MI POWER GRID

Making the Most of Michigan's Energy Future

Service Quality & Reliability Standards Workgroup Meeting #3 U-20629

February 12, 2020

MPSC

Michigan Public Service Commission

Today's Agenda

Agenda Items		
1:00 pm	Welcome, Introduction and Recap	Charyl Kirkland Electric Operations Section
1:05 pm	Public Sector Consultants Multi-State Review: Service Quality, Reliability and Technical Standards for Electric Service	Eric Pardini Public Sector Consultants
2:00 pm	Momentary Outages and Definitions Presentation	Joseph Eto Lawrence Berkeley National Laboratory
2:45 pm	Break	
3:00 pm	January 24, 2020 Comments Summary	Charyl Kirkland Electric Operations Section
3:15 pm	Wire Down Relief & Outage Standards Subgroup Summaries	Charyl Kirkland Electric Operations Section
3:30 pm	Service Quality and Reliability: Definitions Updates	Charyl Kirkland Electric Operations Section
3:45 pm	Closing Statements / March 12th Meeting Overview	MPSC Staff
4:00 pm	Adjourn	

MI POWER GRID

Making the Most of Michigan's Energy Future

Eric Pardini
Public Sector Consultants

MPSC

Michigan Public Service Commission

Benchmarking Standards for Electric Distribution Utilities:

Service Quality, Reliability, and Technical Standards

Eric Pardini, Public Sector Consultants

Michigan Public Service Commission

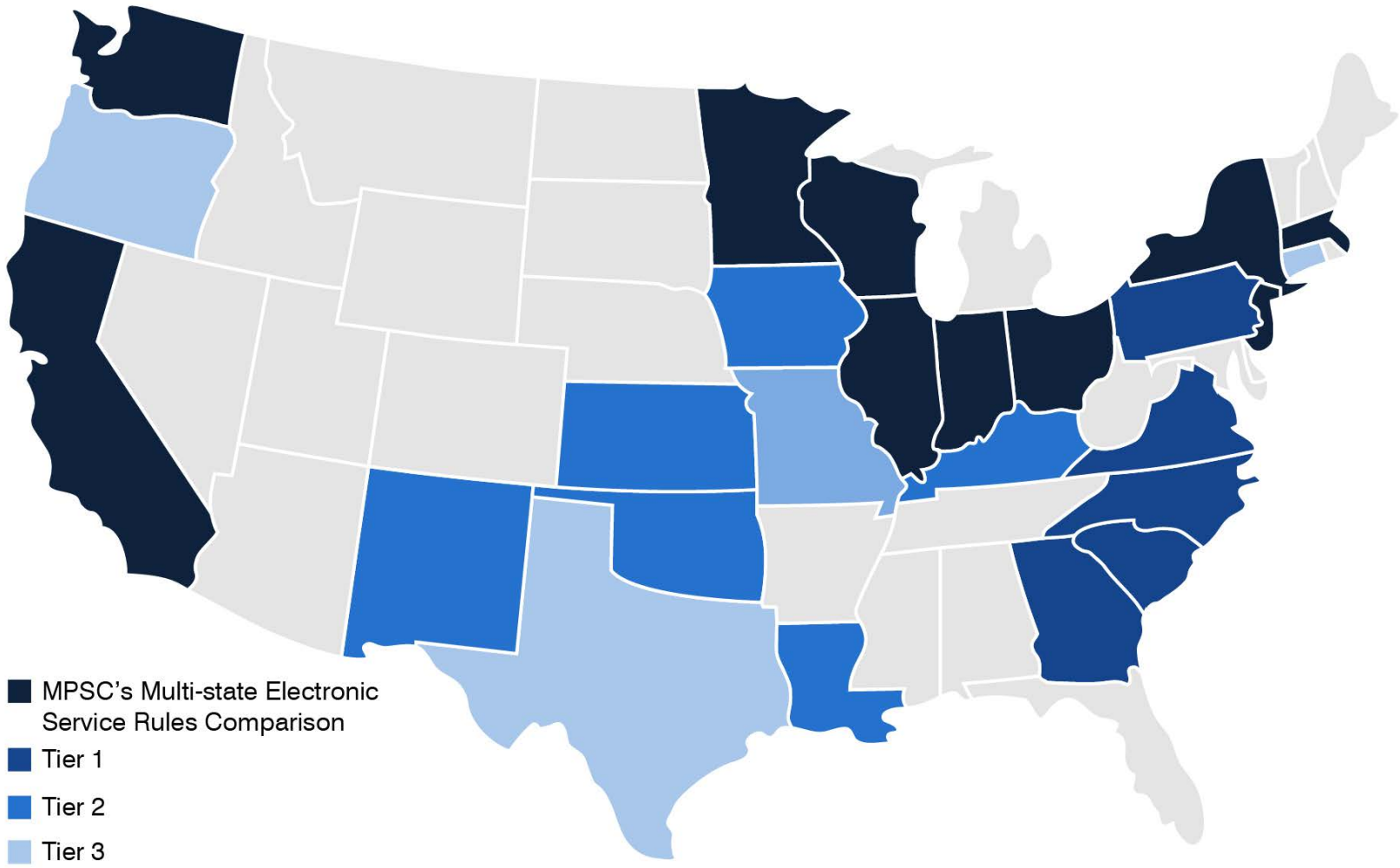
U-20629 and U-20630 Workgroup Meetings

Wednesday, January 12, 2020

Project Overview

- DTE Energy, Consumers Energy, and the Michigan Electric and Gas Association engaged Public Sector Consultants (PSC) to conduct a benchmarking analysis of Michigan's standards for electric distribution utilities.
- The study focuses on service quality, reliability, and technical standards, as discussed in the commission's September 11, 2019, order in case numbers U-20629 and U-20630.
- PSC reviewed rules and standards in 25 peer states.

Selected States



Study Components

- Executive summary
  - Key findings
  - Analysis of reliability performance
  - Summary of approaches to state standards
- Service quality and reliability standards
- Technical standards
- Appendices
  - Review of administrative procedures in selected states

Approaches to State Standards

Categorizing Approaches to State Standards

Group one: States that rely on detailed administrative rules to outline their service quality, reliability, and technical standards for electric utilities:

- Illinois
- Indiana
- Iowa
- Kentucky
- Michigan
- New Jersey
- New Mexico
- Pennsylvania
- Texas
- Wisconsin

Group two: States that primarily rely on administrative rules for establishing electric utility requirements, but do not have nearly the same level of detail as those in group one:

- California
- Connecticut
- Kansas
- Massachusetts
- Minnesota
- Missouri
- New York
- North Carolina
- Ohio
- Oklahoma
- Oregon
- South Carolina
- Virginia
- Washington

Group three: States that have very few, if any, established service quality, reliability, and technical standards:

- Georgia
- Louisiana

Approaches to State Standards

- States appear to use their rules and standards to dictate baseline quality and performance levels that utilities must maintain.
- By design, statewide standards do not lend themselves to utility-specific applications or guidelines for performance improvement.
- The rulemaking process also contributes to making statewide standards less flexible than other options to address utility performance.

Key Findings:
Service Quality and Reliability

Overview

- Despite the near ubiquity of service quality and reliability standards, there is a significant degree of variability among standards and between states, including Michigan.
- This presents an opportunity for Michigan to update and improve its own standards.

Performance Standards During Service Disruptions

- Michigan's standards define unacceptable performance levels for electric utilities during service disruptions and include requirements for planning and preparing for these disruptions and responding to outages.
- Most benchmarked states have requirements that govern utility performance and reliability; however, Michigan's approach to performance standards is unique from other benchmarked states.

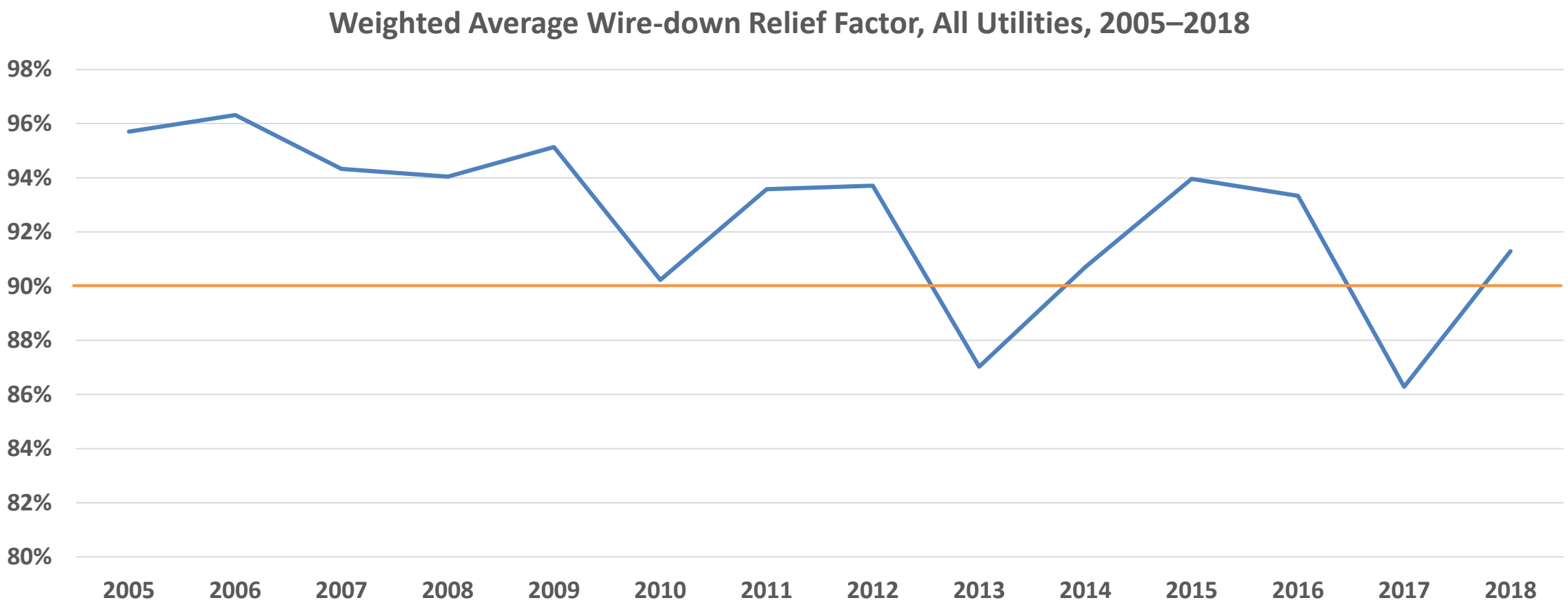
Performance Standards During Service Disruptions

- Michigan specifies required response times for service disruptions and outlines separate requirements under both normal and catastrophic conditions.
- None of the benchmarked states have a similar standard for service restoration. The term “catastrophic condition” also did not appear in any other state standards.
- Most of the states examined use industry-standard reliability indices to measure and report reliability performance.

Wire-down Response

- Michigan's standard sets a prescriptive approach to wire-down response and maintains different response requirements depending on location.
- Only Massachusetts specifies a wire-down response requirement.
  - Three-level priority response system
- Michigan's service quality and reliability standards do not prioritize emergency response planning and preparation to the extent found in most benchmarked states.

Wire-down Relief Factor

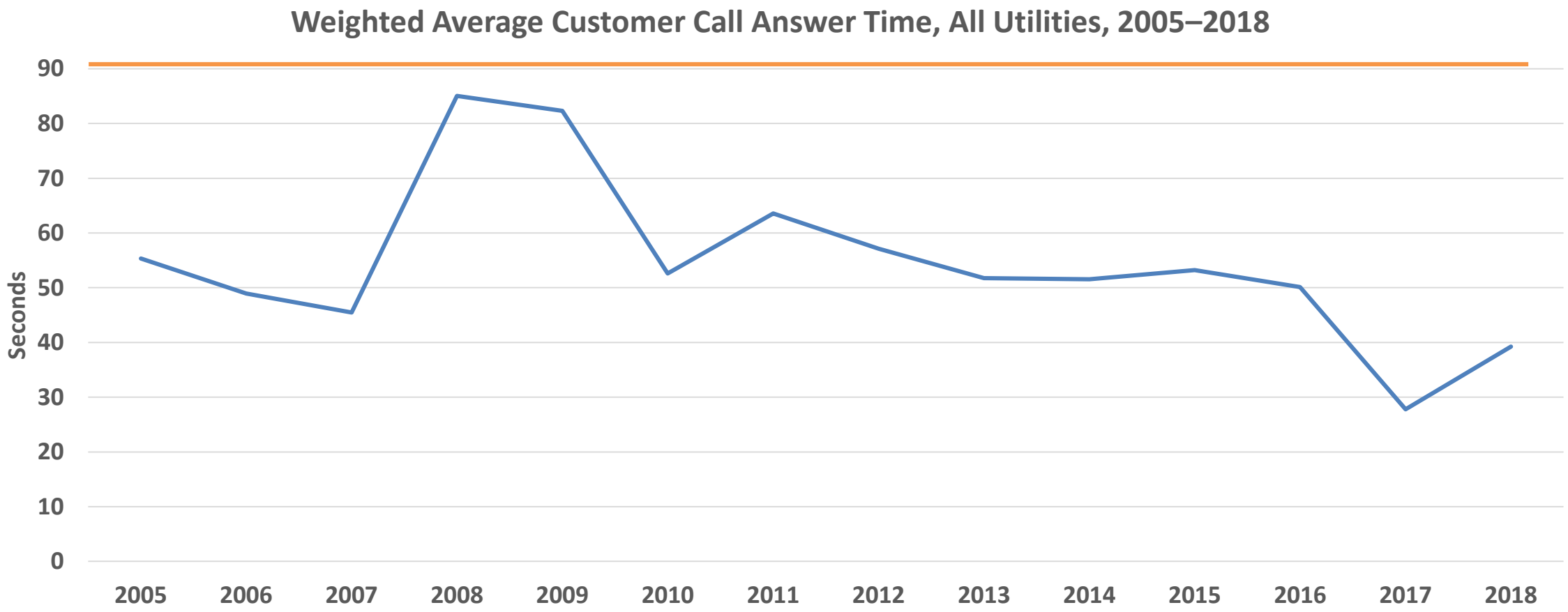


Source: PSC analysis of annual performance reporting in Michigan Public Service Commission (MPSC) case number U-12270

