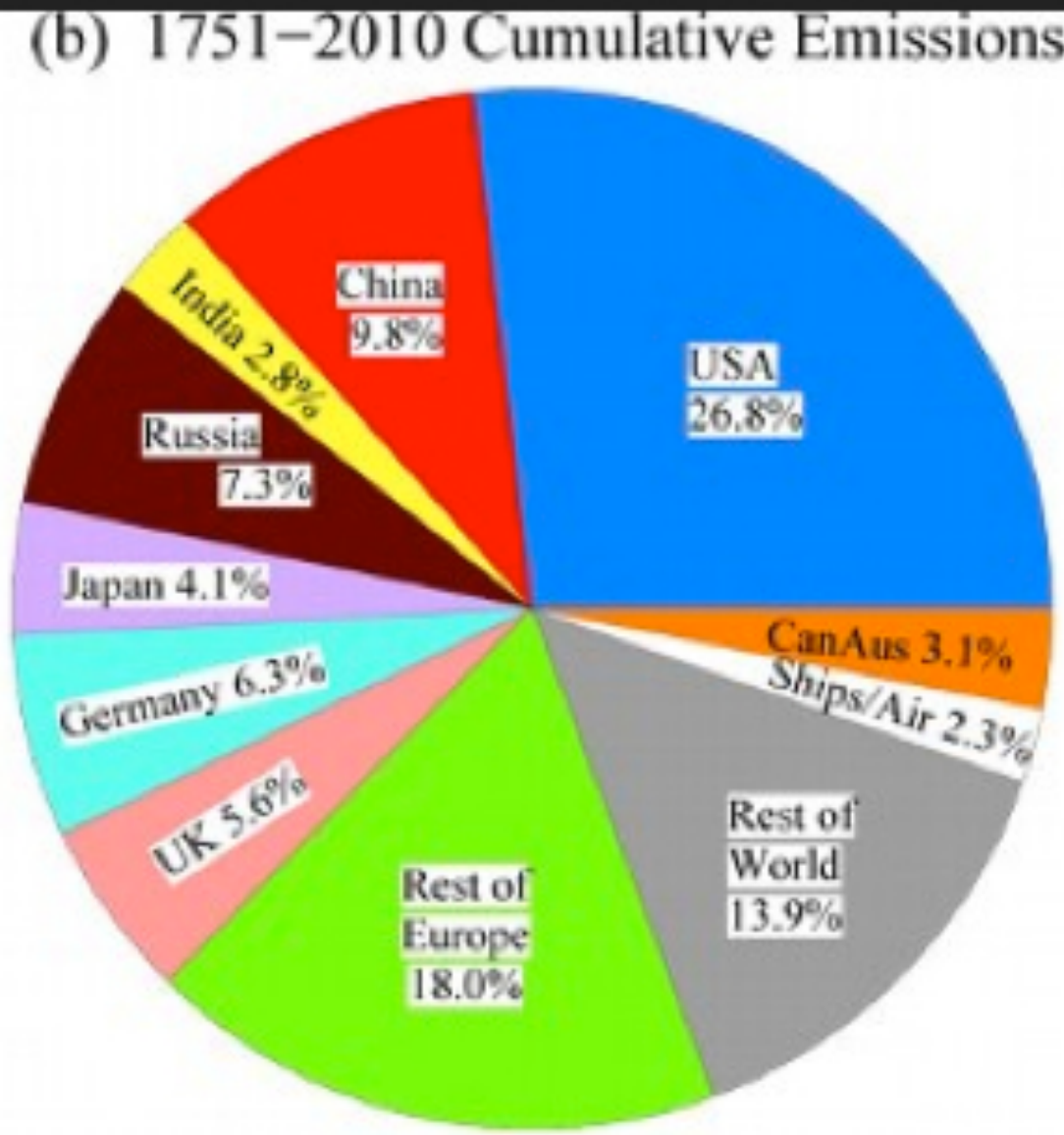
~~will~~ save us

…CAN HELP…

What is “FAIR”?


Other
28%
China 23%
Canada
2%
USA 19%
Japan
4%
EU-27
(excluding
Estonia,
Latvia and
Lithuania)
13%
Russian
Federation
6%
India
6%


CO2 Emissions per Capita
CO2 Emissions (metric tons) per capita
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
18.6
18.0
16.3
12.0
9.6
8.5
7.4
5.9
5.5
2.1
1.5
0.1
Australia
US
Canada
Russia
Germany
UK
Italy
France
China / HK
Brazil
India
Uganda
www.economicshelp.org | Source: World Bank EN.ATM.CO2E.PC


(b) 1751–2010 Cumulative Emissions
China 9.8%
India 2.8%
USA 26.8%
Russia 7.3%
Japan 4.1%
CanAus 3.1%
Ships/Air 2.3%
Germany 6.3%
UK 5.6%
Rest of World 13.9%
Rest of Europe 18.0%

