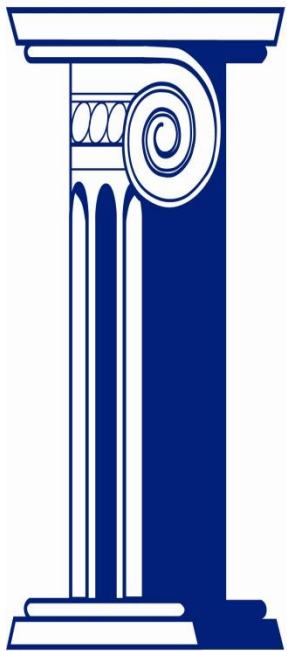


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I N S T I T U T E

Obama-Inspired EPA Carbon-Dioxide Regulations May Bankrupt Iowans

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“So, if somebody wants to build a coal power plant they can. It’s just that, it will bankrupt them...”

– Barack Obama, *San Francisco Chronicle*, January 17, 2008.¹

“Nearly 250,000 Iowans owed a record \$47.7 million at the end of last year's winter, Iowa power companies reported to the state utilities board.”

– *The Des Moines Register*, November 23, 2014.²

It has taken President Barack Obama (then United States Senator Barack Obama) seven years to follow up on his plan to shut down the U.S. coal industry, but he is finally on the verge of succeeding at bankrupting – if not the coal plant builders and operators – then American families. This is even without the costs and difficulties families have in dealing with Iowa winters.

The United States Environmental Protection Agency (EPA) in June 2014 issued a proposed carbon dioxide (CO₂) regulation under the Clean Air Act Section 111(d), called the Clean Power Plan (CPP), which calls for reducing CO₂ emissions from fossil-fuel-based electricity power plants by 30 percent by 2030.³ This is from the documented 2005 levels and is broken out into individual state requirements. Most of these power plants are coal burning, and retrofitting and upgrading these systems over the next 15 years will cost the utilities – and consumers – billions of dollars.

Under the CPP proposal, existing power plants must limit their CO₂ emissions to 1.1 pounds per kilowatt hour (kWh) of production.⁴ Currently the average is 2.14 pounds per kWh. The estimated cost to power providers to make the necessary equipment changes and upgrades is estimated by the EPA to be \$50 billion annually.

The main way of attempting to reduce the CO₂ emissions is through the Carbon Capture and Storage (CCS) technology. Currently, there is only one coal-fired power plant in the entire

world which is successfully using CCS. It is a government-owned facility located in Saskatchewan, Canada.

The SaskPower's Boundary Dam project came online in September, after a \$1.4 billion, and over budget, upgrade and retrofitting. The facility, located northwest of Minot, North Dakota, is the largest source of energy for the entire Saskatchewan province. Key to the potential success of this project is its location near Canada's southern oil fields. The captured carbon is being piped approximately 40 miles by Cenovus Energy, which built a new pipeline specifically for this purpose, and used for enhanced oil recovery.⁵

"Enhanced oil recovery" is the technical term for fracking – something else which the environmentalists are opposed to and want to see stopped. According to a newspaper story about the opening of the new facility, unused CO₂ will be "sequestered" or stored about two miles underground in a brine and sandstone water formation.⁶

Worldwide, there are only two other commercial-scale CCS projects even under construction. One is the Kemper project by Southern Company in Mississippi, and the other is the W.A. Parish Petra Nova project by NRG Energy near Houston, Texas.⁷ Both projects are "Under Construction," according to the Massachusetts Institute of Technology CCS Institute, but are dealing with significant financial and regulatory roadblocks resulting in significant delays and cost overruns.

The Kemper project is now exceeding the original costs of \$2.4 billion by \$3.2 billion, with the total estimated final cost, after five years of construction, to be over \$5.6 billion.⁸ The W.A. Parish project will not start construction until the "end of 2016" and the captured CO₂ will be shipped 82 miles by pipeline to be used in enhanced oil recovery. Yet, in only about five years – by 2020 – the EPA expects significant progress by all coal-fired energy plants in the U.S. towards having this technology in use.