Unacceptable Service Quality Performance Levels

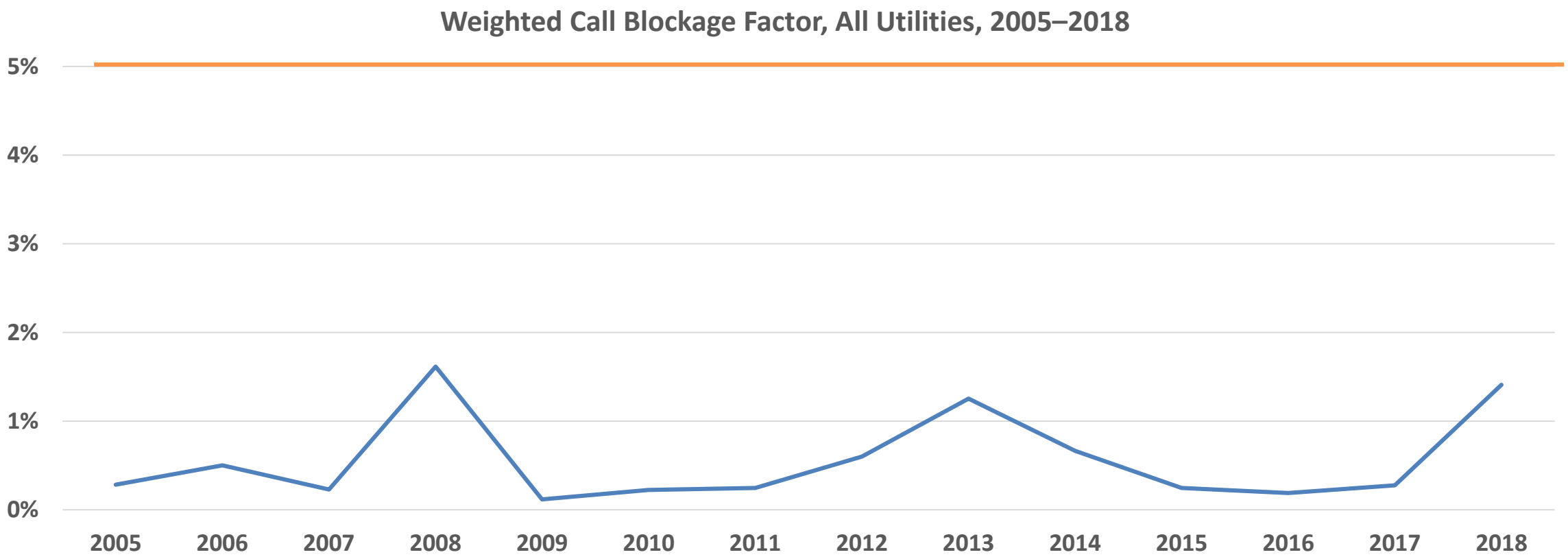
- Michigan's standards include requirements for answering customer calls, responding to complaints, reading meters, and installing new service.
- Michigan was one of only five states with a standard for average customer call answer time and one of three states with a call blockage standard.
- Examination of these standards raises questions about whether customer call answer time or blockage factor are the best metrics for ensuring customer satisfaction.

Customer Call Answer Time



Source: PSC analysis of annual performance reporting in MPSC case number U-12270

Call Blockage Factor

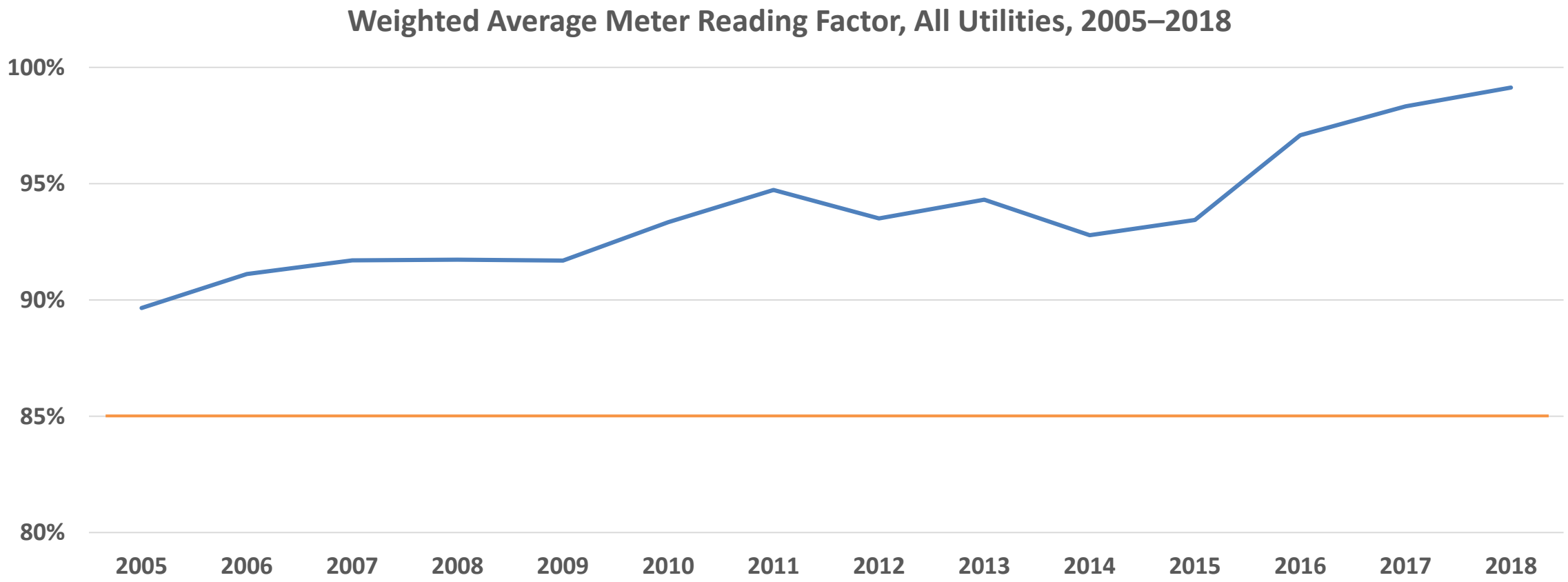


Source: PSC analysis of annual performance reporting in MPSC case number U-12270

Unacceptable Service Quality Performance Levels

- Meter reading requirements illustrate how Michigan's service quality and reliability standards are some of the most detailed across all benchmarked states.
- Only Minnesota has a similar standard, specifying the percentage of meters that must be read during a given year.
- The more common approach to ensuring meters are read and that customer bills are accurate is for utilities to make reasonable efforts to read a meter and work with customers if the meter is inaccessible.

Meter Reading Factor



Source: PSC analysis of annual performance reporting in MPSC case number U-12270

Financial Incentives

- Michigan Rules 460.741–748 define available incentives for electric utilities when they exceed service quality and reliability standards.
  - These standards establish required performance levels for utilities and processes for the MPSC to authorize incentives.
- PSC was unable to identify similar standards in any benchmarked state.
- Of the four states that allow incentives, none address them through administrative rules; instead, they are handled through regulatory proceedings and applied on a more limited basis.

Financial Penalties

- Michigan's standards include a penalty structure if utilities fail to meet required performance criteria for service restoration and same-circuit interruptions.
- PSC's suggests that "customer bill credits" would be a more appropriate name than "penalties," as references to penalties found in other states did not include customer bill credits.
- PSC found only one state with a standard relating to customer bill credits.
- While other states do address customer credits, they are detailed in separate utility filings.

Key Findings:
Technical Standards

Overview

- Michigan's *Technical Standards for Electric Service* establishes key parameters for:
  - State utility operations
  - Meter testing and accuracy requirements
  - The electric grid's operational characteristics, engineering, and maintenance
  - Service provision for customers
  - Record keeping and reporting
- Michigan's standards offer more specific and prescriptive requirements than benchmarked states.

Records and Reports

- Records and reporting requirements are common across all states' standards for electric utilities.
- The notable difference between Michigan and other states is that Michigan specifies requirements related to the retention and availability of technical standard records.
  - Annual construction budgets
  - Electric service monthly reports

Records and Reports

- Michigan is one of the first states to develop a cybersecurity standard (R 460.3205) and is unique in using rules to require security and cybersecurity reporting.
- Only two other states mention cybersecurity in their standards, but they do not have similarly detailed reporting requirements.
- Most states choose to address cybersecurity through dedicated regulatory proceedings instead of statewide standards.

Meter Requirements

- Standards for meter requirements, inaccuracies, and billing adjustments are relatively uniform across benchmarked states.
  - Billing adjustment calculations (and notification) has the most variability.
- Despite the ubiquity of metering infrastructure, there are notable differences in how states approach these requirements.
- Michigan's technical standards include two separate sections related to metering
  - Part three provides meter requirements (R 460.3301–3309).
  - Part six outlines equipment testing and accuracy (R 460.3601–3618).

Meter Requirements

- While the individual components of Rules 460.3303 and 460.3615 are different, the underlying requirement is the same: Utilities must maintain meter data.
- The point of comparison between the two data sets is that all meter reading information must be recorded with identification of the meter.
- Functionally, these data sets could be combined for the sake of data collection and retention and then be reported, as needed, for meter reads or equipment records.

Meter Requirements

- The other significant element of metering equipment standards is how states address metering inaccuracies and provide billing adjustments for customers (R 460.3309).
- States often provide a formula for calculating the period of a billing adjustment based on an administratively set cap as well as the last point a meter was known to be working.
  - Michigan allows adjustments for up to six years—the longest time frame PSC identified—with the most common period being one to two years.
- State standards also vary in terms of whether utilities are required to adjust bills for current or previous customers.
  - Michigan was one of five states that requires utilities to try to communicate billing adjustments with former customers.

Customer Relations

- Michigan's standards for extending services demonstrate two differing approaches:
  - Rule 460.3410 requires commission approval.
  - Rule 460.3411 prescribes specific requirements.
- Rule 460.3410 establishes requirements for utilities when investment in new service exceeds what is provided in normal rates and requires the customer to pay incremental costs for charges incurred.
  - This rule does not detail specific requirements for determining excess costs, but it does require utilities to submit a plan for state regulator review—a standard that aligns with several other states.

Customer Relations

- Rule 460.3411 provides detailed requirements for electric service extension to new customers.
- No other benchmarked state has a standard that provides the same level of detail for extending utility service as Michigan does.
- Several states have standards to prevent duplication of service, but, in general, service extension provisions found in peer states more closely resemble Rule 460.3410, providing broad guidance for utilities and enabling state regulators to make the ultimate decision on extension.

Engineering Standards

- Michigan and half of the benchmarked states have a standard that requires utilities to have a line clearance program.
- Michigan's standard (R 460.3505) is less detailed than other states, and—in lieu of state-specific detail—references the National Electrical Safety Code® standard.
- Several states provide more detail for vegetation management programs, including requirements that utilities assess the results of their plans, target improvements to the most affected grid areas, and work with communities to ensure vegetation management receives customer buy-in.

Metering Equipment Inspections and Tests

- There is significant variation in state standards related to metering equipment inspections and tests:
  - Eleven states have detailed standards that specify requirements related to equipment and testing parameters.
  - Eight have more limited rules for testing metering equipment, but they often grant authority to state regulators or rely on national standards.
- The most prominent aspect of Michigan's meter equipment inspection and test standards is the number of explicitly referenced meter types and associated equipment.

Service Quality Standards

- Michigan is not alone in having standards for operating frequency or service voltage (R 460.3701-3702).
- Several states have opted to approach these standards differently, allowing utilities to operate in accordance with other approved national or regional standards.
- Michigan could consider incorporating similar standards for all aspects of this section without risking substantive change to existing ones.

Safety Standards

- Rule 460.3802 requires utilities to comply with the Michigan Occupational Safety and Health Act (MIOSHA) as well as relevant federal health and safety laws and regulations.
- Only four states have similar requirements, which is likely because these guidelines are already articulated in other applicable statutes or regulations.
- As Michigan utilities are already subject to MIOSHA and federal rules and regulations, the state could consider removing this standard, as it does not articulate any additional requirements or reporting.

