

Chapter 5. Infrastructure and Utilities



Leisure Lake community near Bernard

Source: Iowa Geographic Map Server – Iowa State University

OVERVIEW

Public and private infrastructure and utilities are key components of quality of life within Jackson County. Access to infrastructure and utilities also has a profound impact on land development. Land that has access to municipal utilities has greater development potential and has a higher value than land that does not have access.

The primary public infrastructure owned and maintained by Jackson County is the secondary road system. In areas where municipal water and wastewater systems are not available, residents rely on private wells and septic systems. In addition to private utilities providing services in the county, some cities provide electricity, natural gas, and/or telecommunication services.

This chapter describes public and private infrastructure and utilities in the county, and explores how these necessary items impact land use, environmental quality, and economic development. This chapter also explores strategies for the county to transition from non-renewable to renewable energy sources.

¹ <https://www.iowacountyroads.org/about-secondary-roads>

PUBLIC ROADS AND BRIDGES

Iowa has three classes of public roads and their associated bridges: the state primary highways, secondary (county) roads, and city streets. Jackson County roads and bridges serve rural transportation needs in two capacities:

- **Local Access roads and bridges** provide a public road connection for every parcel of land;
- **Farm to Market roads and bridges** provide access to parcels of land and serve as conduits that collect the flow of people and farm commodities, channeling them to and from towns and terminals.¹

The Jackson County Engineer and the Secondary Roads Department are responsible for construction and maintenance of the secondary road system in the county.

Jackson County’s 2023 secondary road system has 841 miles of roadway and 225 bridges and large culverts. The mileage by road surface is shown in Table 5.1.

² <https://jacksoncounty.iowa.gov/engineer/>

Secondary Road Surface	Miles
Paved	188
Gravel	608
Seal Coat	6
Dirt	38

The Jackson County Engineer and the Secondary Roads Department have the following duties:

- Accounting functions for secondary roads.
- Response to petitions, requests, or concerns regarding roadway condition and drainage, temporary road closures, and obstructions in the right of way.
- Assigning all rural addresses.
- Subdivision roadway review and approval.
- Entrance permit review and approval.²

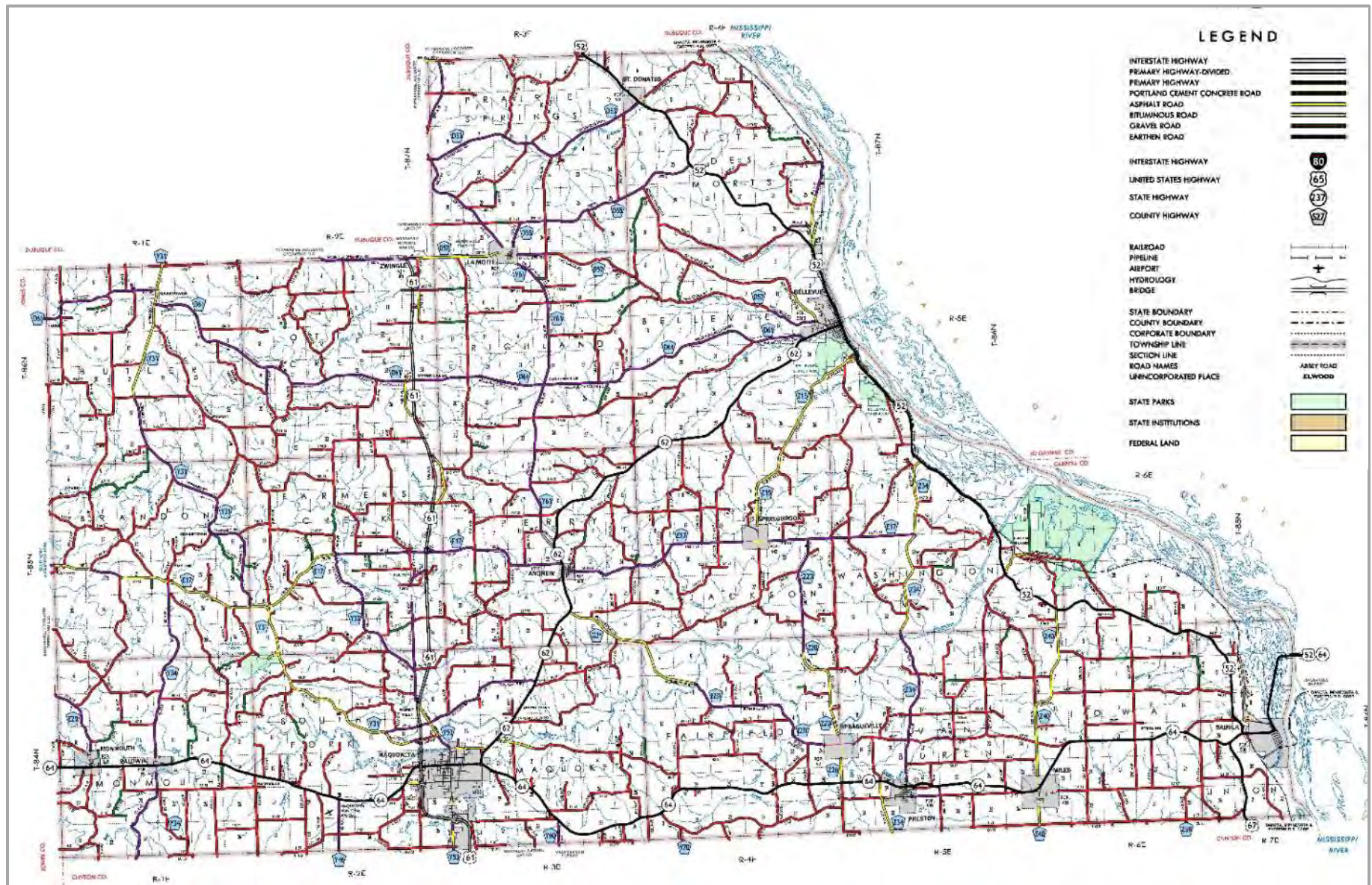


Figure 5.2 Map of Transportation Infrastructure in Jackson County

Source: Iowa Department of Transportation

WATER SUPPLY

In Iowa, water supplies fall into two categories: a private water supply or a public water supply.

Private Water Supply

All parts of a private water supply are managed by the water user: the water supply well, the water distribution system, and all water treatment systems or devices. A private water supply connects to fewer than 15 individual connections (like homes, apartments, camp spaces, etc.) and provides water for less than 25 individuals a day. Private supplies do not have a central administrator making decisions for the water users.

For private water supplies, well construction and reconstruction activities are issued permits by the Jackson County Health Department, who issues both the county and state construction permits. Private well users also are responsible for testing their own water supply to confirm that water is safe to drink.⁴

⁴ <https://www.iowadnr.gov/Environmental-Protection/Water-Quality/Private-Well-Program/Water-Supply-Wells>



Private water supply well. Photo Credit: Iowa Department of Natural Resources (DNR)



Image Source: Iowa DNR

⁵ <https://jacksoncounty.iowa.gov/health-department/>

The Jackson County Health Department is responsible for the private water supply well program and water testing, including the following duties:

- Permits and inspections of new private water supply wells and their systems.
- Private well abandonment and rehabilitation.
- Regulating the construction and installation of all private water wells.
- Collecting water samples from new and existing wells for water testing for nitrates, e. Coli, arsenic, and total coliform.

The Jackson County Health Department provides free well water testing up to three times per home annually upon request.⁵

Public Water Supply

According to the Iowa Department of Natural Resources (DNR), a public water supply is defined as a system that provides water for human consumption that has at least 15 service connections or serves at least 25 people at least 60 days during the year. Public water supply wells and systems can only be permitted through the Iowa DNR.

Public water supplies undergo periodic testing to ensure the safety of the water, provide notice to water users when the water isn't safe to consume, and provide reports to Iowa DNR to verify and document the safety of the water system. The three types of public water supplies are based on population served:

- **Community public water supplies (C)** serve year-round residents, such as in a city, subdivision, mobile home park, or unincorporated area.
- **Non-transient non-community public water supplies (NTNC)** regularly serve at least 25 of the

same people, four or more hours per day, four or more days per week, for at least six months during the year. Examples are a factory, daycare center, school, or office.

- **Transient non-community public water supplies (NC)** serve at least 25 people for at least 60 days during the year. Examples include a park, golf course, camp, bar, restaurant, or highway rest area.⁶

Table 5.2 lists the 27 active public water supplies by type -- C or NC -- in Jackson County as of November, 2023.

