

# IOWA ECONOMIC SCORECARD

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May 2012

## What about Water Power?

By Deborah D. Thornton

“From earliest times, water has always been acknowledged as a primary human good and an indispensable natural resource. Around the great rivers of the world, like the Mississippi, great cultures have developed, while over the course of the centuries the prosperity of countless societies has been linked to these waterways.”<sup>1</sup> – Pope Benedict XVI, October 2009

As the public policy battles over energy sources and consumption continue, is anyone looking at (or investing in) water energy? Hydropower, one of the oldest clean, renewable energy sources, is not much discussed. A recent report by the U.S. Department of Energy is about to change that – especially in Iowa, where we have two major rivers for borders.

The prosperity of Iowa is closely linked to the actions of water, especially the Mississippi and Missouri Rivers, as Pope Benedict recognized. On the other hand, the rivers and their water have caused significant property and land damage in the last four years. Eastern Iowa is still recovering from the flood of 2008, while western Iowa deals with the flood of 2011. Maybe it is time to capture the human good of this natural resource and use the rivers to make Iowans more prosperous.

By definition, hydroelectric power is the production of power by using the gravitational force of falling or flowing water. Hydroelectric power is the most widely used form of renewable energy in the world.<sup>2</sup> In 2010, hydroelectric power provided over 3,400 terawatt-hours of power worldwide, approximately 16 percent of the total electricity generated.<sup>3</sup> In contrast, in the United States only about seven percent of our electricity is generated by hydropower.<sup>4</sup>

The first modern water-powered electricity plants in the United States were built in the 1880s in Colorado and Utah by Lucien Nunn and George Westinghouse. They were designed and built in response to the high price of coal – which was \$40 to \$50 a ton at the time. The plants expanded rapidly and soon provided power to mining towns in Colorado, Idaho, Montana, and Utah.<sup>5</sup> As part of his business expansion, Nunn trained the necessary workers and provided grant money to Cornell University to begin training electrical engineers. He was doing job training and social good before it was fashionable.

The most famous hydropower plant in the U.S., the Hoover Dam, generates four billion kilowatt-hours (kWh) of power each year. Started in 1930 and finished two years early, in 1935, it has been in operation for over 75 years, with several upgrades.<sup>6</sup> In contrast, one of the largest hydroelectric power plants in the world is at the Itaipu Dam in Brazil/Paraguay. Completed in 1991, it took 16 years to build and in 2000 generated over 93,000 gigawatt hours of electricity, a world record.<sup>7</sup>

The first requirement for hydropower production is a dam to control the water flow. There are over 80,000 dams in the United States. Currently, only 2,500 of them produce electricity. The energy potential of the water released from the rest is simply wasted. The U.S. Department of Energy recently

*continued on page 6*

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### Public Interest Institute

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## Affirmative Action for Men?

By the *Education Reporter*, Eagle Forum,  
April 2012, Issue Number 315, reprinted with permission

A recent report from the Bureau of Labor Statistics highlighted an illuminating new statistic: for every 100 men who have a bachelor's degree by age 24, 148 women of the same age do. 24-year-old women are also less likely to be high school dropouts or high school graduates not enrolled in college than their male counterparts. The report states that, since nearly the same number of men and women are enrolled in college at age 24, the gap in educational attainment is unlikely to close.

This educational gender gap led the *Richmond Times-Dispatch* to ask on March 9 whether colleges and universities ought to adopt affirmative action for men.

In every other academic realm, the existence of a statistical disparity — such as the fact that fewer women than men pursue advanced degrees in certain science and technology fields — is taken as definitive proof of gender discrimination.

For instance, in 2010 the American Association of University Women lamented the "striking disparity between the numbers of men and women in science, technology, engineering, and mathematics," and concluded "we must take a hard look at the stereotypes and biases that still pervade our culture. Encouraging more girls and women to enter these vital fields will require careful attention to the environment in our classrooms and workplaces and throughout our culture."

We look forward to a robust debate on how institutions of higher learning can correct the discriminatory circumstances that are leading them to graduate nearly three women for every two men.

Existing affirmative action-like policies have been found to benefit men more than women, making the gender gap even more revealing. Scott Jaschik, editor of *Inside Higher Ed*, told CBS news last fall,

Men are being admitted with lower grades and test scores. While a lot of people don't like to talk about it, a lot of colleges are basically doing affirmative action for men.

... Many people think that is not good for the educational needs of the country — that you don't want men left behind

... And it's also not seen as desirable for the social environment of the colleges.

