



IOWA CHAPTER

Status of Coal in Iowa

Iowa gets a significant amount of electricity from coal-fired power plants. Coal supplied 45.05 percent of the electricity generated in Iowa in 2018 while wind was used to generate 33.66 percent of the electricity.¹

Coal-burning Plants in Iowa

A number of the coal-burning plants in Iowa generate electricity for consumers while there are several coal-fired industrial plants.

The following is a list of the coal-fired power plants in Iowa. Some facilities have more than one unit burning coal. Some of the electric utility power plants have additional owners who are not listed in this table.



	Plant name	Plant owner	Plant location	Notes
1	Burlington Generating Station, unit 1	Alliant Energy	Burlington	Will transition from coal by December 31, 2021
2	Lansing Power Station, unit 4	Alliant Energy	Lansing	
3	Ottumwa Generating Station, unit 1	Alliant Energy	Ottumwa	
4	Prairie Creek Generating Station, 3 generating units	Alliant Energy	Cedar Rapids	Will phase out coal by December 31, 2025
5	Streeter Station ²	City of Cedar Falls	Cedar Falls	
6	Walter Scott Jr. Energy Center, units 3, 4	MidAmerican	Council Bluffs	Unit 4 began operating in 2007
7	George Neal Station North, unit 3	MidAmerican	Sergeant Bluff	
8	George Neal Station South, unit 4	MidAmerican	Salix	
9	Louisa Generating Station, unit 1	MidAmerican	Muscatine	
10	Muscatine Generating Station, units 7, 8, 8A and 9	Muscatine Power and Water, City of Muscatine	Muscatine	

¹ See the Iowa Utilities Board website: <https://iub.iowa.gov/iowas-electric-profile>

² Pat Kinney of the Waterloo-Cedar Falls Courier interviewed Jim Krieg, the general manager for Cedar Falls Utilities, about Streeter Station. "Krieg noted CFU can burn coal or natural gas at either of Streeter's generating units, as opposed to some facilities which burn only coal, some of which are being decommissioned rather than those utilities pay the cost of retrofitting them. 'The direction we are going more all the time is burning natural gas in our facilities when we have to use them,' Krieg said." See Pat Kinney, "Cedar Falls power plant plans control system upgrade", *Waterloo-Cedar Falls Courier*, February 10, 2016.

	Plant name	Plant owner	Plant location	Notes
11	Iowa State University Power Plant, units 1, 2	University	Ames	Board of Regents approved shift to gas ³
12	University of Iowa Main Power Plant ⁴	University	Iowa City	Will migrate from coal by 2025 ⁵
13	University of Northern Iowa Power Plant	University	Cedar Falls	

Alliant Energy announced that all of its coal plants would be shuttered by 2040.⁶

Muscatine Power and Water (MP&W) commissioned a Power Supply Study to review the power plant's electricity generation and fuel sources. As a result of the study, officials began looking at replacing the power plant with solar and natural gas. The discussion by MP&W officials centered around replacing units 7 and 8 by 2022 and unit 9 by a natural gas plant by 2029.⁷



The following is a list of industrial plants that burn coal.

	Plant name	Use of the plant	Plant location
1	Ag Processing Eagle Grove Power Plant	soybean processing company	Eagle Grove
2	Archer Daniels Midland Cedar Rapids Power Plant	Corn processing	Cedar Rapids
3	Archer Daniels Midland Clinton Cogeneration Plant ⁸	Corn processing	Clinton
4	Archer Daniels Des Moines Cogeneration Plant	Soybean processing	Des Moines
5	Iowa Army Ammunition Plant	Ammunition plant for Department of Defense	Middletown
6	Roquette America	Wet corn milling	Keokuk

Migration Away From Coal

In the 21st Century, several coal-fired power plants and related projects have been suspended before they were built, have been retired, or have transitioned to natural gas.

