

# IEDA Industrial Energy Programs

**April 23, 2013**

**IOWA**  
economic development

- **IEDA Energy Team and Programs**
- **Importance of Energy and Water Use in Iowa**
- **EDGE Industrial Recognition Program**
- **Incentives for Energy Projects**
- **Combined Heat and Power Initiative**

# Iowa State Energy Office

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**Housed at the Iowa Economic Development Authority**

**Formerly the Iowa Office of Energy Independence**

**Small Team- 4 team members**

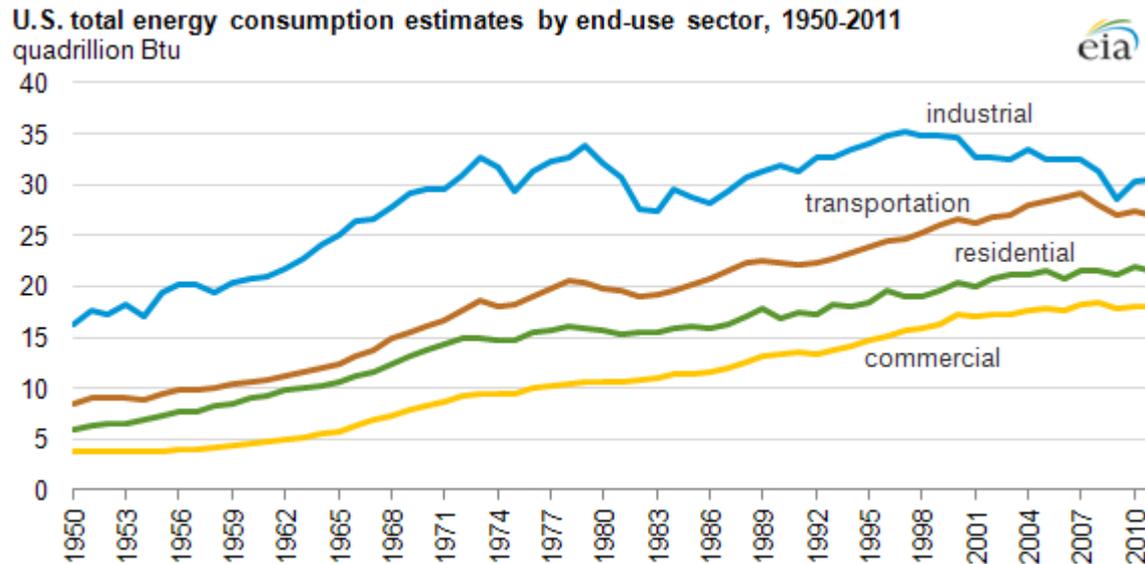
## **Focus Areas**

- **Energy Efficiency (Public and private sectors)**
- **Renewable Energy**
- **Biomass and Biofuels**
- **Public policy**



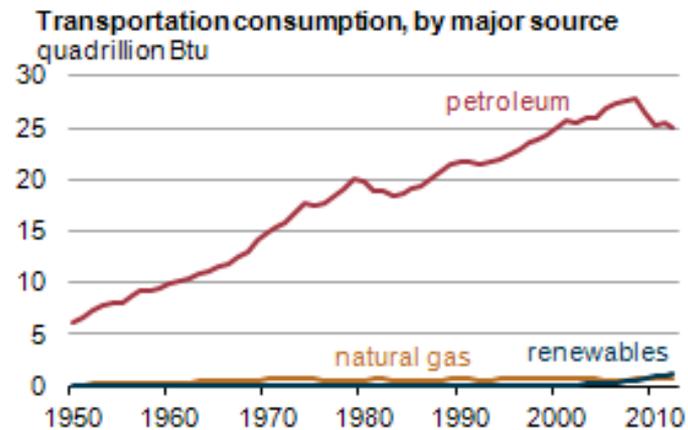
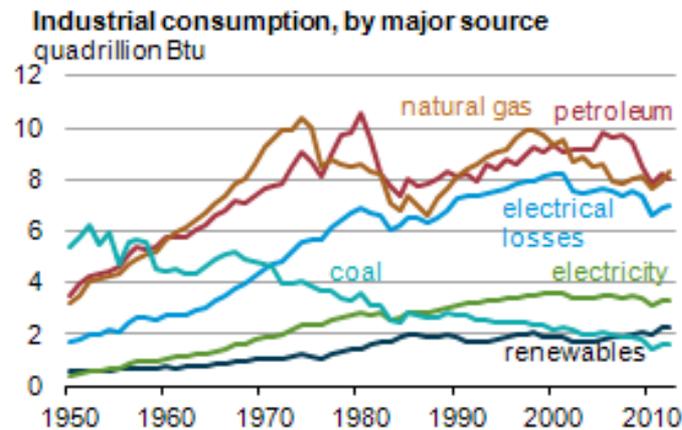
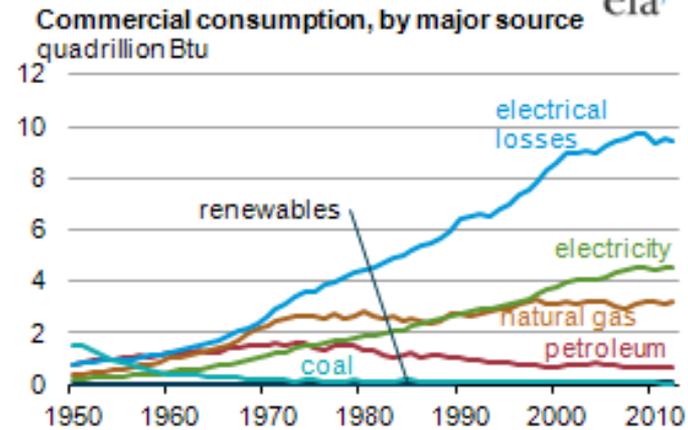
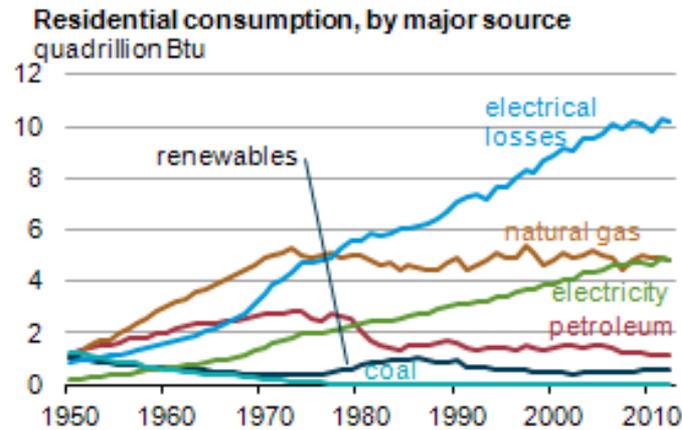
# Water and Energy Trends

