

**BEFORE  
THE PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the Application of Duke     )  
Energy Ohio, Inc. to Establish Minimum     )  
Reliability Performance Standards     )     Case No. 16-1602-EL-ESS  
Pursuant to Chapter 4901:1-10, Ohio     )  
Administrative Code.     )

---

**REPLY COMMENTS  
BY  
THE OFFICE OF THE OHIO CONSUMERS' COUNSEL**

---

BRUCE WESTON (0016973)  
OHIO CONSUMERS' COUNSEL  
Terry L. Etter (0067445), Counsel of Record  
Jodi J. Bair (0062921)  
Assistant Consumers' Counsel

**Office of the Ohio Consumers' Counsel**  
10 West Broad Street, Suite 1800  
Columbus, Ohio 43215-3485  
Telephone: 614-466-7964 (Etter Direct)  
Telephone: 614-466-9559 (Bair Direct)  
[Terry.etter@occ.ohio.gov](mailto:Terry.etter@occ.ohio.gov)  
[Jodi.bair@occ.ohio.gov](mailto:Jodi.bair@occ.ohio.gov)

March 24, 2017

## TABLE OF CONTENTS

	PAGE
I. INTRODUCTION .....	1
II. RECOMMENDATIONS .....	3
A. The current reliability standards understate the five-year historical average of Duke’s SAIFI performance, and thus may put customers at risk of more outages and outages of longer duration. ....	3
B. Duke’s CAIDI standards should allow for shorter outages in order to be more responsive to consumer expectations.....	6
C. Duke should take several operational actions to bring its CAIDI more in line with consumer expectations. ....	8
III. CONCLUSION.....	11

**BEFORE  
THE PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the Application of Duke     )  
Energy Ohio, Inc. to Establish Minimum     )  
Reliability Performance Standards     )     Case No. 16-1602-EL-ESS  
Pursuant to Chapter 4901:1-10, Ohio     )  
Administrative Code.     )

---

**REPLY COMMENTS  
BY  
THE OFFICE OF THE OHIO CONSUMERS' COUNSEL**

---

**I. INTRODUCTION**

This case is about whether Ohioans who have paid \$240 million for electric smart grid in the service territory of Duke Energy Ohio, Inc. (“Duke”)<sup>1</sup> should be at risk for more and longer outages of their electric service. The answer is “No.”

Smart grid was touted to regulators and consumers as investments intended to enhance service quality.<sup>2</sup> But now, after its smart grid is fully deployed, Duke proposes lower reliability standards for the electric service it provides to consumers.<sup>3</sup> The Office of the Ohio Consumers’ Counsel (“OCC”) opposes Duke’s proposal. Duke’s proposed reliability standards are unjust and reasonable because Duke’s customers, after paying

---

<sup>1</sup> See Case No. 10-2326-GE-RDR, Opinion and Order (June 13, 2012) at 13 (electric customers pay \$19.2 million); Case No. 12-1811-GE-RDR, Opinion and Order (March 27, 2013) at 5 (electric customers pay \$28.5 million); Case No. 13-1141-GE-RDR, Opinion and Order (April 9, 2014) at 7 (electric customers pay \$41.8 million); Case No. 14-1051-GE-RDR, calculations supporting final tariff (April 9, 2015) at Schedule 13 Electric (electric customers pay \$52.8 million); Case No. 15-883-GE-RDR, Opinion and Order (March 31, 2016) at 7 (electric customers pay \$55 million); Case No. 16-1404-EL-RDR, Entry (December 21, 2016) at 2 (electric customers pay \$42.7 million).

<sup>2</sup> See Case No. 08-920-EL-SSO, et al., Second Supplemental Testimony of Paul G. Smith on Behalf of Duke Energy Ohio (October 28, 2008) at 8. See also *id.*, Merit Brief of Duke Energy Ohio (November 17, 2008) at 6.

<sup>3</sup> Application (July 22, 2016) at 4.