- In 2004, Dairyland Power Cooperative abandoned plans to build a power plant in either Mitchell or Chickasaw Counties near Mona.
- A proposed coal-fired ethanol plant for Des Moines was withdrawn by Lincolnway Energy in 2006.
- The Sixth Street Generating Station in Cedar Rapids was shuttered by Alliant Energy after the plant was heavily damaged in a flood in 2008. The plant was demolished in 2015. Alliant removed the coal ash ponds from the site in 2017.⁹

³ Vanessa Miller, "ISU wants to shift from coal boilers to natural gas", Cedar Rapids Gazette, June 4, 2020; also see Vanessa Miller, "ISU investigating public-private utilities pact, like UI's", Cedar Rapids Gazette, June 5, 2020

⁴ Vanessa Miller, "Would privatizing UI utilities pay off? Public-private partnership could create endowment", Cedar Rapids Gazette, February 9, 2019

⁵ University of Iowa officials committed to transitioning off coal by 2025; the recent announcement of privatizing the coal plant to Engie North America and Meridiam included a pledge to move off coal by 2023. See Vanessa Miller, "UI Lands \$1.165B in Utilities Deal", Cedar Rapids Gazette, December 11, 2019

⁶ "Alliant announces net-zero power generation goal", Corridor Business Journal, July 22, 2020

⁷ David Hotle, "Study recommends Muscatine Power and Water focus on green energy sources", Muscatine Journal, July 2, 2020

⁸ The current power plant in Clinton, which began operating in 2009, is co-generating with biomass. This power plant replaced several old coal boilers.

⁹ B. A. Morelli, "Alliant to cap ash ponds near Cedar Lake," Cedar Rapids Gazette, August 16, 2016 and

- LS Power abandoned plans to build a coal-fired power plant near Waterloo in 2009.
- Alliant Energy cancelled a new coal-fired power plant in Marshalltown in 2009.
- A coal heap planned to be built by Southern Coal Handling near Nevada was abandoned in 2009.
- In 2010 Alliant retired Unit 2 at its Dubuque Generating Station, Unit 1 at M. L. Kapp Generating Station in Clinton, Unit 2 at Prairie Creek Station in Cedar Rapids, Unit 2 at Sutherland in Marshalltown, and Unit 2 at Lansing.
- In November, 2011, Alliant transitioned its 2 boilers (Units 3 and 4) at its Dubuque Generating Station from coal to natural gas in preparation for final closure in 2017.
- In 2011, John Deere Dubuque Works, a farm machinery manufacturing plant in Dubuque, ceased burning coal and stated one of the reasons for that decision was the proposed maximum achievable control technology (MACT) standards for mercury and other hazardous air pollutants.
- Alliant completed converting two of its coal-fired boilers (Units 1 and 3) at Sutherland Generating Station in Marshalltown from coal to natural gas in 2012. However these boilers are still licensed to burn coal. These two boilers are expected to be repowered or retired in 2019, based on the Consent Decree signed between the Sierra Club and Alliant.
- In 2012 the Pella Municipal Power Plant announced it would be shuttering its coal-fired power plant.
- The Central Iowa Power Cooperative Fair Station in Montpelier was shuttered in November, 2013, with plans to tear it down.¹⁰
- In 2013 Iowa State University decommissioned one coal boiler (unit 5) and converted two boilers to run on natural gas (units 3 and 4).
- Alliant Energy shuttered Unit 3 at Lansing Generating Station in 2013.
- Corn Belt Power Cooperative converted its Earl F. Wisdom Generating Station in Spencer to natural gas and fuel oil in 2014.
- In 2014 Lincolnway Energy, a dry-mill ethanol plant in Nevada, switched from coal to natural gas.
- Alliant transitioned from burning coal at the Milton L. Kapp Generating Station, Unit 2, in Clinton, to natural gas in 2015. This plant was demolished in 2020.¹¹
- MidAmerican Energy Company converted Riverside Generating Station in Bettendorf to natural gas in 2015.
- MidAmerican Energy Company also retired units 1 and 2 at Walter Scott, Jr. Energy Center in Council Bluffs in 2015.
- Grain Processing Corporation transitioned its wet corn processing plant in Muscatine from coal to natural gas in July, 2015.
- George Neal Station North, units 1 and 2 were retired in April, 2016.¹²
- Between 2006 and 2016, amount of power generated by coal fell by 25.6 percent, from 34,405,000 megawatts to 25,601,000 megawatts.¹³
- Between April and June, 2016, the City of Ames transitioned two coal boilers to natural gas.
- Monsanto's Boiler number 8 was switched from coal to natural gas in 2017.¹⁴



Prairie Creek Generating Station. Photo by Elwood Garlock.

