

**BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO**

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. 16-481-EL-UNC
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)	
In the Matter of the Filing by Ohio Edison Company, The Cleveland Electric Illuminating Company and The Toledo Edison Company Application for Approval of a Distribution Platform Modernization Plan)	
)	
)	Case No. 17-2436-EL-UNC
)	
)	
In the Matter of the Application of Ohio Edison Company, The Cleveland Electric Illuminating Company and The Toledo Edison Company to Implement Matters Relating to the Tax Cuts and Jobs Act of 2017)	
)	
)	Case No. 18-1604-EL-UNC
)	
)	
In the Matter of the Application of Ohio Edison Company, The Cleveland Electric Illuminating Company, and The Toledo Edison Company for Approval of a Tariff Change)	
)	
)	Case No. 18-1656-EL-ATA

STIPULATION AND RECOMMENDATION

I. INTRODUCTION

The customers of Ohio Edison Company, The Cleveland Electric Illuminating Company and The Toledo Edison Company (the “Companies”), will benefit from this Stipulation and Recommendation (“Stipulation”) among the Companies, Public Utilities Commission of Ohio (“Commission”) Staff (“Staff”), and other parties who have signed below (collectively, the “Signatory Parties”). In resolving the above-captioned

proceedings, the Stipulation provides for all tax savings associated with the Tax Cuts and Jobs Act of 2017 (“TCJA”) to flow back to customers, and the implementation of electric distribution grid modernization plans so that customers in all three of the Companies’ service areas will benefit from grid modernization investments.

The resolution of TCJA tax savings and the Companies’ grid modernization proposals will provide significant benefits to the Companies’ customers. With respect to tax savings under the TCJA, the Companies’ customers have already been receiving nearly \$40 million in annual tax savings since early 2018. The Stipulation will provide the remainder of all tax savings to the Companies’ customers, bringing the total amount of customer savings to approximately \$900 million. Further, the Stipulation provides for electric distribution grid modernization initiatives which will improve system reliability, enable faster restoration of service after outages, improve voltage conditions on the distribution system, allow customers to make more informed choices about energy usage, facilitate access to customer data by authorized competitive retail electric service providers, and better enable the Companies to make future electric distribution grid modernization investments.

The Stipulation is consistent with the PowerForward Roadmap,¹ which resulted from the Commission’s review of the latest in technological and regulatory innovation through the three workshops that could serve to enhance the consumer electricity experience. The Commission stated in the PowerForward Roadmap that PowerForward is “built upon the pairing of two pillars: (i) innovation; and the concept that this innovation

¹ *PowerForward: A Roadmap to Ohio’s Electricity Future*, available at <https://www.puco.ohio.gov/industry-information/industry-topics/powerforward/powerforward-a-roadmap-to-ohios-electricity-future/>.

should serve to (ii) enhance the customer electricity experience.” By entering into this Stipulation, the Companies, Staff and the other Signatory Parties advance the Commission’s PowerForward Roadmap forward for future grid modernization projects, innovative regulations and forward-thinking policies for the benefit of customers.

The Companies filed their grid modernization business plan in Case No. 16-481-EL-UNC to commence a process in which interested parties would have the opportunity to provide feedback and to make suggestions on the development of a grid modernization strategy that would work best for the Companies’ system to provide the greatest benefits to the Companies’ customers. The Companies subsequently proposed a Distribution Platform Modernization (“DPM”) Plan, filed in Case No. 17-2436-EL-UNC, as an effective complement to PowerForward and consistent with its objectives. The DPM Plan proposed to begin modernizing the Companies’ distribution system and “charting a path forward for future grid modernization projects” in the Companies’ service territories. As a result, the Companies’ first phase of a grid modernization plan proposed herein – “Grid Mod I” – includes attributes from both the grid modernization business plan and the DPM Plan, and will provide direct and substantive customer benefits while better positioning the Companies to enable future grid modernization investments.

Additionally, the Commission established a generic, industry-wide proceeding in Case No. 18-47-AU-COI to address the impacts of the Tax Cuts and Jobs Act of 2017 (“TCJA”) and to “determine the appropriate course of action to pass benefits resulting from the legislation on to ratepayers.”² On January 12, 2018, the Companies filed updated

² *In the Matter of the Commission’s Investigation of the Financial Impact of the Tax Cuts and Jobs Act of 2017 on Regulated Ohio Utility Companies*, Case No. 18-47-AU-COI, Entry at 1 (Jan. 10, 2018).

