

This handout provides a snapshot of Iowa's energy profile, or the state's "energy position", and covers the state's energy production and consumption, and energy costs. To learn more or to view the full white paper "Preliminary Assessment of Iowa's Energy Position," please visit iowaenergyplan.org.

ENERGY IN IOWA

Iowa is a net importer of energy, producing only about half of the energy that is consumed in-state.

Iowa has a less diversified energy production profile than the U.S. This is primarily due to the lack of fossil fuels available for energy production.

In recent years, investment in renewable energy has provided an important boost in net Iowa energy production.

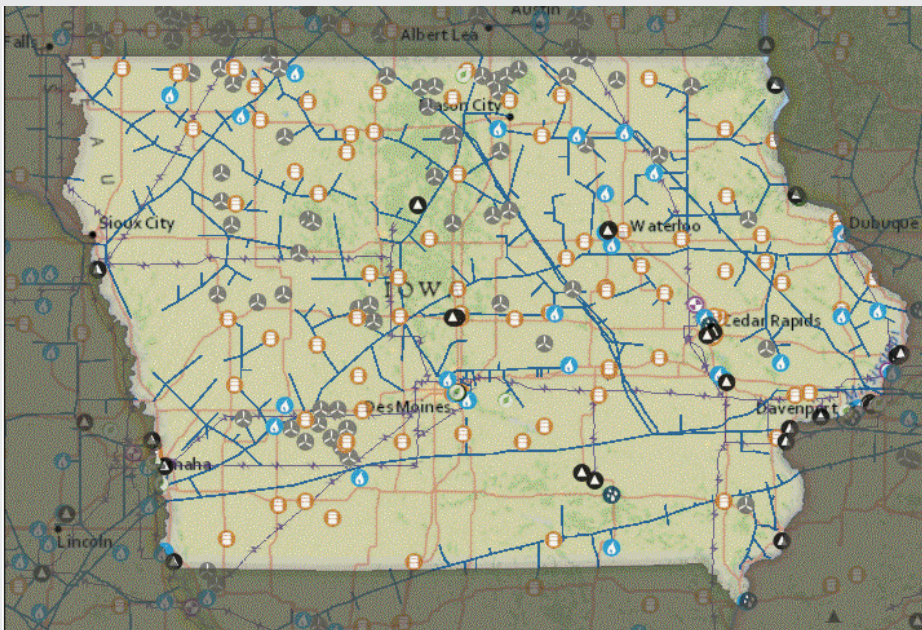
Iowa's electricity and natural gas rates are among the lowest in the nation. The average electricity cost is 13% less, and the average natural gas cost for the residential sector is 28% lower than the national average.

Table 1. Energy Quick Facts, 2013

Source: Energy Information Administration, State Profile and Energy Estimates.

| | FIGURE | IOWA RANKING |
|--------------------------------|----------------------|--------------|
| Energy produced | 730.5 trillion Btu | 24 |
| Energy consumed | 1,516.5 trillion Btu | 24 |
| Population | 3,123,899 | 30 |
| Energy consumed per capita | 490 million Btu | 5 |
| Energy expenditures | \$17.2 trillion | 28 |
| Per capita energy expenditures | \$5,583 million Btu | 7 |

