

### Energy Resources

Ameren Corporation, with its operating company AmerenIP, serves the majority of the County's electricity and natural gas needs.<sup>1</sup>

#### *Electric Distribution*

Electric restructuring allows customers to choose who supplies the generation portion of the electric service, based on their own needs and preferences (e.g., including how or where the electricity is produced, economic or environmental support, the lowest price or total cost or the best combination of the prices, services and incentives). Suppliers in Champaign County include Ameren and Eastern Illini Electric Cooperative (a member of Prairie Power Inc., formerly Soyland Power Cooperative). These two companies provide bundled generation, transmission and distribution services to residential customers. Figures 6-1 and 6-2 show service areas for Ameren and Eastern Illini Electric Cooperative, which overlap in most of Champaign County.

Retail Electric Suppliers (RES) are certified by the Illinois Commerce Commission and registered with the utility to supply electricity to customers. A current list of RES for both residential and commercial services in Illinois is provided in Appendix 6.

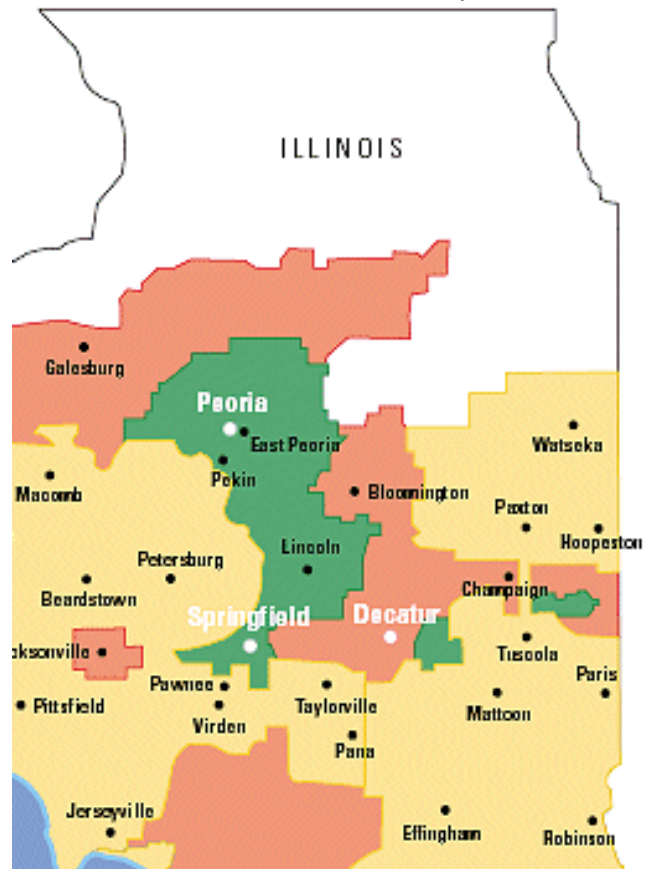
Figure 6-3 shows locations of high voltage transmission lines and electric substations and generation facilities at a scale of 1:600,000. Location information provided in Figure 6-3 is approximate due to the limited scope of information available from the Illinois Commerce Commission (ICC).

AmerenIP purchases electricity in the market from national power grid suppliers, predominantly produced through coal-fired, gas-fired, hydroelectric and nuclear power plants owned and operated by the parent company Ameren. Ameren Corporation provides electric services and generation primarily to urban areas in Champaign County. The Village of Rantoul is the only municipality in the County with its own electric generation facility and does not buy directly from one of the Ameren subsidiaries. The Village of Rantoul is a member of the Illinois Municipal Electric Agency which provides 29 of 31 member municipalities with wholesale electricity that is sold on retail markets in effort to insulate members from high priced electricity in short-term power markets.

Prairie Power Inc., formerly Soyland Power Cooperative, generates power for the Eastern Illini Electric Cooperative, which provides electric service to rural areas in Champaign County. Prairie Power Inc. currently generates baseload electricity from a coal fired facility in Pike County and a natural gas facility in Scott County, both located in west-central Illinois.

