

A photograph of a wind turbine on the left and a large array of solar panels on the right, set against a clear blue sky. The solar panels are tilted and supported by metal posts. The wind turbine is a modern, three-bladed model.

IOWA ELECTRIC GENERATION

CONDITION OF THE STATE 2023



Iowa
Environmental
Council

TABLE OF CONTENTS

Introduction	1
Coal Generation and Climate Change	2
Climate Targets	3
Iowa’s Contribution to Climate Change	3
Iowa Generation Since 2000	5
Fossil Generation	7
Generation Sales	9
Impacts to Iowans from Coal Generation.....	11
A. Coal Generation and Public Health.....	11
B. Coal Generation and Crop Yields.....	13
C. Social Cost of Carbon	14
The True Cost of Coal Generation	14
Conclusion	17



On April 22, 2021, the U.S. announced a long-term national policy to ensure the U.S. achieves a carbon-free electricity sector by 2035, effectively eliminating electricity produced using coal and fossil gas¹. Consistent with this national policy, the Intergovernmental Panel on Climate Change (IPCC) issued [*Climate Change 2022: Mitigation of Climate Change*](#) in April of 2022².

The IPCC report makes clear that in order to limit warming to 1.5°C, **ALL global greenhouse gases from all sources** released into the atmosphere must equal the amount of greenhouse gases removed by 2050 (net zero)³. Importantly, the IPCC report shows that the delay or failure to achieve timely reductions in one sector increases the burden to decrease in other sectors⁴.

The IPCC report and the U.S. national policy recognize that achieving net zero by 2050 requires a carbon-free electricity sector by 2035. While the transportation, agricultural, and building sectors will require more time and innovation to be net zero by 2050, a carbon-free electricity sector by 2035 is achievable and necessary. Accordingly, Iowa utilities must prioritize and accelerate this transition.

In April of 2020, the Iowa Environmental Council released Iowa's Road to 100% Renewable, which summarized various pathways for Iowa to meet a 100% renewable energy goal based on a dozen regional and national studies. We found that this goal is achievable and desirable. In fact, wind energy surpassed coal as Iowa's primary source of electricity in 2019 for the first time ever, and provided 64% of Iowa's electricity in 2022.

Yet, MidAmerican Energy is the majority owner of six coal plants in Iowa with no publicly announced retirement dates. This conflicts with the national policy to achieve a carbon-free electricity sector by 2035, fails to recognize the reduction timelines called for by the IPCC, and breaks MidAmerican's promise to accelerate the transition to a low-carbon economy.


MidAmerican Energy and Alliant Energy must make serious commitments to reach a zero-carbon electricity system by 2035. The needed energy transition starts with plans to retire their expensive, dirty, and unnecessary coal generation.

1 Fact Sheet: Biden Sets Greenhouse Gas Reduction Targets; Fossil gas also referred to as methane or natural gas.

2 Climate Change 2022; Mitigation of Climate Change

3 Id.

4 Id.



COAL GENERATION AND CLIMATE CHANGE

Of coal's many environmental impacts, none are as harmful, long term, and irreversible as climate change. Climate change is driven by emissions of heat-trapping gases, primarily from human activities, that rise into the atmosphere and act like a blanket, warming the earth's surface.

Carbon dioxide (CO₂) emissions from combusting fossil fuels are the main driver of climate change. CO₂ is also the main byproduct of coal combustion: nearly four grams of CO₂ are produced for every gram of carbon burned (depending on its type, coal can contain as much as 60 to 80 percent carbon). Coal generation produces approximately one ton of CO₂ per megawatt hour (MWh) of energy.

Consequences of climate change include rising temperatures and accelerating sea level rise as well as growing risks of drought, heat waves, heavy rainfall from intensified storms, and species loss. Left unchecked, climate change will lead to profound human and ecological disruption.

We are already seeing impacts from climate change today in Iowa.

These impacts are costing Iowa businesses, families, governments, and taxpayers billions of dollars. For example, the August 10, 2020 derecho¹ damaged millions of acres of corn and soybeans, devastated the Cedar Rapids tree canopy, and crippled portions of the MidAmerican and Alliant electric system. The resulting damages to Iowans and Midwesterners totaled \$12 billion in just one event.² Then on December 15, 2021, a derecho³ in Iowa totaled \$1 billion in damages.⁴ It also marked the first ever derecho recorded in the month of December in the U.S., and was accompanied by at least 63 tornadoes, the largest outbreak in state history.⁵

¹ [Iowa derecho in August was most costly U.S. thunderstorm disaster - The Washington Post](#)

² "Events | Billion-Dollar Weather and Climate Disasters," NOAA, available at [https://www.ncei.noaa.gov/access/billions/events/US/2020?disasters\[\]=severe-storm](https://www.ncei.noaa.gov/access/billions/events/US/2020?disasters[]=severe-storm) (last visited June 20, 2023).

³ <https://www.kcrg.com/2021/12/17/initial-analysis-shows-wednesday-severe-weather-meets-derecho-criteria/>

⁴ "Events | Billion-Dollar Weather and Climate Disasters," NOAA, available at [https://www.ncei.noaa.gov/access/billions/events/US/2021?disasters\[\]=severe-storm](https://www.ncei.noaa.gov/access/billions/events/US/2021?disasters[]=severe-storm) (last visited June 20, 2023).

⁵ "Severe Storms and Extreme Winds - December 15, 2021," NOAA, available at <https://www.weather.gov/dmx/StormyandWindyWednesdayDecember152021> (last visited June 20, 2023).

CLIMATE TARGETS

The United States is a signatory to the Paris Agreement with a goal to keep global warming below 2° C and ideally below 1.5° C compared to pre-industrial levels. The [Paris Agreement](#) calls for countries to make their pledges to reduce emissions – called nationally determined contributions (NDCs) – more ambitious every five years. NDCs are at the heart of the Paris Agreement and critical to the achievement of these long-term goals. NDCs embody efforts by each country to reduce national emissions and adapt to the impacts of climate change. On April 22, 2021, the U.S. announced a new NDC of a carbon free electricity sector by 2035, eliminating electricity produced using coal and fossil gas¹.

¹ [Fact Sheet: Biden Sets Greenhouse Gas Reduction Targets](#)

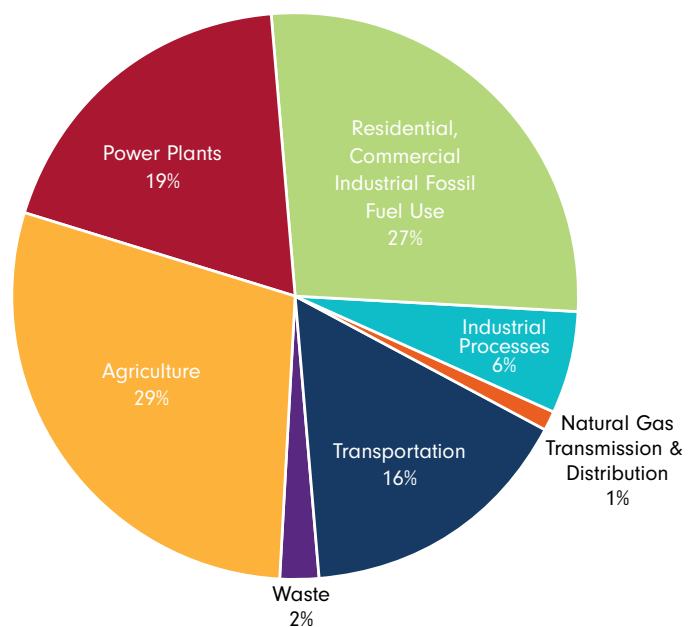
IOWA'S CONTRIBUTION TO CLIMATE CHANGE

The Iowa Department of Natural Resources must report annual greenhouse gas inventories to the legislature and governor each year. The most recent report calculated greenhouse gas emissions for calendar year 2021.

