

Welcome to

Let's Talk Energy...

Across the Curriculum.

# Energy

## A Life Issue for Our Students

Where are we now?

How did we get here?

What happens next?

Who has the wisdom to “walk humbly” here?

# Where in our curriculum do we ask students to ponder these questions?

Do you have an ABSOLUTE right to all the (cheap) energy you want?

Do other people have a claim to your energy?

Is there always more energy?

Should you put your faith in technology to supply all energy needs?

What if it's really up to you... now?

# Our Energy Ethos

**Over hundreds of years, we have come to believe:**

Abundant cheap energy

+

Democratic, Industrial, Scientific Revolutions

+

Free market capitalism

=

- Inventions to save people from poverty, isolation, disease.
- Freedom to choose leaders and lifestyle.
- Good things for all, not just the a few.
- A chance to become rich.

***Our students live in this energy ethos.  
How do we help them to see it clearly.***

# Ethos: An ABSOLUTE right to all the (cheap) energy you want?

Since the CRC was formed (1857), **total energy use** in U.S....  
has doubled... and doubled again... and again... and again...and again...  
doubled 5 times in the past 150 years, roughly once every generation.

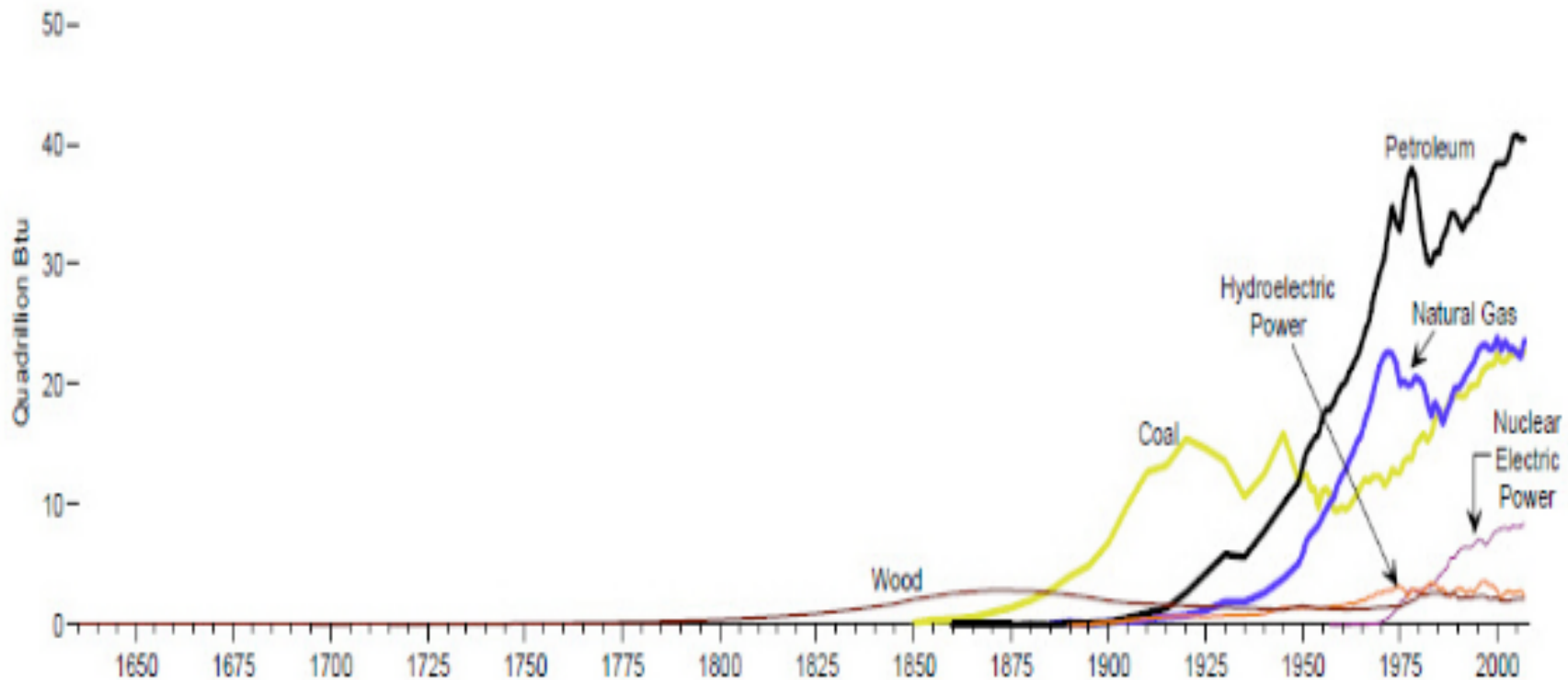
***Is there a math lesson here?***

**Energy use per person** in the U.S. was constant from 1850 to 1900...  
doubled from 1900 to 1950...  
and doubled again since 1950.