Questions?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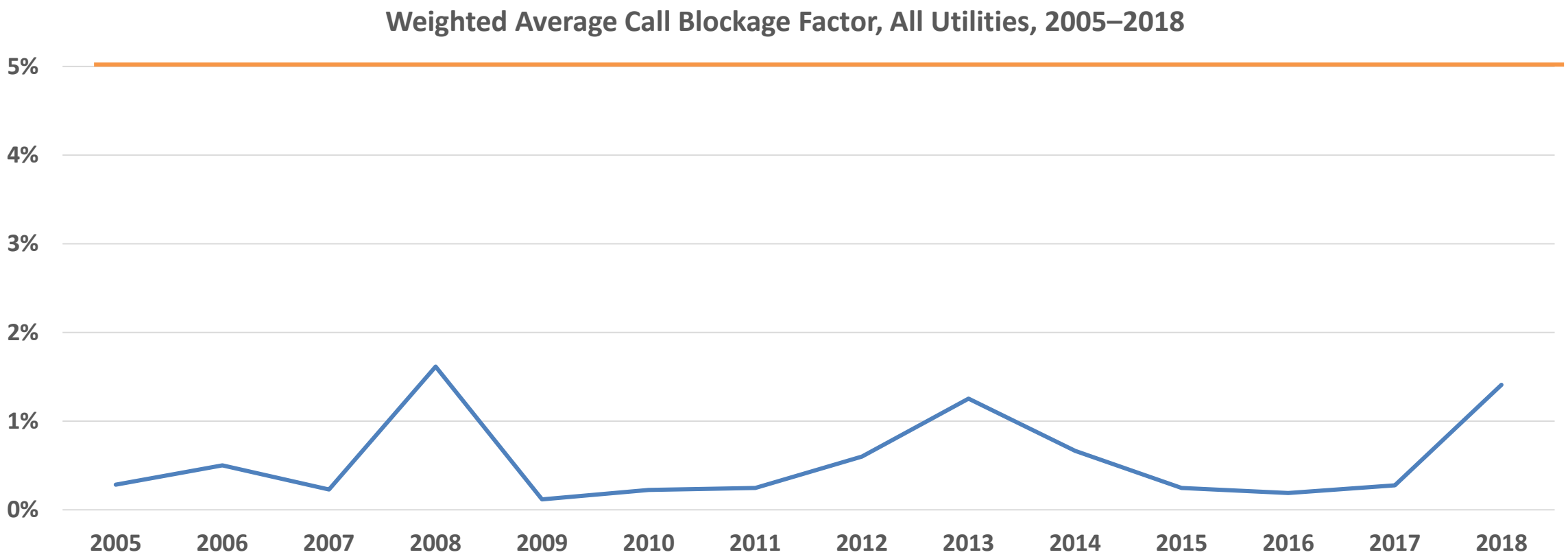
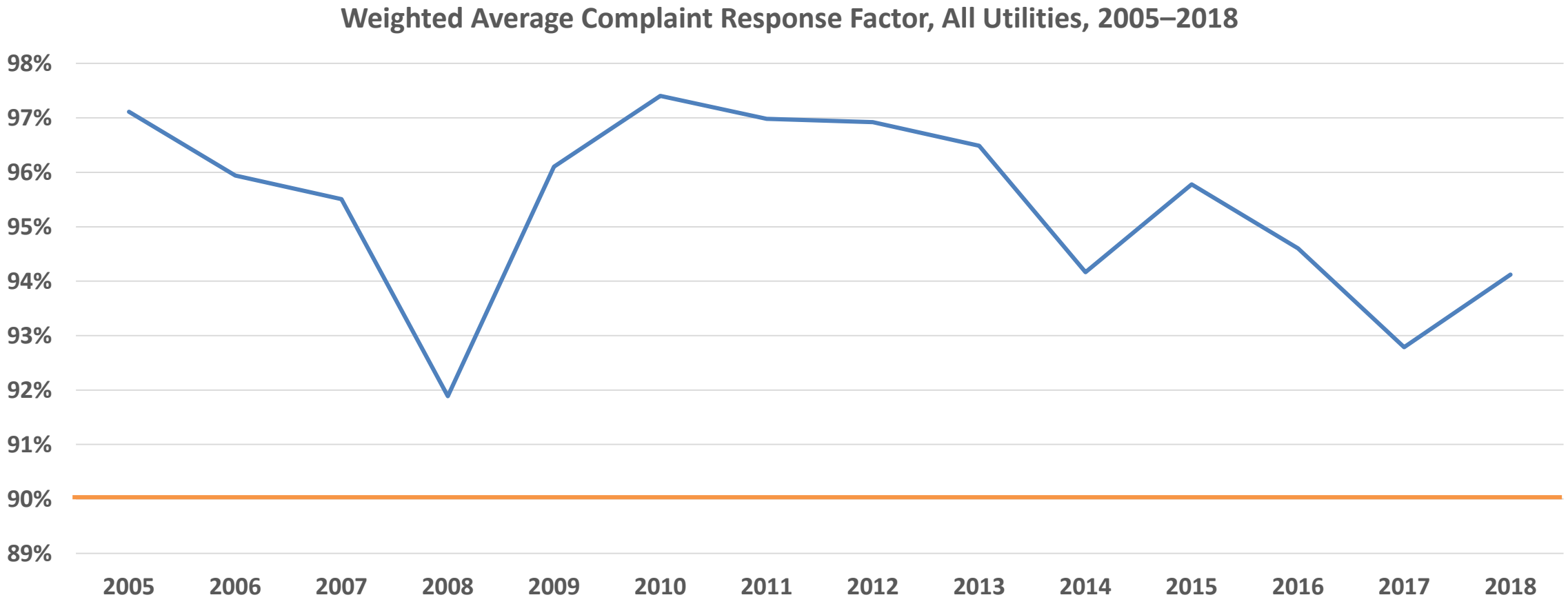
Reliability Performance Reporting

Call Blockage Factor



Source: PSC analysis of annual performance reporting in MPSC case number U-12270

Complaint Response Factor



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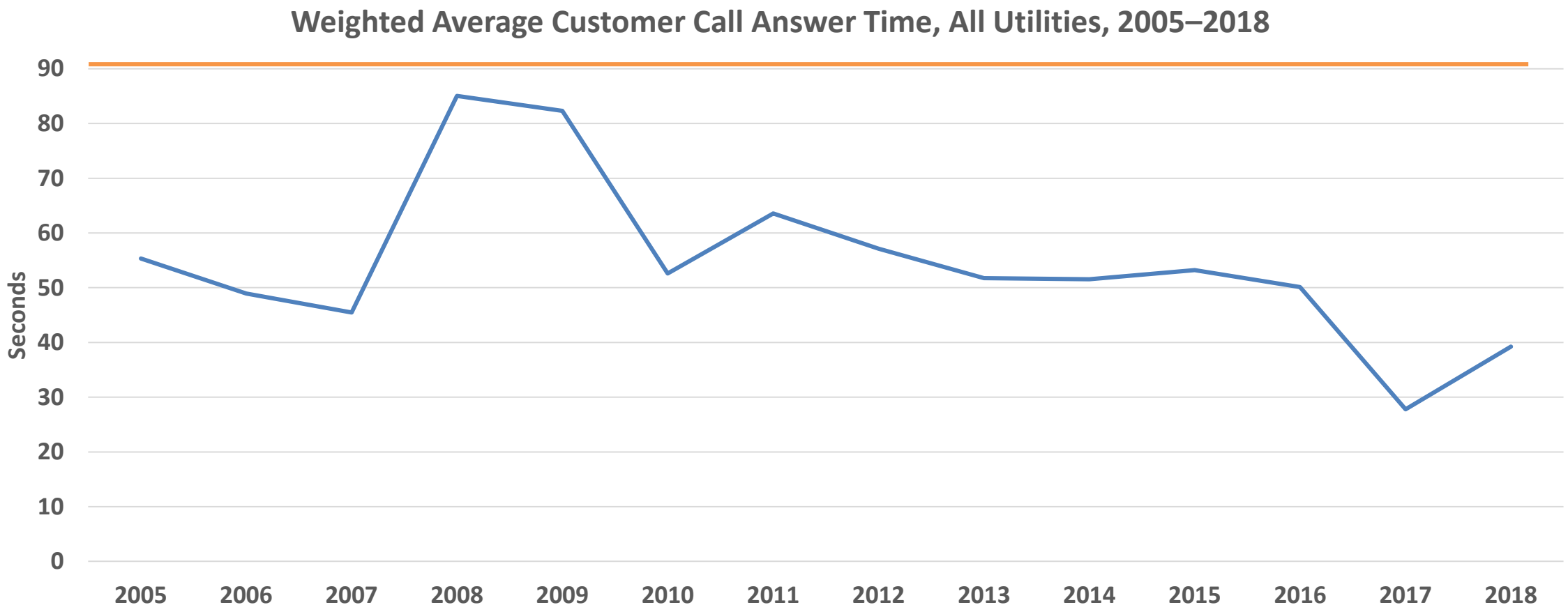
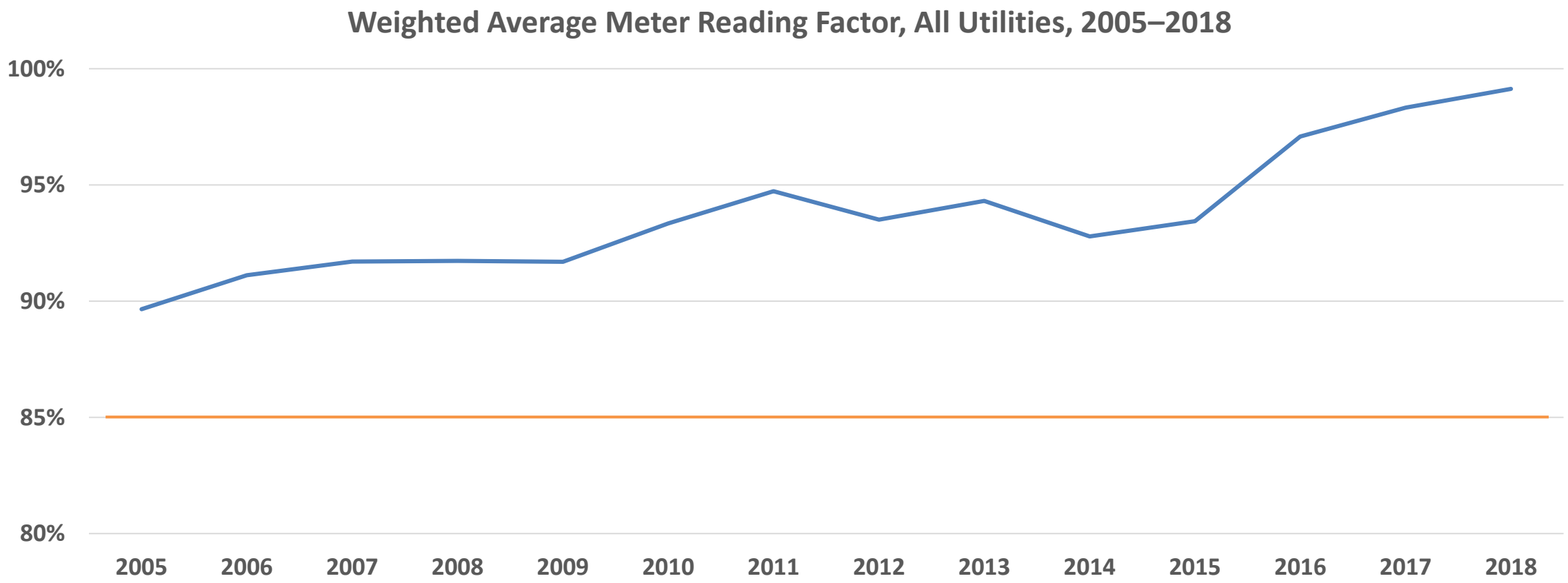
Average Customer Call Answer Time Factor



