Michigan Electric Sales Forecast

Michigan Public Service Commission – May 2003

Commission Operations Division | Energy Data & Security Section

Introduction

This is a composite projection of Michigan total electric sales for the years 2003 through 2012. The projection is based primarily on forecasts prepared by Consumers Energy and Detroit Edison.

The purpose of this forecast is to provide information for policy development and for analysis of electric market issues. Electricity sales projections are needed to determine future power supply requirements. More detailed projections are also used for setting electricity rates and for assessing the adequacy of generating capacity and efforts to modify customer electricity demand.

This projection provides information on the market size and expected growth in both the Upper and Lower Peninsulas. In addition, Consumers Energy and Detroit Edison are shown separately, showing the major importance of Michigan's largest utilities in the Lower Peninsula market.

Michigan's Electric Market

As a result of Michigan's electric restructuring legislation, enacted into law in June 2000, a significant transformation is under way in the market for electricity. The legislation bifurcated the regulated market into a competitive price market and a traditional rate of return regulated price market.

The regulated market will continue to operate in much the same way as it has in the past. Electric customers may continue to purchase generation and distribution services (bundled service) from the same utility under a rate structure that is approved by either the state or a local unit of government.

Alternatively, retail customers may seek out lower prices or a better value on electric generation services by choosing to purchase this service from an alternative electric supplier (AES). The price of the generation service provided by AESs is not regulated, rather it is a market-based price. The distribution of the electricity supplied by an AES will continue to be provided by the local distribution utility under delivery rates that remain regulated. AESs may produce their own electricity or purchase it either in wholesale markets or under contract with another producer.

Michigan's Electric Utilities

Michigan total electric sales included in this outlook are bundled sales to retail customers by the three types of electric utilities in the state: investor-owned, member-owned cooperatives, and public-owned municipals. Investor-owned electric utilities, whose prices are regulated by the Michigan Public Service Commission, provide generation, transmission and distribution services. Cooperative electric utilities purchase most of their energy and are also subject to price regulation. Cooperatives operate in more sparsely populated rural areas. Municipal electric utilities are publicly owned nonprofit municipal government agencies and provide electric service to their communities and adjacent areas. Because municipal electric utilities are part of a local governmental unit, their prices are not regulated by the state. There are 60 electric utilities in Michigan. Thirty-nine are in the Lower Peninsula and 21 are in the Upper Peninsula. Electric service provided by Consumers Energy and Detroit Edison accounted for 81 percent of Michigan total electric sales in the year 2001. Upper Peninsula utilities account for about 6 percent, and the balance of Lower Peninsula utilities comprise about 12 percent of the state total.

Also included in this outlook are sales to retail customers by AESs. Twenty-five AESs have been licensed to sell electricity to retail customers. As of January 1, 2002, all retail customers in territories served by investor-owned utilities may choose to purchase electric generation service from an AES. However, electric choice activity has thus far been limited to territories served by Consumers Energy and Detroit Edison. For the purposes of this study, sales by AESs are sourced to, and included in the reported figures for, the electric utility into whose service territory the sales are made. At the end of 2002, there were 26 licensed AESs, although only 12 made retail sales. Sales by AESs totaled 5,357 GWh in 2002, or 4.9% of total sales and while small

today, this is an increase of 189% from the 2001 level of 1,851 GWh.

