


Slide 1



Slide 2



**The Canticle of The Creatures**

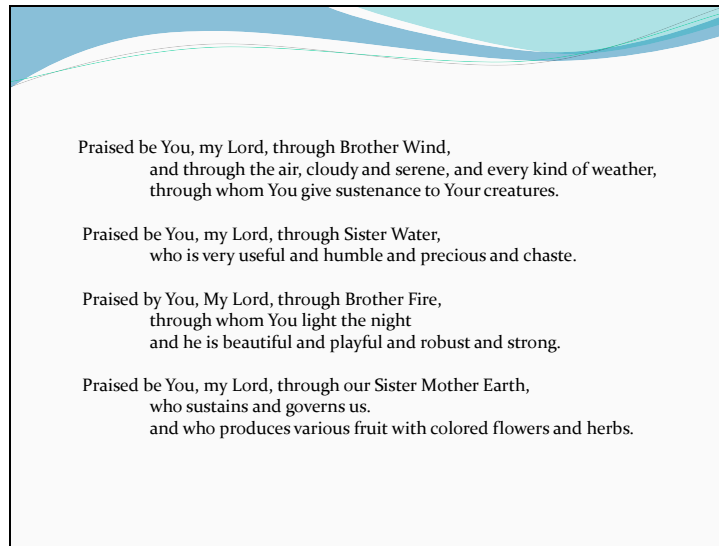
**Francis of Assisi** 1225

Most High, all-powerful, good Lord  
Yours are the praises, the glory, and the honor, and all blessings.  
To You alone, Most High, do they belong,  
and no human is worthy to mention Your name.

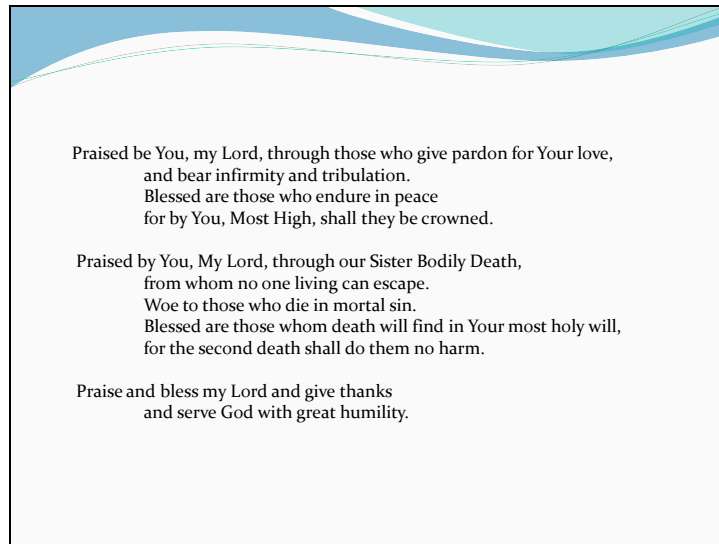
Praised be you, my Lord, with all Your creatures,  
especially Sir Brother Sun,  
Who is the day and through whom You give us light.  
And he is beautiful and radiant with great splendor,  
and bears a likeness of You, Most High One.

Praised be You, my Lord, through Sister Moon and the stars  
in heaven You formed them clear and precious and beautiful.

## Slide 3



## Slide 4



Thank you Sister Anne.

Before we begin our program, I'd like to make sure that everyone is aware of the numerous handouts we have available on the topic of global warming on the table in the rear. These resources are also available on our website at [clintonfranciscans.com](http://clintonfranciscans.com).

We'd also like to encourage you to sign up for our email mailing list, if you are not already on it. We send out a weekly Action Alert Digest with news and opportunities for advocacy on issues such as the environment. We do not share our mailing list with anyone.

We encourage you to sign up and let us know if you are interested in getting more involved in sustainability issues here in Clinton. We are forming a group to learn more and to take action locally to promote care for the environment.

So....why are we here?