***Is there an oral history project here?***

***Has all this energy given us happiness?  
Is there a literature lesson here?***

# Ethos: An ABSOLUTE right to all the (cheap) energy you want?



*Is there a history project here?*

# Ethos: An ABSOLUTE right to all the (cheap) energy you want?

## **Vice President Dick Cheney**

**Energy Policy Speech, April, 2001**

“And then there’s the energy we all take most for granted, electricity... meeting projected demand will require... more than one new power plant per week, every week, for the next 20 years.”

## **Local Leaders**

**“Despite drawbacks, coal is still key”, Holland Sentinel editorial, January 24, 2009**

“Electricity use in Holland and West Michigan will grow about 1 percent a year... The state would need about 10 new coal-fired plants by 2025 to meet demand.”

## **U.S. Rep. Pete Hoekstra**

**“Energy Tax Costs Everyone”, Holland Sentinel Opinion page, July 28, 2009**

“Higher taxes on energy ... will most certainly help to worsen Michigan’s economic recession... [T]he “cap and trade” bill... will charge every taxpaying American for simply turning on a light.... “

***Is there a civics or economics lesson here?  
A language arts writing assignment, perhaps?***

# Ethos Meets Crisis

Cheap energy comes from burning fossil fuels.

Burning fossil fuels creates greenhouse gases that greatly accelerate climate change.

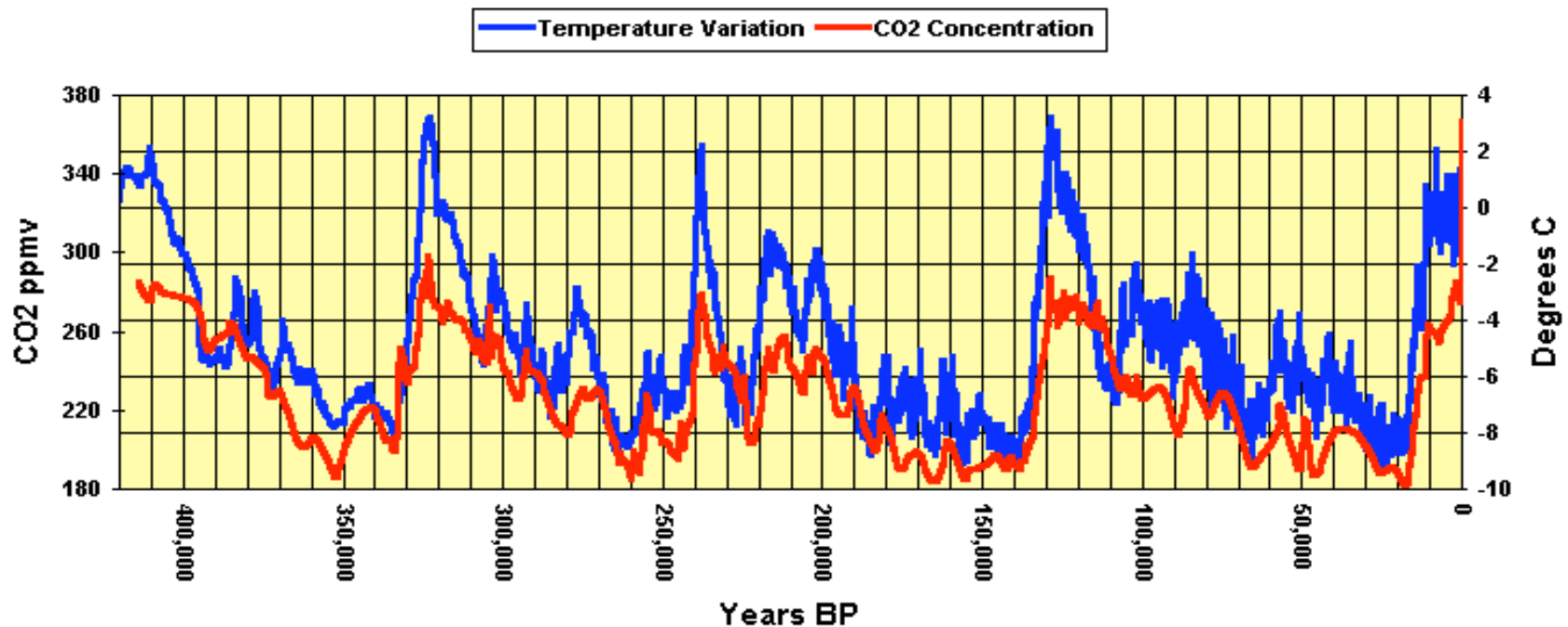
Fossil fuels are non-renewable and will be exhausted within one more human life span.

