S T A T E O F M I C H I G A N
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION
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In the matter, on the Commission's own motion, to require **THE DETROIT EDISON COMPANY** to provide electric power reliability information in its annual power quality report.	))))	Case No. U-16065
In the matter, on the Commission's own motion, to require **CONSUMERS ENERGY COMPANY** to provide electric power reliability information in its annual power quality report.	))))	Case No. U-16066

OPERATIONS AND WHOLESALE MARKETS DIVISION, ELECTRIC OPERATIONS files an amended Staff Report on the Status of Power Quality Report in Michigan for the original Staff Report filed on August 30, 2013.

The amended report includes information that was not included in the original Power Quality Report, but was intended to be included.

STAFF REPORT ON STATUS OF POWER QUALITY IN MICHIGAN

September 9, 2013

John Quackenbush, Chairman
Greg White, Commissioner
Sally Talberg, Commissioner

MICHIGAN PUBLIC SERVICE COMMISSION
Department of Licensing & Regulatory Affairs

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Executive Summary

On September 1, 2009 the Michigan Public Service Commission (Commission) in accordance with Section 10p of 2008 PA 286, MCL 460.10p (Act 286), submitted The Report on Status of Power Quality in Michigan to the Governor, House of Representatives, and Senate. This report provided the Commission's findings regarding electric power quality, service reliability and power plant generating cost efficiency and the consequent impact on end-use customers. Commission Staff met with Consumers Energy (Consumers) and DTE Electric employees annually on power quality and to review existing performance measurements for evaluating the service quality, and reliability of electric utilities operating in Michigan under the Commission's jurisdiction. In the 2009 report, the Commission suggested and adopted in subsequent Orders, Staff's recommendation to establish new reporting requirements for electric power quality and reliability for Michigan's two largest Investor Owned Utilities (IOU), DTE Electric and Consumers. These reports were filed annually beginning on April 1, 2010, and continued until April 1, 2013. Each annual report contained data on all primary customer power quality investigations conducted in the past year for end-use customers, derived from their power quality meters, and the outcome of such investigations, and three Institute of Electrical and Electronics Engineers ("IEEE") reliability indices, System Average Interruption Frequency Index ("SAIFI"), Customer Average Interruption Duration Index ("CAIDI") and System Average Interruption Duration Index ("SAIDI").

The following report outlines the Commission Staff's findings from meetings and the review of the annual reports provided by DTE Electric and Consumers in dockets U-16065 and U-16066 respectively. The report also discusses the power quality and reliability of utilities who voluntarily submitted their power quality and reliability data as part of the Commission's power quality meeting on May 21, 2013, at the Commission offices in Lansing, Michigan. Furthermore, the report has been expanded and examines power quality and reliability concerns, such as procurement of safe and reliable electricity for Michigan's Upper Peninsula. The report concludes with Staff's recommendations regarding continuation of these reports and the benefits associated with expanding the annual power quality reports to apply to all regulated electric utilities.

Introduction

Commission Staff reviewed the annual Consumers and DTE Electric power quality and reliability reports filed at the Commission each of the past four years to monitor power quality and electric reliability to monitor power quality and reliability. Staff met annually with the two major electric utility companies in order to discuss power quality and reliability issues occurring during the previous year. Staff also commonly reviews customer complaints to ensure there is not a power quality or reliability problem in each Company's respective service territories in Michigan. Staff notes that since annual filings of power quality and reliability data began in 2010, no formal complaints from customers have been filed at the Commission. Informal complaints are handled on a case by case basis, but most have dealt with reliability issues. To prepare for this report, Staff arranged for a formal meeting with Commission Staff and all interested parties, which was held at the Commission Office in Lansing to allow all parties to discuss power quality issues. It was well attended by Michigan utilities, ITC Holdings Corporation, Michigan Gas and Electric Association (MEGA), Michigan Electric Cooperative Association (MECA) and Association of Businesses Advocating Tariff Equality (ABATE). Power point presentations were made and discussions were held regarding power quality and no utility expressed any major power quality issues in the State at that meeting. MEGA represented most of the Upper Peninsula (U.P.) utilities, as well as their other member utilities, and their members presented the Staff with power quality and reliability data. Consumers and DTE Electric discussed with the group how they handle power quality and reliability issues internally. ITC Holdings Corporation also made a presentation on power quality and reliability issues on the transmission system.

POWER QUALITY

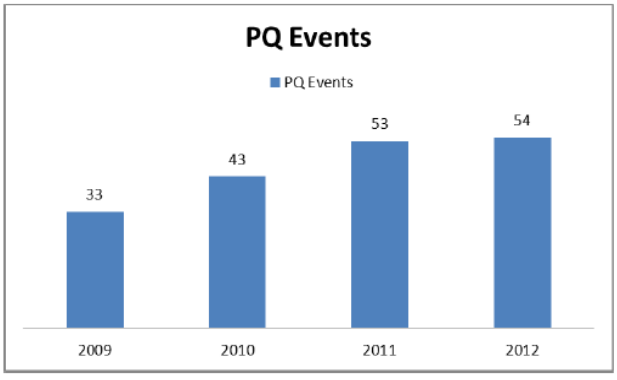
Power Quality

Voltage sags[1], which are the faults on the electric system, cause power quality events for both Consumers and DTE Electric. Power quality events are especially problematic for commercial and industrial customers as these customers have voltage sensitive equipment that can malfunction during an event. In light of this fact, each of two utilities puts voltage meters on the lines serving their largest customers to collect data. To ensure that they obtain data relating to power quality the meters are set to start collecting data at 87% of the normal voltage operation. Power quality issues rarely affect Michigan's residential customers because they can ride out momentary problems in power quality. If the power quality becomes very poor, residential customers will also complain to their utility and the MPSC as they will notice problems with their lights, appliances or televisions.

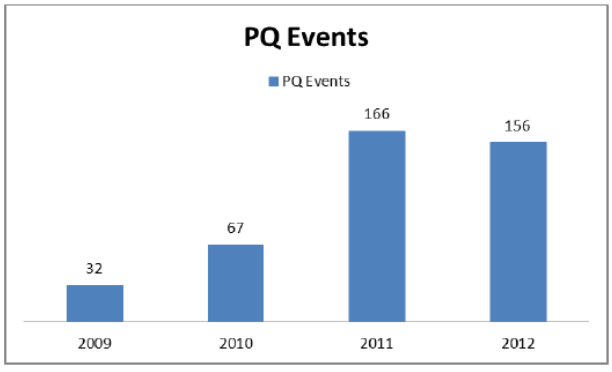
Voltage sags have negative repercussions for high tech manufacturing, which depend on computers to control the machining and manufacturing processes. ABATE states that a voltage sag event as short as 3 cycles, out of a total 60 cycles per second, can cause the circuit protection devices to open and turns the equipment offline. In large industrial locations, this will require the business to manually restart hundreds of robots, resulting in lost production time of up to three or four hours as well as large amounts of production scrap. ABATE also states that large scale battery backup equipment for these facilities is not feasible from a technological or cost standpoint. These types of incidents occur infrequently and do not affect residential customers. Since 2009, there has not been an increase in short frequency voltage drops incidents by the industrial sector reported to the Commission. The respective utility and manufacturing facility meet to determine cause as it can originate by either party. Once cause is determined, that party at fault develops a solution as it is unusually the least cost option.

