

**BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the Application of)
The Application of Ohio Edison)
Company, The Cleveland Electric) Case Nos. 18-1604-EL-UNC, et al.
Illuminating Company, and The)
Toledo Edison Company to)
Implement Matters Relating to the)
Tax Cuts and Jobs Act of 2017

**TESTIMONY
OF
Krystina Schaefer
Grid Modernization and Security Division
RATES AND ANALYSIS DEPARTMENT**

STAFF EXHIBIT NO. _____

January 14, 2019

1. Please state your name and your business address.

My name is Krystina Schaefer. My business address is 180 East Broad Street,
Columbus, Ohio 43215.

2. By whom are you employed?

I am employed by the Public Utilities Commission of Ohio (PUCO or
Commission) as Chief of the Grid Modernization and Security Division within the
Rates and Analysis Department.

3. Would you briefly state your educational and work experience?

I received a Bachelor of Science degree in Political Science with a minor in
Business from The Ohio State University, a Master of City and Regional Planning
degree from The Ohio State University, and a Master of Business Administration
degree from Capital University.

In September of 2010, I joined the PUCO full-time as a Utility Analyst in the
Efficiency and Renewables Division of the Energy and Environment (E&E)
Department. In March of 2011, I was promoted to a Public Utilities Administrator
1 position in the Facilities, Siting and Environmental Analysis Division of the
E&E Department. In August of 2014, I was promoted to a Public Utilities
Administrator 2 position in the Forecasting, Markets and Corporate Oversight

1 Division of the Rates and Analysis Department. Most recently, in February of
2 2017, I was promoted to my current position.

3
4 **4. What is the purpose of your testimony?**

5 The purpose of my testimony is to describe how implementation of advanced
6 metering infrastructure (“AMI”), distribution automation (“DA”), and integrated
7 volt-VAR control (“IVVC”), as detailed in the Stipulation, will benefit ratepayers
8 and the public interest.

9
10 **5. Please provide an overview of the AMI deployment.**

11 As part of the Stipulation, the Ohio Edison Company, The Cleveland Electric
12 Illuminating Company, and The Toledo Edison Company (collectively, the
13 “Companies”) will deploy AMI, including 700,000 advanced meters, and a meter
14 data management system (“MDMS”), along with system and process updates
15 needed to enable advanced data access.¹

16

¹ *In the Matter of the Filing by Ohio Edison Company, The Cleveland Electric Illuminating Company and The Toledo Edison Company of a Grid Modernization Business Plan*, Case No. 16-841-EL-UNC, et al., Stipulation and Recommendation (Stipulation) at 14-19 (Nov. 9, 2018).

1 **6. Please describe the benefits associated with the AMI deployment.**

2 AMI investments will produce operational savings for the Companies that will be
3 passed back to ratepayers. Specifically, the estimated operational benefits
4 contained in ‘Attachment D’ of the Stipulation will be credited against the revenue
5 requirement of Rider AMI during the quarterly update and reconciliation process
6 and will continue until the next base rate case, at which point the actual
7 operational savings will be reflected in base rates. These operational benefits
8 include reductions in meter reading expenses, increased revenues from improved
9 theft detection and meter accuracy, and improved operational efficiencies.

10 Midway through the Grid Mod I deployment, the level of operational savings for
11 all included technologies will be reviewed by a third-party consultant and the
12 credit to Rider AMI may be modified, based on the findings of the review and
13 subject to Commission approval.

14 Additionally, and in furtherance of Ohio state policy, AMI investments will
15 produce more direct benefits to customers by providing access to innovative
16 products and services available in the market.²

² “It is the policy of this state to do the following throughout this state: (D) Encourage innovation and market access for cost-effective supply- and demand-side retail electric service including, but not limited to, demand-side management, time-differentiated pricing, waste energy recovery systems, smart grid programs, and implementation of advanced metering infrastructure.” R.C. 4928.02(D).

1 Specifically, the AMI deployment will include a MDMS which will produce
2 interval data that has gone through the validation, editing and estimation process,
3 i.e., “bill-quality” data. The Companies will upgrade the systems and processes
4 used for settlement purposes, so the interval data can be used for settling
5 individual total hourly energy obligation, peak load contribution, and network
6 service peak load values for each customer, instead of relying on generic load
7 profiles. In addition, the Companies will implement system enhancements to
8 enable competitive retail electric service providers to access the AMI data, so
9 more customized products and services can be developed in the retail market.

10 Customers will be able to access their energy usage data through a web portal and
11 near real-time data through a home area network.³ With customer authorization,
12 third parties will also be able to access customer energy usage data. Overall, these
13 investments will offer customers new opportunities to understand and manage
14 their energy usage, e.g., invest in less energy intensive products, shift usage to off-
15 peak periods, etc.

16 Finally, within six months of an Opinion & Order in the current case, and after
17 consultation with the Collaborative,⁴ the Companies will propose a time-varying

³ Stipulation at 16.

⁴ Pursuant to this Stipulation, a Grid Mod Collaborative group will be established by the Companies to provide updates to stakeholders on the status of the project throughout implementation and gather stakeholder input.

