



Climate Change *one symptom of our Unsustainable Path of Growth*



March, 2011

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mgerbis@delphi.ca



Delphi - Who We Are



- Premier strategic consulting firm founded in 1988
- Completed over 500 projects for more than 200 clients
- Work for 26 of Canada's largest 100 firms (17 of top 50)
- Climate Change and Sustainability services
 - Strategy development & implementation
 - GHG inventory, reporting & compliance management
 - Regulatory/Policy analysis & design
 - Offset project analysis and documentation





Some of Delphi's Recent Clients





Some of Delphi's Recent Clients



sanofi pasteur
The vaccines division of sanofi-aventis Group

ANSI
American National Standards Institute


Crescent Point
ENERGY CORP

Connacher
OIL AND GAS LIMITED

 Pacific
Carbon
Trust


Capital Power
Corporation

TALISMAN
ENERGY

ARC ENERGY TRUST

ENCANA


KEYERA


SUSTAINABLE DEVELOPMENT
TECHNOLOGY CANADA™

RioTinto Alcan

 **Holcim**


ArcelorMittal

 **MEG Energy**



DelphiGroup
Environmental Strategies. Business Solutions.



Examples of Delphi Recent Clients





Delphi's Corporate Responsibility

- **1% of Gross Sales Given to Charity**
- **Environment**
 - Carbon Neutral & Green Power Purchase
 - Energy Efficiency programs
- **Social**
 - Let's Play Ball Charity Softball Tournament
 - Graduate Scholarship at Carleton University
 - Sponsored 3 children in Africa
 - Over 600 Volunteer Hours in 2008
- **Economic**
 - 20 employees and 20+ Associates
 - Located across Canada
 - Offices in Ottawa, Toronto and soon Calgary





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Overview



- **One Symptom:** climate change
- **The Cause:** Unsustainable Growth
- **The Solution:** YOU





One Symptom - Climate Change



Basic Terminology

- **Weather** – the short-term state of the atmosphere in terms of temperature, wind, clouds and precipitation
- **Climate** is the “average” weather, usually taken over a longer period of time (20, 200, 1,000 years) for a particular region and time period.



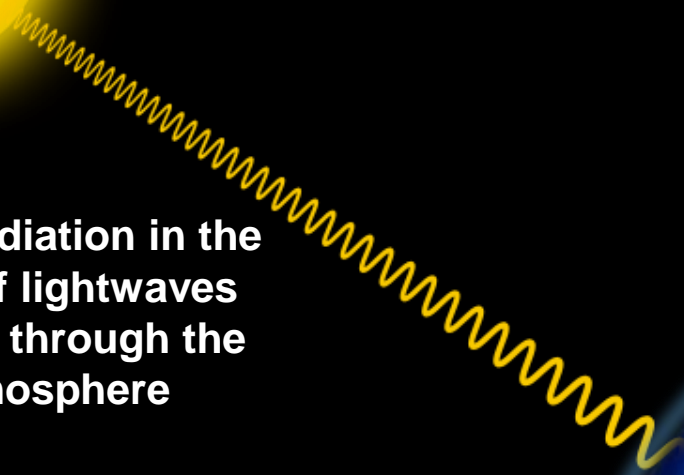
What changes climate?

- Changes in:
 - Sun's output
 - Earth's orbit
 - Drifting continents
 - Volcanic eruptions
 - Greenhouse gases

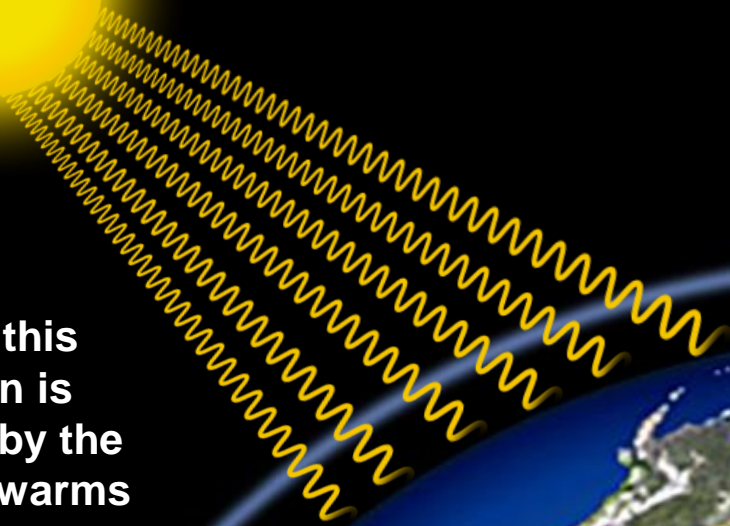




**Solar radiation in the
form of lightwaves
passes through the
atmosphere**

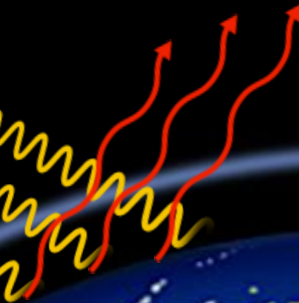
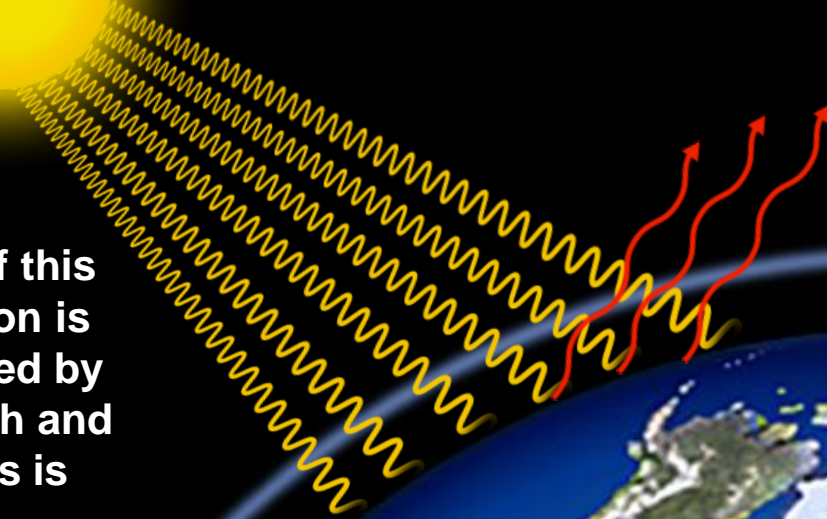
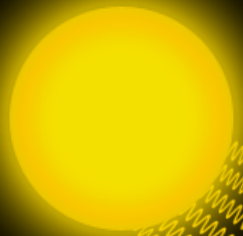


**Most of this
radiation is
absorbed by the
Earth and warms
it**



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

**Most of this
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absorbed by
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The diagram illustrates the greenhouse effect. On the left, a bright yellow sun emits solar radiation, represented by multiple parallel yellow wavy lines, towards the Earth. The Earth is shown as a curved horizon with a detailed view of the Arctic region, including the Arctic Ocean and surrounding landmasses. From the Earth's surface, several red wavy lines with arrows pointing upwards represent outgoing infrared radiation. Some of these red lines are shown being reflected back down towards the Earth's surface by the atmosphere, while others point away from the planet into space.