The 2021 GHG Inventory is a “top-down” inventory based on statewide activity data from agriculture, fossil fuel combustion, industrial processes, natural gas transmission and distribution, transportation, solid waste, and wastewater treatment. It also includes carbon sequestered or emitted from land use, land use change, and forestry. GHGs included in the inventory are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), perfluorocarbons (PFC), hydrofluorocarbons (HFC), and sulfur hexafluoride (SF₆).

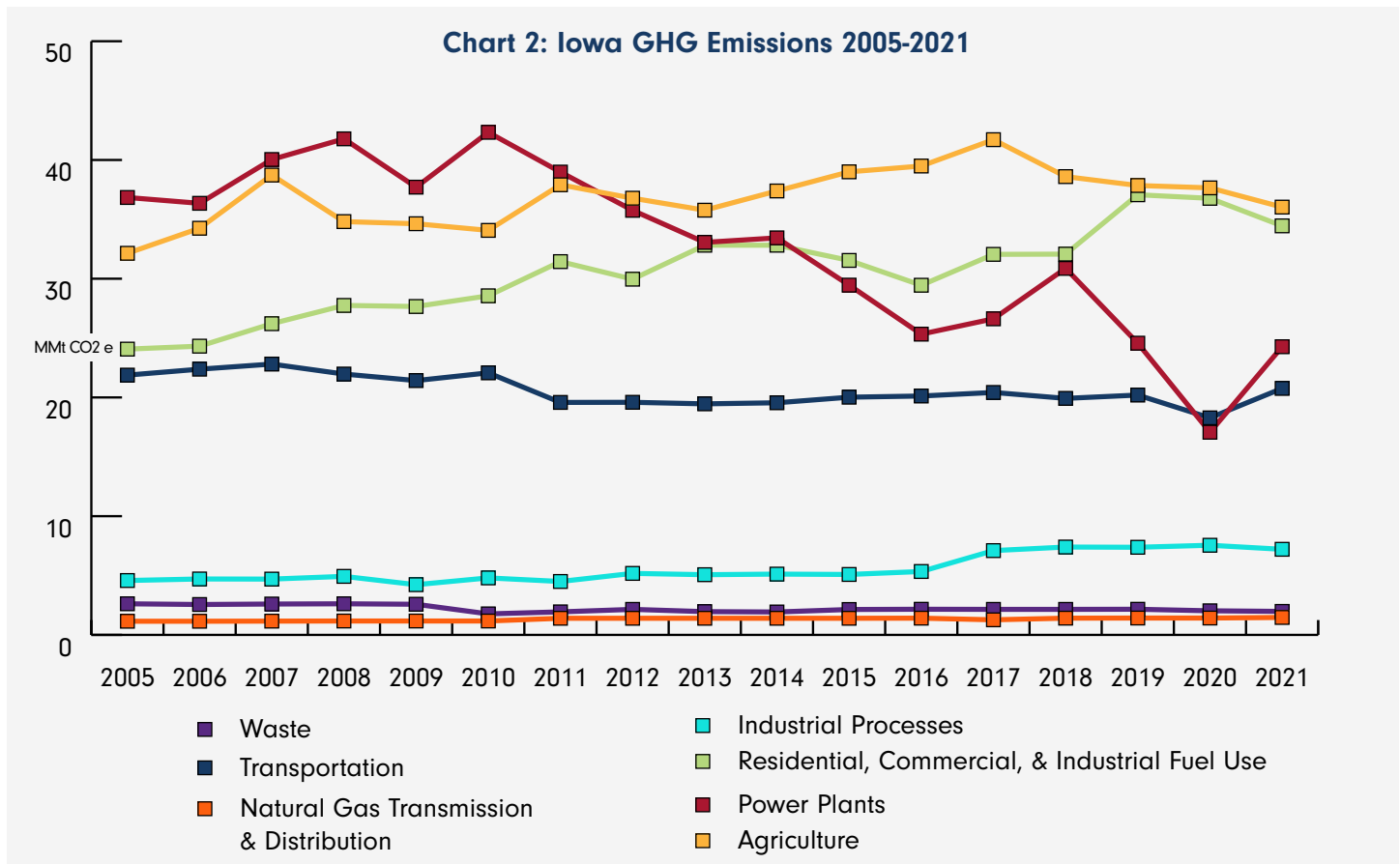
The majority of GHG emissions in Iowa in 2021 were from the agriculture sector (29%), followed by emissions from the residential/commercial/industrial (RCI) sector (27%), and fossil fuel use by power plants (19%), as shown in Chart 1¹.

Chart 1:
2021 Iowa GHG Emissions by Sector



¹ Iowa Department of Natural Resources, “2021 Iowa Statewide Greenhouse Gas Emissions Inventory Report,” Dec. 31, 2022, available at <https://www.iowadnr.gov/Portals/idnr/uploads/air/ghgEmissions/2021%20GHG%20REPORT.pdf>, page 7

In 2021, total gross Iowa greenhouse gas emissions were 126.16 million metric tons carbon dioxide equivalent (MMtCO₂e).¹ The trend in Iowa from 2005 through 2021 for each of the sectors is shown in Chart 2.²



Although power plant emissions have declined in the past 15 years, no other sector has made much progress and in fact the agriculture, RCI (residential, commercial, and industrial fuel use), and industrial process use sectors have increased over the same time frame. ***It is critical to note that the sectors do not operate independently and that in order to achieve net zero by 2050, the RCI and transportation sectors depend on electrification and a carbon-free electricity sector to provide them clean power by 2035.***

Our utilities must get on board with this timeline.