When a power quality event occurs, both utilities have their own power quality procedures in place to determine the root cause of the problem and work with the customers to find a solution that works to solve the issue. When these issues are brought to the attention of the company, the problem is resolved as soon as possible. Below is the number of power quality events for each company for the past four years.

Consumers Energy



DTE Electric



[1] A voltage sag is not a complete interruption of voltage; it is a short voltage drop to between 90 percent and 10 percent of the nominal voltage with a duration of 0.5 to 3600 cycles. Most voltage sags are not less than 50 percent and have 3 to 10 cycle (50 to 170 millisecond) durations. .

Consumers Energy

Power quality issues are not widespread within their footprint, however, customer inquiries have increased as customers have reported more actual or perceived voltage sags, overvoltage, voltage transients, voltage flickers, high frequency noise, voltage unbalance, momentary outages, or equipment problems. Consumers' voltage meters continually monitors power quality at approximately 225 industrial and commercial locations that have primary metering. Consumers' power quality utility monitoring consists of a comprehensive process to monitor the electric system and provide customers with potential solutions to meet their needs. Consumers reviews daily reports from power quality meters and works with customer through the Consumers Corporate Account Managers, if a problem arises. On many occasions, the daily monitoring by Consumers' engineers has helped identify issues on the electric system. Consumers' has a good relationship with METC, LLC (a subsidiary of ITC Holdings Corp.), who is their transmission provider; to resolve any power quality issues that may arise on their system.

A review of reportable power quality events in 2012 revealed that 70% were electric faults or equipment malfunctions occurring on Consumers electric system and 30% of the reportable events were attributable to the customer's electric system. While equipment malfunction is one cause, a significant number of events are caused by lighting, windstorms, tree or animal contact and other third-party activities on utility system. Roughly 37% of problems on utility system were restored automatically by the electric system or required no repairs or modifications of the electric system.

Consumers' continues to implement technology as part of its ongoing electric system infrastructure improvements and is monitoring industry technology changes for potential application on the system. Consumers' recognizes that technology advancements present an opportunity to improve the overall service to customers. Digital Protective Relaying, Power Quality Metering, Distribution System Control and Data Acquisition (DSCADA) and Distribution Automation (Grid Modernization) are four technology applications the Company selectively utilizes to provide future benefits to improve both power quality and reliability for its customers.

DTE Electric

Power Quality Process: DTE Electric has a process that enables their large industrial and commercial customers to obtain resolution of power quality issues. These customers have an assigned account representative who connects them with the appropriate engineer in Distribution Operations. Once connected, the engineer gathers additional information about the power quality issue and works with the customer to resolve the problem.

PQ Monitoring: DTE Electric has an array of power quality meters across its system at key locations near industrial subtransmission and distribution buses. The power quality meters at the industrial locations allow DTE Electric to correlate recorded voltage sags with system events from the SCADA-Energy Management Systems. This provides them with information unique to the customer and a way to track

the performance of the system. This performance data is used to prioritize capital improvements and system maintenance.

The power quality meters on the subtransmission and distribution buses provide system performance data and the ability to calculate the probable locations of faults on the lines. This information reduces the time and cost to find causes of voltage sags and facilitates the repair of the system when necessary.

Voltage sags on the DTE Electric system can be correlated with faults on the ITC Transmission system as well. The power quality data is shared with ITC for the benefit of resolving power quality issues.

Upper Peninsula Utilities

Due to its geographic isolation and extreme climate, the Upper Peninsula has long been a difficult region to provide reliable electric service. In recent history numerous reliability issues have challenged the Upper Peninsula (U.P.) including; fuel procurement, limited ability to import/export power, overloaded lines, low system voltage, and aging infrastructure. These issues have ultimately led to customer power quality issues that utilities have had to address. In line with their Lower Peninsula counterparts, Upper Peninsula electric utilities handle power quality issues on a case-by-case basis. Due to the unique nature of each event, a case-by-case basis is the most effective response to power quality issues.

The U.P. utility footprint consists of 16,452 square miles and they serve nearly 300,000 residents of mostly rural, forested land. The most populated cities are Marquette (19,661), Sault Ste. Marie (16,542) and Escanaba (13,140). The U.P. load profile is primarily influenced by the relatively large volume of sales accounted for by the high-load-factor mines and paper mills. These loads have historically caused the U.P. to experience a relatively flat load curve, with a modest summer and winter peak. Over the past 120 years, 1200 MW of electric generating capacity was constructed in the U.P., satisfying a peak demand of approximately 1000 MW. These generators along with transmission lines and interconnections to the bulk electric grid provide electricity to 11 municipal utilities, 4 IOU and 3 co-op utilities in Michigan's Upper Peninsula.

The biggest reliability and power quality issue faced by the Upper Peninsula currently is the region's ability to efficiently import, export, and transmit power from its generation assets and bulk electric system. The area's isolation allows for very few interconnections to outside electric infrastructure, which renders the area vulnerable to large outages when these interconnections are compromised. This vulnerability was most recently exposed in May 2011 when a lightning strike took out a 138 kV line that connected the Upper Peninsula to Wisconsin. This outage affected over 80,000 customers because it coincided with a planned maintenance outage on the 345 kV system that also tied Michigan to Wisconsin. To address these vulnerabilities, electric utilities and transmission companies operating in the Upper Peninsula have collaborated to ensure adequate transmission and generation resources exist to meet current and projected demand growth for the Upper Peninsula. Wisconsin Electric Power Company, doing business as We Energies and Wolverine Power Cooperative have teamed to retrofit Presque Isle Power Plant, the Upper Peninsula's largest power plant, to continue to operate under upcoming EPA regulations. In addition, American Transmission Company (ATC), the primary transmission service

provider in the Upper Peninsula, has studied and proposed several projects to increase the areas import/export capabilities and optimize transmission capabilities across the Upper Peninsula. Most notable of the projects is the Bay Lake Project which consists of a 345 kV transmission line running from Green Bay, Wisconsin to Marquette, Michigan[2]. ATC is also working to strengthen the interconnection of Michigan's Upper and Lower Peninsula's through the use of Phase Angle Regulators near the Straits of Mackinaw[3] and upgrading 69 kV lines to 138 kV lines between St. Ignace and Rudyard to increase transport capabilities from east to west in the Upper Peninsula.[4]

Transmission and generation solutions to the area's reliability and power quality concerns are studied and approved on an annual basis through the Midcontinent Independent Service Operator (MISO) collaborative process. Reliability concerns for the Upper Peninsula were specifically addressed through MISO's Northern Area Study (NAS). The NAS analyzed the costs and benefits of potential reliability and market efficiency projects on an annual basis using multiple scenarios regarding transmission expansion, generation retirements and expansion, and demand changes. Projects identified as cost effective in the NAS are elevated in MISO's Transmission Expansion Planning (MTEP) process for further examination and final approval. A map of current transmission reliability projects and existing grid infrastructure in the Upper Peninsula can be found in Appendix A. Ongoing planning processes like the NAS and MTEP will continue to explore reliability concerns as they arise and help ensure the availability of safe, reliable, and cost-effective electricity to the Upper Peninsula.