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State Level

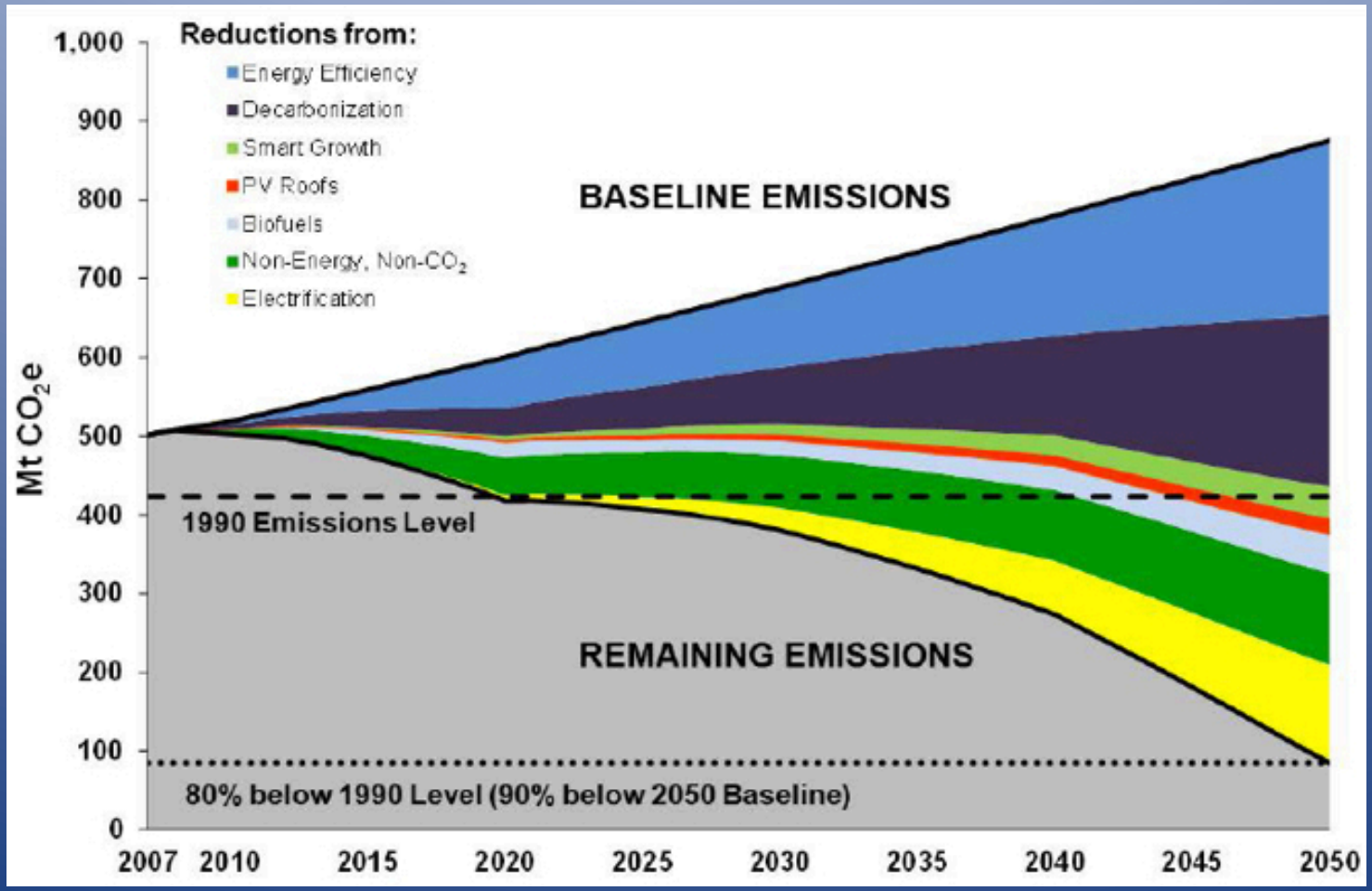
Implement and Monitor AB 32: Requires California to reduce greenhouse gas emissions to 1990 levels by 2020, including effectiveness of "Cap & Trade"; (80% by 2050 target)

Substantially expand "Feed In Tariffs"

(allowance is currently only about 1% of total consumption)

Work to remove (Fannie & Fredie) obstacle to AB811 and/or facilitate similar programs