Riders DMR and DCR which incorporated the TCJA's lower federal corporate income tax rate. The Companies also updated other riders impacted by the TCJA in accordance with their approved rider update and reconciliation process. These updated riders resulted in annual customer savings of nearly \$40 million. The Companies also actively participated in Case No. 18-47-AU-COI, submitting comments on two questions posed by the Commission: (1) components of utility rates to be reconciled with the TCJA; and (2) the process and mechanics for how the Commission should perform this reconciliation for each utility. On October 24, 2018, the Commission entered a Finding and Order in Case No. 18-47-AU-COI, ordering that by January 1, 2019, all Ohio rate-regulated utility companies, unless ordered otherwise, should file an application "not for an increase in rates" pursuant to R.C. 4909.18 to reflect the TCJA's impact on each specific utility's current rates. In furtherance of these efforts, the Companies filed Case No. 18-1604-EL-UNC on October 30, 2018, to establish a process specific to the Companies to implement matters relating to the TCJA for the Companies, and the Signatory Parties have engaged in discussions regarding the individual TCJA-related adjustments to be made by the Companies. Those adjustments, as agreed to and supported by the Signatory Parties, are set out below.

In addition, each of the Companies filed, simultaneously with this Stipulation, an application "not for an increase in rates" pursuant to R.C. 4909.18 and in accordance with the Commission's October 24, 2018 Order in Case No. 18-47-AU-COI.

II. BACKGROUND

Rule 4901-1-30, Ohio Administrative Code, provides that any two or more parties to a proceeding may enter into a written stipulation covering the issues presented in such a

proceeding. The purpose of this document is to set forth the understanding and agreement of the Signatory Parties and to recommend that the Commission approve and adopt this Stipulation, as part of its Opinion and Order in these proceedings, resolving all of the issues in the proceedings.

All intervenors in the above-referenced dockets were invited to discuss this Stipulation, and it was openly negotiated among those stakeholders who chose to participate. This Stipulation benefits customers, supports Commission policy objectives and is supported by adequate data and information; represents a just and reasonable resolution of issues in this proceeding; violates no regulatory principle or precedent; and is the product of serious bargaining among knowledgeable and capable Signatory Parties in a cooperative process and undertaken by the Signatory Parties representing a wide range of interests to resolve the aforementioned issues. As an accommodation of the interests represented by the Signatory Parties, the Stipulation is entitled to careful consideration by the Commission. For purposes of resolving the issues raised by this proceeding, the Signatory Parties stipulate, agree and recommend as set forth below.

III. PARTIES

This Stipulation is entered into by and among the Companies and the other Signatory Parties hereto.

IV. RECITALS

WHEREAS, the Companies filed their grid modernization business plan on February 29, 2016, in furtherance of the commitment made in the Companies' fourth Electric Security Plan ("ESP IV") approved by the Commission in Case No. 14-1297-EL-SSO, in order to provide a timeline for the Companies to achieve full smart meter

implementation with data and transfer capabilities and examples of grid modernization initiatives, such as advanced metering infrastructure (“AMI”), distribution automation (“DA”), and Integrated Volt/Volt-Ampere Reactive (“VAR”) Control (“IVVC”);

WHEREAS, the Companies filed their DPM Plan on December 1, 2017. Following the filing date, the Companies communicated with Staff regarding the potential settlement of this proceeding and the grid modernization business plan proceeding, and subsequently engaged in negotiations with parties³ culminating in the development of this Stipulation with the Signatory Parties;

WHEREAS, the Companies filed their TCJA application on October 30, 2018, to implement matters relating to the TCJA for the Companies;

WHEREAS, all of the related issues and concerns raised by the Signatory Parties have been addressed in the substantive provisions of this Stipulation, and reflect, as a result of such discussions and compromises by the Signatory Parties, an overall reasonable resolution of all such issues. This Stipulation is the product of the discussions and negotiations of the Signatory Parties, and it is not intended to reflect the views or proposals which any individual party may have advanced acting unilaterally. Accordingly, this Stipulation represents an accommodation of the diverse interests represented by the Signatory Parties, and is entitled to careful consideration by the Commission;

WHEREAS, the Grid Mod I plan and the resolution of TCJA issues as set forth in this Stipulation represents a serious compromise of complex issues and involves substantial customer benefits;

³ The Companies made reasonable efforts to meet with all interested parties to these proceedings to engage in meaningful settlement discussions.

WHEREAS, the Signatory Parties stipulate and agree to the Grid Mod I plan and the resolution of TCJA issues as set forth below;

NOW, THEREFORE, the Signatory Parties stipulate, agree and recommend that the Commission approve this Stipulation and issue its Opinion and Order in accordance herewith, and request that the Commission act by December 31, 2018, so that the Companies may expeditiously begin to provide the benefits of the Grid Mod I plan and begin to flow the additional TCJA tax savings back to customers.

