



## **Fossil Fuels: From Dependence to Independence**

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## Summary

Almost everything we do and nearly every job we have depends on energy generated from oil, coal or gas. Demand for energy is skyrocketing; yet, worldwide oil and domestic natural gas supplies are dwindling. If we continue to ignore this reality, we will be faced with economic breakdown and serious disruption of our food supply. Our dependence on fossil fuels also seriously undermines our national security, since much of the oil and natural gas that does remain lies in the volatile Middle East. In fact, many believe this is a driving reason for the war in Iraq. Fossil fuels compromise the health of children and adults alike. Even more pressing, fossil fuel dependence is altering our environment in grave and life-threatening ways.

Fair-minded bipartisan politicians, scientists, concerned healthcare professionals and even oil industry representatives understand that we must break this dependence. Politicians from the far sides of both major political parties and representatives from the oil industry have begun calling for nothing short of an energy revolution. The good news is that possibilities exist—possibilities that can preserve our life-sustaining ecosystem, make America more secure and stronger economically, and eliminate a cause of several serious diseases.

*Moms for the Future* believes we can eliminate our fossil fuel dependence and move toward cleaner, alternate energies. We believe this can be achieved with leadership and innovation, and commitment from citizens. We believe it must be done now. The purpose of this paper is to help moms in our local community better understand the problem, without placing blame on any individual, so we can help make change happen for our children.

## Part One: Dependence Defined

Excessive energy consumption is a foundation of our modern American habits and culture. As individuals, we are not to blame, but we are responsible for our children's futures and, as such, we need to fight for change. Here are some revealing statistics:

- Every American uses 52% more energy than each Japanese citizen and more than 11 times more energy than the average Chinese citizen.<sup>1</sup>
- We use 25% of the entire world's oil, even though we have less than 5% of the world's population. That's more than 4,000 gallons of gasoline every second of every day, or more than 358.1 million gallons every day.<sup>2</sup>
- We use this energy for 3 primary things: transportation, heat/air conditioning, and electricity.

Type of Fossil Fuel	Use
Oil	Gasoline for cars Diesel fuel for cars, trucks and airplanes Home heating Tire, plastic and ink manufacturing
Coal	Electricity
Natural gas	Home heating/water heating/cooking Electricity Industrial applications

- Nearly everything we buy has a "fossil fuel cost." Buildings consume at least 40% of all the energy we use (for heating, cooling, lighting and running appliances). We use petroleum to manufacture plastics, inks and tires.
- Seventeen percent of the energy we use goes to growing our food. To push crop yields beyond what nature might typically produce, we pour energy into the land in the form of fertilizer, farm equipment and irrigation—all which require fossil fuels.<sup>3</sup> The transport, packaging and marketing of food consumes even more energy. Producing just one 2-pound box of breakfast cereal requires the equivalent of burning half a gallon of gasoline.<sup>4</sup>

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*Each food item we buy travels an average of 1,500 miles.*

*Table grapes grown in Chile travel more than 4,200 miles just to get to California.*

*—SustainableBusiness.com*

*The energy used by residential, commercial and industrial buildings produces more CO<sub>2</sub> pollution than industry or cars and trucks. The manufacture of building products, and transportation due to urban sprawl, also cause polluting greenhouse gas emissions.*

*—Pew Center on Global Climate Change*

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## Part Two: The Challenges

The problem created by our fossil fuel dependence is complex, large and imminent. Our dependence has created five specific challenges.

### Challenge #1: Fuel is running out.

Cheap, abundant oil has supported economic growth for more than 75 years, but this cannot continue. Demand is soaring around the world and will exceed world supply within approximately 10 years, according to leading independent oil geologists and other experts.<sup>5,6</sup>

Most experts agree this is because we are reaching “peak oil” production, or the depletion of 50% of existing oil reserves. Once production peaks, oil becomes more and more difficult to extract, and production steadily declines. Right now, 69% of the 48 largest oil producers have already seen their oil production plateau or decline.<sup>7</sup>

Given that the U.S. has only 2% of the world’s oil reserves, we cannot find significant new sources of oil. Even at peak production, an oil drilling facility at the Alaskan National Wildlife Refuge would not reduce our dependence on dwindling foreign oil in any significant way, according to our Department of Energy.<sup>8</sup>

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*“By some estimates, there will be an average of 2% annual growth in global oil demand over the years ahead, along with, conservatively, a 3% natural decline in production from existing reserves ...That means by 2010 we will need on the order of an additional 50 million barrels a day. This is equivalent to more than **six** Saudi Arabias of today's size.”*

*—Vice President Dick Cheney, in 1999, when he was Chair of Halliburton,  
the largest oil services company in the world*

