Zone 2 Overview

Zone 2 includes the counties of:

- Alger, Mich.
- Baraga, Mich.
- Chippewa, Mich.
- Delta, Mich.
- Dickinson, Mich.
- Florence, Wis.
- Forest, Wis. (northern portion)
- Gogebic, Mich. (eastern portion)
- Houghton, Mich.
- Iron, Mich.
- Keweenaw, Mich.
- Luce, Mich.
- Mackinac, Mich.
- Marinette, Wis. (northern portion)
- Marquette, Mich.
- Menominee, Mich. (northern portion)
- Ontonagon, Mich. (eastern portion)
- Schoolcraft, Mich.
- Vilas, Wis. (northern portion)

The physical boundaries of Zone 2 and transmission facilities located in Zone 2 are shown in Figure ZS-23.

Land use in Zone 2 is largely rural and heavily forested.

Zone 2 typically experiences peak electric demands during the winter months. Ore mining and paper mills are the largest electricity users in the zone.

Demographics

The population of the counties in Zone 2 experienced slightly negative growth from 1998 to 2008. The highest growth rate of 0.9 percent per year and the largest increase in population of 1,800 occurred in Vilas County.

During the same period, the annual employment growth rate was 0.8%. The highest growth rate and the highest increase in employment occurred in Marquette County (Michigan).

Future Population and Employment Projections

Population in Zone 2 is projected to grow on an annual basis slightly between 2008 and 2013 and only 0.4 percent from 2013 through 2018. From 2008 to 2013, Chippewa County (Michigan) is projected to realize the largest increase in population and Florence County has the highest growth rate.

Employment in Zone 2 is projected to grow at 1.5 percent annually between 2008 and 2013 and at 1.4 percent from 2013 through 2018. From 2008 to 2013, Marquette County (Michigan) is projected to realize the largest increase in employment, while Vilas County is projected to have the highest growth rate.

	1998-2008	2008-2013	2013-2018	1998-2008	2008-2013	2013-2018
Employment	Annual Growth Rate			Increase		
Zone 2	0.76	1.52	1.41	13,245	14,170	14,171
Marquette County (MI)	1.76			6,077	3,176	3,174
Vilas County		2.29	2.04			
Population						
Zone 2	-0.13	0.29	0.35	-4,265	4,798	5,897
Vilas County	0.86			1,834		
Florence County		1.15	1.13			
Chippewa County (MI)					1,415	1,533

Zone 2 environmental considerations

Zone 2 includes a small part of the far northeast portion of Wisconsin and approximately the eastern two-thirds of the Upper Peninsula of Michigan. The Wisconsin portions of the zone fall into the Northeast Sands and North Central Forest ecological landscape regions. The portions of the zone located in Michigan are part of the Eastern Upper Peninsula eco-region. A description of the characteristics of the Eastern Upper Peninsula eco-region may be found on the Michigan Department of Environmental Quality Web page at http://www.michigan.gov/dnr/0,1607,7-153-10366_11865-31471--,00.html.

Large expanses of this zone are forested and there are large numbers of streams, lakes and wetlands throughout the zone. The Niagara Escarpment is situated in the Eastern Upper Peninsula. Lakes Superior, Huron and Michigan form the northern and eastern boundaries of the zone. Two Michigan State Natural Rivers (Fox and Two-Hearted) and nine National Wild and Scenic Rivers (Tahquamenon, Indian, Sturgeon, Whitefish, Yellow Dog, Ontonagon, Paint, Carp and North Sturgeon) are found in this zone. Portions of the Nicolet, Ottawa, and Hiawatha national forests, and numerous state forests and parks are found in this zone. Several Indian reservations are found in this zone. The Seney National Wildlife Area, Pictured Rocks National Lakeshore and numerous federal wilderness areas also are found in this zone.

Zone 2 electricity demand and generation

The coincident peak load forecasts for Zone 2 for 2009, 2013, 2018 and 2023 are shown in Table ZS-9. 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.

This table shows that load is projected to decrease at roughly 0.2 percent annually from 2009 through 2018. Comparing load with generation (at maximum output) within the zone indicates that Zone 2 has more generation than peak load, though actual operating experience indicates that during most periods, Zone 2 is a net importer of power.

Zone 2 transmission system issues

Key transmission facilities in Zone 2 include:

- the Morgan-Plains and Plains-Dead River 345-kV lines,
- the Plains-Stiles 138-kV double-circuit line and
- the 138-kV facilities tying the Upper Peninsula of Michigan to the Lower Peninsula.

Key system performance issues in Zone 2 include:

- limited import and export capability,
- aging 69-kV and 138-kV infrastructure throughout the Upper Peninsula,
- generator stability at the Presque Isle Power Plant,
- parallel path flow around Lake Michigan that contributes to heavy loading on the 138-kV and 69-kV systems, and results in the need for transmission loading relief incidents and reconfiguration of the system,
- record low Lake Superior water levels have resulted in reduced hydro generation output in the eastern U.P., magnifying reliability concerns in this area,
- low voltages, most pronounced in the western and eastern Upper Peninsula,
- potential low voltages and overloads in the northwestern U.P. due to recent load increases, and
- potential marginal voltages and overloads in the central U.P. due to recent load increases.