Association of Businesses Advocating Tariff Equality (ABATE)

ABATE maintains that power quality remains an ongoing concern for their manufacturing business members and states that poor electric quality will be a deterrent to new businesses building manufacturing plants in Michigan. To ensure reliability, large industrial manufacturing customers have redundant power feeds into their facilities to provide backup power in case one feed does not operate. This allows continuous power into the facility and is a tool to help prevent total power outages to a business. ABATE maintains that power quality issues continue to cause trouble for their members, who suffer financial and time costs during a loss in production due to voltage sags.

ABATE believes that Michigan's performance with respect to limiting voltage sags is poor when compared to other states, but no documenting support was supplied with their comments. Staff believes that other states utilities adhere to the same IEEE industry standards of power quality as Michigan's utilities. All of Michigan's utilities are dedicated to finding the source of customer power quality and reliability issues and resolving them in a timely manner for their customers. ABATE did not submit specific data to support their assertions that new businesses are not coming or are leaving Michigan due to voltage sags exclusively and not because of economic or other factors.

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[2] http://www.atc-projects.com/projects/bay-lake/
[3] http://www.atc-projects.com/projects/straits-hvdc-flow-control-project/
[4] http://www.atc-projects.com/projects/straits-pine-river/

ABATE also suggested that the Commission create a website to collect voltage sag data for users to submit their data and experiences to be used for analysis. However, Staff believes that the Utilities current case-by-case method of handing power quality issues is the most effective solution. This ensures that each business has their individual power needs addressed and does not push a "one size fits all" approach to handling these power quality events. In addition, Consumers and DTE Electric have been filing their annual power quality reports in Dockets that are publicly available on the Commission's website. Furthermore, if an ABATE member believes their power quality issue is not resolved through the utility process, the MPSC complaint process can be used either formally or informally to work through issues. The MPSC has had no formal complaints by ABATE members and few informal complaints during the past four year study period.

RELIABILITY

Reliability

Defining Reliability

In its simplest form, electric reliability has been defined as the ability to instantaneously match capacity (generation) with customer demand (load). To those in the utility industry, reliability takes on a much more complex definition that conveys the true complexity of electric grid planning, design, and operations. The North American Electric Reliability Corporation's (NERC) definition of reliability is the current definition used by policy makers. NERC develops and enforces reliability standards; annually assesses seasonal and long-term reliability; monitors the bulk power system through system awareness, in order to ensure the continued reliable operations of the North American electric grid. According to NERC, electric reliability is composed of two elements: adequacy and security. Adequacy refers to having enough, whereas security reflects the ability of the system to withstand disturbances. These drivers of reliable electric service are important to policy makers as we continue to develop the grid to meet the everyday needs of the end customer.

Measuring Reliability

When an electrical fault occurs or the electric utility fails to manage the balance of capacity and load the customers will experience a lack of voltage or a power outage. The power outage serves as the foundation of nearly every reliability definition and provides an easily measurable event from which to measure system performance and develop industry standards. The most widely used industry standard for utility policy makers are the Institute of Electrical and Electronics Engineers (IEEE) Standard 1366. This standard provides a guide from which electric utilities can calculate multiple reliability indices regarding outage frequency and duration which can be benchmarked against other utilities and provide an ongoing record of individual system performance. The most common of the IEEE reliability indices used by policy makers to define reliability are; System Average Interruption Frequency Indices (SAIFI), System Average Interruption Duration Indices (SAIDI), and Customer Average Interruption Frequency Indices (CAIDI). These metrics provide regulators insight into the prominence of outages on a utility system and the utilities ability to react to outages and effectively restore service. The two largest regulated utilities in Michigan have been required to report these reliability metrics in Docket No. U-16065 and U-16066. These metrics are supplied for the years 2003-2012 in each respective docket. However, the power quality data has been only provided since 2010.

$$SAIFI = \frac{\sum Total\ Number\ of\ Customers\ Interrupted}{\text{Total Number of Customers Served}}$$

$$SAIDI = \frac{\sum Customer\ Interruption\ Durations}{\text{Total Number of Customers Served}}$$

$$CAIDI = \frac{\sum Customer\ Interruption\ Durations}{Total\ Number\ of\ Customers\ Interrupted}$$

Regulating Michigan Utility Reliability:

At the Michigan Public Service Commission there are two ways in which electric reliability is regulated. The first is through the approval of capital and operation and maintenance expenditures related to reliability based programs (i.e. line clearing, asset replacement, etc.). The Commission reviews testimony and metrics such as SAIDI, SAIFI, CAIDI to measure the need for increased reliability and the prudency of proposed reliability investments. The second way in which reliability is regulated at the MPSC is through the enforcement of the Service Quality and Reliability Standards for Electric Distribution Systems. These standards are used to define the reliability expectations for regulated utilities operating in the State of Michigan:

R 460.722 Unacceptable levels of performance during service interruptions.

It is an unacceptable level of performance for an electric utility to fail to meet any of the following service interruption standards:

(a) Considering data derived through the amalgamation of data from both normal and catastrophic conditions, an electric utility shall restore service within 36 hours to not less than 90% of its customers experiencing service interruptions.
(b) Considering data including only catastrophic conditions, an electric utility shall restore service within 60 hours to not less than 90% of its customers experiencing service interruptions.
(c) Considering data including only normal conditions, an electric utility shall restore service within 8 hours to not less than 90% of its customers experiencing service interruptions.
(d) Considering data derived through the amalgamation of data from both normal and catastrophic conditions, an electric utility shall not experience 5 or more same circuit repetitive interruptions in a 12 month period on more than 5% of its circuits.

R 460.744 Penalty for failure to restore service after an interruption due to catastrophic conditions.

Rule 44. Unless an electric utility requests a waiver pursuant to part 5 of these rules, an electric utility that fails to restore service to a customer within 120 hours after an interruption that occurred during the course of catastrophic conditions shall provide to any affected customer that notifies the utility of the interruption with a bill credit on the customer's next bill. The amount of the credit provided to a residential customer shall be the greater of $25.00 or the customer's monthly customer charge. The amount of the credit provided to any other distribution customer shall be the customer's minimum bill prorated on a daily basis.

R 460.745 Penalty for failure to restore service during normal conditions.

Rule 45. Unless an electric utility requests a waiver pursuant to part 5 of these rules, an electric utility that fails to restore service to a customer within 16 hours after an interruption that occurred during normal conditions shall provide to any affected customer that notifies the utility of the interruption a bill credit on the customer's next bill. The amount of the credit provided to a residential customer shall be the greater of $25.00 or the customer's monthly customer charge. The amount of the credit provided to any other distribution customer shall be the customer's minimum bill prorated on a daily basis.

R 460.746 Penalty for repetitive interruptions of the same circuit.