While both MidAmerican³ and Alliant⁴ have touted that their goals to be net zero by 2050 are consistent with the Paris Agreement and U.S. policy, that is not true. The national and international net zero goals apply not to coal plants, but to **all global greenhouse gasses from all sources**. MidAmerican and Alliant appear to have applied the net zero goal only to their electric generation, and conveniently ignored their fossil gas operations. They have also decided to operate the coal plants well beyond the U.S. policy to have **a carbon-free electricity sector by 2035.**^{5 6}

1 Id., page 3.

2 Id., page 6.

3 MidAmerican Energy Net Zero

4 [Alliant Energy - Alliant Energy Responsibility Report | Clean Energy Vision and Goals](#)

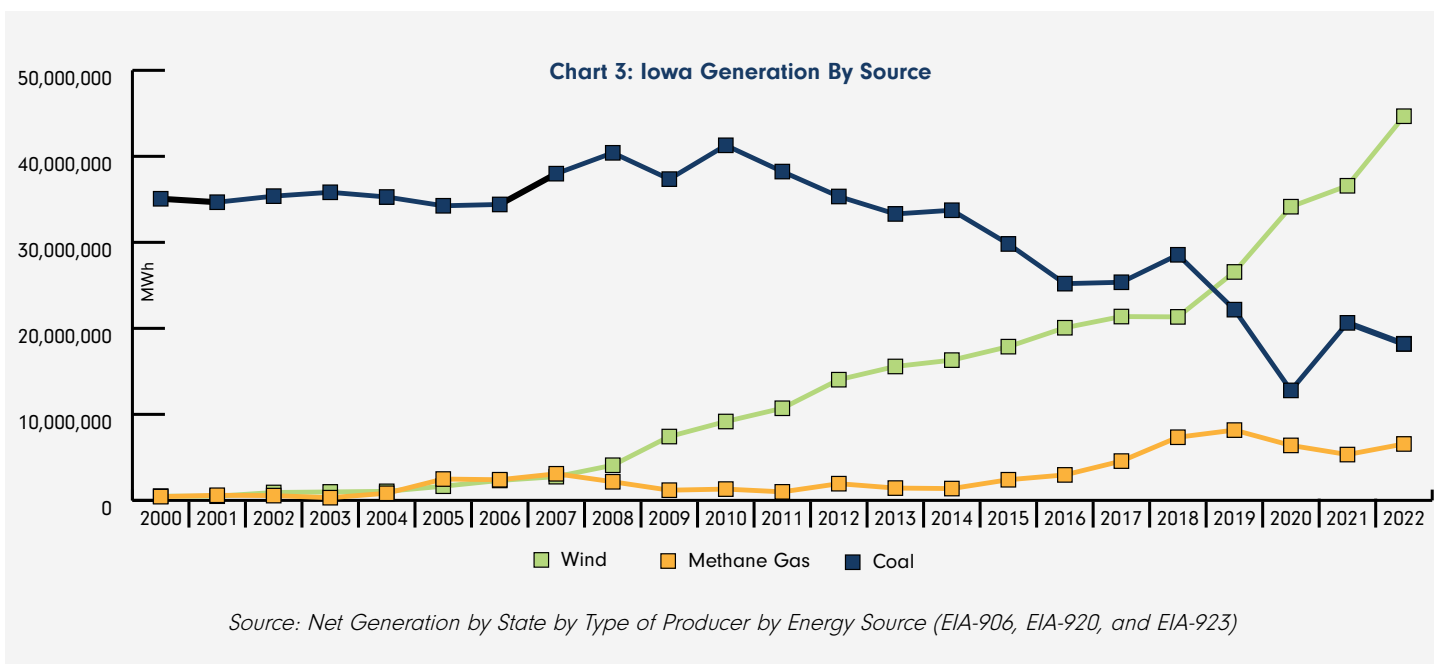
5 [EX-99.1 \(sec.gov\)](#)

6 [Alliant Energy - Alliant Energy Responsibility Report | Clean Energy Vision and Goals](#)

Both companies need to immediately recognize that a business-as-usual approach will harm customers with both short-term and long-term consequences. Iowa is already experiencing the impacts from climate change, and a failure to take actions to eliminate fossil generation by 2035 is a breach of social responsibility, a likely breach of fiduciary responsibility, and in the case of MidAmerican, a breach of its 2015 Climate Pledge¹. Iowa industrial, agriculture, business, residential, and transportation sectors cannot and will not meet the necessary greenhouse gas reductions if the utilities fail to meet the 2035 target.

IOWA GENERATION SINCE 2000

Iowa's progress in developing renewable energy over the past twenty years has resulted in a significant reduction in carbon emissions in the electric generation or power sector. Iowa has made progress in reducing generation from coal-fired power plants since 2000 and has seen a significant increase in generation from wind.



The 2016 to 2022 timeframe is especially noteworthy because renewable generation from wind not only exceeded coal generation for the first time, but rose to 60% of Iowa's generation in 2020 – the most of any state in the U.S.

Fossil fuel generation in Iowa decreased from 41% in 2021 to 35% in 2022 while wind generation increased from 57% in 2021 to 64% in 2022. The trend is clear in Iowa and across the country – wind power is affordable and reliable, and we should be transitioning away from coal long before 2040 (Alliant's goal for ending coal use in Iowa) or 2049 (MidAmerican's goal).

¹ [As Berkshire signs Obama climate pledge, subsidiary MidAmerican targets 57% wind in Iowa | Utility Dive](#)

The 2022 Iowa resource mixes for Iowa’s two largest utilities, Alliant Energy and MidAmerican Energy, are shown in Charts 4 and 5¹.

Wind represented 64% of the MidAmerican Energy generation and 38% of the Alliant Energy generation.

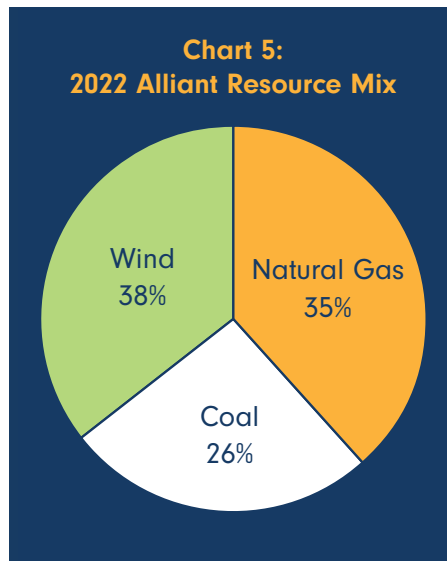
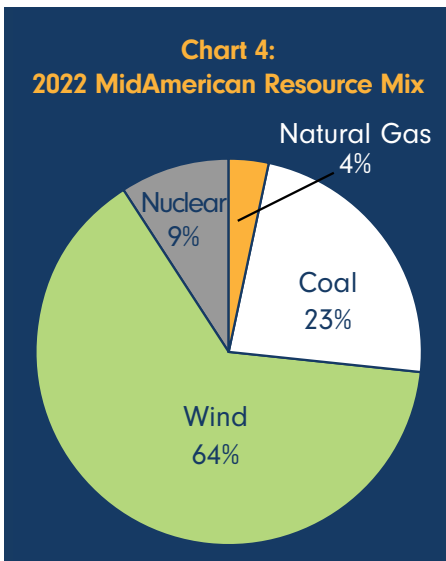
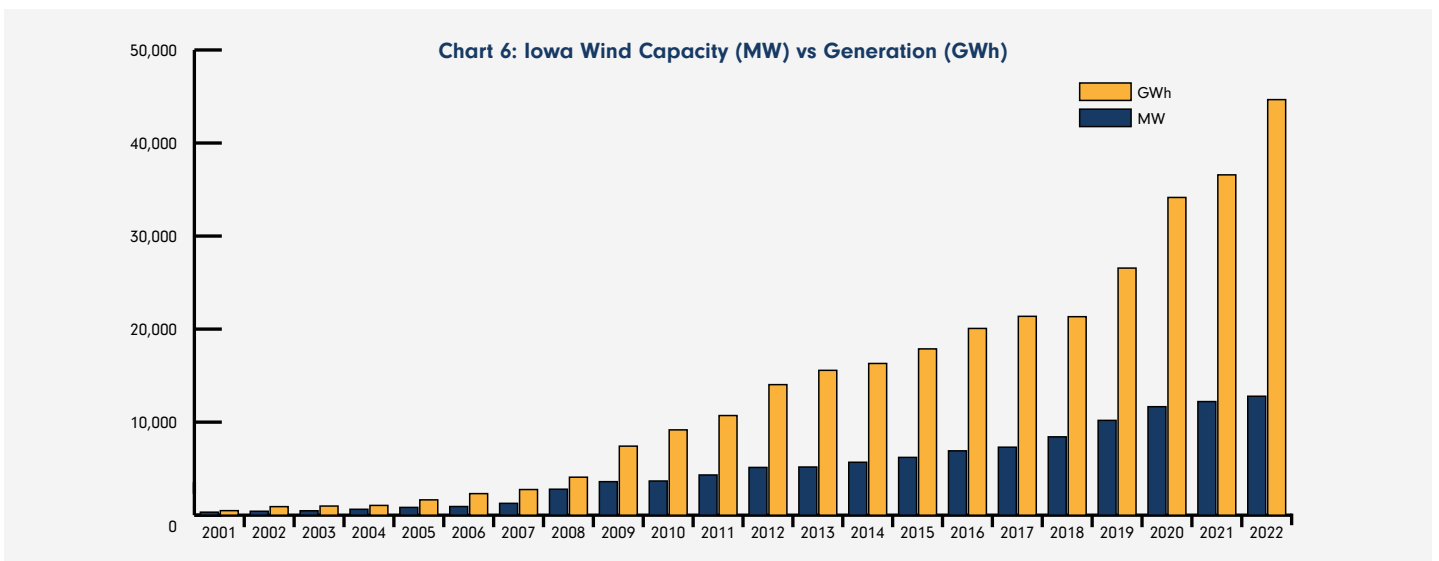