James Taranto of the *Wall Street Journal* called the disparity "no laughing matter" and wrote on March 14 that it "ought to alarm anyone who cares about America's future." That's because women of all cultures typically prefer to "marry up" — and, as Taranto puts it,









. . . the disproportionate number of female high achievers makes it difficult for them to find men who meet their standards of marriageability. . . . If high-status women outnumber high-status men, the former will have a very hard time finding suitable husbands even when they are still young. That would seem to be the future that awaits today's college-educated American women.

**Iowa Specific Note:**

In Iowa, as of fall 2011, college enrollment reflected the same trends with 220 women enrolled for every 142 men, a 3-2 ratio. While the University of Iowa and Iowa State University both had more men enrolled, the University of Northern Iowa and virtually all other four-year and two-year colleges, both public and private, in Iowa had more women than men enrolled.

*Source: College enrollment data taken from the "College Enrollment and Work Activity of 2011 High School Graduates," U.S. Department of Labor, Bureau of Labor Statistics, April 19, 2012. Iowa-specific data taken from the "Iowa College and University Enrollment Report," Fall 2011, Iowa Coordinating Council on Post-High School Education.*

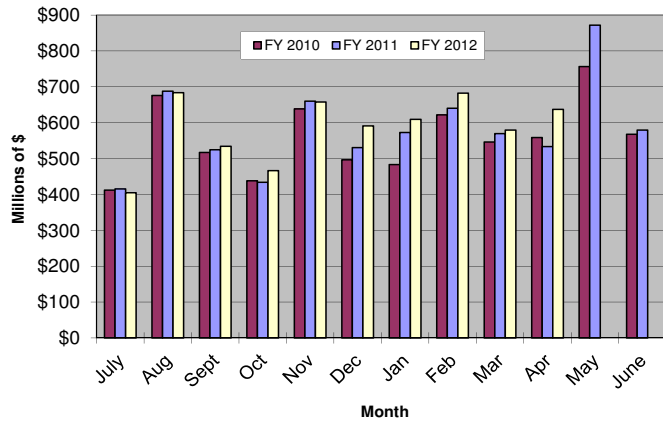
**Iowa Statewide Economic Indicators**

<b>Latest Economic Indicators</b>	<b>Actual Number</b>	<b>Amount of Change</b>	<b>Time Period Reported</b>
 New Vehicle Registrations	20,246	9.6%	Feb 2011 - Feb 2012
 New Housing Permits	636	64.8%	Feb 2011 - Feb 2012
 Existing Home Sales	53,200	-5.0%	Jan - Sept 2011
 Total Resident Jobs	1,575,900	7,500	Feb 2011 - Feb 2012
 Non-Farm Employment	1,493,500	17,200	Feb 2011 - Feb 2012
 Factory Jobs	215,300	11,000	Feb 2011 - Feb 2012
 Initial Unemployment Claims	13,461	-7.9%	Feb 2011 - Feb 2012
 Jobless Rate	88,500	5.3%	Feb 2012
 Personal Income	\$40,470	6.3%	2010-2011
 Exports of Goods	\$10.9 billion	N/A	2010
 Farmland Values	\$5,064	28.0%	Jan 2011 - Jan 2012

*Source: Iowa Workforce Development News and Trends, April 17, 2012*  
 <<http://www.iowaworkforce.org/trends/>>  
 <[http://www.trade.gov/mas/ian/statereports/states/tg\\_ian\\_002727.asp](http://www.trade.gov/mas/ian/statereports/states/tg_ian_002727.asp)>

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## Iowa's Monthly State Revenue and Estimated Net Yearly Revenue (in millions)



### Monthly State Revenue:

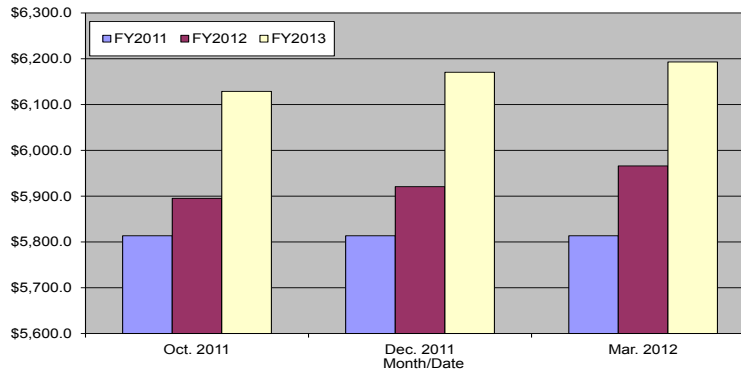
Monthly FY2012 state revenue was \$579.4 million in March, three-quarters through the fiscal year. This is almost \$10 million more than in March 2012. The year-to-date total is \$5,209 million, \$175 million more than last year. The question remains, should this money be spent? Saved? Or returned to the taxpayers?