V. TERMS AND CONDITIONS

Set forth below are the specific terms and conditions agreed to by the Signatory Parties that resolve the Companies' grid modernization business plan, DPM Plan and TCJA proceedings.⁴ The Stipulation is a package that includes both Phase One of a grid modernization plan ("Grid Mod I") – which completely resolves Case Nos. 16-481-EL-UNC and 17-2436-EL-UNC – and resolution as to the refund of all of the savings associated with the TCJA. The Signatory Parties expressly agree and recommend that the Commission approve and adopt this Stipulation in its entirety without modification.

A. TCJA Resolution

The Companies agree to refund all tax savings associated with the TCJA including riders, tax savings not reflected in riders, and the return over time of all of the normalized and non-normalized excess accumulated deferred income tax ("EDIT"),⁵ from January 1,

⁴ Capitalized terms not otherwise defined herein have the same meaning as in the Companies' DPM Plan.

⁵ Normalized EDIT is comprised of balances that are required to be amortized in accordance with ARAM. Non-normalized EDIT is comprised of balances that do not have any IRS limitation placed on the amortization.

2018.⁶ The Companies will credit tax savings through a new credit mechanism established for each Company in an ATA proceeding filed simultaneously with this Stipulation.⁷ In order to ensure the proper amount is refunded to customers annually, the credit mechanism will be reconciled on an annual basis. This treatment of tax savings not reflected in riders will commence effective January 1, 2018, and will continue until new base distribution rates become effective as a result of the Companies' next base distribution rate case.

- a. Normalized EDIT. The Companies will amortize all normalized EDIT net liabilities in accordance with ARAM (average rate assumption method). Rider DCR would reflect the inclusion of the normalized and unamortized non-normalized property EDIT balances as of December 31, 2017 as part of Rider DCR rate base. The Companies will include in the new credit mechanism a return on the cumulative amortized normalized EDIT net liabilities. The return will be calculated in the same manner as Rider DCR.⁸
- b. Non-Normalized EDIT. The Companies will amortize non-normalized non-property EDIT balances over a 5-year period and non-normalized property EDIT balances over a 10-year period. The amortization of all EDIT balances will be included in the new credit mechanism.

⁶ Carrying charges on the current tax savings not reflected in riders at the latest approved long-term debt rate will apply.

⁷ Tax savings include \$35 million annually as result of federal income tax reduction not otherwise accounted for in current riders. In addition, the tax savings will include net EDIT amortization.

⁸ The normalized EDIT included in the DCR rate base will be fixed at the December 31, 2017 balance, and not be amortized through the DCR. The non-normalized property EDIT included in the DCR rate base will be updated as the balance is amortized.

- c. EDIT Amount. The actual amount of EDIT flowing back to customers will reflect the final, audited balances, including a federal and state tax gross up, as of December 31, 2017.
- d. EDIT Treatment. The treatment of the EDIT balances will commence effective January 1, 2018 and will continue until the balances have been fully amortized.
- e. Rate Design. The amount included in the new credit mechanism for current tax savings not reflected in riders will be allocated to residential and non-residential rate schedules based on the allocation factors contained in the Companies' last base rate cases and the EDIT amortizations will be credited to customers in the following manner: one-half of the EDIT amount will be allocated to residential and non-residential rate schedules based on the basis of the 4CP methodology. The 4CP methodology shall be based on the Companies' 4CP for the 2017 calendar year. One-half of the EDIT amount to be credited to customers shall be allocated to residential and non-residential rate schedules based on 2017 kilowatt-hour sales. Those allocations shall remain fixed for the term of the credit mechanism. The credit mechanism for the EDIT amount will not terminate when new base rates become effective. The resulting amounts shall be returned to customers as a credit that shall be calculated on the basis of dollars per kWh.
- f. Credit Template. Attachment A reflects the template for the new credit mechanism.
- g. Credit Rider Proceeding. The Companies are filing an ATA proceeding simultaneously with the filing of this Stipulation in order to establish a rider for

each Company to refund the TCJA tax monies, and the Signatory Parties agree that the ATA proceeding should be consolidated with Cases Nos. 17-2436-EL-UNC, 16-481-EL-UNC, and 18-1604-EL-UNC.

- h. Pole Attachment Tariff. Annual amortization of EDITs related to the TCJA flowing through the pole attachment tariff will be removed from the amounts included in the TCJA savings credit mechanism.

B. Grid Modernization - Generally

- a. Individual Plans. While the Grid Mod I plan described herein is in the aggregate, individual plans will be implemented for each operating company so that customers in all three service areas will benefit from grid modernization investments including: AMI; a Meter Data Management System (“MDMS”) with associated systems and processes needed to enable advanced data access; DA; IVVC; and an Advanced Distribution Management System (“ADMS”).
- b. Operating Company Rates. Rates specific to each operating company will be individually calculated based on the costs to and benefit for each operating company.