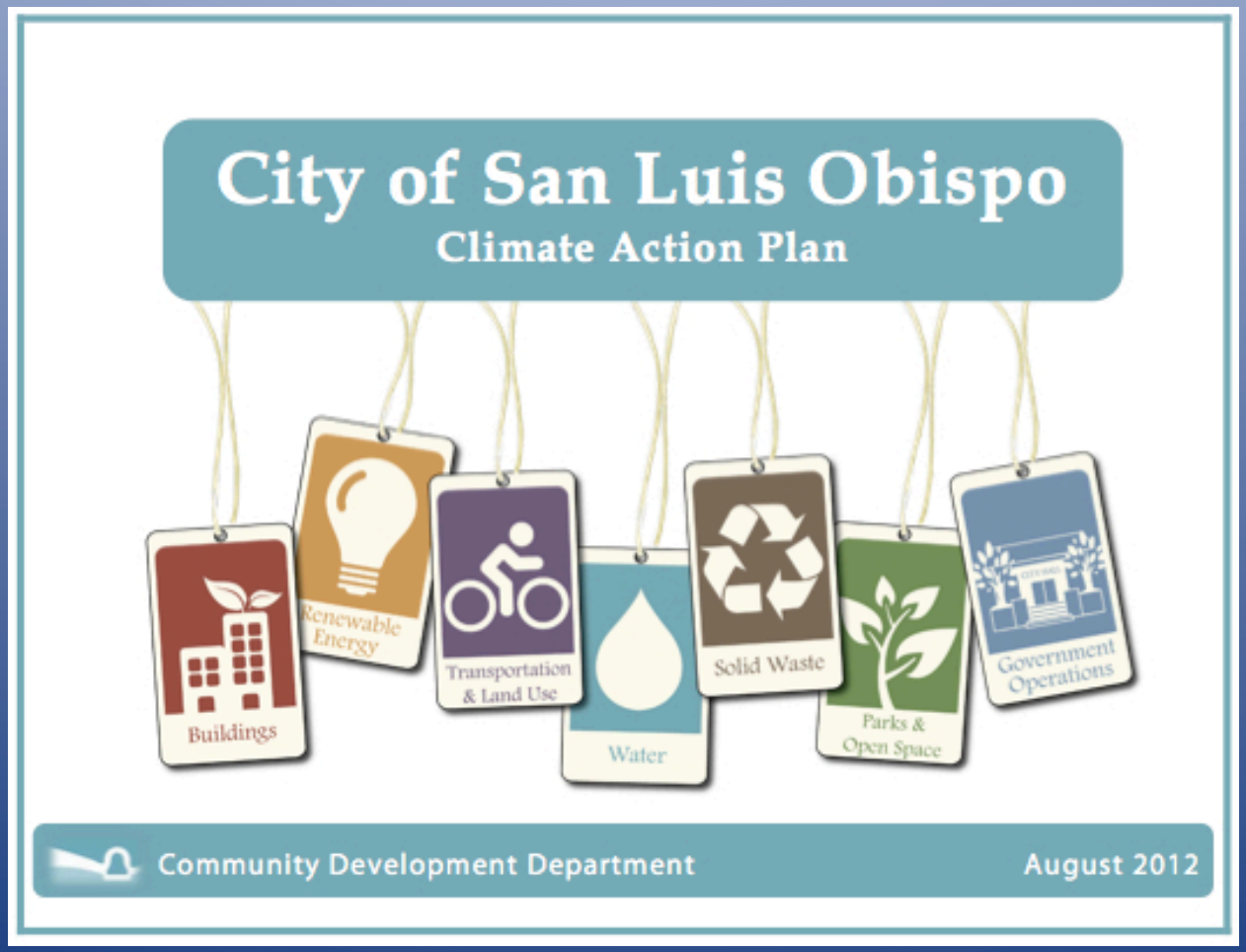
A California Reduction Scenario



City, County Level Action

- **Continue fleet efficiency and building efficiency programs**
- **Define, then *implement and monitor* Climate Action Plans: (transportation, bike paths, land use, educational programs, facilitate local solar installations**
- **energy efficient buildings both public and private; (Example**: MindBody Inc.)

SLO County Nov. 22, 2011:
EnergyWise Plan (Climate Action Plan)



What you can do: Part 1
(and what our family has done)

Energy star appliances; improved attic insulation; double pane windows; solar-powered attic exhaust fans; ceiling fans; hot water circulation pump; "solar-tube" light sources; double layer garage door insulation; CFL bulbs (LEDs available?); sold freezer; bike, not ride, to gym; weather strips; Honda CRV→ Prius

…But our family could/should do more…

What MORE our family could/should do…

Much better insulation on hot tub

Install solar-powered clothes dryer (aka clothesline)

Further investigate solar panel feasibility

"Cool white" paint on roof top not visible from street (requires internal domestic conflict resolution)

What you can do: Part 2

- Become/stay INFORMED both scientifically and politically
- Participate as a citizen: talk to friends, neighbors, relatives; call-in shows; letters to papers; meet with editors & urge better climate coverage & editorials by papers & TV; TV-weather, appear at local hearings; write, call, meet with elected & appointed officials at all levels; public education: adults & children
- Join a local or national advocacy group

A Local and a National Advocacy Group

Central Coast STEM Education Collaborative

Ccstem.org

Citizens Climate Lobby

www.citizensclimatelobby.org

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Public Survey Results

- Q1: Def 16 Prb 11 NS 0 PbN 0 DefN 3
- **Q2 Def 13 Prb 3 NS 4 PbN 2 DefN 2**
- Q3 VH 8 SH 11 NS 7 SB 0 VB 3
- **Q4 Sci 67 Tvwe 43 TVN 48 Pap 54**

  Tlk 39 Int 49 Own 61
- **Q5 Vwinf 1 Mod inf 23 Porinf 4**