### Estimated Net Yearly Revenue:

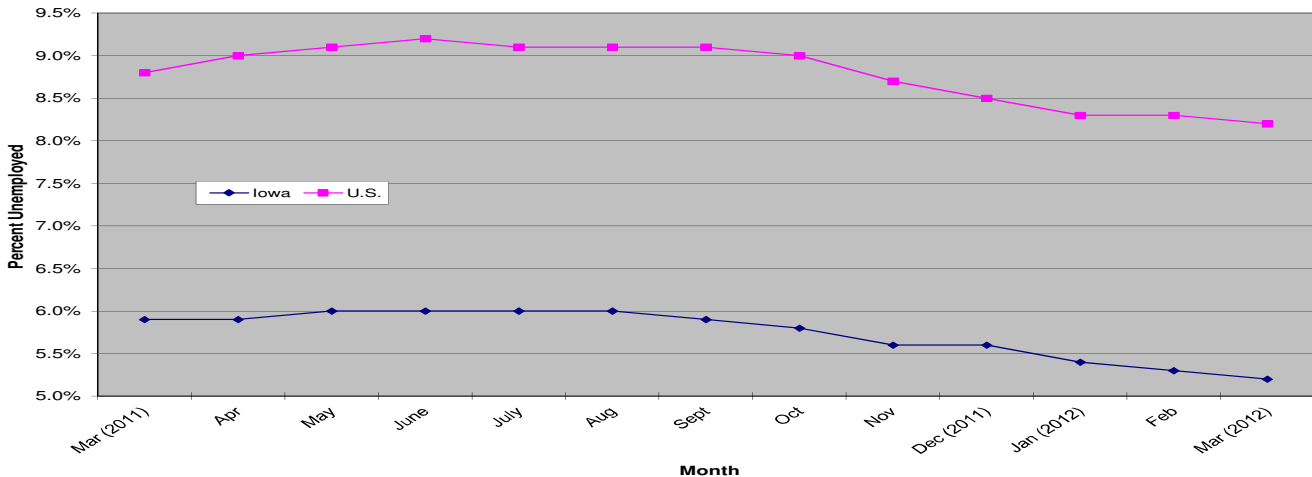
The revised Revenue Estimating Conference March estimate for FY2012 is \$5,966 million, a drop of over \$65 million from the official December 2010 estimate of \$6,031.3 million, the legal basis for the FY2012 budget. The official FY2013 estimate was \$6,170.4 million.

Source: Legislative Services Agency "Monthly General Fund Revenue Memo," and Revenue Estimating Conference Report