ENERGY PRODUCTION IN IOWA

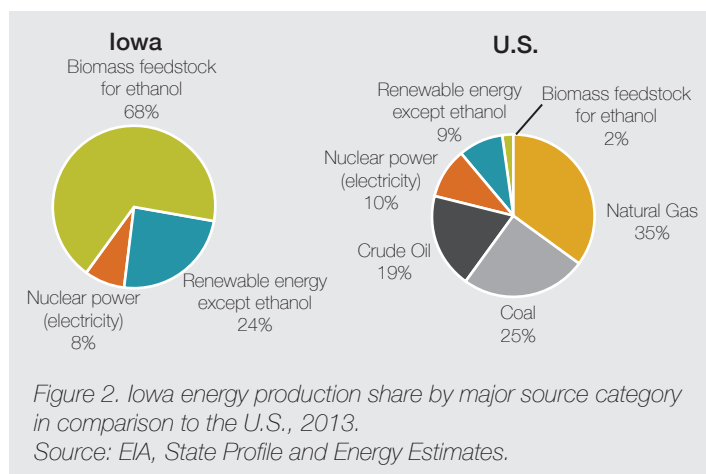


- ▲ Surface Coal Mine
- ▲ Underground Coal Mine
- Biomass Power Plant
- ▲ Coal Power Plant
- Geothermal Power Plant
- Hydroelectric Power Plant
- Natural Gas Power Plant
- Nuclear Power Plant
- Other Power Plant
- Other Fossil Gases Power Plant
- Petroleum Power Plant
- Pumped Storage Power Plant
- Solar Power Plant
- Wind Power Plant
- Wood Power Plant
- Petroleum Refinery
- ◆ Strategic Petroleum Reserve

Figure 1. Map of Power Plants located in Iowa, 2015

Source: EIA State Energy Profile - <http://www.eia.gov/state/>

ENERGY PRODUCTION



FOSSIL FUELS AND COAL

Iowa is not a producer of petroleum, natural gas, or coal. All fossil fuels consumed in Iowa are imported.

RENEWABLE ENERGY

Iowa is a leader in renewable energy production. In 2013, Iowa was ranked 3rd among the states in the amount of electricity generated from non-hydroelectric renewable energy resources.

Iowa's wind resource is ranked 7th in the nation. In 2015, Iowa became the 2nd state in terms of production of wind energy, as 31% of the state's electricity generation came from wind.

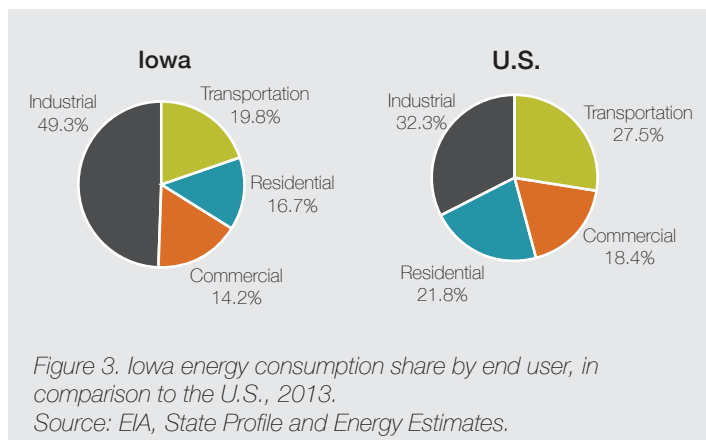
Iowa has good solar potential and is beginning to see investments in solar energy.

BIOFUELS

Iowa is the largest producer of ethanol in the U.S. In 2014, Iowa accounted for 28% of the nation's fuel ethanol production. The state is also a leading biodiesel producer and has the second-largest biodiesel production capacity in the nation, after Texas.

Iowa has a significantly less diversified production profile than the U.S. Increasing energy production and making investments in energy efficiency will enhance Iowa's balance of trade and benefit the economy.

ENERGY CONSUMPTION



Iowa relies more on coal than other fossil fuels or nuclear power, but also uses more renewable energy than the rest of the nation.

Iowans are increasingly consuming more renewable energy. Between 2000 and 2013, Iowa's consumption of wind energy increased by 10% and other biomass by 9%.

In that same time period, consumption of coal fell by 10% and motor gasoline by 3%.

Iowa is the 30th most densely-populated state in the nation, but because of its energy-intensive economy, the state ranks 5th in total energy use per capita.