The **Iowa Drinking Water Data Portal** provides information about the public water supply systems that serve drinking water throughout Iowa and the results of samples required by the Safe Drinking Water Act. This portal also is a tool for public water supply systems to renew their operation permits online. Visit <https://www.iowadnr.gov/Environmental-Protection/Water-Quality/Drinking-Water-Compliance>

Water System Name	Type
Alfred’s Bar and Grill	NC
Andrew Water Supply	C
Baldwin Water Supply	C
Bellevue Golf Club	NC
Bellevue Municipal Utilities	C
Bellevue State Park North-Nelson Unit	NC
Bellevue State Park South-Dyas Unit	NC
Bluff Lake Catfish Farm	NC
Camp Shalom	NC
Eden Valley Refuge	NC
Hurstville Interpretive Center	NC
Kalmes Store	NC
La Motte Water Supply	C
Maquoketa Caves State Park #3	NC
Maquoketa Municipal Water	C
Miles Water Department	C
Monmouth Water Supply	C
Nita Ho Valley Association	NC
Obie’s	NC
Peteschs Mobile Home Park	NC
Pleasant Creek Public Area #2	NC
Preston Municipal Water Supply	C
Preston Valley Golf	NC
Sabula Water Supply	C
SNK Gas And Food LLC	NC
Springbrook Water Dept	C
Spruce Creek Park #5	NC

Source: Iowa Drinking Water Data Portal, 11/02/2023

⁶ <https://www.iowadnr.gov/Environmental-Protection/Water-Quality/Drinking-Water-Compliance>

Source Water Protection

Drinking water sources can be surface water (rivers, streams, reservoirs, lakes) or groundwater (aquifers); see Figure 5.3. Groundwater is the source for all public water supplies in Jackson County.

The quality of groundwater can be affected by natural and human activities. Groundwater quality can be protected by managing the areas through which water

travels and the activities that occur on the land.

Protecting groundwater quality from contamination means less money for treatment, longer use of a well, and less risk of replacing a contaminated well.

Groundwater is much less susceptible to contamination than surface water, but natural recovery is very slow.⁷

Karst Conditions and Water Wells

There are special considerations for drinking water wells located in karst bedrock conditions, which occur in Jackson County. "Karst" refers to terrain characterized by the presence of easily dissolved bedrock (limestone and dolomite) near the surface.

The prevalence of agriculture and livestock in karst areas may cause localized contamination of karst aquifers with nutrients, pesticides, and bacteria. Contaminated aquifers should not be used for drinking water purposes unless proper water treatment is used and maintained.⁸

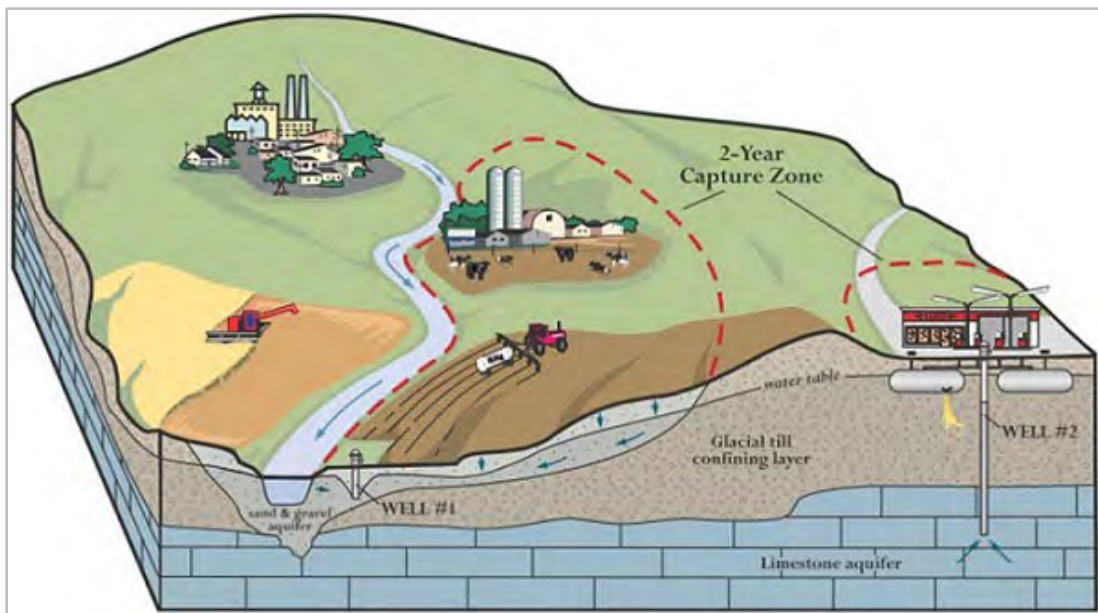


Figure 5.3 Diagram of two different source water aquifers and associated surface areas (2-year capture zone) from two wells.

Source: Iowa DNR

⁷<https://www.iowadnr.gov/Environmental-Protection/Water-Quality/Source-Water-Protection>



Karst conditions: Water wells in stream sinkhole. Photo Credit: Iowa DNR

⁸ <https://www.iowadnr.gov/Environmental-Protection/Water-Quality/Private-Well-Program/Water-Supply-Wells>

WASTEWATER TREATMENT

In Iowa, wastewater is treated in two ways: onsite by a private wastewater treatment system or offsite by a public wastewater treatment system.

Private Onsite Wastewater Systems

An onsite wastewater treatment system (also called a private sewage disposal system or septic system) serves up to four homes or less than 15 people. The county boards of health have primary responsibility for regulation of private onsite wastewater treatment system in the unincorporated areas in accordance with the minimum state standards.

The Iowa Department of Natural Resources (DNR) provides design criteria for different types of private onsite wastewater treatment systems. Counties have the authority to allow alternative or innovative performance-based systems.⁹

The Jackson County Health Department is responsible for the private onsite wastewater program, including:

- Permits and regulating the design, construction, and installation of all private onsite treatment systems.
- Aiding with complaints relating to sewage treatment and disposal system.

In Jackson County, the most common private septic systems are: conventional (Figure 5.4), sand filter, and coco filter.



Figure 5.4 Diagram of a conventional septic system. Source: U.S. Environmental Protection Agency (USEPA)

Rural Community Sewer Systems

The Iowa DNR also regulates rural community sewer systems. This type of system typically is under common ownership, collects wastewater from multiple dwellings or buildings, and conveys the wastewater to a treatment and dispersal system. In Jackson County a rural community sewer serves the Leisure Lake community located near Bernard.

Unsewered Communities

Despite state standards set in the 1960s, raw sewage continues to flow directly to streams without treatment due to outdated or poorly functioning septic tanks in "unsewered communities". An unsewered community is a group of 10 or more homes with one or more houses per acre. It's "unsewered" if it lacks a central sewage treatment system or if most of its septic systems don't meet state standards.¹⁰ In 2022, Jackson County's unsewered communities were eligible for free septic systems. The only applicant received a new septic system.¹¹

¹¹ Jackson County Health Department

⁹ <https://www.iowadnr.gov/Environmental-Protection/Water-Quality/Private-Septic-Systems>

¹⁰ <https://www.iowadnr.gov/Environmental-Protection/Water-Quality/Rural-Community-Sewers>

Table 5.3 Public Wastewater Treatment Systems with Permits (2023)	
NPDES Permit Holder	Facility Type
City of Maquoketa	Municipal
City of Bellevue	Municipal
City of Preston	Municipal
City of Sabula	Municipal
City of Miles	Municipal
City of Andrew	Municipal
City of La Motte	Municipal
City of Springbrook	Municipal
City of St. Donatus	Municipal
Baldwin-Monmouth Wastewater Treatment Agency	Municipal
City of Spragueville	Municipal
City of Zwingle	Municipal
Iowa DNR - Bellevue State Park	Semi-public
Iowa DNR - Maquoketa Caves State Park	Semi-public

Source: Permit Listing Spreadsheet (9/1/2023) at <https://www.iowadnr.gov/Environmental-Protection/Water-Quality/NPDES-Wastewater-Permitting/Current-NPDES-Permits>

Public Wastewater Treatment Systems

The Iowa DNR regulates larger, offsite public wastewater treatment systems serving cities as well as agricultural, industrial, and semi-public facilities.

The Iowa DNR issues discharge permits under delegation of a federal program known as the National Pollutant Discharge Elimination System (NPDES) permit program. The NPDES program regulates the direct discharge of wastewater to surface waters.

Under Iowa's NPDES program, all facilities that discharge pollutants into surface waters are required to obtain an NPDES or operation permit. The permits require compliance with all federal and state standards and may require additional controls based on local conditions.¹²

Table 5.3 lists the 12 individual NPDES permits and two state operation permits for facilities in Jackson County authorized to discharge wastewater to surface waters in Iowa in 2023.

Regional Utility Management

A regional utility management organization provides technical and financial assistance to communities for water supply and wastewater treatment.

The Eastern Iowa Regional Utility Service Systems (EIRUSS) is such an organization created by Cedar, Clinton, Delaware, Jackson, and Jones Counties. EIRUSS plans, designs, develops, finances, constructs, owns, operates and maintains water supply and wastewater treatment systems for these counties as well as their cities and unincorporated areas.

EIRUSS helped the Leisure Lake community plan for a wastewater system to replace private septic systems. EIRUSS received State and Federal funds to construct the new system, which was completed in 2013. In 2020, EIRUSS received Federal funds to hookup an additional 26 users. The project was completed in April 2022. Federal funds provided financial assistance for connection to the sewer system.¹³

¹² <https://www.iowadnr.gov/Environmental-Protection/Water-Quality/NPDES-Wastewater-Permitting>

¹³ https://www.ecia.org/programs/eastern_iowa_rural_utility_service_systems/current_projects.php

SOLID WASTE DISPOSAL AND RECYCLING

Properly managing solid waste disposal is critical to protecting Iowa's land, water, and air resources. To protect the environment, the Iowa Department of Natural Resources (DNR) regulates solid waste facilities such as landfills, transfer stations, and regional collection centers, which are usually managed by cities and counties.