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

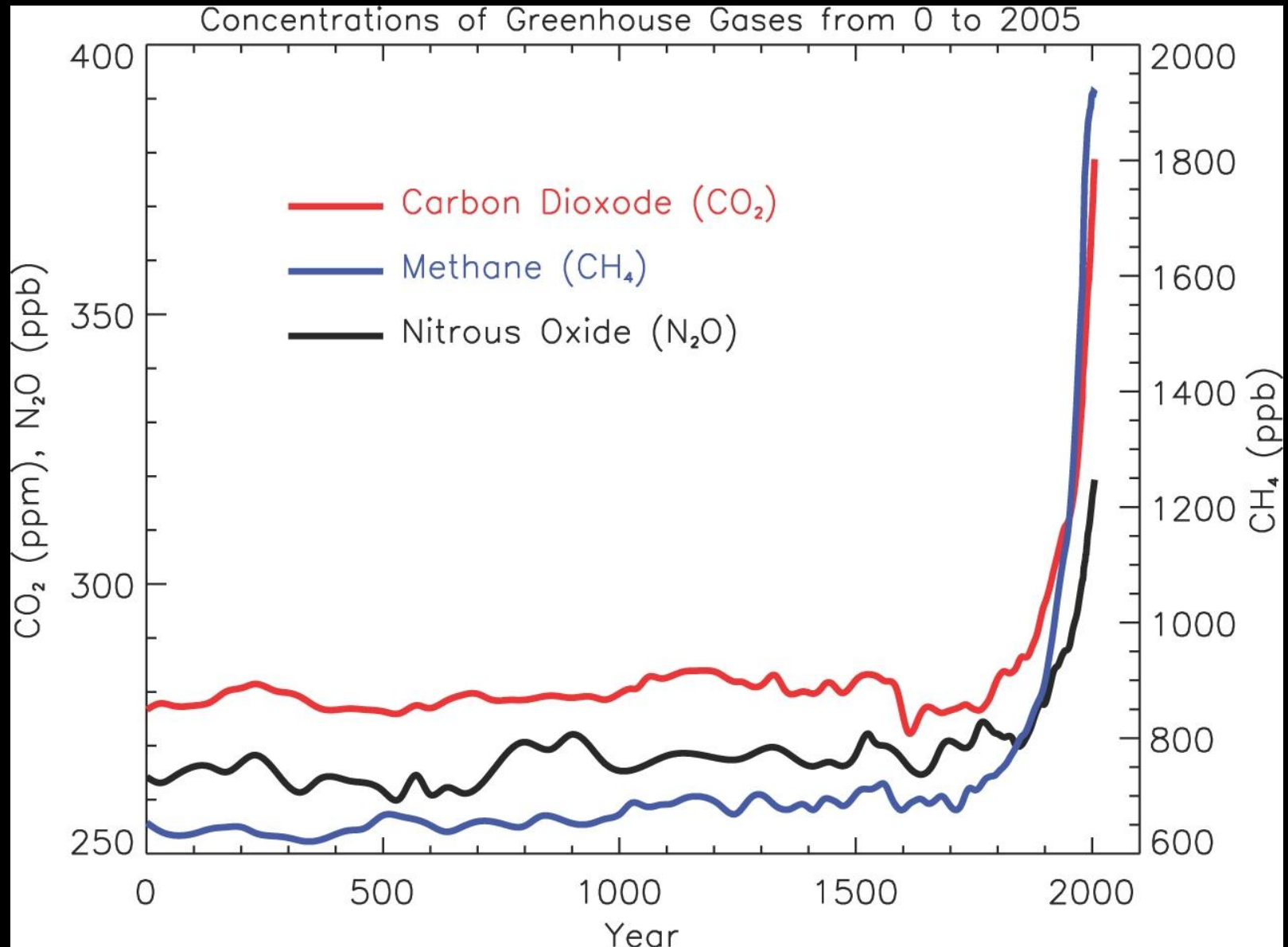
**Some of this
outgoing
infrared
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trapped by the
Earth's
atmosphere and
warms it**

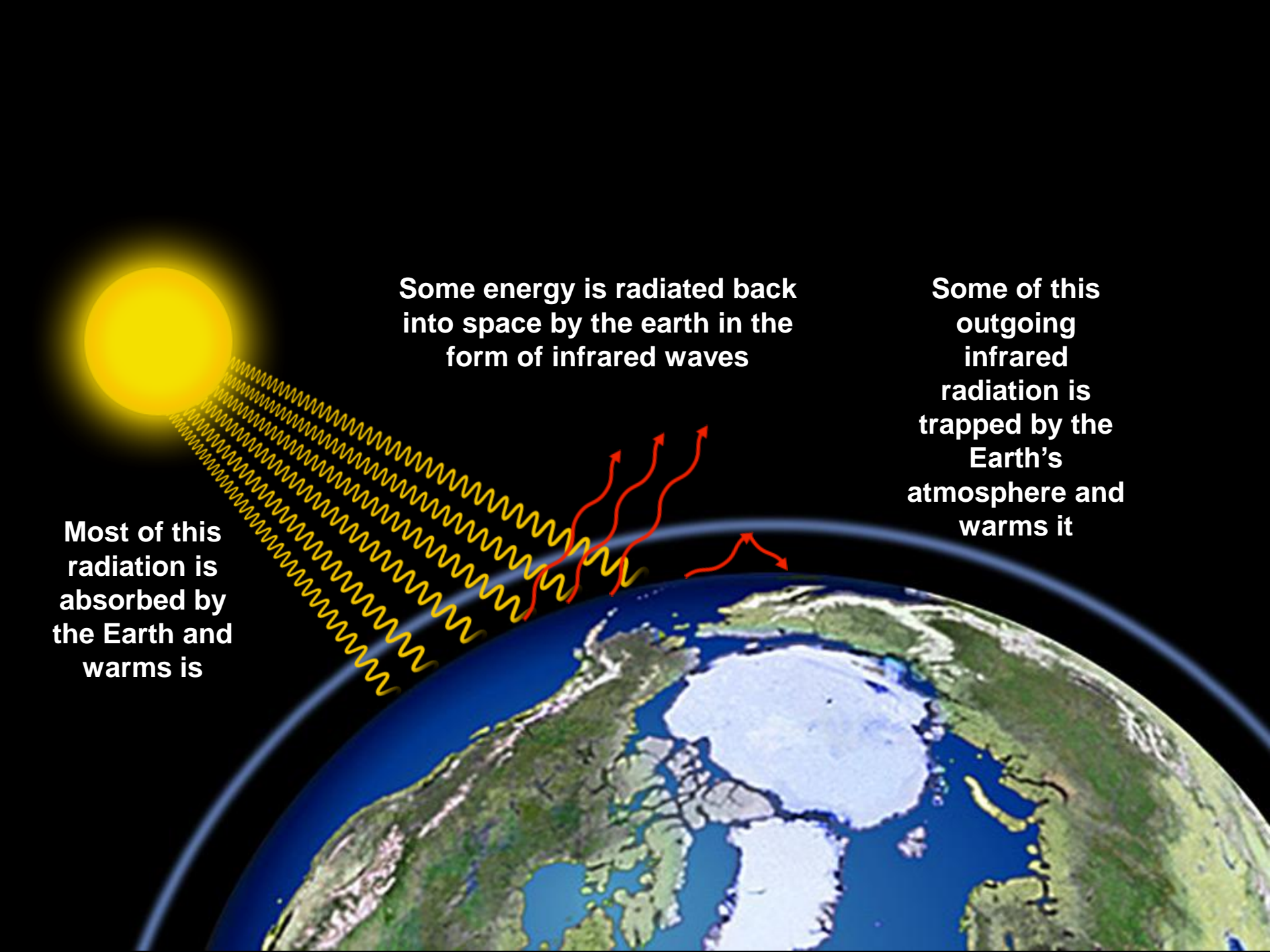
**Most of this
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absorbed by
the Earth and
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Human Activities emit huge amounts of GHGs