Source: PSC analysis of annual performance reporting in MPSC case number U-12270

Meter Reading Factor



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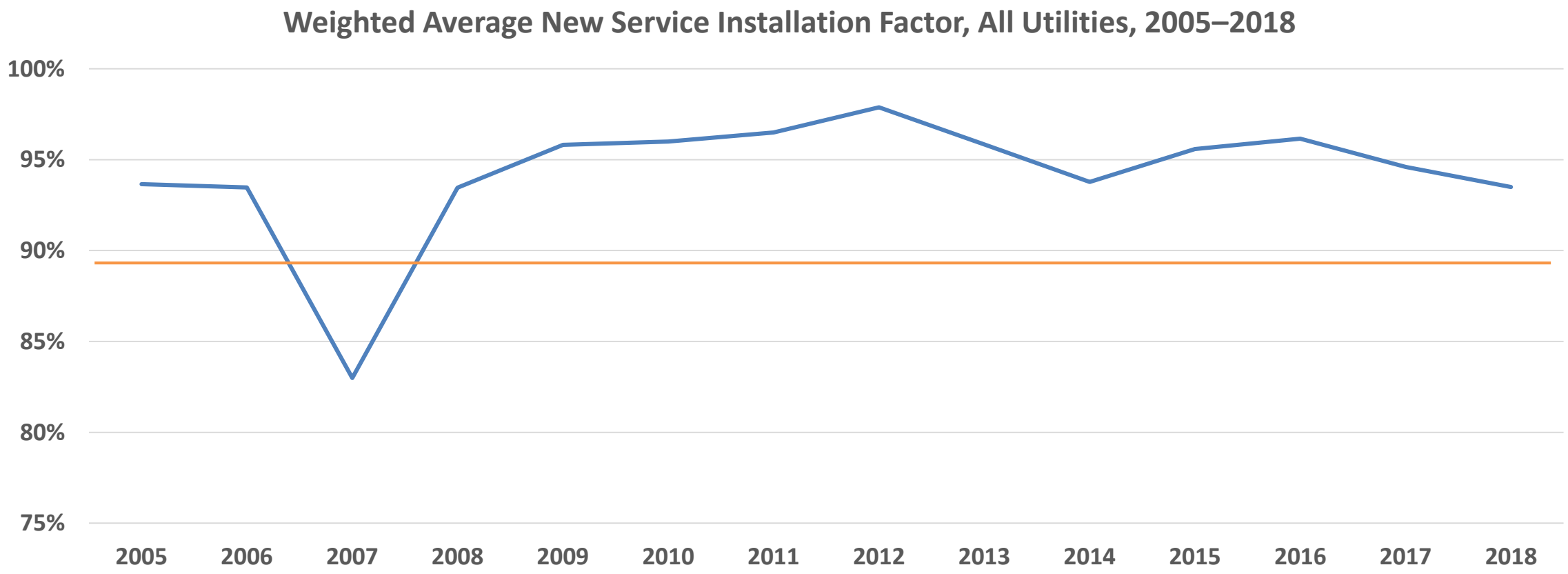
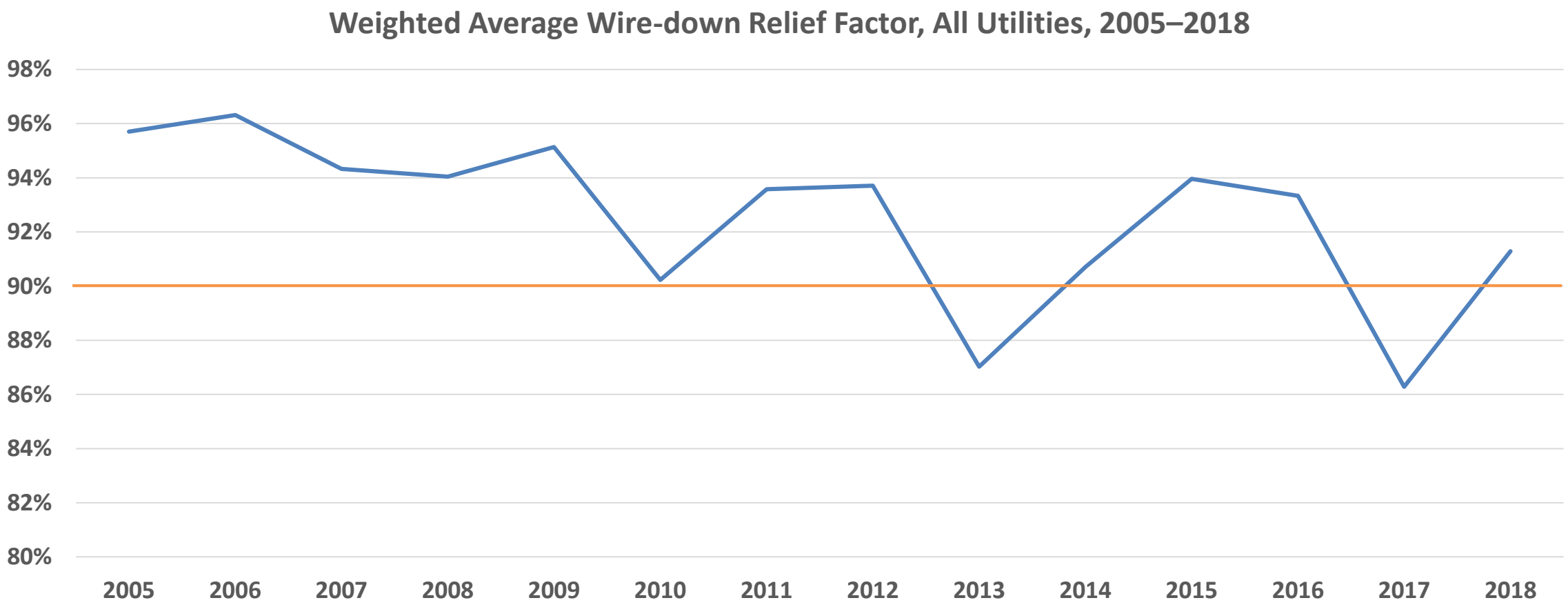
New Service Installation Factor



Source: PSC analysis of annual performance reporting in MPSC case number U-12270

Wire-down Relief Factor



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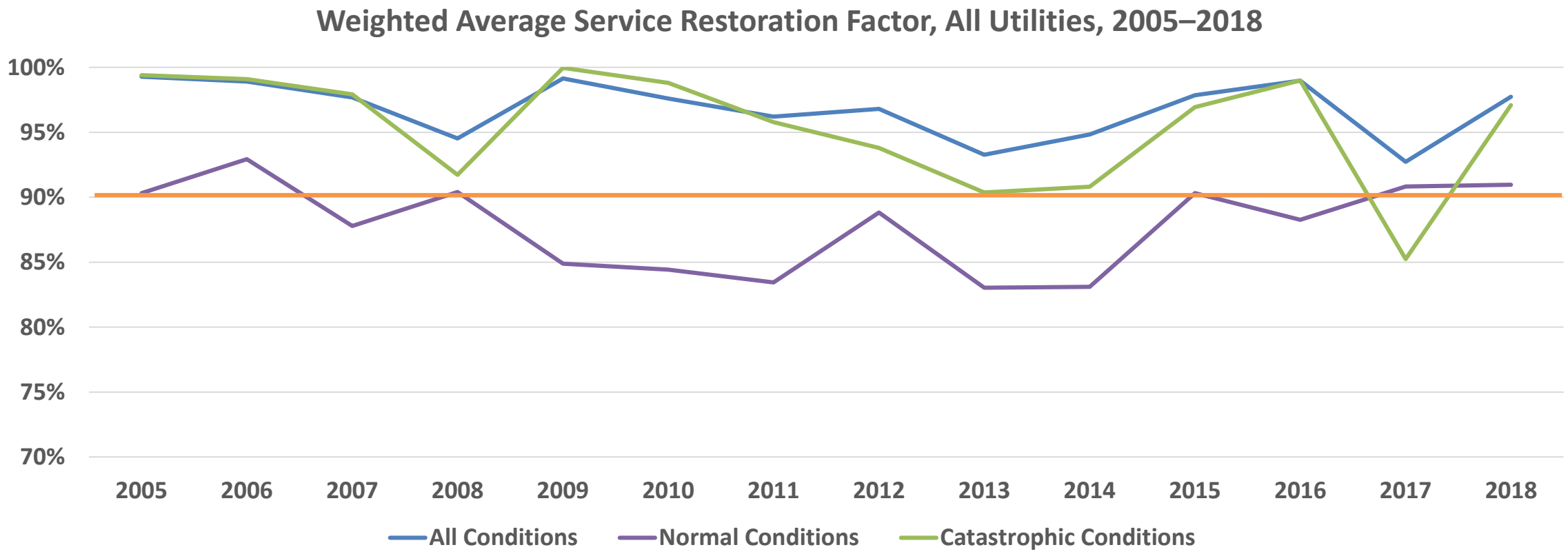
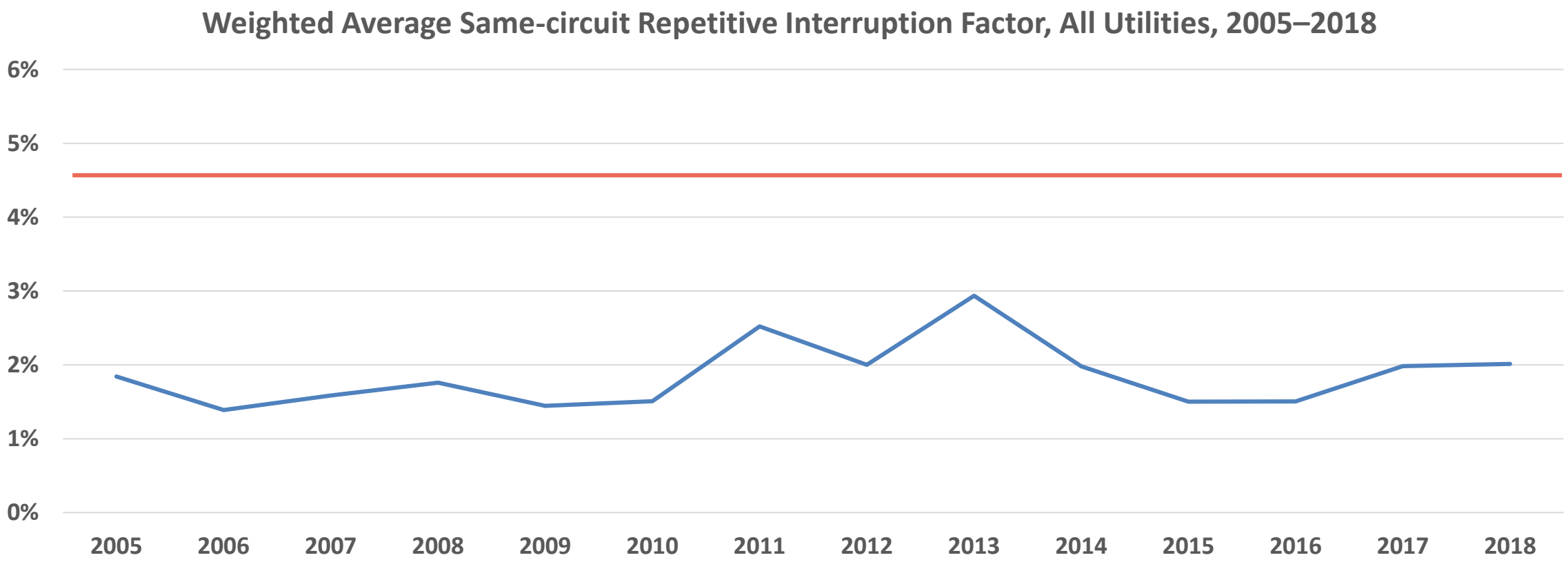
Service Restoration Factor



Source: PSC analysis of annual performance reporting in MPSC case number U-12270

Same-circuit Repetitive Interruption Factor



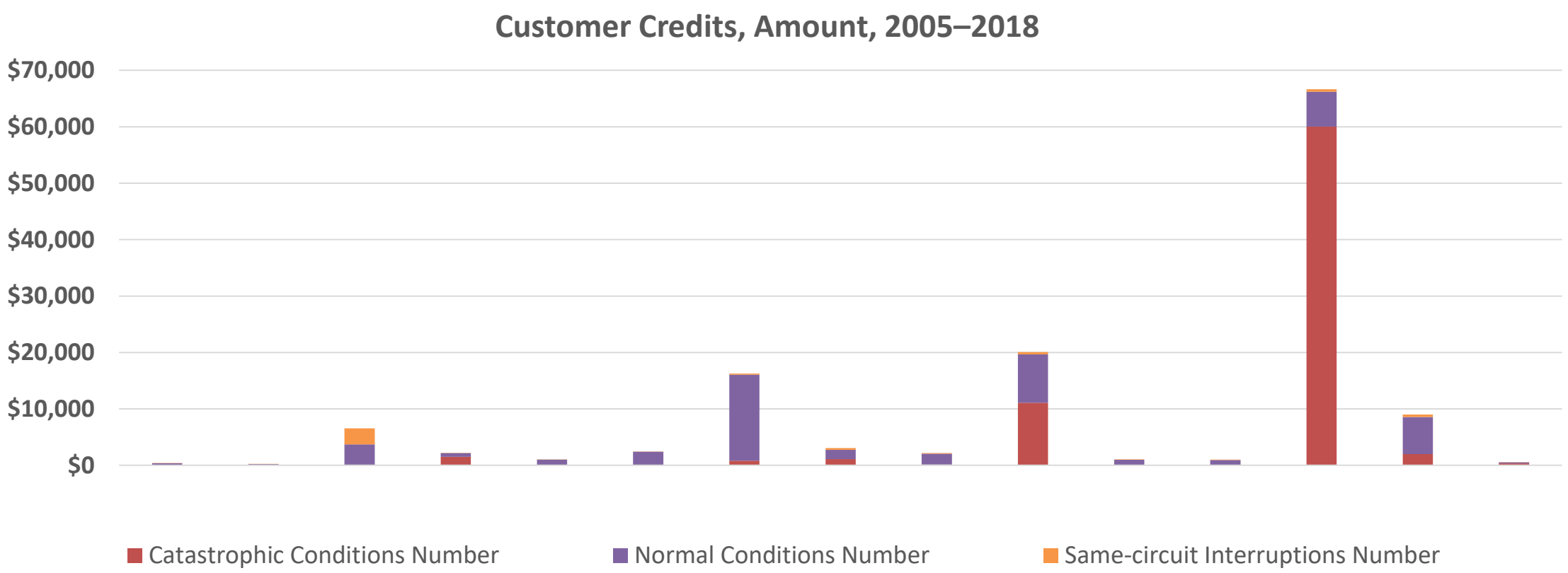
Source: PSC Analysis of Annual Performance Reporting in MPSC Case No. U-12270

Customer Credits

	Number	Amount
Customer Credits for Catastrophic Conditions	76,926	$1,913,266
Customer Credits for Normal Conditions	50,160	$1,248,352
Customer Credits for Same-circuit Interruptions	5,143	$126,335
Total	**132,229**	**$3,287,953**

Source: PSC analysis of annual performance reporting in MPSC case number U-12270

Customer Credits



Source: PSC analysis of annual performance reporting in MPSC case number U-12270

MI POWER GRID

Making the Most of Michigan's Energy Future

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Making the Most of Michigan's Energy Future

Break

Technical Presentation
Momentary Interruptions
Reliability Definitions/Metrics

Joseph H. Eto

Lawrence Berkeley National Laboratory

U-20629: Service Quality and Reliability Standards for Electric Distribution Systems Workgroup

Michigan Public Service Commission, Lansing, MI

February 12, 2020

Preface

- LBNL is a US Department of Energy (DOE) multipurpose science laboratory managed by the University of California

- The Michigan (MI) Public Service Commission (PSC) requested that DOE support LBNL to provide technical expertise to staff for the MI Power Grid initiative in two areas related to reliability and resilience:
  - Technical Standards for Electric Service
  - Service Quality and Reliability Standards for Electric Distribution Systems

- LBNL's role is to provide focused technical information in response to requests from MI PSC
  - LBNL participation is not as an advocate
  - LBNL will not be a party to and will not provide testimony in the MI PSC rulemaking proceedings that are anticipated to start in Fall 2020

Part 1: Momentary Interruptions

The adoption of AMI has made monitoring and recording information on momentary interruptions easier and more accurate than was feasible previously

This presentation will discuss

1. What are momentary interruptions
2. Why they are important to some customers
3. What are some uses of information on momentary interruptions
4. Considerations that may be relevant to Michigan

Momentary Interruptions Definition

momentary interruption event: An interruption of duration limited to the period required to restore service by an interrupting device.