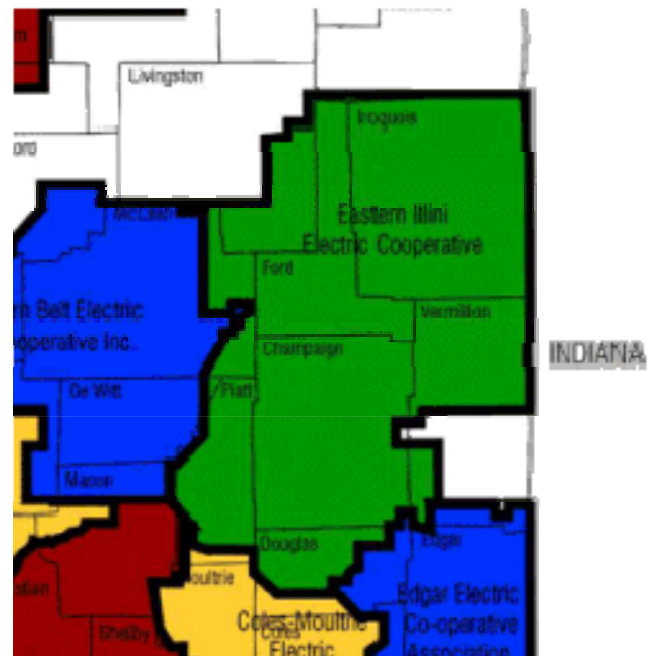
**Figure 6-1: Ameren Service Area**

- AmerenCILCO
- AmerenCIPS
- AmerenIP
- AmerenUE
- Company Headquarters



Source: www.ameren.com

**Figure 6-2: Eastern Illini Electric Cooperative Service Area**



Source: www.aiec.coop

### ***Natural Gas Distribution***

Unlike the electric industry, which by law restructured the state's electric industry to promote customer choice and create a competitive marketplace, natural gas supplier choice is not mandated. Nicor Gas voluntarily offers service to residential customers to choose their gas supplier. Customer participation is also voluntary; eligible customers may choose an alternative supplier or remain with the utility and receive bundled (delivery and supply) gas service. The ICC has approved the choice programs and the utility tariffs that state the terms and conditions of service. Section XIX of the Public Utilities Act (220 ILCS 5/19-*et seq.*) requires alternative gas suppliers offering service to residential and small commercial retail customers to be certified by the ICC.<sup>2</sup>

Figure 6-4 depicts, at an approximate scale, locations of gas utility pipelines in the County. Locational information provided in Figure 6-4 is approximate due to the limited scope of information available from the ICC. Additionally, Figure 6-4 indicates the approximate location of the People's Gas Manlove Field in Newcomb Township, a natural gas storage area with an onsite liquefied natural gas plant. The storage facility is an underground aquifer opened in 1966 capable of storing approximately 150 billion cubic feet of natural gas for delivery to the Chicago area via connected pipelines.

## **Renewable Energy Resources**

### ***Biogas and Biomass***

Biogas (i.e. methane/waste from livestock, sludge from municipal waste water, segregated organic wastes) is a potential source of energy that converts waste materials into energy production materials through anaerobic digestion. Biomass (plant material) can be used to produce energy most commonly in the form of biofuel (i.e. ethanol) but can also be used as combustible material to produce heat energy<sup>3</sup>. This type of energy production is constrained due to cost but is becoming a valuable alternative to other higher polluting sources of energy. Scale and environmental impacts are still important factors when considering biogas or biomass energy sources.