\$240 million, should not be put at risk for more and longer outages of their electric service before the Public Utilities Commission of Ohio (“PUCO”) could penalize Duke.<sup>4</sup>

The PUCO Staff has also rejected Duke’s proposal. The PUCO Staff states that “based upon historical performance, customer expectations, the full implementation of SmartGrid, and other distribution investment programs” Duke’s proposal is “inappropriate.”<sup>5</sup> The PUCO Staff believes that Duke “should strive for continuous improvement, not allow the standards to become less stringent without justification.”<sup>6</sup> The PUCO Staff recommends that the current standards “remain in place for 2017 and for each year going forward” until either Duke provides sufficient justification to reevaluate them or the PUCO orders Duke to file an application for updated standards.<sup>7</sup>

Although the PUCO Staff’s recommendation is an improvement over Duke’s proposal, the PUCO Staff’s recommendations are still inadequate to protect service quality for customers. For instance, it is unreasonable to allow current reliability standards to stay in place indefinitely. The current standards were explicitly meant to be in place only for two years – 2015 and 2016.<sup>8</sup> The 2014 Settlement required Duke to file a case in 2016 to establish reliability standards for 2017 and beyond.<sup>9</sup> Retaining the current standards indefinitely contravenes the 2014 Settlement, which the PUCO Staff

---

<sup>4</sup> See OCC Comments (February 22, 2017).

<sup>5</sup> Staff’s Review and Recommendations (March 6, 2017) at 1.

<sup>6</sup> *Id.* at 4.

<sup>7</sup> *Id.*

<sup>8</sup> *In the Matter of the Application of Duke Energy Ohio, Inc., to Establish Reliability Targets*, Case No. 13-1539-EL-ESS, Stipulation and Recommendation (July 25, 2014) (“2014 Settlement”) at 4.

<sup>9</sup> *Id.* at 5.

signed, and does not adequately protect consumers regarding Duke's electric service reliability.

Customers have funded Duke's smart grid and its Distribution Capital Investment Rider ("DCIR") in exchange for the promise of improved reliability. This improved reliability should be reflected in Duke's reliability standards now.<sup>10</sup> The PUCO should set more rigorous reliability standards in this case and hold Duke responsible for the hundreds of millions of customer dollars it is spending on programs to improve reliability. The PUCO should conduct an evidentiary hearing on Duke's proposal, in accordance with Ohio Adm. Code 4901:1-10-10(B)(6)(e).

## II. RECOMMENDATIONS

**A. The current reliability standards understate the five-year historical average of Duke's SAIFI performance, and thus may put customers at risk of more outages and outages of longer duration.**

Duke's current reliability standards were established in the 2014 Settlement that was approved by the PUCO.<sup>11</sup> The 2014 Settlement set a System Average Interruption Frequency Index ("SAIFI") standard of 1.05 and a Customer Average Interruption Duration Index ("CAIDI") standard of 122.81 minutes for calendar years 2015 and 2016.<sup>12</sup> The lower the SAIFI and CAIDI numbers, the better the performance. Duke met

---

<sup>10</sup> Both the smart grid and the distribution system improvements funded through the DCIR are expected to reduce outages. See Duke's responses to OCC INT-02-022, OCC INT-02-024, and OCC INT-02-026.

<sup>11</sup> *In the Matter of the Application of Duke Energy Ohio, Inc., to Establish Reliability Targets*, Case No. 13-1539-EL-ESS, Opinion and Order (September 17, 2014) at 5.