NOTE 1— Such switching operations must be completed within a specified time of five minutes or less. This definition includes all reclosing operations that occur within five minutes of the first interruption.

NOTE 2— If a recloser or circuit breaker operates two, three, or four times and then holds (within five minutes of the first operation), those momentary interruptions shall be considered one momentary interruption event.

Source: IEEE Std. 1366-2012

Momentary Interruptions Significance to Customers

- The economic costs to customers that are caused by momentary interruptions stem from the disruption or *down-time* required to recover from the interruption, *not from the very small amount of time that the power was actually interrupted*
- Historically (i.e., ~20 years ago), these disruptions were due to the susceptibility of early generation electronic controls, especially those controlling industrial processes, to both power quality and momentary interruptions (the “blinking” VCR)
- Today, the electronic controls for industrial processes routinely have built-in capabilities to ride-through power quality events and in some instances also momentary interruptions. In addition, many firms susceptible to these types of disruptions have also installed dedicated equipment to protect their processes (e.g., UPS and back up generation)
- As a result, today, momentary interruptions are generally less of an issue for many (but not all) industrial firms and processes

Momentary Interruptions
Uses of Information

- Information on momentary interruptions (e.g., MAIFI) can be useful to the utility in two ways
  - First, momentary interruptions are a measure of an aspect of electricity reliability that is important to some utility customers, as discussed previously
  - Second, momentary interruptions are also a measure of the performance of a utility's equipment and therefore can be an important diagnostic tools for utilities to use to identify equipment that may be in need of repair

Momentary Interruptions - Considerations

- The vulnerability or susceptibility of customers to momentary interruptions is a relevant consideration in deciding whether to measure momentary interruptions – yet, this information is not widely known today

- The performance of utility equipment may be assessed through means other than measurement of momentary interruptions – what are these means and whether they would be duplicated or enhanced by measurement of momentary interruptions is an open question

- If momentary interruptions are not measured, then there will be no information available to evaluate these aspects of the performance of the utility and its equipment

- The incremental cost of measuring momentary interruptions is also a material consideration

Part 2: Reliability Definitions and Metrics

- Current MI PSC rules define several aspects of reliability, including “interruptions,” “normal conditions,” “catastrophic conditions,” and “same-circuit repetitive interruption.” They also use, but do not define related terms, including “sustained interruptions,” “planned interruptions,” and “major interruptions”
- The MI PowerGrid initiative is revisiting these definitions and considering new ones
- This presentation compares MI PSC reliability definitions to related definitions promulgated by the IEEE through Standard 1366-2012. These include:
  - Sustained Interruption
  - Major Event (and Major Event Day)
  - CEMI – Customers Experiencing Multiple Interruptions
  - Planned Interruption
  - Interruptions Caused by Events Outside the Distribution System
  - SAIDI, SAIFI, and CAIDI

Definitions
Interruptions – R 460.702 and IEEE Std. 1366

R 460.702

"Interruption" means the full or partial loss of service to 1 or more customers for longer than 5 minutes. The duration of a customer's interruption shall be measured from the time that the electric utility is notified or otherwise becomes aware of the full or partial loss of service to 1 or more customers for longer than 5 minutes.

IEEE Std. 1366

Sustained interruption: Any interruption not classified as a part of a momentary event. That is, any interruption that lasts more than five minutes.

Definitions
Catastrophic and Normal Conditions, R 460-702

"Catastrophic conditions" means either of the following:

(i) Severe weather conditions that result in service interruptions for 10% or more of a utility's customers.

(ii) Events of sufficient magnitude that result in issuance of an official state of emergency declaration by the local, state, or federal government.

“Normal conditions” means conditions other than catastrophic conditions.

Definitions
Major Event - IEEE Std. 1366

Designates an event that exceeds reasonable design and or operational limits of the electric power system. A Major Event includes at least one Major Event Day.

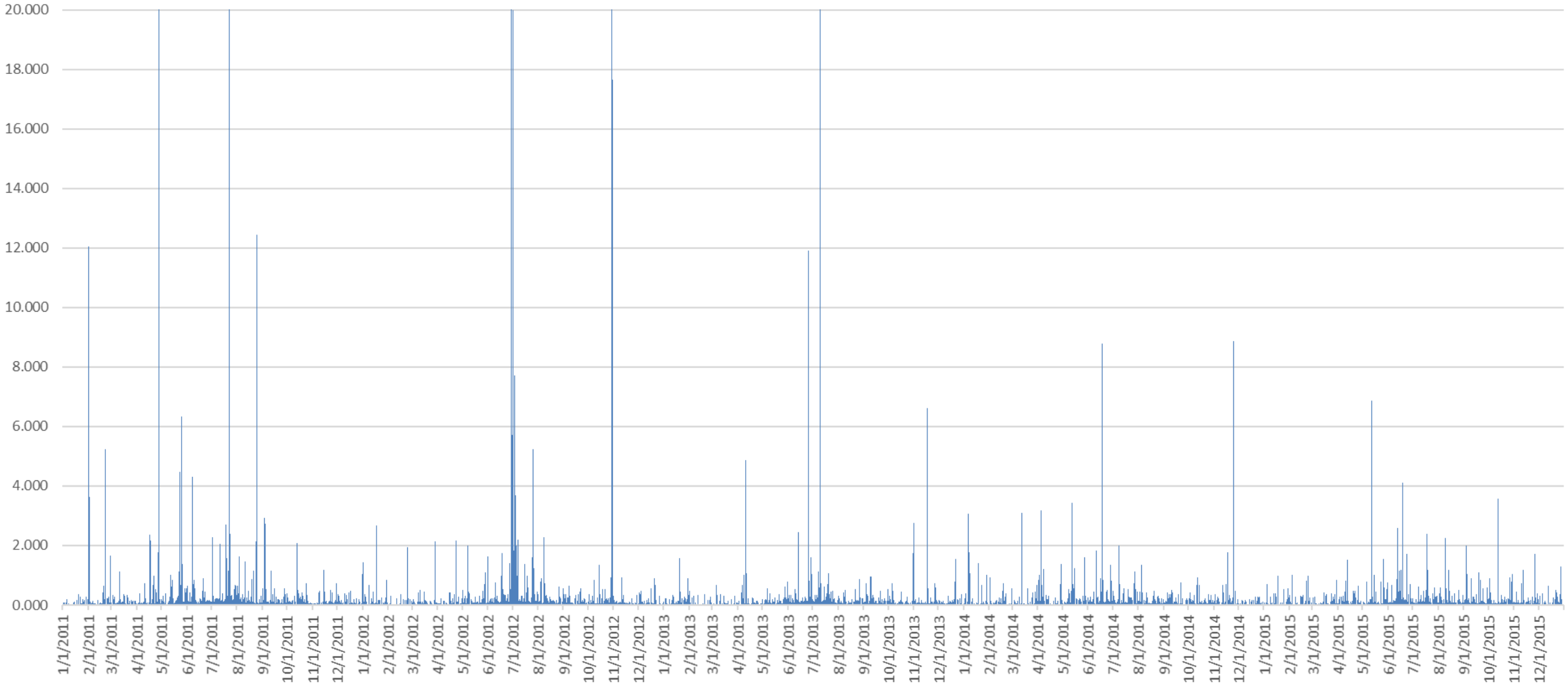
Major Event Day (MED): A day in which the daily system System Average Interruption Duration Index (SAIDI) exceeds a Major Event Day threshold value…..

Statistically, days having a daily system SAIDI greater than TMED are days on which the energy delivery system experienced stresses beyond that normally expected (such as during severe weather). Activities that occur on Major Event Days should be separately analyzed and reported.

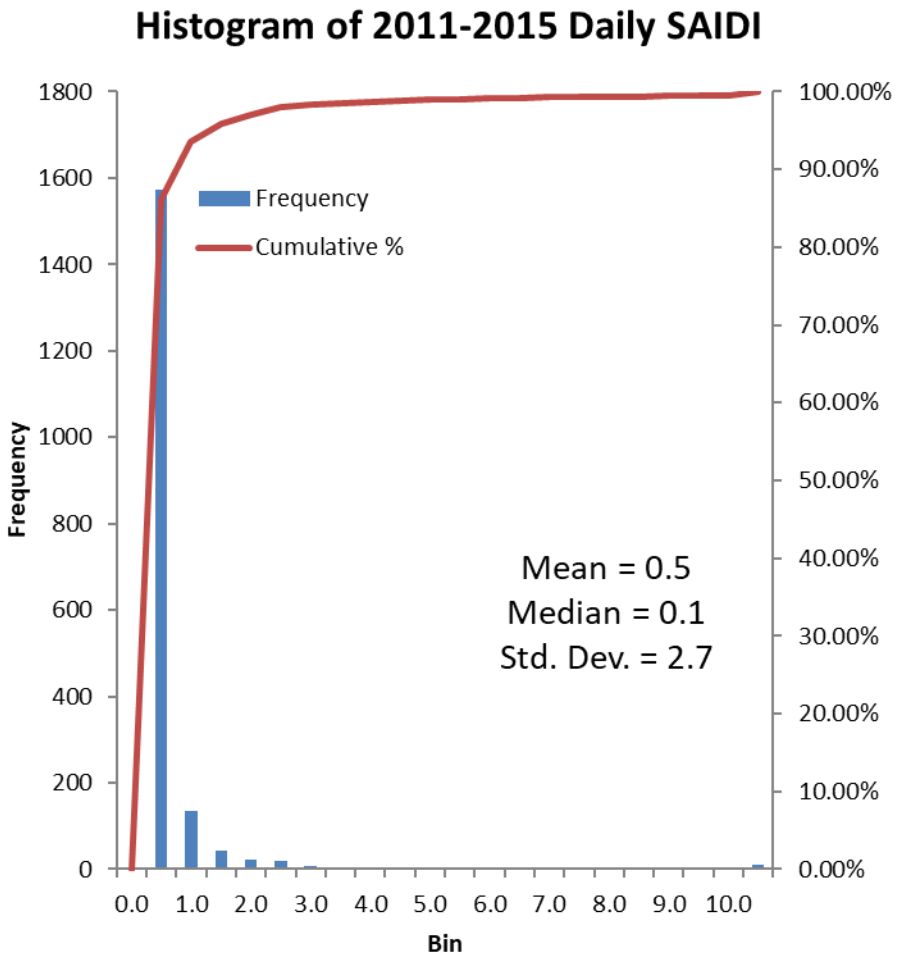
IEEE Standard 1366 – Major Event Days

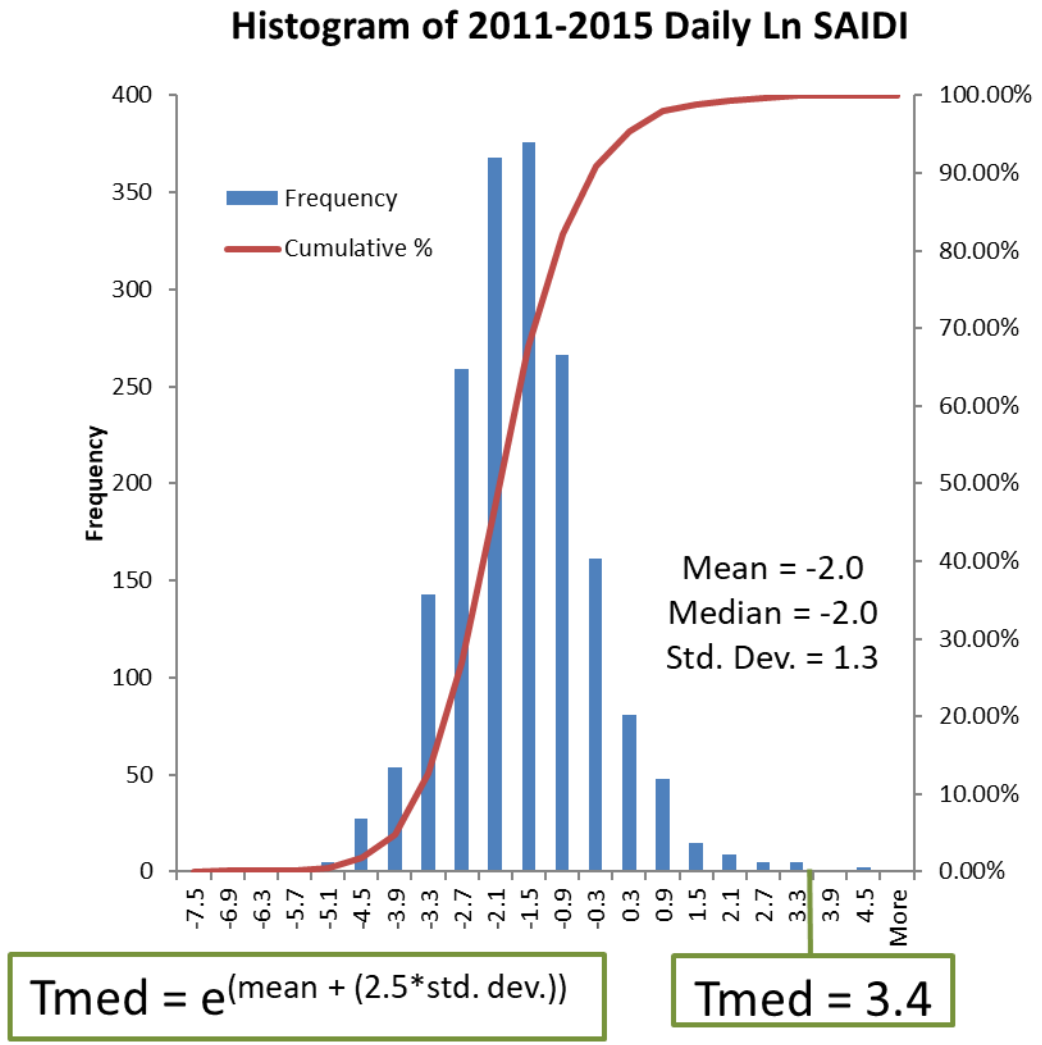
- First developed in 1998 to define reliability indices; amended in 2003 to add a consistent approach for segmenting Major Event Days (amended again in 2012; MED definition unchanged)
- Uses 2.5*beta to estimate a threshold daily SAIDI, Tmed, above which a Major Event Day is identified
  - Tmed = exp (α+2.5β)
  - Beta = log-normal standard deviation
  - Alpha = log-normal statistical mean
- For a ***normal*** distribution:
  - Multiplying beta (the standard deviation) by 2.5 covers 99.379% of the expected observations (assuming a one-sided confidence interval)
  - For a year of daily observations, this translates to an expectation of 2.3 Major Event Days per year
- *But, not all utility daily SAIDI data are distributed "normally"*