# Sector Energy Use Trend in US



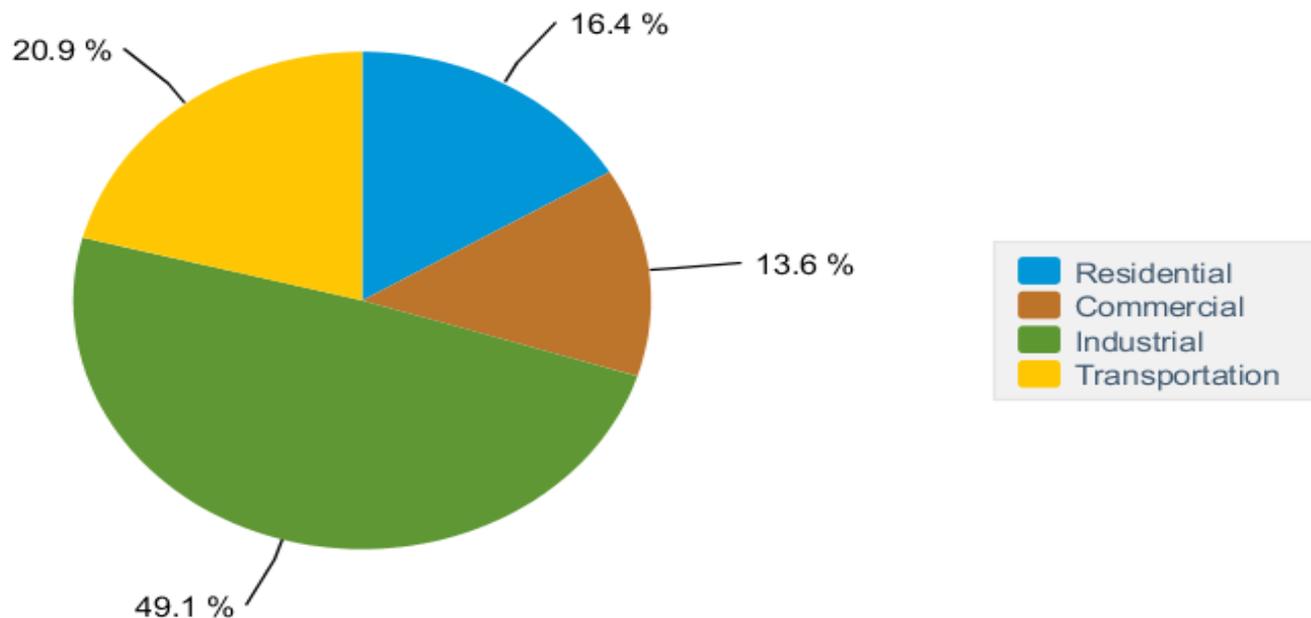
# Energy Source Trend by Sector

Energy consumption estimates by end-use sector, 1950-2011

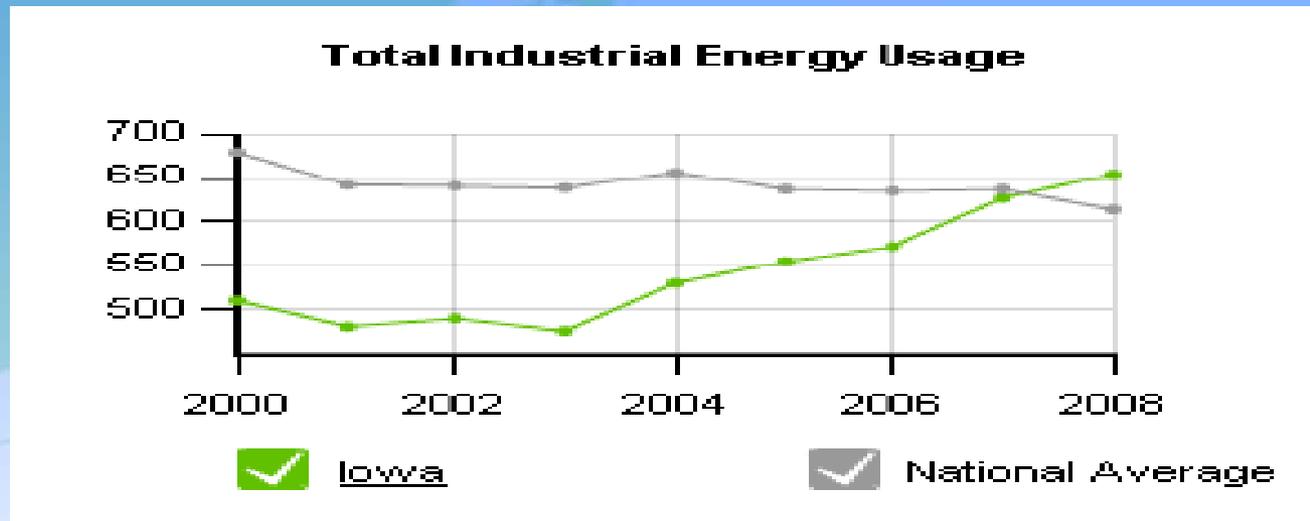


# Energy Consumption by Sector in Iowa

Iowa Energy Consumption by End-Use Sector, 2010



