



PROTECT THE PLANET:

We are One!

From Ideas to Actions

Compiled by:
Surinder Sharma
Public Outreach Committee
Sathya Sai International Organisation

Thankful for material to:



NASA





Atharva Veda:

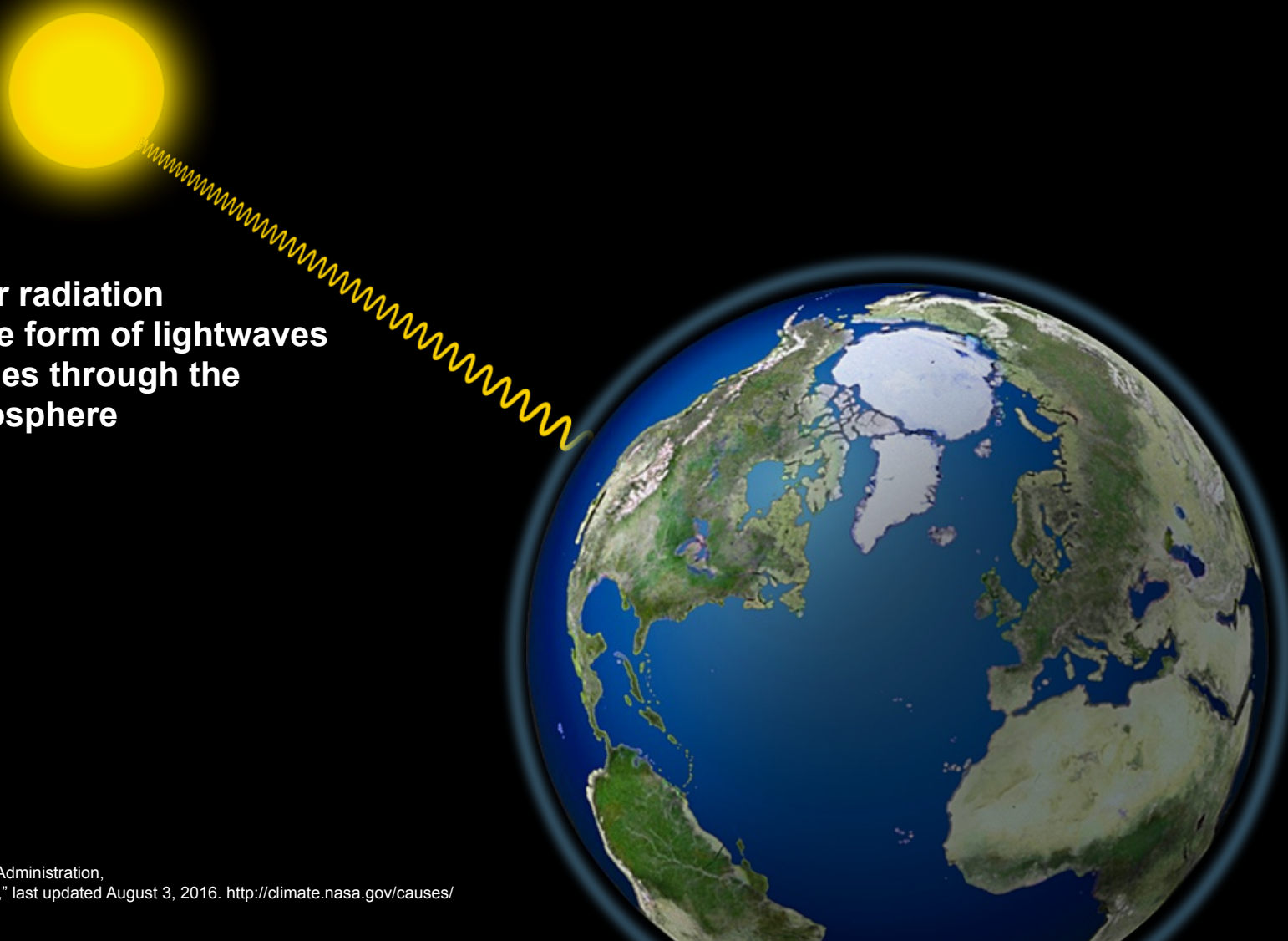
“Prayer is made to Mother Earth that She blesses us with the knowledge required to exploit the **treasures of the nature but without disturbing the **environmental balance**.”**

**Carbon dioxide concentrations have increased
by 40 percent since pre-industrial times**

GREENHOUSE GASES

The background image shows a large industrial facility, likely a power plant or refinery, with several tall smokestacks. Thick, dark plumes of smoke or steam are rising from the stacks, filling much of the sky. The sky is a vibrant, fiery orange and yellow, suggesting a sunset or sunrise, which creates a dramatic and somewhat ominous atmosphere. The overall scene conveys the theme of industrial activity and its contribution to greenhouse gas emissions.

There are six greenhouse gases that trap the solar heat - Carbon dioxide, Methane, Nitrous oxide, Hydro-fluorocarbons (HFCs), Per-fluorocarbons (PFCs) and Sulphur hexa-fluoride (SF₆).

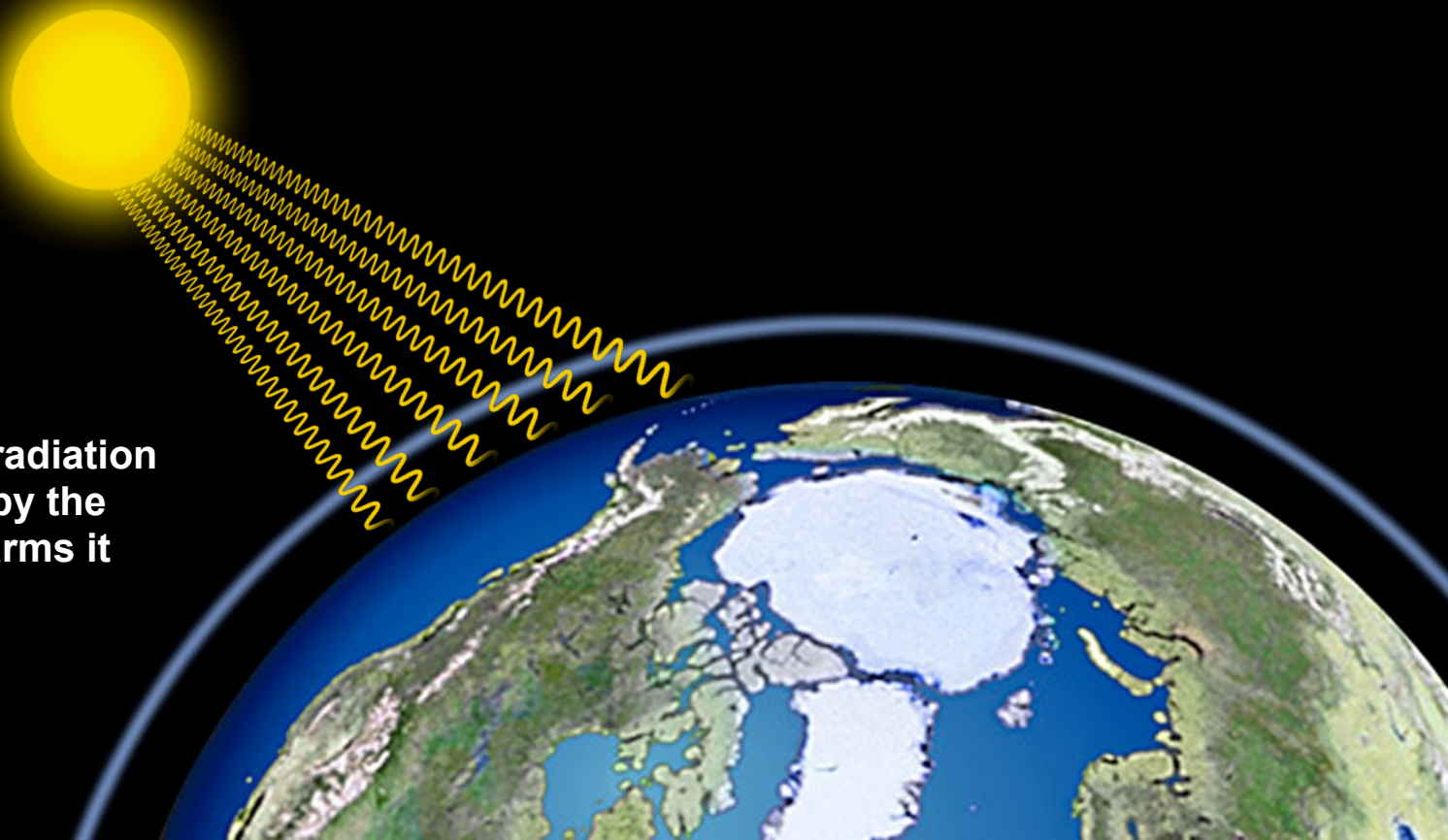


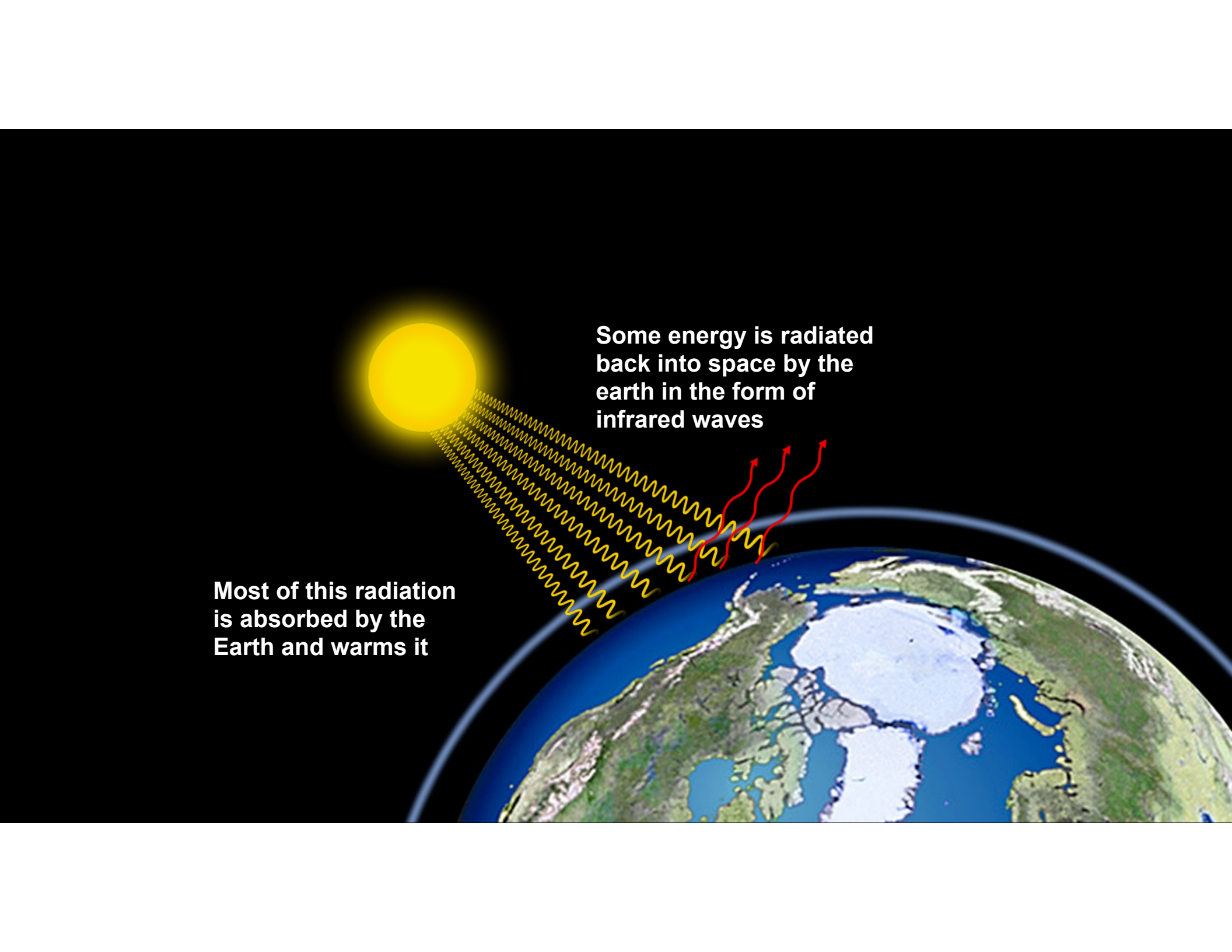
**Solar radiation
in the form of lightwaves
passes through the
atmosphere**

The diagram illustrates the process of solar radiation reaching Earth. A bright yellow sun is positioned in the upper left corner. A series of yellow wavy lines, representing electromagnetic waves, originate from the sun and travel diagonally towards the Earth. The Earth is shown as a globe in the lower right, with a dark blue outer ring representing the atmosphere. The wavy lines are shown passing through this atmospheric layer before reaching the land and ocean surfaces of the planet. The background is a solid black, representing the vacuum of space.

- National Aeronautics and Space Administration,
- "Global Climate Change: Causes," last updated August 3, 2016. <http://climate.nasa.gov/causes/>

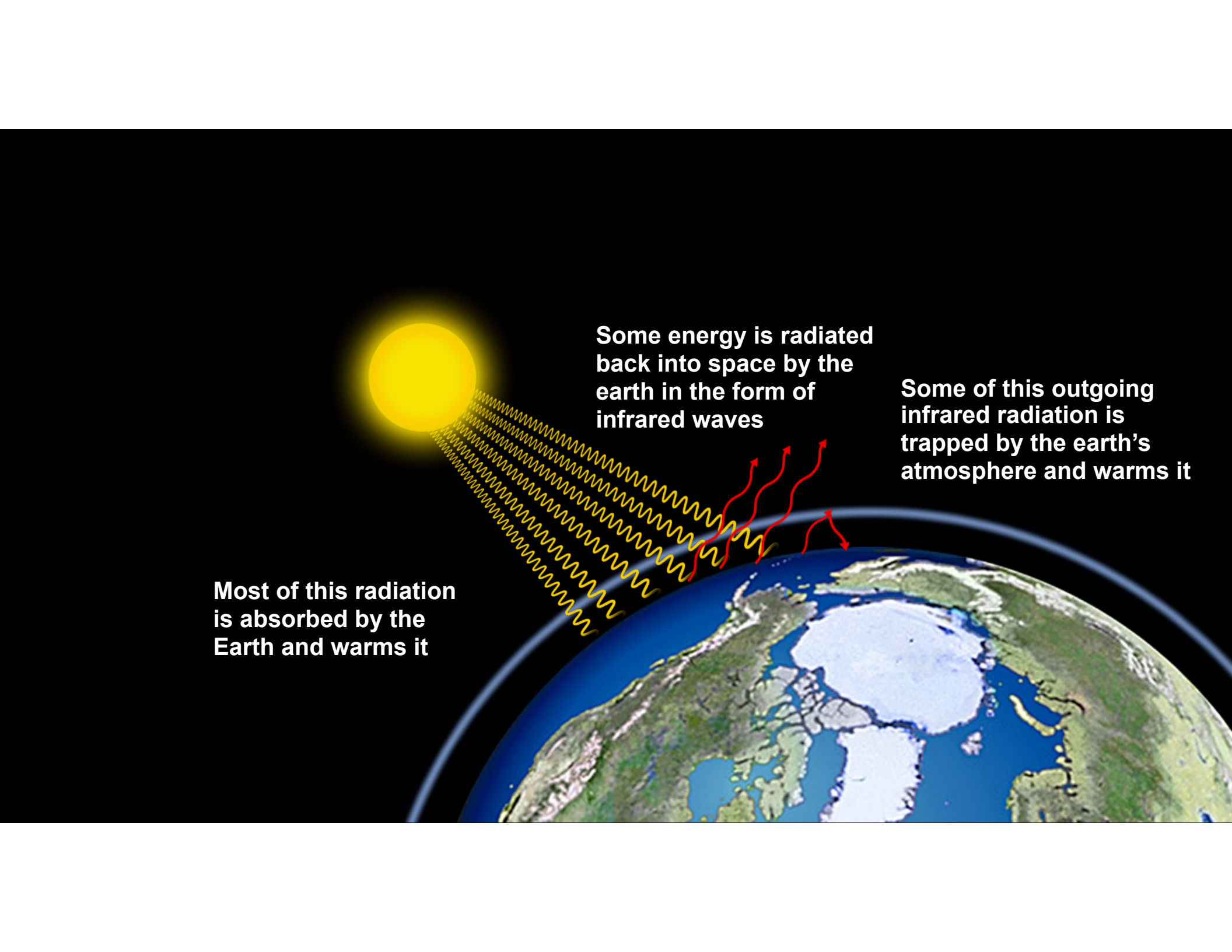
**Most of this radiation
is absorbed by the
Earth and warms it**



A diagram illustrating the Earth's energy balance. A bright yellow sun is in the upper left, emitting yellow wavy lines representing solar radiation towards the Earth. The Earth is shown in the lower right, with a blue ocean and green landmasses. Three red wavy lines with arrows at the end represent infrared radiation being emitted from the Earth's surface back into space. The background is black, representing space.