GHG levels spiked after the industrial revolution



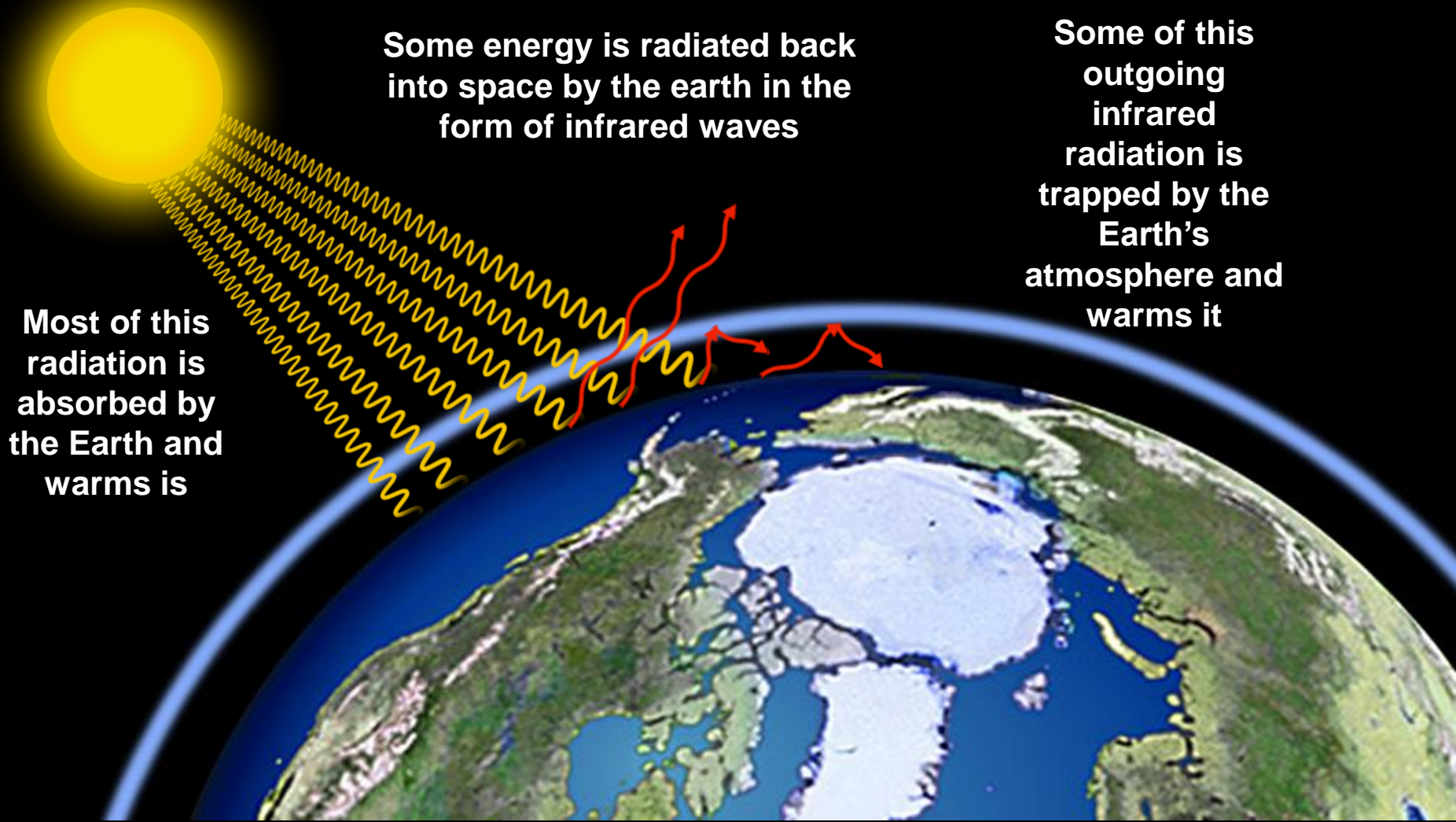


The diagram illustrates the greenhouse effect. On the left, a bright yellow sun emits solar radiation, represented by multiple parallel yellow wavy lines, towards the Earth. The Earth is shown as a curved globe with a blue atmosphere and a surface of green land and white ice. Some of the solar radiation is shown as red wavy lines being absorbed by the Earth's surface. From the surface, several red wavy lines with arrows pointing upwards represent outgoing infrared radiation. Some of these lines are shown being reflected back down towards the Earth's surface by the atmosphere, representing the greenhouse effect. The background is black, representing space.

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

**Some of this
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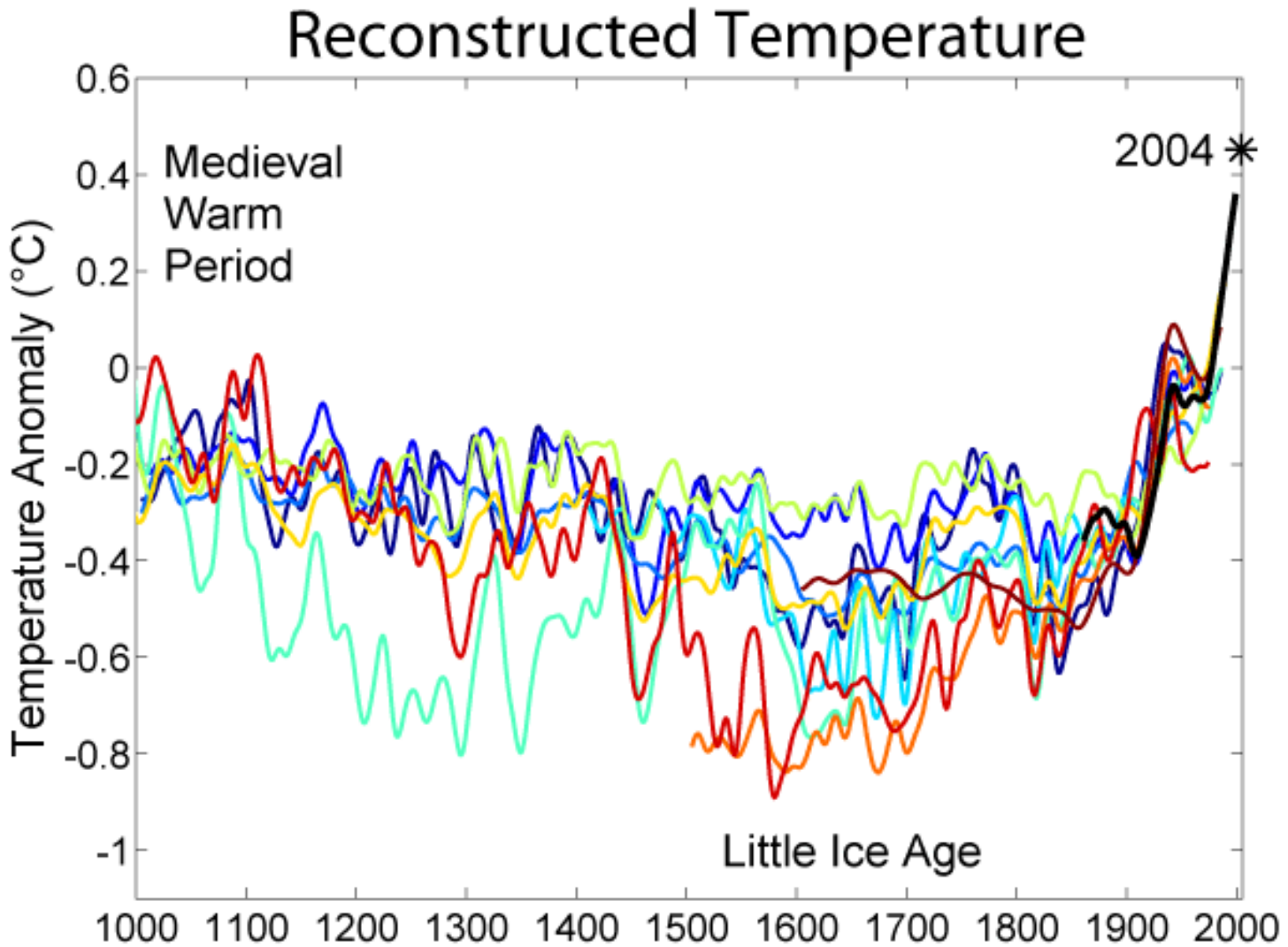


Some energy is radiated back into space by the earth in the form of infrared waves