The public comment period on the CPP rule ended December 1 and has drawn thousands of responses, including lawsuits and joint statements, both pro and con from every state in the union and a wide variety of business and special interest groups. The regulation is supposed to be finalized this spring, and state proposals of how they intend to comply are due between the summer of 2015 and 2016.

The EPA claims that this regulation will reduce monthly residential electricity bills by 8 percent by 2030, following an initial increase in electricity costs over the next six years.⁹ The EPA also promises that "American families will see up to \$7 in health benefits" (per year).¹⁰ Given the Obama administration's poor record on actually delivering promised cost and tax reductions, and on promised regulatory benefits, many are skeptical of the EPA's claims.

The public health risks of CO₂ supposedly alleviated by this regulation include heat stroke and heat-related deaths, smog and “some” particle pollution, extreme weather events such as hurricanes, rain and flooding, and insect diseases such as Lyme disease and West Nile virus.¹¹ Much of the global warming industry, and these regulations, are based on the premise that CO₂ is a greenhouse gas and is bad for our atmosphere, irrespective of the fact that all green plants on the earth need CO₂ to exist. In reality CO₂ is a tiny part of our overall atmosphere (400 parts per million) and global warming predictions continue to be discredited.

Even if one accepts the premise that CO₂ is bad and must be reduced, the track record of the Obama administration in reducing the costs of anything the government regulates is poor. For example, we were promised health-care costs for our families would be reduced by \$2,500 per year under Obamacare. “ObamaEnergy,” anyone?

An important consideration in this discussion is the fact that fossil fuels such as coal and natural gas are controllable and manageable energy sources, versus wind and solar, which are not. As “dispatchable” energy sources, coal and natural gas are critical to the base-load energy generation needed to keep the lights, air conditioning, and heat on in U.S. homes 24/7/365. Without reliable, consistent base-load energy, American families are no better off than those in developing world countries, such as Liberia, where separate homes and businesses must run diesel generators individually at great cost and with significant environmental damage.

National Cost Analysis

The Beacon Hill Institute for Public Policy Research, which specializes in economic and statistical analysis of public policies, is best known for their annual State Competitiveness Index. They are based at Suffolk University in Boston, Massachusetts. Recently Beacon Hill has also been researching extensively on renewable and alternative energy costs and benefits, focusing on analysis of individual state mandates and policies. They just released a cost-benefit study of the implications of the CPP both nationally and for Iowa specifically. The results are not good.

Beacon Hill used their State Tax Analysis Modeling Program (STAMP) to estimate the economic effects of the CPP regulations. The STAMP system allows researchers to calculate the costs in net present value (NPV) dollars of the benefit or harm of a specific regulatory proposal. Designed as a computable generalized equilibrium (CGE) model, STAMP accounts for and analyzes the “economic effects of tax policy changes.”¹²

According to their analysis, in 2030 the NPV cost, using a 3 percent discount rate, of the CPP regulations on existing coal power plants will be a negative \$16.02 billion. The total NPV cost, nationally, from 2015 to 2030, is a negative \$284.5 billion, with the potential to range as high as \$300 billion.¹³

The cost impact on new coal power plants is estimated to be negative \$8.4 billion in 2040 and a total of almost \$44 billion from 2015 – 2040. The potential negative costs range as high as \$72.3 billion over the same time period.¹⁴ Additionally, a small part of the CPP proposal is the increased regulation of mercury, estimated to have an impact of negative \$21.4 billion in 2015 and ranging as high as \$31 billion.¹⁵

Another study just completed by Energy Ventures Analysis (EVA) shows that instead of cutting power and gas costs for consumers, industry, and businesses the ObamaEnergy Plan will actually result in an increase of over \$170 billion in power costs by 2020, a 37 percent increase in real costs.¹⁶ Of that the electricity cost increase is \$98 billion and the natural gas cost increase is \$75 billion. Some families will be bankrupted by this.

By 2020 households will actually see an average annual increase of \$293 in their power and gas bill. This is broken out as approximately \$102 more for electricity and \$190 more for gas or heating.¹⁷ The industrial business sector will be hit even harder with increases of 64 percent in their electricity and natural gas costs. This cost will, of course, be passed on to consumers through the prices of the products we buy.