**Most of this radiation
is absorbed by the
Earth and warms it**

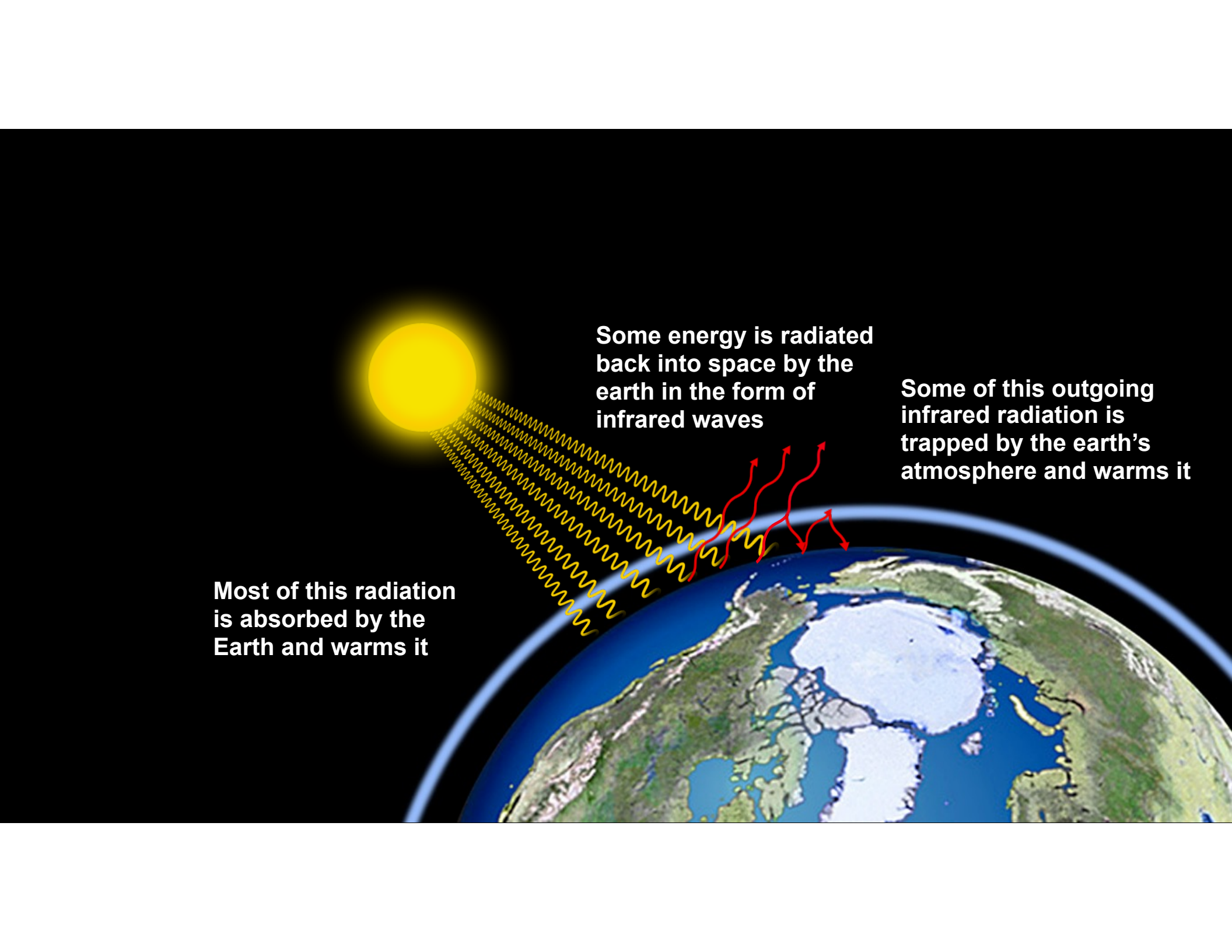
**Some energy is radiated
back into space by the
earth in the form of
infrared waves**



**Most of this radiation
is absorbed by the
Earth and warms it**

**Some energy is radiated
back into space by the
earth in the form of
infrared waves**

**Some of this outgoing
infrared radiation is
trapped by the earth's
atmosphere and warms it**



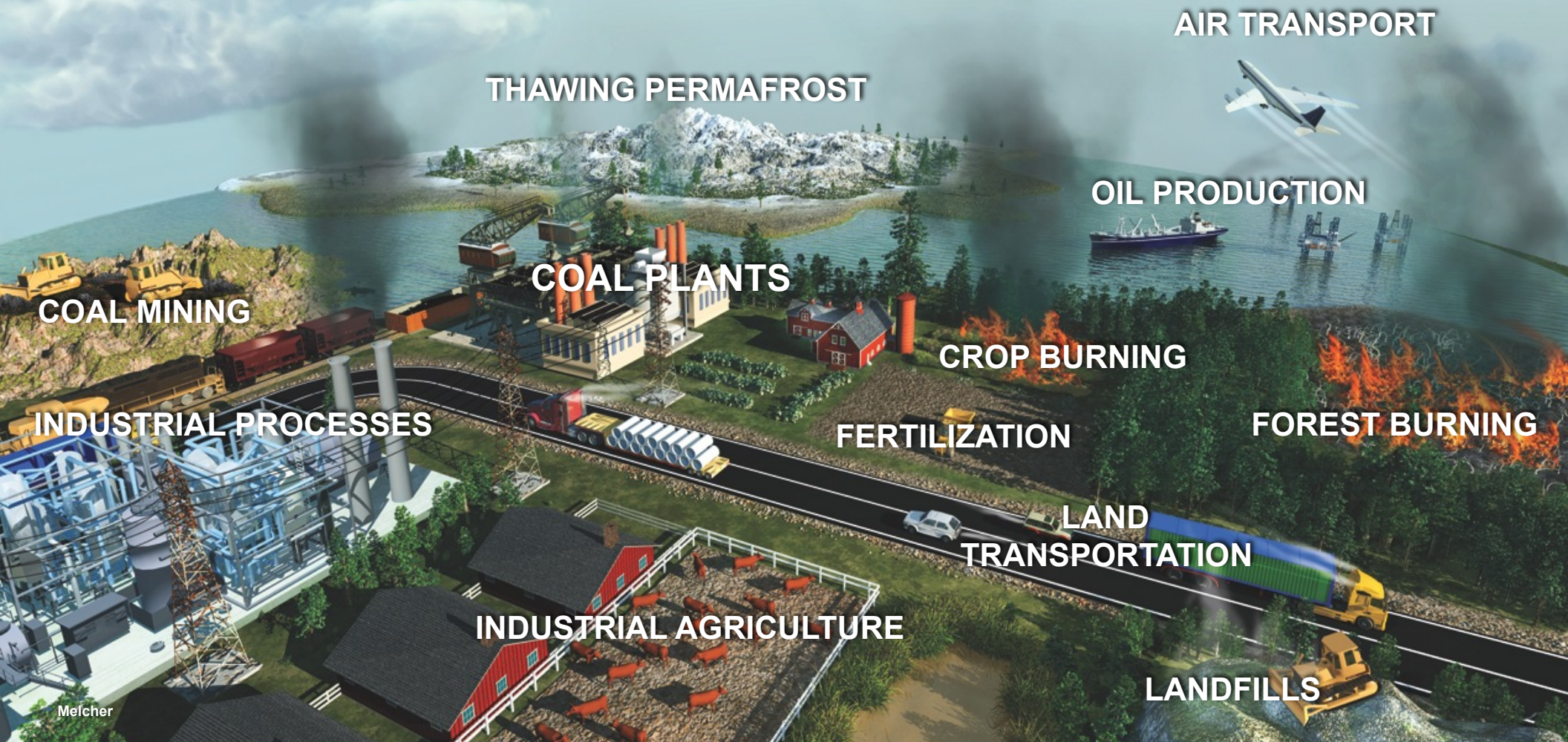
The diagram illustrates the greenhouse effect. A bright yellow sun in the upper left corner emits yellow wavy lines representing solar radiation towards the Earth. The Earth is shown as a curved horizon with a blue atmosphere and a surface of green land and white ice. Some yellow wavy lines are shown entering the Earth's surface. From the surface, red wavy lines representing infrared radiation point upwards towards the atmosphere. Some of these red lines are shown being reflected back down to the surface by the atmosphere. The background is a solid black space.

**Most of this radiation
is absorbed by the
Earth and warms it**

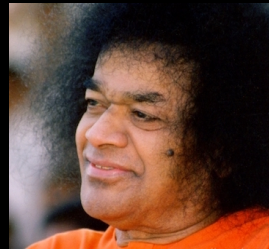
**Some energy is radiated
back into space by the
earth in the form of
infrared waves**

**Some of this outgoing
infrared radiation is
trapped by the earth's
atmosphere and warms it**

The Biggest Sources of Greenhouse Gases

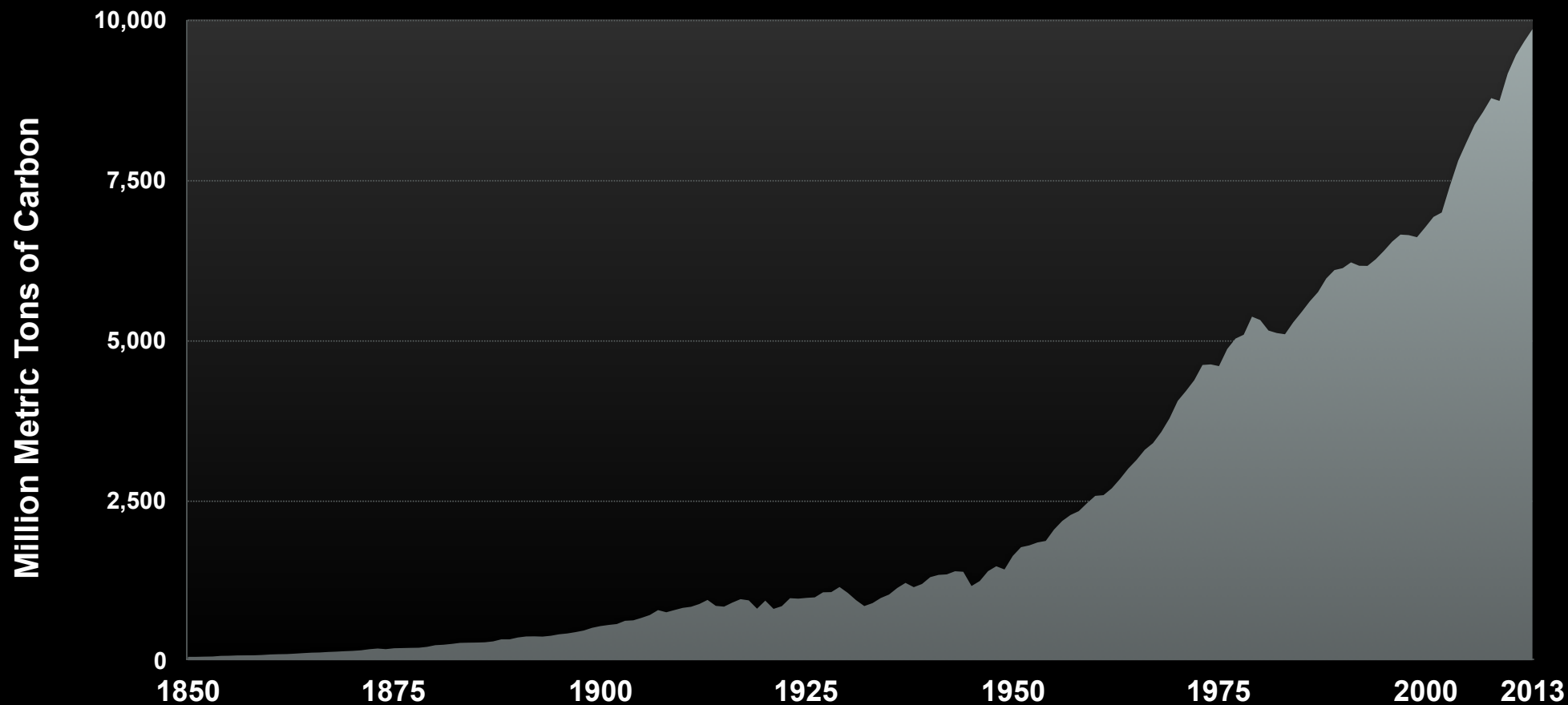


Sathya Sai summed up the pollution problem: "Origin of Five Elements." 15 May 2000



"Man's misadventures have created several problems for the entire mankind. He has polluted the five elements causing havoc on the earth. There is pollution everywhere - in air, water, food and so on. His misdeeds coupled with his evil thoughts and feelings have degraded human life on the earth. If man acts in the righteous way, there will be no pollution at all. The water level under the surface of the earth is depleting because noble virtues like love and compassion have dried up in human heart. The five elements are sore with the offensive conduct of man." ~ Sathya Sai

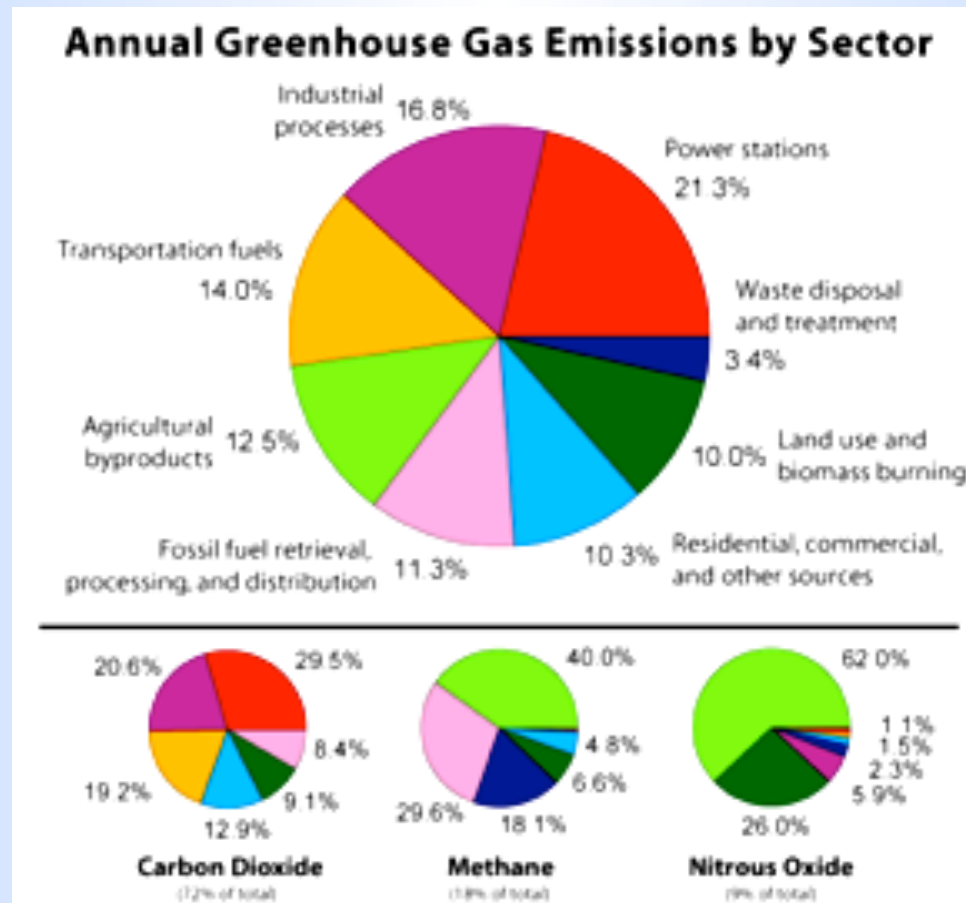
Global Carbon Emissions from Fossil Fuels



Data: U.S. Department of Energy/CDIAC <http://cdiac.ornl.gov/GCP/>

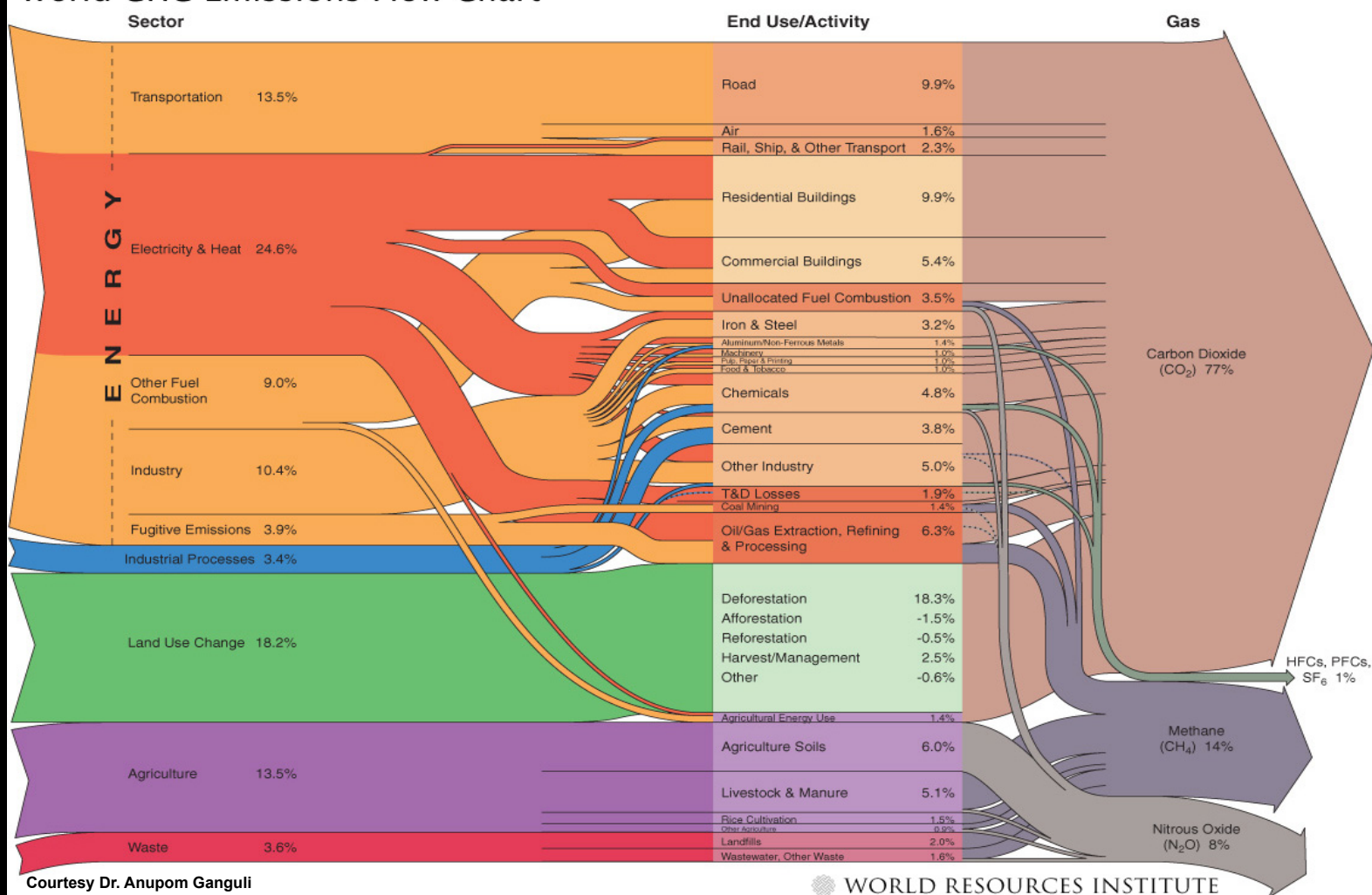
Carbon emissions have increased manifold since last 60 years

More Greenhouse Gases Mean a Warmer Earth



Who Creates Greenhouse Gases?