Solid Waste Disposal

The Waste Authority of Jackson County is comprised of the incorporated cities and unincorporated area of Jackson County.

The Waste Authority operates a solid waste transfer station constructed in 1994 at 25146 184th Street, Maquoketa. The transfer station is where residents can bring waste material if they do not have local refuse collection at their home or business. Disposal rates are based on the weight of the material and vary according to the type of waste.

The transfer station accepts all types of garbage including construction and

demolition waste. It also accepts scrap metal and waste oil. All municipal solid waste (garbage and trash) is transferred to a landfill in Illinois. Other materials go to various recycling facilities for proper processing.

Appliances and electronic waste have components that cannot be landfilled with regular garbage. The Waste Authority pays to have these items hauled to special recyclers for processing and recovery.¹⁴

Residents of Jackson County may bring household hazardous waste to the transfer station. It serves as a satellite collection center for the Clinton County Regional Collection Center. Businesses must take their waste to the Clinton County Regional Collection Center by appointment only.

Common household hazardous materials include: household cleaners, home improvement and automotive products, pesticides, and miscellaneous chemicals.¹⁵

Garbage and Recycling Collection

Garbage and recycling collection in Jackson County is provided by municipal or private companies in several cities, as shown in Table 5.4.

City	Garbage	Recyclables
Bellevue	Municipal	Municipal
Maquoketa	Municipal	Municipal
Miles	Private	Private
Preston	Municipal	Municipal
Sabula	Private	Private

¹⁴ <https://www.wasteauthority.org/site/>

¹⁵ <https://www.wasteauthority.org/site/hazardous/>

TELECOMMUNICATIONS SERVICE

Telecommunications infrastructure is an increasingly important issue for economic development and quality of life in Jackson County and the region. High-speed internet and mobile/cell phone service is a necessity for most residents and businesses, including farmers.

Many people now rely on the internet for shopping, banking, entertainment, job applications, applying for government services, work from home, and much more. Expanding internet use has increased demand for internet bandwidth and has required expansion of telecommunications infrastructure.

Broadband/High-Speed Internet

The Federal Communications Commission (FCC) regulates interstate and international communications by radio, television, wire, satellite, and cable. The FCC notes that broadband commonly refers to high-speed internet access that is always on and faster than the older dial-up access.¹⁶

The FCC focuses on broadband access and internet adoption in addition to rural access and speed to get a more complete understanding of broadband connectivity in a community. Mbps (Megabits per second) refers to the speed with which

information packets are downloaded from, or uploaded to, the internet. Data for Jackson County is in Table 5.5 below. Internet providers serving Jackson County are listed with online resources like <https://broadbandnow.com/>.

Table 5.5 Broadband Access and Internet Adoption in Jackson County (2023)		
Measures	Description	County Data
Fixed Broadband	Percentage of the population living in census blocks with access to fixed broadband service at 25 download/3 upload Mbps or higher advertised speeds.	89.9%
Rural Access	Percentage of the population living in rural census blocks with access to fixed broadband service at 25/3 Mbps or higher advertised speeds.	82.9%
Fixed Download	Percentage of population living in census blocks with access to fixed broadband service at 25 Mbps or higher advertised download speeds.	89.9%
Fixed Upload	Percentage of population living in census blocks with access to fixed broadband service at 3 Mbps or higher advertised upload speeds.	92.6%
Number of Providers	Number of fixed broadband providers offering service to consumers at 25/3 Mbps of higher advertised speeds.	15
Most Common Download	Most commonly advertised download speed tier in an area.	>1,000 Mbps
Most Common Upload	Most commonly advertised upload speed tier in an area.	50-100 Mbps
Internet Adoption	The number of residential (consumer) connections per 100 households.	75

Source: <https://www.fcc.gov/reports-research/maps/connect2health/data.html> accessed Oct. 2023

¹⁶ <https://www.fcc.gov/general/types-broadband-connections>

Wireline and Wireless Providers

Many people refer to traditional telephone service provided to homes and businesses as "landline" service. The FCC often refers to telephone service provided over copper wires or fiber cables as "wireline" service. Thus, "wireline" is a broad term that includes both traditional telephone service and wireline Voice over Internet Protocol (VoIP) service.¹⁷

“Wireless” communication is the transmission of voice and data without cable or wires. In place of a physical connection, data travels through electromagnetic signals broadcast from sending facilities to intermediate and end-user devices.¹⁸

The Iowa Dual Party Relay Service law requires wireless carriers and wireline local exchange carriers that provide telecommunications service in Iowa to pay three cents (\$0.03) per month for each telecommunications service phone number provided in Iowa.¹⁹

¹⁷<https://www.fcc.gov/consumers/guides/hearing-aid-compatibility-wireline-and-wireless-telephones>

The following information was accessed in November, 2023 from the Iowa Utility Board (IUB) Incumbent Local Telephone Exchange Area Map available online at <https://iub.iowa.gov/regulated-industries/telecommunicationsdual-party-relay/incumbent-local-telephone-exchange-area-map> (see Figure 5.5).

Service territories are defined by the IUB based on data for a defined geographic territory submitted by each incumbent local telephone exchange carrier. A carrier may adopt the exchange boundary map filed by another carrier serving that exchange. This data is submitted and certified to the FCC by the carriers through the IUB.

Table 5.6 provides a list of the local telephone exchange carriers that serve the exchange areas in Jackson County.

According to the IUB, Mediacom provides telephone service over its cable network so it is not included in Figure 5.5 (map) or Table 5.6.

¹⁸<https://www.techtarget.com/searchmobilecomputing/definition/wireless>

Table 5.6 Local Telephone Companies by Exchange Area in Jackson County (2023)

Name of Exchange Area	Incumbent Local Telephone Exchange Carrier
Andrew	Andrew Telephone Company
Baldwin	Baldwin-Nashville Telephone Co. Inc.
Bellevue	Windstream Holdings, Inc.
Bernard	Bernard Telephone Company
Cascade	Cascade Communications Company
La Motte	La Motte Telephone Company
Maquoketa	Qwest Corp-IA/ CenturyLink, Inc.
Miles	Miles Cooperative Telephone Association
Preston	Preston Telephone Company
Otter Creek	Cascade Communications Company
Sabula	Windstream Holdings, Inc.

¹⁹ <https://iub.iowa.gov/regulated-industries/telecommunicationsdual-party-relay>

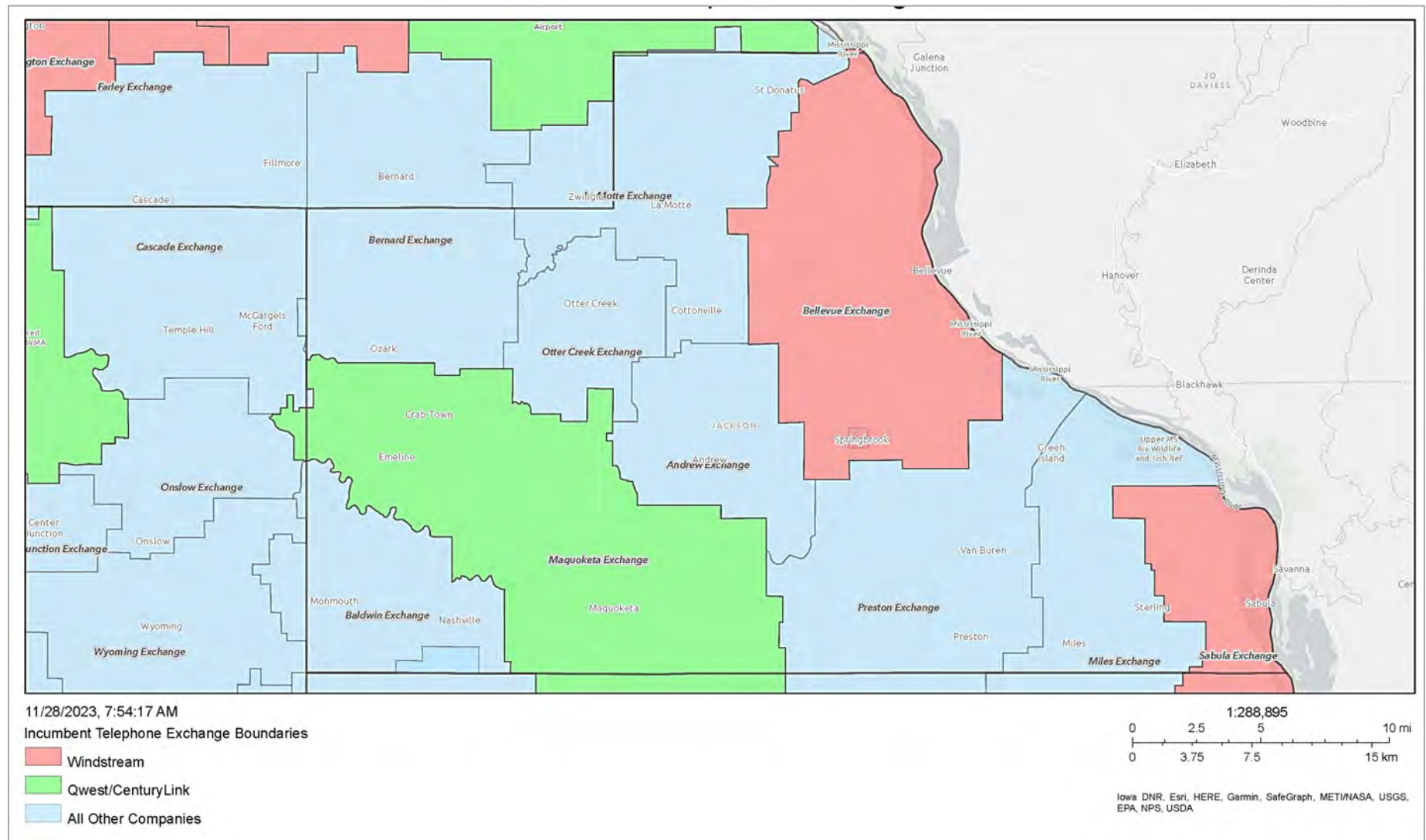


Figure 5.5 Map of Incumbent Local Telephone Exchange Areas in Jackson County (2023)