The EVA report shows that residents of Louisiana, Mississippi, North Dakota, and Texas will be hardest hit as their power sources are heavily coal and gas based and costs are estimated to go up by over 115 percent. Residential electricity costs are a key part of this, with estimated annual bills expected to increase by \$566 in Maryland, Mississippi, Pennsylvania, Rhode Island, and Texas.¹⁸ States in the Northeast and Upper Midwest, including Iowa, will be hardest hit through their winter heating and gas bills.

The table below shows these increases.

United States Electricity and Natural Gas Cost Increases (Real Dollars)	2012	2020 CO₂ Case	Increase (\$)	Increase (%)
Average Annual Residential Customer's Electricity and Natural Gas Bill (\$)	\$1,963	\$2,256	\$293	15%
Industrial Electricity Rate (cents per kWh)	6.7	8.9	2.2	33%
Total Cost of Electricity and Natural Gas for All Sectors (\$ billion)	\$470	\$644	\$174	37%

* Figures in constant 2012 dollars

Source: Energy Ventures Analysis, p. 6.

Importantly, the EVA analysis also takes into account the other regulatory upgrades and costs, separate from the CO₂ changes, which these same coal-fired plants must also make during the same time period. This includes the Mercury and Air Toxics Standards (MATS) and the

Regional Haze requirements. The CPP does not stand alone in impacting energy costs as power plants which remain open must meet all standards, not just one.

The EVA report also questions whether the underlying EPA assumptions on various operational and efficiency improvements, outside of the CPP requirements, are reasonable. This includes a 6 percent improvement in heat generation rate, a 70 percent combined cycle gas turbine utilization rate, state renewable energy policies resulting in over 200 percent more “renewable” energy generation, and demand/user efficiencies of 250 percent.¹⁹ The last category, “user efficiencies” and user demand reductions, means that we, the consumers of electricity and heat, would return to the days of the 1970s – where homes were only heated to 62 degrees in the winter and cooled to 90 degrees in the summer, and Christmas lights were prohibited.



The EVA analysis begins with the same data used by the EPA, then adds a mix of additional industry and consumer information and proprietary data analysis methods to develop a more robust and, they believe, accurate representation of the effects of the CPP regulation.

Among other things, the EVA has developed a power capacity and generation mix projection showing a significant move from coal to natural gas. This may, or may not, be an environmentally positive thing, but it does increase the final costs to consumers.

By the year 2020 capacity moves from 31 percent coal and 41 percent natural gas to only 20 percent coal and 50 percent natural gas, while renewables show a slight increase to 10 percent from 7. The resulting power generation from this capacity follows the same pattern, as might be expected. Generation by coal reduces from 39 percent to 22 percent and increases for natural gas from 29 to 45 percent. Renewables have no significant impact, moving from 5 to 7 percent of generation.²⁰

Whether this change is good or bad remains to be seen; the critical factor is that it is driven by government (EPA) regulation. It follows President Obama’s stated goal of driving the coal industry into bankruptcy and is not a normal, market-driven economic change based on equal or fair competition.

Iowa Specific Impact Projections

Beacon Hill also generated state-specific cost-benefit projections for all three aspects of the CPP regulation, existing and new coal power-plants and mercury emissions. By 2030 the cost of Iowans’ electricity from existing power plants will go up by 14.45 percent, resulting in a loss of 9,338 jobs, a loss of \$95 million in new business investment, and a loss of almost a billion dollars (\$913 million) of disposable income for Iowa families. Retrofitting existing coal power plants to capture or reduce significant levels of CO₂ is very expensive.

For new coal-burning facilities, the costs are less – but still significant. Electricity from these plants will be 3.6 percent higher in 2030, resulting in the loss of almost 2,500 jobs, \$29 million in new investments, and \$366 in disposable income.