Rule 46. (1) Unless an electric utility requests a waiver pursuant to part 5 of these rules, a customer of an electric utility that experiences and notifies the utility of more than 7 interruptions in a 12-month period due to a same-circuit repetitive interruption shall be entitled to a billing credit on the customer's next bill. The amount of the credit provided to a residential customer shall be the greater of $25.00 or the customer's monthly customer charge. The amount of the credit provided to any other distribution customer shall be the customer's minimum bill prorated on a daily basis.
(2) Following provision of the billing credit to a customer experiencing more than 7 interruptions in a 12-month period due to a same-circuit repetitive interruption, the electric utility's interruption counter shall be reset to zero to ensure that another credit to the customer will be processed only after the occurrence of another 8 interruptions in a 12 month period.

Aside from regulating the electric reliability of Investor Owned Utilities through reliability standards and the rate case process, the MPSC has also opened numerous investigative dockets and performed numerous studies over the years to evaluate the economic and environmental benefits of baseline and additional reliability. On an annual basis the MPSC has issued an Order requiring all regulated electric utilities and alternative electric suppliers to file assessments of their ability to meet customers' expected electric load requirements[5]. This provides an easy method by which the MPSC can track supply reliability issues in the near term. The MPSC has also made numerous efforts to engage staff and other stakeholders in the state to investigate and report on the specific issues and potential solutions that could potentially affect reliability. The following reports commissioned by the MPSC explore issues affecting reliability in Michigan:

The Status of Power Quality in Michigan Report for U-15945
http://michigan.gov/documents/mpsc/MPSC_Report_on_Status_of_Power_Quality-Sept09_290870_7.pdf?20130709134044

2007 Report on the 21st Century Energy Plan
http://www.michigan.gov/documents/mpsc/21stcenturyenergyplan_185274_7.pdf

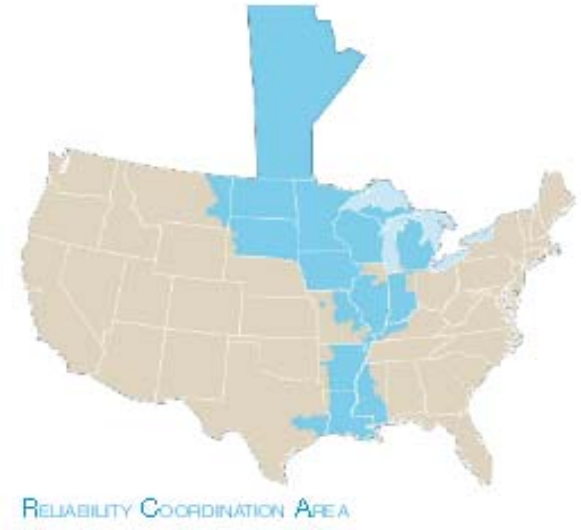
The topic of electric reliability in Michigan has also been explored in reports outside those performed by the MPSC. The following reports explore the reliability issues of Michigan electric system:

Market Structures and the 21st Century Energy Plan
http://www.michigan.gov/documents/energy/Mkt_Struct_21st_Cent_Engy_Plan_419046_7.pdf
Electric Restructuring in Michigan
http://www.michigan.gov/documents/energy/Electricity_Restructuring_in_Michigan_419044_7.pdf

[5] http://www.dleg.state.mi.us/mpsc/electric/capacity/

Regulating Regional Reliability[6]

Aside from the regulation of investor owned utilities in the State of Michigan, the MPSC also participates in regional efforts to ensure that there is an adequate supply of energy available throughout Michigan's Upper and Lower Peninsula's. Often referred to as the bulk electric system (100kV assets and above), the transmission and generation assets in the State of Michigan are under the authority of the North American Electric Reliability Corporation (NERC). NERC develops and enforces reliability standards; annually assesses seasonal and long-term reliability; monitors the bulk power system through system awareness. Part of NERC's oversight of the bulk electric system requires that there be an open and transparent transmission planning process that ultimately ties the state regulated distribution level grid to the generators. This requirement has led to the MPSC's participation in the Midcontinent Independent Service Operator's (MISO) Transmission Expansion Planning (MTEP) process.



The annual MISO Transmission Expansion Plan (MTEP) seeks to identify solutions to meet transmission needs efficiently and deliver the lowest-cost energy to customers in the MISO region. MISO engages with stakeholders through a comprehensive planning process to identify essential transmission projects necessary to provide reliable service over the 10 year planning horizon. MISO also publishes an annual Loss of Load Expectancy report that identifies the smallest planning reserve margin for reliable operations in the MISO footprint. This is another means of ensuring that there will be reliable and affordable energy available throughout the footprint during peak system days. Staff and Michigan Utility participation in these studies ensure that there will be an adequate supply of energy to all regions of Michigan well into the future.

[6] 2013 NERC Long Term Reliability Assessment (LTRA)
http://www.nerc.com/docs/risc/Item%202.b.iv%20-%202013%20Reliability%20Assessments%20Publication%20Schedule.pdf
2012 MISO Transmission Expansion Planning
https://www.midwestiso.org/Planning/TransmissionExpansionPlanning/Pages/MTEP12.aspx
2013 MISO Loss of Load Expectation
https://www.midwestiso.org/Library/Repository/Study/LOLE/2013%20LOLE%20Study%20Report.pdf

Consumers Energy

Since the inception of their annual filings of power quality and reliability data, Consumers implemented several tactics designed to improve its response to customer outages. Restoration pre-planning prior to expected weather events and regular weekend pre-planning was instituted to proactively establish response approaches based on anticipated weather impacts. The Company frequently considered and scheduled weekend work assignments to perform necessary work and to have line crews available for outage response during these non-standard work hours. Office and line crew resources were mobilized, in some cases, prior to weather events in areas expected to be impacted. The wire down process was enhanced by creating a new role of Wire Evaluator to increase flexibility of response resources during storms. Mobilizing additional line crews has been initiated earlier during or prior to weather events to increase resource availability in the initial phase of restoration.

Consumers' longer term goal is to attain an IEEE Benchmarking second quartile reliability performance by year 2017 in order to improve customer service and customer satisfaction as well as advance the reliability performance relative to their industry peers. In 2011, Consumers performance was ranked in the 4th quartile for utilities in the United States, meaning that at least 75-100% of electric utilities in the U.S. averaged lower minutes of interruption per customer served. As is shown in the table below, Consumers SAIDI improved in 2012. Consumers has been in the lower 50th percentile in the IEEE study from 2003-2011. SAIFI results showed Consumers ranked in 3rd quartile in 2011 and for CAIDI, Consumers ranked in the 4th quartile in 2011. Consumers 2012 SAIFI and CAIDI metering improved substantially in 2012. Consumers began in 2013 a ten year capital investment plan, some of which targets improving on reliability. Consumers is focusing on improved reliability through investments, system hardening[7], and regular maintenance programs as well as advanced utilization of electric system automation to improve reliability metrics to the benefit of their customers.