# Industrial Energy Use Trend in Iowa

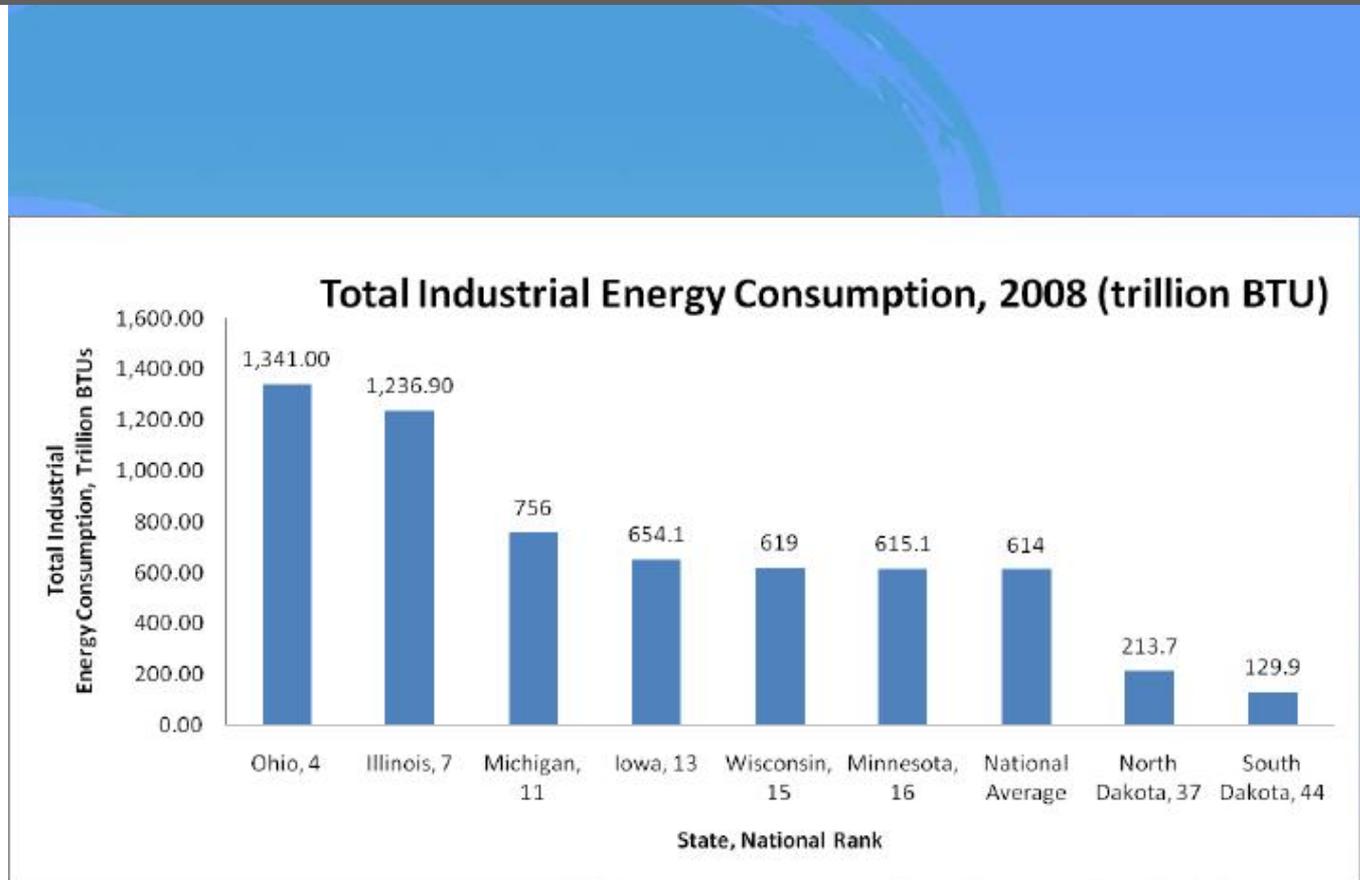


# Sector Energy Use Trend in Iowa

<b>Sector</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>	<b>2010</b>
<b>Residential</b>	23.9%	22.2%	20.1%	16.4%
<b>Commercial</b>	12.5%	14.6%	14.7%	13.6%
<b>Industrial*</b>	39.9%	38.8%	42.2%	49.1%
<b>Transportation</b>	23.6%	24.4%	23.0%	20.9%