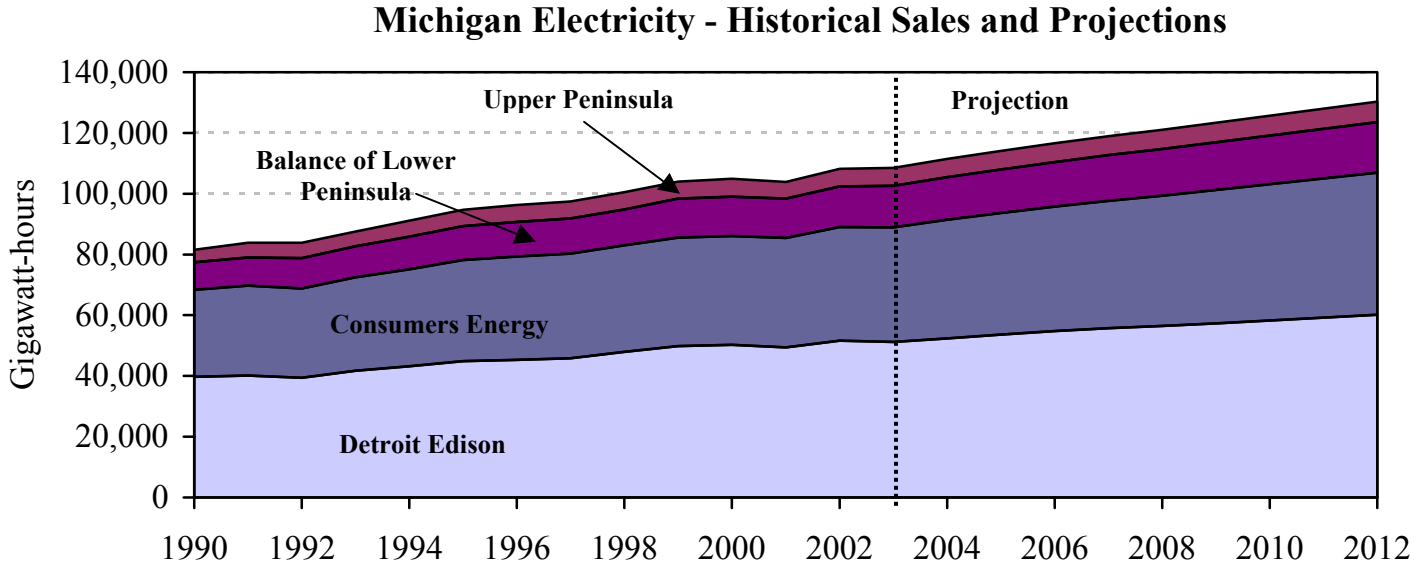
The electricity market is significant in Michigan's economy. At the current average price of 7 cents per kilowatt-hour, total revenues of Michigan utilities and AESs are nearly $7.5 billion per year. This represents about 2.5 percent of Michigan's total personal income of $303 billion for the year 2002.

Sales Forecast

Michigan's electric restructuring legislation allows existing utilities to retain the exclusive right to distribute power in their service area, but they no longer have the exclusive right to sell electricity generation services. Allowing customers to purchase generation services from other suppliers may significantly impact the amount of electricity generated by utilities in Michigan. Therefore, the projected sales reflect expected retail sales in a geographic area, but are not intended to reflect any shift in sales or the generation market share by the existing utilities. No attempt has been made to determine future shares in the competitive generation market.

Michigan's electric sales are projected to grow at an average annual rate of 1.9 percent from 2003 to 2012. Sales are expected to grow from 108,218 gigawatt-hours (GWh) in 2002 to 130,291 GWh in 2012, an increase of 22,073 GWh. This is less than the 2.6 percent annual average rate of growth in the ten-year period 1993-2002. However, the projected growth rate is just slightly less than in the 1998 to 2002 period, when sales grew an average of 2.1 percent per year. The two major company forecasts included in this projection show much different rates of growth, with Consumers Energy projecting annual sales growth of 2.3 percent and Detroit Edison projecting growth averaging 1.5 percent.

While the projected sales reflect long-term trends and are not intended to capture business cycle expansions or recessions, clearly both Consumers Energy and Detroit Edison are projecting a significant slowdown (and in the case of Detroit Edison a decline) in rate of electricity consumption in their respective service territories in 2003. This is largely driven by reduced consumption by residential customers. Warmer-than-normal temperatures in 2002 created additional demand that disappears when temperatures are assumed to return to the historical norm. In addition, Detroit Edison forecasts a decline in demand by commercial customers in 2003. The industrial sector is forecast by both firms to grow by the fastest rate among the three sectors in 2003, as well as throughout the remainder of the forecast horizon. Both firms project residential sales to grow by the slowest rate in each year of their forecasts.