World GHG Emissions Flow Chart

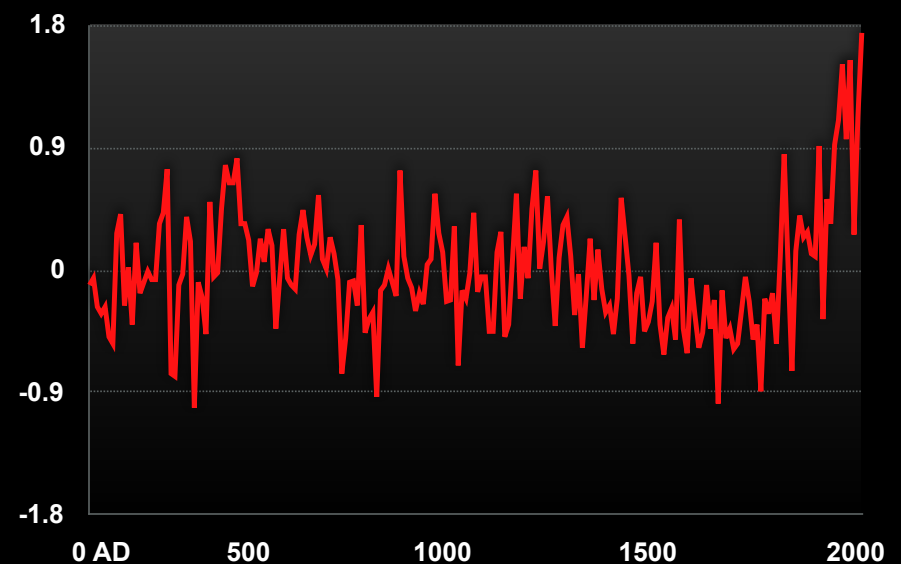


2000 Years of CO₂ and Global Temperature

CO₂ Concentration



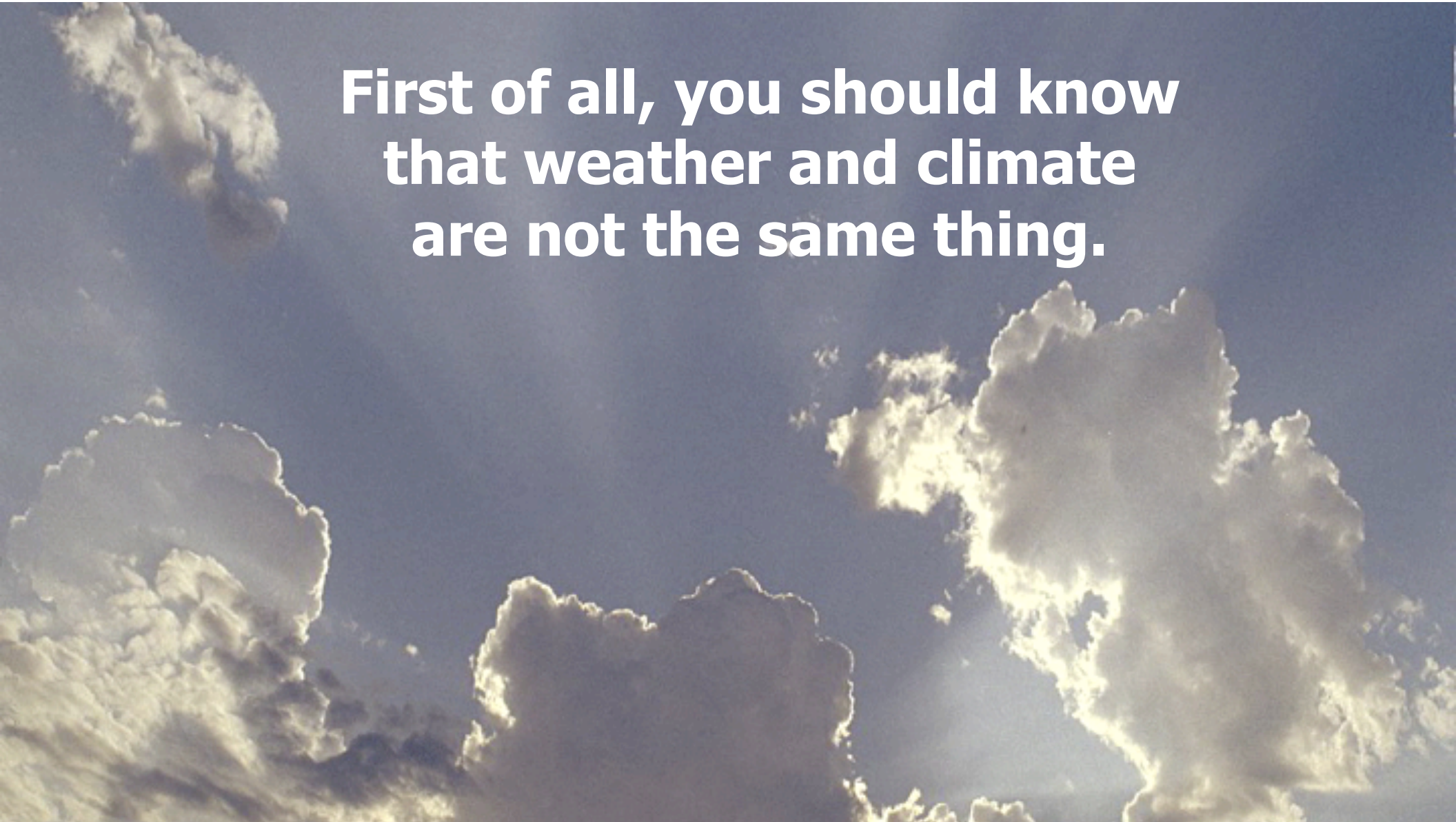
Temperature



As the CO₂ increases, it traps more heat and the temperature goes up. Temperature and CO₂ emissions correlate very precisely.

Data: (Temperature) Thompson, *et al.*, "Abrupt Tropical Climate Change: Past and Present," *Proc. Natl. Acad. Sci. USA*, vol. 103, no. 28; (CO₂) Australian Academy of Science; Etheridge, *et al.*, "Law Dome CO₂, CH₄ and N₂O ice core records extended to 2000 years BP," *Geophys. Res. Lett.* 33, doi:10.1029/2006GL026152, 2006. © 2006 American Geophysical Union. Reproduced/modified by permission of American Geophysical Union.

**First of all, you should know
that weather and climate
are not the same thing.**

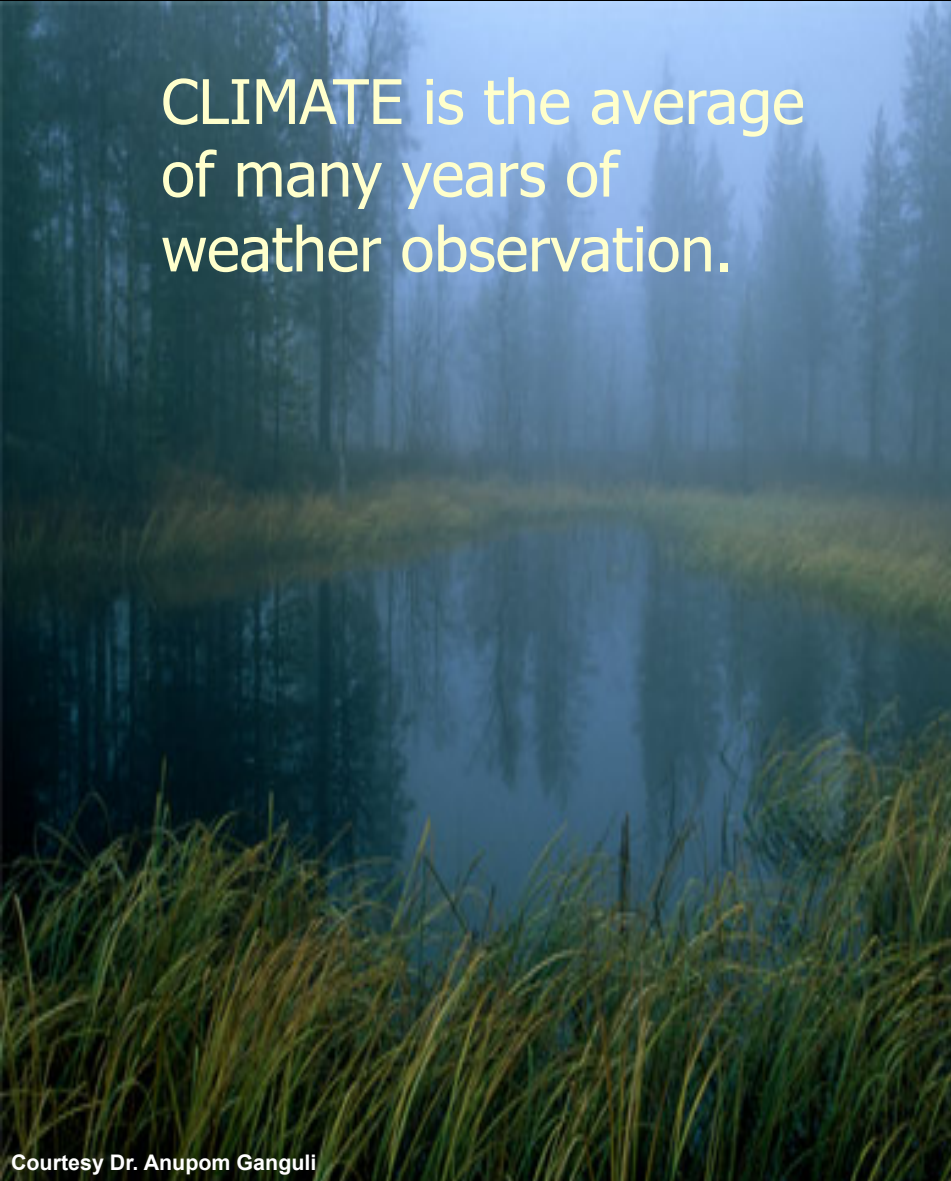


WEATHER IS:

- Short term
- Limited area
- Can change rapidly
- Difficult to predict



WEATHER is what's
happening outside your
window right now.



CLIMATE is the average
of many years of
weather observation.

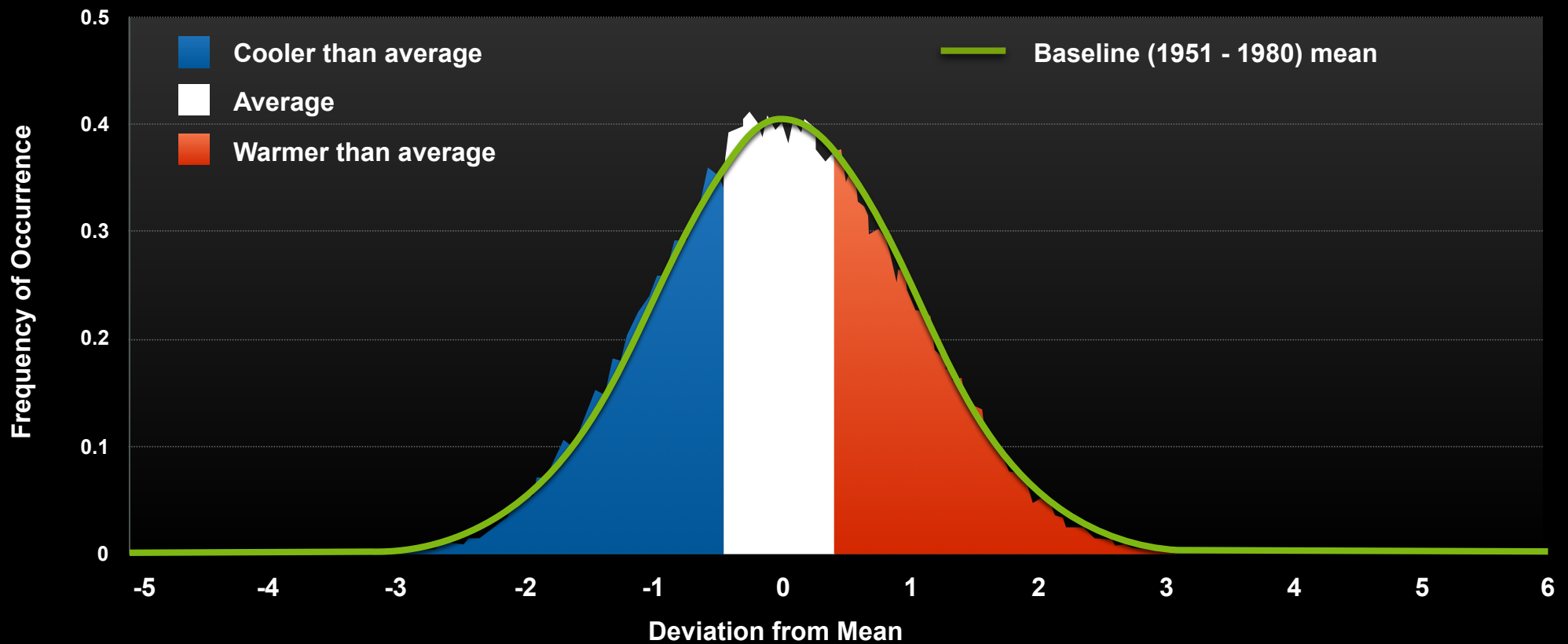
Courtesy Dr. Anupom Ganguli

CLIMATE IS:

- Long term
- Wide area
- Seasonal changes
- Measured over long spans of time

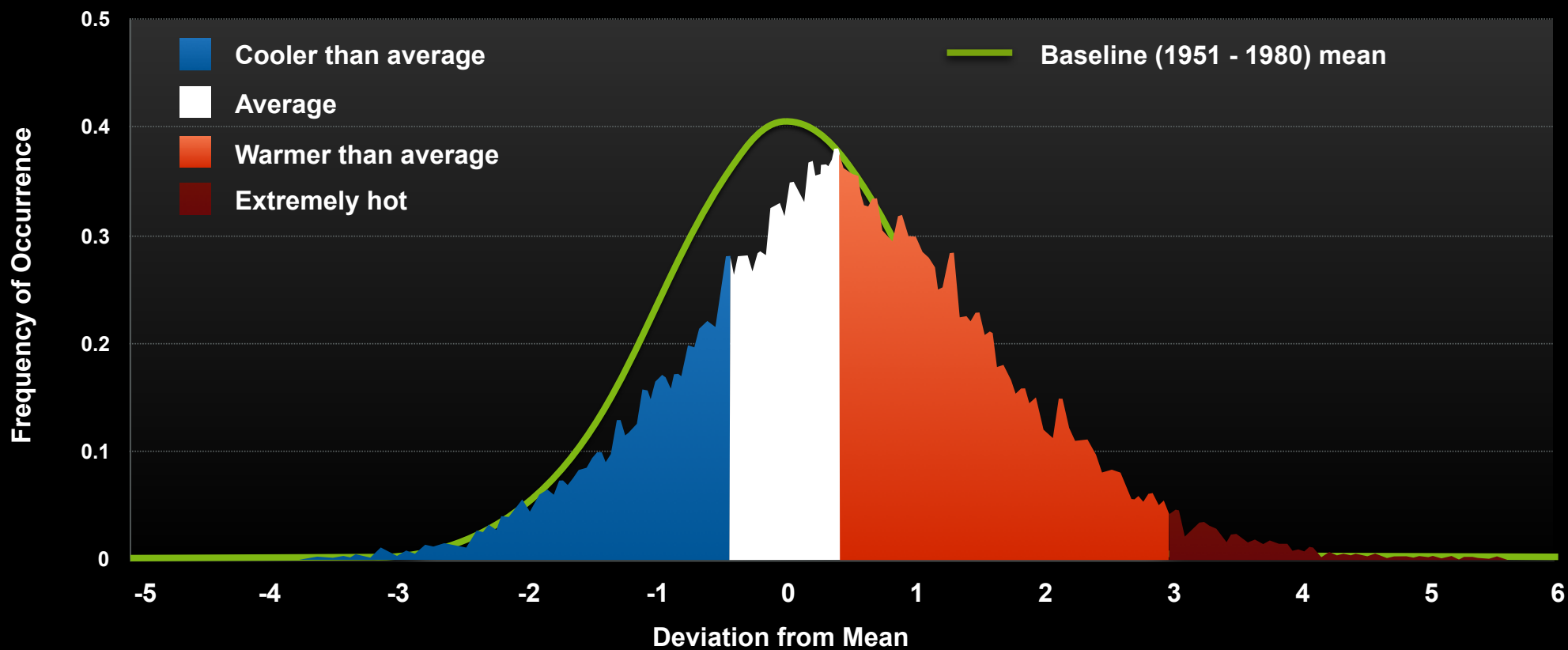
Summer Temperatures Have Shifted

1951 – 1980



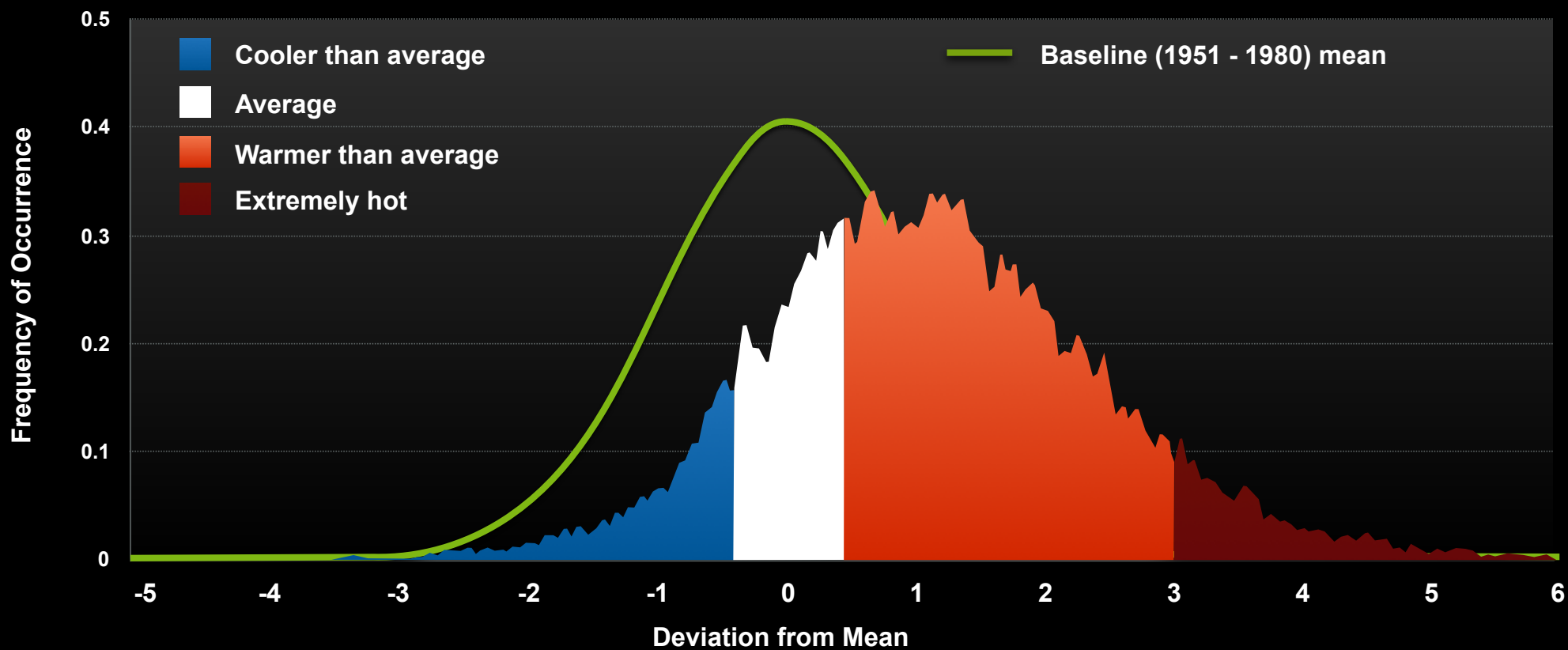
Source: NASA/GISS; Hansen, et al., "Perceptions of Climate Change," Proc. Natl. Acad. Sci. USA 10.1073, August 2012 - Updated 2016