\*Industrial sector includes agricultural activities

# Industrial Energy Use in the Midwest

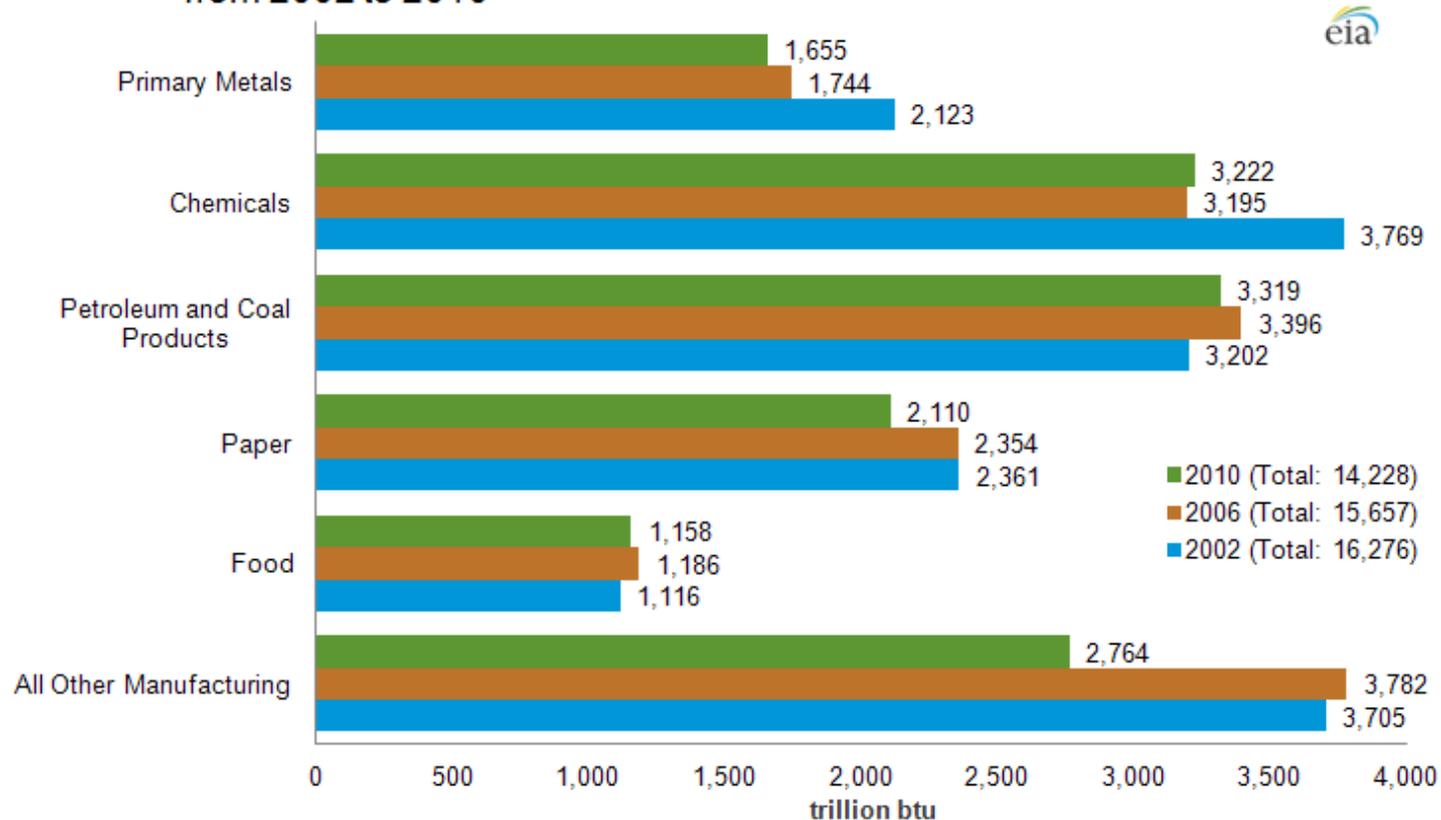


The Source On Energy Efficiency



# Industrial Energy Use by Sector

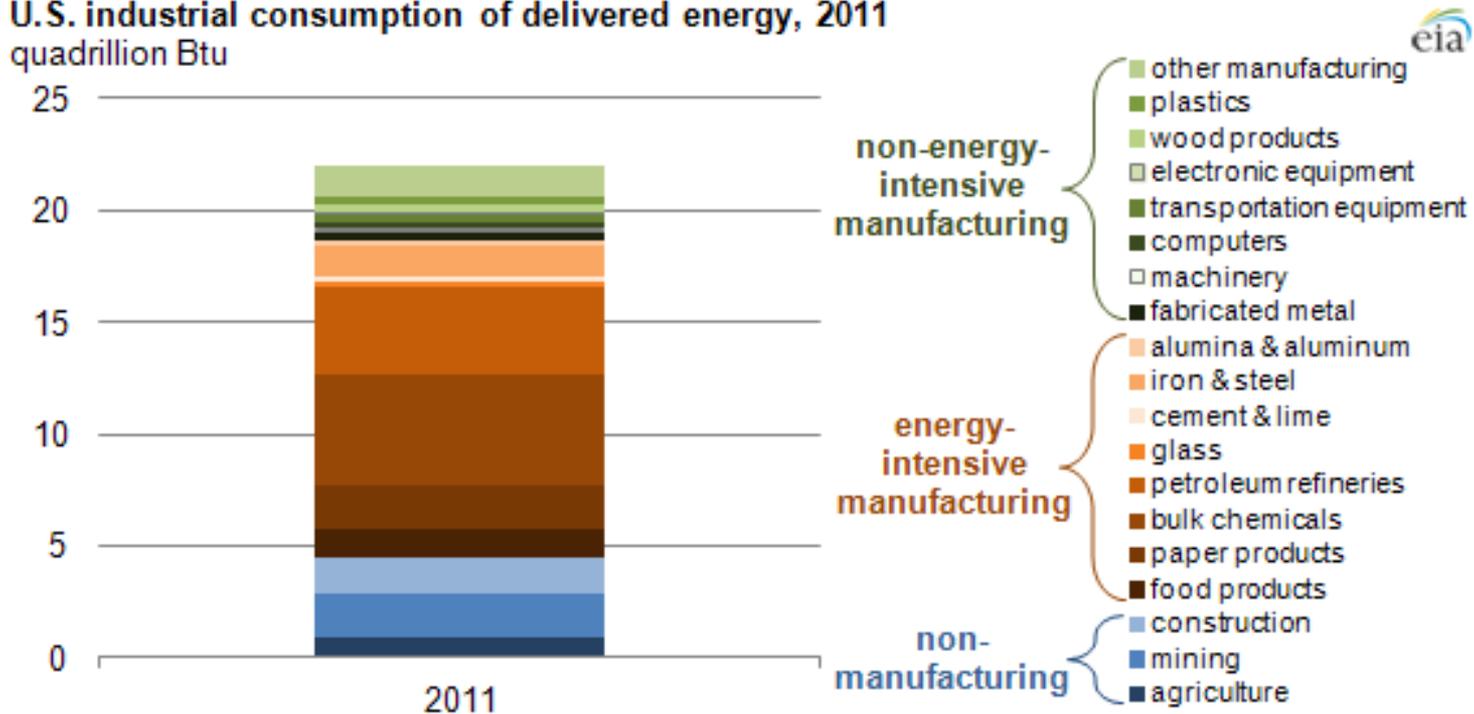
Figure 2. U.S. manufacturing consumption of energy as a fuel declined 13 percent from 2002 to 2010