When the costs of complying with the very expensive mercury provisions are included, the total costs to Iowans by 2030 are estimated at \$549 million, resulting in a 2 cent per kWh or 25 percent price increase in electricity for our homes, a loss of 15,650 jobs, almost \$200 million less in new business investments, and over \$1.6 billion in reduced real disposable income.²¹

When broken out by the approximately 1.2 million households in Iowa today, the Beacon Hill analysis projects about a \$460 per year increase in energy (electricity and heat) costs when the compliance impacts on existing coal power plants, potential new coal plants, and for mercury provisions are counted.

Beacon Hill Analysis

The Cost and Economic Impact of New EPA Rules on Iowa (2012 \$)

Net Benefits (cost)	2030
CO ₂ Rule for New Power Plants (millions \$)	\$82
CO ₂ Rule for Existing Power Plants (millions \$)	\$156
Utility Mercury Emissions (millions \$)	\$312
Total Net Cost to Iowa (millions \$)	\$549
Electricity Prices (cents per kWh)	1.9
Percent Change (%)	25%
Total Employment (Jobs Lost)	15,650
Investment (millions \$)	\$184
Real Disposable Income (millions \$)	\$1,673

Source: The Economic Effects of the New EPA Rules on the State of Iowa, The Beacon Hill Institute, September 2014, pp. 2-4.

One result of CPP, presumably desired by the EPA and ObamaEnergy, is a change in the source of our electricity and heat. Under the EVA scenario, the energy generation mix change for Iowa is as follows:

Iowa Generation Mix Comparison: 2012 vs. 2020 CO₂ Case

	2012	2020	Change
Coal	61%	49%	-12%
Natural Gas	3%	17%	14%
Renewables	26%	25%	-1%
Other	9%	8%	-1%

Source: "U.S. Generation Mix Comparison: 2012 vs. 2010 CO₂ Case," EVA, p. 24.

Iowa is a “regulated” electricity market, which means that power companies are legally allowed to charge customers a rate for their power based on both the cost of capacity facilities and the cost of generation.²²

The EVA projection for our cost changes between 2012 and 2020 reflects significant price increases of 63 percent because of the move from coal to natural gas. This is a change from just over \$20 per megawatt hour of electricity to over \$33 per hour.²³ As a state, our total spending on electricity under the ObamaEnergy CPP will increase from \$3.5 billion in 2012 to \$4.4 billion by 2020, held constant in real 2012 dollars, or a 23 percent increase in spending on a basic necessity of life.²⁴

Electricity Production Cost in Regulated States (\$/MWh): 2012 vs. 2020 CO₂ Case*

	2012	2020	Increase
United States	\$21	\$43	\$22
Iowa	\$20.28	\$33.11	\$12.83

* Per megawatt hour (MWh) and in real – 2012 – dollars

Source: EVA, p. 26.

Even though the EVA study was funded by Peabody Energy, and thus might be alleged to overstate the costs to favor the energy industry, their analysis only projects an average electricity cost increase of 8 percent, or approximately \$100 per year, for individual Iowa families. Their projections show that much of the cost increases will be borne by industrial and business

customers.²⁵ This, fortunately is not as high as the 80 percent cost increases for families anticipated in coal-heavy states such as Illinois, Mississippi, Oklahoma, Oregon, or Texas.

According to EVA, the business and industry electricity cost increases projected for Iowa are in the 17 percent range, from 5.3 cents to 6.2 cents per megawatt hour in real, 2012 dollars.²⁶ One can anticipate that increased production and manufacturing costs will be passed on to consumers and thus paid through higher prices on consumer goods, versus a direct home energy cost.

On the natural-gas-supported-heating side, a key consideration in the upper-Midwest, upper-plains states such as Iowa, the ObamaEnergy plan will have more onerous results. Total costs in Iowa for natural gas are projected to rise from \$1.7 billion to \$4.1 billion in 2020, a 144 percent increase.²⁷ For an average residential customer this increase will be almost \$300 per year (\$274) in real, 2012 dollars, or a 44 percent increase.²⁸ Nationwide the increase is expected to be about \$190, or from \$675 to \$865 per year, a 28 percent increase. The table below shows this data.