1983 – 1993



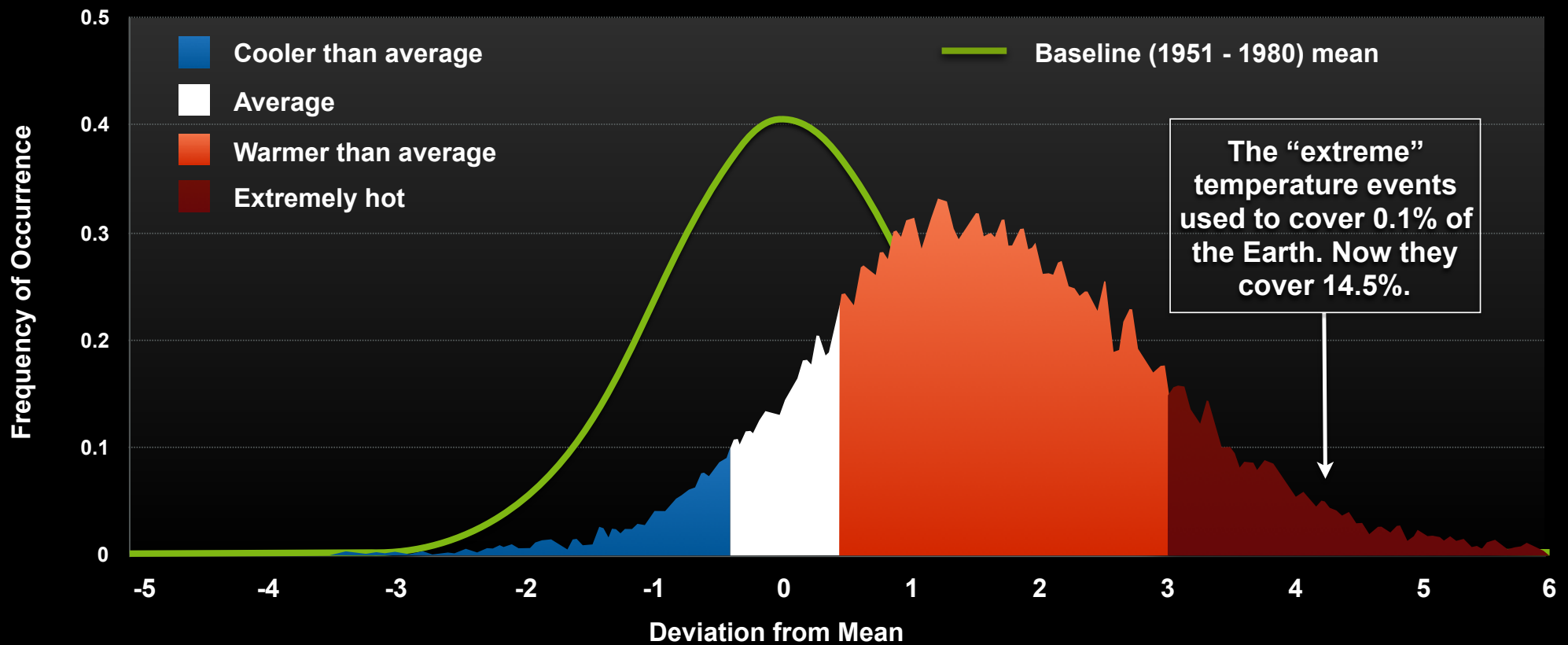
Source: NASA/GISS; Hansen, et al., "Perceptions of Climate Change," Proc. Natl. Acad. Sci. USA 10.1073, August 2012 - Updated 2016

1994 – 2004



Source: NASA/GISS; Hansen, et al., "Perceptions of Climate Change," Proc. Natl. Acad. Sci. USA 10.1073, August 2012 - Updated 2016

2005 – 2015



Source: NASA/GISS; Hansen, et al., “Perceptions of Climate Change,” Proc. Natl. Acad. Sci. USA 10.1073, August 2012 - Updated 2016

15 of the 16 Hottest Years on Record Have Occurred Since the Year 2001

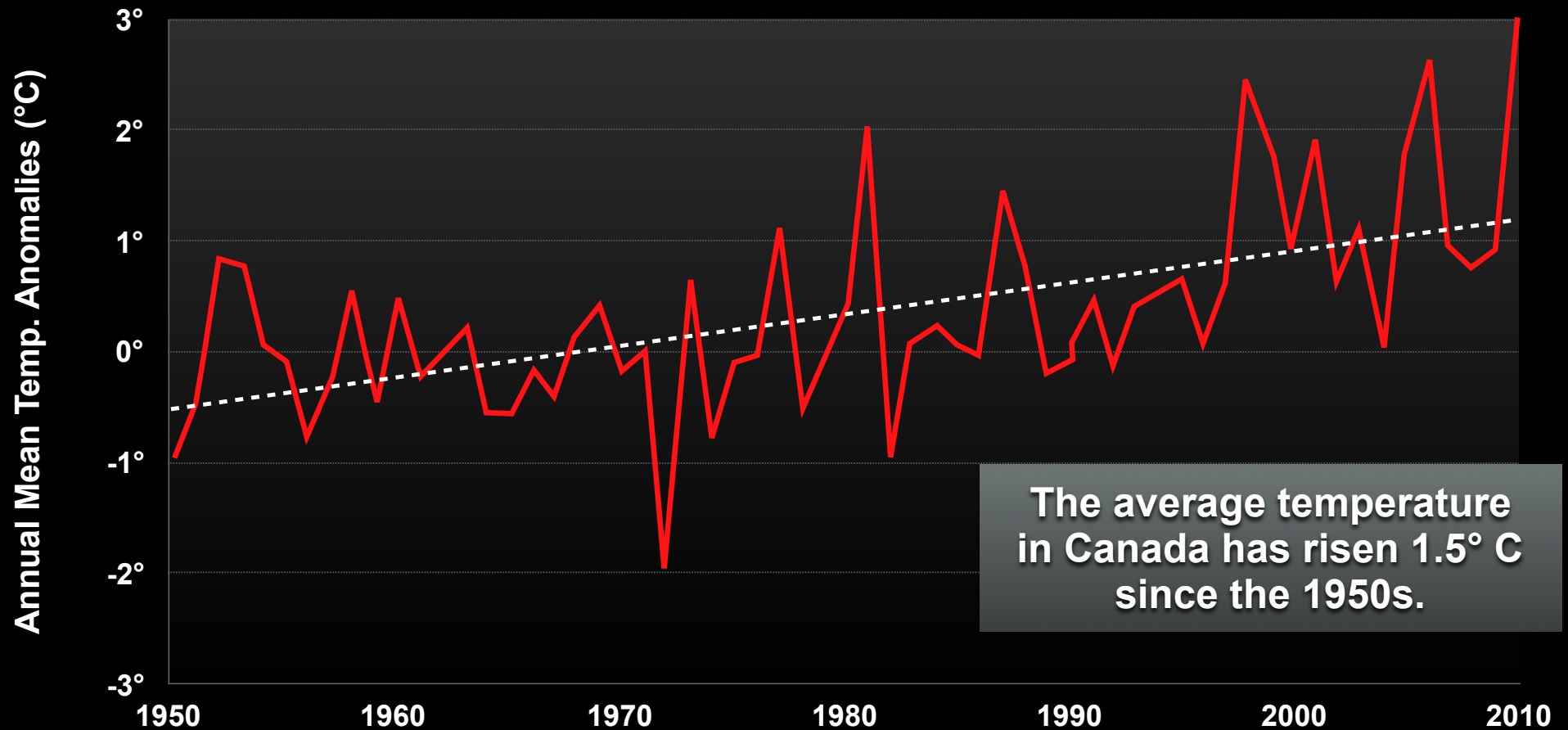




The Hottest Years Ever Measured...

**2015 &
2016**

Annual Temperatures in Canada



Data: Vincent, et al., "A second generation of homogenized Canadian monthly surface air temperature for climate trend analysis," Figure 9, *J. Geophys. Res.*, 117, D18110, doi:10.1029/2012JD017859, 2012.
© 2012 American Geophysical Union. Reproduced by permission of American Geophysical Union.



**On May 19, 2016
India set a new all-time
high temperature record of
123.8°F (51°C)**

A Road Melts in the Heat Delhi, India

May 24, 2015

Such extreme heat damaged more than the roads and other infrastructure. 1,100 people, most of them elderly, construction workers, and homeless people, were reported dead in Asia.

**Science and religion usually make uneasy bedfellows.
Pope's encyclical on Climate Change published in June 2015 made headlines.**

**"We are not faced with
two separate crises, one
environmental and the
other social, but rather
one complex crisis
which is both social
and environmental."**

**Pope Francis is the 266th and current Pope
of the Roman Catholic Church, a title he holds
ex officio as Bishop of Rome, and sovereign of Vatican City.**





The **heat index** in
Bandar Mahshahr, Iran reached
165°F (74°C)
on July 31, 2015

Mouding County, Yunnan Province

July 8, 2015

DROUGHTS AROUND THE WORLD:
The 2015 China drought caused
US \$1.8 billion in damage.

A man in a light-colored shirt and blue trousers, wearing a white turban, stands in a vast, dry, cracked field. He is holding a large, light-brown earthen pot (matka) up to his mouth and drinking. The ground is parched and cracked into large, irregular blocks, with small patches of green grass visible. In the background, a flat landscape stretches to a distant horizon under a cloudy sky.

Maharashtra State, India

Dry bed of Manjara dam: May 19, 2016

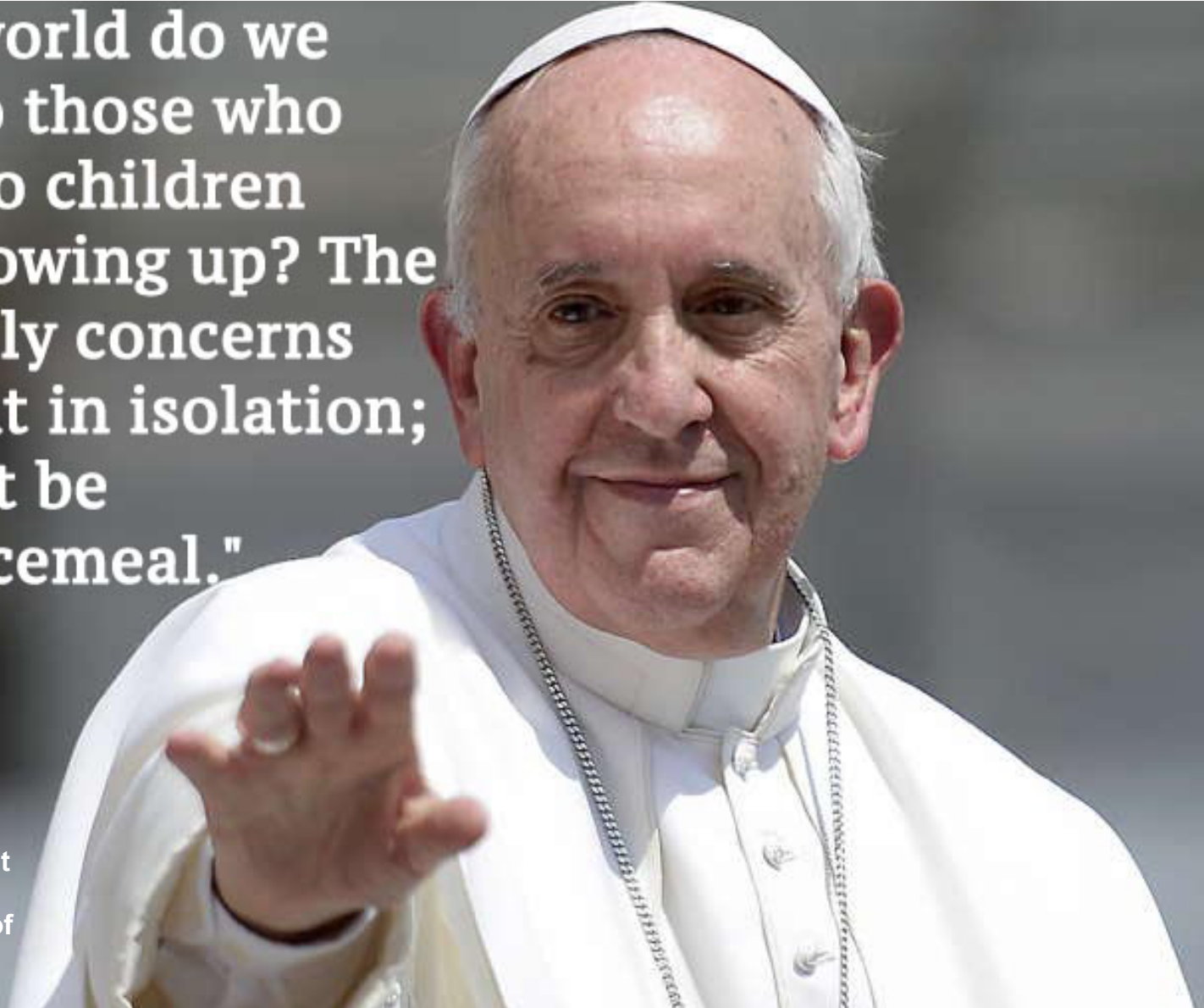
Over 400 farmers in Maharashtra have committed suicide in 2016 alone, due mainly to pressures from the ongoing regional drought.

**The 2006 - 2010 drought
turned 60% of Syria's
fertile land into desert**

**...and drove
1.5 million people
into Syria's
already crowded cities**

"What kind of world do we want to leave to those who come after us, to children who are now growing up? The question not only concerns the environment in isolation; the issue cannot be approached piecemeal."

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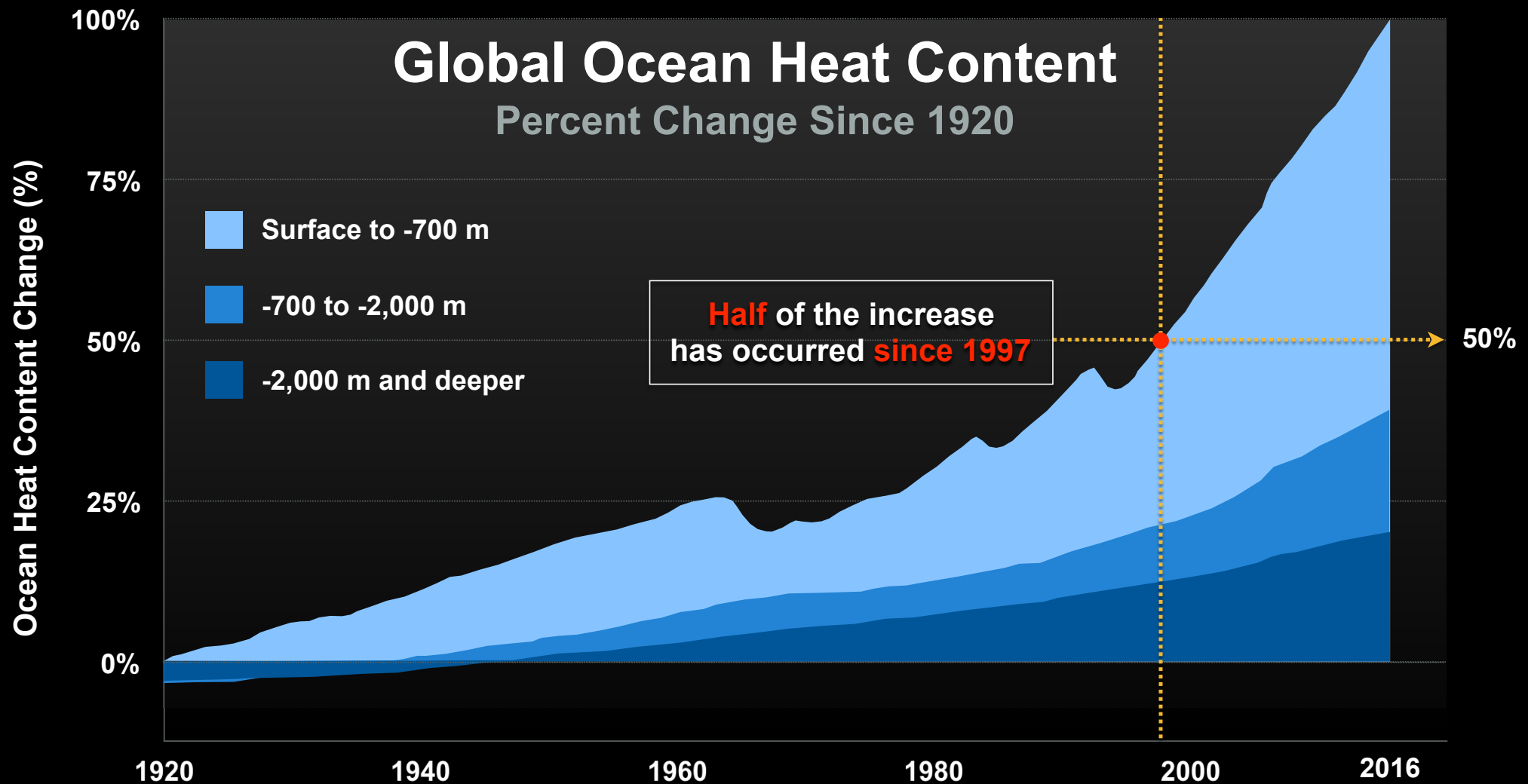


93% of the extra **Heat**
trapped by manmade
global warming pollution
goes into the
Ocean

Report of the Intergovernmental Panel on Climate Change, Cambridge University Press, Chapter 3 - Observations: Ocean (March 31, 2014): 257.
http://www.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-PartB_FINAL.pdf

Global Ocean Heat Content

Percent Change Since 1920



Adapted by permission from Macmillan Publishers Ltd: Nature Climate Change, *Industrial-era global ocean heat uptake doubles in recent decades*, Figure 4, copyright 2016.
<http://www.climatecentral.org/news/ocean-depths-are-trapping-heat-19922>

Toronto, Canada

July 8, 2013



**12.6 cm of rain fell in two hours.
Insured property losses in the
Toronto area reached \$850 million.**

Rishikesh, Uttarakhand State, India in June, 2013

Many villages got washed away in Northern India and Nepal.