Source: Iowa Utility Board, <https://iowa.maps.arcgis.com/apps/webappviewer/index.html?id=eb8ba6d91f91465991c6144f95dcf952>

ELECTRIC SERVICE

This section discusses production, emissions, providers, consumption, and costs of electricity in Jackson County.

Electrical Energy Production

There is one active electric power generating plant in Jackson County. It is located at the Lakehurst Dam on the Maquoketa River west of Maquoketa. Iowa Hydro, LLC owns the 700-foot-long dam where Renewable World Energies, LLC operates a conventional hydroelectric plant. The plant’s two generators have a maximum generating capacity of 1,200 kilowatts and can generate up to 6,355 megawatt hours (MWh) annually.²¹ Table 5.7 compares annual electrical energy production for Jackson County and Iowa.

Megawatt Hours	Jackson County	Iowa
Total Production	4,899	71,768,705
Total Production Per Capita	0.25	22.42

²⁰ <https://findenergy.com/ia/jackson-county-electricity> Published: 2023-11-09

²¹ <http://www.renewableworldenergies.com/hydro-plant-dam/maquoketa>

Renewable energy is produced from sources like sun, wind, and water that are replenished naturally and do not run out. Hydroelectric power is renewable energy.

With total production of 4,899 MWh from hydroelectric power in 2022, Jackson County ranked 39th in Iowa for total MWh generated from renewable energy.²³

Greenhouse Gas Emissions

Carbon dioxide (CO₂) made up 66% of greenhouse gas emissions in Iowa, followed by nitrous oxide (18%), methane (15%), and fluorinated gases (1%) according to the 2021 Iowa Greenhouse Gas (GHG) Inventory.

“The 2021 GHG Inventory is a ‘top-down’ inventory based on a 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

²² <https://www.iowadnr.gov/environmental-protection/air-quality/greenhouse-gas-emissions>

²³ <https://findenergy.com/ia/jackson-county-electricity> Published: 2023-11-09

use, land use change, and forestry.”²⁴ Table 5.8 shows 2021 total Iowa GHG emissions by economic sector. The Agriculture sector was the largest at 29%, followed closely by the Residential, Commercial and Industrial sector at 27%.

Economic Sector	Percentage
Agriculture	29%
Residential, Commercial, and Industrial	27%
Electricity Generation	19%
Transportation	16%
Industrial Processes	6%
Waste	2%
Natural Gas Transmission and Distribution	1%

On average, Jackson County produced 5,098 kilograms of CO₂ emissions per capita from electricity use in 2022. This rate was below the Iowa average of 5,174 per person, but higher than the U.S. average emissions of 4,159 per capita.²⁵

²⁴ <https://www.iowadnr.gov/environmental-protection/air-quality/greenhouse-gas-emissions>

²⁵ <https://findenergy.com/ia/jackson-county-electricity> Published: 2023-11-09

Electrical Energy Consumption

The total electrical energy consumption in Jackson County was 333,466 megawatt hours (MWh) and energy consumption per capita was 17.1 MWh in 2022 as shown in Table 5.9 below. Jackson County’s total consumption per capita matched Iowa’s total consumption per capita.

Table 5.9 Annual Electrical Energy Consumption (2022) ²⁶		
Megawatt Hours	Jackson County	State of Iowa
Total Consumption	333,466	53,734,304
Total Consumption Per Capita	17.1	17.1

Electric Utility Service Providers

Both geographically and in terms of sales, Jackson County is primarily powered by Alliant Energy and Maquoketa Valley Electric Cooperative (MVEC). Other service providers to municipalities are Maquoketa Municipal Electric Utility,

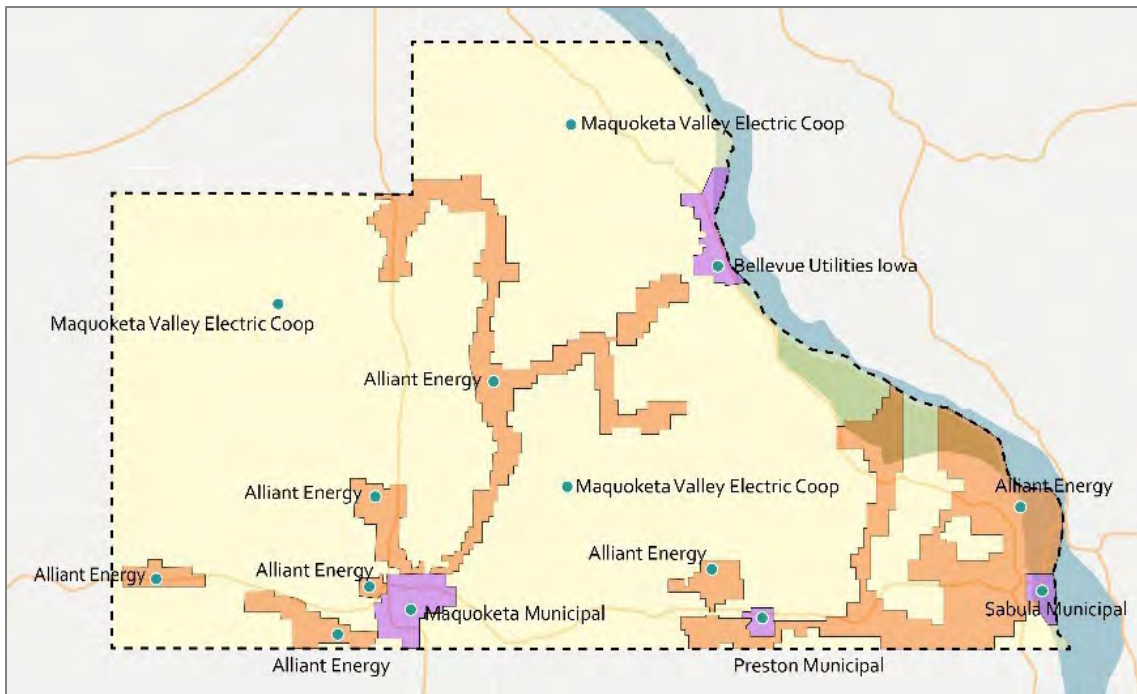


Figure 5.6 Map of Electric Service Area Boundaries in Jackson County (2023)

Source: Iowa Utilities Board, as modified in 2022 Jackson County Clean Energy Plan and verified in 2023

Bellevue Utilities, Preston Electric Utility, and Sabula Electric Utility. MVEC services the rural areas outside of Alliant Energy and the municipal utility territories.²⁷

The Iowa Utility Board provides an online map of electric service boundaries at <https://iub.iowa.gov/regulated-industries/electric/electric-service-area-boundary-map>.

[boundary-map](#). Figure 5.6 is a map of electric service area boundaries for Jackson County. This map is from the *2022 Jackson County Clean Energy Plan* and is a modification of the online map. Figure 5.6 was verified with the Iowa Utility Board’s online map of electric service boundaries in November, 2023.

²⁶<https://findenergy.com/ia/jackson-county-electricity> Published: 2023-11-09

²⁷ 2022 Jackson County Clean Energy Plan, p. 11

Cost of Electricity

“Electricity prices reflect the cost of building, maintaining, and operating power plants and the electrical grid. The energy rate, measured as cost per kilowatt-hour (kWh), varies based on the demand, weather, availability of energy sources, and fuel costs. Rural households face the highest energy burdens and spend a larger percentage of their income on energy bills than the average household (ACEEE, 2018). Lower population over larger areas causes the cost and efficiency of delivering the energy to rural areas to be higher than delivering energy to urban areas (NRDC, 2018). Compared to the national average, Iowa’s average electricity rate is lower with an average of 12.75 cents per kWh compared to the U.S. rate of 13.8 cents.

Jackson County has the fifth most expensive residential electricity rate in Iowa (Table 5.10) which is about 21% higher than the state’s average.

The residential average monthly electricity bill in Jackson County is ranked

as the 64th most expensive average in the state out of the 99 counties. The county’s average is more expensive than the state’s average.”²⁸

Net Metering (Avoided Cost)

All electricity providers in Jackson County offer net metering (avoided cost), which is an advantage for their customers.