B. A. Morelli, "Alliant begins work to cap coal ash ponds," *Cedar Rapids Gazette*, May 5, 2017.

¹⁰ Joe Jarosz, "Coal plant powers down," *Muscatine Journal*, November 14, 2013

¹¹ Dave Vickers of KROS in Clinton, "Retired Clinton power plant brought down", *Radio Iowa*, July 10, 2020

¹² MidAmerican Energy Company, "Just the Facts", April, 2016

¹³ Yvette Romero, "States' Appetite for Coal Shrinks, Except in Nebraska", *Bloomberg*, May 30, 2017. See <https://www.bloomberg.com/graphics/2017-coal-states-shrinking-appetite/>

¹⁴ "Sulfur Dioxide Data Requirements Rule – 2019 Annual Review", Iowa Department of Natural Resources, May 8, 2019, Draft

- By 2017, MidAmerican reported that it was generating 47 percent of its electricity from wind and 31 percent from coal. Twelve years ago, MidAmerican generated 70 percent of its electricity from coal.¹⁵
- In November, 2017, Alliant Energy converted its largest coal boiler at the Prairie Creek Generating Station to natural gas.¹⁶
- An August, 2020, open records request to the Iowa Department of Natural Resources asking for the Title V permits of industries that burn coal showed that the following plants no longer had permits: Cargill Corn Milling Power Plant, corn milling, Eddyville; Cargill-Cedar Rapids, grain processing, Cedar Rapids; Central Iowa Renewable Energy (CORN) LP, dry mill ethanol, Goldfield; Monsanto (Iowa), pesticide manufacturing, Muscatine.

Economic Implications

Wind and solar are power sources found in the state. The money spent on coal is all shipped out of the state since Iowa has no functioning coal mines. Historically Iowa had many coal mines, particularly in southern Iowa.

Greenhouse Gas Implications

A comparison of the greenhouse gas emissions in Iowa by sector follows:

	2005 ¹⁷	2015 ¹⁸	2016	2017	2018
Electricity	31%	23%	20%	20%	23%
Transportation	17%	16%	15%	15%	15%
Fossil Fuel Industry	2%				
Industrial Fuel Use	13%				
Residential and Commercial Fuel Use	7%				
Residential, commercial, industrial fossil fuel use		24%	25%	23%	22%
Natural Gas Transmission and Distribution		1%	1%	1%	1%
Industrial Process	4%	4%	4%	6%	5%
Waste	2%	1%	2%	2%	2%
Agriculture	23%	29%	31%	30%	30%
Land use, land use changes, forestry		2%	2%	3%	1%

Total greenhouse gas emissions in Iowa have increased since 2005, as shown by the following table:

Year	Total net emissions, million metric tons of carbon dioxide equivalents
2005	102.73
2010	135.53
2015	131.64
2016	126.64
2017	133.00
2018	137.49

Mercury Contamination of Fish and Turtles

One of the pollutants emitted into the air when coal is burned is mercury. When mercury emissions settle in water bodies, the fish can be contaminated. People who eat the mercury-contaminated fish can face a number of health

¹⁵ Rod Boshart, "A green future", Iowa Ideas – Building a Roadmap for the Future, The Gazette, Cedar Rapids, Iowa, March, 2017, page 42

¹⁶ Mitchell Schmidt, "Alliant shifting C.R. coal unit to burn natural gas", *Cedar Rapids Gazette*, November 2, 2017

¹⁷ "Iowa Climate Change Advisory Council Final Report", December 23, 2008, pages 2-3 and 2-6.