## Slide 5

**Why is Global Warming a Religious Issue?**

- Care for creation
- A matter of justice
- A call to respond

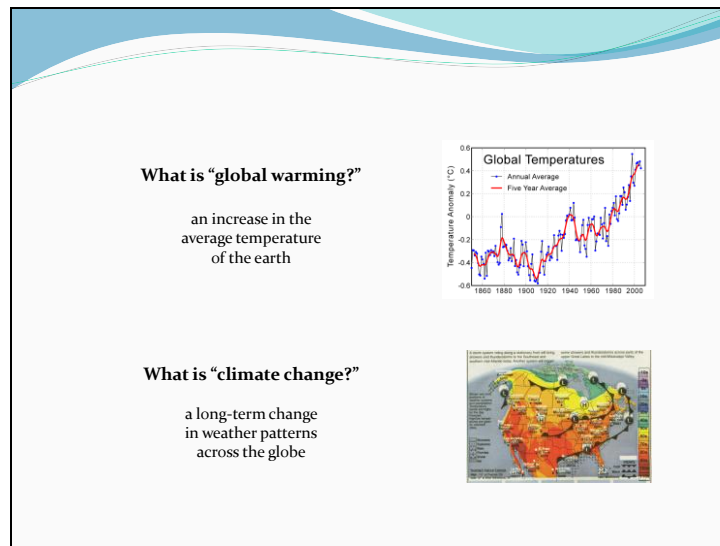


The slide features a collage of logos for various religious environmental organizations. The logos include: 'Protestants for Earth Care AN ECO-JUSTICE NETWORK', 'GreenFaith. Interfaith Partners in Action for the Earth', 'The Catholic Coalition on Climate Change', 'EVANGELICAL ENVIRONMENTAL NETWORK', 'Interfaith Power & Light', 'Protecting Creation: Generation to Generation', 'UNITARIAN UNIVERSALIST MINISTRY FOR EARTH', 'Oklahoma United Methodist Environmental Coalition', and 'National Council of Churches of Christ Eco-Justice Programs'.

People of all religions are called to care for creation. Caring for creation is not just about protecting animals, plants, and our fellow human beings. It means respecting and sustaining the systems that make life possible. The Earth itself is a living system which has been placed in peril by our actions and inaction.

At its heart, responding to Climate Change is a matter of justice. Why? Because it is the innocent, those who contributed least to global warming, who will face its greatest consequences. This is true of future generations as well as the poorest people and countries of the world.

As people of faith we are called to a standard which exceeds our individual wants, our country, and the status quo. For this reason, it was faith communities who played a pivotal role in responding to the moral crises of slavery, poverty, and civil rights. We are now called to respond to Climate Change.



### What is "global warming?"


Global warming refers to the **increase in the average temperature** of Earth's near-surface air and oceans since the mid-20th century and its projected continuation. Global warming is causing widespread climate change.

### What is "climate change?"

Climate change is a long-term **change in the weather patterns**. Across the globe. It may be a change in the average weather conditions or a change in the distribution of weather events with respect to an average, for example, greater or fewer extreme weather events.

**How Do We Know This is Taking Place?**

- 2010 tied with 2005 as the warmest year on record since 1880.
- This was the 34<sup>th</sup> consecutive year that the global temperature was above average.
- Nine of the earth's 10 warmest years have occurred since 2001.



Source: [http://www.usatoday.com/tech/science/environment/2011-01-12-2010-warmest-year-climate-change\\_N.htm](http://www.usatoday.com/tech/science/environment/2011-01-12-2010-warmest-year-climate-change_N.htm)

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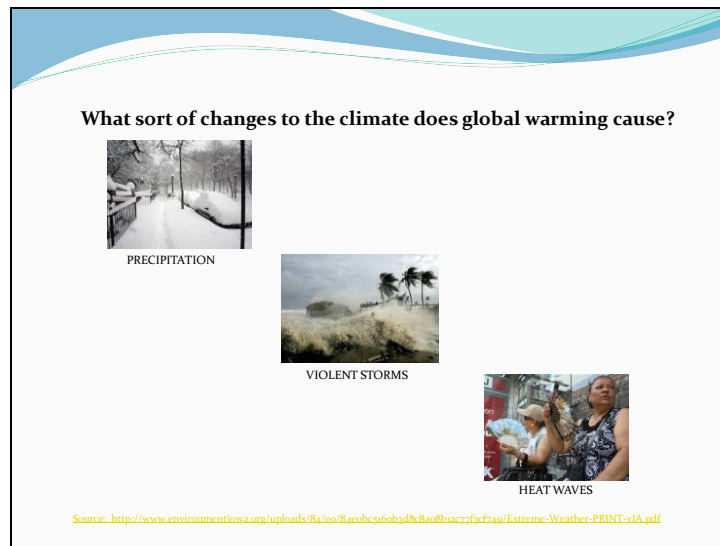
PBS put out an excellent documentary about global warming as part of their "Frontline" series in 2008. The episode was called "Heat." The entire program is two hours long, but I'm going to show a couple of clips from it. The entire program is available for viewing on the PBS website. The URL is listed on the handout of websites available in the back of the room.

Bear in mind that this documentary was made in during the 2008 presidential campaign. You will hear references to both candidates.

(Show "Frontline: Heat" Chapter 1 (11 min): Starts at 3:02)



## Slide 8



### PRECIPITATION

We can expect more frequent heavy downpours and snowfalls, since warmer air can hold more water vapor. Already, the number of heavy precipitation events in the United States increased 24 percent between 1948 and 2006, helping to make flooding the most common weather-related disaster in the U.S. Recent years have seen a string of incredibly destructive floods and snowstorms, including the 2008 Midwest flood that caused \$8 to \$10 billion in damage and 2010's "Snowmagedon" that cost the East Coast more than \$2 billion.

### VIOLENT STORMS

We are already seeing fewer—but more intense—hurricanes worldwide, and that the number of intense Category 4 and 5 hurricanes in the Atlantic may nearly double over the course of the next century. Estimated damages from the seven most costly hurricanes to strike the U.S. since 2005 exceed \$200 billion.


### HEAT WAVES

Heat waves are projected to be more frequent, more intense, and last longer due to global warming. Heat waves are among the most lethal of extreme weather events, as illustrated by a 2006 heat wave that affected the entire contiguous United States and was blamed for at least 147 deaths in California and another 140 deaths in New York City.