There are other claims on “our” fossil fuel.

***Where else in history has an ethos met a crisis?***

# Ethos in Crisis: Climate Change

Antarctic Ice Core Data 1



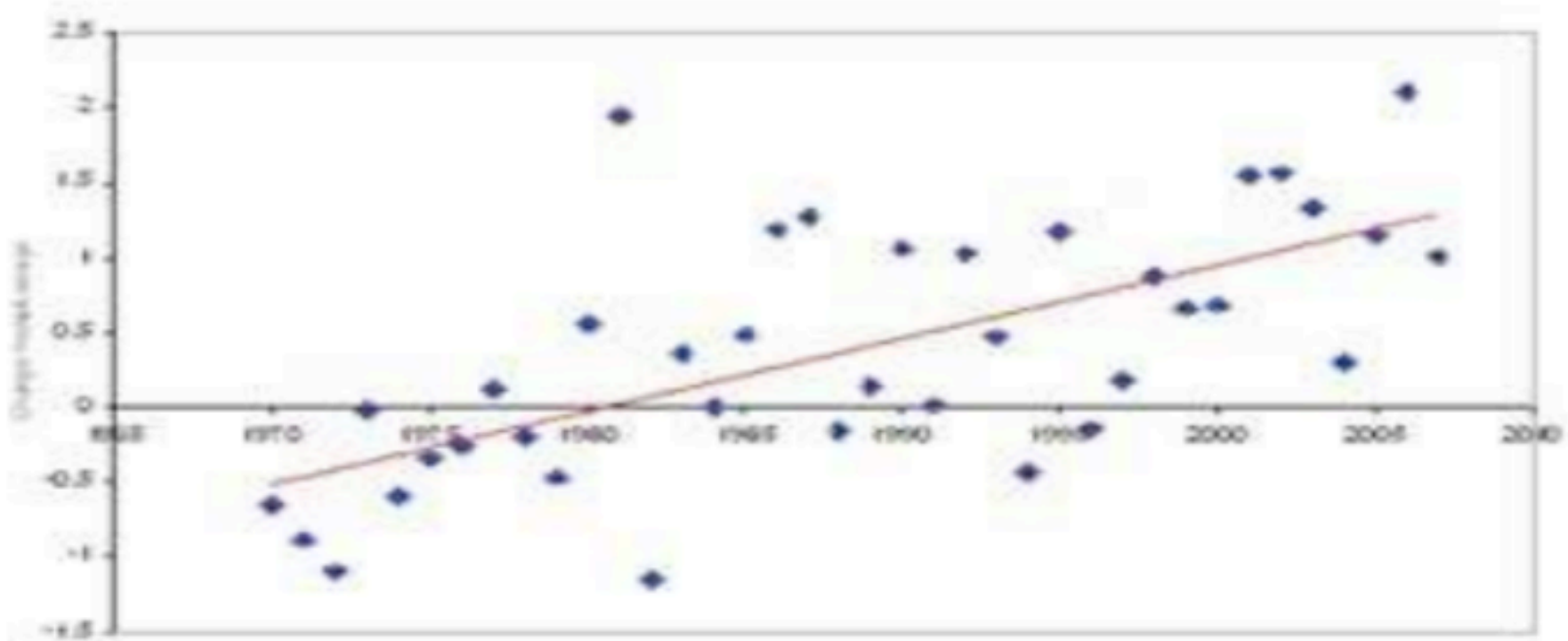
***To understand this graph, our students need to understand geography, the age of the earth, correlation vs causation, and the nature of indirect measurement.***

# Ethos in Crisis: Climate Change

## “Change from average temperatures in Michigan in January”¶

from “MICHIGAN: Assessing the Costs of Climate Change” (National Council of State Legislatures)

<http://www.ncsl.org/Portals/1/documents/envIRON/ClimatechangeMI.pdf>¶



¶

*Can our students use this graph to explain weather vs climate, mathematical models and Tulip Time?*