Daily SAIDI for 5 years (2011-2015)



Daily SAIDI Re-Ordered from Lowest to Highest

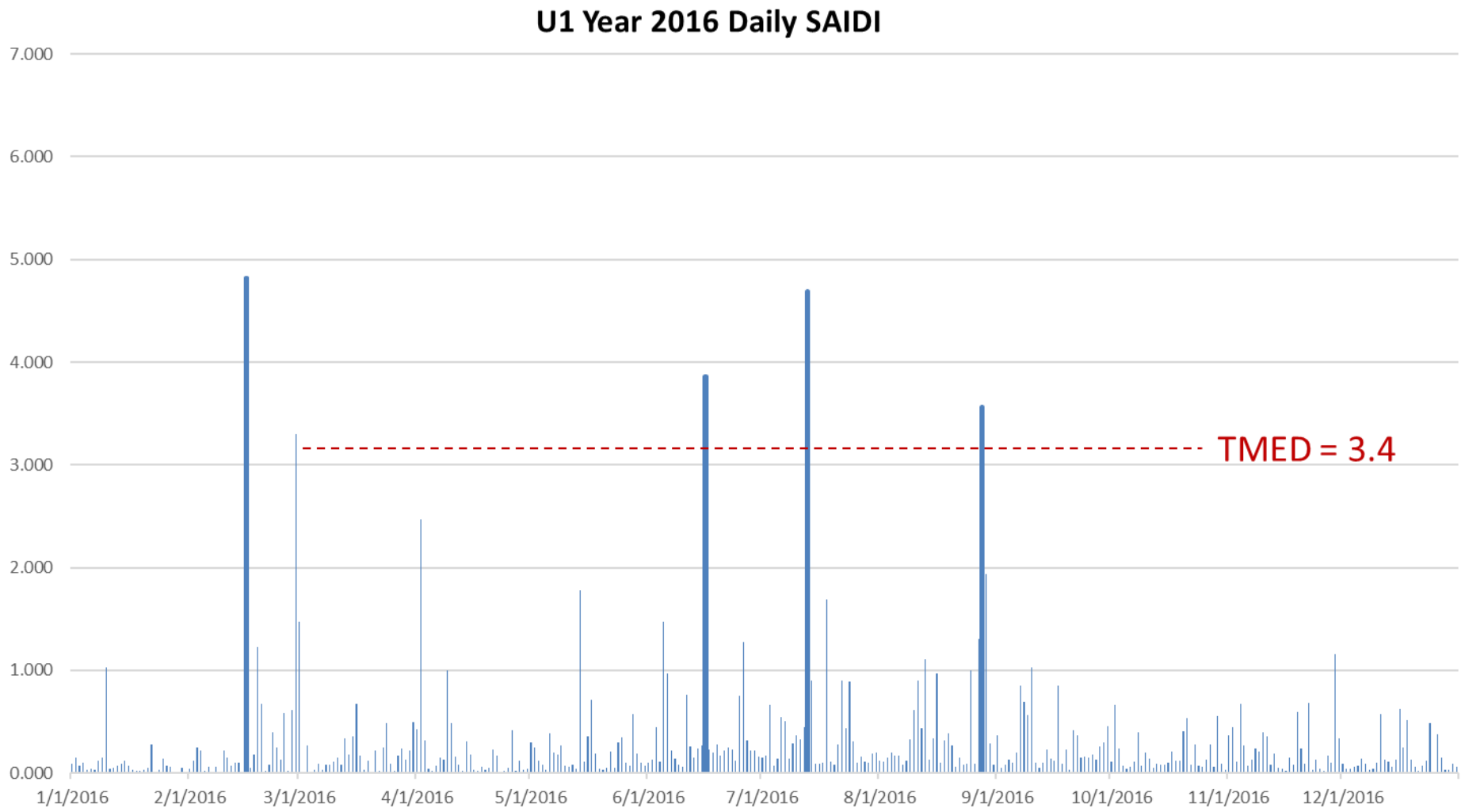




$Tmed = e^{(mean + (2.5*std.\ dev.))}$

Tmed = 3.4

Daily SAIDI for 2016 → 4 MEDs



4 MEDs in year 2016:

1. Feb 16
2. Jun 16
3. Jul 13
4. Aug 28

Catastrophic storms are generally captured as major event days, but not all major event days involve catastrophic storms

Year	# MEDs During DTE Catastrophic Storms	# MEDs During DTE Non-Catastrophic Storms And Normal Conditions
2009	3	3
2010	3	9
2011	7	10
2012	8	2
2013	9	1
2014	9	0
2015	1	2
2016	2	0
2017	6	3
2018	4	5

Source: DTE Electric Co. 2018 Report to MPSC Regarding Electric Distribution System Power Quality, May 6, 2019

Definitions

Multiple Interruptions – R 460.702 and IEEE Std. 1366

R 460.702

"Same-circuit repetitive interruption" means a grouping of more than 10 customers on a circuit who experience multiple interruptions under all conditions. At its option, an electric utility may report on specific identifiable circuit segments rather than whole circuits as long as the criteria for identification of the specific circuit segments are fully explained in its report. If an electric utility lacks the capability of independently tracking same-circuit repetitive interruption data, then the utility may rely solely upon notification provided by its customers to report the data to the commission.

IEEE Std. 1366

$CEMI_n$: Customers Experiencing Multiple Interruptions. The Customers Experiencing Multiple Interruptions Index ($CEMI_n$) indicates the ratio of individual customers experiencing *n* or more sustained interruptions to the total number of customers served.

Definitions
Others in IEEE 1366, but not in R 460.702

Planned interruption

The loss of electric power to one or more customers that results from a planned outage.

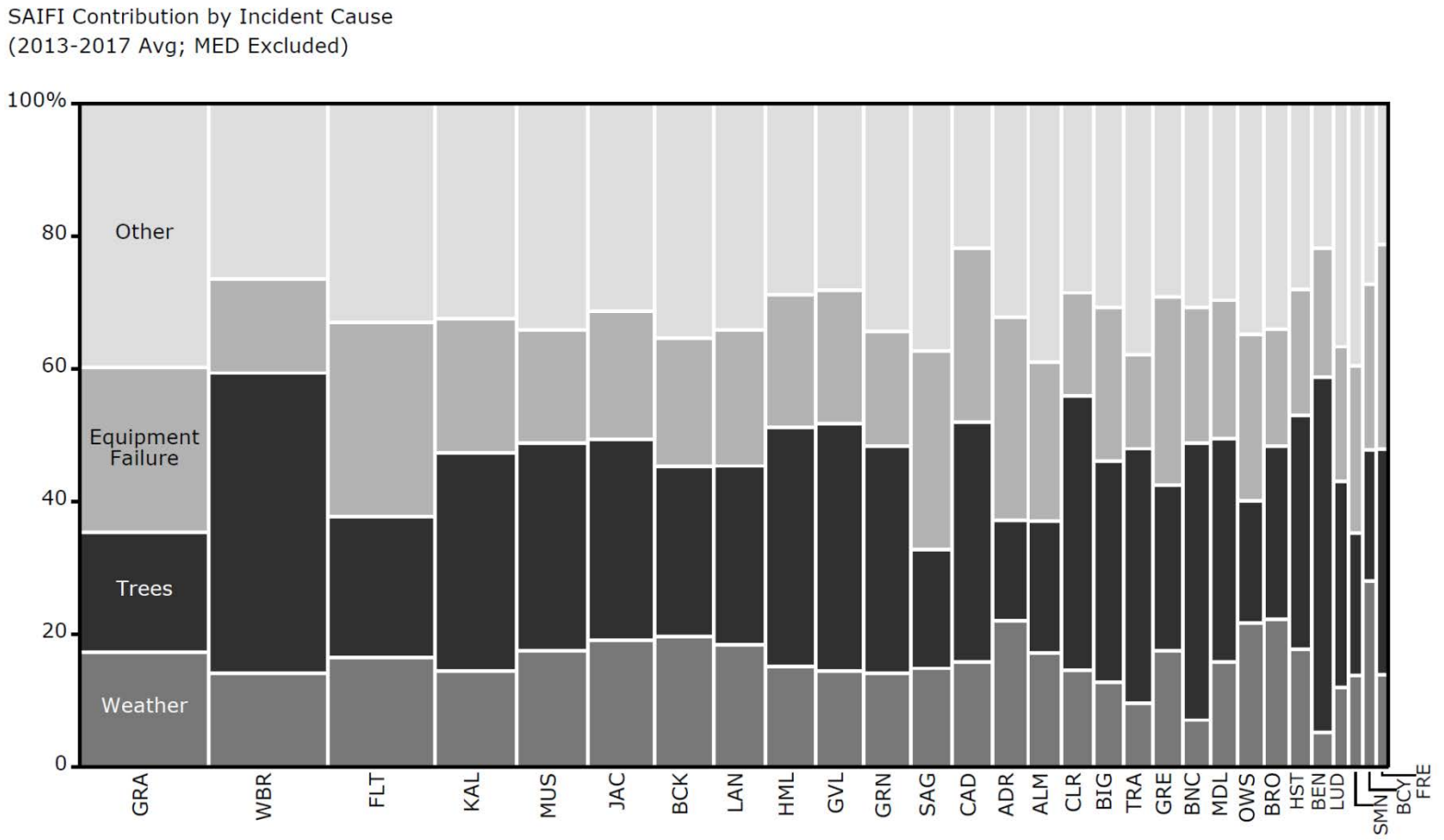
The key test to determine if an interruption should be classified as a planned or unplanned interruption is as follows: If it is possible to defer the interruption, then the interruption is a planned interruption; otherwise, the interruption is an unplanned interruption.

Definitions
Others in IEEE Std. 1366 but not in R 460.702

Interruptions caused by events outside of the distribution system

Outages that occur on generation, transmission, substations, or customer facilities that result in the interruption of service to one or more customers. While generally a small portion of the number of interruption events, these interruptions can affect a large number of customers and may last for a long time.

Analysis of interruption causes helps to identify opportunities to improve reliability



Source: OMS Database
Note: Other includes: Wildlife, Trans. & Gen., Planned, Lightning, Car pole, Public damage, Trees from outside right of way, other unique incidents and when no specific cause was found

Source: Consumers Energy Company's Electric Distribution Infrastructure Investment Plan, April 13, 2018

Causes of interruption must sometimes be interpreted w/r/t an initiating cause (e.g., weather)

	Percent of Customers Interrupted				
Conditions	**Trees**	**Equipment**	**Ice**	**Wind**	**All Other**
Catastrophic Storms	54.1 %	5.5 %	16.7 %	10.4 %	13.3 %
Small Storms	61.1 %	18.9 %	1.3 %	8.3 %	10.3 %
Non-Storm	47.0 %	35.5 %	0.3 %	0.6 %	16.6 %
All Conditions	51.1 %	26.3 %	3.8 %	4.1 %	14.7 %

Source: DTE Electric Co. 2018 Report to MPSC Regarding Electric Distribution System Power Quality, May 6, 2019

Reliability Metrics, as Defined by IEEE Standard 1366

System Average Interruption Duration Index

$$SAIDI = \frac{\text{total duration of sustained customer interruptions (} \geq \text{5min each)}}{\text{number of customers served}}$$

Customer Average Interruption Duration Index

$$CAIDI = \frac{SAIDI}{SAIFI}$$

System Average Interruption Frequency Index

$$SAIFI = \frac{\text{frequency of sustained customer interruptions (} \geq \text{5min each)}}{\text{number of customers served}}$$

Momentary Average Interruption Frequency Index

$$MAIFI = \frac{\text{frequency of momentary customer interruptions (} < \text{5min each)}}{\text{number of customers served}}$$

Observations on Reliability Definitions and Metrics

- Michigan rules use terms that are not currently defined: “sustained,” “planned,” and “major”
- Industry-standard definitions are national in scope and, in the case of IEEE Standards, they are developed and updated regularly through open forums – the question is: how useful would these definitions be, if adopted for Michigan?
- Michigan-specific definitions can recognize situations or circumstances that are unique to Michigan – the question is: how useful do they continue to be?
- “Catastrophic conditions” can co-exist with Major Events, as defined by the IEEE Standard – the purposes this definition serves determines the usefulness of maintaining it as distinct definition (including whether the current definition should be modified)

Joe Eto
JHEto@lbl.gov

MI POWER GRID

Making the Most of Michigan's Energy Future

January 24, 2020 Comments

Summary & Discussion

MPSC

Michigan Public Service Commission

Feedback due by January 24, 2020:

Please provide the following information and add to respective docket in U-20629 (Service Quality)

- Comments (all):
  - New Energy Advisors: “Momentaries have a real cost see, for example, p. 31 of https://emp.lbl.gov/sites/all/files/lbnl-6941e.pdf) that should not be ignored…This becomes even more important when utilities install reclosers and smart switches as part of reliability improvement schemes (e.g., “self-healing grid" or FLISR), where sustained interruptions may decrease but momentary interruptions may increase.”
    - Utilities: Do you have the capability to track momentary outages currently? If not, is it something that is going to be incorporated into the future?
    - Businesses: How do momentary outages affect your business?
    - Residential Consumers: How do momentary outages affect you?