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

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

The Climate Curve – Temperature



Twelve Hottest Years on Record

2005

2007

1998

2002

2003

2006

2004

2001

2008

1999

2009

2010

Climate change makes extreme weather more frequent



Flooding



Sea Level Rise



Drought



Stronger Storms



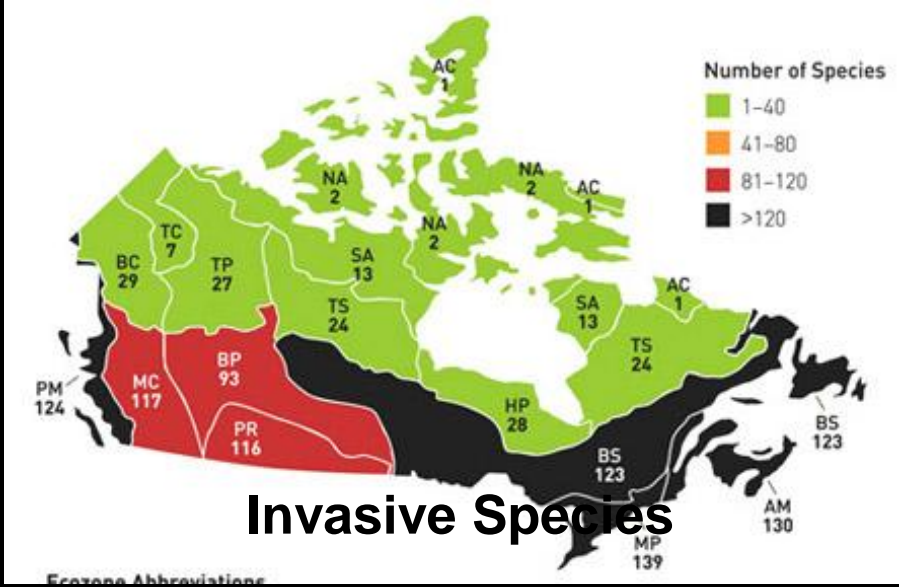
AP Photo/Keystone, Sigi Tischler

Trans Labrador Highway, April 2004





Climate change damages crops, resources, infrastructure...





Vanderhoof Forest District, August 2005; source: BC Government



Nahlouza Lake



The greatest sin of our times is not the few who have destroyed but the vast majority who sat idly by. When people get caught up with that which is right and they are willing to sacrifice for it, there is no stopping point short of victory. Our lives begin to end the day we become silent about things that matter.”

- Dr. Martin Luther King, Jr.