Household Electricity and Natural Gas Costs Under ObamaEnergy, 2012 vs. 2020

Electricity	2012	2020	Percent Increase
Iowa	\$1,139	\$1,235	8%
United States	\$1,288	\$1,390	8%
Natural Gas			
Iowa	\$608	\$882	45%
United States	\$675	\$865	28%

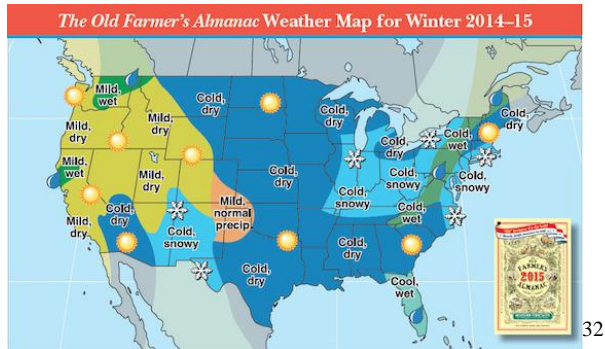
Source: EVA, pp. 29 and 37.

When the separate electricity and heat cost increases projected by the EVA report are combined, the average total household energy costs for Iowans under the ObamaEnergy Clean Power Plan will move from \$1,747 per year in 2012 to \$2,117 per year in 2020, an overall 21 percent increase (\$370) in costs.²⁹ Our projected health benefits, according to the EPA will be \$7.

Stress Already on Iowa Families

According to a recent story in *The Des Moines Register*, “Costs Fall, but Iowans Struggle to Pay Their Heat Bills,” utilities in Iowa disconnected the heat of almost 16,100 families last winter who were unable to pay their utility bills. This impacted over 66,000 people and some are still trying to get those bills paid off.³⁰

At the end of last winter, power companies reported to the Iowa Utilities Board that 250,000 Iowans owed a “record” \$47.7 million in utility bills. As of November 1, about \$27 million of that was still outstanding – with cold weather once again on its way, and once again expected to be colder than normal, according to the *Farmer’s Almanac*.³¹



Almost 30,500 families have already qualified for heating assistance this year, up 5 percent from last. These families will receive about \$450 each in one-time help to pay their utility bills from a federally funded program.³³

Bankruptcy is a potential reality for these 16,000 families, and financial hardship and worry sit on the shoulders of the 250,000 who got behind on their heat bills last year.

Summary

Whether the ObamaEnergy Clean Power Plan costs Iowa families \$400 or \$500 more per year for the electricity and gas to light and heat their homes, any additional costs for some families will be enough to push them into bankruptcy. These costs can cause them to become homeless and children to go to sleep cold and hungry.

When the additional impacts of job and investment losses are also considered, balanced against some nebulous potential benefit from a minor reduction in atmospheric CO₂ – it becomes apparent that ObamaEnergy is a significant overreach by a regulatory agency which is out of control. This is even though elected officials continue to talk about an “all of the above” energy policy. “All of the above,” except coal and other fossil fuels.

The environmentalists and regulators sitting in Washington, D.C., helping to bankrupt those who build and operate coal-burning power plants in the name of “saving” the environment do not understand the reality of workers and families trying to balance their budgets and pay their bills.

They do not understand the enormous impact of safely and productively used fossil fuels on our economy and the progress made by all people over the last 200 years of the industrial revolution.

For these families, reducing CO₂ to counter global warming and receiving \$7 in health benefits sometime in the future, added to the previously unfulfilled promises of “keeping your doctor and your health-care plan” and “saving every American family \$2,500 a year in health-care costs,” is not very credible. As they prepare for Christmas and anticipate their “long winter’s nap,” I’m sure they wish the EPA, the environmentalists, and ObamaEnergy would just go away and leave everyone alone.



¹ Marcus Chan, “An Interview with Sen. Barack Obama,” Opinion Shop, *San Francisco Chronicle*, January 17, 2008, <<http://blog.sfgate.com/opinionshop/2008/01/17/an-interview-with-sen-barack-obama/>> accessed on November 28, 2014.

² Donnelle Eller, “Costs Fall, But Iowans Struggle to Pay Their Heat Bills,” *The Des Moines Register*, November 23, 2014, <<http://www.desmoinesregister.com>> accessed on November 29, 2014.