¹⁸ See Iowa Department of Natural Resources, www.iowadnr.gov/Environmental-Protection/Air-Quality/Greenhouse-Gas-Emissions for 2015, 2016, 2017, and 2018 numbers.

concerns since mercury is a powerful neurotoxin. It can interfere with normal fetal development if a mother ingests mercury-laden fish. Mercury has also been implicated in coronary disease in men.

The Iowa Department of Natural Resources (Iowa DNR) has listed several water bodies in Iowa where there are fish advisories that warn people to limit the number of fish they eat each week because the fish are contaminated with mercury. Advisories are also given for the consumption of turtles.

Once a fish consumption advisory has been issued for a water body, the fish are periodically tested to determine whether the contaminant remains present in the fish. Once two successive tests show that the contamination levels have been reduced below the threshold for that chemical, the advisories are removed.¹⁹

The DNR encourages lowans and out-of-state visitors to fish. Not only does fishing provide recreation and food, but it also provides economic activities to the communities where fishing is prevalent. Mercury-contaminated fish can impact the tourism and economic benefits the state receives from people who fish.



Because lakes and rivers can be added to the list of consumption advisories, check for updates at the DNR website: www.iowadnr.gov/Environmental-Protection/Water-Quality/Water-Monitoring/Fish-Tissue. The lakes and rivers in Iowa with mercury advisories in 2020 are:

Water body	Location	Eat 1 fish a week of the following species ²⁰
Chatfield Lake	Lee	largemouth bass
Grade Lake	Clarke County	largemouth bass
Lake Geode	Henry County	largemouth bass
Lake Iowa	Iowa County	largemouth bass
Lake Keomah	Mahaska County	largemouth bass
Lake Miami	Monroe County	largemouth bass
Lake Wapello	Davis County	largemouth bass
Little River Lake (Decatur)	Decatur	largemouth bass
Mormon Trail Lake	Adair County	largemouth bass
Nine Eagles Lake	Decatur County	largemouth bass
North Banner Lake	Warren County	largemouth bass
Pollmiller Park Lake	Lee County	largemouth bass, snapping turtle
Red Haw Lake	Lucas County	largemouth bass
South Banner Lake	Warren County	largemouth bass
Upper Centerville Reservoir	Appanoose County	largemouth bass
Cedar River	from the Highway 218 bridge at Floyd in Floyd County to the Iowa and Minnesota state line	Any predator fish
Iowa River	Upper end of Coralville Reservoir near Swisher in Johnson County to the dam at Iowa Falls in Hardin County	any predator fish

¹⁹ Pool 12 of the Mississippi River, which is the area between Lock and Dam 11 in Dubuque and Lock and Dam 12 at Bellevue in Jackson County had an advisory for mercury removed after follow-up testing in the fall of 2006 and in 2007. The original advisory warned people to eat only 1 meal a week of walleye, sauger, largemouth bass, white bass or northern pike.

Additionally the advisory on eating any predator fish from Yellow Smoke Lake in Crawford County advisory has now been removed. Testing in 2011 indicated high levels of mercury leading to the advisory, but testing in 2014 did not detect high mercury levels.

²⁰ Note: predator fish includes smallmouth bass, white bass, walleye, and northern pike.

Water body	Location	Eat 1 fish a week of the following species ²⁰
Chatfield Lake	Lee	largemouth bass
Shell Rock River	From the West Fork Cedar River confluence near Cedar Falls in Black Hawk County to the Winnebago River confluence near Rockford in Floyd County	Any predator fish
Turkey River	From confluence with the Mississippi River 21 miles upstream to confluence with Volga River near Garber, all in Clayton County	any predator fish
Upper Iowa River	from Highway 76 bridge in Allamakee County upstream to the County Road W-20 bridge in Winneshiek County	All species of fish
Volga River, Little Volga River, and the North Branch Volga River	upstream from the town of Volga in Clayton County into Fayette County; including the Little Volga River and the North Branch Volga River	smallmouth bass
West Fork of the Des Moines River	from the confluence with the East Fork of the Des Moines River in Humboldt County to state highway 15 south of West Bend in Humboldt and Pocahontas Counties	Any predator fish