Chart 6 shows the total wind capacity (MW) in Iowa since 2001, and the generation (MWh) from those wind turbines, including the notable 2016 to 2022 timeframe^{2,3}.

From 2016 to 2022, wind capacity increased by more than 85% (an additional 5,866 MW) in Iowa, and wind generation increased by more than 123%.



1 2022 Q4 FERC Form 1, Alliant and MidAmerican
 2 <https://windexchange.energy.gov/maps-data/321>
 3 <https://www.eia.gov/electricity/data/browser/>

FOSSIL GENERATION

Six coal plants in Iowa are operated by MidAmerican and Alliant, with four of the plants jointly owned with cooperatives and municipal utilities. Cooperatives and municipal utilities own portions of Neal South, Louisa, Walter Scott 3, and Walter Scott 4¹. The plant ownership interests are shown in Table 1.

Table 1: Utility-Owned Coal-Fired Power Plants

NAME	CAPACITY MW (MEGAWATTS)	COUNTY	OWNERSHIP
George Neal #3 (North)	584.1	Woodbury	<ul style="list-style-type: none"> • MidAmerican Energy (72%); • Alliant (28%)
George Neal #4 (South)	695.9	Woodbury	<ul style="list-style-type: none"> • MidAmerican Energy (40.57%); • Alliant (25.695%); • Corn Belt Power Cooperative (8.695%); • Northwestern Public Service Company (8.681%); • Northwest Iowa Power Cooperative (4.86%); • Algona Municipal Utilities (2.937%); • Webster City Municipal Utilities (2.604%); • Cedar Falls Utilities (2.50%); • The remaining 3.46% is held by other municipal utilities including the Cities of Bancroft, Coon Rapids, Graettinger, Grundy Center, Laurens, Milford, Spencer.
Louisa Generating Station	811.9	Louisa	<ul style="list-style-type: none"> • MidAmerican Energy (88%); • Central Iowa Power Cooperative (4.6%); • Alliant (4%); • City of Waverly, Iowa (1.1%); • City of Harlan, Iowa (0.8%); • City of Tipton, Iowa (0.5%); • City of Eldridge, Iowa (0.5%); • City of Geneseo, Illinois (0.5%)
Ottumwa Generating Station	725.9	Wapello	<ul style="list-style-type: none"> • MidAmerican Energy (52%); • Alliant (48%)
Walter Scott Energy Center Unit #3	725.8	Pottawattamie	<ul style="list-style-type: none"> • MidAmerican Energy (79.1%); • Central Iowa Power Cooperative (11.5%); • Cedar Falls Utilities (2.88%); • Corn Belt Power Cooperative (3.58%); • Atlantic Municipal Utilities (2.38%)
Walter Scott Energy Center Unit #4	922.5	Pottawattamie	<ul style="list-style-type: none"> • MidAmerican Energy (60.67%); • Lincoln Electric Systems (12.66%); • Municipal Energy Agency of Nebraska (6.92%); • Central Iowa Power Cooperative (9.55%); • Corn Belt Power Cooperative (4.88%); • Cedar Falls Utilities (1.73%)

¹ The Economic, Fiscal, and Social Impacts of Utility-Owned Coal-Fired Power Plants in Iowa, <https://www.iaenvironment.org/webres/File/Power%20Plant%20Economic%20Impact%20-%20Final.pdf>, page 8

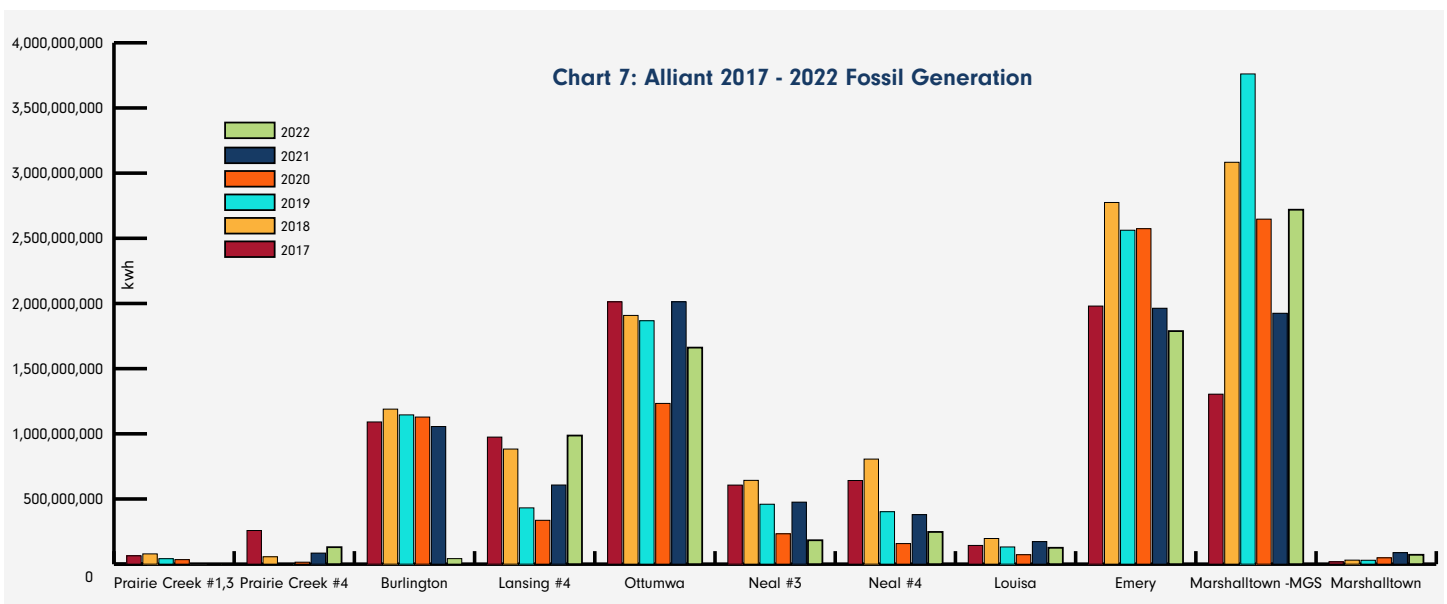
Based on the ownership interest in each of the coal plants, the megawatts of coal generation owned by each of the investor-owned electric utilities, power cooperatives, and municipal utilities is shown in Table 2.