<sup>12</sup> 2014 Settlement at 4. SAIFI reflects the number of sustained interruptions in electric service the average consumer experiences over a predefined period of time. CAIDI represents the average number of minutes required to restore electric service to residential customers. See Ohio Adm. Code 4901:1-10-10(B)(1).

the standards for 2015.<sup>13</sup> But now Duke proposes a SAIFI standard of 1.12 and a CAIDI standard of 134 minutes.<sup>14</sup> The PUCO has stated that just because a utility meets a service quality standard, that does not justify reducing the standard for the utility.<sup>15</sup>

The PUCO Staff recommends that the current standards be retained until either Duke provides sufficient justification to reevaluate them or the PUCO orders Duke to file an application for updated standards. There would be no specific time limit on when the current standards would be changed. The PUCO Staff is correct that Duke “should strive for continuous improvement, not allow the standards to become less stringent without justification.”<sup>16</sup> This is the case where Duke was obligated to fully justify its reliability standards.<sup>17</sup>

Retaining the current standards indefinitely, as the PUCO Staff proposes, may put Ohioans at risk of more and longer outages than are justifiable. Instead, the PUCO should adopt reliability standards for Duke that are consistent with the PUCO Staff’s guidelines for electric utility reliability standards under Ohio Adm. Code 4901:1-10-10(B) (“Guidelines”).<sup>18</sup>

The Guidelines provide that SAIFI and CAIDI calculations should be based on the utility’s average historical performance over at least five years. Table 1 of OCC’s

---

<sup>13</sup> See OCC Comments at 7, Table 1. See also Staff Review and Recommendations at 4.

<sup>14</sup> Application (July 22, 2016) at 4.

<sup>15</sup> See *In the Matter of the Amendment of the Minimum Telephone Service Standards as Set Forth in Chapter 4901:1-5 of the Ohio Administrative Code*, Case No. 00-1265-TP-ORD, Finding and Order (May 29, 2001) at 3.

<sup>16</sup> Staff Review and Recommendations at 4.

<sup>17</sup> 2014 Settlement at 5-7.

<sup>18</sup> See <http://www.puco.ohio.gov/puco/index.cfm/rules/pending-rules/staff-guidelines-for-electric-utility-reliability-standards-under-rule-4901-1-10-10-b/#sthash.gLyjltVG.hcwu93k5.dpbs>.

Comments showed Duke's historical performance for the past five years, as reported by Duke in its annual report. This table is recreated below:

Table 1: Duke Reliability Standards/Performance 2011-2015

SAIFI	2011	2012	2013	2014	2015
Standard	1.38	1.31	1.24	1.17	1.05
Performance	1.38	1.08	0.98	0.99	1.04

CAIDI (Minutes)	2011	2012	2013	2014	2015
Standard	111.90	115.02	118.14	121.25	122.81
Performance	107.00	103.26	117.80	108.28	117.32

The five-year average of Duke's SAIFI performance is 1.09. The lower the SAIFI number, the better the performance. Thus, the PUCO Staff's recommended 1.05 SAIFI would be an improvement over Duke's five-year performance. But the five-year historical performance is skewed by an extremely high SAIFI number in 2011. Using the four-year average from 2012-2015 may be more realistic, because those years involved expansion of Duke's smart grid and had more consistent performance. The four-year average is 1.02, which would provide consumers with more protection than either Duke's proposal or the PUCO Staff's recommendation.

The four-year historical performance may be a better predictor of Duke's future performance because the deployment of Duke's smart grid has been completed. The PUCO should use the 2012-2015 SAIFI historical average (1.02) for Duke's reliability standards. In the alternative, the PUCO should consider using Duke's historical average for the five-year period 2012-2016. Duke will be filing its reliability report for 2016 by

the end of this month.<sup>19</sup> That report, along with the data for 2012-2015, should give the PUCO a more accurate picture of Duke's current performance.

**B. Duke's CAIDI standards should allow for shorter outages in order to be more responsive to consumer expectations.**

As shown in Table 1, for calendar years 2011 through 2015 Duke's CAIDI performance was less consistent than its SAIFI performance. The average outage ranged from 103.26 minutes in 2012 to 117.80 minutes in 2013, a variance of about 14 percent. Despite this, Duke's performance met the CAIDI standard for each of those years, and met the standard by a considerable margin in every year but one (2013). Table 1 shows that Duke did not come close to a 122.81 CAIDI in any of those five years. The closest Duke came to that number was in 2013, when its CAIDI was 117.80 minutes. At the time, however, its standard was 118.14 minutes. Duke met its CAIDI standard during the five-year period, even when the standard was much more stringent than 122.81 minutes.