Feedback due by January 24, 2020:

Please provide the following information and add to respective docket in U-20629 (Service Quality)

- Comments (Utilities):
  - Emergency Response Filings: How often do you review and update your plans? (This can be filed confidentially.)
  - Call Answer Time: What is your current average call response time currently? Have you experienced any issues with handling call volume in the previous 5 years?
  - Updated Customer Portals: What would be the cost and implementation timeline for updating your customer portals to track the number of outages experienced annually?
  - Automated Outage Credits: What would be the cost and implementation timeline for the development of a system to automate outage credits to customers?
    - How do you currently deal with customers that experience multiple interruptions within a major or catastrophic event?

Feedback due by January 24, 2020:

- Wire Down Relief Comment:
  - "…In our line of work, sometimes we have to deal with deceased individuals, and over the years, when we have had the occasion to call the funeral home, two old guys in suits always show up in an hour or less to take care of the body. If two elderly gentlemen can get up in the middle of the night, put on a suit and tie, and respond to a scene in a timely manner, then the electrical company should be able to do it as well…"

Feedback due by January 24, 2020:

- Wire Down Programs (utilities):
  - What would it take to meet the one hour relief standard requested by Fire Departments? Think of your worst event (windstorm)—how long would it reasonably take to reach the end of your territory to repair a wire?
  - How is your wire down program constructed?
    - Is wire guarding part of an employees normal job duties or is it voluntary?
    - How long is their standard shift?
    - How long is their training program? Do you information share/train with first responders as well?
    - Is wire down relief part of your official emergency response planning? How is it handled during an emergency or storm event?
    - Is it possible to have a 3rd party contractor assist your company in relieving the wires?

Feedback due by January 24, 2020:

Take Two! In case you did not have a chance to reply to this due to the holidays or if you want to directly reply to any comments or ideas introduced into the docket comments, you can reply to these and label them "Session #1 Homework Reply"

- Comments (all):
  - Which standards do you think can be deleted?
  - Which standards do you think should be added?
  - Which standards are the most feasible to implement?
  - Which standards are the least feasible to implement?

- Meter inventory (utilities):
  - What style of meters are currently in the system? (i.e. analog, AMR, AMI, etc.)
  - What Style meters do you plan to have in the system beyond 5-years?

January 24, 2020 Comments Submitted

- Consumers Energy, DTE Electric, MEGA, MECA, ABATE and CUB provided responses to Staff's Inquires

- Stakeholders Commented On:
  - Feasibility of a One Hour Wire Down Response Time
  - Structure of Wire Down Response Programs
  - Outage Credits (Amount & Automation)
  - Call Answer Time
  - Momentary Outage Data
  - Rule 411 and Outage Cause Analysis*

January 24, 2020 Comments Submitted

- ABATE
  - Define “unacceptable levels of performance”
  - Introduce requirement for utilities to report on individual outage root cause analysis
  - Require utilities to make service interruption records available to individual customers
  - Amend the way that some penalties are calculated for industrial customers

January 24, 2020 Comments Submitted

- DTE Energy
  - Have started tracking momentary outages
  - Emergency response plans are reviewed on an ongoing basis
  - Does not support a call answer time reduction; current average is 64 seconds for residential and 24 seconds for business customers.
  - Support automating outage credits and developing customer portal discussion outside of rulemaking
  - Wire down program utilizes highly trained in house staff and linemen to respond.

January 24, 2020 Comments Submitted

- Consumers Energy
  - Have not started tracking momentary outages
  - Emergency response plans are reviewed on an ongoing basis
  - Do not support a call answer time reduction; current average is 35 seconds
  - Support automating outage credits and developing customer portal discussion outside of rulemaking
  - Wire down program utilizes highly trained in house staff and linemen to respond. Their average response time for 2019 was 117 minutes

January 24, 2020 Comments Submitted

- MECA Cooperatives
  - Many have not started tracking momentary outages
  - Emergency response plans are reviewed on an ongoing basis
  - Do not support a call answer time reduction
  - Some already have customer portal (SmartHub), most do not
  - Do not provide outage credits because they are member regulated
  - Wire down program utilizes highly trained in house staff and linemen to respond.

January 24, 2020 Comments Submitted

- MEGA
  - Many have not started tracking momentary outages
  - Emergency response plans are reviewed on an ongoing basis
  - Does not support a call answer time reduction
  - Does not support automating outage credits due to lack of AMI technology and recommends developing customer portal discussion outside of rulemaking
  - Wire down program utilizes highly trained in house staff and linemen to respond.

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Making the Most of Michigan's Energy Future

Wire Down Relief and Outage Standards Subgroup Summaries

MPSC

Michigan Public Service Commission

February 5, 2020: Wire Down Subgroup Meeting

- Consumers Energy, DTE Electric, MEGA, MECA, UPPCO, I&M, and Michigan Fire Department Representatives participated.

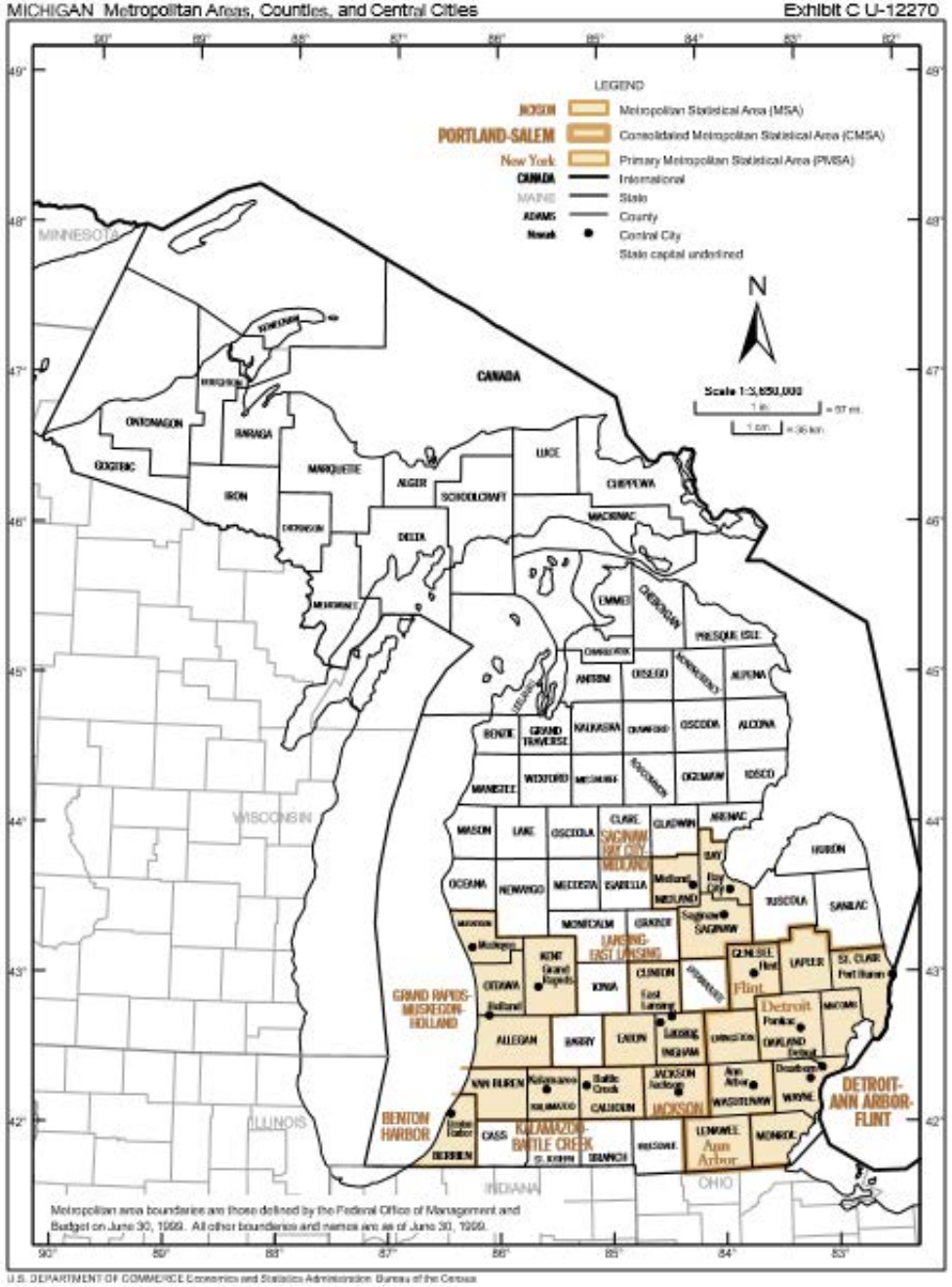
- This meeting focused on:
  - Identifying definition updates
  - Determining the feasibility of 1 hour response time
  - Investigating process improvement opportunities between the utility and first responders

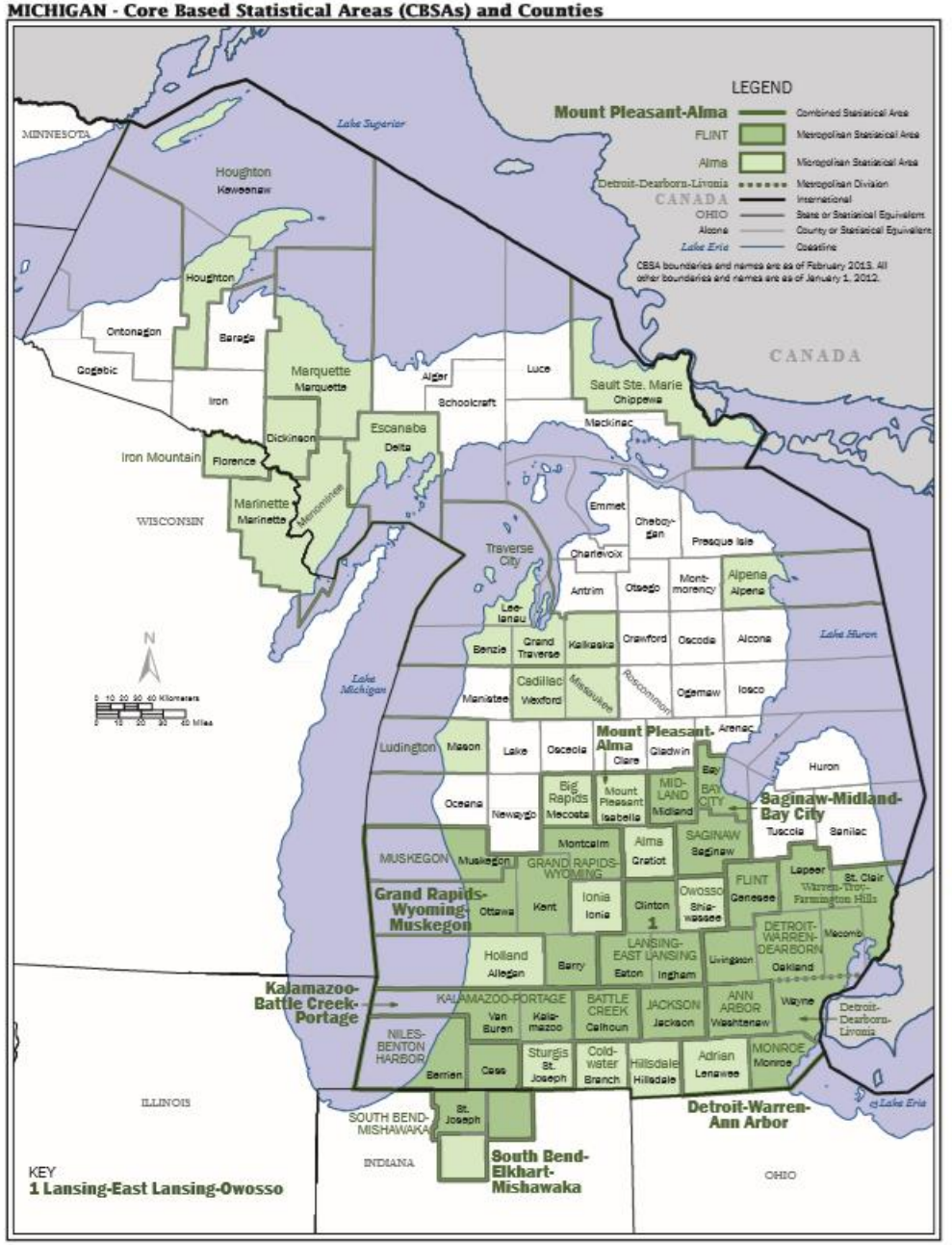
February 5, 2020: Wire Down Subgroup Meeting

- Definition Updates
  - The current standard references a 1999 Metropolitan Statistical Area Map. It was suggested to update this reference to the latest version, a 2013 map.
  - The map itself was utilized as a reporting reference document and had no bearing on how utilities responded to a wire down notification, so it was determined that delineating between a micropolitan area and a metropolitan area would not be necessary.