“With avoided cost net metering, excess energy is valued at something called the avoided cost rate. The avoided cost rate is lower than the retail rate of electricity and represents the amount of money the utility saved by not having to provide you with the electricity.”²⁹

“Net metering allows customers who have solar panels to receive a credit for any excess energy produced compared to what their home consumes. The excess energy is sent back to the grid as a credit to be used by the customer in times of lower energy production.”³⁰

Table 5.10 Top Five Iowa Counties Ranking by Residential Electricity Rate per kWh (2021)

Rank	County	Population	Residential Rate per kWh	Residential Average Monthly Electricity Bill
1	Hancock	10,795	\$0.1753	\$172.05
2	Winnebago	20,070	\$0.1616	\$144.70
3	Howard	9,469	\$0.1616	\$144.70
4	Allamakee	14,061	\$0.1582	\$147.53
5	Jackson	19,485	\$0.1536	\$117.24
State of Iowa		3,190,369	\$0.1275	\$110.82

²⁸ 2022 Jackson County Clean Energy Plan, p. 11

²⁹ <https://www.solarreviews.com/blog/do-you-save-more-money-with-net-metering-or-solar-batteries> in section 3. Avoided-cost net metering

³⁰ 2022 Jackson County Clean Energy Plan, p. 23

Electricity Rates

The residential electricity rate breakdown by electric utility provider for Jackson County in 2021 is shown in Table 5.11. Alliant Energy serviced the majority of residential households with 95.3% of the residential sales by MWh in the county.

Maquoketa Valley Electric Cooperative had the second-lowest residential electricity rate at 12.11 cents per kWh, but the highest average bill for residential households at \$133.33 per month.

Alliant Energy had the third-highest residential rate at 15.14 cents per kWh and the second-highest average bill at \$111.76 per month.

Alliant Energy services most of the incorporated jurisdictions, which brings the service cost down, but the higher cost per kWh raises the monthly bill.

“The breakdown of residential, commercial, and industrial electricity costs in Jackson County in 2022 was only available for the three largest cities: Maquoketa, Bellevue, and Preston (Table 5.12).

Table 5.11 Jackson County Residential Electrical Providers by Residential Rate (2022)

Rank	Provider	Residential Rate	Residential Average Bill	County Residential Sales by MWh
1	Sabula Electric Utility	\$0.1735	\$101.25	0.1%
2	Preston Electric Utility	\$0.1515	\$108.37	0.1%
3	Alliant Energy	\$0.1514	\$111.76	95.3%
4	Maquoketa Municipal Electric Utility	\$0.1214	\$85.82	0.6%
5	Maquoketa Valley Electric Cooperative	\$0.1211	\$133.33	3.6%
6	Bellevue Utilities	\$0.1011	\$60.33	0.3%

Source: 2022 Jackson County Clean Energy Plan

The average monthly bill for residential buildings was consistent with the state's costs. These cities are primarily serviced by their own public utility and do not include Alliant Energy’s rate for service. Monthly electric bills for commercial buildings were significantly cheaper than

the state’s average, even though the average rate per kWh was slightly higher. Industrial buildings’ monthly electric bills and the average rate per kWh were higher than the state in the three cities.”³¹

Table 5.12 Jackson County Average Monthly Bills and Rates per kWh (May 2022)

	Residential		Commercial		Industrial	
	Average Bill	Average Rate	Average Bill	Average Rate	Average Bill	Average Rate
State of Iowa	\$110.82	\$0.1275	\$417.22	\$0.1017	\$17,086.77	\$0.0667
Maquoketa	\$94.10	\$0.1230	\$450.72	\$0.1105	\$48,299.06	\$0.0871
Bellevue	\$61.80	\$0.1015	\$414.33	\$0.0811	n/a	n/a
Preston	\$111.88	\$0.1503	\$260.39	\$0.1258	\$29,837.80	\$0.0768

Source: 2022 Jackson County Clean Energy Plan

³¹ Ibid, pp. 13-14

GAS SERVICE

In Jackson County, gas service primarily is provided via underground utility service lines for natural gas or via above-ground private tanks for propane.

Natural Gas

Iowa does not have any natural gas reserves or production, but the state is crossed by several interstate natural gas pipeline systems. Figure 5.7 shows the gas pipelines that cross Jackson County.

“Natural gas accounts for about 25% of the total energy consumed in Iowa, as 6 out of 10 households use natural gas as their primary heating fuel. The industrial sector consumed 58% in 2022.”³³ Table 5.13 shows average natural gas prices and monthly bills by sector in Iowa.

Sector	Price/100 cubic feet	Monthly Bill
Industrial	\$7.12	\$86,853.40
Commercial	\$10.76	\$458.30
Residential	\$15.26	\$71.80

³² <https://findenergy.com/ia/natural-gas/>
Published: 2022-03-03

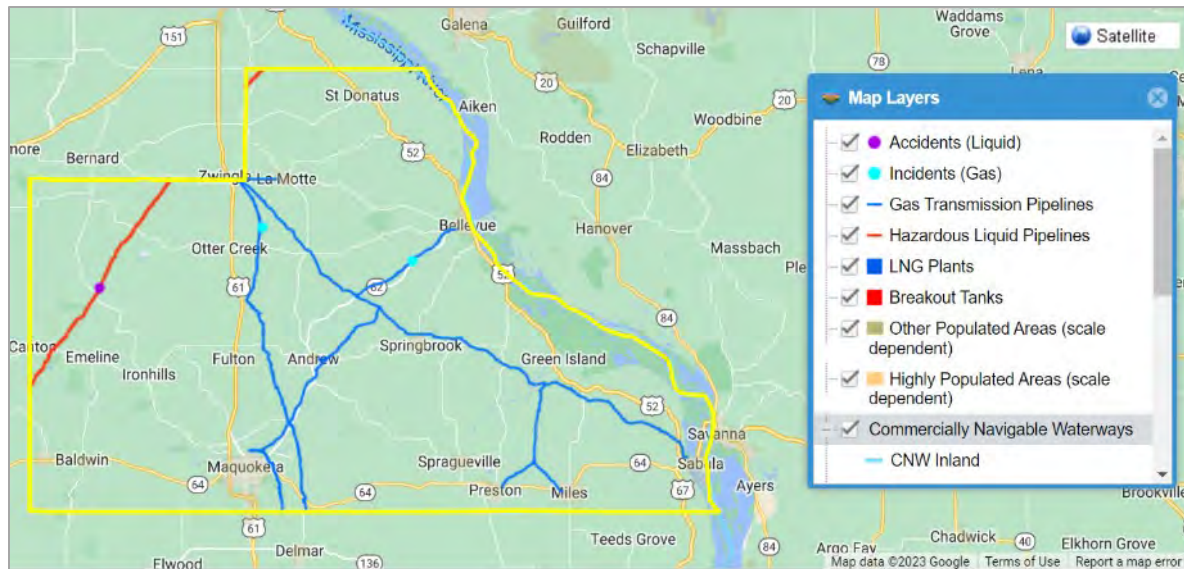


Figure 5.7 Map of Gas Pipelines in Jackson County, 2023

Source: <https://pvnpm.phmsa.dot.gov/PublicViewer/>

In Jackson County, Black Hills Energy provides natural gas for most areas, while Alliant Energy supplies Springbrook, Preston Municipal supplies Preston, and Sabula Municipal supplies Sabula.

Propane

“Iowa is the only non-crude oil-producing state among the top five states in total energy consumption per capita. Iowa’s

³³ US Energy Information Administration (EIA) Iowa State Energy Profile updated 8/17/2023 at <https://www.eia.gov/state/analysis.php?sid=IA>

petroleum consumption includes hydrocarbon gas liquids (HGL), mostly propane. Iowa ranks fourth among the states in HGL consumption. The industrial sector consumes over 66% of the HGLs, where farmers use propane to dry their harvested corn crop. About one in eight Iowa households heats with propane, almost triple the national rate.”³⁴

³⁴ Ibid.

County propane suppliers are located in Maquoketa, La Motte, and Bellevue.

RENEWABLE ENERGY

Renewable energy is energy produced from sources like biomass, geothermal resources, sunlight, water, and wind, that are replenished naturally and do not run out. In contrast, non-renewable energy comes from finite sources that could get used up, such as fossil fuels like coal and oil.³⁵

“The transition to clean energy can lead to long-term energy independence and positive economic outcomes for residents. The practical applicability of renewable energy can reduce pollution, improve community resiliency, and become a long-term cost savings tool for local jurisdictions and individual households.”³⁶

³⁵ <https://www.energy.gov/eere>

³⁶ 2022 Jackson County Clean Energy Plan, p. 1

³⁷ Ibid, p. 18

Biomass

A biomass system uses products derived from plant, animal, or organic material to produce heat and to generate electricity.