	All Conditions						Excluding Major Event Days per IEEE 1366-2003					
	SAIDI		SAIFI		CAIDI		SAIDI		SAIFI		CAIDI	
Year	Annual	5 Yr Avg.	Annual	5 Yr Avg.	Annual	5 Yr Avg.	Annual	5 Yr Avg.	Annual	5 Yr Avg.	Annual	5 Yr Avg.
2003	564	318	1.70	1.38	332	223	177	176	1.07	1.11	166	158
2004	363	339	1.37	1.39	264	236	197	186	1.11	1.13	178	164
2005	395	384	1.58	1.49	250	254	237	203	1.24	1.17	192	173
2006	647	464	1.72	1.56	375	293	269	215	1.26	1.16	213	184
2007	513	496	1.57	1.59	326	310	262	228	1.28	1.19	205	191
2008	710	525	1.50	1.55	473	338	281	249	1.08	1.19	260	210
2009	346	522	1.23	1.52	283	341	222	254	1.05	1.18	212	216
2010	463	536	1.40	1.48	331	358	216	250	1.04	1.14	207	220
2011	668	540	1.64	1.47	407	364	305	257	1.36	1.16	224	222
2012	508	539	1.38	1.43	369	372	204	245	1.06	1.12	192	219

[7] Improvements made to the system to improve its ability to withstand storms, high winds and tree interference.

Technology

Consumers' continues to implement technology as part of its ongoing electric system infrastructure improvements and monitors industry technology changes for potential application on the system. Currently, Consumers utilizes Digital Protective Relaying, Power Quality Metering, Distribution System Control and Data Acquisition (DSCADA) and Distribution Automation (Grid Modernization).

These technologies provide Consumers the ability to monitor faults at additional substations. Engineers are able to monitor and analyze the operation of the electric system in order to correct imbalance for open phases that could potentially create issues for the three phase customers. It also improves power quality by supporting balancing three phase current and voltage. Consumers' is also able to identify and repair protective equipment that is not operating correctly and preventing unplanned operations. These technologies have improved SAIFI and CAIDI results.

These technologies allow Consumers to improve the accuracy of fault locations during outages, allows them to automatically sectionalize which reduces crew response time, grants them the ability to remotely operate devices and reduces the time their line crew spends patrolling by specifying the fault location as opposed to patrolling the entire line.

DTE Electric

After a volatile weather year in 2011, DTE Electric's 2012 reliability indices improved across all six indices. To further improve these numbers, DTE Electric has instituted a Duration Reduction program that focuses on system modifications to enable faster restoration and to support their new "restore before repair" storm response initiative.

	All Weather						Excluding MEDs per IEEE 1366-2003					
	SAIFI		SAIDI		CAIDI		SAIFI		SAIDI		CAIDI	
Year	Year	5 yr Avg.	Year	5 yr Avg.	Year	5 yr Avg.	Year	5 yr Avg.	Year	5 yr Avg.	Year	5 yr Avg.
2001	0.87		227		263		0.70		162		232	
2002	1.01		457		452		0.76		202		266	
2003	1.11		987		891		0.75	0.70	195		262	
2004	0.95		363		381		0.70	0.70	156		223	
2005	1.03	0.99	303	467	295	456	0.88	0.76	194	182	220	241
2006	0.81	0.98	146	451	180	440	0.78	0.77	130	175	166	227
2007	1.02	0.98	280	416	275	404	0.87	0.80	168	169	193	213
2008	1.12	0.99	733	365	655	357	0.74	0.79	137	157	185	197
2009	0.84	0.96	306	354	366	354	0.61	0.78	127	151	208	194
2010	1.04	0.97	434	380	416	378	0.72	0.74	155	143	214	193
2011	1.33	1.07	606	472	455	433	0.92	0.77	211	160	230	206
2012	1.10	1.09	472	510	431	465	0.79	0.76	171	160	217	211

Notes: Excludes 2003 Blackout

DTE Electric has consistently been in the first quartile in outage frequency (SAIFI) and they have been in the first quartile in percentage of customers that experience frequent outages. However, DTE Electric takes longer than most utilities to restore customers as outage restoration times (CAIDI) are in the fourth quartile. This also has made minutes of interruption experienced by the average customer (SAIDI) too high, also fourth quartile. In 2012, DTE Electric undertook benchmarking against the best utilities to determine why this was occurring. Based on their benchmarking, DTE Electric developed a plan for investment and process improvement that will fundamentally improve performance. The execution began in 2012 and will be fully implemented in 2013. They have already seen continued improvement in customer satisfaction metrics and in the number MPSC complaints received. DTE Electric expects significant improvement in performance by 2015 as the investment program and other initiatives are rolled out.

Upper Peninsula Reliability

Presque Isle Power Plant (PIPP)—We Energies and Wolverine Power Cooperative announced their plans to add EPA required emission controls at the PIPP plant, which is funded by a transfer of a minority interest from We Energies to Wolverine Power Cooperative. This will preserve reliability through the continued availability of the 5 coal units with 344 MW of capacity as currently operated. The plant is located in Marquette and is interconnected to transmission facilities of the American Transmission Company (ATC). However, on September 1, 2013, Cliffs two mines were no longer customers of We Energies and will instead receive electric power from Integrys Energy Services Inc. Due to this development We Energies, has sought approval from MISO to suspend for economic reasons, operations of the 5 units at PIPP for 16 months. The planned suspension will begin on February 1, 2014 and operation will resume on June 1, 2015. This decision was driven by Cliffs Natural Resources opting to change the power supply for the area's Empire and Tilden mines. Due to special retail choice provisions applicable to We Energies, the utility will have lost 85% of the Michigan test year sales used in the utility's most completed rate case, U-16830. We Energies' concern is that not only are they impacted by the loss of over 85% of its projected Michigan sales, but also by an obligation imposed on the utility by MISO to continue operating and maintaining the PIPP to support the reliability of the electric system used to provide service to We Energies connected customers in the U.P. and to the rest of the MISO footprint. The outcome of this situation is ongoing and vigorous analysis and study is being undertaken by all involved. MISO and this Commission are committed to reliability for Michigan's Upper Peninsula customers.

Current Reliability Improvements

MISO Northern Area Study: MISO completed an evaluation of the economics of proposed transmission and generation over their Northern footprint in 2013. This study report noted that the commitment to keep the Presque Isle plant operational has reduced the urgent reliability needs for new UP transmission lines. Future projects to improve the link to the Lower Peninsula at the Straits of Mackinac are still being considered.

Upper Peninsula Reliability Data

Staff's analysis of the Upper Peninsula's reliability indices did not identify any significant reliability issues being experienced by the region. Utility reliability indices trended closely with their Lower Peninsula counterparts when major events are excluded from calculation and high when including major events. This type of trend is expected due to the harsher climate, geography, and dense vegetation present in the U.P. that increases the difficultly of storm restoration. Overall, reliability indices provided by UP utilities show under normal operating conditions (excluding major events) these utilities are effectively managing their outage frequency and durations. The one major anomaly in the U.P. reliability indices is the increase in outage frequency and duration witnesses in 2010-20122 when including major events. These increases are due to hurricane force winds and ice storms that plagued the area in late 2010 and the May 2011storm which caused a blackout that left approximately two-thirds of the U.P. to be without power. These catastrophic events are uncommon and unfairly skew reliability indices if not excluded from calculations as a "major event day". For this reason Staff prefers to analyze indices excluding these major events to understand the utilities ability to manage outages during day to day operations. Overall, the UP electric utilities have provided reliable electric service to their customers from 2008-2012 and frequent and persistent outages do not seem to be an issue. However, as we look to the future the problem with the U.P. is not in poor reliability indexes, but a capacity issue. This concern is being addressed by the MISO MTEP process, which will examine some of the solutions discovered in MISO's Northern Area Study talked about in a different portion of report.