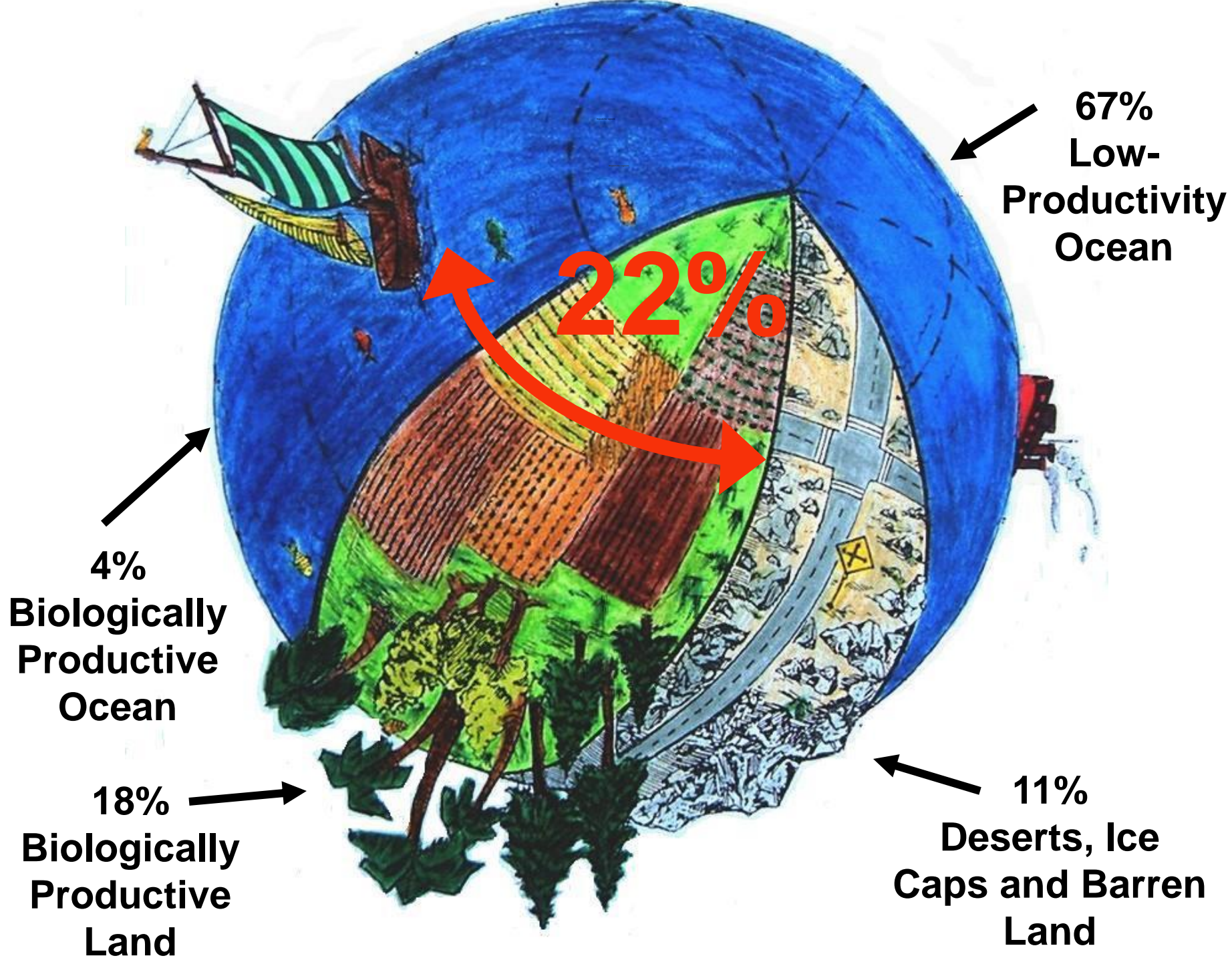


The Cause: *Unsustainable Growth*



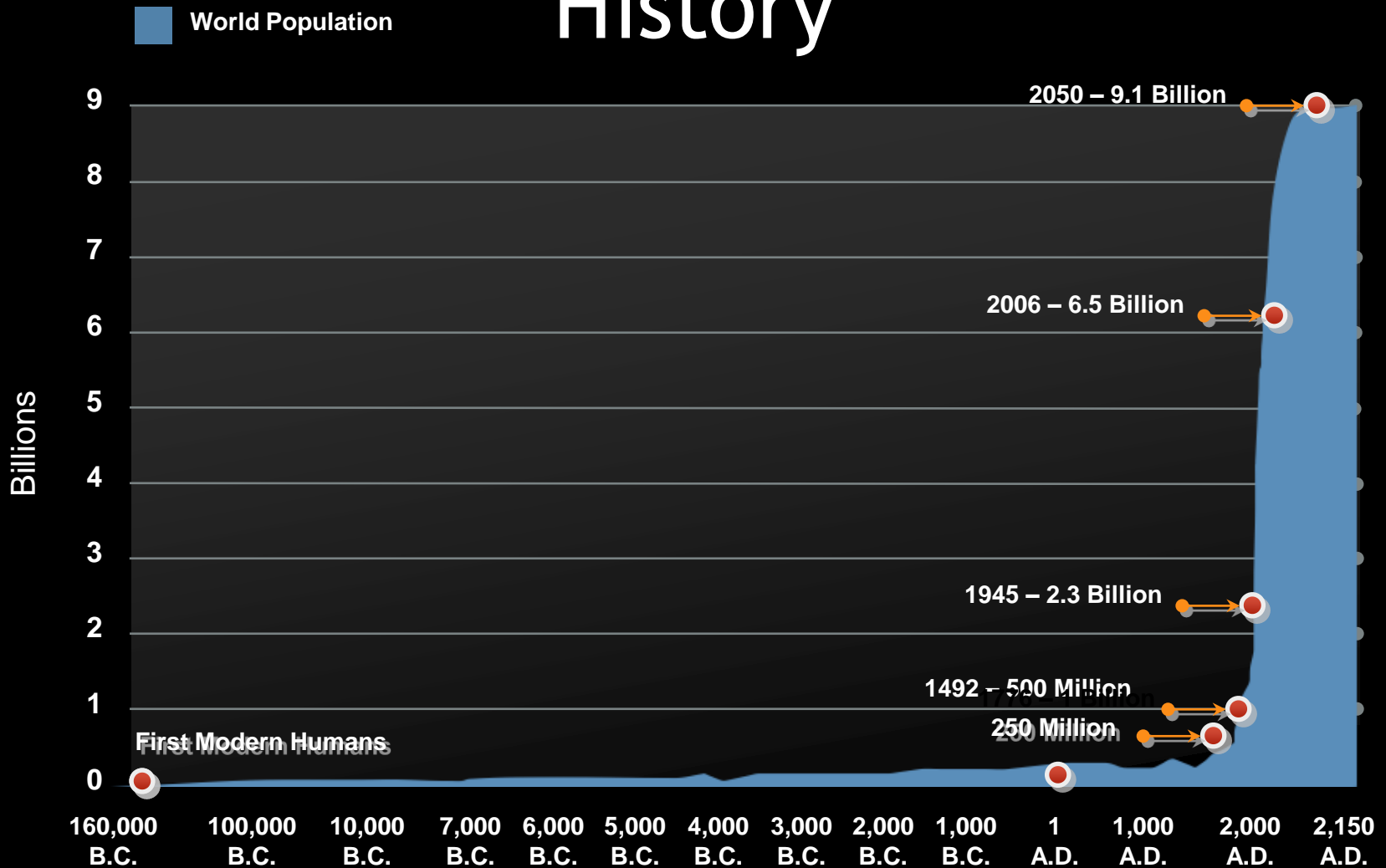
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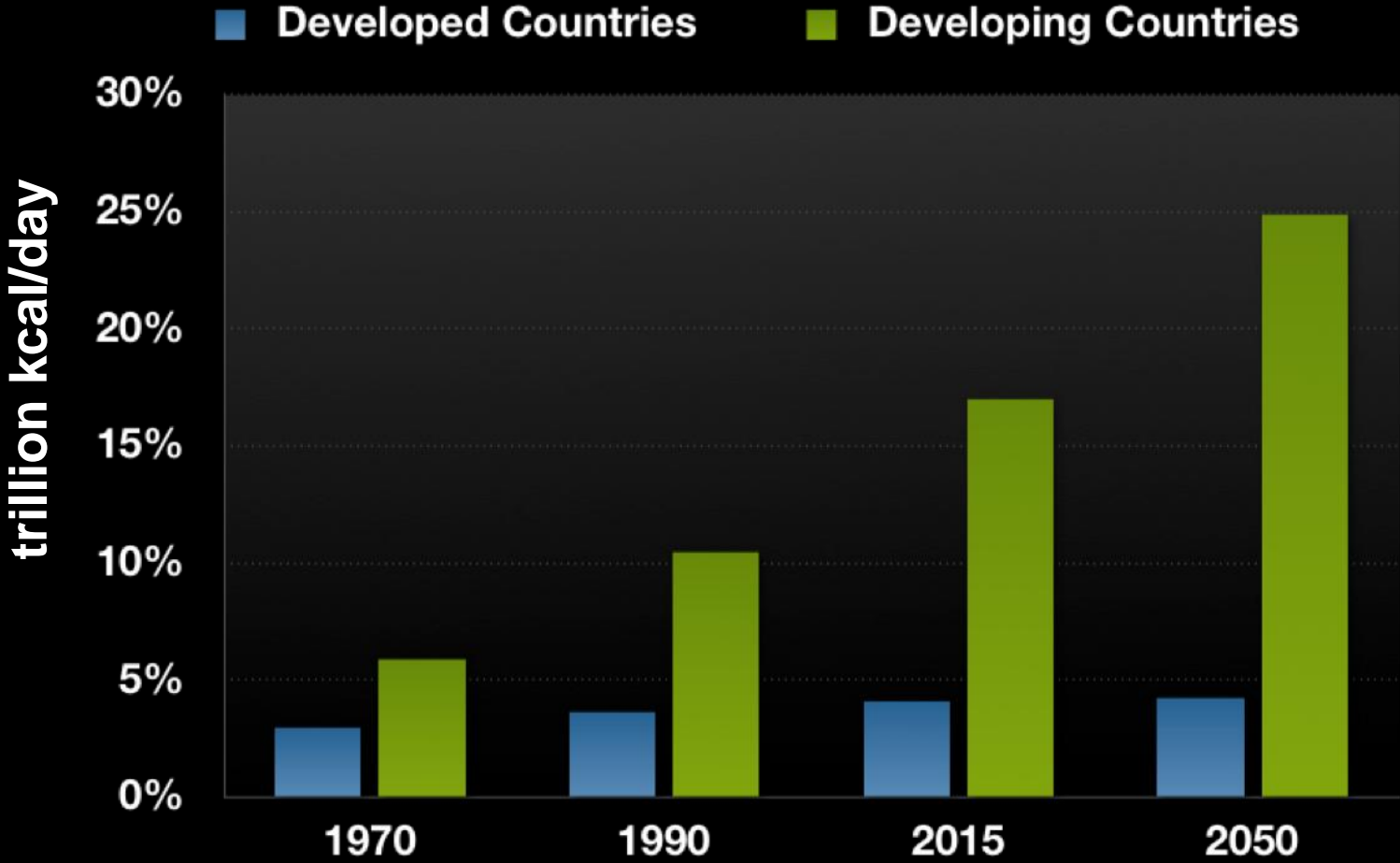