## Slide 9

### How is Iowa Affected?

- flooding
- droughts
- Increased average temperature and greater temperature variability
- Stronger storm systems and tornados
- Flourishing of weeds
- Increases in wildfires
- Higher humidity



Source: [http://iowaip.org/climate\\_change.html](http://iowaip.org/climate_change.html)

- More precipitation extremes lead to flooding
- Prolonged periods without rain resulting in droughts
- Increased average temperature and greater temperature variability
- Stronger storm systems and tornados
- Flourishing of weeds which are less susceptible to herbicides
- Increases in wildfires
- Higher humidity

Recent extreme weather events that have impacted Iowa, include the 2008 flooding of the Des Moines river which caused between \$8-10 billion in damages and was responsible for 24 deaths and 148 injuries.

These extremes will be expensive for our state both in terms of recovery funding and loss of productivity.

What can we do about this?

Let's look at the root cause to find some solutions....



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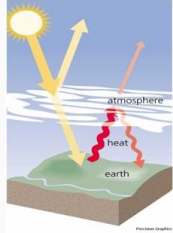
What is causing Global Warming in the first place?

You've probably heard of the "Greenhouse Effect."

A good analogy is your car on a hot summer day. If you do not crack the windows, you will return to find it much hotter inside of your car than outside. This is because the windows allow the sun's energy to pass through to the interior. While some of the energy leaves through the windows, much of it gets "stuck" in the car, causing it heat to up.

So what is acting like the car windows?

## Slide 11



The diagram illustrates the greenhouse effect. On the left, a sun emits yellow arrows representing solar radiation. One arrow points down to a green patch of land labeled 'earth'. Another arrow points up and away from the earth, representing energy leaving the planet. A third arrow points down from the 'atmosphere' layer back to the earth, representing heat being trapped. A red wavy arrow labeled 'heat' points from the earth's surface up into the atmosphere. The atmosphere is depicted as a blue layer above the earth's surface.

The “car windows” are made up of a layer of *greenhouse gasses (GHG)* which have accumulated in our atmosphere and are preventing more and more of the sun’s energy from leaving the Earth.

The most common of these greenhouse gasses are:

- carbon dioxide (CO<sub>2</sub>)
- methane
- nitrous oxide

Source: Iowa Interfaith Power & Light

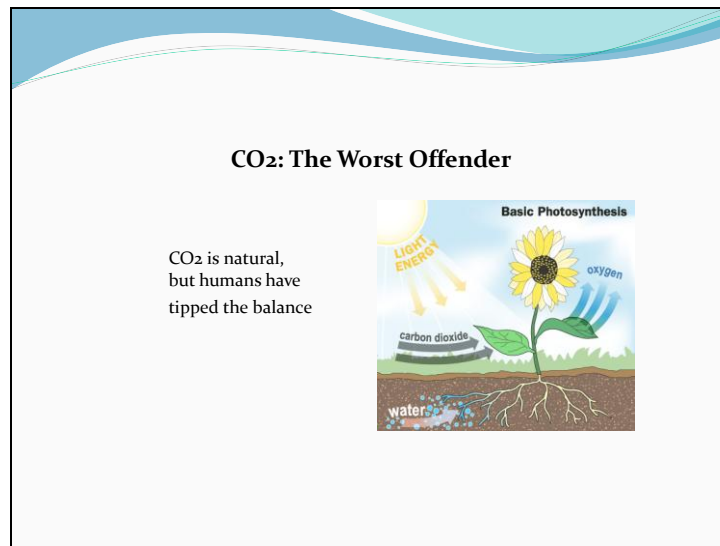
The “car windows” are made up of a layer of “greenhouse gasses” or GHGs which have accumulated in our atmosphere and are preventing more and more of the sun’s energy from leaving the earth.

Under normal conditions, some of the sun’s energy would be absorbed by the surface and some of it would bounce off and return through the atmosphere into space.

The result has been higher average surface temperatures and dramatic changes in climate across the globe.

The most common of these greenhouse gasses are:

- Carbon dioxide or CO<sub>2</sub>
- Methane and
- Nitrous oxide



The biggest offender is carbon dioxide or CO<sub>2</sub>.

CO<sub>2</sub> is actually a natural part of the environment....

Animals exhale CO<sub>2</sub> and plants take in CO<sub>2</sub> for photosynthesis, the process by which plants make their own food.

But humans have tipped this natural balance. We're adding too much CO<sub>2</sub> to the air.


We're simultaneously clearing forest and natural areas to produce goods, adding even more CO<sub>2</sub> to the air, and decreasing the Earth's natural long-term containment of CO<sub>2</sub>. Since the industrial revolution, the amount of CO<sub>2</sub> in our atmosphere has increased dramatically.

CO<sub>2</sub> added today remains in the atmosphere for 100 years or more, which means the atmosphere is thrown more and more out of balance each year.