WPS/UPPCo Reliability Data (excluding transmission related events)

	Including Major Events*			Excluding Major Events*		
Year	SAIDI	CAIDI	SAIFI	SAIDI	CAIDI	SAIFI
2008	145.56	105.80	1.38	145.56	105.80	1.38
2009	174.53	108.50	1.61	174.36	108.50	1.61
2010	472.75	243.97	1.94	127.46	102.96	1.24
2011	610.00	240.60	2.54	155.28	112.46	1.38
2012	211.36	128.86	1.64	188.56	119.33	1.58

*Data includes distribution system and substation feeder device operations. The data excludes transmission system events.

We Energies Reliability Data

		2008	2009	2010	2011	2012
SAIFI (Interruptions)	All	0.801	0.687	0.641	1.533	0.809
	No MED	0.801	0.687	0.431	0.987	0.809
	MED only	0.000	0.000	0.209	0.546	0.000
SAIDI (Minutes)	All	88.0	61.7	180.9	220.4	107.0
	No MED	88.0	61.7	75.9	157.0	107.0
	MED only	0.0	0.0	105.1	63.4	0.0
CAIDI (Minutes)	All	109.9	89.8	282.4	143.8	132.2
	No MED	109.9	89.8	175.8	159.1	132.2
	MED only	0.0	0.0	502.0	116.0	0.0

MED: Major Event Day – IEEEE 1366 Guide, 2.5 Beta Method
Indices include all sustained (>5 minute duration) for planned & unplanned outage events
Indices include interruptions caused by the transmission system (>69kV)

Northern States Power Company/Xcel Energy

Northern States Power Company, a Wisconsin corporation (NSPW) d/b/a Xcel Energy serves approximately 9,049 retail electric customers in Ontonagon and Gogebic Counties along the Wisconsin border of the U.P. This area is not interconnected at transmission voltage levels with the ATC U.P. system – it connects across the border to the distribution system in Wisconsin. The reliability indices for NSPW's system (includes Wisconsin and Michigan) are as follows:

	System Aggregate with Storms			System Aggregate without Storms		
Year	SAIFI (interruptions)	CAIDI (minutes)	SAIDI (minutes)	SAIFI	CAIDI	SAIDI
2012	1.95	163.86	156.40	0.68	117.20	80.13
2011	1.29	161.49	209.09	0.76	105.91	81.00
2010	1.16	232.60	270.51	0.70	134.39	94.37
2009	0.87	102.92	90.01	0.72	104.16	75.08
2008	1.19	130.47	155.09	0.94	97.08	91.72

TRANSMISSION

Michigan Transmission Companies

Michigan's utilities belong to two regional transmission organizations, or RTOs: the Midcontinent Independent Transmission System Operator, Inc. (MISO) and PJM Interconnection, LLC. (PJM). MISO is the primary RTO for Michigan with a small portion of Southwest Michigan served by the Indiana Michigan Power Company, a PJM member. The RTOs are responsible for coordinating, controlling and monitoring the electricity transmission grid at voltages higher than the typical energy provider's distribution system, and for moving electricity over large interstate areas.

Because Michigan customers are located in the RTO chosen by their incumbent transmission utility, they are subject to the RTO transmission provider tariffs and their associated voting rights, transmission project planning, cost allocation methodologies, and energy and capacity market structures. The requirements differ between MISO and PJM. The primary effect on Michigan from being in two RTOs is that the efficiencies gained by participation in an RTO are not fully available to Michigan. Michigan obtains some of the benefits of belonging to RTOs through the RTO-wide approach to transmission grid planning and management including: enhanced reliability, more efficient use of the region's existing transmission and generation assets, reduced need for new assets, and improved price and information transparency.

However, the division line, or seam, between the facilities operated by MISO and the facilities operated by PJM creates inefficiencies. Seams between the RTOs can prevent the most efficient inter-RTO dispatch of generation and optimal management of transmission facilities between the Lower Peninsula of Michigan and other states. A seam exists between Indiana Michigan Power Company, a PJM member, and the rest of the Lower Peninsula belonging to the MISO region. Seams issues also may have the effect of limiting access for some resources in Michigan to supply customers in PJM and limit PJM resources from supplying Michigan customers.

Seams management between RTOs is handled primarily by Joint Operating Agreements between the involved RTOs and their respective neighbors. These agreements tend to maintain distinct RTO characteristics except for a few defined areas. Implementation of FERC's Order 1000 is currently underway, with pending compliance filings by RTOs to correct deficiencies in regional and interregional transmission planning processes and cost allocation methods. MISO has a Seams Management Working Group to address seams issues. The Joint and Common Market Initiative between PJM and MISO has also been reconstituted. Both groups have been meeting regularly to address seams efficiency concerns and potential enhancements.

Michigan represents approximately 20.7% of total customers in the MISO service territory and approximately 0.21% of the total customers in the PJM service territory.

American Transmission Company (ATC)

ATC uses the SAIDI, SAIFI and CAIDI metrics for outages, limited to transmission reliability (T-metrics) that do not include additional impact of distribution outages. Excluding major events, the T-metrics for 2008-12 are:

Measure	2008-12 average	2012 level
T-SAIDI	27.68 minutes	20.55 minutes
T-CAIDI	125.92 minutes	61.41 minutes
T-SAIFI	0.241 outages/year	0.334 outages/year

Excludable events include:

1. Hurricane force winds on October 26-27, 2010
2. Ice storm on November 9-10, 2010
3. Blackout from Lightning Strike on May 10, 2011

ATC's footprint consists of 744 lines, 9,408 miles of line and 2,568,705 customers served. ATC's Planning Zone 2, which includes the entire Upper Peninsula, consists of 121 lines (16% of ATC's System), 2,172 miles of lines (23% of ATC's System) and 155,358 customers served (6% of ATC customer base). ATC participates in the SGS Statistical Services Transmission Reliability Benchmarking Study, which includes transmission companies representing 48% of U.S. transmission grid. Below are the ATC system-wide rankings from the 2012 SGS Benchmarking Study. ATC was ranked in the 1st quartile from 2007-2011. ATC takes a systematic approach in analyzing the forced outage event cause. Only 21% of Zone 2 outages occurred on fair weather days. Line improvement projects target frequent forced outage areas, which has led to improved reliability.

ATC Rankings Based on Average Circuit Outages (Automatic)						
Voltage Level	# of Circuits	2011	2010	2009	2008	2007
All Voltages	744	1st Quartile	1st Quartile	1st Quartile	1st Quartile	1st Quartile
69kV	310	1st Quartile	1st Quartile	Top Decile	1st Quartile	1st Quartile
100-161kV	386	Top Decile	Top Decile	Best in Class	Top Decile	Top Decile
230kV	2	N/A	N/A	Best in Class	Best in Class	4th Quartile
345kV	46	Top Decile	Top Decile	2nd Quartile	2nd Quartile	2nd Quartile
Total Forced Outages		506	443	369	498	517

ATC Reliability Improvements in the U.P.