Lord Shiva statue submerged in heavy floodwaters of the River Ganges in Rishikesh, but not damaged



www.wunderground.com/blog/JeffMasters/indias-june-2013-flood-earths-4th-deadliest-weather-disaster-since-

© 2013 AP Photo

FOREST FIRES

Fort McMurray, Alberta

May 3, 2016

Wildfire forced a mass evacuation of some 88,000 people from Fort McMurray, Alberta, Canada. Forest Fires have increased in the last 10 years in many parts of the world.



Hebei Province, China



Air pollution has been shown to affect mental health and cognitive ability, particularly in children.

The Guardian, June 13, 2016. <https://www.theguardian.com/environment/2016/jun/13/air-pollution-linked-to-increased-mental-illness-in-children>

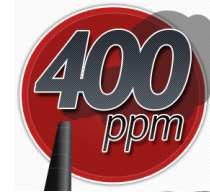
Source: A. Oudin, et al., *BMJ Open*, September 2015

Photo: © 2015 Cheng XueHu - Imaginechina via AP Images

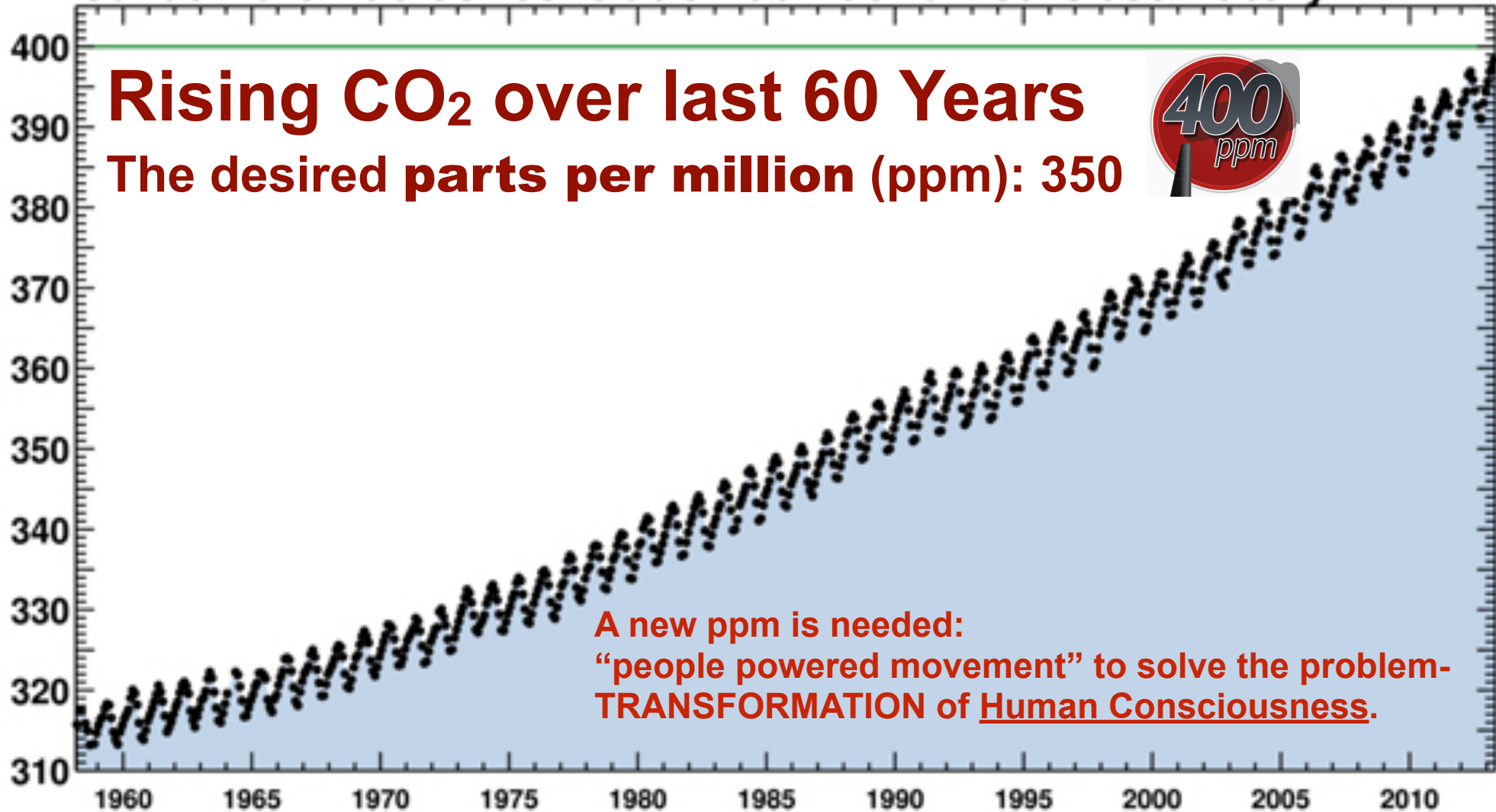
Carbon dioxide concentration at Mauna Loa Observatory

Rising CO₂ over last 60 Years

The desired parts per million (ppm): 350



CO₂ Concentration (ppm)



A new ppm is needed:

**“people powered movement” to solve the problem-
TRANSFORMATION of Human Consciousness.**



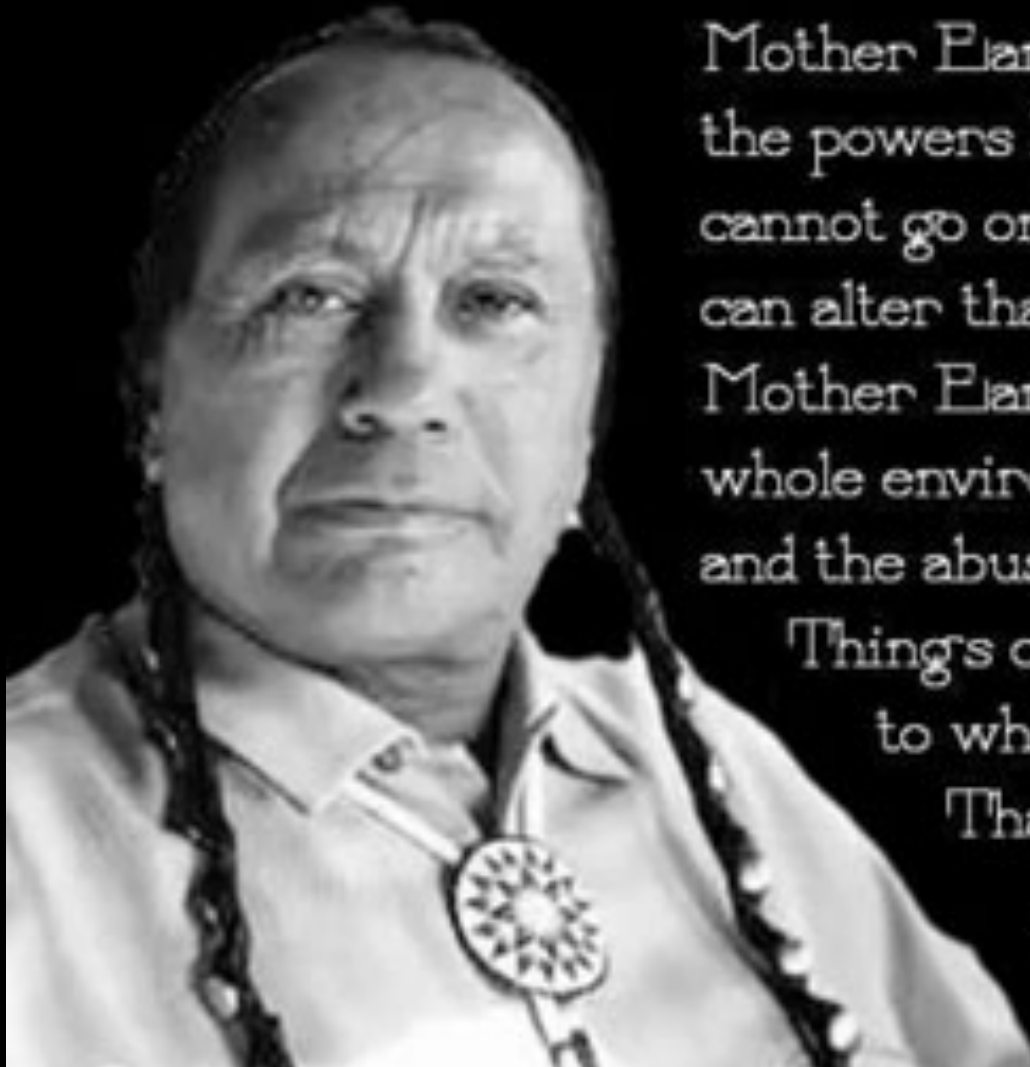
Help Me..Help Me..Help Me Please.....

**PROTECT Mother Earth
HOW?
Honour Our Planet Everyday
(HOPE 2)**

Courtesy: Malaysia HOPE Program

**LOVE, CHERISH OUR PLANET
AND NEVER BRING
TEARS TO MOTHER EARTH?**

TRANSFORM ACTIONS INTO HABITS



Mother Earth has been abused,
the powers have been abused, this
cannot go on forever. No theory
can alter that simple fact.

Mother Earth will retaliate, the
whole environment will retaliate,
and the abusers will be eliminated.

Things come full circle, back
to where they started.

That's revolution.

~ Russell Means
(1939–2012)

Glaciers are melting away worldwide



**Agassiz Glacier,
Montana, in
1913...**

...and in 2005



**Pasterze Glacier,
Austria, in
1875...**

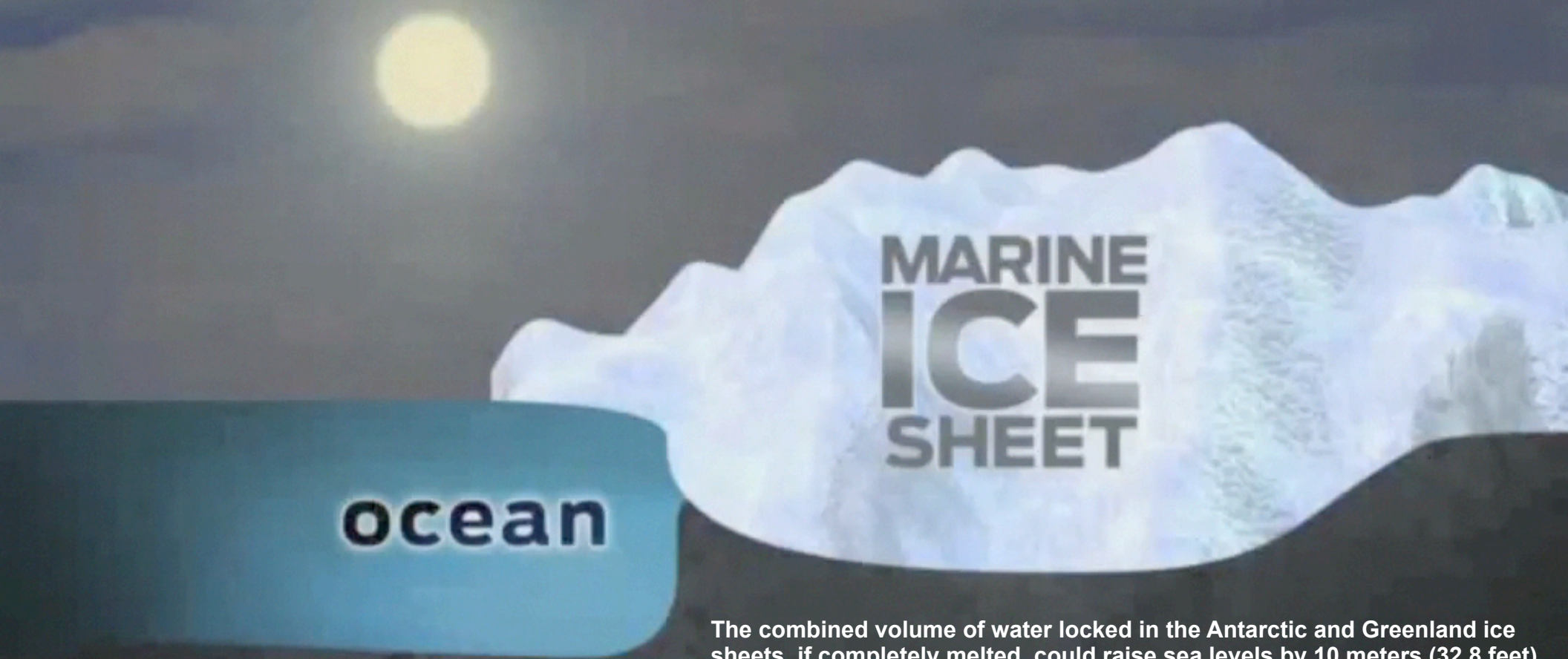
...and in 2004



Pasterze Glacier (site), Austria © 2004 Gary Braasch

The impact of melting ice on sea level rise:

It is warmed by the rising temperature of ocean and the sun rays



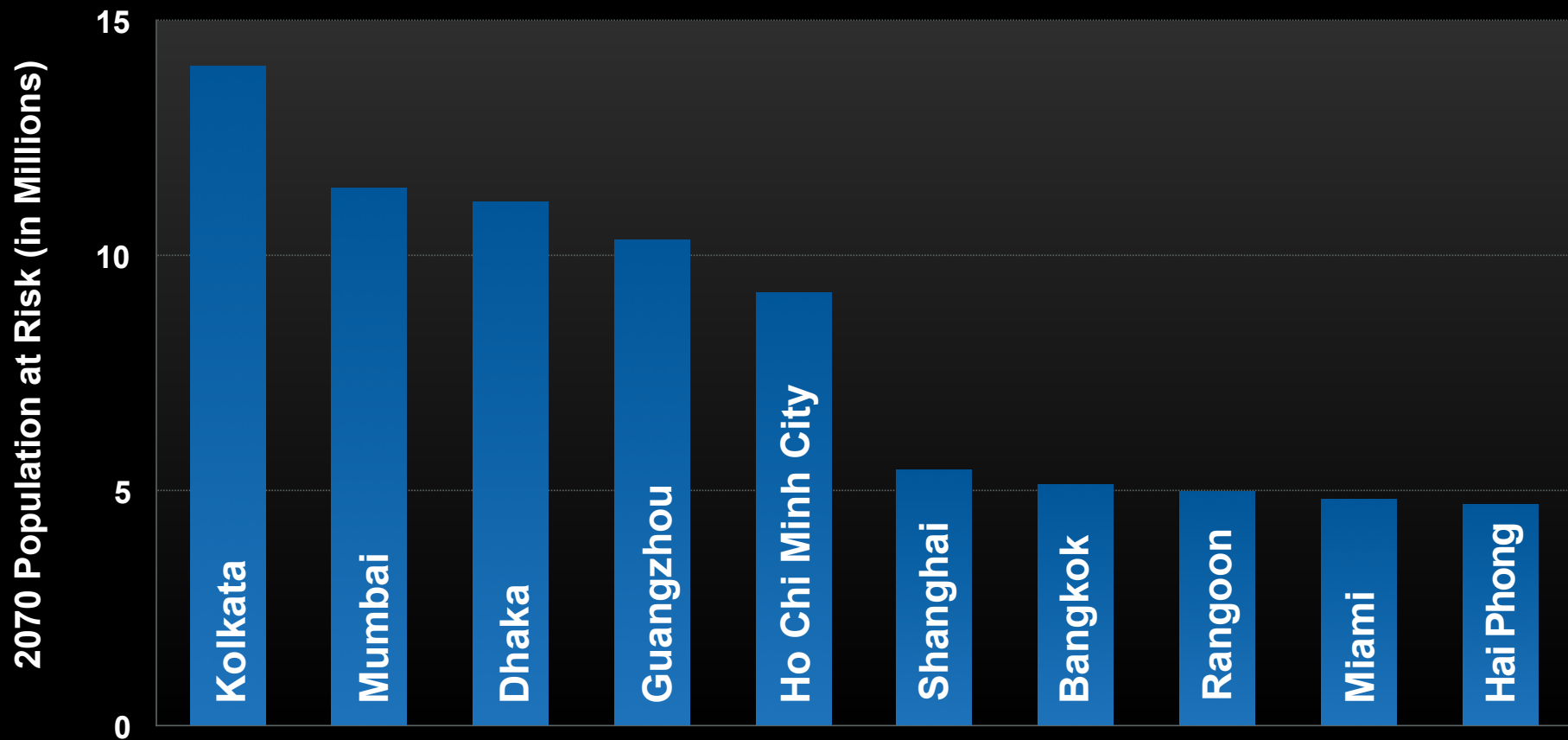
The combined volume of water locked in the Antarctic and Greenland ice sheets, if completely melted, could raise sea levels by 10 meters (32.8 feet)

Source: NBC Learn and the National Science Foundation (NSF)

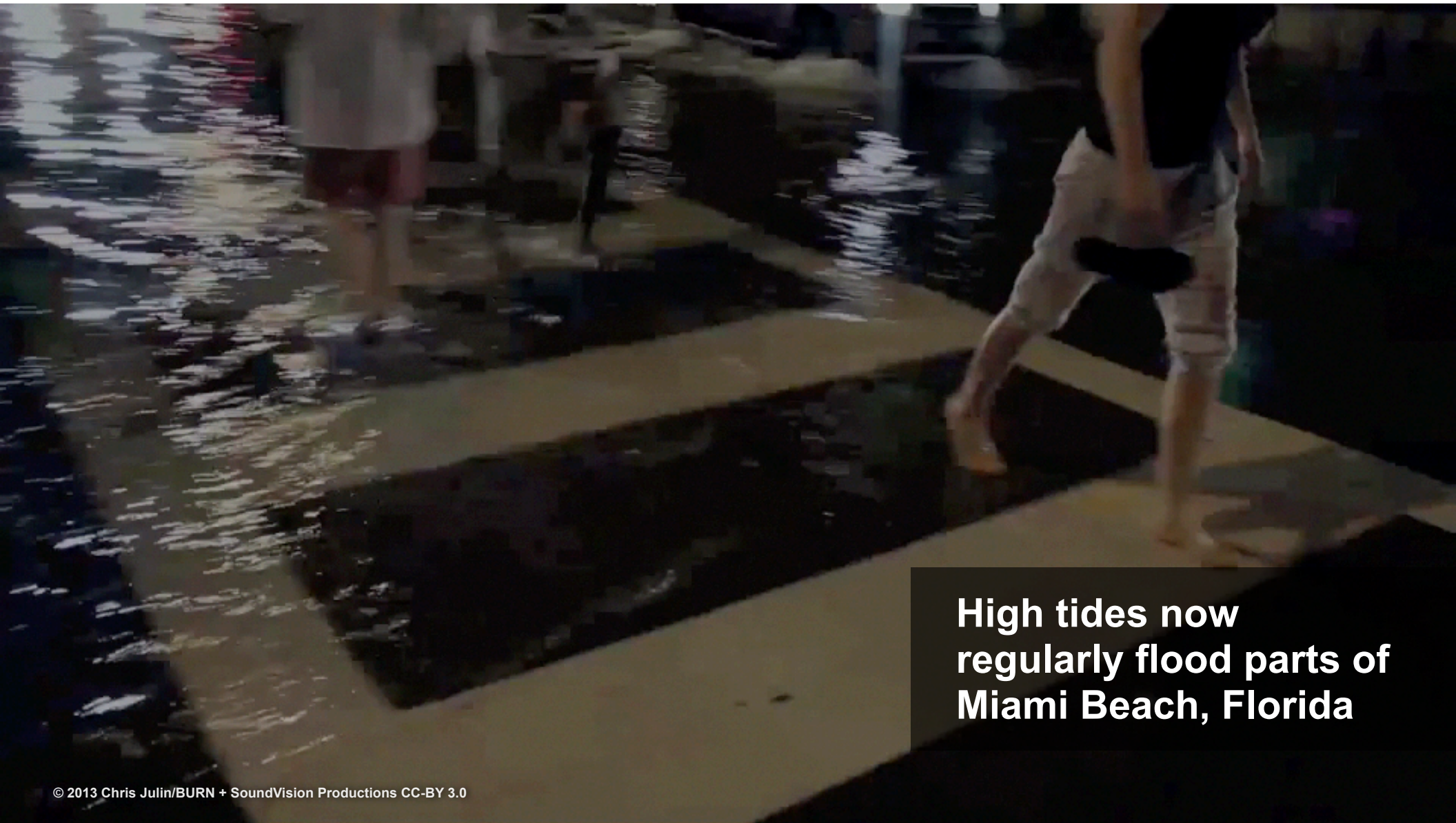
http://www.giss.nasa.gov/research/briefs/gornitz_10/