### ***Solar Energy***

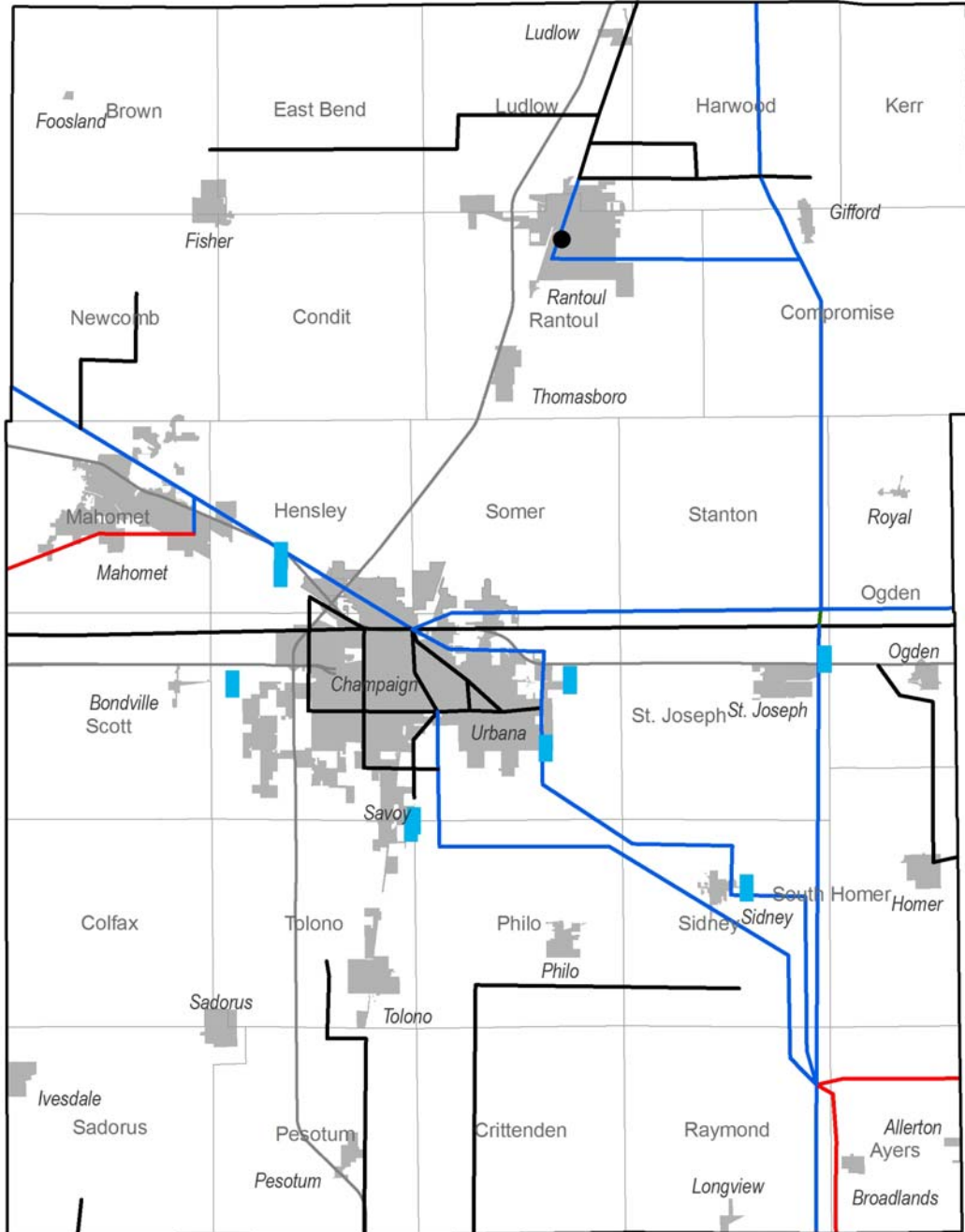
The University of Illinois at Urbana-Champaign generated a study showing that while Illinois has a desirable amount of solar radiation for energy production (134-180 kilowatt hours per square meter of array per year), the cost of photovoltaic production, technology for battery capacity, as well as currently subsidized energy costs, makes this form of energy production cost prohibitive in east-central Illinois. Consumer cost reflects this as solar energy costs approximately 50 cents per kilowatt hour where standard technologies cost around 11 cents per kilowatt hour, but are rising. Large scale solar energy facilities could help offset more expensive power production such as peak power facilities and distributed power generation facilities.<sup>4</sup> Smaller scale solar systems depend on demand from users, payback rates, economic incentives and opportunities for net metering. Solar resources can also be used to reduce energy consumption through passive design techniques. Solar resources can be used to produce hot water, heat rooms, and provide lighting without converting it to electricity.

## ***Wind Energy***

Wind power is an increasingly viable alternative for energy production, with developing technology and increased interest in renewable energy. Many areas in Illinois have already undertaken wind farm projects with more being proposed annually. Much of Champaign County is rated as having fair potential for wind energy and all counties have a major transmission line through which energy can be sold and supplied to distribution companies. Costs are competitive in today's wholesale market, making the demand for wind turbines increase exponentially. Waiting lists are long for wind turbine production and small scale operations are often ignored for larger, more profitable endeavors. Smaller scale wind turbines are available for potential residential or small commercial use, but height restrictions and wind speeds can limit the viability of this resource. County zoning currently allows towers such as wind turbines that are less than 100 feet high to be constructed without a public hearing, with exceptions in some areas around airports and other areas with specific height limit considerations.

The United States Department of Energy (USDOE) published maps that estimate the potential wind power resource throughout the State of Illinois. Figure 6-5 is the USDOE Illinois Wind Resource Map. The USDOE wind power resource maps reflect data about estimated wind speeds at 50 meters above ground and distance to transmission lines. Five prime winds zones were established in Illinois, though none are located in Champaign County. A small area stretches through the northeast corner of Piatt County while others are located near Bloomington and Mattoon. The majority of Champaign County was rated as Fair, having an average wind speed of 6.4 - 7.0 mph.