“Biomass is not considered a viable option for Jackson County due to increased carbon emissions when burned for electricity.”³⁷

Geothermal Energy

A geothermal energy system works by exchanging heat between the air and the ground. Ground source heat pumps and direct use geothermal technologies typically are used for space heating, space cooling (air conditioning), and water heating applications in buildings.³⁸

“Jackson County is in a moderately favorable area for the use of geothermal.”³⁹ “The Midwest and the State of Iowa have not made investments in geothermal generation that would warrant its current consideration.”⁴⁰

³⁸ <https://www.iowadnr.gov/environmental-protection/water-quality/private-well-program/ghex-borehole-construction>

Hydroelectric Power

Hydroelectric power, or hydropower, alters the natural flow of a river or other body of water to generate electricity. The Maquoketa hydroelectric power plant went online in 1923. Located on the Maquoketa River west of Maquoketa, it has a maximum generating capacity of 1,200 kilowatts.⁴¹



Maquoketa hydroelectric power plant. Photo Credit: <http://renewableworldenergies.com>

An Assessment of Energy Potential at Non-Powered Dams in the United States completed for the U.S. Department of Energy in 2012 found untapped potential hydropower on existing dams. Of the top 100 dam sites, Lock and Dam #12 in Bellevue ranked 42nd with an estimated potential capacity of 52 megawatts.

³⁹ 2022 Jackson County Clean Energy Plan, p. 18

⁴⁰ Ibid, p. 72

⁴¹ <http://renewableworldenergies.com>

Wind Energy

A wind energy system is any device that converts wind energy to a form of usable energy, including windmills and wind turbines. There are four main types.

Utility-scale wind systems are usually defined as turbines that exceed 100 kilowatts in size. Utility-scale wind turbines are typically installed in large wind farms connected to the nation's electric transmission system.⁴²



Utility-scale wind turbines. Photo Credit: WINDEXchange, U.S. Department of Energy

⁴²<https://windexchange.energy.gov/markets/utility-scale>

Distributed wind systems range from small wind turbines on private land to multi-megawatt wind farms that power campuses or large facilities. Distributed wind turbines can provide all or part of the power used at a location.

Community wind systems provide electricity to a local community but not to the main utility transmission grid.

Residential wind systems allow landowners to harness wind energy to power their home, farm, business, and other buildings on their property.⁴³

Jackson County is located in a low-speed wind zone (Figure 5.8), so other energy sources may be more efficient or effective. “The annual average wind speed in Jackson County above ground is

less than 5 meters per second (m/s). An annual wind speed average of 5.8 m/s is preferred for utility-scale turbines (EIA, 2016).”⁴⁴

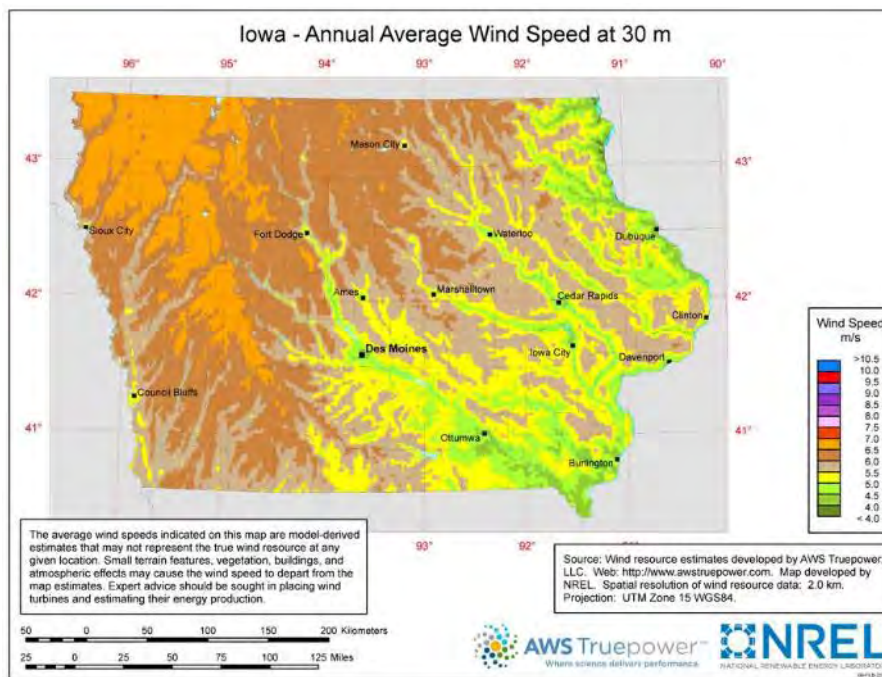


Figure 5.8 Iowa 30-Meter Residential-Scale Wind Resource Map

Source: <https://windexchange.energy.gov/maps-data/267>

⁴³<https://windexchange.energy.gov/markets/distributed>

⁴⁴ 2022 Jackson County Clean Energy Plan, p. 18

Solar Energy

A solar energy system is any solar collector, solar device or structural design feature of a building whose primary purpose is to provide for the collection, storage and distribution of solar energy. Typical uses include attached and freestanding solar panels, solar energy devices integrated as part of the structure, and passive energy systems. Figure 5.9 shows examples of building-mounted solar systems.

There are three main types of solar energy systems according to the *2020 Iowa Solar Siting Resource Guide: A Roadmap for Counties*.

Utility-scale solar energy system: A solar energy system above a certain capacity that is intended to produce electricity to sell into the market, not to directly supply end-use customers.

Community solar energy system: A solar energy system developed by a city, county, utility, or other third party that typically allows community members to subscribe to the project. In Iowa,

development of community solar projects is limited to utilities at this time.

Residential/small-scale solar energy system: A solar energy system that is installed at a residence, farm, or business to produce electricity for usage on-site.

As part of the *Grow Solar Jackson County* program, the small-scale solar array at the Hurstville Interpretive Center was installed in 2021. This solar array produces 124,956 kilowatt hours per year,⁴⁵ and supplies 100% of the electricity for the center.⁴⁶



Solar array at Hurstville Interpretive Center. Photo Credit: Jackson County Energy District website



Figure 5.9 Examples of Building-Mounted Solar Systems Source: US Department of Energy

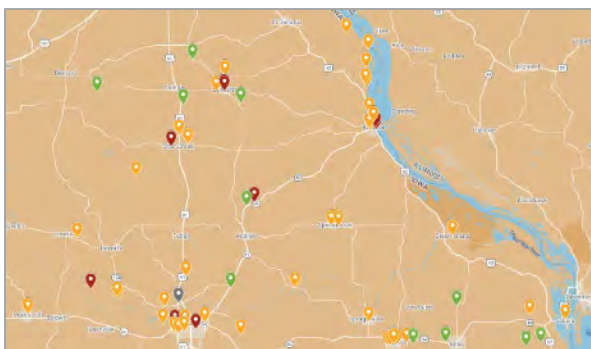
⁴⁵ Jackson County Clean Energy District website

⁴⁶<https://www.mycountyparks.com/County/Jackson/Park/Hurstville-Interpretive-Center.aspx>

Jackson County Energy District

The mission of the nonprofit Jackson County Energy District is: to positively affect the local economy by retaining energy dollars in Jackson County, to slow climate change by promoting wise energy use, and to facilitate fair access to clean and local energy.

The Jackson County Energy District has an interactive Solar Energy Map of solar energy installations in Jackson County. The pins represent Residential (Orange), Agricultural (Green), Commercial (Red), Non-Profit (Purple), and Public (Gray) installations. Visit <https://jacksoncounty.energydistrict.org/solar-energy-map/>



Jackson County Solar Energy Map, 2023

Source: Jackson County Energy District website

Jackson County Clean Energy Plan

The 2022 Jackson County Clean Energy Plan is a strategic plan for transitioning from non-renewable to renewable energy sources, providing decision support for local leaders, and establishing locally owned, diverse, and equitable energy.

The plan focuses on solar power generation using photovoltaic (PV) panels as the best renewable energy option for Jackson County. The plan also includes analysis of a clean energy pilot project for the city of Springbrook.

As part of the plan a **solar feasibility study** was conducted for 13 sites owned by Jackson County. The Jackson County Board of Supervisors prioritized the South Sabula Lake Campground, the new County Jail in Maquoketa, the county’s secondary roads maintenance shops, and other county administration buildings.

The estimated generation by an individual PV solar system for each of the 13 county-owned sites was calculated using utility data for the sites. The amount of money retained through solar

panel installation, payback period, and total costs diverted over a PV solar panel project’s 25-year lifetime were calculated for each site.

The study’s three priority sites were the County Courthouse, new County Jail, and Lake Sabula Campground.

Analysis for the new jail at was based on utility data and roof size for the Delaware County Jail in Manchester, Iowa.

The Sabula Campground presents some challenges due to floodplain location, shade and tree cover, and seasonal operation from April to October. These challenges could be addressed by locating the PV solar system off-site, perhaps in partnership with Sabula Municipal Utility.

“The primary objective of this study is to confirm that PV solar systems on county buildings should be an endeavor that the Jackson County Clean Energy District and the Jackson County Board of Supervisors explore further.”⁴⁷

⁴⁷ 2022 Jackson County Clean Energy Plan, p. 43

As shown in Table 5.14, all 13 County sites had a positive return on investment with installation of PV solar panels. Each row of the table represents a different

price per watt, using \$2.53 per watt and \$1.80 per watt. Total system cost ranged from \$671,400 to \$943,700. Payback period averaged 7 to 10 years. Lifetime

avoided cost was \$1.7 million. Average return for installing PV solar panels on the 13 sites was between \$30,500 to \$41,400 per year.