# Ethos in Crisis: Climate Change

A Survey by PEW Research Center & AAAS, July 2009

## Public Agrees Earth Is Warming, But Differs with Scientists over the Cause

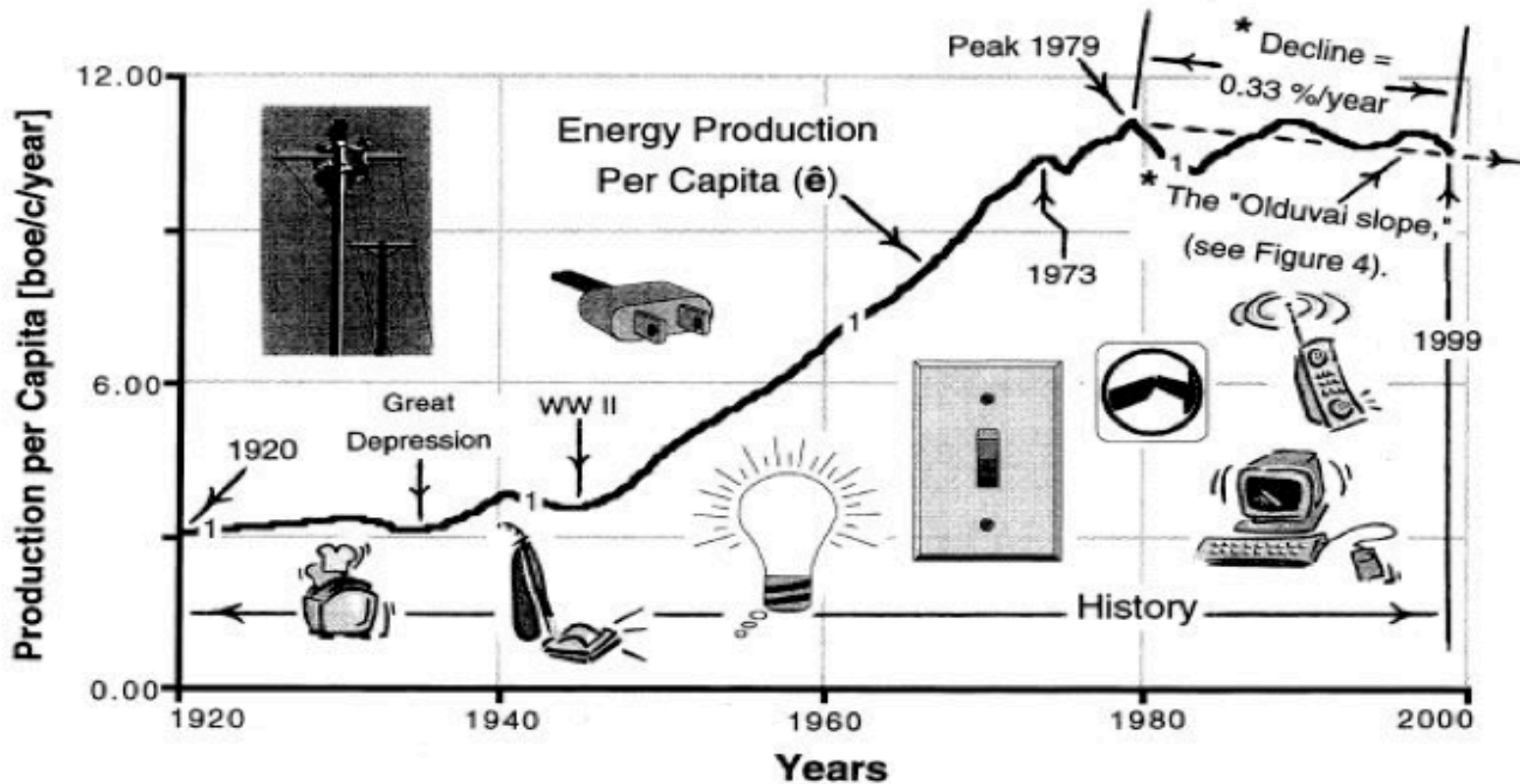
	<u>Public</u>	<u>Scientists</u>
<i>View on climate change</i>	%	%
Warming is due to human activity	49	84
Warming is due to natural changes	36	10
No solid evidence earth is warming	11	4
<i>Global warming is ...</i>		
Very serious problem	47	70
Somewhat serious	26	22
Not too serious	11	4
Not a problem	13	2

Figures read down.