Prepared by: Energy Data & Security Section, Michigan Public Service Commission, May 2003

Peak Demand and Load Factors

Peak electricity demand measures the maximum number of megawatts of electricity sold during any one-hour period throughout the year. It is a key parameter used by utilities to ensure adequate power will be available when needed. The figures illustrated in this study show the cumulative non-coincident peak demand for electricity in Michigan. Non-coincident peak measures the maximum demand for each utility during the hour when demand is the highest. Peak demand for one utility may occur during a different hour, or on a different day than peak demand for another utility. Therefore, unlike coincident peak demand, which measures the maximum demand for all utilities during the same hour on the same day, non-coincident peak can be viewed as the upper bound of coincident peak.

Unlike annual sales, which are influenced by weather patterns throughout the course of the year, peak demand is largely determined by weather extremes experienced at any one point during the year and usually occurs during an afternoon in July or August on a hot, humid weekday. Peak demand in 2002 is estimated to be 23,918, down more than 2.5% from the record peak of 24,547 in 2001. Peak demand has grown by an average of 2.5% per year over the past five years. This is slightly higher than the projected growth in peak demand over the next ten years of 2.3%.

The space heating requirements of a cold, snowy Michigan winter also creates higher levels of electricity sales. However, peak demand for the state is much lower in the winter than in the summer. In the Lower Peninsula over the past ten years peak winter demand has been 23% lower than peak summer demand. The opposite is true in the Upper Peninsula where over the past ten years winter peak has been more than 8 percent higher than summer peak demand. Winter peak demand for the entire state has grown by an average annual rate of 1.9% over the past ten years, and is projected to grow by a similar amount (1.8%) over the next ten years.

Load factor is a parameter that brings together annual sales and peak demand. It measures the ratio of average sales to peak sales during a year. There was sharp drop in the summer load factor for both the Upper and Lower Peninsulas in 2001. This was product of record peak demand combined with a year over year drop in annual sales. The summer load factor for both Peninsulas is projected to decline modestly over the next ten years as annual average growth in peak demand (2.3%) is expected to outpace average annual growth in annual sales (1.9%). Conversely, winter load factors are projected to grow modestly over the next ten years, as the average annual growth in winter peak demand (1.8%) is slightly less than the average annual growth in sales

Projection Methods

Historical Michigan electric sales data for 1990 through 2001 were compiled from the Form EIA-861 database from the Energy Information Administration, U.S. Department of Energy. Year 2002 sales data for Detroit Edison and Consumers Energy are from company reports.

The sales forecast for Detroit Edison for 2003 through 2007 is the company projection prepared in the third quarter of 2002. The Consumers Energy forecast for 2003 through the 2007 is the company projection prepared in November 2002. Each firm maintains its own forecasting model and uses information such as economic growth, housing starts and industrial production to generate sales projections. For the post-2007 period, both the Detroit Edison and Consumers Energy company projections are simply trended to 2012.

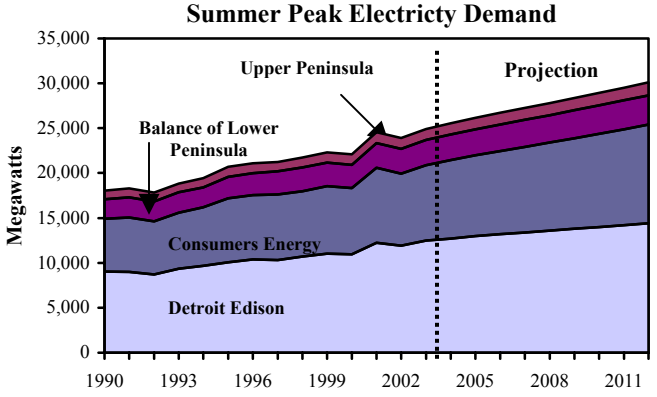
Projections for the other utilities were made by using a linear trend of the historic sales from 1990-2001. The simple trending of the sales data for a single utility is not seen as a method that would provide an acceptable planning projection for a small utility. However, summing these projections to a larger geographic area, in this case the Upper and Lower Peninsula totals, tends to remove the errors which are naturally induced when attempting to project electric sales or economic growth for small geographic areas. The aggregates of these individual utility trend projections for the Upper and Lower Peninsulas are a reasonable scenario of expected electricity sales growth for these two electricity markets.