[http://www.iowadnr.gov/air/citizen/climate/greenhouse\\_gases.html#CO2](http://www.iowadnr.gov/air/citizen/climate/greenhouse_gases.html#CO2)

**Where is All the CO<sub>2</sub> Coming From?**

- Electricity generation
- Half of US electricity is generated from coal (because it is cheap)
- Coal is the most carbon intensive of the fossil fuels



<http://interfaithpowerandlight.org/2010/10/national-preach-in-on-global-warming-2011/>

Where is all this CO<sub>2</sub> coming from?

There are many sources, but the primary culprit is:

**Electricity generation** (followed by transportation).

**Half of US electricity is generated from coal.** Why? Because coal is the most affordable source of energy fuel (source: National Mining Association)

**Unfortunately coal is the most carbon intensive** of the fossil fuels used widely in the U.S. today, accounting for over 80% of carbon dioxide emissions from the power sector.

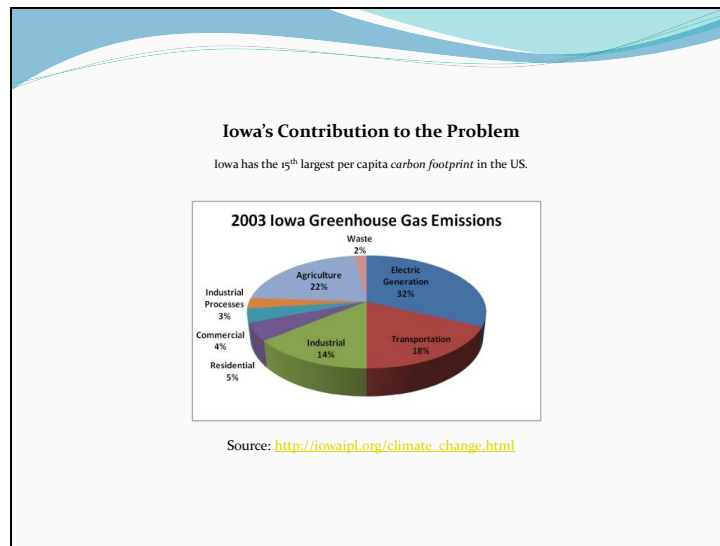
Sadly, each new coal plant that is built carries with it a huge stream of carbon dioxide emissions that will likely flow for the life of the plant—60 years or more. Investing in conventional coal plants today locks us into several decades of global warming pollution.

<http://interfaithpowerandlight.org/2010/10/national-preach-in-on-global-warming-2011>

To demonstrate America's addiction to coal and how that addiction is encouraged and facilitated by the coal industry, we will watch another clip from Frontline's "Heat" . We'll also hear about the concept of "clean coal" and examine whether or not it is a viable solution.

*Show Frontline: Heat Ch. 4 (17 min) (clip ends at 47:44)*

## Slide 14



So what is IOWAs part in all this?

You may be surprised to learn that Iowa has the 15<sup>th</sup> largest per capita carbon “footprint” in the US.

Like the rest of the country, the majority of our emissions are attributable to electrical generation.

Our high electrical generation emissions (32%) is due to our reliance on coal, which, by the way, in addition to carbon dioxide also adds mercury and arsenic to our environment.

Coming in second is agriculture, accounting for 22% of our greenhouse gasses.

Livestock manure produces methane and fertilizers produce nitrous oxide.

Transportation is also a significant factor, making up 18% of our emissions.

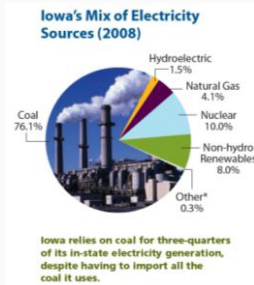
### Coal Power in Iowa

**Iowa Runs on Coal**

- 16th in the nation in coal power generation
- 72 operating coal-fired power units at 28 locations
- Iowa is home to several of the oldest, least efficient and most polluting coal-burning power plants in the nation

**But there is no coal in Iowa**

- there are no major coal mines in Iowa
- Iowa spends nearly \$500 million/year on coal imported from Wyoming



Source: [http://www.ucsusa.org/clean\\_energy/documents/clean\\_energy/UCS-ERC-Subject\\_Iowa.pdf](http://www.ucsusa.org/clean_energy/documents/clean_energy/UCS-ERC-Subject_Iowa.pdf)

### Iowa Runs on Coal

Iowa is 16th in the nation in coal power generation, with 72 operating coal-fired power units at 28 locations. Additionally, Iowa is home to several of the oldest, least efficient and most polluting coal-burning power plants in the nation, those grandfathered and exempted from stricter emissions limits after passage of the Clean Air Act in 1977.

### But there is no coal in Iowa

As of March 2010, there are no major coal *mines* in Iowa. Iowa imports all of its coal. Iowa spends nearly \$500 million a year on coal that we import from Wyoming.