Definitions

- (n) "Metropolitan statistical area" means an area within the state of Michigan identified by the federal office of management and budget on June 30, 1999. An updated map of the metropolitan statistical areas ~~was attached to the July 11, 2001, order in Case No. U-12270 as exhibit C and~~ appears on the website of the United States department of commerce, economics and statistics administration, bureau of the census at https://www2.census.gov/geo/maps/metroarea/stcbsa_pg/Feb2013/cbsa2013_MI.pdf ~~http://www.census.gov/geo/www/mapGallery/stma99.pdf.~~





U.S. DEPARTMENT OF COMMERCE Economics and Statistics Administration U.S. Census Bureau

February 5, 2020: Wire Down Subgroup Meeting

- One Hour Response Time:
  - Each utility discussed why it would be difficult to meet a 1 hour response time. Many utilities stated that there can be a long lead time involved when responding to reports of wire downs due to:
    - Lack of specific location information
    - Finding available staff to respond
    - Additional commute time to rural locations, especially in inclement weather situations
    - On scene assessment may require additional resources
      - Reported wire may not be utility wire and additional contact with other companies may be needed

February 5, 2020: Wire Down Subgroup Meeting

- Process Improvement Opportunities
  - There appeared to be room for improvement regarding how to more efficiently respond to wire down reports.
    - Additional recruitment in house for more wire down responders
    - More training opportunities for first responders to better identify utility wires
    - Creating alignment between first responders policies and utility policies regarding the handling of different wire types

February 5, 2020: Wire Down Subgroup Meeting

- Next Wire Down Subgroup Meeting:
  - February 25, 2020 at the MPSC Offices
    - Goal: Develop Recommendation Update for Report
  - This meeting will review each utilities' wire down information in order to identify:
    - What type of wire that first responders are guarding the most
    - How many wires have first responders have guarded annually (blue sky vs. storm day)
    - How to better align processes to reduce the amount of time first responders are waiting for utilities

February 5, 2020: Outage Standards Subgroup Meeting

- Consumers Energy, DTE Electric, MEGA, MECA, UPPCO, I&M, and CUB Representatives participated.

- This meeting focused on:
  - **Outage Credit Thresholds**: Same Circuit Interruptions and Multiple Annual Outages
  - **Outage Credit Amount**
  - **Outage Credit Automation**
  - **Momentary Outages**

February 5, 2020: Outage Standards Subgroup Meeting

- Outage Credit Thresholds
  - Staff believes that between additional money approved for distribution capital improvements and additional money approved for vegetation management, then it is reasonable to expect the threshold to lower to 5 interruptions.

  - Some utilities have expressed the viewpoint that approved funding doesn't translate into overnight change.
    - What are current utility timelines for achieving improved reliability?
    - Is this captured in the 5 Year Distribution planning endeavors?

February 5, 2020: Outage Standards Subgroup Meeting

- Outage Credit Amount
  - Is $50 too much?
  - Should we adopt the CUB methodology of $2/hr?

- Outage Credit Automation
- Momentary Outages

February 5, 2020: Outage Subgroup Meeting

- Next Outage Subgroup Meeting:
  - February 25, 2020 at the MPSC Offices
    - Goal: Develop Recommendation Update for Report
  - This meeting will review the content received by Joseph Eto (LBNL) and Public Sector Consultants regarding:
    - Service Quality Comparison Data
    - Outage Amounts
    - Definition Changes for the report

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Making the Most of Michigan's Energy Future

Service Quality & Reliability Standards: Definitions Update

MPSC

Michigan Public Service Commission

Definitions and Reporting Standards Subgroup: March 2, 2020

- “Electric Utility” to include cooperatives
- “Momentary Interruption” (Reporting Standards)
- Call “Answer” (first contact with IVR vs. Live Agent)
- “Sustained Interruption”
- “Normal Conditions”
- “Interruption”
- “Unacceptable Performance”
- “Major Outage”—3rd Category/5% of Utility Customers

Definitions and Reporting Standards Subgroup: March 2, 2020

Utility Company					
IOU	Number of Customers	2.5%	5%	7.50%	10%
Alpena	17,691	442	885	1,327	1,769
AEP/I&M	128,637	3,216	6,432	9,648	12,864
Consumers Energy	1,816,439	45,411	90,822	136,233	181,644
DTE Electric	2,181,941	54,549	109,097	163,646	218,194
UMERC	36,727	918	1,836	2,755	3,673
UPPCO	52,166	1,304	2,608	3,912	5,217
Wisconsin Electric	5	0	0	0	1
Xcel Energy	8,962	224	448	672	896
Cooperative	Number of Customers	2.5%	5%	7.50%	10%
Alger Delta	9,982	250	499	749	998
Cherryland	35,145	879	1,757	2,636	3,515
Cloverland	42,591	1,065	2,130	3,194	4,259
Great Lakes	124,622	3,116	6,231	9,347	12,462
Midwest Energy	35,960	899	1,798	2,697	3,596
Ontonagon REA	4,873	122	244	365	487
Presque Isle	33,390	835	1,670	2,504	3,339
Thumb	12,212	305	611	916	1,221
Tri-County	25,879	647	1,294	1,941	2,588

Definitions and Reporting Standards Subgroup: March 2, 2020

- During this subgroup, alignment regarding company calculations will be discussed.
- Throughout the comment process, it appears that some metrics that are calculated for the annual reliability report housed in U-12270 are calculated differently.
- To ensure accuracy, please be prepared to discuss how the metrics for each standard are calculated within your utility.

R 460.732 Annual Report Contents

- Wire Down Relief
- Meter Read
- New Service Installation
- Complaint Response
- Average Call Answer Time
- Call Blockage
- Outage Restoration—Normal
- Outage Restoration—Catastrophic
- Outage Restoration—All Conditions
- Same Circuit Repetitive Outage
- **SAIDI, SAIFI, CAIDI**
  - **5 year rolling average**
  - **With and Without Major Event Days**

- ***CEMI 0-10+***
- ***CELID 60hrs and CELID 8hrs (excluding catastrophic events)***
- ***New $25.00 Outage Credit Directives***
- ***List of their 10 worst performing circuits for the prior years in terms of SAIDI & SAIFI***
  - **SAIDI and SAIFI excluding major events for the year**
  - **Circuit name, number and location**
  - **Length of circuit (miles)**
  - **Number of customers served**
  - **Substation name**
  - **Last circuit trim**
  - **List of outages and causes**
  - **Corrective action plan to improve performance**
- ***MAIFI (if possible)***

Major Outage Report Draft

- Utility Name
- Utility Contact Representative Name & Title
- Utility Contact Representative Phone
- Outage Information
  - Interruption start Date & Time
  - Duration Of Outage
  - Anticipated Date/Time of Total Restoration
  - Total Number of Customers Affected Since Outage Began
  - Estimated Number of Customers Still Without Power as of this report
  - Counties Affected (Attach copy of most recent outage map)
  - Cause of Interruption (weather, equipment failure, 3rd party contact, etc.)
  - Name of Utility Person Completing Report
  - Date & Time of Report

Post Major Outage Report Draft

- Utility Name
- Utility Contact Representative Name & Title
- Utility Contact Representative Phone
- Outage Information
  - Interruption start Date & Time
  - Duration Of Outage
  - Anticipated Date/Time of Total Restoration
  - Total Number of Customers Affected Since Outage Began
  - Estimated Number of Customers Still Without Power as of this report
  - Counties Affected (Attach copy of most recent outage map)
  - Cause of Interruption (weather, equipment failure, 3rd party contact, etc.)
  - Corrective Actions Taken

Catastrophic Outage Report Draft

- Utility Name
- Utility Contact Representative Name & Title
- Utility Contact Representative Phone
- Outage Information
  - Interruption start Date & Time
  - Duration Of Outage
  - Anticipated Date/Time of Total Restoration
  - Total Number of Customers Affected Since Outage Began
  - Estimated Number of Customers Still Without Power as of this report
  - Counties Affected
  - Cause of Interruption (weather, equipment failure, 3rd party contact, etc.)
  - Has Company Generating Capacity Been Impacted?
    - If yes, can MISO/PJM cover your shortage?
    - If yes, when do you anticipate the generation facility returning to power?
  - Name of Utility Person Completing Report
  - Date & Time of Report

Rules Under Consideration to Transfer to Billing Rules

Rule	Recommendation	Electric Tech Standard	Billing Rule (BR)
R 460.702(d)	Transfer to BR	(d) "Call" means a measurable effort by a customer to obtain a telephone connection whether the connection is completed or not.	Add to BR
R 460.702(e)	Transfer to BR	(e) "Call blockage factor" means the percentage of calls that do not get answered. The call blockage factor is calculated by multiplying the remainder obtained by subtracting the number of answers from the number of calls, multiplying by 100, and then dividing that value by the total number of calls.	Add to BR
R 460.702(h)	Transfer to BR	(h) "Complaint response" or "response" means a communication between the utility and the customer that identifies the problem and a solution to the complaint.	Add to BR
R 460.702(i)	Transfer to BR	(i) "Complaint response factor" means the annual percentage of the complaints forwarded to a utility by the commission that are responded to within the time period prescribed by these rules.	Add to BR
R 460.724(a)-(c)	Move Rule 24(a)-(c) to BR R 460.151 after (f). *BR has two sections related to this matter: complaint process (requirements on how quickly a utility has to close a case and respond to the customer) and reporting requirements. Reporting requirements are measured quarterly NOT annually. * CAD continuously meets with the utilities related to these measures.	R 460.724 Unacceptable service quality levels of performance. (a) An electric utility shall have an average customer call answer time of less than 90 seconds. (b) An electric utility shall have a call blockage factor of 5% or less. (c) An electric utility shall have a complaint response factor of 90% or more within 3 business days.	R 460.151 Reporting requirements. Rule 51. A utility shall file with the commission quarterly reports that disclose all of the following: (a) The payment performance of its customers in relation to established due and payable periods. (b) The number and general description of all complaints registered with the utility. (c) The number of shut off notices issued by the utility and the reasons for the notices. (d) The number of hearings held by the utility, the types of disputes involved, and the number of complaint determinations issued. (e) The number of written settlement agreements entered into by the utility. (f) The number of shut offs of service and the number of reconnections. **-INSERT HERE -** (g) Any other customer service quality information requested by the commission staff.

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Looking Ahead

Areas Of Agreement (Majority)

- R 460.731-732 – require an annual reliability report for all utilities, including cooperatives

- Require annual reporting of reliability metrics SAIFI, SAIDI, CAIDI and CEMI for all utilities, including cooperatives.

- R 460.732 – require a report for each major service interruption
  - “Major Service Interruption” will be defined.

Areas Of Agreement (Majority)

- Mandating that utilities submit Annual Safety reports of OSHA incidents and injuries requiring medical attention or property damage. (Tech Standards)

- Requiring the utilities to file their Emergency response plans confidentially to the Commission on annual basis. (Tech Standards)

- Require that utilities send customer credit approval/denial letters to customers within 30 days of application while outage credit automation is being developed.

Areas Of Discussion for Definitions & Reporting Subgroup

- Amending the current definitions of “normal” and “catastrophic” to include a third category.
- Amend “electric utilities” definition to include cooperatives.
- Definition of “major service interruption”
- Momentary Outage Reporting and Tracking
- Call Answer Time Reduction

Areas Of Discussion for Outage Standards Subgroups

- Outage Credit Automation Timeline
- Outage Credit Amount
- Reduce annual same circuit Repetitive interruption factor from 5 outages to 4 outages
- Require utilities to pay the service credit if a customer experiences more than 5 outages instead of 7 outages.

Next Workgroup Meeting

March 12, 2020 @ MPSC

Service Quality & Reliability: 1:00PM-4:00PM

Upcoming Meetings & Deliverables

Upcoming Meetings @ MPSC

- ***February 25, 2020—(Subgroup)*** ****TBD****
  - Wire Down & Outage Standards
- ***March 2, 2020—(Subgroup)*** ****TBD****
  - Definitions and Reporting Standards Subgroup
- **March 12, 2020** **9:00 AM-4:00 PM**
- ***March 24, 2020—(Subgroup)*** ****TBD****
- ***April 7, 2020 (tentative)** **9:00 AM-4:00 PM***

Upcoming Meetings & Deliverables

Deliverable Timeline U-20629

- **April 13, 2020** Final Date for Comments
- **April 15, 2020** Internal Review
- **April 30, 2020** Initial Report Due
  - Summary of Workgroups and Stakeholder Comments
- **May-August 2020** Review and Comment Period
- **September 1, 2020** Final Report Due

Feedback due by February 24, 2020:

Please provide the following information and add to respective docket in U-20629 (Service Quality)

- Comments (Utilities):
  - What does your company consider to be a major event in terms of calling in mutual assistance for restoration?
  - If 5% of your customer base is out of power, is this considered a major event?
- Comments (All)
  - What feedback do you have for the Joe Eto and Pardini presentations? What do you agree with, disagree with or find most interesting?

Comment Submissions

1. Written comments can be submitted to the docket by emailing mpscedockets@michigan.gov and referencing MPSC Docket No. U-20629.

2. Alternatively, comments referencing the specific docket can be mailed to:

Michigan Public Service Commission

P.O. Box 30221

Lansing, MI 48909

Contact Me

Charyl Kirkland
Service Quality & Reliability Lead
Email: KirklandC@Michigan.gov
Phone: (517) 284-8227

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We're Adjourned!

Travel Safely!