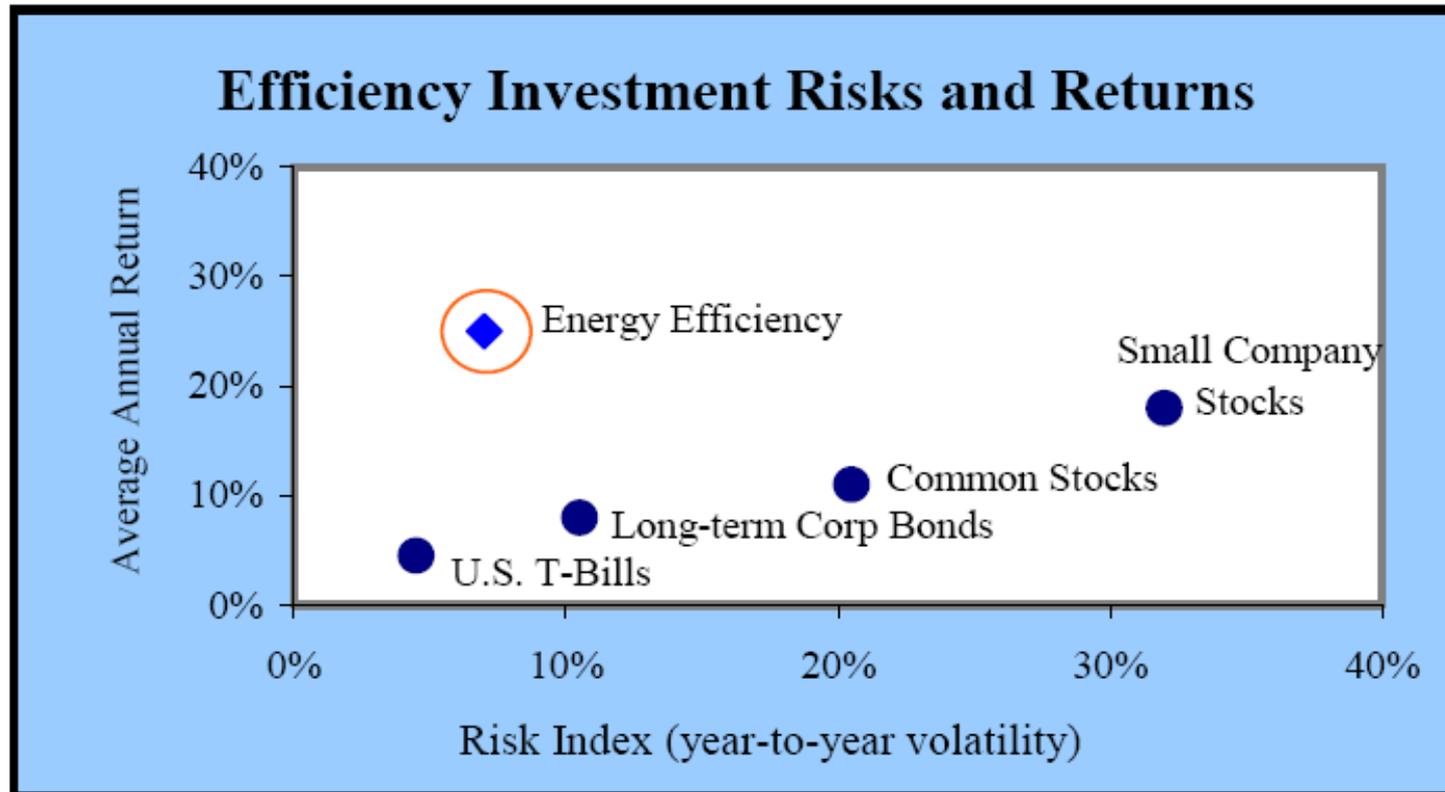
Source: U.S. Energy Information Administration, Manufacturing Energy Consumption Survey - Table 3.2: Fuel Consumption, 2002, 2006, and 2010

# Industrial Energy Use by Sector

U.S. industrial consumption of delivered energy, 2011  
quadrillion Btu



# Energy Efficiency as an Investment



Source: ACEEE estimates adapted from the U.S. EPA and the Vanguard Group

# Case for Energy Efficiency

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**Keep money in local economy**

**In Iowa, for each \$1 million invested in energy efficiency:**

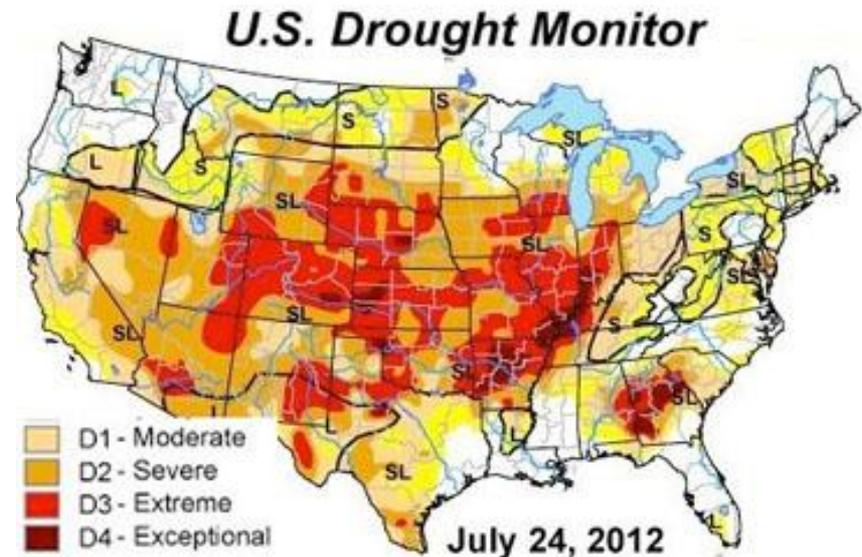
- **25 job years created**
- **\$1.50 of additional disposable income per \$1 invested**

**Improve economic competitiveness**

**Meet environmental goals**

# Water Availability a Growing Concern

**By 2030, 2 of 3 people will live in an area of high water stress**



# Water Shortage not the only Problem



# Water Use Statistics

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- **In 2005, Iowa used 1.23 trillion gallons of water**
- **In the US, 22% of water used for industry**
- **70% of Iowa's public water supply from groundwater**
- **Average Iowan uses 100 gallon of water/day**
- **Considering indirect uses (energy generation, manufactured products, food production, etc.) the average water use increases to 1,100 gal/day**

# Water Impact Survey of US Industries

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**59% identify water as a substantial risk factor for their business**