Northern Umbrella Plan—A few years ago, ATC implemented their Northern Umbrella Plan to improve reliability and reduce transmission system constraints between the U.P. and Northern Wisconsin. This plan increased capacity from 180 MW to 500 MW and made it possible for several U.P. generation sources to retire.

ATC Zone 2 Projects: ATC's Zone 2 Planning area consists of the majority of the U.P. and a small portion of Northeast Wisconsin. ATC has proposed 20 system reliability projects for the U.P. between 2012 and 2026. ATC is constructing a portion of the Bay Lake project in Michigan, the Holmes-Old

Mead electric line, which runs from Menominee County to Escanaba and will reduce the likelihood of an event similar to the May 2011 outage[8].

ITC Holdings Corporation

ITC Holdings Corporation has two operating subsidiaries in Michigan: ITC Transmission (ITCT) and Michigan Electric Transmission Company (METC) – collectively known as ITC Michigan. ITC Michigan comprises 8,400 circuit miles and 269 substations serving most of Michigan's Lower Peninsula. ITC Michigan meets the transmission needs of wholesale transmission customers that include Consumers, DTE Electric, municipals, cooperatives and alternative electric suppliers in Michigan.

ITCT and METC participate in the annual SGS Statistical Services Transmission Reliability Benchmarking Study. Conducted since 1995, the SGS Study is the largest independent benchmarking forum for electric transmission reliability and provides a comprehensive reliability assessment at an operating company level. ITCT and METC outperformed both their region and peer group in 2012 in system reliability, as measured by the number of sustained outages per circuit and average circuit outage duration (in minutes).

ITC Michigan has made capital investments of $2.2 billion since inception, which has led to the improved reliability performance of the ITC Michigan systems. Noteworthy ITC Michigan projects that have helped the state's reliability profile include:

Simpson-Batavia Project – This project increased reliability to southwest Michigan in Branch and St. Joseph Counties by replacing older structures will steel monopole structures.

Genoa-Latson/Oakland-Tihart Projects – These projects improved reliability through three Michigan counties by replacing older H Frame poles and structures with steel monopoles. These projects also improved the lighting protection on the circuits (Oakland, Livingston, and Ingham).

Michigan's Thumb Loop – This project will increase the reliability profile in the state's Thumb region and increase the state's ability to interconnect renewable generation.

ITCT and METC also utilize a variety of transmission equipment to evaluate power quality issues and to provide its customers with the best possible service. For example, both companies use digital fault recorders and digital relays that allow the company to better determine the cause of a disturbance on its system. The recorders allow for quick retrieval of disturbance data and allow for the ability to analyze the disturbance. These devices retrieve more information and do it faster than existing analog devices.

Over 50% of the ITC Michigan protection systems have been upgraded to digital technology. The company plans to upgrade more of the system over the coming years. ITC Michigan has a communication network that allows quick access of disturbance data in order to dispatch a line crew to the trouble area. This technology also allows for the simulation of a system disturbance and its resulting

[8] See Appendix A

power quality event in order to determine appropriate corrective actions with the goal to reduce the number and duration of future disturbance events.

Multi-Protocol Label Switching (MPLS*)*

ITC Michigan adopted an Internet Protocol-based network that runs on a frame relay network technology. MPLS is a scalable broadband technology that promotes data movement from substation to control center facilities and systems with greater availability, monitoring and ability to design state of the art applications that support reliability. This technology provides the needed platform for future Smart Grid technology and applications to support it.

Intelligent Electronic Devices (IED's)

ITC Michigan has deployed intelligent electronic devices that are capable of detecting issues that if not corrected will lead to equipment failure. Data on the equipment (i.e., temperature, oil analysis, etc.) are provided in real time to analysis software that can identify where trending changes and anomalies in the date may indicate potential problems in specific pieces of equipment. This allows for the taking of preventative measures based on changes in key indicators instead of waiting for the equipment to fail. In addition, ITCT and METC have installed numerous new Remote Terminal Units (RTUs) to provide Supervisory Control and Data Acquisition (SCADA) data to their Energy Management System (EMS). These devices provide information from substations that is prioritized and monitored by the control room. This provides quicker analysis of events and more efficient response to power quality issues. For example, instead of seeing a generic trouble alarm, this technology will tell the transmission system operators the specific problem so that the appropriate response team is deployed. Also, system operators are able to use this technology to remotely operate equipment in the field to provide for faster restoration of service.

ITCT and METC will automate gathering of data from their digital devices (IED's) in order to help identify equipment problems and operating condition issues before there is a disturbance. This project is called the "Wavewin Project". The intent of this project is to develop further insight into the transmission system performance and its associated protection and control systems. The system will be managed and configured to auto retrieve, present data and results for system events to include approximate fault location of transmission lines.

State Estimator and Contingency Analysis

ITCT and METC also utilize State Estimator and Contingency Analysis to provide a clearer picture of the current operating condition of their transmission systems. The State Estimator filters raw SCADA data and provides thousands of data point to reflect the current transmission system condition. Contingency Analysis uses the State Estimator to analyze hundreds of contingencies at least once every 10 minutes to check the system status. It tests the system by simulating failure of individual grid components and provides feedback on potential impact, in order of severity, for both voltage and thermal rating limits.

ITC installed new RTUs and IEDs to provide Supervisory Control and Data Acquisition (SCADA) data to their Energy Management System (EMS). These devices provide information from substations that is prioritized and monitored by the ITC control room. ITC is then able to provide quicker analysis of events

and more efficient response to power quality issues. System Operators have great visualization of the electric system and equipment with greater specificity. For example, instead of seeing a generic trouble alarm, this technology will tell ITC System Operations the specific problem so that the appropriate response team is deployed. Also, they are able to use this technology to remotely operate equipment in the field to restore service.

Intelligent field devices provide ITC valuable information in order to determine the health of the devices on the transmission system and their interfaces to the power system. These devices are continuously monitoring the system parameters and pass this data via SCADA to the ITC Control Room.

ITCT and METC's Five Year Reliability Outage Performance Metrics

SYSTEM	Total Circuits	Total Length (miles)	Automatic Outages (momentary and sustained)	Momentary	Sustained	Outage per Circuit Mile
ITC Transmission						
2012	259	2,841	74	35	39	0.000101
2011	257	2,777	91	42	49	0.000128
2010	257	2,777	62	33	29	0.000087
2009	253	2735	77	32	45	0.000111
2008	251	2732	62	31	31	0.00009
5 Years	1277	13,862	366	173	193	0.000021
METC						
2012	255	5,629	97	64	33	0.000068
2011	251	5,589	131	87	44	0.000093
2010	251	5,599	123	80	43	0.000088
2009	247	5,579	109	68	41	0.000079
2008	241	5,556	120	72	48	0.00009
5 Years	1245	27,952	580	371	209	0.0000167