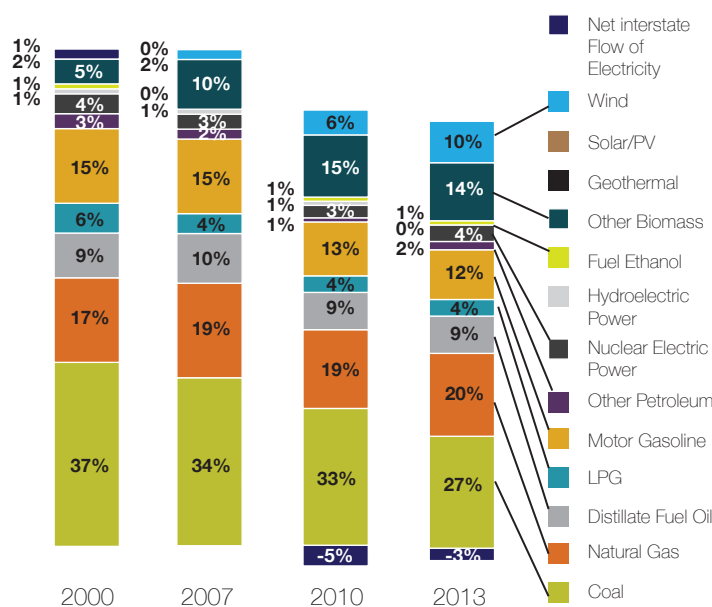


Figure 4. Iowa's Changing Energy Consumption Mix
Source: EIA, State Profile and Energy Estimates

ENERGY EXPENDITURES

Iowa's economy is more industrially-intensive than the U.S. economy overall. Iowa spends a higher percentage of its total energy dollars on industry than the U.S.; this sector consumes a considerably higher percent of electricity than the nation does overall. Between 2000 and 2013 Iowa's energy consumption grew while the U.S. saw a decline. During that same period, Iowa's total energy expenditures were higher than the U.S, increasing at a 10.9% greater rate.

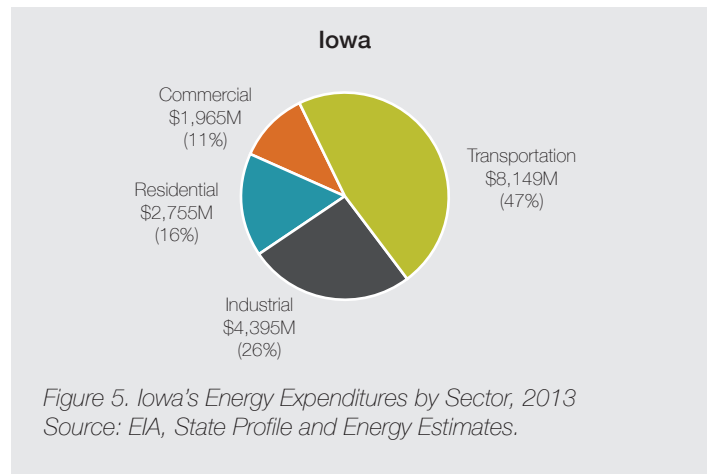
Table 2. Energy Expenditure metrics by Major Energy Category, 2013
 Source: TEconomy Partners, White Paper: Preliminary Assessment of Iowa's Energy Position, February 2016

| MAJOR ENERGY CATEGORY | 2013 EXPENDITURES (\$ MILLIONS) | PERCENT CHANGE 2000-2013 | 2013 SHARE OF THE U.S. |
|---|---------------------------------|--------------------------|------------------------|
| Primary Use Fuels | \$13,490.4 | 129.9% | 1.3% |
| Coal | \$178.7 | 85.2% | 2.6% |
| Natural Gas | \$1,988.7 | 38.9% | 1.7% |
| Motor Gasoline | \$5,580.8 | 148.6% | 1.2% |
| Fuel Oil | \$3,735.7 | 249.5% | 1.7% |
| Liquified petroleum gases (LPG or propane) | \$1,398.4 | 85.2% | 2.5% |
| All other petroleum products (except Gasoline, Fuel Oil, LPG) | \$575.6 | 121.1% | 0.4% |
| Biomass (Wood and waste) | \$32.6 | 229.3% | 0.5% |
| Retail Electricity -- All Fuels & Sources incl. Nuclear and Renewable | \$3,775.0 | 62.8% | 1.0% |
| TOTAL ENERGY EXPENDITURES | \$17,265.4 | 110.9% | 1.3% |

Note: Primary use captures the expenditures on fuels put to direct use. The use of these fuels for electricity generation is captured within the Retail Electricity category.