Table 5.14 Solar Feasibility Analysis for 13 Jackson County-Owned Sites (2022)

Source: 2022 Jackson County Clean Energy Plan, p. 30

Name	System Size (kilowatt DC)	Price (Per Watt)	System Cost	Payback Period (Years)	Lifetime Avoided Cost	Return (per Year)
Penrose Annex		\$2.53	\$18,064.20	0.3	\$36,422.81	\$734.34
		\$1.80	\$12,852.00	0.2		\$942.83
Sheriff Office	29.24	\$2.53	\$73,977.20	8.7	\$148,899.64	\$2,996.90
		\$1.80	\$52,632.00	6.2		\$3,850.71
Courthouse	86.02	\$2.53	\$217,630.60	8.7	\$437,948.68	\$8,812.72
		\$1.80	\$154,836.00	6.2		\$11,324.51
County Jail	109.48	\$2.53	\$276,984.40	8.7	\$557,279.86	\$11,211.82
		\$1.80	\$197,064.00	6.2		\$14,408.63
Campground	109.48	\$2.53	\$276,984.40	13.0	\$371,410.53	\$3,777.05
		\$1.80	\$197,064.00	9.2		\$6,973.86
Secondary Roads HQ	11.22	\$2.53	\$28,386.60	8.9	\$55,636.84	\$1,090.01
		\$1.80	\$20,196.00	6.3		\$1,417.63
La Motte Shop	4.08	\$2.53	\$10,322.40	8.8	\$20,417.19	\$403.79
		\$1.80	\$7,344.00	6.3		\$522.93
Prairie Creek Shelter	1.36	\$2.53	\$3,440.80	8.6	\$6,927.26	\$139.46
		\$1.80	\$2,448.00	6.2		\$179.17
Baldwin shop	5.10	\$2.53	\$12,903.00	8.5	\$26,432.97	\$541.20
		\$1.80	\$9,180.00	6.0		\$690.12
Preston Shop	5.78	\$2.53	\$14,623.40	8.7	\$29,130.95	\$580.30
		\$1.80	\$10,404.00	6.2		\$749.08
Springbrook Shop	1.36	\$2.53	\$3,440.80	16.0	\$3,755.30	\$12.58
		\$1.80	\$2,448.00	11.4		\$52.29
Butler shop	1.02	\$2.53	\$2,580.60	14.8	\$3,026.12	\$17.82
		\$1.80	\$1,836.00	10.6		\$47.60
Bellevue Shop	1.70	\$2.53	\$4,301.00	8.9	\$8,385.63	\$163.39
		\$1.80	\$3,060.00	6.4		\$213.03
Overview Table (Table 5.0)	Total	\$2.53	\$943,639.40	9.63	\$1,705,673.76	\$30,481.37
		\$1.80	\$671,364.00	6.85		\$41,372.39

ENERGY BURDEN

According to the U.S. Department of Energy (DOE), low-income households face an energy burden three times higher than other households. **Energy burden** is defined as the percentage of gross household income spent on energy costs. DOE notes that high energy burden can be due to higher-cost fuels, such as propane or other bottled fuels, and energy-inefficient homes and appliances.

Low income can be defined using the area median income (AMI) – the point where half the households are above and half are below. The U.S. Department of Housing and Urban Development (HUD) considers households earning less than 80% of the AMI to be low-income.⁴⁸

The **Low-Income Energy Affordability Data (LEAD) Tool** was created to help stakeholders understand housing and energy characteristics for low- and moderate-income households. Data comes from the U.S. Census Bureau's American Community Survey 2020 Public Use Microdata Samples.⁴⁹

⁴⁸<https://www.energy.gov/scep/slsc/low-income-community-energy-solutions>

Figure 5.10 was created using the LEAD Tool to compare the energy burden in Iowa and Jackson County based on income and fuel type.

The U.S. Department of Health & Human Services (HHS) **Low-Income Home Energy Assistance Program (LIHEAP)** helps low-income families with home heating costs, year-round crisis assistance, and weatherization. Hawkeye Area

Community Action Program, Inc. (HACAP) distributes the funds to families in need. By November 2023, HACAP had received about 6,000 applications. That number is what HACAP typically sees in November, and includes applications from all nine of the counties HACAP serves (including Jackson County).

⁴⁹<https://www.energy.gov/scep/slsc/low-income-energy-affordability-data-lead-tool>

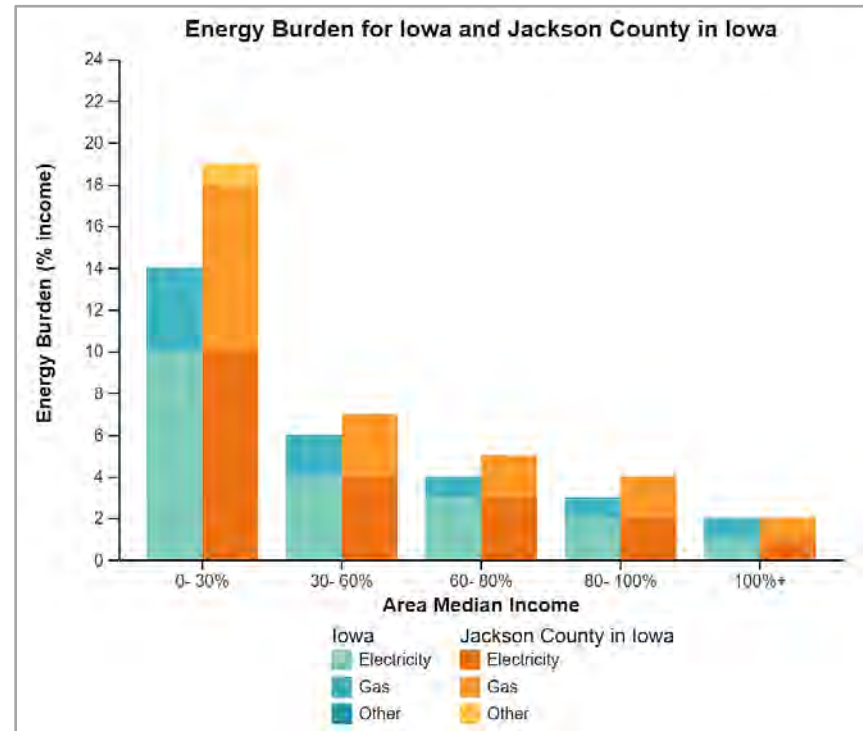


Figure 5.10 Energy Burden for Iowa and Jackson County (2020)
Source: U.S. DOE Low-Income Energy Affordability Data (LEAD) Tool

Applications for assistance are accepted from November through April annually. (Source: Bond, Maia. "Officials anticipate steady demand for help with winter heating bills." *Telegraph Herald, Dubuque, IA; December 2, 2023.*)

LOCAL, STATE, & FEDERAL PROGRAMS

Local, state, and federal programs are grouped by categories.

Public Roads and Bridges

Information about programs for public roads and bridges is available in Chapter 6. Transportation of this plan.

All Categories

The U.S. Department of Agriculture (USDA) **Rural Utilities Service (RUS)** provides loans, grants, loan guarantees, and technical assistance for various infrastructure improvements for rural communities. These include drinking water, sanitary sewer, wastewater treatment, storm drainage, and solid waste facilities, as well as telecommunications and electric power infrastructure.

<https://www.rd.usda.gov/about-rd/agencies/rural-utilities-service>

Iowa’s **State Revolving Fund (SRF) for Communities** provides low-cost funds for drinking water, wastewater treatment, sewer rehabilitation, and stormwater quality improvements; replacement of inadequate or failing septic systems; and

addressing nonpoint source pollutants for landowners, farmers, and communities.

<https://www.iowasrf.com/about-srf/>

Water Supply Wells

The Jackson County Health Department provides **free well water testing** for Nitrates, Total Coliform, E.coli, and Arsenic up to three times per home annually upon request.

The **Grants to Counties (GTC) Water Well Program** provides grants to local county health departments to provide financial assistance to their residents for private water well construction and plugging.

<https://jacksoncounty.iowa.gov/health-department/>

Solid Waste and Recycling

The Iowa DNR’s **Financial and Business Assistance (FABA)** team offers a variety of financial and technical assistance programs for solid waste planning and recycling. For more information about FABA, visit the Iowa DNR webpage at

<https://www.iowadnr.gov/Environmental-Protection/Land-Quality/Waste-Planning-Recycling>

Telecommunications

The Iowa Utility Board (IUB) runs **Relay Iowa** and **Telecommunications Access Iowa**. The programs provide assistive telephone services to Iowans who are deaf, hard of hearing, deaf-blind, or have difficulty speaking.

<https://iub.iowa.gov/customer-assistance/telephone-accessibility>

The **Iowa Deaf-Blind Equipment Distribution Program** is promoted by iCanConnect, which provides free equipment and training for people with both significant hearing and vision loss who meet the program’s disability and income eligibility guidelines.

<https://www.icanconnect.org/>

Iowa State University’s Center for Wireless, Communities and Innovation (WiCi) provides research, education, innovation, and community empowerment for rural-focused broadband.