The Electric Cooperatives and Municipal Utilities combined own 760 MW, which is larger than 4 of the 6 plants (Neal North, Neal South, Ottumwa, and Walter Scott #3).

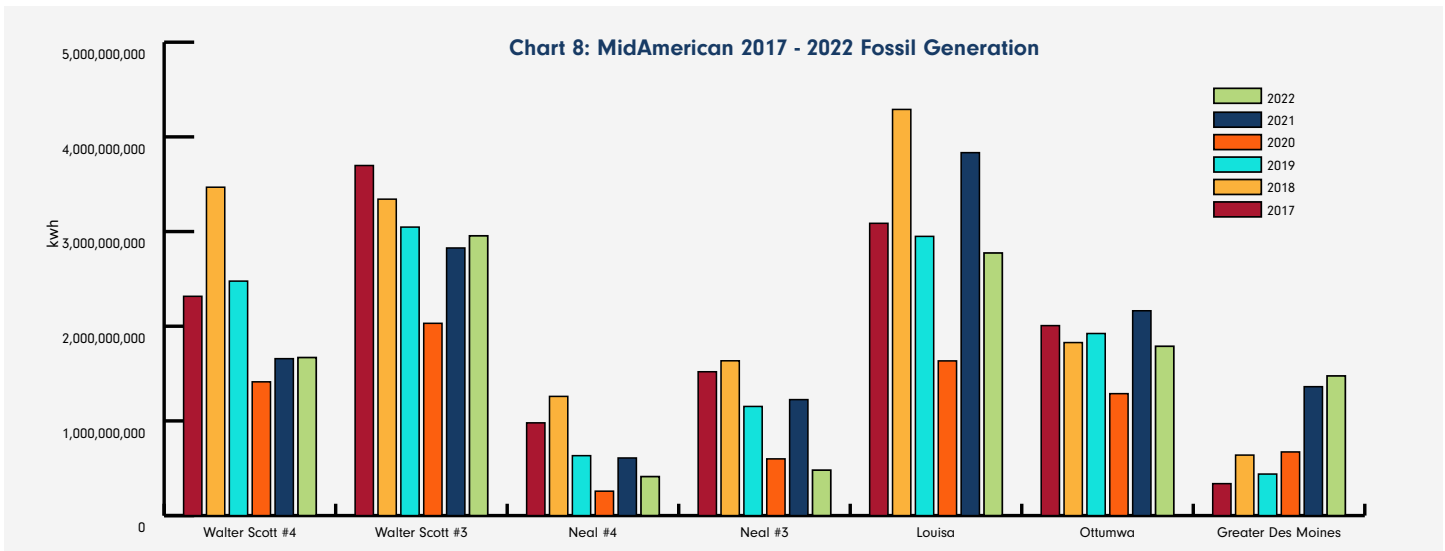
As wind continues to meet more of the energy demand, the coal plants are operating less. From 2017 to 2022, Alliant reduced its overall fossil electricity production by 13% while MidAmerican reduced its fossil electricity production by 17%. In 2022, fossil generation represented 27% of MidAmerican generation and 61% of Alliant generation. (Alliant ceased operation of Lansing at the end of 2022.) Charts 7 and 8 offer a comparison of the generation from each fossil power plant over time; it is easy to see both the variability in deployment of fossil resources but also the clear increased use of coal plants since 2020¹.

Table 2

UTILITY	MW
MidAmerican Energy	2929
Alliant	723
Central Iowa Power Cooperative	191
Corn Belt Power Cooperative	131
Lincoln Electric Systems, Nebraska	117
Municipal Energy Agency of Nebraska	64
Northwestern Public Service Company	60
Cedar Falls Utilities	54
Northwest Iowa Power Cooperative	34
Cities of Bancroft, Coon Rapids, Graettinger, Grundy Center, Laurens, Milford, and Spencer	24
Algona Municipal Utilities	20
Webster City Municipal Utilities	18
Atlantic Municipal Utilities	17
City of Waverly	9
City of Harlan	6
City of Tipton	4
City of Eldridge	4
City of Geneseo, Illinois	4