[http://www.sourcewatch.org/index.php?title=Category:Existing\\_coal\\_plants\\_in\\_Iowa](http://www.sourcewatch.org/index.php?title=Category:Existing_coal_plants_in_Iowa)

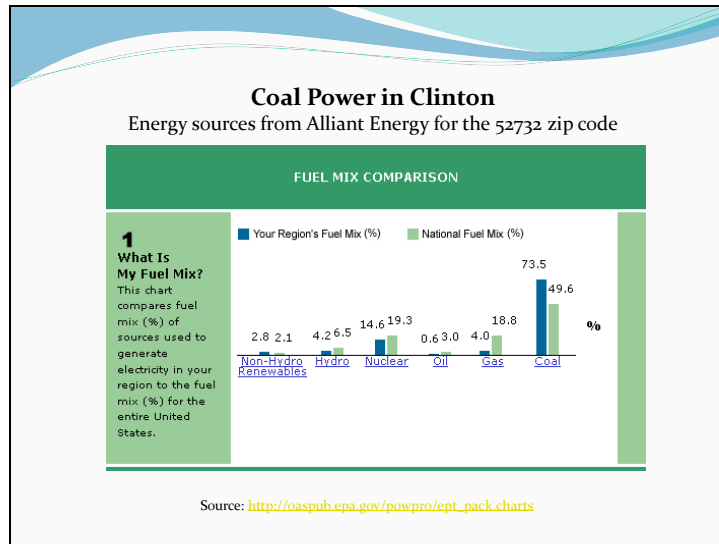
[http://www.ucsusa.org/clean\\_energy/technology\\_and\\_impacts/impacts/burning-coal-burning-cash.html](http://www.ucsusa.org/clean_energy/technology_and_impacts/impacts/burning-coal-burning-cash.html)

[http://www.ucsusa.org/clean\\_energy/clean\\_energy\\_101/where-does-our-electricity.html#](http://www.ucsusa.org/clean_energy/clean_energy_101/where-does-our-electricity.html#)

In addition, Iowa also disposes a disproportionate amount of coal combustion waste.

Numerous toxic substances naturally found in coal are concentrated in such waste. Iowa has lax regulations on coal combustion waste disposal and allows waste from other states to be brought into Iowa for disposal. Thus Iowa absorbs the waste from its own plants as well as that produced elsewhere despite the potential health and environmental impacts of the many toxic substances involved....

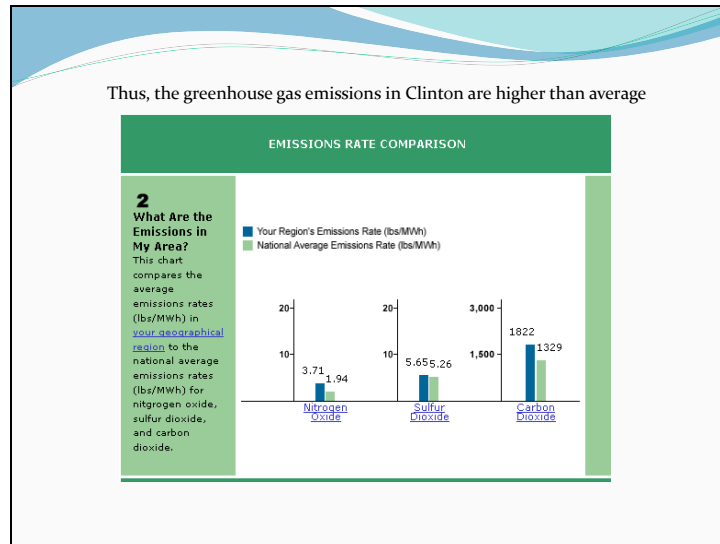
Source: <http://iowaenvironmentalfocus.org/2010/11/11/physicians-coal-study-raises-health-concerns/#more-406>



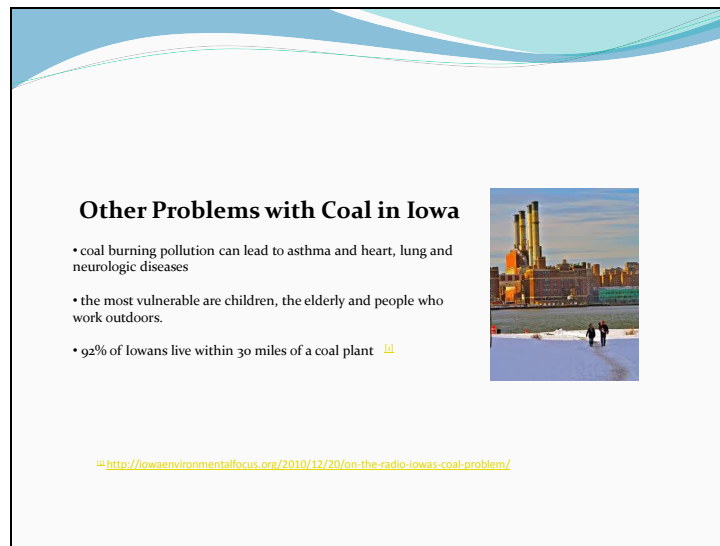
Bringing it closer to home, we can see how much coal is used right here in Clinton.

You can go to the EPA website and type in your zip code and find out exactly where your power comes from.

And as you can see here, in Clinton we get 73.5 percent of our electricity power from coal – while the rest of the country gets just under 50% from coal.




It would follow then that we experience higher greenhouse gas emissions than the national average.