This is due, in part, to Duke's CAIDI standard increasing (i.e., allowing for longer outages) every year from 2011 through 2015. The CAIDI standard for 2015 was almost eleven minutes longer (about ten percent less reliable) than the CAIDI standard for 2011. But Duke's CAIDI standard should improve, not decline, as modernization of its grid progresses.

Duke expanded its smart grid in its Ohio service territory during those years. The smart grid includes Distribution Automation Circuit Reconfiguration ("DACR"), or "self-healing teams," technology designed to reduce the number of customers affected by

---

<sup>19</sup> Ohio Adm. Code 4901:1-10-10(C) requires Duke to file an Annual Report with actual performance data for 2016 by March 31, 2017. It appears that Duke's SAIFI for 2016 was 1.05, which is consistent with its SAIFI for 2012-2015. See *In the Matter of the Application of Duke Energy Ohio, Inc., for an Increase in Electric Distribution Rates*, Case No. 17-32-EL-AIR, et al., Direct Testimony of Cicely M. Hart (March 16, 2017) ("Hart Testimony") at 6.

short-duration outages.<sup>20</sup> Duke argues that having fewer outages, but of a longer average duration, may lead to an increased CAIDI.<sup>21</sup> The PUCO Staff apparently recognized this when it stated that “because the avoided customer minutes interrupted was proportionally larger than the avoided customer interruptions in 2014 and 2015, the impact upon CAIDI gives the appearance that SmartGrid technology negatively affects reliability. That is, CAIDI would’ve been lower (better) without SmartGrid technology.”<sup>22</sup> This mathematical anomaly, however, is no reason to establish or retain a CAIDI standard that allows longer outages of customers’ electric service.

Further, both Duke’s proposed CAIDI (134 minutes) and the PUCO Staff’s recommended CAIDI (122.81 minutes) are not consistent with customer expectations. As the PUCO Staff noted, for outages not storm related customers expect service to be restored in 65 minutes.<sup>23</sup> The PUCO Staff stated, “This expectation is not being met by either the current standards or actual performance.”<sup>24</sup> In setting Duke’s new reliability standards, the PUCO should align the expectations of Duke and its customers regarding reliability.<sup>25</sup>

---

<sup>20</sup> See *In the Matter of the Application of Duke Energy Ohio, Inc., to Adjust Rider DR-IM and Rider AU for 2013 SmartGrid Costs*, Case No. 14-1051-GE-RDR, PUCO Staff Comments (October 17, 2014) at 4.

<sup>21</sup> See Application at 8. For this reason, Duke contends that, as a reliability standard, CAIDI should be replaced with the System Average Interruption Duration Index (“SAIDI”). *Id.* SAIDI is the total duration of all customer interruptions divided by the total number of customers served. See Institute of Electrical and Electronic Engineers Guide for Electric Power Distribution Reliability Indices, IEEE Std 1366-2012, (Revision of IEEE Std 1366-2003) (May 31, 2012). Duke did not advance this position in the last electric service standards proceeding (Case No. 12-2050-EL-ORD). PUCO consideration of Duke’s position would best be left to the next case reviewing electric service rules.

<sup>22</sup> Staff Review and Recommendations at 3.

<sup>23</sup> *Id.* at 2.

<sup>24</sup> *Id.*

<sup>25</sup> See R.C. 4928.143(B)(2)(h).