*“One thing is clear. The era of easy oil is over.”*  
*—Chevron, the second-largest American oil company,  
in a series of recent advertisements*

*“We are peaking now. We're right on it [the peak] ...  
The world is fundamentally changing as far as oil is concerned.”*  
*— T. Boone Pickens, a Dallas hedge fund manager  
and long-time oil industry executive*

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## **Challenge #2: Our nation is less secure.**

Right now, we are extremely vulnerable to volatile countries that own the vast majority of oil supplies. Seventy percent of the oil we consume is imported, and 40% comes from OPEC nations (e.g., Saudi Arabia, Iran, Iraq, Qatar, United Arab Emirates).<sup>8,9</sup> Much of the remainder comes from Canada and Mexico and, in the years to come, we cannot expect these countries to meet our needs before meeting their own. The need to secure oil for our increasingly energy dependent nation is a commonly cited reason for the current war in Iraq.

Demand for natural gas is also far exceeding our domestic supply. Unfortunately, almost three-quarters of the world's natural gas reserves are in the Middle East and the transitional economies of Eastern Europe and the former Soviet Union. Russia, Iran, and Qatar combined account for about 58% of the world's natural gas reserves.<sup>10</sup>

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*Since much of the world's oil is controlled by countries that are sponsors of or allied with radical Islamists who foment hatred against the United States this dependency is a matter of national security.*

*—The Set America Free Coalition, an alliance of prominent leaders from every side of the political spectrum*

*“When we examine what is known about global oil reserves, and where they are, in light of the 'peak oil' analysis ... it becomes clearer why Cheney would be willing to risk so much in terms of America's standing among allies and others to occupy the oil fields of Iraq.*

*Cheney knows exactly what the global oil reserve situation is as former CEO of Halliburton Corporation, the world's largest oil services company.”*

*—F. William Engdahl, economist, author, 30-year analyst of the economic consequences of America's oil dependence*

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### **Challenge #3: The foundation of modern society is in jeopardy.**

Energy is the linchpin of our economic future because it essential to every business and every job. Our entire economy and food supply depends on transportation. Experts have issued dire warnings of economic collapse should we fail to ramp up alternate energy sources.

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*“The world will likely feel the impact of the peaking of most large oil fields and the dramatic fall in supply by the end of this decade, 2010, or possibly even several years sooner. At that point, the world economy will face shocks which will make the oil price rises of the 1970s pale by contrast. In other words, we face a major global energy shortage for the prime fuel of our entire economy within about seven years.”*

*—F. William Engdahl, economist, author, 30-year analyst of the world's oil supplies and the economic consequences of America's oil dependence*

*Our prosperity is built on the principal of exhausting the world's resources as quickly as possible, without any thought to our neighbors, all the other life on this planet, or our children. Our biggest problem is not that your SUV might go hungry; it's that you and your children might go hungry.*

*—Dale Allen Pfeiffer, in Eating Fossil Fuels, as found in EnergyBulletin.net, a clearinghouse for information about our global energy supply*

*“Oil and natural gas still underpin almost all aspects of modern society. Transport is almost solely reliant on oil. It's oil that is the basis for the fertilizers that enhance food stocks and that is used in the manufacture of countless goods. We have to radically start changing our lifestyles and trying to come up with a brand new source of energy. At the moment we can't even replace 5% of the oil we use with alternatives.*

*The world economy has no Plan B.”*

*—Matthew Simmons, chief executive of investment bank Simmons & Co. International and former energy advisor to President George W. Bush*

*“Keeping America competitive requires affordable energy. Here we have a serious problem: America is addicted to oil, which is often imported from unstable parts of the world.”*

*—President George W. Bush, in his February 1, 2006 State of the Union Address*

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#### **Challenge #4: Our ecosystem is threatened.**

When we burn fossil fuels, we create CO<sub>2</sub> pollution, which stays in the atmosphere for about 100 years and traps heat, thereby warming our air. Each American now creates 6.6 tons of CO<sub>2</sub> pollution every year, and since it lives so long, CO<sub>2</sub> levels are continuously rising.<sup>11</sup>

Among scientists worldwide, there is no debate about the fact that the globe is warming.<sup>12,13</sup> Critics who previously disagreed with this have retracted their positions, although a handful now contend that the warming may be naturally occurring. This switching of scientific rationales and the fact that the majority of these critics receive funding from the oil industry discredit their positions, as does recent, sound scientific evidence to show that warming is human induced.<sup>12,14</sup> This evidence has been verified by our own government.<sup>15</sup> (For information on these skeptics and their ties to the oil industry, see Attachment A.) Further, in the past, naturally occurring temperature changes have occurred over millennia, not years. Climate change is happening very fast.