***Do our students see themselves as scientists?***

# Ethos in Crisis: Low on Fuel

Figure 3. World Energy Production per Capita: 1920-1999



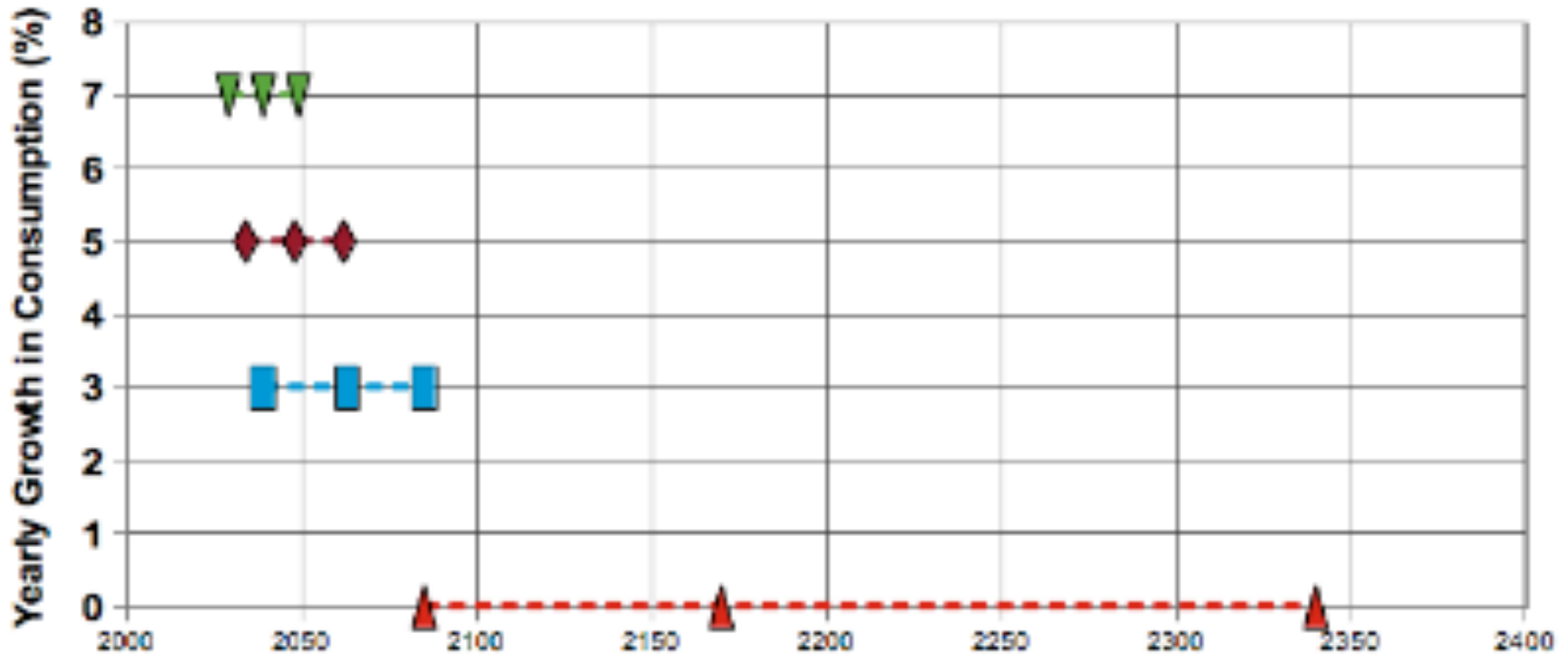
*Do our students know what T. R. Malthus wrote 300 years ago about population growth?*

# Ethos in Crisis: Low on Fuel

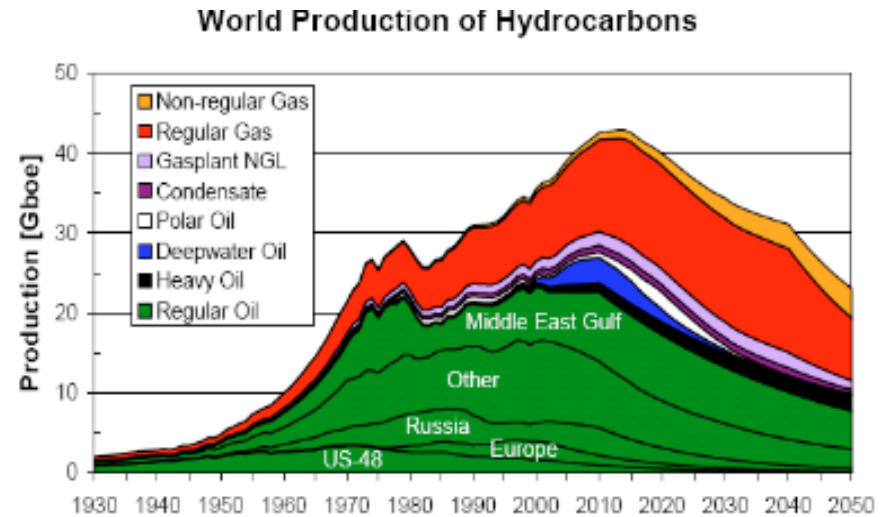
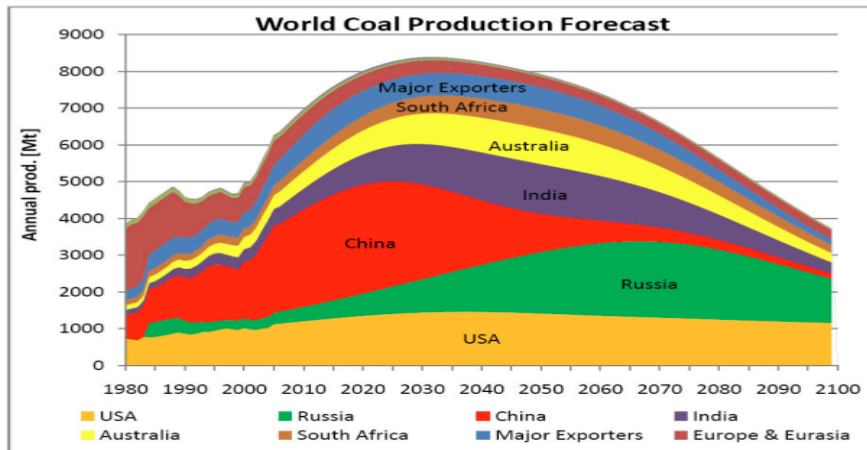
## An Algebra Problem