Table 1 shows that Duke's average CAIDI performance over the past five years is 110.73 minutes. Based on the above, this should be Duke's new CAIDI standard.<sup>26</sup>

**C. Duke should take several operational actions to bring its CAIDI more in line with consumer expectations.**

To meet customer expectations, there should be shorter outages. This means that Duke's CAIDI performance should improve. But Duke's CAIDI performance has not significantly improved over the four years from 2012 through 2015. Duke's 2015 CAIDI performance shows a significant decline in reliability compared to the previous year, with its CAIDI (which reflects average outage duration) increasing from 106.02 minutes per interruption in 2014 to 117.32 minutes in 2015. This is an increase of 10.7 percent, or 11.3 minutes per interruption. Duke's CAIDI performance reflects the fact that, while fewer outages may be occurring, the outages being avoided are the ones with shorter outage durations, while outages with longer outage durations are not being avoided.

To move toward shorter outages, it is important to look at the causes of Duke's outages. Table 2 below shows customer outage duration data for the years 2012 through 2015 in the form of the number of customer minutes of interruption, broken down by outage cause.

---

<sup>26</sup> Duke's CAIDI for 2016 appears to be 136.42 minutes – about 11 percent higher than allowed under the current standard. *See* Hart Testimony at 6. Ms. Hart offered no explanation for missing the standard, and Duke apparently considers this to be “performing well.” *Id.* at 5-6. Because Duke's CAIDI for 2016 is so far afield from the previous four years' performance, it should not be used in calculating the CAIDI standard going forward. Instead, the PUCO should find out why Duke's 2016 CAIDI was so poor.

Table 2: Duke Rule No. 10 Data Regarding Customer Minutes of Interruption  
(excluding major events and transmission outages)

Cause	2015	2014	2013	2012
Animal/Bird	3,767,775	4,206,299	4,366,826	6,028,391
Auto Damage	11,692,002	9,363,676	10,842,015	10,979,392
Planned Outage	5,296,342	4,264,131	4,280,654	3,288,853
Equipment Failure	25,297,970	21,010,049	21,201,408	23,612,918
Lightning	2,384,507	3,018,758	3,066,548	3,421,517
Other	5,101,798	4,804,824	3,906,901	5,656,528
Tree Fell	19,825,575	18,467,883	23,136,036	15,345,614
Unknown	3,877,761	2,749,310	2,660,730	2,963,267
Weather	7,539,916	6,561,067	6,779,765	5,711,545
Total	84,783,646	74,445,997	80,240,883	77,010,037

Duke should review the causes of outages to see if cost-effective operational changes can be made to reduce the leading causes of customer outages.

There are other actions Duke can take to improve its CAIDI performance.

Related to the smart grid, Duke implemented additional distribution automation including the use of fault location, isolation, and service restoration (“FLISR”) technologies.<sup>27</sup>

FLISR is intended to enable more precise fault locating that ultimately can reduce the duration of outages.<sup>28</sup> When properly designed, FLISR can reduce the number of interrupted customers and the customer minutes interrupted by half during certain feeder outages.<sup>29</sup>

---

<sup>27</sup> U.S. Department of Energy, “Distribution Automation Results from the Smart Grid Investment Grant Program,” September 2016, at 40 (available at [https://energy.gov/sites/prod/files/2016/11/f34/Distribution%20Automation%20Summary%20Report\\_09-29-16.pdf](https://energy.gov/sites/prod/files/2016/11/f34/Distribution%20Automation%20Summary%20Report_09-29-16.pdf).)

<sup>28</sup> *Id.* at 5.

<sup>29</sup> *Id.*

Duke deployed advanced meters with outage diagnostic features that are intended to help improve fault locating.<sup>30</sup> Duke has purportedly provided field crews with additional automation and better tools to identify the precise location for repair of electric faults so the restoration efforts can be accelerated.<sup>31</sup> Duke claims that these capabilities have reduced outage assessment times by 20 percent.<sup>32</sup> Despite these claims, reductions in outage assessment times apparently are not translating into actual shorter duration outages for Duke's customers.