Environmental Contaminants: Combustion Waste and Coal Tar

After coal is burned, it leaves behind coal combustion waste. Fly ash accumulates in the smoke stack. Bottom ash is found at the bottom of the boiler. Combustion waste also includes particles that are captured by scrubbers, bag houses, and other pollution control measures. Combustion waste, also known as coal ash, contains a slew of toxic chemicals that are harmful to people. These chemicals can leach from the landfill site and move into the groundwater. Neither federal nor state law requires ground water monitoring wells around the coal ash burial sites. Iowa law does not require composite liners on coal ash landfills and ponds. Likewise Iowa law does not require dust controls at coal ash landfill sites nor does it require daily cover of the coal ash landfill sites.²¹ The Iowa Department of Natural Resources shows 9 permitted coal combustion waste landfills that are currently open.²²

The Environmental Protection Agency required owners of landfills where coal combustion waste has been placed to test the landfill to determine if hazardous chemicals are leaking into the groundwater and to issue reports about their findings by March 2, 2018. From the reports that were published, the following was learned about the landfills and coal ash ponds:

- Muscatine Power and Water reported that its landfill, seven miles west of the power plant, is leaking toxic chemicals into the groundwater. They were continuing to evaluate further action based on the test results.
- MidAmerican announced that it was ending disposal of coal combustion waste in the ash ponds at the George Neal North and South power stations and at the Walter Scott Junior Energy Center in April, 2018. They also committed to digging up all coal ash material located below the water table at George Neal North and South power stations and at the Walter Scott Junior Energy Center. MidAmerican also reported that it was working to close a coal ash pond at the Louisa Generating Station in Muscatine, having ceased using the pond in 2017. Instead of dumping the coal ash waste, MidAmerican is diverting it into cement replacement materials or lined landfills. MidAmerican also committed to closing all unlined landfills in 2018.²³
- Alliant closed the coal ash ponds and landfills at ML Kapp Generation Station in Clinton in January, 2018. Alliant is closing the coal ash ponds and landfills at Prairie Creek Generating Station in Cedar Rapids and Sutherland



²¹ "Iowa and Coal Ash Disposal in Ponds and Landfills," Earthjustice

²² Access the list of permitted coal combustion residue landfill sites at www.iowadnr.gov/Environmental-Protection/Land-Quality/Solid-Waste

²³ Tina L. Hoffman, "MidAmerican Energy to Close Ash Ponds and Iowa Power Plants", MidAmerican Energy Company Press Release, March 1, 2018

Generating Station in Marshalltown. It will be closing the coal ash ponds and landfills in Burlington in 2021. It will also be closing the coal ash ponds and landfills in Lansing. All of Alliant's coal ash ponds will be closed by 2023.²⁴

Several retired coal gasification sites have been placed on the National Priority List for the Superfund hazardous waste cleanup program.²⁵

- Fairfield Coal Gasification Plant, in Fairfield, owned by Alliant Energy
- Iowa City Former Manufactured Gas Plant, Iowa City, owned by Iowa Illinois Square, it is the site of 54 apartments
- Mason City Coal Gasification Plant, in Mason City, owned by Alliant Energy
- Peoples Natural Gas Company, in Dubuque, now owned by the City of Dubuque and Iowa Department of Transportation
- Waterloo Coal Gasification Plant, in Waterloo, site owned by MidAmerican Energy

Sources

For a complete list of the coal ash ponds and landfills, see www.environmentalintegrity.org/news_reports/documents/2012_06_27_CoalPlantCCWDisposalUnitsfromICRSummary-TableforRelease.pdf, Environmental Integrity Project, June 26, 2012.

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²⁴ Staff and wire reports, "MidAmerican, Alliant is closing coal ash landfills at several power plants", *Des Moines Register*, March 2, 2018

²⁵ The sites currently on the superfund list can be found at www.epa.gov/superfund/sites/query/queryhtm/nplfin.htm#IA

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