Population Growth Throughout History

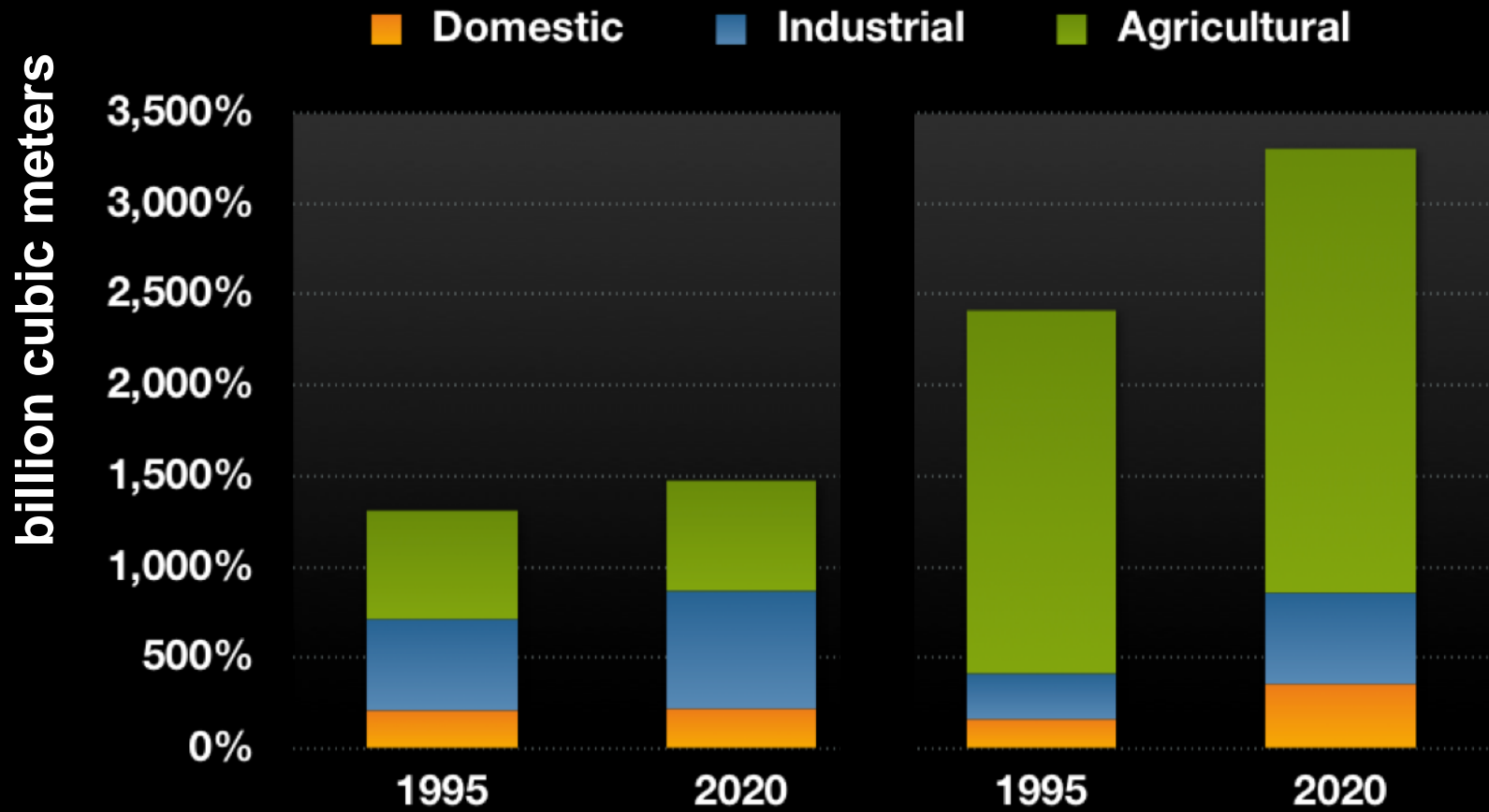


Source: United Nations

Food Demand



Growing Demand for Water



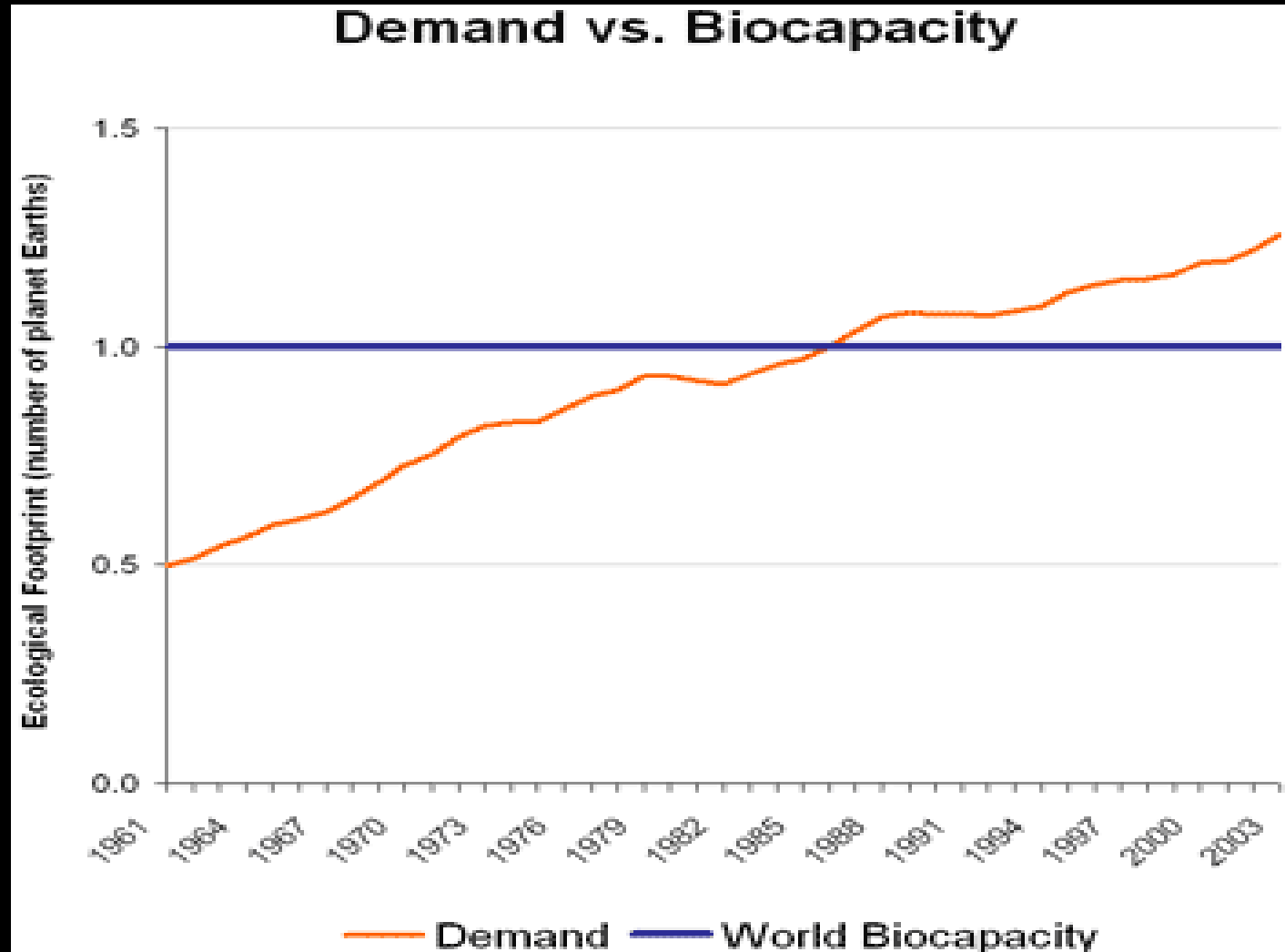
Addicted to Fossil Fuels

>3.3 million barrels / day ~ 140 Skydomes / year



~ 83 million barrels / day ~ 8 Skydomes / day!

At The Tipping Point





Picture by Ed Burtynsky www.edwardburtynsky.com



Picture by Ed Burtynsky www.edwardburtynsky.com



Uranium Tailings – Elliot Lake, Ontario

Picture by Ed Burtynsky www.edwardburtynsky.com



Westar Open Pit Coal Mine – Sparwood, B.C.

Picture by Ed Burtynsky www.edwardburtynsky.com



Three Gorges Dam – Yangtze River, China

Picture by Ed Burtynsky www.edwardburtynsky.com



Nickel Tailings – Sudbury, Ontario

Picture by Ed Burtynsky www.edwardburtynsky.com



Oxford Tire Pile – Westley, California

Picture by Ed Burtynsky www.edwardburtynsky.com



Shipbreaking – Chittagong, Bangladesh

Picture by Ed Burtynsky www.edwardburtynsky.com



An Oil Sands Mine

Huge mining trucks carry up to 400 tonnes of oil sands in a single load. Roughly 45 metres of organic and mineral soils are removed to access up to 50 metres of oil sands. The resultant mines (as seen above) are almost 100 metres deep into the earth.

Photo: Chris Evans, The Pembina Institute





Source: Pembina



What's The Final Hurdle? ...That's also the Solution



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1. “What gets us into trouble is not what we don’t know...

It’s what we know for sure that just ain’t so.”

Mark Twain

Educate Yourself

- National Oceanic and Atmospheric Administration www.noaa.gov/
- Pew Centre on Global Climate Change www.pewclimate.org/
- NAS (<http://dels.nas.edu/climatechange/>)
- US Global Change Research Program
<http://www.globalchange.gov>
- Intergovernmental Panel on Climate Change www.ipcc.ch/
- Desmogblog – www.desmogblog.com/
- www.realclimate.org
- www.gristmill.grist.org

....but please evaluate the source

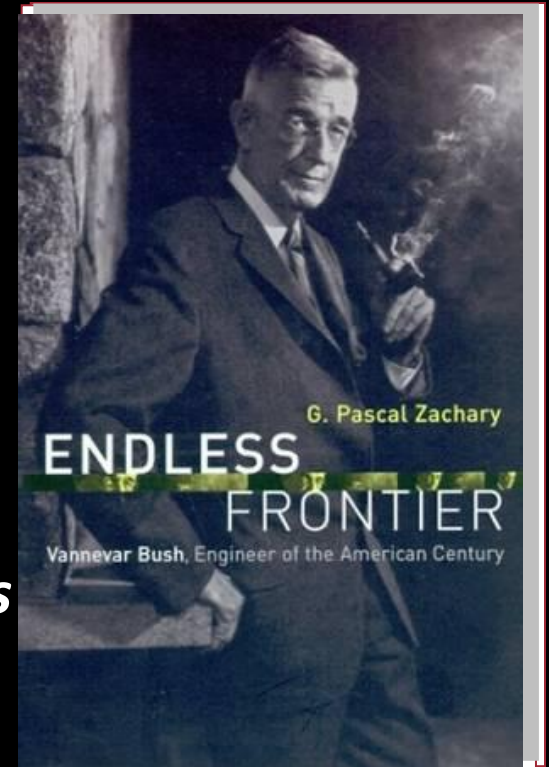
- Education in Journalism
- Recommends putting more carbon in the atmosphere because it is “plant food”
- Listed as a “global warming expert” by Heartland Institute
- Chief Policy Advisor to the Science and Public Policy Institute
- Wrote that all people with AIDS should “be isolated compulsorily, immediately, and permanently.”