Quarterly Estimated Net Receipts



## U.S. and Iowa's Unemployment, March 2011 - Present

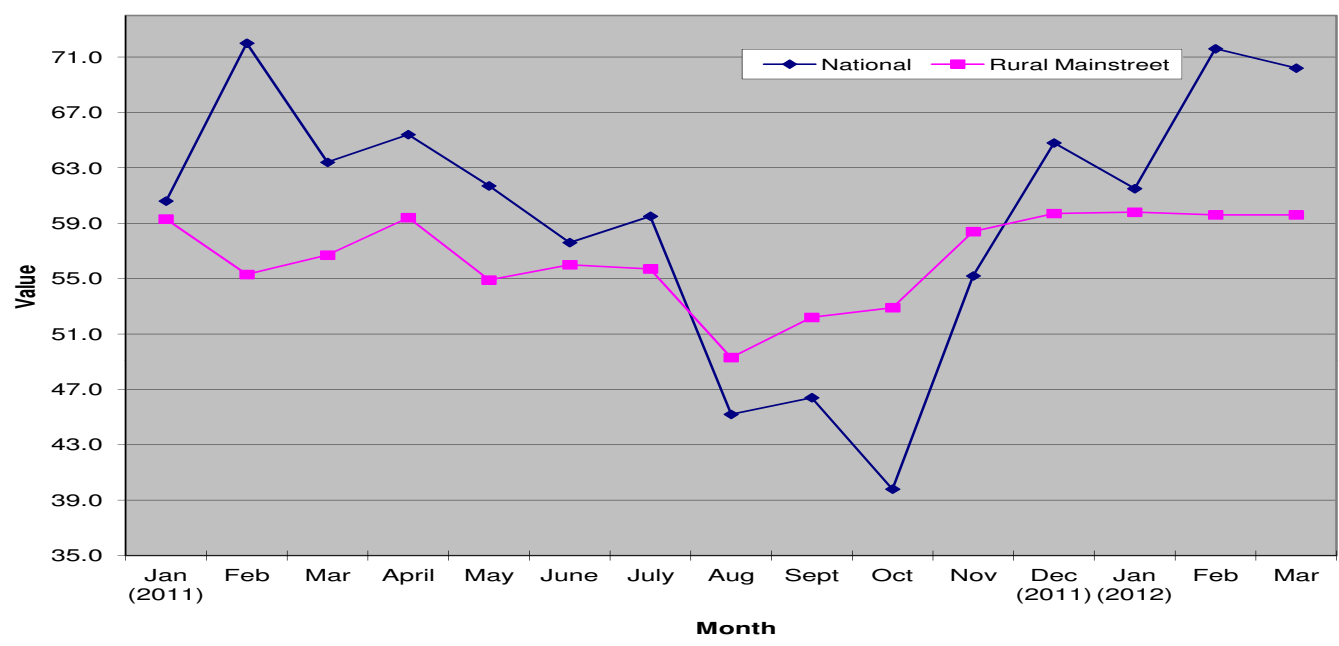


Nationally, unemployment fell to 8.2 percent in March. The Iowa rate crept down slightly to 5.2 percent. The number of people employed in Iowa remains almost 39,000 below the high of 1,614,400 with jobs in March of 2007. After five years, the low unemployment of 3.6 percent reached in the first quarter of 2007 remains elusive. The number unemployed is also over 27,500 above the low of 59,500 unemployed workers in March 2007.

Source: Iowa Workforce Development, Labor Market Information Bureau, "Monthly Unemployment Rate News"

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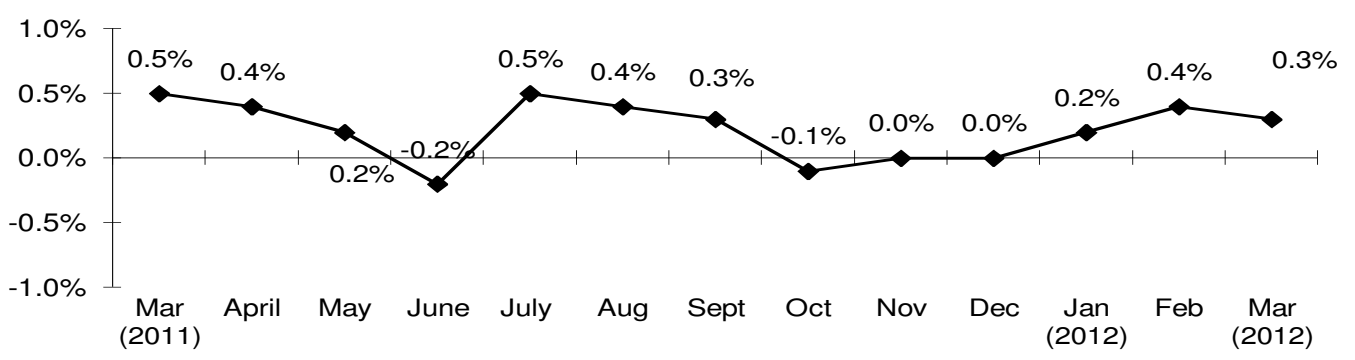
### Consumer Confidence Index



The national Consumer Confidence Index (CCI) decreased slightly in March, to 70.2. Consumers remained more pessimistic, 32.7 percent saying business conditions were “bad.” The same was true for perceptions of the job market, with 9.4 percent considering jobs “plentiful,” but vastly more, 41 percent, saying jobs were “hard to get.” The Rural Mainstreet Index for Iowa remained at 59.6 in March. According to Jim Eckert, president of Anchor State Bank in Anchor, Ill., “Farmers and local businesses are reluctant to expand due to high fuel costs, increasing regulations, and the uncertain economic situation.”

Source: Conference Board, “Consumer Confidence Survey,” and Creighton University

### Consumer Price Index, Monthly Change



The seasonally adjusted official Consumer Price Index crept up in the first quarter of 2012. Over the last 12 months, the all-items index increased 2.7 percent before adjustments. The gasoline index rose, leading to a 0.9 percent increase in the energy index. The food index also rose, driven by increases in meats, poultry, fish, and eggs. Most of the major components increased, with the indexes for shelter, used cars, and trucks accounting for about half the total increase. The indexes for medical care, apparel, recreation, new vehicles, and airline fares increased as well.