<https://wici.iastate.edu/mission/#>

Lifeline is a federal program dedicated to making phone and internet service more affordable for low-income households.

<https://www.lifelinesupport.org/>

The Federal Communications Commission (FCC) offers:

- **Household Broadband Guide**
<https://www.fcc.gov/consumers/guides/household-broadband-guide>
- **Affordable Connectivity Program**
<https://www.fcc.gov/acp>
- **National Broadband Map**
<https://broadbandmap.fcc.gov/home>
- **Mobile LTE Coverage Map**
<https://www.fcc.gov/BroadbandData/MobileMaps/mobile-map>

Electric, Gas and Renewable Energy

The **Iowa Energy Office** manages a diverse mix of state, federal and utility-funded programs and initiatives for technology-based energy research and development, energy workforce development, support for rural and underserved areas, biomass conversion, natural gas expansion, electric grid modernization, alternative fuel vehicles, and the Energy Infrastructure Revolving Loan Program.
<https://www.iowaeda.com/iowa-energy-office/>

The **Iowa Renewable Fuels Infrastructure Program** of the Iowa Department of Agriculture and Land Stewardship (IDALS) helps retail operators of motor fuel dispensing sites or fueling stations to convert their equipment to allow the expanded use of renewable fuels in Iowa. <https://iowaagriculture.gov/IRFIP>

The Hammond Climate Solutions Foundation’s **Solar Moonshot Program** provides grants up to \$25,000 to nonprofits for solar projects.
<https://www.hcs.foundation/solar-moonshot-program>

Renewable Energy Resources

Federal, state, and local offices and non-profit resources on renewable energy:

- **Jackson County Energy District**
<https://jacksoncounty.energydistrict.org/>
- **Clean Energy Group**
<https://www.cleanegroup.org/>
- **Clean Grid Alliance**
<https://cleangridalliance.org/>
- **Iowa Environmental Council**
<https://www.iaenvironment.org/>

- **Iowa Renewable Energy Association (I-Renew)** <https://www.irenew.org/>
- **U.S. Department of Energy’s Office of Energy Efficiency & Renewable Energy (EERE)**
<https://www.energy.gov/eere>
- **U.S. Energy Information Administration (EIA)**
<https://www.eia.gov/about/>
- **U.S. Environmental Protection Agency (USEPA)**
<https://www.epa.gov/statelocalenergy>

Energy Burden Assistance

The U.S. Department of Health & Human Services (HHS) **Low-Income Home Energy Assistance Program (LIHEAP)** is designed to assist low-income families with home heating costs, year-round crisis assistance, and weatherization. Renters and homeowners are eligible, within the federal poverty guidelines. Applications are accepted November 1 - April 30 of each year. For more information, visit <https://hhs.iowa.gov/programs/programs-and-services/liheap>

Jackson County residents can apply locally for LIHEAP assistance online from **Hawkeye Area Community Action Program, Inc. (HACAP)**. Applications also are available from Jackson County Outreach & Head Start at 904 E. Quarry Street in Maquoketa. In addition, Alliant Energy and Black Hills Energy offer their own energy assistance programs. Alliant’s Hometown Care Energy Fund and the Black Hills Cares program funnel money to HACAP, which distributes the funds to their customers in need. Visit <https://www.hacap.org/energyconservation>

Low Income Community Energy Resources

The U.S. Department of Energy (DOE) offers the following resources to highlight issues and solutions for low-income households in accessing energy efficiency measures and renewable energy. These resources can be used by state and local governments and low-income stakeholders to support program planning and inform existing initiatives.

- **Low-Income Energy Affordability Data (LEAD) Tool**

- **Clean Energy For Low-Income Communities Accelerator (CELICA) Toolkit**
- **Low-Income Energy Library: Federal Resources And Tools**
- **Low-Income Energy Affordability: Conclusions From A Literature Review And Annotated Bibliography**
- **National Community Solar Partnership**
- **Solar In Your Community Challenge**
<https://www.energy.gov/scep/slsc/low-income-community-energy-solutions>

ISSUES AND OPPORTUNITIES

Public Infrastructure

Issues: The 2022-2027 Comprehensive Economic Development Strategy (CEDS) for Delaware, Dubuque, Jackson, Clinton, and Cedar Counties charts the course for economic growth of the region. The CEDS notes these regional challenges:

- Public infrastructure such as water, sewer, wastewater, stormwater, and roadways are aging and funding resources for public improvements is lacking.
- The lack of transportation funding to maintain the roadways, rail lines, and river port areas is an issue for future expansion and development and can restrict growth.
- Cities and counties are finding it necessary to bond and/or take-out long-term loans to improve basic health and safety infrastructure.

Opportunities: The 2022-2027 CEDS notes these regional opportunities:

- Adequate capacity and condition of infrastructure assets contributes to overall economic competitiveness.

Strategic investments must be made to ensure that these assets are maintained and expanded. The region will remain competitive and have a competitive advantage when businesses, entrepreneurs, and residents are able to make use of robust infrastructure for water, sewer, gas, and storm sewer; broadband and fiber; and road, rail, air, and water transportation systems.

- Continued planning and coordination with the Iowa Department of Transportation and working through the Regional Planning Affiliation (RPA) is critical to furthering the water, rail, air, and transportation priorities. Identifying these priorities through the RPA Long-Range Transportation Planning process is critical to securing funding through federal and state grants for priority projects.
- Partnering with economic development entities, Chambers of Commerce, and private businesses is also important in furthering public-private partnerships and

securing funding for regional priority transportation related projects.

- Continued advocacy is necessary for programs to assist with public infrastructure improvements. Cities and counties must be proactive through their planning efforts. They must develop capital improvement programs that plan and budget in five- to ten-year increments for these necessary improvements.

Renewable Energy

Issues: The 2022 Jackson County Clean Energy Plan identified these issues:

- *Lack of energy provider options.* Historically, communities had little influence on how the energy they consumed was sourced and distributed. Franchise agreements locked communities into decades of contract service for coal and natural gas distribution with large utility providers, which only in recent years have actively considered transitioning to renewable energy. The primary concerns of residents were

expensive and rising energy bills, energy efficiency, and dependency on their utility provider.

- *Economies of scale and funding assistance limitations.* While some grant funding is available for government entities, the 26% federal tax credit available to private solar installers provides larger and more reliable financial assistance.
- *Variability in small versus large community solar options.* The size of the community influences its access to financial resources to afford the upfront cost, and the demand threshold must meet a certain standard to make the return on investment profitable enough.
- *Impact of state policy and incentives.* The expired Iowa Solar Energy System Tax Credit made installing solar panels more affordable and accessible for

many homeowners and businesses.

- *Virtual net metering.* If permitted by the Iowa legislature, it would expand the opportunities for small towns.

Opportunities: The 2022 Jackson County Clean Energy Plan identified these opportunities:

- *Solar power generation brings opportunity.* As the cost of energy continues to rise and the cost of solar panels declines, transitioning to solar brings opportunities for substantial cost savings and revenue.
- *Feasibility of solar energy in Jackson County.* The financial benefits of transitioning to distributed solar generation have been made clear and offer tangible benefits to Jackson County residents beyond offsetting metric tons of carbon dioxide (CO₂).

- *Importance of clean energy goals and initiatives in local plans.* Integrating clean energy goals within the comprehensive plan, capital improvement plan, or other local plans prepares local governments more effectively transitioning to cleaner energy sources.
- *Community solar ownership opportunities.* If a community owns and maintains its energy production and distribution, there is legal power to install solar.
- *Federal policy and incentives.* The 2022 Inflation Reduction Act (IRA) provides tax credit opportunities for public and private entities to develop renewable and clean energy systems. The most notable opportunities are tax credits for clean energy projects that cover up to 30% of the cost of the project.

GOALS AND OBJECTIVES

Public Infrastructure

Maintain and modernize critical infrastructure for transportation, broadband, water, sewer, downtowns, and community facilities for a more competitive region.

Enhance community and public facility infrastructure and increase access to community services and amenities to meet the demands of regional employers and their employees.

Renewable Energy

The following goals and objectives are from the 2022 Jackson County Clean Energy Plan.

Install photovoltaic (PV) solar panels on County-owned buildings.

- Utilize the feasibility study in the Jackson County Clean Energy Plan.
- Partner with professional solar installers for cost estimates.

Create solar-ready zoning and building codes.

- Partner with Jackson County jurisdictions to develop zoning and development standards to support solar panel adoption across the county.
- Incorporate building codes that make the process for solar easier.

Expand data collection for the Jackson County Energy District’s solar installation map.

- Adopt Jackson County permits or registration requirements for roof mounted PV solar installations.
- Partner with municipalities to record their PV solar installations.

Advocate for clean energy policy by the Iowa Legislature and Iowa Utilities Board.

- Encourage involvement with the Jackson County Energy District and legislature representatives to support stronger clean energy policies for greater accessibility and affordability within the county.

Encourage involvement in the *Grow Solar Jackson County Program* through the Jackson County Energy District.

- Make solar power in the county affordable and accessible to residents and businesses.
- Increase civic engagement among residents to actively participate in the future of energy in their communities.
- Encourage municipalities to pursue conversations with utility providers about transitioning to renewable energy.