Lord Christopher
Monckton

2. Human Mindsets are Often Limited...

- *Heavier than air flying machines are impossible* - Lord Kelvin, President Royal Society 1882
- *The horse is here to stay, the automobile is a novelty* - Bank Manager to Henry Ford 1908
- *There is a world market for about five computers* - Thomas Watson IBM 1943
- *We don't like their sound, and guitar music is on the way out* - President Decca Records, rejecting the Beatles 1962
- *We can never get off fossil fuels...??*



So We Have to Think Differently

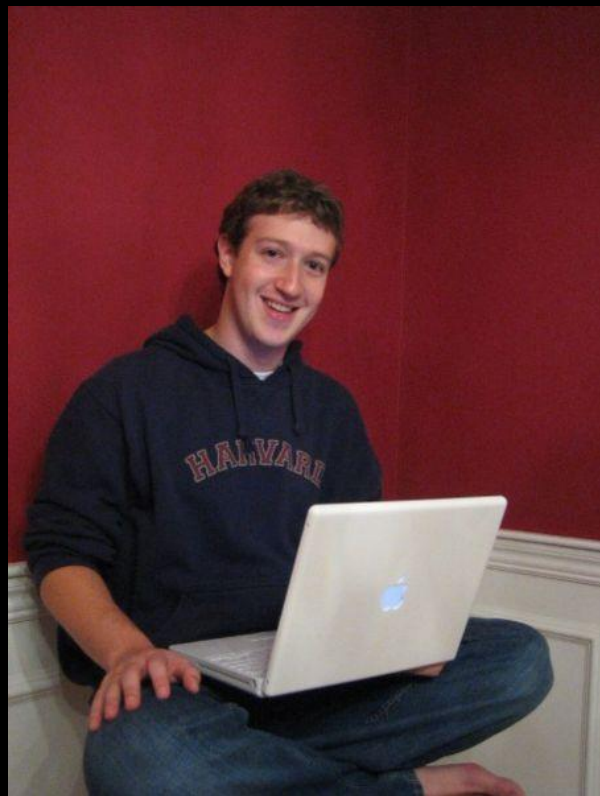


"The world we have created today has problems that cannot be solved by thinking the way we thought when we created them."

Albert Einstein



facebook



**Harvard University
sophomore Mark
Zuckerberg founded
facebook in
February 2004.**

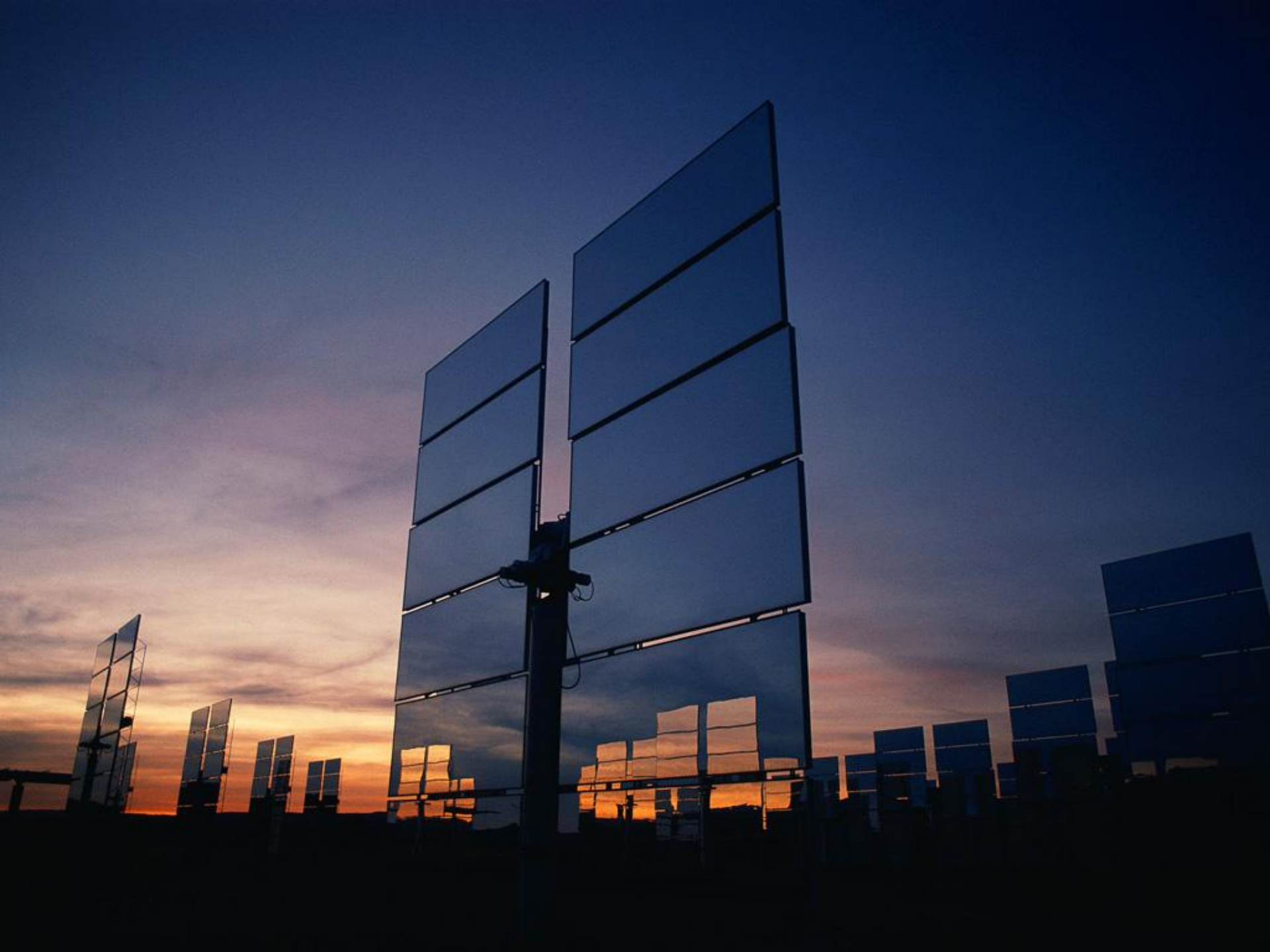
“Humanity already possesses the fundamental scientific, technical and industrial know-how to solve the carbon and climate problems for the next half-century.”