### When is the coal all gone?

Today's Reserves = (half, full, double) the general consensus.

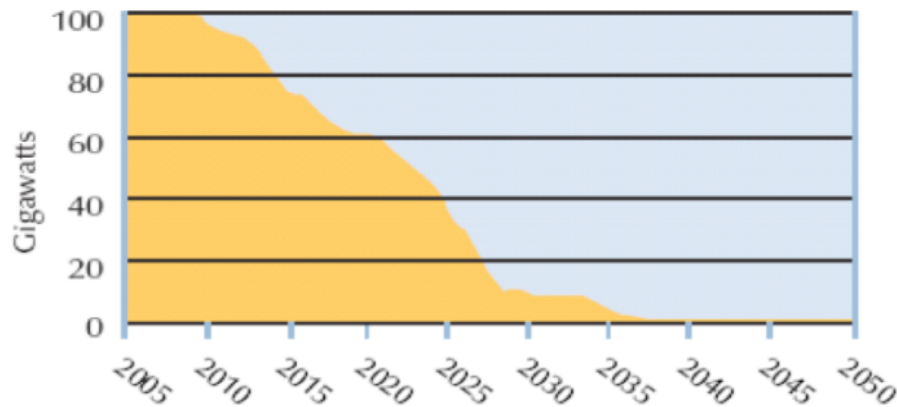


# Ethos in Crisis: Low in Fuel



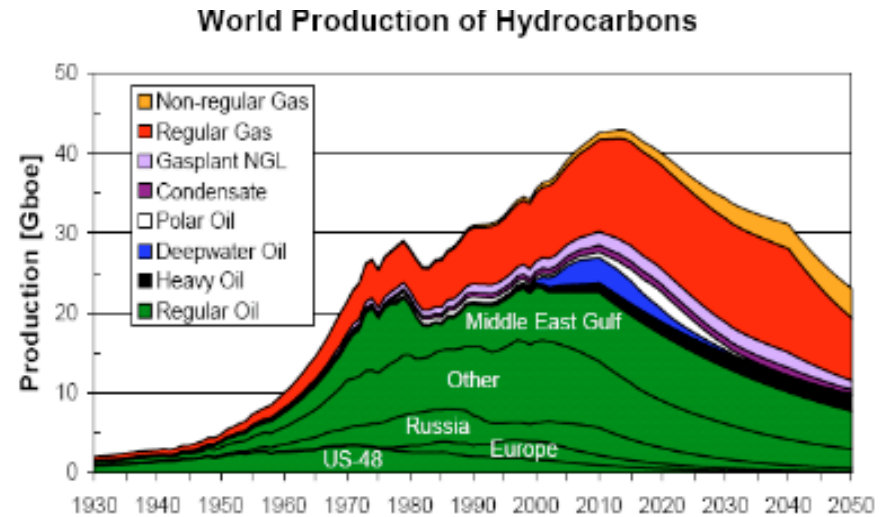
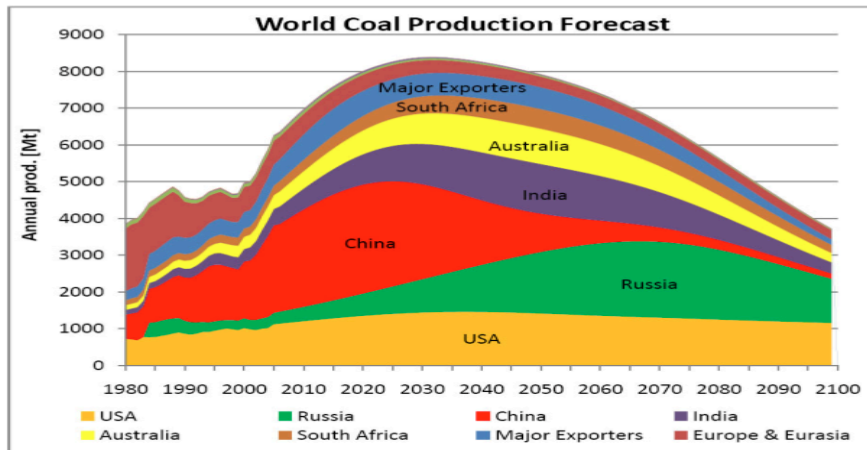
**Estimated Land Requirements for Producing Bio-fuels Sufficient to Fuel Half the Current U.S. Passenger Fleet**