Michigan Electric Peak Demand Forecast
(Non-coincident Peak in Megawatts)

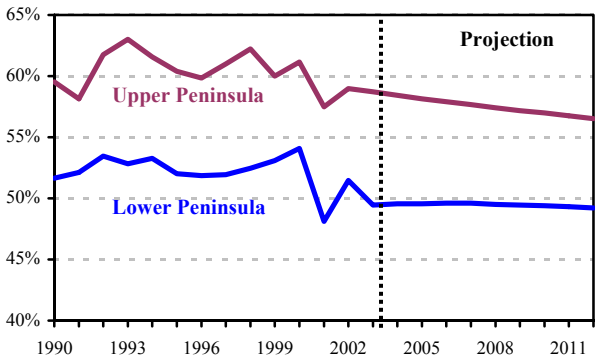
	Lower Peninsula		Upper Peninsula		Total	
Year	Summer	Winter	Summer	Winter	Summer	Winter
1990	17,103	13,446	802	896	17,905	14,342
1991	17,297	13,559	950	1,010	18,247	14,569
1992	16,825	13,913	934	1,028	17,759	14,941
1993	17,874	14,085	884	1,025	18,758	15,110
1994	18,407	14,619	979	1,116	19,386	15,735
1995	19,602	15,397	1,019	1,086	20,621	16,483
1996	19,970	15,546	1,062	1,142	21,032	16,688
1997	20,180	15,533	1,044	1,146	21,224	16,679
1998	20,624	16,070	1,046	1,166	21,670	17,236
1999	21,162	16,508	1,061	1,146	22,223	17,654
2000	20,904	16,768	1,090	1,188	21,994	17,956
2001	23,342	16,041	1,075	1,115	24,417	17,156
2002	22,704	16,834	1,137	1,218	23,841	18,052
---------- Forecast ----------						
2003	23,683	17,103	1,158	1,238	24,841	18,341
2004	24,289	17,396	1,180	1,258	25,469	18,654
2005	24,882	17,766	1,202	1,279	26,084	19,045
2006	25,415	18,130	1,224	1,298	26,639	19,428
2007	25,930	18,481	1,245	1,317	27,175	19,798
2008	26,454	18,820	1,267	1,337	27,721	20,157
2009	26,991	19,160	1,289	1,357	28,280	20,517
2010	27,538	19,504	1,310	1,377	28,848	20,881
2011	28,097	19,850	1,332	1,397	29,429	21,247
2012	28,667	20,200	1,354	1,417	30,021	21,617

Prepared by: Energy Data & Security Section, Michigan Public Service Commission
Sources: 1990-01, Energy Information Administration, U.S. DOE, Form EIA-861 Databas
Year 2002 Detroit Edison and Consumers Energy sales are from company documents
Year 2002 other areas are estimated. The forecasts covering the period 2003-2007 for Detroit Edison is the company forecast prepared in the third quarter 2002.
The forecasts covering the period 2003-2007 for Consumers Energy is the company forecast prepared in November 2002.

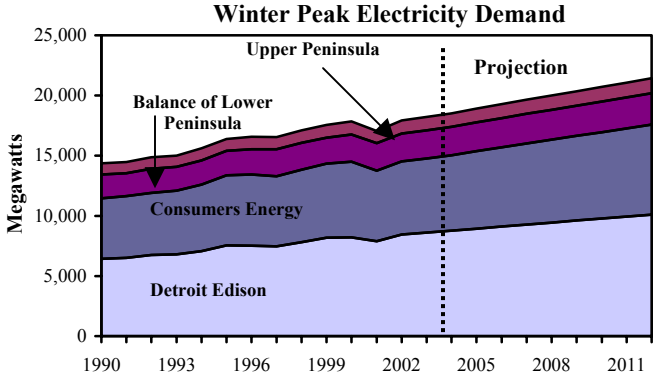
Michigan Non-coincident Summer Peak Electricty Demand