Source: U.S. Department of Labor, Bureau of Labor Statistics

*continued from page 1*

released a new report on the electrical power that could be generated from non-powered dams (NPD) in the U.S.<sup>8</sup> According to this report the potential is significant.

The report, “An Assessment of Energy Potential at Non-Powered Dams in the United States,” reviews and analyzes the possibilities, and suggests an expanded direction for economic development, private investment, and renewable energy efforts in Iowa.

Initially, DOE reviewed 54,391 NPDs for their energy potential. The carefully formulated, pro-forma estimate of total potential capacity from these NPDs is estimated to be 12 gigawatts, with annual energy generation of 45 terawatt hours. This is about 15 percent of the current hydropower produced in the U.S.<sup>9</sup>

In the United States it takes about one megawatt to power 400 homes for a year. A gigawatt is equal to 1,000 megawatts. Therefore, a gigawatt would provide electricity for about 400,000 homes per year, and 12 gigawatts would power about 4.8 million homes.<sup>10</sup> Though these are rough estimates,

### Top Potential Hydropower Dams in Iowa

Top 100 Ranking	Dam Name	Owner Name	City	County	River	Year Completed	Est. Head (feet)	Est. Annual Average		Estimated Potential *Capacity (MW)
								Flow (cfs)	Generation (MWh)	
29	Lock & Dam 15	Corps of Engineers Mississippi Valley Rock	Rock Island, IL	Rock Island, IL	Mississippi	1934	16	42,841	429,950	87.7
32	Lock & Dam 18	CEMVR	Gladstone, IL	Henderson, IL	Mississippi	1937	10	54,831	343,930	70.1
33	Dubuque Number 11	DAEN NCR (Corps of Engr)	Dubuque, IA	Dubuque, IA	Mississippi	1937	12	44,801	337,215	68.8
34	Red Rock Dam	CEMVR	Knoxville, IA	Marion, IA	Des Moines	1969	104	4,995	325,849	66.4
35	Mississippi River Dam 13	CEMVR	Clinton, IA	Whiteside, IL	Mississippi	1939	11	46,987	324,201	66.1
37	Mississippi River Dam 14	CEMVR	LeClaire, IA	Scott, IA	Mississippi	1939	11	42,773	295,121	60.2
38	Mississippi River Dam 16	CEMVR	Muscatine, IA	Rock Island, IL	Mississippi	1937	9	48,050	271,253	55.3
42	Mississippi River Dam 12	CEMVR	Bellevue, IA	Jackson, IA	Mississippi	1937	9	45,165	254,971	52
45	Mississippi River Dam 17	CEMVR	New Boston, IL	Mercer, IL, and Louisa, IA	Mississippi	1939	8	48,144	241,588	49.3
51	Lock & Dam 10	Corps of Engineers Mississippi Valley St. Paul District	Guttenberg, IA	Clayton, IA	Mississippi	1937	8	43,261	217,083	44.3
56	Lock & Dam 09	CEMVP	Harpers Ferry, IA	Allamakee, IA	Mississippi	1937	9	33,817	190,908	38.9
83	Saylorville Dam	CEMVR	Des Moines, IA	Polk, IA	Des Moines	1975	94.2	2,021	119,400	24.3
<b>Totals:</b>							<b>301.2</b>	<b>457,686</b>	<b>3,351,469</b>	<b>683.4</b>

\* Estimated generation and capacity are based on the total energy available at the site.

Source: Boualem Hadjerious, Yaxing Wei, and Shih-Chieh Kao, “An Assessment of Energy Potential at Non-Powered Dams in the United States,” U.S. Department of Energy, April 2012, Appendix A, pp. 32-34.

and the Dept. of Energy is careful to say that actual production would be less, increases in hydropower production of electricity could be a significant new addition to the renewable energy industry.

Importantly, because the dams controlling the water are already in place – being operated and maintained by the U.S. Army Corps of Engineers – much of the environmental impact and analysis, development cost, and time investment has already been incurred. Adding power generation capability to these dams can potentially be done with lower cost, less risk, and in a shorter timeframe than building many other power sources.