Top 10 Cities at Risk from Sea Level Rise in 2070

By Population at Risk



Data: Nichols, et al., 2007, OECD



**High tides now
regularly flood parts of
Miami Beach, Florida**

New York City and the waterways that surround it

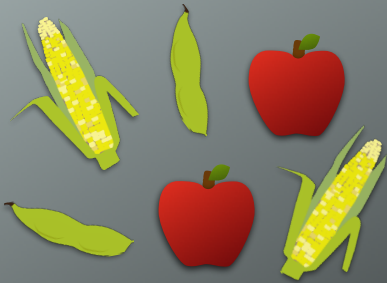
**\$129 Billion Worth Of New York City
Real Estate Now Lies In Flood Zones**

© Leonardo Patrizi/Getty Images

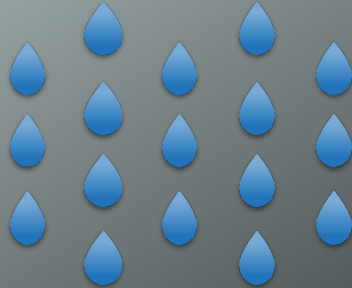
Source: Business Insider, 2014

Global Systems Vulnerable to Climate

Disruptions May Lead to Political or Societal Instability



Food Supply



Water



Global Health



Infrastructure

The Cost of Carbon

- \$ *Political Instability***
- \$ *Floods & Mudslides***
- \$ *Wildfires***
- \$ *Drought***
- \$ *Storm Damage***
- \$ *Ocean Acidification***
- \$ *Infrastructure Loss***
- \$ *Climate Refugees***



- \$ *Species Extinction***
- \$ *Melting Glaciers***
- \$ *Famine***
- \$ *Water Scarcity***
- \$ *Ecosystem Loss***
- \$ *Our Way of Life***
- \$ *Infectious Diseases***
- \$ *Sea Level Rise***

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- \$ *Infectious Diseases*
- \$ *Sea Level Rise*

\$ *“The #1 Threat to the
Global Economy”*

Put a Price on Carbon

In the Markets

Put a Price on Denial **In Politics**

Put a Price on Carbon
In the Markets



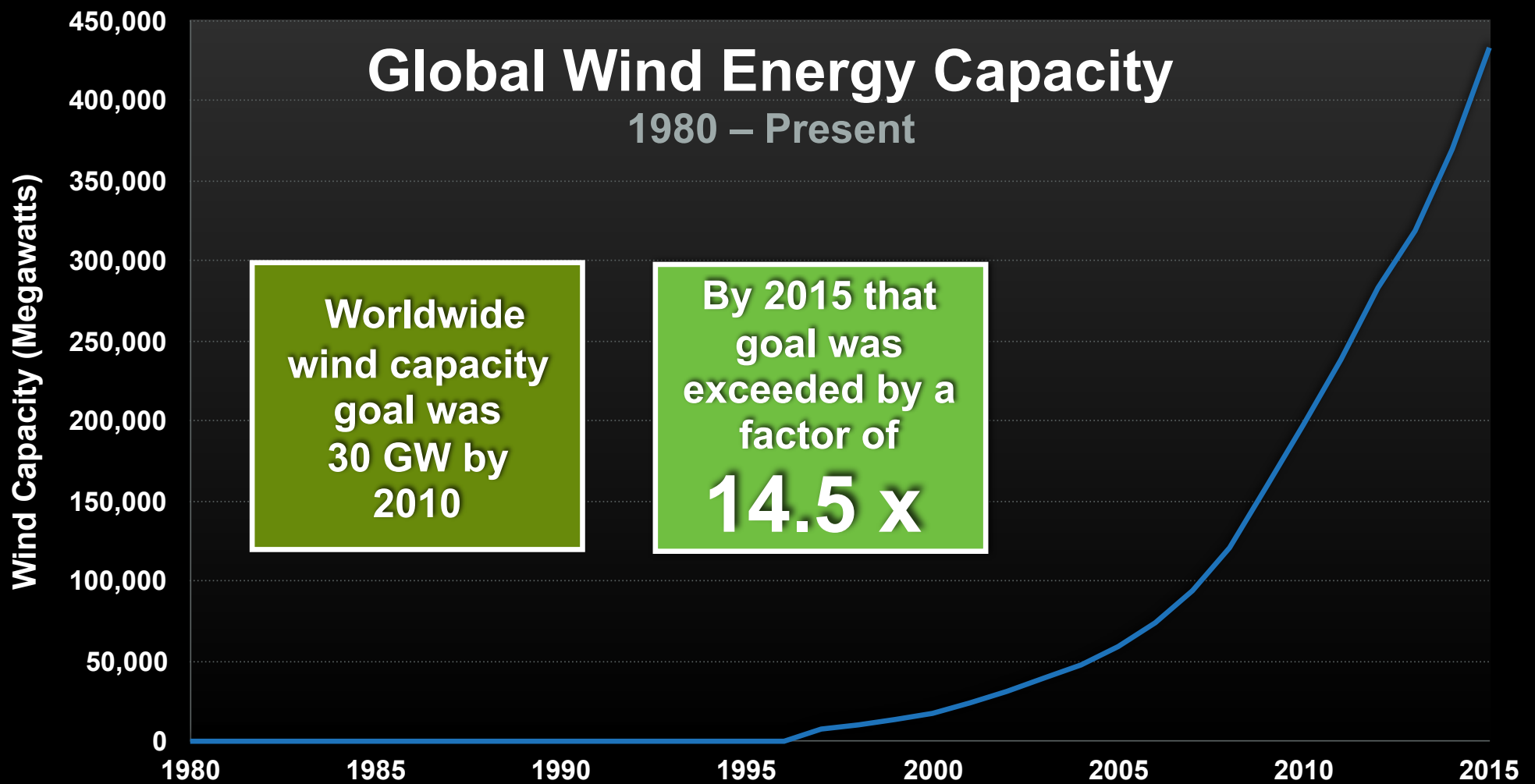
From Ideas to Actions:

**We have
the solutions
at hand...**

WIND POWER

Pincher Creek, Alberta

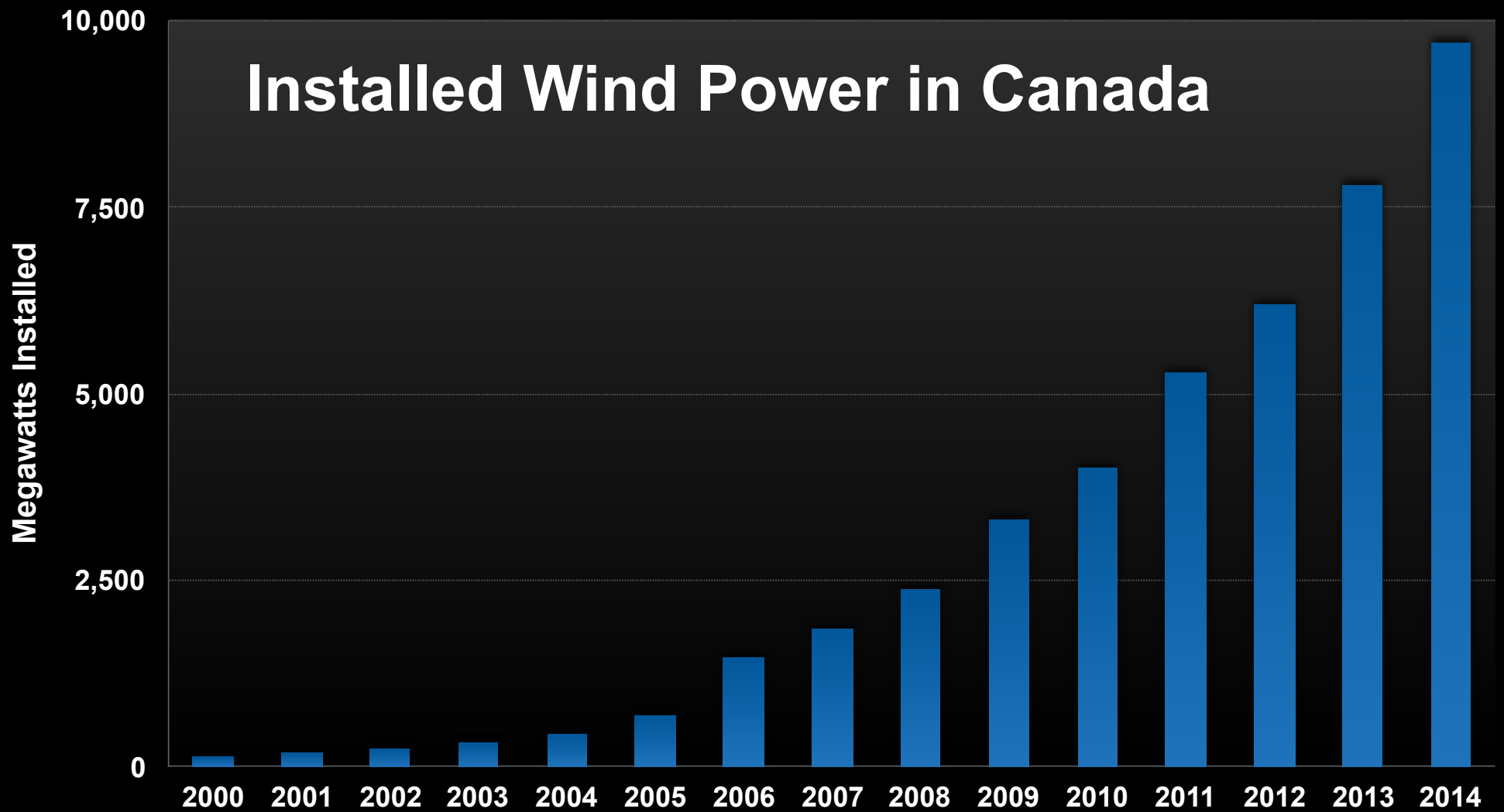
© 2010 AP Photo/The Canadian Press, Larry MacDougal



Data: Earth Policy Institute

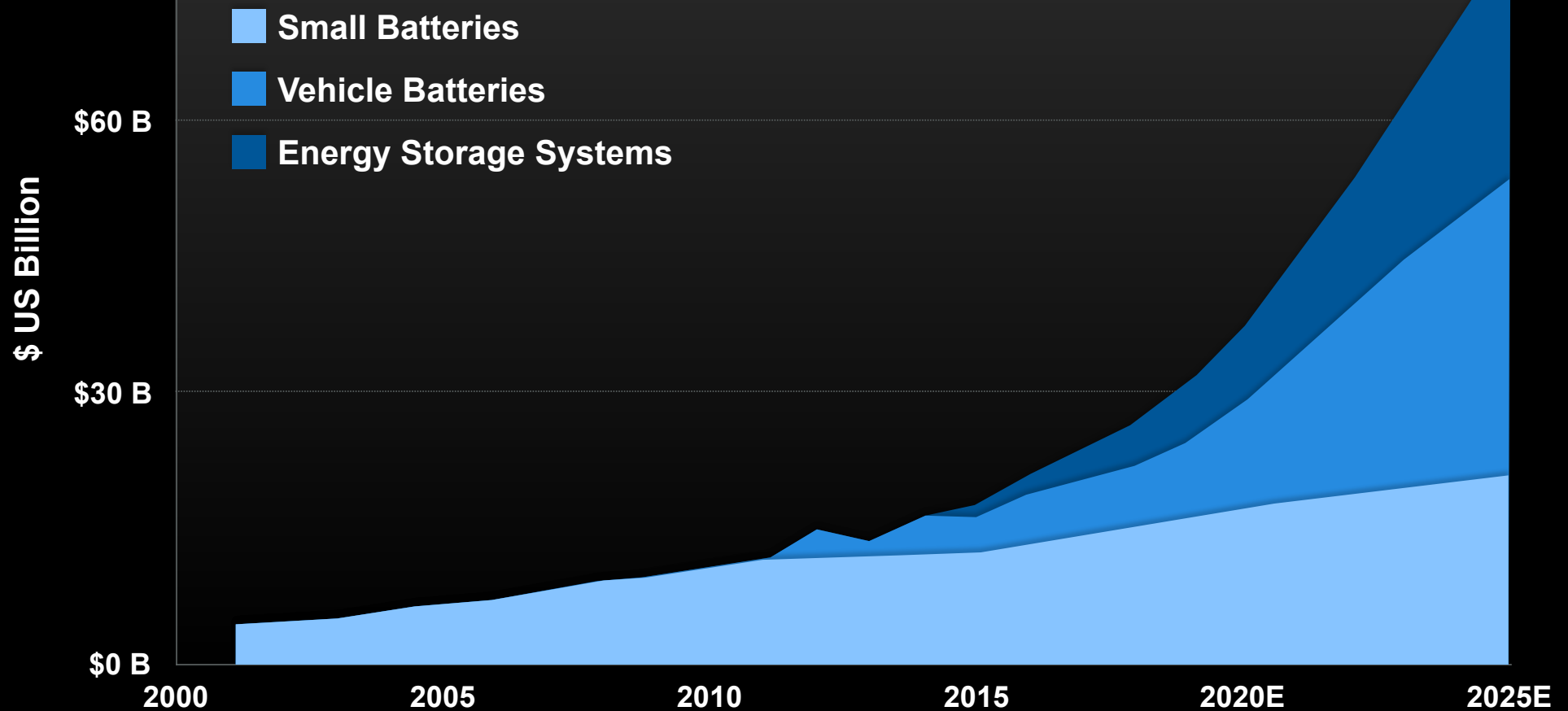
Graph showing the growth of global wind power capacity in megawatts

Installed Wind Power in Canada



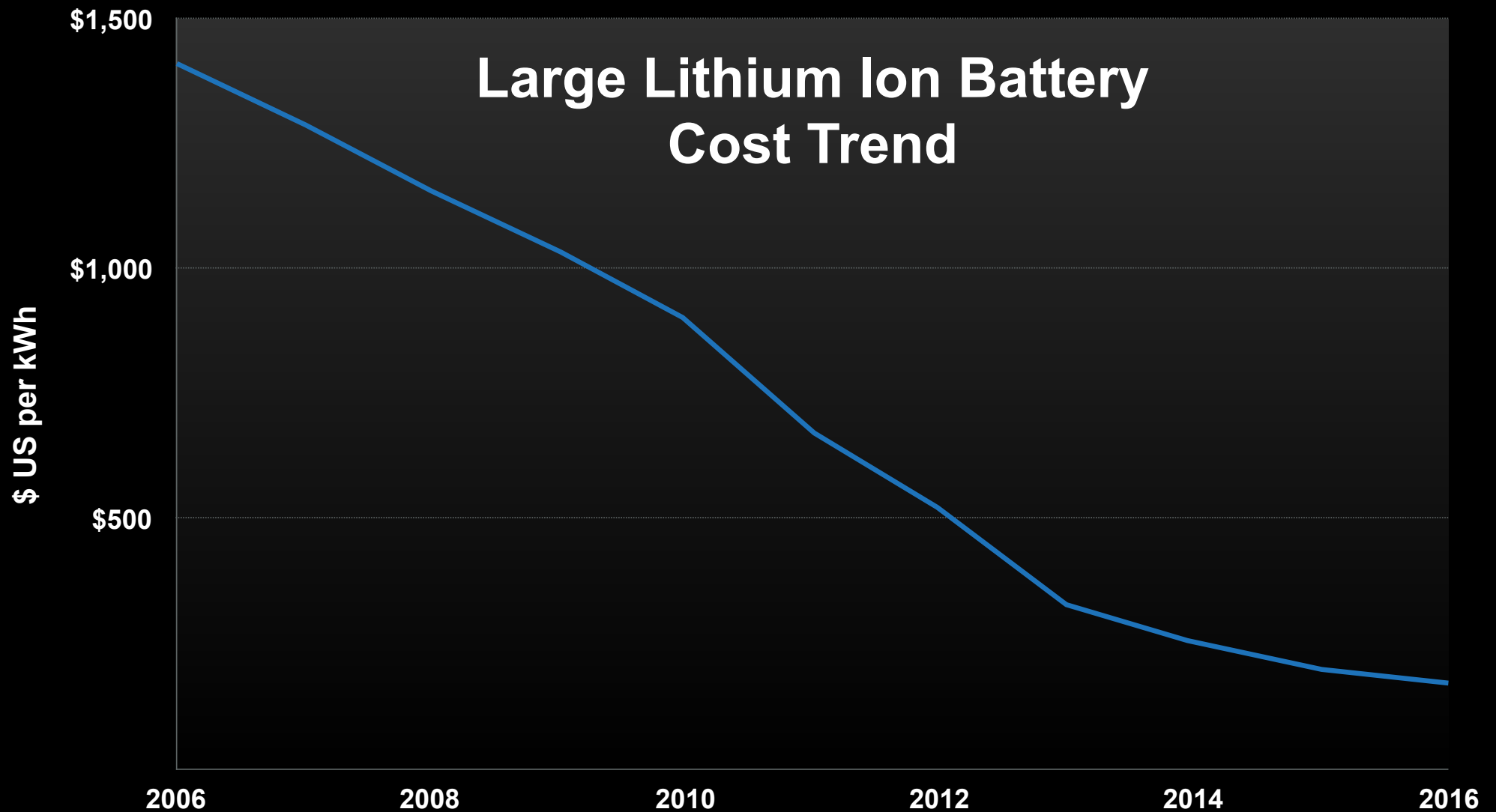
Source: CanWEA

Global Lithium Ion Battery Market



Source: Navigant and Bernstein estimates and analysis

Large Lithium Ion Battery Cost Trend



Data: 2014 Citigroup Sanford C. Bernstein & Co., The Battery Bible: Powering the Future (February 2016)



SOLAR INDUSTRY

London, Ontario

Solar industry jobs now outnumber coal mining jobs



On May 8, 2016, Germany generated **87%** of its electricity from renewable sources.