1 2017, 2018, 2019, 2020, 2021 and 2022 Q4 FERC Form 1, Alliant and MidAmerican



GENERATION SALES

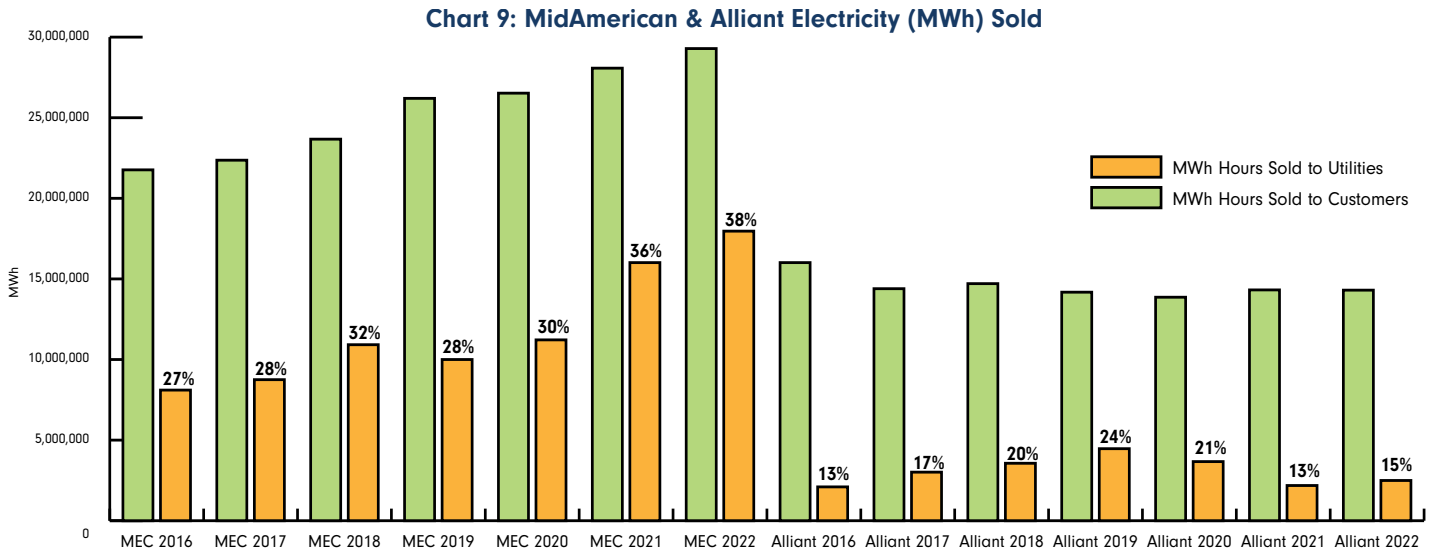
To meet a 100% renewable goal, the understanding of most people is that you will use renewable generation to provide all of your electricity in every hour of the day, year-round. However, as covered in [Iowa Electric Generation, Condition of the State](#)¹, October 2020, this is not how MidAmerican is defining its goal to deliver 100% renewable energy to Iowa customers. MidAmerican's goal is simply to create enough renewable energy credits to "offset" 100% of their Iowa retail customer load overall, regardless of when the electricity is produced and when it is consumed. In addition, MidAmerican and Alliant also sell electricity to other utilities across the region, not just Iowa customers, and these sales are not accounted for in MidAmerican's renewable energy goal. This is, in practice, a shell game where MidAmerican claims the "green" credibility while Iowans are stuck with all of the pollution and other costs of the coal plants. MidAmerican's goal allows them to appear fossil-free while continuing to burn coal and to build generation to maximize profits instead of building what will best serve the needs of Iowans as a whole.



By looking at the electric generation produced in Iowa by MidAmerican and Alliant for the years 2016 through 2022, we can see in Chart 9 on page 10, what portion of their generation is serving Iowa customers, and what portion is serving the financial interests of MidAmerican and Alliant². From 2016 to 2022, MidAmerican sales to utilities increased by 122% while customer sales increased by 35%. Over the same time frame, Alliant sales to utilities increased by 19% while customer sales decreased by 2%.

¹ [Iowa Electric Generation, Condition of the State, October 2020](#)

² 2016, 2017, 2018, 2019, 2020, 2021 and 2022 Q4 FERC Form 1, Alliant and MidAmerican



For 2022, MidAmerican sold 29.2 million MWh to its customers and Alliant sold 14.3 million MWh to its Iowa customers. For MidAmerican and Alliant, the portion of the electricity they generate in Iowa being sold to other utilities is substantial, with 38% of MidAmerican's 2022 generation being sold to utilities and 15% of the Alliant 2022 generation being sold to utilities. MidAmerican sold almost 18 million MWh to utilities in 2022 for \$558 million, while Alliant sold almost 2.5 million MWh to utilities for \$139 million.

As noted above, the electricity sold to Iowa customers (retail load) was only a portion of the 2022 generation in Iowa. Given that the utilities – MidAmerican in particular – export a significant portion of their generation, the timing is ideal to consider what actually makes the most sense for Iowa customers. It is well-understood that coal is the most environmentally damaging fuel to use for electricity generation due to air and water pollution and high carbon emissions. If we consider the true cost of environmental externalities from health impacts and a changing climate, as well as the overall cost, coal should be the last resort.

In total, MidAmerican and Alliant generated the following in 2022, categorized by the type of generation:

Table 3: MidAmerican 2022 Generation

	MidAmerican 2022 MWh
Coal	10,078,400
Fossil Gas	1,053,199
Nuclear	3,872,347
Other	90,448
Wind	27,948,150
Total	43,493,045

Table 4: Alliant 2022 Generation

	Alliant 2022 MWh
Coal	3,349,882
Fossil Gas	4,581,853
Other	70,713
Wind	4,991,422
Total	12,993,870

IMPACTS TO IOWANS FROM COAL GENERATION

Unlike renewable generation, all fossil electricity generation impacts Iowa's environment. Coal generation degrades the air we breathe and drives climate change, and also produces a substantial amount of solid waste that is landfilled in Iowa, primarily near major waterways. In 2022, the coal generation from the coal plants operated by MidAmerican and Alliant was 17,317,349 MWh, resulting in harmful emissions released into the air we breathe.

Table 5 shows the Alliant, MidAmerican and total emissions from the coal plants in 2022. Air pollution from coal-fired power plants is linked with asthma, cancer, heart and lung ailments, neurological problems, acid rain, climate change, and other severe environmental and public health impacts.

Table 5: Alliant & MidAmerican 2022 Emissions from Coal Generation¹

2022	Sulfur Dioxide (tons)	Nitrogen Oxides (tons)	Mercury (lbs)	Carbon Dioxide (tons)
Alliant	2,424	1,928	32	5,635,499
MEC	17,212	10,234	61	12,599,411
Total	19,636	12,162	93	18,234,910

COAL GENERATION AND PUBLIC HEALTH

When coal burns, the chemical bonds holding its carbon atoms in place are broken, releasing energy. However, other chemical reactions also occur, many of which carry toxic airborne pollutants and heavy metals into Iowa's air and water.

¹ [EPA Air Market Program Data](#)

THIS AIR POLLUTION INCLUDES:

Mercury: Coal plants are responsible for **44 percent of US mercury emissions**.¹ Mercury is a toxic heavy metal that can damage the nervous, digestive, and immune systems, and is a serious threat to the healthy development of young children². Coal plants are the largest source of mercury emissions to the air. Once mercury from the air reaches water, microorganisms can change it into methylmercury, a highly toxic form that builds up in fish. People are primarily exposed to mercury by eating contaminated fish. Just 1/70th of a teaspoon of mercury deposited on a 25-acre lake can make the fish unsafe to eat. In 2022, the coal generation in Iowa from the MidAmerican and Alliant Energy operated coal plants was responsible for emitting **630 teaspoons** of mercury into Iowa's air, enough to contaminate 1.103 million acres of surface water.

Sulfur dioxide (SO₂): Produced when the sulfur in coal reacts with oxygen, SO₂ combines with other molecules in the atmosphere to form small, acidic particulates that can penetrate human lungs. It is linked with asthma, bronchitis, smog, and acid rain, which damages crops and other ecosystems, and acidifies lakes and streams³. In 2022, the coal generation in Iowa from the MidAmerican and Alliant Energy-operated coal plants was responsible for emitting **19,636 tons** of sulfur dioxide into Iowa's air.

Nitrogen oxides (NO_x): Nitrogen oxides are visible as smog and irritate lung tissue, exacerbate asthma, and make people more susceptible to chronic respiratory diseases like pneumonia and influenza⁴. In 2022, the coal generation in Iowa from the MidAmerican and Alliant Energy-operated coal plants was responsible for emitting **12,162 tons** of nitrogen oxides into Iowa's air.

Particulate matter: Better known as "soot," this is the ashy grey substance in coal smoke, and is linked with chronic bronchitis, aggravated asthma, cardiovascular effects like heart attacks, and premature death⁵.