**Greater than 33% have already suffered water related business impacts**



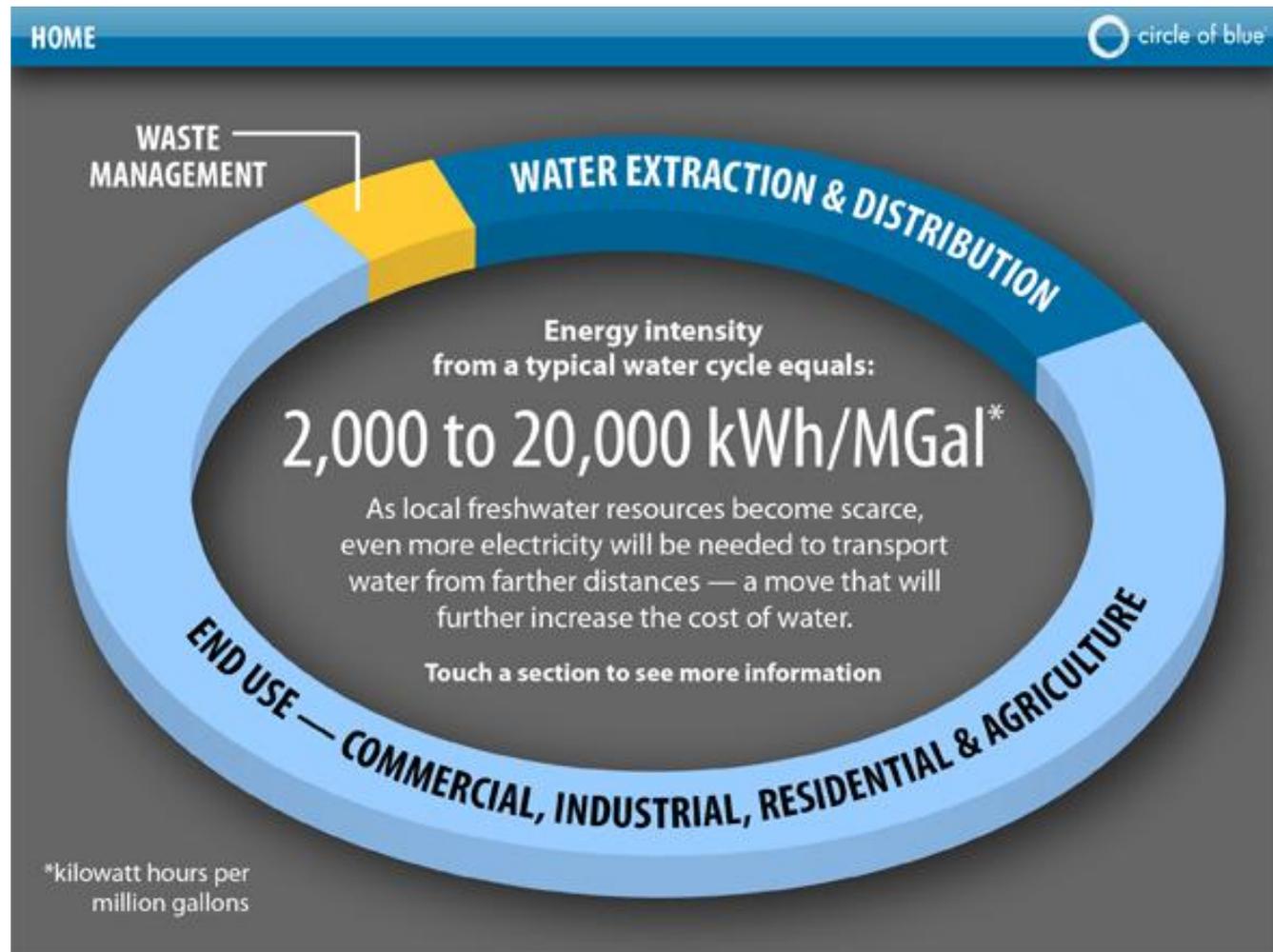
# Water Impact Survey of US Industries

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**Nearly all respondents report having a water plan, including identifying water related cost reductions.**



# Energy Intensity from Water Cycle



# IOWA EDGE

GAIN AN  
**EDGE**  
OVER YOUR COMPETITION



# A New Approach to Energy Assistance

	<b>PAST</b>	<b>FUTURE</b>
<b>Intent:</b>	Save energy	Career development
<b>Audience:</b>	Engineer/facilities	Multi-disciplinary
<b>Focus:</b>	Boiler room	Business needs
<b>Product:</b>	Projects	Business solutions
<b>Dynamic:</b>	Program PUSH	Program PULL
<b>Perception:</b>	Distraction	Opportunity

*Source: Christopher Russell, ACEEE*

# “Perfect Storm” of Opportunity for Industrial EE

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- **\$2.2 T cash on corporate balance sheets**
- **Re-shoring of manufacturing on U.S. soil**
- **Closure of older, inefficient plants**
- **Pent up capital investment needs**
- **Smart grid and energy M&V infrastructure**
- **Facility manager population: age 55+**
- **New generation: “green” awareness and tech savvy**
- **Sustainability driving more company decision-making**

# EDGE Program Objectives

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**Create a highly visible recognition program that recognizes industries that have undertaken significant energy efficiency initiatives to reduce energy and water usage.**

**Make significant progress in reducing energy and water consumption and greenhouse gases by bringing process efficiencies to Iowa's industrial and manufacturing plants and encouraging forward-thinking design for new industrial construction.**

# EDGE Program Outcomes

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**Recognize the energy and water efficiency achievements of industrial organizations through an ongoing goal setting and utility tracking process**

**Increased coordination with state and federal energy resources**

**Through efficiency gains, improve business competitiveness to retain and create jobs in Iowa**

# EDGE Focus on Energy Management

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Enhance an industry's energy management approach through the following:

- Evolve from **PROJECTS** to **SOLUTIONS**, from **EPISODES** to **RELATIONSHIPS**
- Groom **proactive leadership** so that energy management can grow at member organizations
- **MONETIZE** energy outcomes to harvest income from waste

# EDGE Advisory Committee

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**Iowa Association of Municipal Utilities**

**Office of Consumer Advocate**

**Department of Natural Resources, Pollution Prevention Services**

**MidAmerican Energy**

**Alliant Energy**

**Other members**

# EDGE Financial and Technical Support Team

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## EPA Region 7

- Pollution Prevention Grant

## EPA Better Plants Challenge

## Department of Energy

# EDGE Timeline and Milestones

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- Q1 & Q2 (2013)**
  - Recruit 10 companies
  - Hold kick-off event
  - Begin baselining and goal setting process
- Q3 (2013)**
  - Companies begin work towards goals
- Q1 (2014)**
  - Recruit 10 more companies
  - Orientation for second set of companies
- Q3 (2014)**
  - Recognition event for 10 original members
- Q4 2014**
  - Document results and close EPA grant
- Webinars/workshops and peer networking (ongoing, schedule TBD)**
- Ongoing cycle of goals and recognition for all participants**

# Company Selection Process

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**Market to companies with total utility bills of \$500,000 or more per year (Some flexibility built-in)**

**Target energy reduction of 2% or higher per year**

**Companies should commit to establish or maintain green team/energy team**

**Diverse geographic & industry profile**

# IEDA's EDGE Assistance

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## Technical Assistance

- Energy Management 101
- Green Team/Leadership
- Baseline Energy & Water
- Federal Energy Efficiency Programs & Resources
- Resources for Energy & Water Audits

## Financial Assistance

- State and Federal financing options
- Utility financial assistance- rebates, custom incentives
- 3<sup>rd</sup> party financial assistance

## Project Implementation Support

- One-on-one assistance
- Case studies- development and dissemination
- Hold peer networking events

# ENERGY STAR for Industry

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- Benchmarking Tools
- Energy Assessment Matrix
- Sector specific tools
- ENERGY STAR Plant Label
- Challenge for Industry  
Recognition program for 10%  
reduction in Energy Intensity  
within 5 years

# Department of Energy Resources

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The DOE provides:

- Advanced Manufacturing Office online tools, software and resources (i.e, Motor Master, compressed air fact sheets)
- Better Buildings, Better Plants Challenge
- Superior Energy Performance



# Colorado Industrial Energy Challenge

## CIEC Total Energy Savings

Total Energy Savings from 2009-2012 (MMBtu/yr)	Equivalent Dollar Savings (\$/yr in 2012)	Average Savings per year, % of total consumption
2,360,000	\$12.5 million	4.6%

based on reported data from 22 companies

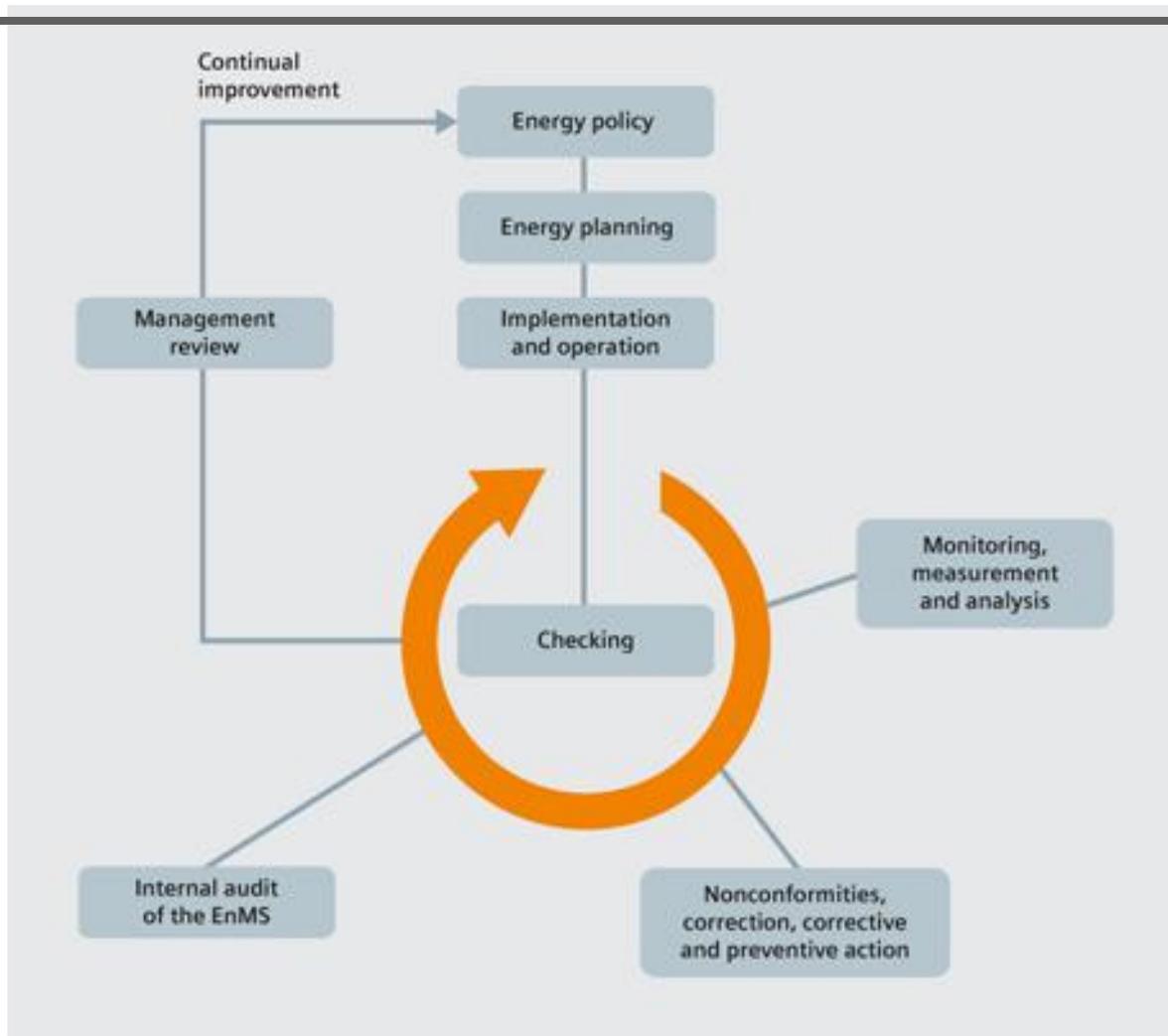
# International Organization for Standardization



**ISO 50001**

**Energy Management Standard**

# ISO Continual Improvement Model



# Department of Energy eGuide for ISO 50001

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<https://ecenter.ee.doe.gov/EM/SPM/Pages/Home.aspx>

## What is the DOE eGuide for ISO 50001?

The DOE eGuide for ISO 50001 is a toolkit designed to help organizations implement an energy management system through an organized step by step process. It includes forms, checklists, templates, examples, and guidance to assist the Energy Champion and Energy Team throughout the implementation process.



# Financial Assistance and Incentives

# Database of State Incentives for Renewables & Efficiency (DSIRE)



## Financial incentives for energy efficiency

- Tax incentives
- Rebates
- Grants
- Loans
- Bond program
- Green Building incentives

<http://www.dsireusa.org/incentives/index.cfm?state=us>

# U.S. Department of Agriculture

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## USDA programs for energy projects

- Cities of fewer than 50,000 residents
- Business and Industry Guarantee Loans
- Rural Energy for America Program (REAP)

[http://www.usda.gov/wps/portal/usda/usdahome?navid=GRANTS\\_LOANS](http://www.usda.gov/wps/portal/usda/usdahome?navid=GRANTS_LOANS)

# Utility Provider Services



- Audits
- Account manager expertise
- Rebates
- Loans
- Performance contracting
- Commissioning
- Building Operator Certification



# Federal Tax Credits



- **Commercial buildings: lighting; building envelope; heating, cooling and water heating**
- **Combined Heat and Power (CHP)**
- **Onsite renewables: solar; wind; geothermal**
- **<http://energytaxincentives.org/>**

# Federal Tax Credits: Example

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## Energy Efficiency Commercial Buildings

- Through 2013
- Tax deduction of \$1.80/sf for improvements to reduce energy by 50%
- Partial eligibility if savings < 50%

# State Tax Credits



- **Sales tax incentive for renewable technologies**
- **Property tax incentive**
- **Methane conversion tax incentive**
- **Wind energy production tax credit**
- **Solar and geothermal tax credits**

