



### **Zone 3 overview**

Zone 3 includes the Wisconsin counties of:

- ❑ Columbia
- ❑ Crawford (southern portion)
- ❑ Dane
- ❑ Dodge
- ❑ Grant
- ❑ Green
- ❑ Iowa
- ❑ Lafayette
- ❑ Jefferson
- ❑ Richland
- ❑ Rock
- ❑ Sauk
- ❑ Walworth and
- ❑ Winnebago, Ill. (northern portion)

The physical boundaries of Zone 3 and transmission facilities located in Zone 3 are shown in Figure ZS-24.

Land use in Zone 3 is a mix of rural, urban and agricultural.

The major population centers are the Madison metropolitan area and the Janesville/Beloit area.

Zone 3 typically experiences peak demands during the summer months. Manufacturing, food processing, state government and institutional loads are among the largest electricity users in the zone.

#### ***Demographics***

The population of the counties in Zone 3 grew at an annual rate of 1.0 percent from 1998 to 2008. The highest growth rate of 1.4 percent per year and the largest increase in population of 63,000 occurred in Dane County.

During the same period, the annual employment growth rate was 1.7 percent. The highest growth rate occurred in Sauk County, while the largest increase in employment occurred in Dane County.



*Future Population and Employment Projections*

Population in Zone 3 is projected to grow at 1.0 percent annually for both the 2008 and 2013 and 2013 through 2018 periods. From 2008 to 2013, Dane County is projected to realize the largest increase in population, while Walworth County is projected to have the highest growth rate.

Employment in Zone 3 is projected to grow at 1.7 percent annually between 2008 and 2013 and at 1.6 percent from 2013 through 2018. From 2008 to 2013, Dane County is projected to realize the largest increase in population and Sauk County the highest growth rate.

	1998-2008	2008-2013	2013-2018	1998-2008	2008-2013	2013-2018
Employment	Annual Growth Rate			Increase		
Zone 3	1.68	1.70	1.59	129,332	74,027	74,930
Dane County				75,379	39,158	39,836
Sauk County	2.11	2.22	2.18			
Population						
Zone 3	0.96	0.96	0.97	108,441	57,932	61,418
Walworth County		1.61	1.54			
Dane County	1.40			62,893	31,851	33,041

**Zone 3 environmental considerations**

Zone 3 covers the south central and southwestern portions of Wisconsin and the Illinois county of Winnebago.

The ecological landscapes in this zone vary from Southeast Glacial Plains in the east through the Central Sand Hills area to areas that are part of the Southwest Savanna and Western Coulee and Ridges landscapes in the west. The eastern portions of the zone generally are level to gently rolling terrain, while the western areas are characterized by the ridges and valleys of the drift less area.

The northern and western portions of this zone are located in the Lower Wisconsin River Drainage Basin, and the Mississippi River forms the zone’s western boundary. Other portions of this zone are located in the Grant-Platte, Sugar River-Pecatonica, Upper and Lower Rock and Fox Illinois drainage basins. Horicon Marsh National Wildlife Refuge is located in the northeast part of the zone, and the Upper Mississippi River Wildlife and Fish Refuge is located along the zone’s western edge. The Baraboo Hills are located in the north-central portion of the zone. The Lower Wisconsin River State Riverway also is found in this zone.



### **Zone 3 electricity demand and generation**

The coincident peak load forecasts for Zone 3 for 2009, 2013, 2018 and 2023 are shown in Table ZS-10. Existing generation, along with proposed generation based on projected in-service year, also are shown. The resultant capacity margins, with or without the proposed generation, are shown as well.

The table shows that load is projected to grow at roughly 2.7 percent annually from 2009 through 2018. Comparing load with generation (at maximum output) within the zone indicates that Zone 3 has more generation than peak load during peak load periods. However, actual operating experience indicates that during most load periods, Zone 3 is a net importer of power.

### **Zone 3 transmission system issues**

Key transmission facilities in Zone 3 include:

- ❑ the Columbia-North Madison 345-kV lines,
- ❑ the Columbia-Rockdale-Paddock-Wempletown 345-kV line
- ❑ the Paddock-Wempletown 345-kV line and
- ❑ the 138-kV facilities from the Nelson Dewey Power Plant, around the Madison area, and in the northwest and southeast portions of Zone 3.

Key system performance issues in Zone 3 include:

- ❑ import capability into the Madison area, whether from sources internal or external to the zone,
- ❑ contingency thermal overloads on the Fitchburg-Royster 69-kV line,
- ❑ contingency low voltage issues on the Sheepskin-Bass Creek-Brodhead 69-kV line,
- ❑ low voltages and line overloads on the 69-kV system in Monroe area,
- ❑ contingency thermal overloads on the Spring Green 138/69-kV transformer,
- ❑ insufficient 69-kV line capability in Dodge and Walworth Counties,
- ❑ low voltages and line overloads on the 69-kV system in the Dam Heights area,
- ❑ potential contingency overloads on the West Middleton 345/138-kV transformer and West Middleton-Blackhawk 69-kV line in the 2018 timeframe,
- ❑ contingency low voltages in northern Rock County and eastern Dane County,
- ❑ widespread intact system 138- and 69-kV low voltages in Jefferson, and Dane Counties are a serious emerging problem in 2014 and beyond, and
- ❑ impact of new generation.