Coal plant emissions significantly impact our health and are the largest source of air emissions in Iowa⁶.

Emissions from the Iowa generating facilities were responsible for 85% of the sulfur dioxide, 58% of the nitrogen oxide, 58% of the carbon monoxide, 54% of the lead and 36% of the particulate matter in 2021⁷. In fact, coal pollution is a silent killer. In economics, an externality is a cost or benefit that is imposed on a third party who did not agree to incur that cost or benefit. When the captive customers of MidAmerican and Alliant pay for their power, they certainly are not agreeing to negative health impacts or death as a part of the agreement. Yet, the externalities of MidAmerican and Alliant burning coal can be quantified in terms of the impacted population and the economic impact using the EPA CO-Benefits Risk Assessment (COBRA)⁸ screening tool. When the EPA model is run for the coal plants in Iowa, the results are shown in Table 6.

When the economic impacts of coal burned by MidAmerican and Alliant are quantified, Iowans are being burdened with health care costs ranging from **\$64.6 million to \$145.6 million per year**.

Table 6: COBRA Results for Iowa Coal Generation

	Monetary Value*** (dollars, annual)	
	Low	High
Total Health Effects	\$64,647,318	\$145,599,188

1 <https://www.epa.gov/mercury/basic-information-about-mercury>

2 Id.

3 <https://www.epa.gov/so2-pollution/sulfur-dioxide-basics#effects>

4 <https://www.epa.gov/no2-pollution/basic-information-about-no2#Effects>

5 <https://www3.epa.gov/region1/airquality/pm-human-health.html>

6 [Microsoft Word - 2021 Iowa Point Source Emissions Summary-FINAL \(iowadnr.gov\)](#)

7 Id.

8 [CO-Benefits Risk Assessment \(COBRA\)](#)

COAL GENERATION AND CROP YIELDS



As covered in more depth in *Iowa Electric Generation, Condition of the State, October 2020*¹, another potentially significant consequence of MidAmerican and Alliant’s decision to keep these coal plants burning fossil fuels for decades is the negative impact on crop yields. A recent study looked at the increases in crop yields that occurred when coal plants shut down². The study found that counties in the U.S. that experienced a coal plant closure in their immediate vicinity not only reduced mortality rates, but increased corn yields by 1.1% over the study period of 2005 to 2016. The yield increase was attributed to reduced SO₂, NO_x, and PM pollution which allowed better access to sunlight. The study then estimated the impacts of the remaining coal-fired units still operating, assuming that their impacts are the same as those that have been decommissioned.

The study concluded that corn production would increase. More than two-thirds of Iowa counties experienced annual production losses ranging from 1 million to 5 million bushels due to the continued operation of the MidAmerican and Alliant coal plants. The estimated annual corn production loss from the remaining 4,384 MW of coal is quantified in Table 7.

Iowans are paying with their lives, health, and safety and farmers are paying a significant corn production penalty from coal plant pollution. As covered in *Iowa Electric Generation, Condition of the State, October 2020*, the case is clear that shutting down Iowa’s remaining coal plants and replacing them with wind and solar would be a net positive for corn production even when accounting for land that will be shifted into producing renewable energy. Such a shift would result in net increased corn production between 21 and 285 million bushels statewide annually. The increase in corn production and farm revenue makes the retirement of MidAmerican and Alliant’s remaining coal fleet a no-brainer for Iowa’s agricultural economy³.

Table 7: Estimated Annual Corn Lost Due to Operating 4,384 MW of Coal

	Ten Year Corn Production Loss (MBu)	Annual Loss/County (MBu)	2/3 of Counties	Annual Statewide Corn Loss (Bu)	Value Based on 2022 Avg of \$6.94/bu ⁴
Minimum Loss	10	1	66	66 Million	\$452,760,000
Average Loss	50	5	66	330 Million	\$2,263,800,000

1 [Iowa Electric Generation, Condition of the State, October 2020](#)

2 “The downstream air pollution impacts of the transition from coal to natural gas in the United States”, Jennifer A. Burney, School of Global Policy and Strategy, University of California, San Diego.,

3 [Iowa Electric Generation, Condition of the State, October 2020, page 15](#)

4 [Iowa Cash Corn and Soybean Prices \(iastate.edu\)](#)

SOCIAL COST OF CARBON

The social cost of carbon¹ is a measure of the economic harm from carbon pollution, expressed as the dollar value of the total damages from emitting one ton of carbon dioxide into the atmosphere. The current average social cost of carbon, as established by the federal government’s Interagency Working Group on the Social Cost of Greenhouse Gases (IWG), is \$51 per ton in today’s dollars². However, the social cost of carbon as proposed by the Environmental Protection Agency in September 2022 is \$190 per ton in today’s dollars³.

In 2022, MidAmerican and Alliant coal generation in Iowa emitted **16.54 million metric tons⁴** of carbon dioxide into the atmosphere representing economic harm ranging from **\$844 million to \$3.1 billion dollars**.

THE TRUE COST OF COAL GENERATION

As discussed previously, the decision to continue burning coal by MidAmerican, Alliant and the minority owners negatively impacts the financial well-being of every Iowan and does not account for the impacts on Iowans’ health and wealth – the externalities of burning coal. These impacts are real and quantifiable. The financial impact to Iowans’ health, crop loss, and climate impact is summed in Table 8.

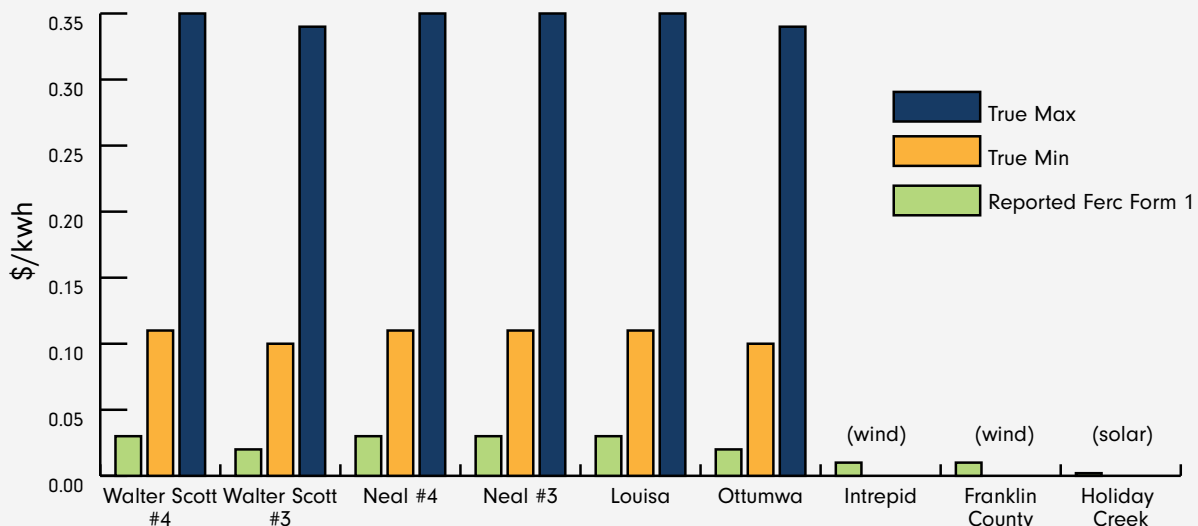
The true costs of production at the MidAmerican and Alliant operated coal plants are shown in Chart 10, and contrasted with the cost of production from the wind and solar farms.