Globally, 8.1 million people work in the renewable energy sector

Home Solar Panels

Bangladesh

Photo of a small solar panel on the roof of a home in Koira, in Khulna, Bangladesh

Bangladesh is now installing solar PV systems at the rate of two per minute, 24 hours a day

<http://www.irena.org/publications/rejobs-annual-review-2014.pdf>

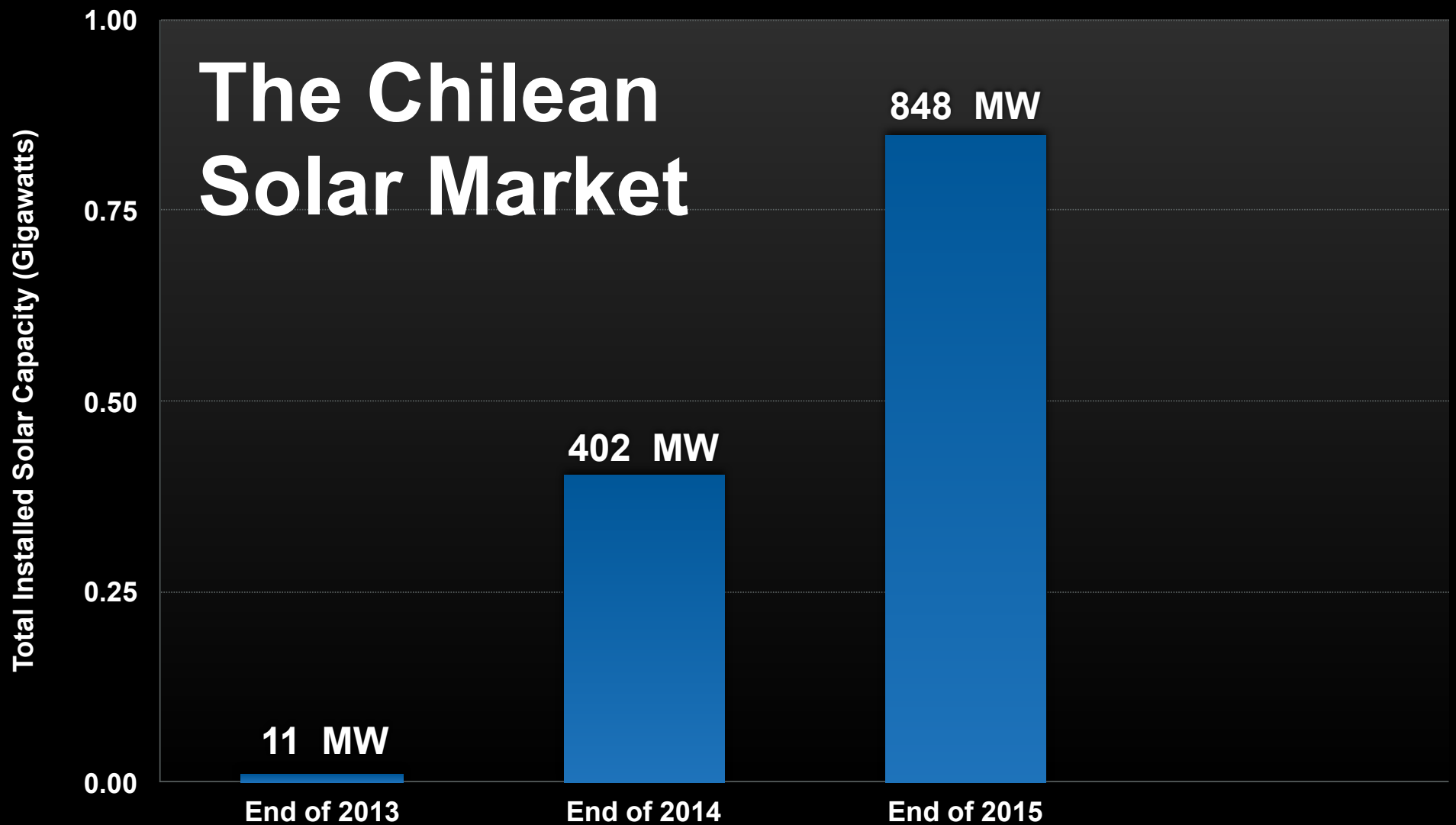
© 2009 Majority World/UIG via Getty Images

Copiapó, Chile

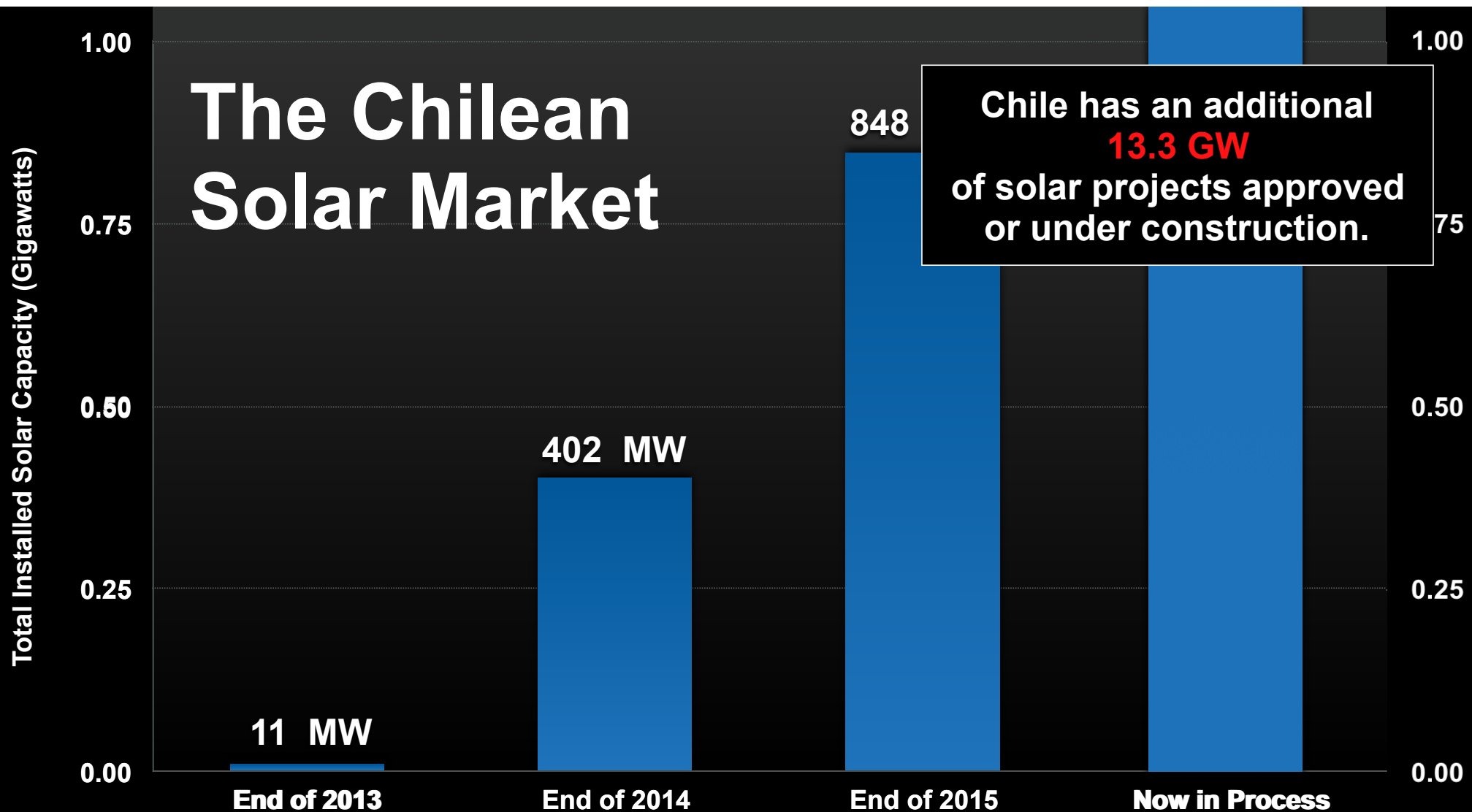
June 2014

**This 100 MW solar farm
is one of the largest in
Latin America**

The Chilean Solar Market



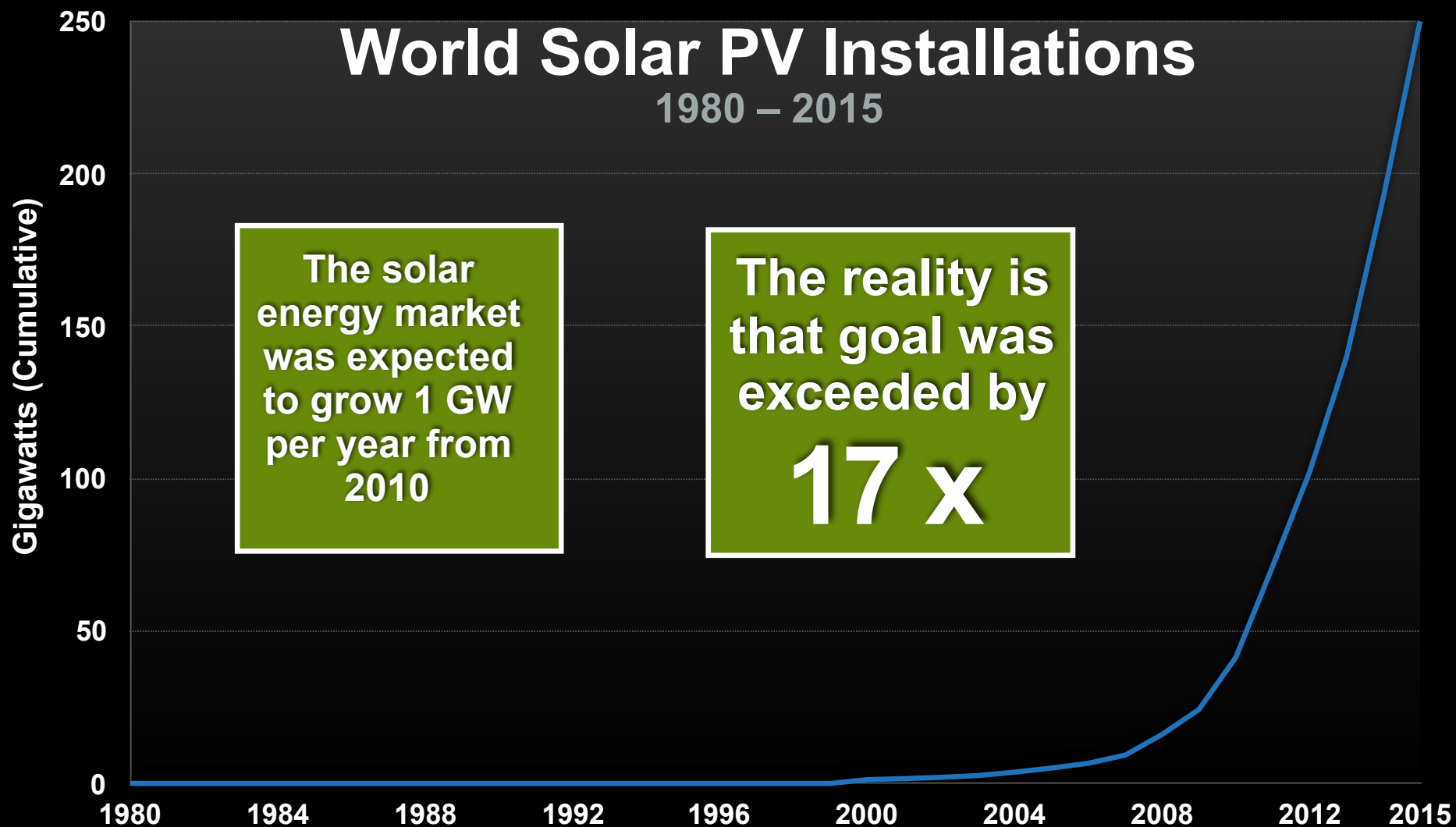
Data: Greentech Media, *Latin America PV Playbook*; CleanTechnica



Data: Greentech Media, *Latin America PV Playbook*; CleanTechnica

World Solar PV Installations

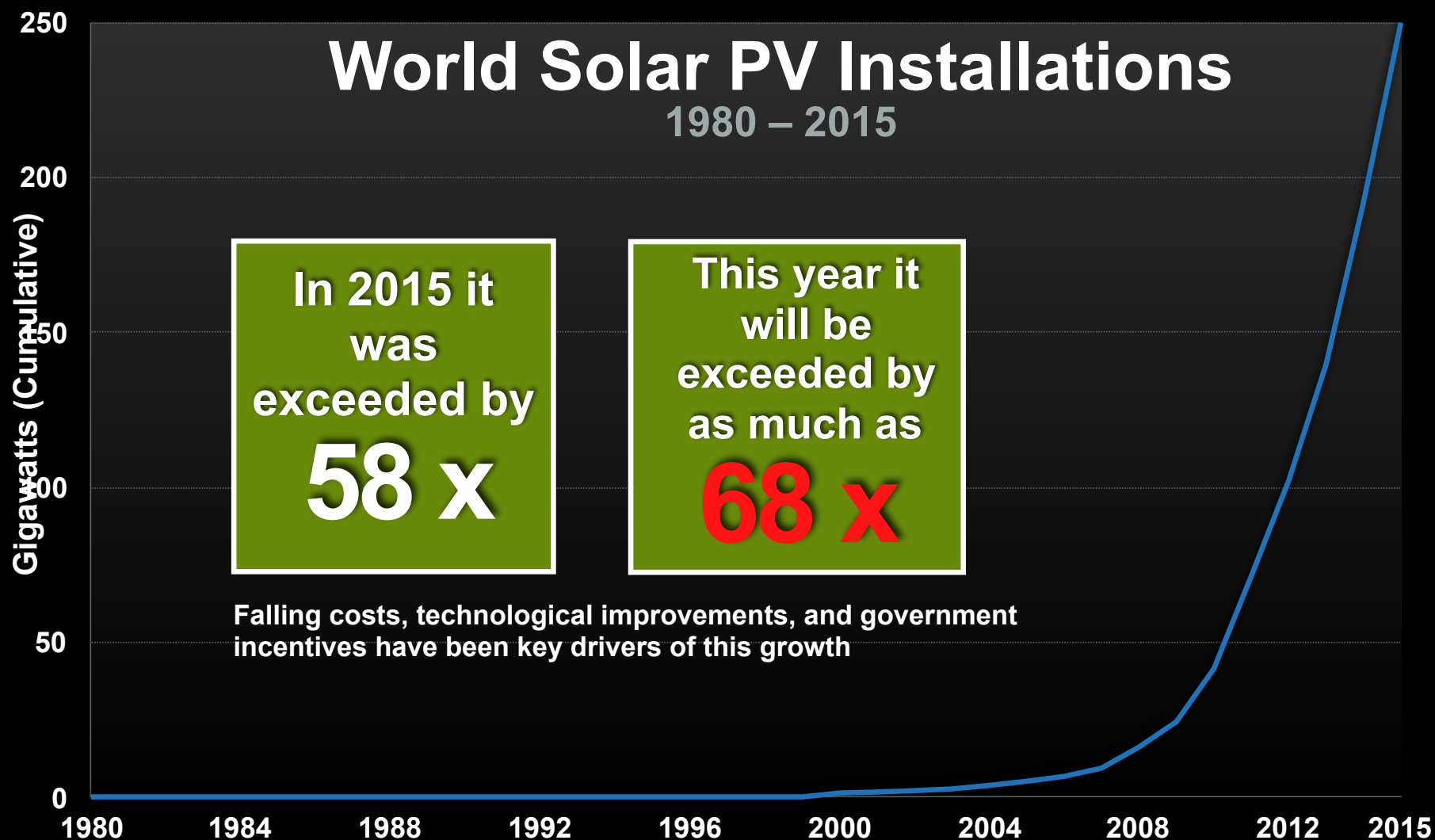
1980 – 2015



Data: Earth Policy Institute/BP, *Statistical Review of World Energy* June 2014 (London: 2014).

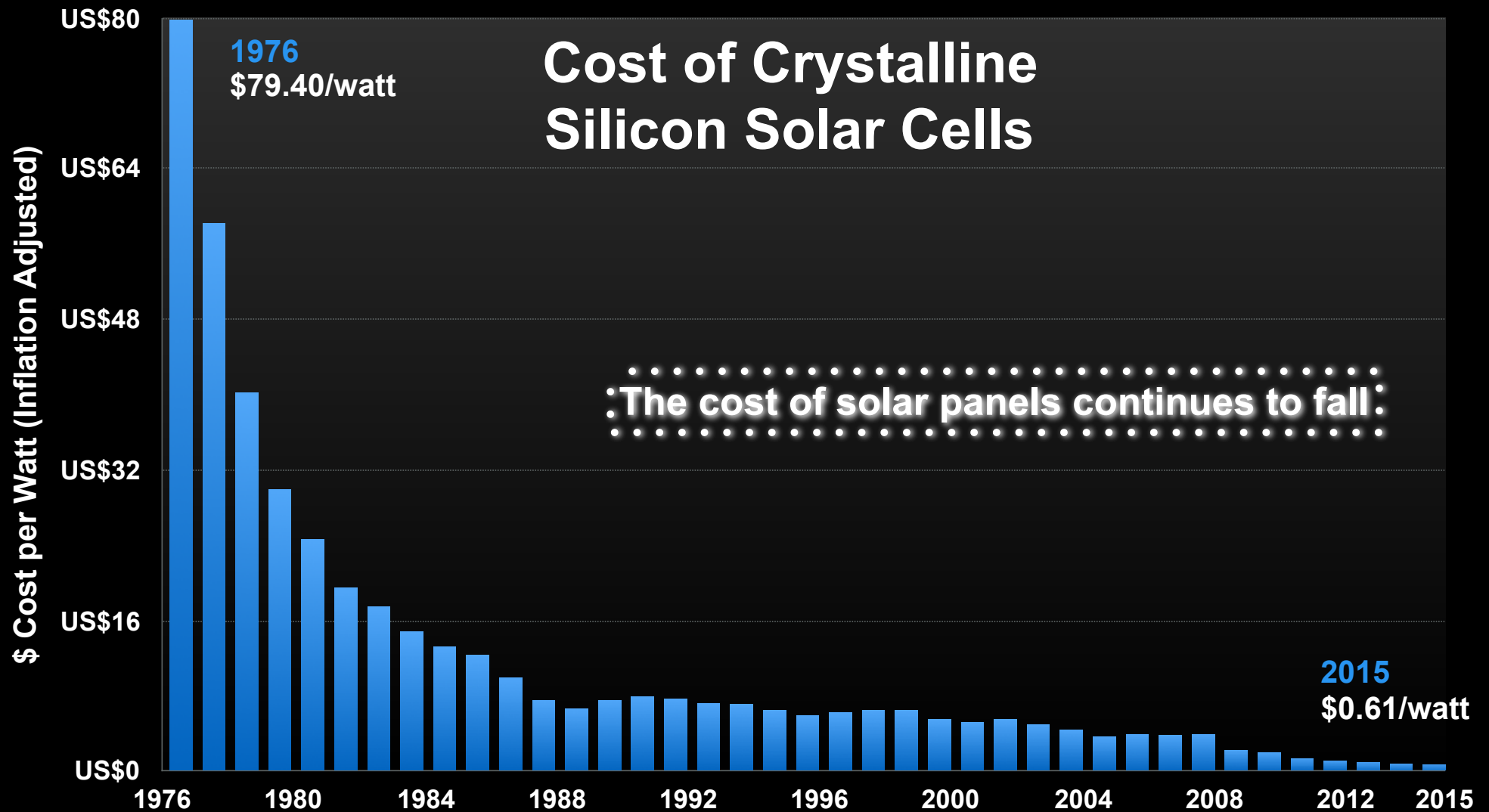
World Solar PV Installations

1980 – 2015



Data: Earth Policy Institute/BP, *Statistical Review of World Energy* June 2014 (London: 2014).