**Other Problems with Coal in Iowa**

- coal burning pollution can lead to asthma and heart, lung and neurologic diseases
- the most vulnerable are children, the elderly and people who work outdoors.
- 92% of lowans live within 30 miles of a coal plant <sup>[1]</sup>

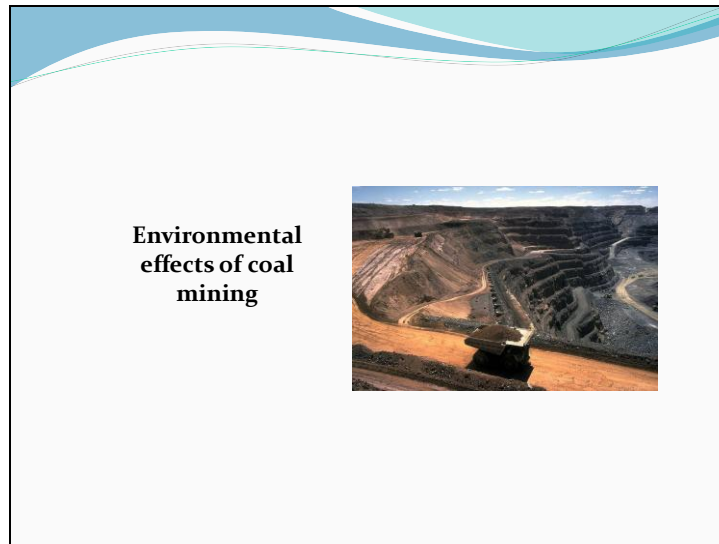


<sup>[1]</sup> <http://iowaenvironmentalfocus.org/2010/12/20/on-the-radio-iowas-coal-problem/>

The pollution from burning coal can lead to asthma and heart, lung and neurologic diseases. Or they can worsen the conditions of people already diagnosed with those diseases, all of which are increasing in the U.S. .

Among those most vulnerable to the effects of burning coal are children, the elderly and people who work outdoors. <sup>[1]</sup>

Ninety-two percent of lowans live within 30 miles of a coal plant and a third of children attend schools nearby one.



Aside from the toll that fossil fuels are taking on the air we breathe, the act of coal MINING has a devastating impact on our earth.

We're going to take a look at a short clip from a film called "Dirty Business" that examines the coal industry .




It illustrates how coal is taken from the earth and what is left behind.

*("Dirty Business" Ch 2 – 3 min)*

**How coal affects the poor**

Coal cannot be extracted without destroying people's homes, people's lives, and the culture of people.

How can it ever be called "clean?"



Coal mining takes a toll on the people who live in the communities that surround the mines as well.

As the mountains are removed, property values plummet.


The air quality, water quality affect the health of the local residents – who are often struggling with poverty already.

We're going to watch another clip from the film "Dirty Business" to learn how one such community in West Virginia was affected by coal mining.

*("Dirty Business" Ch 6 – 5 min)*

**What is being done to restrict fossil fuel emissions?**

The Environmental Protection Agency was created in 1970, but there is movement to limit it's authority.



President Obama says we need to source 80% of our energy from low-carbon sources by 2035, but business leaders are already balking



Source: <http://www.nytimes.com/wire/2011/02/02/02agreement-us-chamber-renewable-groups-clash-over-ability-803.html>

In 1970, Congress created the Environmental Protection Agency (EPA) and passed the Clean Air Act, giving the federal government authority to clean up air pollution in this country.

The EPA currently has the authority to regulate global warming pollution, but recent actions have been taken in Congress to limit this authority. Several Members of Congress released or plan to release bills to either delay or prohibit the EPA's ability to regulate greenhouse gases.

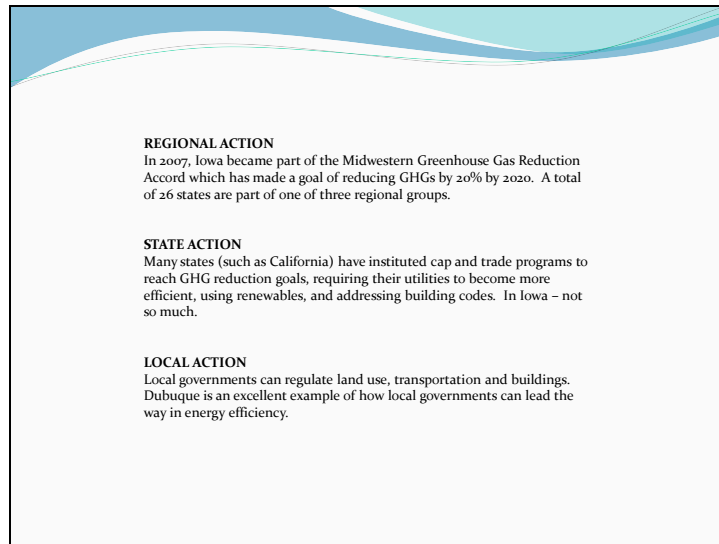
The coal mining lobby is strong and they are working hard to prevent the government from regulating them in any way.

Just last month, President Obama stated that we need to source 80% of the nation's energy from low-carbon sources by 2035.

The U.S. Chamber of Commerce response was: "impossible." They say there are too many regulatory barriers right now, with siting, licensing and building facilities such as wind farms and solar farms.