ITC Holdings Corporation has participated in the SGS Statistical Services Transmission Reliability Benchmarking Study annually. The participants in the SGS study represent nearly 48% of the U. S. transmission grid and ITCT and METC performed among the top 10% of companies nationally for number of sustained outages per circuit. Each system saw an improvement in performance compared to 2011. ITCT experienced a 21% reduction and METC experienced nearly a 28% reduction in average circuit sustained outages. The number of sustained outages experience on each system is trending downward. The ITC Michigan systems consistently outperform the region and peer group averages as it relates to the outage duration. Each system has been a top quartile performer since 2009. ITC Holdings has taken a systematic approach to outage reduction, using outage cause analysis and feedback into both the maintenance plan and capital improvements. Unplanned outages have been reduced and ITC Holdings' focus is on maintaining the current level of performance.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions & Recommendations

Staff has reviewed all submitted reliability and power quality information and believes that Consumers Energy and DTE Electric's efforts to improve reliability and power quality on their systems are sufficient. Both utilities continue to utilize annual system maintenance programs and upgrade their systems to meet customer needs as they arise. Staff will continue to meet with these utilities annually to review their planned projects and maintenance programs to ensure that they are maintaining or improving reliability. Each utility adheres to IEEE industry standards of power quality and have dedicated staff members to work directly with customers as power quality events arise.

Conversely, ABATE believes that Michigan's performance with respect to limiting voltage sags is poor when compared to other states, but no documenting support was supplied with their comments. Staff believes that other states utilities adhere to the same IEEE industry standards of power quality as Michigan's utilities. All of Michigan's utilities are dedicated to finding the source of customer power quality and reliability issues and resolving them in a timely manner for their customers. ABATE did not submit specific data to support their assertions that new businesses are not coming or are leaving Michigan due to voltage sags exclusively and not because of economic or other factors.

ABATE also suggested that the Commission create a website to collect voltage sag data for users to submit their data and experiences to be used for analysis. However, Staff believes that the current case-by-case method of handing power quality issues is the most effective solution. This ensures that each business has their individual power needs addressed and does not push a "one size fits all" approach to handling these power quality events. In addition, Consumers and DTE Electric have been filing their annual Power Quality reports in Dockets that are publicly available on the Commission's website.

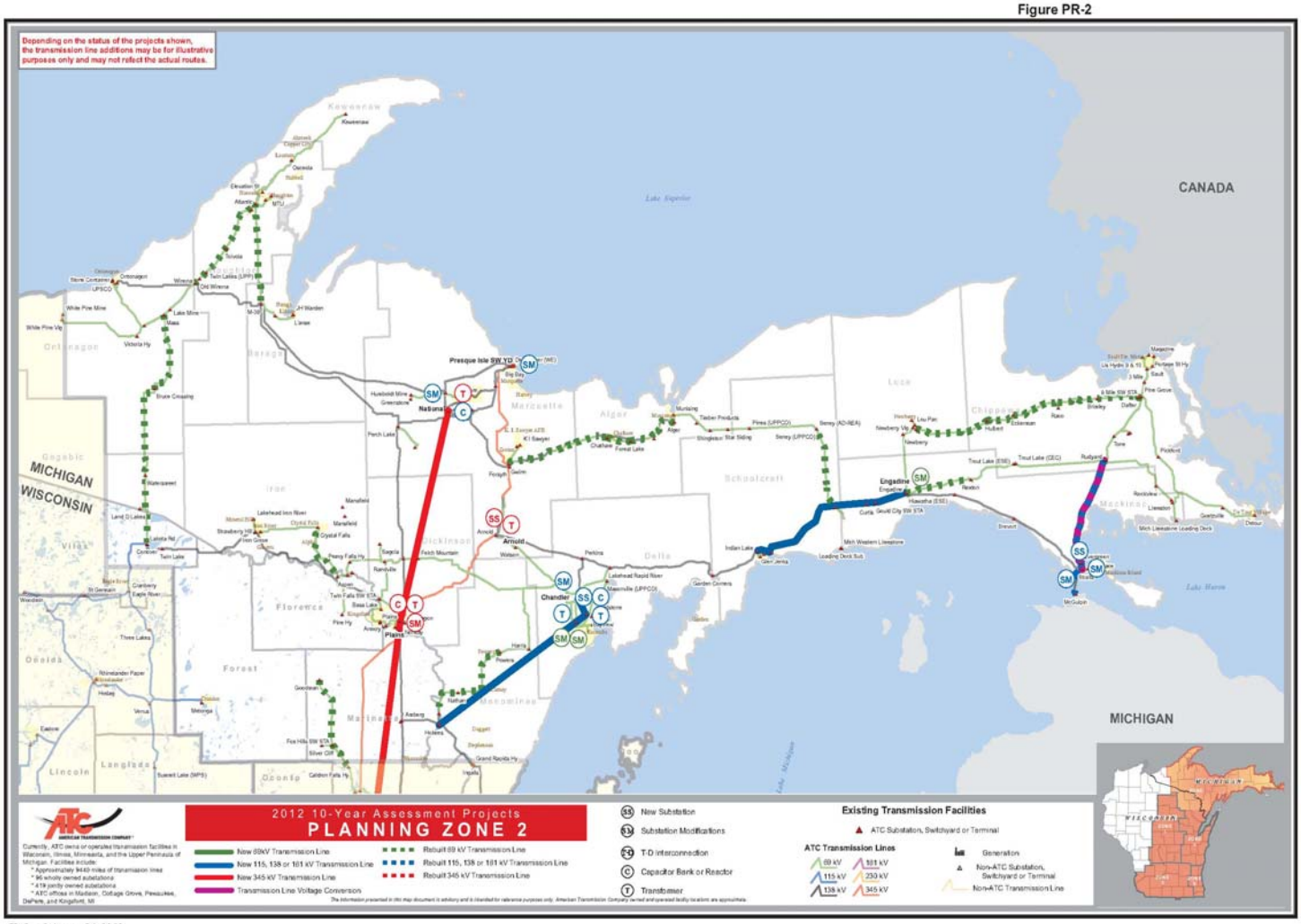
Staff recommends that the annual filing of power quality and reliability reports to the Michigan Public Service Commission be continued for Consumers and DTE Electric as outlined in the 2009 Power Quality Report. Staff also recommends the Commission consider expanding this reporting requirement to all regulated utilities operating within Michigan. Staff believes the accessibility of such power quality and reliability information that has been supplied by Consumers and DTE Electric is instrumental to regulators as they attempt to understand utility customer experience and the reasonableness of reliability based expenditures in company rate cases. In addition, it allows customers who have been affected by power quality to access utility data to see how the utility is faring in improving power quality and reliability. Without these reports, Commission staff will lose an important tool in measuring effectiveness of reliability based expenditures, which could have a negative impact on rate payers. Staff believes that the continued annual filing of this information is fundamental to effective electric regulation in the State of Michigan and recommends that it be expanded to all IOUs. The Commission does not regulate the transmission companies, ITC Holdings Corporation and ATC, but they have been very cooperative in providing reliability data to Commission Staff in the past on request. Since the transmission companies provide service to our regulated utilities, the Staff is very interested in their data and request that they continue to provide reliability data as requested by Staff in the future.

APPENDIX A:

ATC 2012

10-YEAR ASSESSMENT PROJECTS: ZONE 2

Figure PR-2



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