Stephen Pacala and Robert Socolow
Science, August 13, 2004





44.2

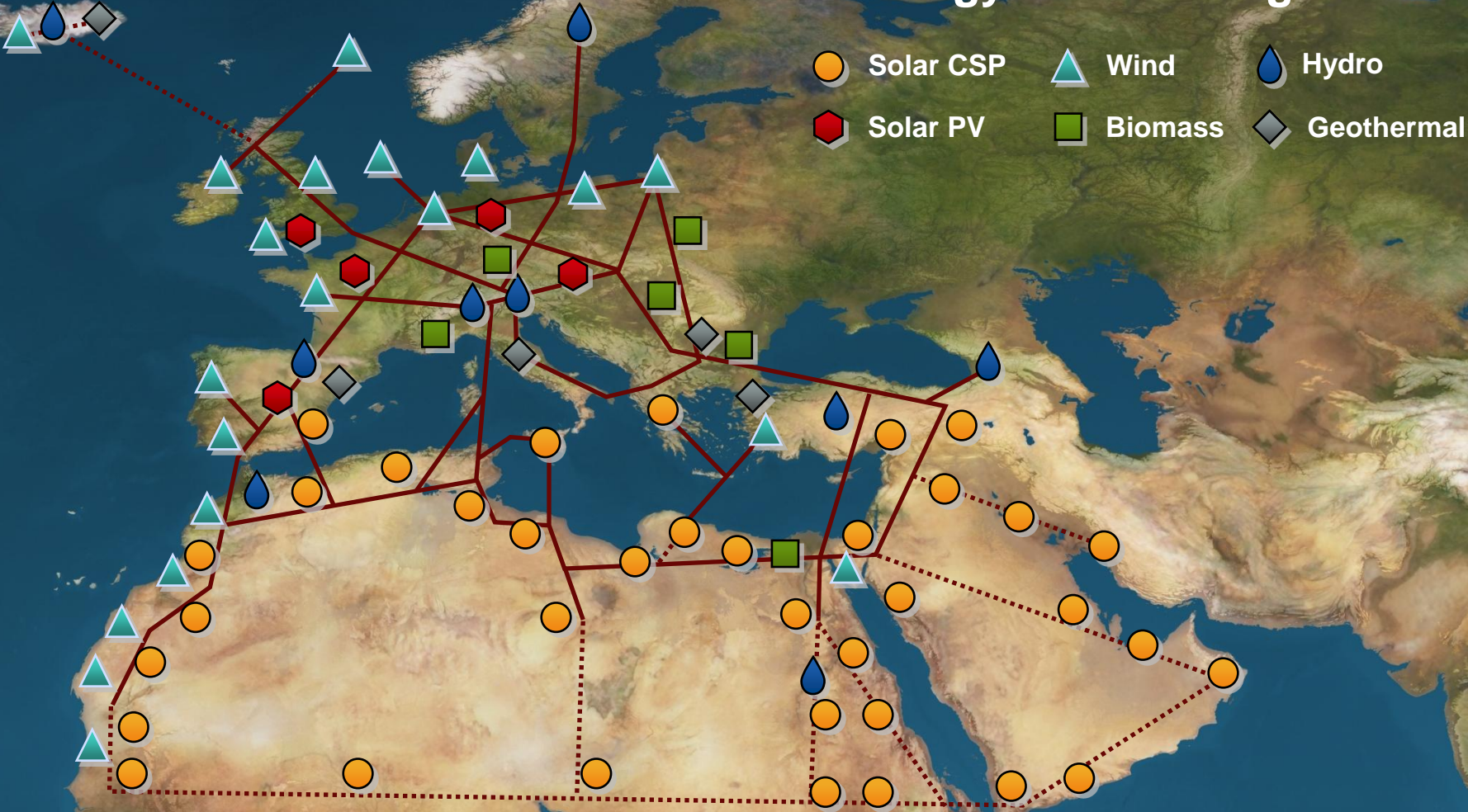



“Enhanced geothermal systems could be the ‘killer app’ of the energy world.”

Dan Reicher, Google.org, August 19, 2008



How the Proposed Renewable Energy Network Might Look



An aerial photograph of a rugged coastline. The ocean is a deep blue-green color, with white foam from breaking waves visible along the shore. The rocks are dark and jagged, extending into the water. The lighting suggests a low sun, creating a golden glow on the water's surface and the foam of the waves.

**The total power of waves breaking around
the world's coastlines is estimated at 2–3
million megawatts**

- US Department of Energy

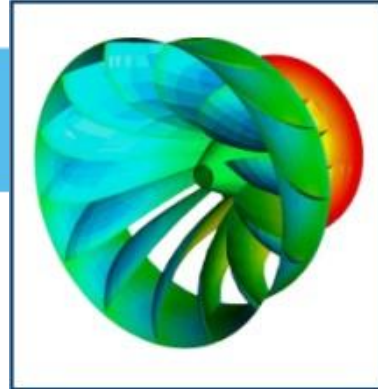
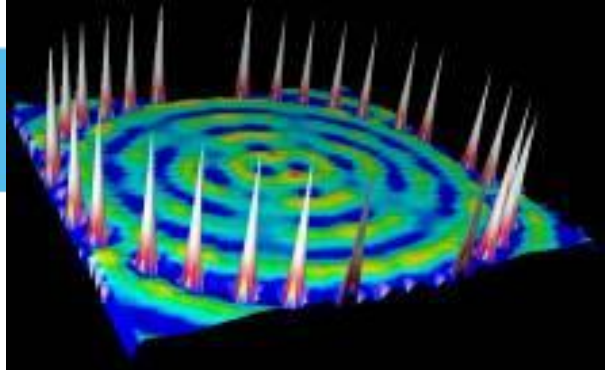
Tokyo, Japan



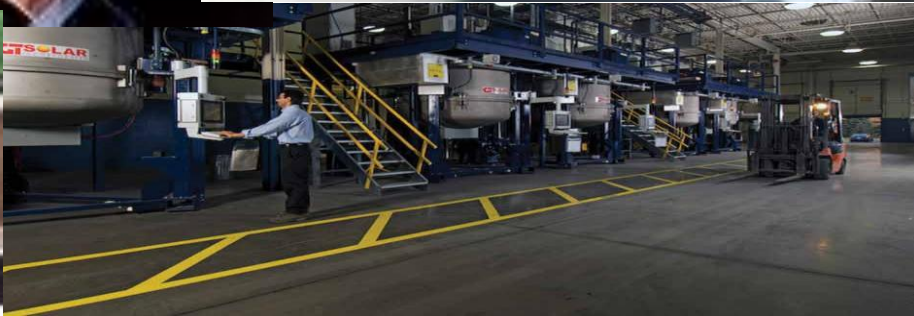
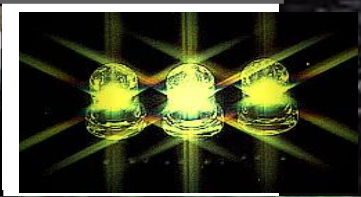
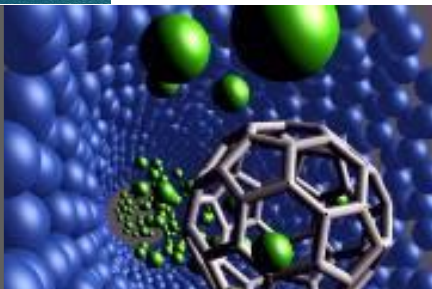
Japan Airlines First Biofuel Flight

January 30, 2009





CFD designed Francis runner



3. Life

- Overwhelmed
 - Too busy
 - Other priorities
- Surrounding environment
 - Peer pressure
 - Culture / social norms
- Fizzling spirit
 - Energy level subsides
 - Self-doubt

Glass Half Empty

- **The problem is too BIG**
- **There's no leadership...**
- **It's their fault...big bad industry**
- **I can't make a difference**
- **I have no power**
- **I don't know where to start**
- **There's too many obstacles**
- **I don't know how**
- **I don't have the skills...**





Half Full

- The problem's not so big
.....if I break it down
- I can do this
- I'm enthusiastic
- I know people who can help
- I will overcome this barrier
- I will reach out to others
- What a difference I can make
- I have the power





Start Small...Think Big



**Inspiration Comes From Within
&
*Leadership Starts with Us!***

Just Do It!

Ask Yourself Some Questions

- **What's my passion?**
- **What type of Leader do I want to be?**
- **What are my expectations?**
- **What's my sphere of influence? How do I expand?**
- **What are my strengths and weaknesses?**
- **Who can help me, motivate me, challenge me...?**
- **How do I get started...What's the first step?**





For More Information



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Thank you &

Please Get Out & Vote

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