**Figure 6-3: Electric Distribution Facilities**



**Electric Distribution Facilities**

Champaign County

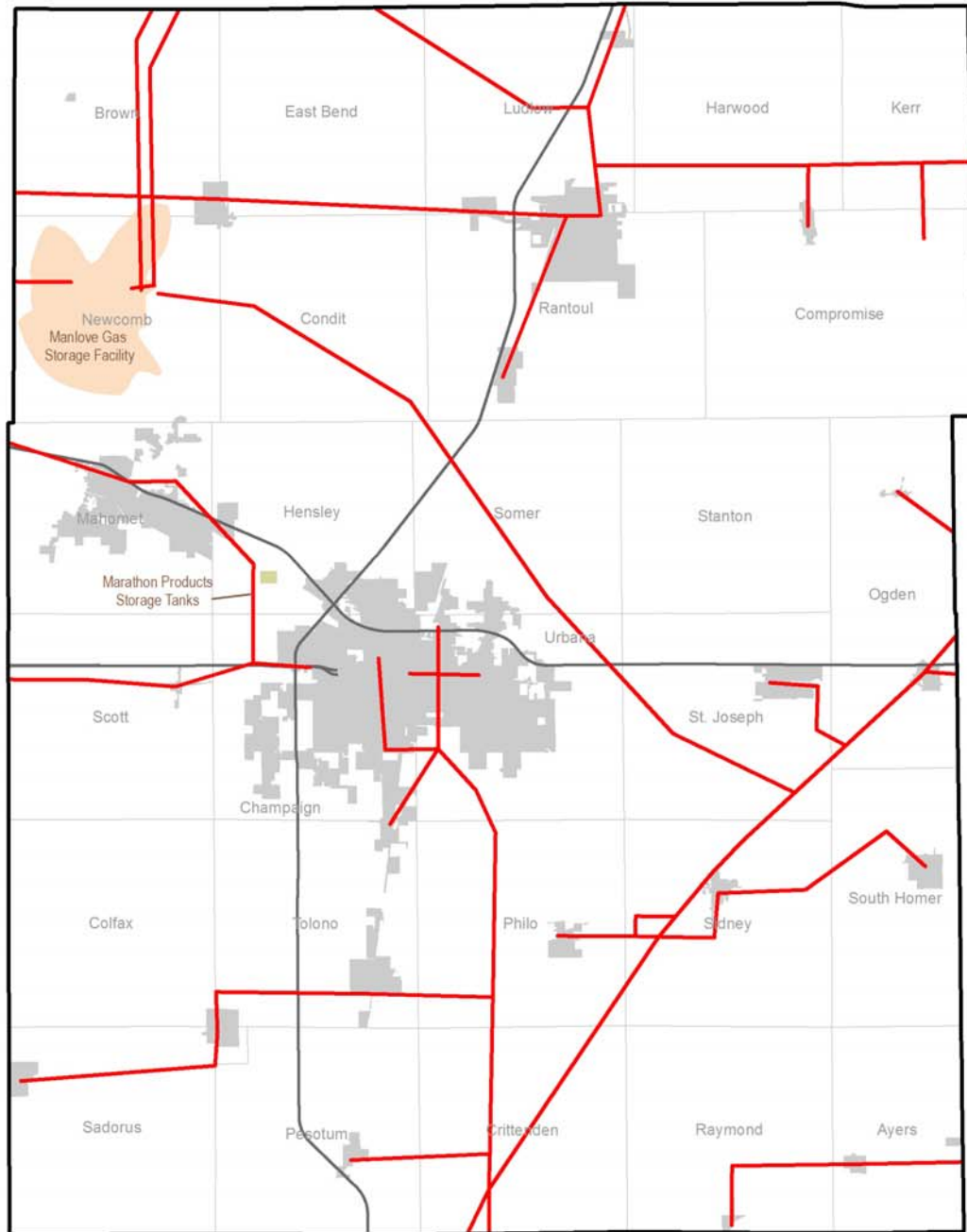
**Legend**

- Electric Generation
- Electrical Substations
- 34.5 kV
- 69 kV
- 138 kV
- 345 kV
- Interstates
- Municipal Boundary
- ⋮ County Boundary



Date Map Prepared:  
 October, 2007

**Figure 6-4: Gas Distribution Facilities**



**Gas Distribution Facilities**  
 Champaign County

Legend

- Gas Pipelines
- Interstates
- Civil Townships
- Municipal Boundary
- County Boundary



0 2.5 5 Miles

Date Map Prepared:  
 October, 2007

Figure 6-5: Wind Resource Potential

### Illinois - Wind Resource Map