Cost of Crystalline Silicon Solar Cells



Data: Bloomberg New Energy Finance

QUESTION:

**What percentage
of new electricity generation
was generated globally by
renewables in 2015?**

International Energy Agency

March 16, 2016

QUESTION:

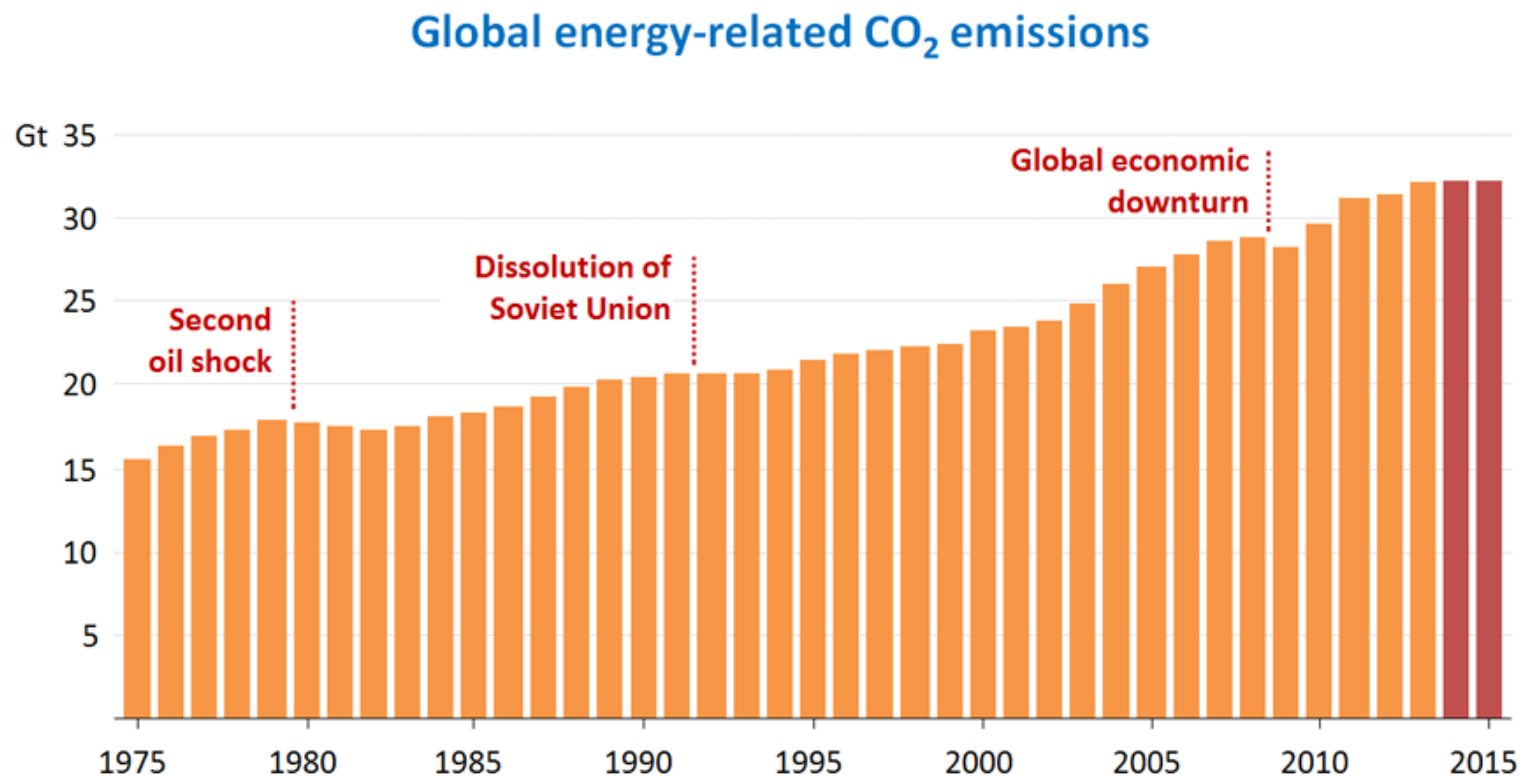
**What percentage
of new electricity generation
was generated globally by
renewables in 2015?**

90%

International Energy Agency

March 16, 2016

Carbon Emissions stayed flat in 2014 and 2015



IEA analysis for 2015 shows renewables surged, led by wind, and improvements in energy efficiency were key to keeping emissions flat for a second year in a row

Plant The Trees
More And More
Around Environment
Will Become
Safe & Sound
This Is Depicting Picture
Of Baba Where In
He Sowed The Seeds
Of Importance Of
Tree Plantation



Mississauga Mayor Bonnie Crombie and her City Councillors join in Planting Trees.



G7 leaders in Tree Planting Diplomacy!

Grow Tress:

Relationship of man, nature, and God

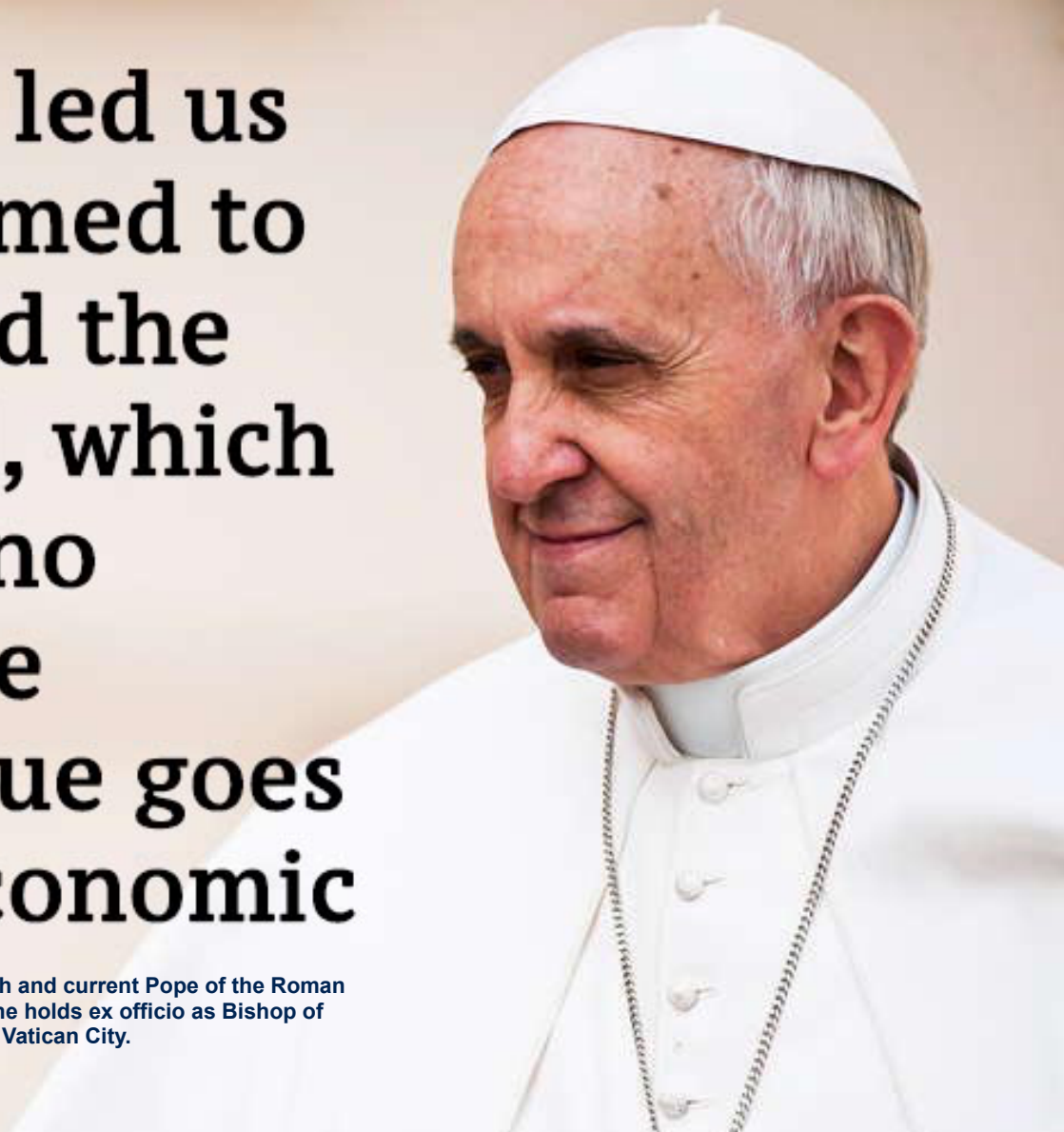
Sathya Sai Baba, *Sanathana Sarathi* 36, February 1993, p. 45.



“Because of the advance of technology, several factories have sprung up, causing emission of harmful gases in the atmosphere. Normally, plants and trees absorb and assimilate the carbon dioxide and supply oxygen by the natural process of photosynthesis. But because there is deforestation to an alarming extent, the amount of carbon dioxide in the atmosphere has considerably increased. The remedy for this situation is intensive forestation, growing more trees everywhere, and protecting the existing trees without destroying them for other purposes. The relationship of man, nature, and God is very intimate, which scientists may not be able to realize” ~ Sathya Sai

"Consumerism has led us to become accustomed to the superfluous and the daily waste of food, which we are sometimes no longer able to value correctly, as its value goes far beyond mere economic parameters."

Pope Francis is the 266th and current Pope of the Roman Catholic Church, a title he holds ex officio as Bishop of Rome, and sovereign of Vatican City.





**Do not waste:
Energy, Money
Food & Time**

- Sathya Sai Baba

The Quran, 7:31, states:

“Eat and drink but waste not by excess, for Allah loves not the wasters.”

A photograph of Barack Obama and Xi Jinping shaking hands. They are both wearing dark suits. Behind them are the flags of the United States and China. The image is used as a background for a text overlay.

In November 2014, the U.S. and China agreed to emissions caps and reductions, and to work together to help forge an international climate agreement in 2015.



© 2016 Fred Chartrand/The Canadian Press via AP

On June 29, 2016 the U.S., Mexico and Canada pledged that North America will get half its electricity from zero-emissions sources by 2025.



**In the 2015 Paris Agreement,
virtually every nation in the world
agreed to work together to achieve
net zero greenhouse gas emissions.**

**Trump told New York Times on Nov 22 that he
will look at the Paris Agreement with open mind.**

Seine River in Paris



**Is there any other form of
cleaner energy?**

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cleaner energy?**

ENERGY CONSERVATION

Is there any other form of
cleaner energy?

ENERGY CONSERVATION

4R's

Reduce, Re-use, Re-cycle

4th R = Refuse

Change Habits



Stop Waste!

Is there any other form of
cleaner energy?

ENERGY CONSERVATION

“Ceiling on Desires”

4R's



Stop Waste

Fascination for the world of matter



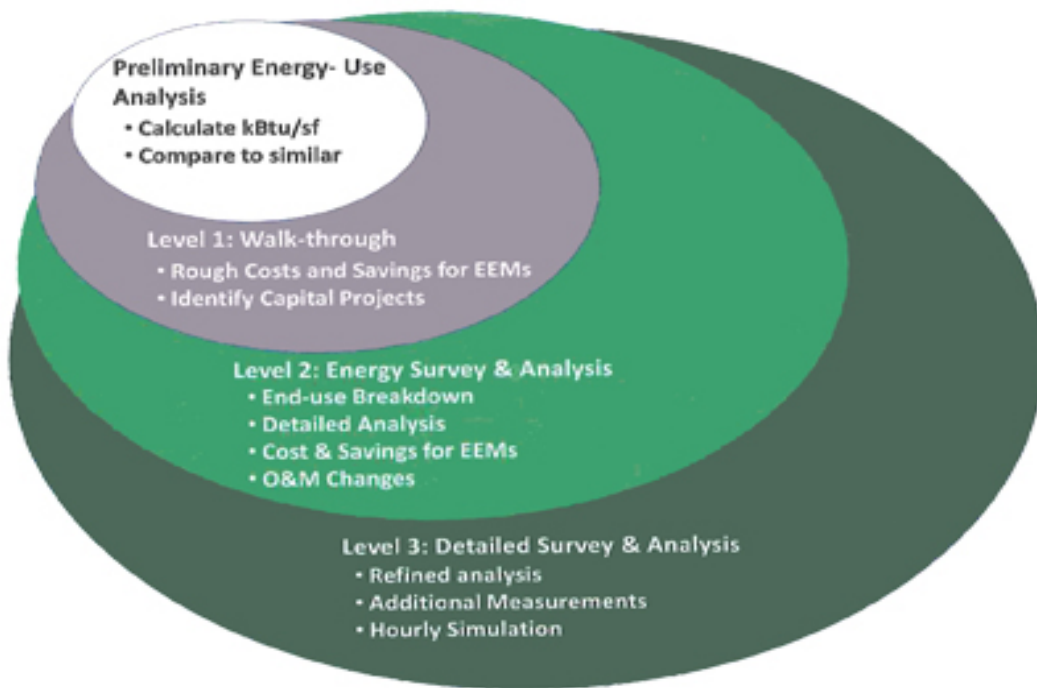
In all of His communications Sathya Sai Baba invites us to reduce our fascination for the world of matter and to get rid of the illusion that only what can be perceived by the senses is real and valuable. He asks us to develop awareness of, and reliance upon, the Atma (Soul) our invisible, Indwelling Divinity.

This comes by practicing “Ceiling on Desires”

How to Conserve Energy?

Learn to do an ENERGY AUDIT

(Also conduct a Self Audit)



Work on innovative ideas to Conserve Energy at:

- At Home
- On the Road
- At the Work Place

Start with an energy audit to list areas where we can conserve.





Low Hanging Saving Opportunities!

Energy Efficient Lighting:

CFL



PAR
20/30/38



Metal
Halide



T8 or T5 Fixtures

INDUCTION



30W to 2.5 W



T12- Magnetic Ballast
T8- Electronic Ballast



LED



LED Bulbs



PAR20/30/38



A-19



PAR16



GU10 120V



MR16 12V



LED DOWN LIGHT 4" & 6"

Energy Efficient LED Lighting Solutions



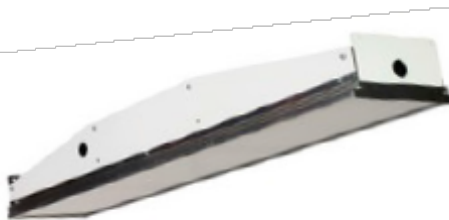
LED Shoe Box (Parking)



LED Cobra Head



LED Wall Pack



LED High Bay Fixtures, Parking Garage & Stairways



LED Vapour proof for Cold Rooms

Motion Sensor can save additional \$\$ and they can dim too.

Energy Retrofits at Commercial & Industrial Sites

Typical Measures to Conserve Energy:

- 1. High Efficiency LED Lighting and Auto Control Devices***
- 2. Motion Sensors, Photocells, Dimmers and Timers***
- 3. Power Conditioning System at the main electrical panel***
- 4. Treatment of Motors for Reactive Currents & VFDs***
- 5. High-efficiency HVAC Systems***
- 6. Building Automation Systems - Room PLC Controls in Hotels***
- 7. High-efficiency Water Heating & Boilers***
- 8. Treatment of gas to make more complete combustion***
- 9. Building Envelope - leaks***
- 10. Insulation and Windows Upgrades (low emissivity)***

The 3 Dimensions of Energy Plan

From Ideas to Actions:

The Business Process

- three inter-related dimensions need changes
- sustainability requires attention to all three
- business process needed in all three spheres
- Act within a time frame to achieve results



Let's build a "Culture of Conservation"

SUMMARY

ST through HV to PTP

“Spiritual Transformation” through “Human Values” to “Protect the Planet”

Unity:

- Unity of Global action by all Governments of the World on Sustainability
- Unity in action by individuals/families in practicing “**Ceiling on Desires**”
- Unity by Businesses & Community in **Conserving Energy, Money, Food and Time**
- Cooperation in exchanging technologies that help reduce carbon footprint

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Purity:

- **Individual Transformation** (both, mental and physical) to reduce pollution
- Purify Mother Earth by greater awareness and efforts in the community
- Keep our home, roads, parks, lakes and its **environs clean**. Grow more trees

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Divinity:

- **Reduce** our fascination for the world of matter
- Use science and “**Human Values Education**” for the good of community
- Be more Divine Conscious to “**Protect the Planet**” and the future generations.



Be - An Instrument of Change!

Who Me? Yes You...

**Quality of life for our future generations on this planet will be determined by our actions today. You may find yourself saying, "but I'm just one person out of many... what difference can I make?"
The answer is: a big one!**

Each one of us has an effect on the environment every day. The key is to make this impact a positive one. We must all take responsibility for our own actions, whether as individuals, or as members of a community and SSIO. Let's work together and become good Environmental Citizens!

If not You, then Who?



PROTECT THE PLANET

We are one!

It is our Social and Ethical Responsibility!

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Public Outreach Committee
Sathya Sai International Organisation