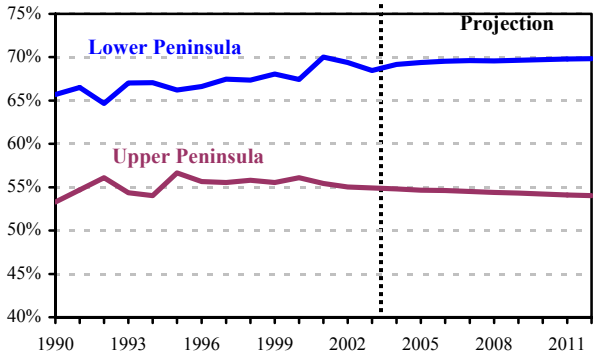
Summer Load Factors



Michigan Non-coincident Winter Peak Electricity Demand



Winter Load Factors



Michigan Statewide Electric Sales Forecast

Annual Sales (GWh)

Year	Detroit Edison	Consumers Energy	Balance of Lower Peninsula	Upper Peninsula	Total Sales	Percent Change
1990	39,674	28,668	9,048	4,183	81,573	
1991	40,135	29,593	9,258	4,838	83,824	2.8%
1992	39,377	29,428	9,983	5,052	83,840	0.0%
1993	41,716	30,729	10,263	4,880	87,588	4.5%
1994	43,211	31,932	10,735	5,281	91,159	4.1%
1995	44,926	33,266	11,119	5,390	94,701	3.9%
1996	45,328	34,015	11,392	5,567	96,302	1.7%
1997	45,822	34,451	11,539	5,578	97,390	1.1%
1998	47,905	35,061	11,838	5,702	100,506	3.2%
1999	49,822	35,755	12,827	5,577	103,981	3.5%
2000	50,211	35,894	12,942	5,839	104,886	0.9%
2001	49,358	36,087	12,946	5,415	103,806	-1.0%
2002	51,650	37,415	13,280	5,873	108,218	4.3%
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2003	51,145	37,800	13,620	5,957	108,522	0.3%
2004	52,401	39,060	13,960	6,040	111,461	2.7%
2005	53,573	40,126	14,301	6,123	114,123	2.4%
2006	54,728	41,067	14,641	6,209	116,645	2.2%
2007	55,717	41,976	14,981	6,289	118,963	2.0%
2008	56,428	42,941	15,322	6,372	121,063	1.8%
2009	57,350	43,903	15,662	6,456	123,371	1.9%
2010	58,271	44,865	16,003	6,539	125,678	1.9%
2011	59,193	45,827	16,343	6,622	127,985	1.8%
2012	60,114	46,789	16,683	6,705	130,291	1.8%
Compound Annual Growth Rates						
Previous five years	2.5%	1.7%	2.9%	1.2%	2.1%	
Previous ten years	2.8%	2.4%	2.9%	1.6%	2.6%	
Forecast ten years	1.5%	2.3%	2.3%	1.3%	1.9%	

Prepared by: Energy Data & Security Section, Michigan Public Service Commission, May 2003
Note: GWh is gigawatt-hour. One gigawatt-hour is one million kilowatt hours.
Sources: 1990-2001, Energy Information Administration, U.S. DOE, Form EIA-861 Database
Year 2002 Detroit Edison and Consumers Energy sales are from company documents. Year 2002 other areas are estimated.
The forecasts covering the period 2003-2007 for Detroit Edison is the company forecast prepared in the third quarter 2002.
The forecasts covering the period 2003-2007 for Consumers Energy is the company forecast prepared in November 2002.
The forecasts for the Balance of the Lower Penninsula and the Upper Pennsinsula for 2002-2012 and for Detroit Edison and Consumers Energy for 2008-2012 were derived using linear trend models.