Table 8: Cost of Externalities from Operating 4,384 MW of Coal

	Minimum	Maximum
Health Costs	\$64,647,318	\$145,599,188
Corn Loss Costs	\$452,760,000	\$2,263,800,000
Social Cost of CO₂	\$843,540,000	\$3,142,600,000
TOTAL	\$1,360,947,318	\$5,551,999,188
\$/kwh*	\$0.08	\$0.32

**The total costs of the externalities divided by the 17,317,349,000 kwh of coal generation.*

Chart 10: 2022 Iowa True Cost of Production



1 <https://news.climate.columbia.edu/2021/04/01/social-cost-of-carbon/>

2 [Technical Support Document: Social Cost of Carbon, Methane, \(whitehouse.gov\)](#), p. 5

3 https://www.epa.gov/system/files/documents/2022-11/epa_scghg_report_draft_0.pdf

4 Based on Acid Rain Program Continuous Emissions Monitors at Iowa Coal Plants for 2022

A true and transparent accounting by MidAmerican and Alliant would consider the broader range of costs borne by their captive customers of generating power using coal. The MidAmerican and Alliant coal plants are clearly not cost-competitive when compared to the MidAmerican and Alliant renewables. Solar and wind are the lowest-cost sources of generation even without accounting for health and crop losses. The cost of renewables is dramatically lower than the true costs of the MidAmerican and Alliant coal plants and represents an unrecognized and unreasonable financial burden on captive utility customers¹.

IN FACT, THE TRUE COST OF IOWA COAL GENERATION IS 35 TIMES MORE EXPENSIVE THAN WIND. THERE IS SIMPLY NO JUSTIFICATION TO CONTINUE TO EXPOSE IOWANS TO THAT KIND OF EXPENSE.

If the true cost of coal generation was expressed on your utility bill, your bills would look very different. For a MidAmerican customer, the true cost of your electricity is 240% more than you pay MidAmerican. These hidden taxes amount to an additional \$160 per month you pay elsewhere for increased health care costs, increased insurance premiums, storm damage, and lost crop income directly attributable to utility coal generation in Iowa.

MidAmerican Energy			
Residential Customer*	Billing Period	Energy Use(kwh)	Total Bill
MidAmerican Current Bill	June 14 to July 14	467	\$66.75
MidAmerican Bill	June 14 to July 14	467	\$66.75
Hidden Taxes			\$160.41
True Bill			\$227.16

* Based on an actual MidAmerican bill.

For an Alliant customer, the true cost of your electricity is 212% more than you pay Alliant - \$393 per month in increased health care costs, increased insurance premiums, and lost income because utilities in Iowa continue to burn coal.

Alliant Energy			
Residential Customer*	Billing Period	Energy Use(kwh)	Total Bill
Alliant Energy Current Bill	Jan 4 to Feb 7	1,217	\$185.29
Alliant Energy Bill	Jan 4 to Feb 7	1,217	\$185.29
Hidden Taxes			\$393.34
True Bill			\$578.63

* Based on an actual Alliant bill.

1 Vibrant Clean Energy, Energy Innovation, The Coal Cost Crossover: Economic Viability of Existing Coal Compared to New Local Wind and Solar Resources (2019) at https://energyinnovation.org/wp-content/uploads/2019/03/Coal-Cost-Crossover_Energy-Innovation_VCE_FINAL.pdf.

And if you are a Midland Power Cooperative customer that receives electricity from Corn Belt Power Cooperative and Central Iowa Power Cooperative, the true cost of your electricity is 540% more than you pay Midland Power Cooperative. This amounts to \$2,475 per month in increased health care costs, increased insurance premiums, and lost income.

Midland Power Cooperative			
Residential Customer*	Billing Period	Energy Use(kwh)	Total Bill
Midland Current Bill	Feb 1 to Mar 1	5,698**	\$458.53
Midlant Energy Bill	Feb 1 to Mar 1	5,698**	\$458.53
			\$2,474.54
			\$2,932.87

* Based on an actual Midland bill. ** Customer used 3,929 kwh for heat and 1,769 kwh for all other consumption.



Whether you are a MidAmerican, Alliant, Iowa Rural Electric Cooperative, or municipal utility customer, your utility bill is just a fraction of what you are paying every year because of the continued operation of the six jointly owned coal plants. And though the impacts of these plants on air, water, and reduced crop yields fall to us in Iowa to pay for with our healthy, quality of life, and hard-earned paychecks, remember that both MidAmerican and Alliant Energy are shipping vast amounts of this energy out of state. Iowans are paying with our lives and our wallets for power being shipped to Minneapolis, Milwaukee, and Fargo to profit monopoly utilities in our state.



CONCLUSION

The IPCC and U.S. national policy recognize that achieving net zero by 2050 requires a carbon-free electricity sector by 2035. Without a carbon-free electricity sector by 2035, other sectors and sources of greenhouse gasses will not be able to eliminate or reduce their greenhouse gasses, making the goal of net zero by 2050 unlikely or impossible to achieve. Accordingly, Iowa must prioritize and accelerate the transition to a carbon-free electricity sector by 2035.

Iowa has been a leader on clean energy over the past 20 years, deploying significant amounts of wind energy and, as a result, reducing electric-sector greenhouse gas emissions. We have the natural wind and solar resources to reach 100% renewable energy¹, but despite misleading marketing from utility companies, we are not even approaching that number yet. The truth is that Iowa utilities have a long way to go to achieve a true 100% renewable vision and, in the meantime, the continued use of coal generation has consequences that impact every Iowan.

The threats to air quality, groundwater, and surface waters are known, quantifiable, and unnecessary. The direct damages to agricultural productivity are just beginning to be understood. The severe threats we face from climate change in our state are already evident and cannot be allowed to expand unchecked. A true and transparent accounting by MidAmerican and Alliant would consider the full range of costs borne by their captive customers of generating power using coal.

The owners of Iowa coal plants need to immediately admit that a business-as-usual approach will harm customers with short term and long-term consequences. A failure to take actions to eliminate fossil generation by 2035 is a breach of social responsibility, a likely breach of fiduciary responsibility, and a breach by MidAmerican of its 2015 Climate Pledge.

Right now, Iowa utilities are burning coal for profit at the cost of Iowans' health, livelihoods and our children's future. An accelerated switch to clean energy would reduce pollution and consumer costs, while increasing farm income and productivity. The pursuit of 100% renewable energy starts with an honest accounting of the costs of coal, an acknowledgement that we can transition to 100% renewable energy, and the complete elimination of coal generation by 2030. Only then can Iowa move forward on the path we're blazing toward 100% renewable energy.

1 [Reaching 100% renewable energy.](#)



**Iowa
Environmental
Council**



505 Fifth St., Suite 850
Des Moines, IA 50309



iecmail@iaenvironment.org



iaenvironment.org



515.244.1194