<http://www.dsireusa.org/incentives/index.cfm?state=us>

# IADG Energy Bank Revolving Loan Fund

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**Iowa Area Development Group (IADG) has partnered with Iowa Economic Development Authority to offer low interest financing.**

**For Iowa businesses and industries to do energy efficiency improvements, renewable energy projects and energy management and implementation plans.**

**Intended to provide an ongoing source of low interest financing for the implementation of cost effective projects that will save energy and money, improve facilities and processes, and enhance job creation and profitability.**

**[www.IADG.com/EnergyBank](http://www.IADG.com/EnergyBank)**

# NGA's CHP Policy Academy

# Background

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**The Policy Academy on Enhancing Industry Through Energy Efficiency and Combined Heat and Power focused on hosting senior-level policy advisors to identify cost-effective strategies, design new policies, programs and other measures, structure financing and funding options, and explore outreach, education and training techniques.**

**Iowa Utilities Board (IUB) and Iowa Economic Development Authority (IEDA) submitted a joint application to the National Governors Association.**

**Iowa was selected along with three additional states including Illinois, Arkansas, and Alabama. Tennessee was later added on to the Policy Academy.**

**Two national convening in Portland, OR, and Philadelphia, PA.**

# Goals

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**Compile and share information**

**Increase understanding of potential CHP market**

**Identify and address potential policy options**

# Major Activities Undertaken

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**Literature review and research on existing CHP and potential of CHP in Iowa**

**Stakeholder meetings**

**Survey on challenges and barriers related to CHP**

**Site-visits to ADM plant in Des Moines as well as to the Des Moines Wastewater Reclamation Facility**

**Compilation of the final report and memo to the Governor and National Governors Association (ongoing)**

## Goal

- Seek feedback on factors affecting CHP installation and operations from CHP stakeholders.

## Two similar surveys were sent to:

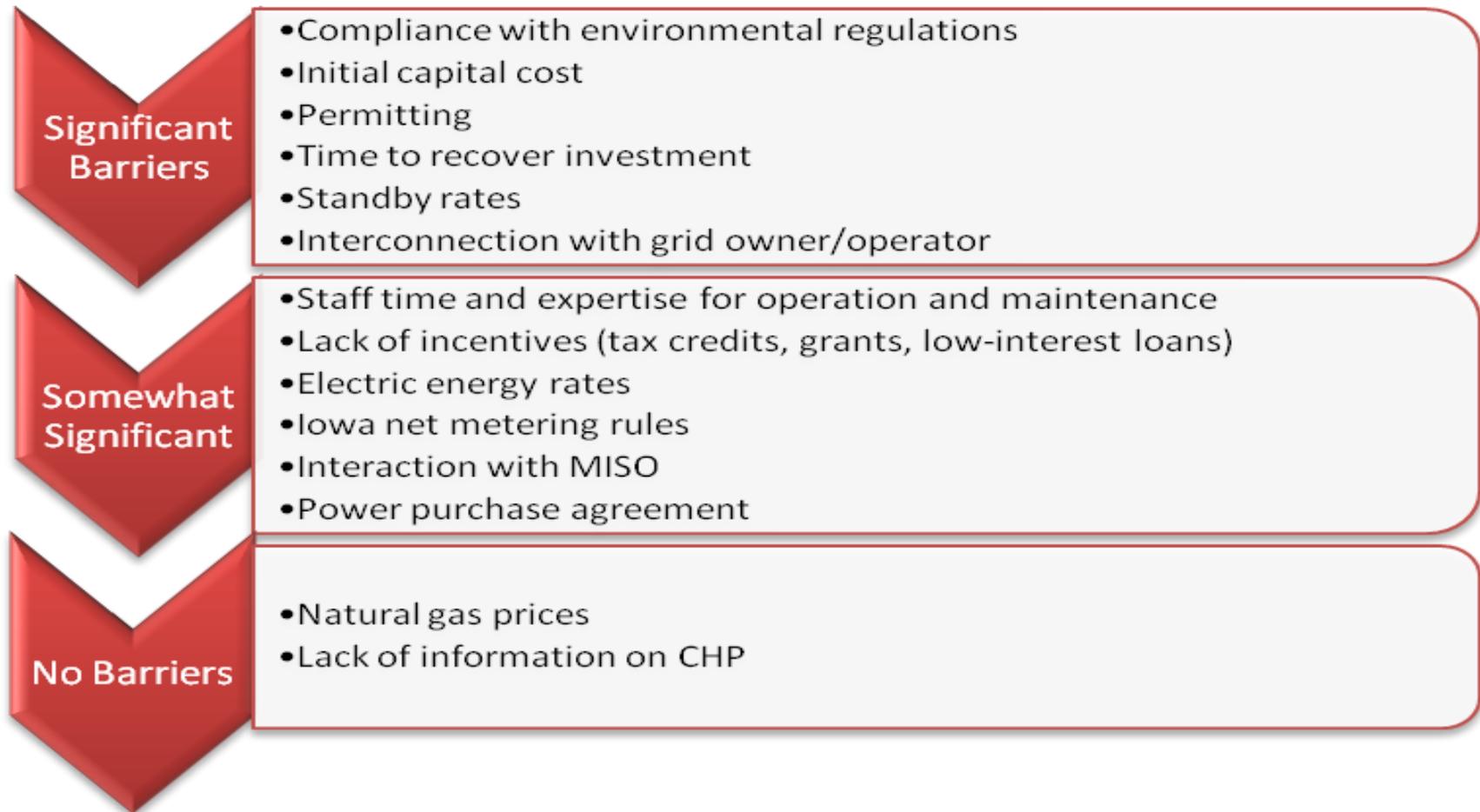
- Existing CHP Facilities and those interested in CHP

**Surveys were sent and completed electronically. Some paper responses were received.**

## Survey Components

- Background Information on CHP(size, # of FTEs, fuel source, years of operation)
- Brief Description of CHP System
- CHP Installations and Barriers
- Qualitative Response
- Contact Information

# Barriers: Existing CHP



Note: Arranged by most common to least common response

Memo to the Governor on the next steps on the CHP Policy Academy

IEDA will plan to hold three webinars in May on the following topics:

- Small scale CHP systems and its applicability
- Boiler MACT rules and CHP as an option

The CHP Final Report will be released to the stakeholders

Possible topics that may be explored further relate to information sharing, permitting and financing as well as utility topics.

# Contact Information

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**[www.iowaeconomicdevelopment.com/Programs/Energy](http://www.iowaeconomicdevelopment.com/Programs/Energy)**



# Questions?