Scenario	Biomass Production	Improved Conversion Efficiencies	Fleet MPG	Additional Land Required
1. Status quo	5 tons per acre	NO	20 mpg	180 million acres
2. Increase Yield of Energy Crops	10 tons per acre	NO	20 mpg	90 million acres
3. Improved Conversion Efficiency	10 tons per acre	YES	20 mpg	60 million acres
4. Higher Vehicle Fuel Economy	10 tons per acre	YES	40 mpg	30 million acres



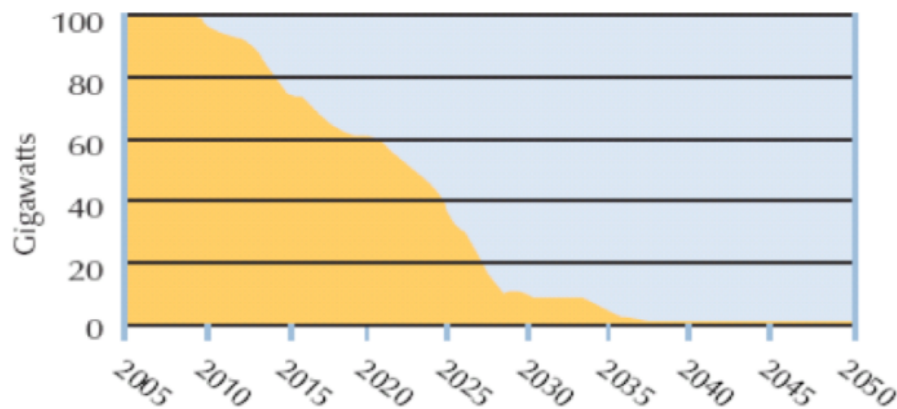
***Do we ever ask students whether to trust a graph?***

# Ethos in Crisis: Low in Fuel



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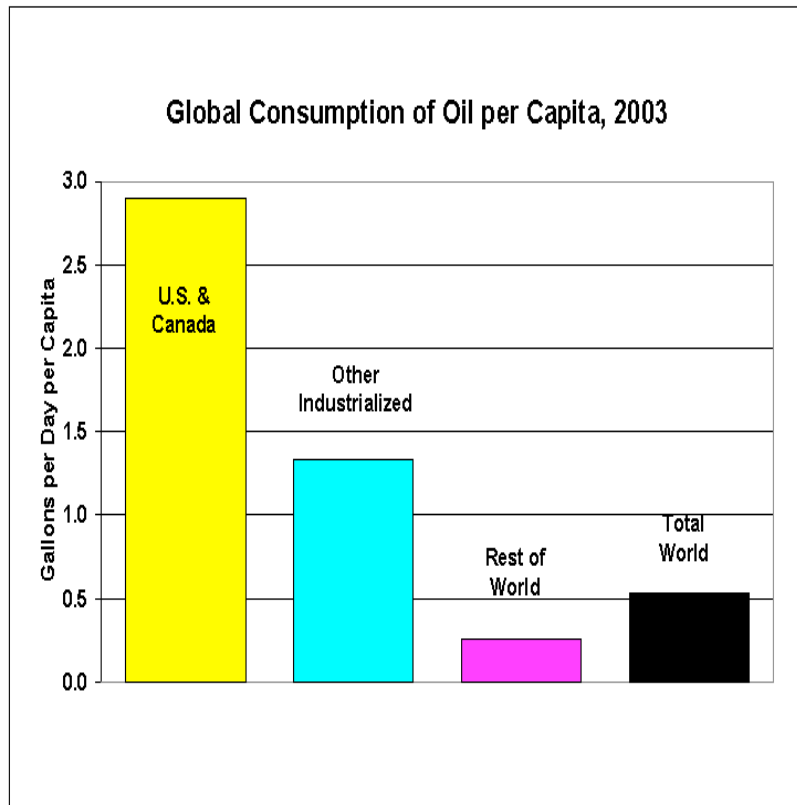