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*“Politicians, economists, journalists and others may have the impression of confusion, disagreement or discord among climate scientists, but that impression is incorrect.”*

*—Science historian Naomi Oreskes, University of California-San Diego, in her review of all 928 peer-reviewed papers on climate change published between 1993 and 2003, which showed the consensus to be real and near universal. The review appeared in the journal Science.*

*There is new and stronger evidence that most of the warming over the last 50 years is attributable to human activities.*

*—US Environmental Protection Agency, 2006*

*“It has become clear that we are nearing the tipping point of our climate system. If we don’t take actions within the next 10 years there will be serious consequences. I think what’s on the line is the future of the planet and what we hand over to our children and grandchildren. As far as I’m concerned the personal effects are small in comparison.”*

*—Dr. James E. Hansen, longtime director of the NASA’s Goddard Institute for Space Studies, in an interview in which he says special interests with far too much control over our government have hidden the truth about climate change from the public, January 2006*

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## Challenge #4 (continued).

Unfortunately, scientists now report that the impact of our fossil fuel dependence will be worse than originally thought.<sup>16</sup> Here are some anticipated environmental consequences of global warming, which we are already beginning to see:<sup>17,18</sup>

- Heat waves, droughts and intense wildfires;
- Flooding;
- Substantial loss of drinking water sources;
- Significantly more intense storms/hurricanes;
- Sea level rise of up to 20 feet due to rapid melting of the Greenland and Antarctic ice shelves into the ocean. This would put vast, densely populated land areas—including Miami, New Orleans, the Outer Banks, and parts of Manhattan, Beijing, Shanghai and Bangladesh—under water, resulting in chaotic migration of hundreds of millions of people;
- Ecosystem disruption and severe animal/plant extinctions. Scientists are already seeing disruptions in our natural food chain, including the food chain in the oceans on which we all ultimately rely for life. They are seeing reduced food production in some areas due to changes in temperature, rainfall, pests and diseases. Polar bears are drowning because they can't swim the increasingly long distances from floe to floe. Emperor penguins have declined by 70% because the ice breaks up and carries away their eggs and chicks.

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*"The latest Intergovernment Panel on Climate Change (IPCC) assessment is that doubling CO<sub>2</sub> levels will warm the world by anything from 1.4° to 5.8° C by 2100.*

*Even at the low end, this is probably the biggest fluctuation in temperature that has occurred in the history of human civilization."*

*— NewScientist.com. The IPCC is a cooperative international agency set up 17 years ago. It has harnessed the work of thousands of scientists worldwide. Its next report, due out in 2007, is expected to show that the impact of global warming is less predictable and much worse than originally thought. Some computer models predict temperature increases above 10° by 2100.*

*In Pennsylvania, scientists project we may have more very hot days in the summer; 50% more rain in the fall; 30% to 40% reductions in corn and hay yields; dwindling fresh groundwater supplies; a northward retreat of maple, beech and birch trees with an increase in southern pines; and severe disruption of fish, aquatic species and birds.*

*—Environmental Protection Agency, "Climate Change and Pennsylvania"*

*If the Greenland ice sheet melts, sea level could rise by as much as 25 feet by the end of the century. Today there are 17 million people living less than 1 meter above sea level in Bangladesh, while places in Florida and Louisiana, Bangkok, Calcutta, Dhaka, and Manila are also at great risk of losing masses of land.*

*—From a report entered into the 2005 Alaska Ocean Sciences Bowl high school competition by students from Seward High School. Residents in Barrow, Alaska, are already facing relocation due to rising seawater and melting permafrost on which they live. Nearly a decade ago, Time magazine reported that cities like New Orleans and Miami, the Outer Banks and shorelines everywhere, including New Jersey, will be underwater if global warming does not stop.*

**Challenge #5: Fossil fuels cause disease.**

Both the warming caused by CO<sub>2</sub> and particulate pollution caused by burning coal and diesel fuel have serious health consequences for our children:<sup>19</sup>

- *Insect-borne disease.* Hotter temperatures cause disease-carrying insects, like malaria- and West Nile-carrying mosquitoes and Lyme-carring ticks, to spread.
- *Developmental problems.* Coal-fired power plants release mercury into the air. Mercury gets into our fish, and in 2003, Pennsylvania issued 116 new mercury fish advisories alone. Mercury is especially harmful to babies and children; it can cause serious developmental delays and deficiencies. It can also cause fertility problems.
- *Asthma, lung cancer, heart disease.* Coal-fired power plants, diesel vehicles and our cars and trucks emit particles into the air that *directly* cause asthma, lung cancer and heart attacks. Childhood asthma is particularly troubling; it is increasing in both prevalence and intensity.