Energy consumption and expenditure per capita is higher in Iowa than it is in surrounding states, as is (generally) the intensity of energy use as measured as a percentage of state gross state product (GSP).

In 2013, Iowans spent \$17.2 trillion on energy, representing an overall increase of 110.9% between 2000 and 2013.



ENERGY JOBS

The Iowa Energy sector has seen net growth in employment since 2001, performing at the same level as the U.S. Energy sector and outperforming Iowa's overall private sector.

Table 3. Jobs in the Energy Sector

Source: TEconomy Partners analysis of Bureau of Labor Statistics, QCEW data and enhanced file from IMPLAN.

| ENERGY SUBSECTOR | Iowa Establishments, 2014 | Iowa Employment, 2014 | Iowa Employment % Change, 2001-2014 | U.S. Employment % Change, 2001-2014 |
|----------------------------------|---------------------------|-----------------------|-------------------------------------|-------------------------------------|
| Total Energy Sector [1] | 849 | 16,292 | 22.2% | 18.6% |
| Power Transmission/ Distribution | 428 | 7,011 | -2.8% | 25.6% |
| Other Renewable Energy & Storage | 12 | 2,606 | 143.6% | -7.7% |
| Power Generation | 99 | 2,520 | -5.1% | -42.3% |
| Ethanol Production | 40 | 1,845 | 3838.6% | 225.1% |
| Petroleum Products & Wholesale | 242 | 1,699 | -22.3% | -20.5% |
| Biodiesel Production | 14 | 550 | 310.4% | -5.2% |
| Refineries | 3 | 39 | 254.5% | -7.6% |
| Extraction/Resource Development | 11 | 22 | 161.7% | 91.7% |
| Total Private Sector [2] | 93,351 | 1,280,079 | 6.5% | 5.5% |
| Total Manufacturing | 4,048 | 216,834 | -10.0% | -25.8% |

[1] Sub-sectors shown comprise individual NAICS codes.

[2] This category, for comparison purposes, shows all private sector jobs in the state (i.e. not just those in the energy sector).

More than 40% of Iowa's energy sector employment is in power transmission and distribution.

Two subsectors related to renewable energy – “ethanol production” and “other renewable energy & storage” – are high performing subsectors for Iowa, with significant increases in job creation between 2001 and 2014 in comparison to the U.S.

The Iowa Energy Plan is a joint initiative between the Iowa Department of Transportation and the Iowa Economic Development Authority

The energy sector in Iowa pays higher wages in comparison to the private sector overall. The average annual wages for Iowa energy sector jobs is \$73,254 in comparison to \$41,964 for the private sector.



How can I participate?

The public forum will follow an open house format with an informational presentation approximately one half hour after the meeting begins. Attendees are encouraged to ask questions, speak to project team members and submit comment cards at any time.

The development of the Iowa Energy Plan is intended to be an open, transparent, and collaborative process that leverages input and insight from business leaders, energy innovators, and the public.

Multiple opportunities exist for citizens and interested stakeholders to participate online at iowaenergyplan.org:

- **Submit a comment**, idea or questions.
- **Find materials and information** in the Resource Library.
- **Sign up** to receive more information and updates.

The Iowa Energy Plan is a joint initiative between the Iowa Department of Transportation and the Iowa Economic Development Authority



The Iowa Energy Plan will be developed with a tentative completion date of November 2016. The leadership team for the plan consists of Lt. Governor Kim Reynolds, the Iowa Partnership for Economic Progress board, and representatives from the Iowa Economic Development Authority and the Iowa Department of Transportation.



COMMENT CARD

Name: _____

Organization (if applicable): _____

Address: _____

Email: _____

Are you interested in receiving updates? Yes No

Comment:

Please place your comment card in the box on the registration table, or submit comments by April 29, 2016:

Online:

iowaenergyplan.org/contact.html

Email:

energyplan@iowa.gov

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Iowa Economic Development Authority
Iowa Energy Office
Attn: Laura Lutz-Zimmerman
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