The list of 54,391 dams was further narrowed, through a fairly comprehensive process, to a review of the top 100 dam sites. Twelve of these top 100 sites are on rivers in Iowa, primarily the Mississippi.<sup>11</sup> As you come down from the Upper Mississippi, dams number 9 to 18 are all in the top 100 for potential electricity generation. The initial estimate is that hydroelectric power plants on the Mississippi dams have a potential capacity of 590 megawatts, or enough electricity for about 236,000 homes. The table on page 6 outlines the 12 dams, some of which are jointly controlled with Illinois.

Hydropower plants on the two dams on the Des Moines River – Red Rock and Saylorville – have a potential capacity of another 90 megawatts, which could produce enough energy to power 36,000 homes. This is about 40 percent of the homes in Des Moines.<sup>12</sup> Again, the Department of Energy is careful to say that many factors would impact the electrical power production capacity on the dam sites, but the potential is there.

Iowa is a leader in feeding the world and in generating wind power because of our wide-open prairies and fields. The Mississippi River, one of the great rivers of the world, is another major natural resource, and has historically been an important economic contributor. Maybe it's time for us to put the power of the river to work again for a great culture.

#### (Endnotes)

<sup>1</sup> Pope Benedict XVI, "Letter to Orthodox Patriarch of Constantinople," *Eighth International Symposium on Religion, Science and the Environment: "Restoring Balance: The Great Mississippi River,"* October 12, 2009, <<http://www.zenit.org/article-27307?l=english>> accessed on April 21, 2012.

<sup>2</sup> "Top-Alternative Energy Sources," <<http://www.top-alternative-energy-sources.com/hydroelectric-power.html>> accessed on April 20, 2012.

<sup>3</sup> "Use and Capacity of Global Hydropower Increases," Worldwatch Institute, <<http://www.worldwatch.org/node/9527>> accessed on April 26, 2012.

<sup>4</sup> "Hydroelectric power water use," U.S. Geological Survey, <<http://ga.water.usgs.gov/edu/wuhy.html>> accessed on April 23, 2012.

<sup>5</sup> "Olmstead Hydroelectric Plant," U.S. Bureau of Reclamation, Provo, Utah office, <<http://www.Waterhistory.org/histories/olmstead/>> accessed on April 20, 2012.

<sup>6</sup> "Hoover Dam, Frequently Asked Questions and Answers," U.S. Bureau of Reclamation, Lower Colorado Region, <<http://www.usbr.gov/lc/hooverdam/faqs/powerfaq.html>> accessed on April 20, 2012.

<sup>7</sup> "Itaipu' Dam: The world's largest hydroelectric plant," U.S. Geological Survey, <<http://ga.water.usgs.gov/edu/hybiggest.html>> accessed on April 22, 2012.

<sup>8</sup> Boualem Hadjerious, Yaxing Wei, and Shih-Chieh Kao, "An Assessment of Energy Potential at Non-Powered Dams in the United States," U.S. Department of Energy, April 2012 <[http://www1.eere.energy.gov/water/pdfs/npd\\_report.pdf](http://www1.eere.energy.gov/water/pdfs/npd_report.pdf)> accessed on April 19, 2012.

<sup>9</sup> Hadjerious, p. 22.

<sup>10</sup> Hadjerious, p. vii, footnote 1.

<sup>11</sup> Hadjerious, pp. 31-34.

<sup>12</sup> "Des Moines, Iowa," Citydata.com, <<http://www.city-data.com/housing/houses-Des-Moines-Iowa.html>> accessed on April 22, 2012.

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*We received several responses to our February “Question of the Quarter.” The questions were: “What are the most important economic issues to you in 2012?” and “Are our elected representatives addressing these issues in a way you agree with?”*

The majority of responses addressed overspending and the debt. One respondent stated that “Congress is oblivious.” Others said that overspending and the “crushing debt” were most important, as well as the overall economy. Members who responded didn’t understand why Republicans in particular were not working to make spending and budget corrections. The Second Amendment was a concern of someone else, who said that an Iowa Republican was blocking the passing of legal language to protect the Second Amendment.

We appreciate your input and thoughts, and are always excited to hear from you!

- - Deborah Thornton, Editor, IOWA ECONOMIC SCORECARD



## ***IOWA ECONOMIC SCORECARD***

### **Question of the Quarter:**

Are your summer travel and vacation plans being altered by high gasoline prices?

Send your response to us at [Public.Interest.Institute@LimitedGovernment.Org](mailto:Public.Interest.Institute@LimitedGovernment.Org),  
or answer on-line at <http://www.LimitedGovernment.org/IESMay2012.html>.

We may publish your response in the August 2012 issue of *IOWA ECONOMIC SCORECARD*.