Reliability performance can also be improved by Duke being more consistent in meeting its annual requirements concerning the inspection, maintenance, repair, and replacement of its distribution facilities as required by Ohio Adm. Code 4901:1-10-27(E). In fulfillment of statutory requirements in R.C. 4928.11(A), the PUCO has mandated prescriptive standards concerning the inspection, maintenance, repair and replacement requirements that electric utilities are obligated to meet.

Over the last several years, Duke has failed to meet its annual distribution system inspection, maintenance, repair, and replacement requirements on multiple occasions.<sup>33</sup> For example, Duke has not consistently achieved its vegetation management line clearing requirements, complied with all inspection requirements for distribution substations and line inspections, and fulfilled its obligation to perform full inspections of distribution lines and facilities. Ultimately, this means that Duke is not providing even the basic

---

<sup>30</sup> *Id.* at 40-43.

<sup>31</sup> *Id.*

<sup>32</sup> *Id.*

<sup>33</sup> See *In the Matter of the Annual Report of Duke Energy Ohio Pursuant to Rule 26 of the Electric Service and Safety Standards, Ohio Administrative Code 4901:1-10-26*, Case No. 16-999-EL-ESS, Annual Report (March 23, 2016) at 55-58.

inspection, maintenance, repair, and replacement programs that are essential for customers to obtain the reliable service they are paying for in distribution rates.

Increasing the number of minutes allowed for customer interruptions is not the solution to the mathematical anomaly that smart grid deployment may have on CAIDI performance. Rather, the solution is to take additional actions to find cost-effective operational improvements that address the cause of customer outages, thereby reducing the length of electric service outages that customers endure.

### **III. CONCLUSION**

Consumers should not be at risk of poorer service reliability despite paying hundreds of millions of dollars in grid improvements. Although the PUCO Staff's recommendation to retain the current standards is more beneficial to consumers than Duke's proposal, the standards should be more stringent to recognize improvements made through the customer-funded smart grid and DCIR. More stringent standards are necessary to help Ohioans receive the benefits from the hundreds of millions of dollars they have paid for improvements to Duke's distribution system through the numerous charges added on to their bills.

Reliability standards set at 1.02 SAIFI and 110.73 minutes CAIDI would help reduce consumers' risk associated with electric service outages. To protect consumers, the PUCO should adopt new reliability standards for Duke consistent with OCC's Comments and Reply Comments.

Respectfully submitted,

BRUCE WESTON (0016973)  
OHIO CONSUMERS' COUNSEL

/s/ Terry L. Etter

Terry L. Etter (0067445), Counsel of Record  
Jodi J. Bair (0062921)  
Assistant Consumers' Counsel

**Office of the Ohio Consumers' Counsel**

10 West Broad Street, Suite 1800

Columbus, Ohio 43215-3485

Telephone: 614-466-7964 (Etter Direct)

Telephone: 614-466-9559 (Bair Direct)

[Terry.etter@occ.ohio.gov](mailto:Terry.etter@occ.ohio.gov)

[Jodi.bair@occ.ohio.gov](mailto:Jodi.bair@occ.ohio.gov)

(will accept service via email)

## **CERTIFICATE OF SERVICE**

I hereby certify that a copy of these Reply Comments was served on the persons stated below via electronic transmission, this 24<sup>th</sup> day of March 2017.

/s/ Terry L. Etter

Terry L. Etter

Assistant Consumers' Counsel

## **SERVICE LIST**

Thomas.lindgren@ohioattorneygeneral.gov    Amy.Spiller@duke-energy.com  
Elizabeth.Watts@duke-energy.com

Attorney Examiner:

Nicholas.walstra@puc.state.oh.us

**This foregoing document was electronically filed with the Public Utilities**

**Commission of Ohio Docketing Information System on**

**3/24/2017 4:24:46 PM**

**in**

**Case No(s). 16-1602-EL-ESS**

Summary: Reply Reply Comments by The Office of the Ohio Consumers' Counsel electronically filed by Ms. Jamie Williams on behalf of Etter, Terry Mr.