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# Ethos in Crisis: Other Claims

World Oil Demand per Capita by Region, 2003

[To Demand Chapter](#) [To Demand Charts](#)



Source: Tables 1.2 and B1, *International Energy Annual*

Half of the people in the world today live on less than \$2.50 per day.

Energy is their way out of poverty, too.

***Is this where we ask students WWJD?***

# Ethos in Crisis: Other Claims

Today, economic growth comes with an on/off switch. Energy unlocks knowledge... potential... protection. Energy poverty not only holds back the world's most vulnerable people, it deprives the rest of us of their potential contributions. *Tom Friedman, Hot, Flat, and Crowded*

[On behalf of ] the U.N. Millennium Project, I spent days in... Kenyan villages... Electricity could be provided to the school, clinic, and 5 water points by a generator... every household could light a small bulb for a few hours every night... for an annualized cost of about \$5 per person. *Jeffrey Sachs, The End of Poverty*

***Do our students know Tom Friedman or Jeffrey Sachs?  
Have they heard of the U.N. Millennium Project?***

# What about the future?

## **Future Generations Energy Bill of Rights**

What would it look like and who should write it?

## **Steel, Fertilizer, Plastic, Medicine**

All require fossil fuels.

*Are there Civics or Chemistry lessons here?*

# What good is a crisis?

Energy Ethos



Energy Ethic

# Building an Energy Ethic: Pay Attention!

All ethics begin with paying attention.  
How can we help our students to:

- Pay attention to electricity in their lives.
  - Always notice the little things.
  - Never take it for granted.
  - **Be Thankful!**

*Does your homeroom prayer thank God for plugs and outlets?*

# Building an Energy Ethic: Ask Questions!

Do we encourage our students to ask the obvious questions?

- Where is my power plant? How does it work?
- What fuel does it use? Where does the fuel come from? How does it get here?
- Who works the mines, drives the trains, runs the power plant, maintains my power lines?

***If you give your students a coil of wire and a bar magnet, can they light a light bulb?***

# Building an Energy Ethic: Apply your deepest values!

Social justice and a sense of fairness.

Truthfulness in weighing “wants” vs. “needs.”

Earth keeping and creation care.

Trusting God to provide all your needs.

***What would your students say if you asked  
“Tell me about your deepest personal values.”***

# Building an Energy Ethic: Give witness!

Ask your students to make and share personal commitments.  
Here are examples from my friends.

- Leave the car outside to avoid the electric garage door opener.
- Switch to CFL's. Use a clip-on light instead of a reading lamp.
- “Diet” on one tank of gas per month. Stay home when its gone.
- Ride a bike or a bus, even in the winter.
- Live in a smaller house.

***What personal examples can you offer to your students?***

# Building an Energy Ethic: Challenge Your Community!

## A Few of Chicago's 2020 Goals

- Retrofit 50% of commercial and industrial buildings to achieve 30% energy reduction.
- Improve 50% of residential buildings to achieve 30% energy reduction.
- 20% renewable energy generation.

***Are your students serving on city committees?***

# Examples

Energy Night at Holland Christian H. S.

Energy Week at Lexington Christian School

*Kilowatt Ours* at Zeeland Middle Schools



***What can you add to this list?***

# “Walk Humbly...”

**MICAH CHALLENGE**  
INTERNATIONAL

MICAH Challenge

HOME KNOW IT THINK IT TELL IT DO IT PRAY IT

**SIGN THE MICAH CALL**  
The Micah Call is a global petition and the way to join the campaign. Please add your voice by signing the Micah Call...

**DIRECTOR'S DIARY**  
Read the latest thoughts from Joel Edwards

**FIND YOUR NATIONAL CAMPAIGN**  
Get involved wherever you are in the world

## Welcome to Micah Challenge

**Micah Challenge is a global coalition of Christians** holding governments to account for their promise to halve extreme poverty by 2015. We want to encourage Christians worldwide to deepen their commitment to the poor and to speak out to leaders to act with justice

“...what does the LORD require of you? To do justice, and to love kindness, and to walk humbly with your God.”  
(Micah 6:8)

# Acknowledgements

Sara Leland  
Jim Peterson  
Sarah VanFarowe