While the debate continues on a national level, some have suggested we need to take a more localized approach....





**REGIONAL ACTION**

In 2007, Iowa became part of the Midwestern Greenhouse Gas Reduction Accord which has made a goal of reducing GHGs by 20% by 2020. A total of 26 states are part of one of three regional groups.

**STATE ACTION**

Many states (such as California) have instituted cap and trade programs to reach GHG reduction goals, requiring their utilities to become more efficient, using renewables, and addressing building codes. In Iowa – not so much.

**LOCAL ACTION**

Local governments can regulate land use, transportation and buildings. Dubuque is an excellent example of how local governments can lead the way in energy efficiency.






## Slide 24

**What we COULD do here in Iowa**  
*(the answer is blowing in the wind)*

- Iowa is the 10th windiest state in the US.
- Export renewable energy to other states
- Create new green jobs

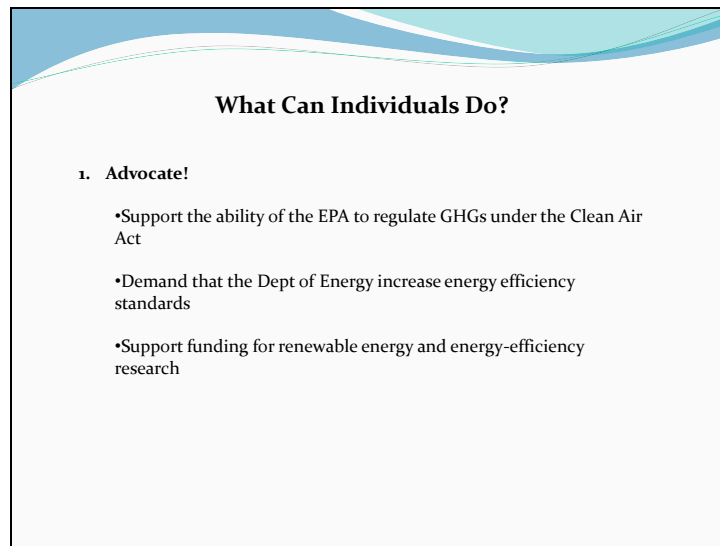
Source: <http://iowapl.org/echope.html>



According to experts, Iowa is the 10th windiest state in the US. This means that we have the potential to transition away from coal and even become an **exporter** of renewable energy to other states.

Making this transition will cause an economic boon for our state. Communities in Iowa, such as Cedar Rapids and Newton, are already experiencing the benefits of jobs related to wind turbine manufacturing.

Recently, a new report from Perdue University indicates that GHGs can be greatly reduced by farmers using “no-till” farming methods in which farmers don’t plow under their fields between crops. This also helps farmers make more efficient use of costly nitrogen-based fertilizers.



**What Can Individuals Do?**

**1. Advocate!**

- Support the ability of the EPA to regulate GHGs under the Clean Air Act
- Demand that the Dept of Energy increase energy efficiency standards
- Support funding for renewable energy and energy-efficiency research

**Be an Advocate!**

•Support the ability of the EPA to regulate GHGs under the Clean Air Act. Last month, the EPA vetoed the largest single mountaintop removal permit in West Virginia history. In making its decision to veto the 2,300-acre mine, the EPA noted that it reviewed more than 50,000 public comments and held a major public hearing in West Virginia.<sup>1</sup> YOUR VOICES ARE HEARD! Stay on top of energy news by signing up for our mailing list of action alerts.


•Demand that the Dept of Energy increase energy efficiency standards

•Support funding for renewable energy and energy-efficiency research. This is currently a very small part of the federal government’s research budget.

<sup>1</sup><http://blogs.wvgazette.com/coalatattoo/2011/01/13/breaking-news-epa-vetoes-spruce-mine-permit/>

2. **Encourage Local Government to Enact Sustainable Policies**

- Land use management
- Transportation planning
- Energy efficiency
- Green power
- Water and wastewater management
- Recycling and waste reduction
- Education and outreach

A photograph of a wooden signpost with a banner that reads "Welcome to... SUSTAINABLE". The signpost is made of vertical wooden posts and is set against a background of green trees and a blue sky. The banner is white with black text and a small graphic of a house and a recycling symbol.

**Encourage Local Government to Enact Sustainable Policies**

- Land use management
- Transportation planning
- Energy efficiency
- Green power
- Water and wastewater management
- Recycling and waste reduction
- Education and outreach

3. Determine your personal carbon footprint:




[http://www.epa.gov/climatechange/emissions/ind\\_calculator.html](http://www.epa.gov/climatechange/emissions/ind_calculator.html)

**Determine your personal carbon footprint:**


The EPA has developed this online calculator for you to obtain an estimate of your personal greenhouse gas emissions. Then move on to the next section of the calculator for actions you can take to lower those emissions and reduce energy and waste disposal costs.

There are many more – be sure to pick up the “Reduce Your Carbon Footprint” handout before you leave. It includes the URLs for several such calculators.