1 rate designed to achieve the energy and capacity savings detailed in the cost-
2 benefit analysis, which will remain until sufficient CRES offerings exist, as
3 detailed in the Stipulation.⁵

4
5 **7. Please provide an overview of the DA and IVVC deployment.**

6 As part of the Stipulation, the Companies will install DA on at least 200 circuits
7 and install IVVC on at least 202 circuits.⁶

8 In conjunction with an ADMS, the DA deployment will improve reliability and
9 outage management through: remote fault isolation and diagnostics, automated
10 feeder switching, outage status monitoring and notification, and optimized
11 restoration operations, as detailed in the Stipulation.⁷ Further, the IVVC
12 deployment in conjunction with an ADMS will optimize voltage management
13 through: IVVC, automated voltage regulation, conservation voltage reduction,
14 real-time load balancing, and automated power factor corrections.⁸

⁵ Stipulation at 17-18.

⁶ Stipulation at 19.

⁷ Stipulation at 20 (citing U.S. Department of Energy, Results from the Smart Grid Investment Grant Program: Distribution Automation at 11 (September 2016), *available at* https://www.energy.gov/sites/prod/files/2016/11/f34/Distribution%20Automation%20Summary%20Report_09-29-16.pdf)

⁸ Stipulation at 20.

1 **8. Please describe the benefits associated with the DA and IVVC deployment.**

2 In general, DA and IVVC investments will improve reliability, enable faster
3 restoration of outages, and reduce energy usage and peak demand. In addition, the
4 savings will further state policy, as savings count toward the Companies’
5 benchmarks for energy efficiency and peak demand reduction programs, pursuant
6 to Chapter 4928.66 of the Ohio Revised Code.

7 The Stipulation also requires the Companies to quantify the reliability
8 improvements associated with these investments against minimum performance
9 standards using the Customer Average Interruption Duration Index⁹ (CAIDI) and
10 System Average Interruption Frequency Index¹⁰ (SAIFI). Within six months of an
11 Opinion and Order in this case, the Companies will file an application to revise the
12 Companies’ current reliability performance standards, pursuant to Chapter 4901:1-
13 10(B)(7) of the Ohio Administrative Code. In addition, no later than one year
14 after deployment of Grid Mod I, the Companies will file another application to

⁹ CAIDI represents the average interruption duration or average time to restore service per interrupted customer. CAIDI is expressed by the following formula: sum of customer interruption durations (minutes) divided by total number of customer interruptions. Ohio Adm. Code 4901:1-10-10(B)(1).

¹⁰ SAIFI represents the average number of interruptions per customer. SAIFI is expressed by the following formula: total number of customer interruptions divided by total number of customers served. Ohio Adm. Code 4901:1-10-10.

1 revise their reliability performance standards in order to incorporate actual
2 performance improvements from these investments.¹¹

3 Finally, as with the AMI investment, customers will benefit from operational
4 savings associated with the installation of DA and an ADMS, which will be
5 credited against the revenue requirement of Rider AMI during the quarterly update
6 and reconciliation process until the next base rate case, at which point the actual
7 operational savings will be reflected in base rates.¹²

8
9 **9. Does this conclude your testimony?**

10 Yes, it does. However, I reserve the right to submit supplemental testimony, as
11 new information becomes available or in response to positions taken by other
12 parties.

¹¹ Stipulation at 21.

¹² Stipulation at 23-24.

CERTIFICATE OF SERVICE

This is to certify that the foregoing **Testimony of Krystina Schaefer** has been served upon all of the parties of record in Case Nos. 18-1604-EL-UNC, et al. by electronic and/or U.S. mail, postage pre-paid mail this 14th day of January, 2019.

/s/Thomas G. Lindgren

Thomas G. Lindgren
Assistant Attorney General

PARTIES OF RECORD:

mkurtz@bkllawfirm.com
kboehm@bkllawfirm.com
jkylercohn@bkllawfirm.com
gkrassen@bricker.clm
dstinson@bricker.com
mleppla@theoec.org
tdougherty@theoec.org
jfinnigan@edf.org
paul@carpenterlipps.com
bojko@carpenterlipps.com
dressel@carpenterlipps.com
ghiloni@carpenterlipps.com
cmooney@ohiopartners.org
glpetrucci@vorys.com
mwarnock@bricker.com
dborchers@bricker.com
terry.etter@occ.ohio.gov
Christopher.healey@occ.ohio.gov
Angela.obrien@occ.ohio.gov

jeckert@firstenergycorp.com
bknipe@firstenergycorp.com
jang@calfee.com
mkeaney@calfee.com
fdarr@mwncmh.com
mpritchard@mwncmh.com
mfleisher@elpc.org
rdove@keglerbrown.com
mdortch@kravitzllc.com
dborchers@bricker.com
dparram@bricker.com
nhewell@bricker.com
joliker@igsenergy.com
mnugent@igsenergy.com
Bethany.allen@igs.com
whitt@whitt-sturtevant.com
glover@whitt-sturtevant.com

Attorney Examiners:

Megan.addison@puc.state.oh.us
Gregory.price@puc.state.oh.us

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

1/14/2019 3:21:13 PM

in

Case No(s). 18-1604-EL-UNC

Summary: Testimony of Krystina Schaefer electronically filed by Ms. Tonnetta Scott on behalf of PUC