<b>Fossil Fuel</b>	<b>Major Pollutants</b>	<b>Consequence</b>
Oil/coal/diesel/ petroleum/natural gas	CO <sub>2</sub>	Global climate change
Coal	Mercury	Infertility/developmental issues
Coal/diesel	Particulates	Asthma, lung cancer, heart disease

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*“The nation's 400+ coal-fired power plants emit more toxins into the air than any other single source, some 42% of the US total, according to EPA. The sheer quantity of such toxic emissions is staggering. While much has been made of the 48 tons of mercury annually emitted by power plants, these same plants released in 2002 more than 361,000 tons of other toxins including vanadium, barium, zinc, nickel, hydrogen fluoride, hydrochloric acid, ammonia, and selenium ... Half of all Americans live within 30 miles of a coal-burning power plant.”*

*—The Christian Science Monitor. March 31, 2005.*

*Pennsylvania is home to the biggest source of mercury pollution in the entire country, the Keystone Power Plant. In Pennsylvania, fine particles caused by fossil fuel burning cause more than 35,000 asthma attack days, 194 lung cancer deaths and nearly 3,400 heart attacks yearly.*

*—Physicians for Social Responsibility, A Breath of Fresh Air, Sept 2004*

*“Millions of...children...will suffer even higher rates of asthma as the result of a powerful one-two punch of higher levels of pollen and changes in types of molds spurred by global warming along with unhealthy urban air masses caused by the burning of fossil fuel by cars, trucks and buses.”*

*—Warning issued by Harvard researchers and The American Public Health Association, 2004*

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## **Part Three: Our Role**

As individuals, it is hard, even overwhelming, to address the problem of fossil fuel dependence. The problem is so great that it can be paralyzing if we think about it too much. And, for many of us, it is not yet impacting our daily lives. So, why make sacrifices until we absolutely have to?

Our challenge is to think into the future. As mothers, this is not hard. We think about our dreams for our children every day.

The good news is, solutions are possible and achievable. Here are 5 basic things you can do now to help push for real change:

- Create a strong market demand for alternate, clean energy.
- Stop wasting energy.
- Demand action from your political representatives.
- Buy locally grown food and locally made products.
- Join *Moms for the Future!*

*Moms for the Future* has made it easy for you to start to do these things. Just go to our website and view the sections entitled “Our Projects” and “Web Links & Actions,” and we’ll guide you. Or, call us!

Please join us, because when we work together we can empower ourselves and others to pave a more promising future for our children.

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*“The questions we must ask ourselves now are, how can we allow this to happen, and what can we do to prevent it? Does our present lifestyle mean so much to us that we would subject ourselves and our children to this fast approaching tragedy simply for a few more years of conspicuous consumption?”*

*—Dale Allen Pfeiffer, author, Eating Fossil Fuels*

*“What will you say when, 10 years from now, your children look you in the eye and ask: Why didn't you wake up sooner? This is not a political issue. It is a moral one.*

*—Vice President Al Gore, author/lecturer, An Inconvenient Truth*

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## **Attachment A: A Glimpse into the World of Global Warming Skeptics**

Most prominent organizations that argue against mainstream climate science have an avowed agenda of promoting free markets and minimal government. They often accept significant funding from the fossil-fuel industry. Few employ climate scientists.

Here are some examples:

- 1. Competitive Enterprise Institute, Washington DC:** A free-market lobbying organization that employs six “experts” on climate change—two lawyers, one economist, one political scientist, one business graduate and one mathematician. The institute receives funding from ExxonMobil, the world's largest oil company and outspoken corporate opponent of mainstream climate science.
- 2. American Enterprise Institute, Washington, DC:** Another free market think tank. The five experts it sent to the most recent negotiations on the Kyoto protocol included just one natural scientist, a chemist. Receives money from ExxonMobil.
- 3. George C. Marshall Institute, Washington, DC:** A leading proponent of the argument that climate science is highly uncertain. Receives money from ExxonMobil.
- 4. International Policy Network, London:** Free-market think tank. Called global warming a "myth." Receives money from ExxonMobil.

There are also a few qualified climate scientists in the skeptic camp. Most notable is Patrick Michaels from the University of Virginia, chief environmental commentator at the Cato Institute in Washington DC. He receives funding directly and indirectly from ExxonMobil and the fossil fuels industry.<sup>1,2</sup> Another skeptic popularly quoted in the media is Richard Lindzen from MIT, who also receives funding indirectly from ExxonMobil.<sup>3</sup>

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*Adapted in part from New Scientist Magazine, 12 February 2005, issue 2486, page 40.  
<http://www.newscientist.com/article.ns?id=mg18524861.500>*

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