**4. Take steps to reduce your carbon footprint:**

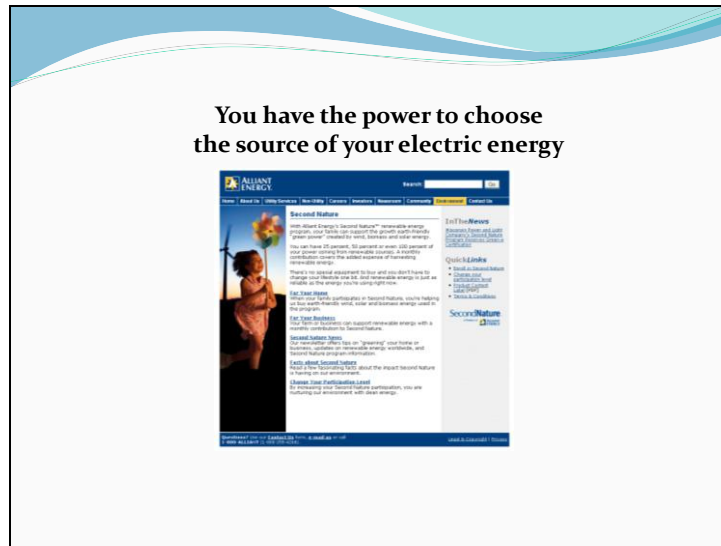
- Turn down your thermostat in winter and set it higher in summer.
- Replace incandescent light bulbs with compact fluorescents.
- Reduce, reuse and recycle to save energy and resources.
- Use a clothesline instead of a dryer.
- Turn off the light/TV/computer when you leave the room.
- Share or donate what you have, buy less stuff.
- Buy energy-efficient appliances and equipment with the Energy Star label.



Whether or not you calculate your carbon footprint, we can all take steps to reduce that footprint.

You've heard them all before....

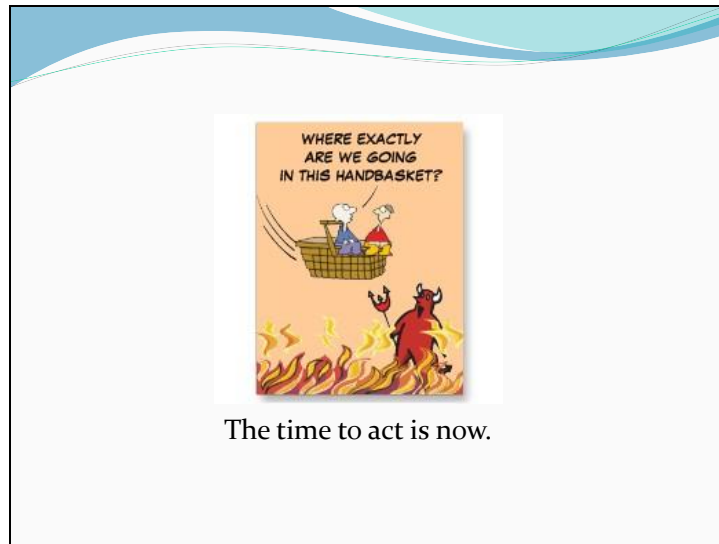
These and many more are listed in the "Reduce Your Carbon Footprint" handout or on our website.



In addition to reducing the amount of energy you use, you can choose where your power comes from. Alliant Energy customers can opt to participate in the Second Nature program which supports electricity generated from renewable resources. Customers elect to have 25, 50 or 100% of their power come from alternative energy that Alliant obtains from a landfill gas facility, an anaerobic digester, solar and wind farms. Programs start at an additional \$4 per month.

We have brochures about the Second Nature program available in the back.

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To sum up:

Our addiction to energy and our reliance on fossil fuels is wreaking havoc on the planet, but there are steps we can take to make it right. Right here...right now.

In 2009, the Clinton Franciscans presented a workshop and concert by a very talented environmentalist musician named Joyce Rouse who goes by the name Earth Mama. We're going to leave you with a catchy song she wrote that says it all...

**ENERGY**

by Joyce Johnson Rouse (Earth Mama)

Eh—ner—gy!  
We can get it from the fossil fuels: oil, coal or gas  
But we don't exactly know just how long they're going to last  
And by burning them we pollute the atmospheric mass  
So we're going to have to find alternatives — Ole!  
We can get it from plutonium, that may not be so good  
We can get it cutting down some trees and making firewood  
But we need trees to purify the air and that is why we should  
Continue to seek alternatives — Ole!  
Energy, oh, how much it means to me  
Energy, for my car and lights and heat  
We can get it from water rushing over dam or fall  
It is cheap and it is clean, it hardly makes a mess at all  
But we can't dam up all the rivers, it would not be practical  
So we're looking for more alternatives — Ole!  
There is solar, there is thermal, there is wind and there is wave  
And we're working on a fuel cell of hydrogen, hooray  
And there may be more tomorrow that we do not have today  
Cause we're working on new alternatives — Ole!  
Alternatives, looking for alternatives  
Let's learn to live conserving energy  
We can save it by remembering to just turn out the light  
We can save it by turning down the thermostat at night  
By reducing, reusing and recycling, that's right!  
And by searching for new alternatives — Ole!



<http://www.earthmama.org>

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