³ “Clean Power Plan, Reducing Carbon Pollution From Existing Power Plants,” United States Environmental Protection Agency, <<http://111d.naseo.org/Data/Sites/5/media/clean-power-plan-overview.pdf>> accessed on November 15, 2014.

⁴ “Regulatory Impact Analysis for the Proposed Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units,” United States Environmental Protection Agency, September 2013, <<http://www.epa.gov/ttnecas1/regdata/RIAs/EGUGHGNewSourceStandardsRIA.pdf>> accessed on November 21, 2014.

⁵ “Boundary Dam Fact Sheet: Carbon Dioxide Capture and Storage Project,” Massachusetts Institute of Technology, November 23, 2014, <http://sequestration.mit.edu/tools/projects/boundary_dam.html> accessed on November 29, 2014.

⁶ Tildy Bayar, “First Commercial-Scale CCS Plant Comes Online,” *Power Engineering International*, September 29, 2014, <http://www.powerengineeringint.com/articles/2014/09/first-commercial-scale-ccs-plant-comes-online.html?cmpid=Enl_PEL_Sep-29-2014> accessed on November 29, 2014.

⁷ “Large-Scale Power Plant CCS Projects Worldwide,” Massachusetts Institute of Technology, November 23, 2014, <http://sequestration.mit.edu/tools/projects/index_capture.html> accessed on November 29, 2014.

⁸ “Kemper County IGCC Fact Sheet: Carbon Dioxide Capture and Storage Project,” Massachusetts Institute of Technology, November 19, 2014, <<http://sequestration.mit.edu/tools/projects/kemper.html>> accessed on November 29, 2014.

⁹ “Clean Power Plan, Reducing Carbon Pollution From Existing Power Plants,” p. 22.

¹⁰ *Ibid.*, p. 4.

¹¹ *Ibid.*, p. 6.

¹² “How STAMP Works,” The Beacon Hill Institute, 2014, <http://www.beaconhill.org/STAMP_Web_Brochure/STAMP_HowSTAMPworks.html> accessed on November 15, 2014.

¹³ “The EPAs New Rule Limiting CO₂ Emissions from Existing Coal Power Plants,” The Beacon Hill Institute for Public Policy Research, November 2014, p. 1.

¹⁴ “The EPAs New Rule Limiting CO₂ Emissions from New Coal Power Plants,” The Beacon Hill Institute for Public Policy Research, November 2014, p. 2.

¹⁵ “The EPAs New Utility Mercury Levels on All Power Plants,” The Beacon Hill Institute of Public Policy Research, November 2014, p. 1.

¹⁶ “Energy Market Impacts of Recent Federal Regulations on the Electric Power Sector,” Energy Ventures Analysis, November 2014, p. 4.

¹⁷ Ibid., p. 5.

¹⁸ Ibid.

¹⁹ Ibid., p. 7.

²⁰ Ibid., p. 23.

²¹ “The Economic Effects of the New EPA Rules on the State of Iowa,” The Beacon Hill Institute, September 2014, pp. 2-3, <<http://www.beaconhill.org/>> accessed on November 9, 2014.

²² “Energy Market Impacts of Recent Federal Regulations on the Electric Power Sector,” p. 25.

²³ Ibid., p. 27.

²⁴ Ibid., p. 28.

²⁵ Ibid., p. 29.

²⁶ Ibid., p. 31.

²⁷ Ibid., p. 35.

²⁸ Ibid., p. 37.

²⁹ Ibid., p. 39.

³⁰ Donnelle Eller.

³¹ “Winter Weather Predictions 2014-2015 From The Old Farmer’s Almanac,” *The Old Farmer’s Almanac*, <<http://www.almanac.com/content/winter-weather-predictions-old-farmers-almanac>> accessed on November 30, 2014.

³² “2014-2015 Winter Weather Forecast Map,” *The Old Farmer’s Almanac*, <<http://www.almanac.com/content/2014%E2%80%932015-winter-weather-forecast-map-us>> accessed on November 30, 2014.

³³ Donnelle Eller.