C. Grid Modernization Projects

- a. Positive Cost-Benefit Analysis. The Companies, Staff and other Signatory Parties agree that Grid Mod I produces a positive cost-benefit analysis (on a net present value basis). (See in Attachment B.)
- b. Cost Recovery and Audit Process. The Companies will be authorized to recover their actual capital costs up to \$516 million of Grid Mod I assets (as detailed herein) through Rider AMI (Advanced Metering Infrastructure/Modern

Grid Rider). When appropriate, the Companies should utilize competitive procurement methods to acquire Grid Mod I assets.

- i. Grid Mod I will be constructed over a three-year budget period. The assets associated with Grid Mod I will be depreciated as listed in paragraph iii of this subsection. The net present value cost-benefit analysis is based on 20 years of operation.
- ii. All used and useful costs associated with Grid Mod I will be recovered under the Companies' approved Rider AMI as authorized in Case No. 14-1297-EL-SSO as modified herein. Each Company will have its own Rider AMI rate for its share of the costs associated with Grid Mod I.
- iii. Capital costs associated with AMI investments, including advanced meters and supporting communications networks, will be recovered over a depreciable life of 15 years. Capital costs associated with all other investments included in Grid Mod I will be recovered pursuant to the depreciation rates authorized by the Commission in Case No. 07-551-EL-AIR.
- iv. Incremental operation and maintenance ("O&M") costs will be limited to only such costs which are actual, demonstrable, and truly incremental to the O&M costs collected in base rates. Further, no incremental O&M costs associated with Grid Mod I shall be eligible for recovery over an aggregate of \$139 million for the first three years of deployment, which includes the \$72.2 million for the retirement of non-AMI meters (described below). In an application for the second phase of Grid Mod

projects (“Grid Mod II”), the Companies may request to consolidate the incremental O&M caps and the amounts being credited for operational savings for both phases (Grid Mod I and Grid Mod II). However, if there is no approved Grid Mod II by the start of the fourth year and until such time as there is an approved Grid Mod II, the incremental O&M will continue to be subject to a cap through the sixth year, based on the annual estimates included in the cost benefit analysis for Grid Mod I, as follows:

- Year 4: \$15.2 million;
 - Year 5: \$10.3 million; and
 - Year 6: \$10.5 million.
- v. Each of the Companies shall include their actual capital and incremental O&M cost records as part of their annual Rider AMI audit application. Annual audits will encompass a review of the aforementioned capital expenditures and incremental O&M expenses. Annual audits will include, but not be limited to, the following:
1. On-site inspections of new capital assets;
 2. Tracing capital expenses from continuing property records, invoices, and other supporting documentation to the used and useful assets. Additionally, tracing used and useful assets to continuing property records, invoices, and other supporting documentation;
 3. Verification of proper accounting and computation of annual property tax expense;

4. Verification of proper accounting and computation of state, local, and federal income tax expense, as well as taxes other than income;
 5. Verification of proper accounting and computation of annual depreciation expense;
 6. Verification that incremental labor O&M expense included for recovery in Rider AMI is only associated with employees fully dedicated to the Grid Mod I plan and in roles not already recovered in current base rates.⁹ Annual audits will require review of timesheets, employee position numbers, position descriptions, and organizational charts;
 7. Verification that non-labor O&M expenses are incremental. Annual audits will require review of any applicable allocations; justifications for allocation percentages; supporting invoices and other documentation; contracts; Request for Proposals; listings of off applicable transactions in Excel and journal entry reports; and
 8. Verification of proper accounting for Rider AMI revenues.
- vi. Rider AMI will continue to be subject to annual audits consistent with the process approved in ESP III¹⁰ and continued in ESP IV, and as modified by this Stipulation.

⁹ For employees whose compensation is currently recovered in base rates but are in new roles fully dedicated to Grid Mod I, the Companies will provide verification that their previous positions have been backfilled so as to prevent double recovery of an individual's compensation.

¹⁰ The Companies' third Electric Security Plan, approved in Case No. 12-1230-EL-SSO.

- vii. The Companies and Staff acknowledge that the Commission directed the Companies to file a base rate case at the end of ESP IV, in Case No. 14-1297-EL-SSO.
- c. Grid Mod Collaborative Group. The Companies will facilitate a Grid Mod collaborative group to update stakeholders on the status of the project throughout implementation of the Grid Mod plans and to provide for customer input and advice. Additionally, once per quarter, the Companies will facilitate a group to gather stakeholder input associated with data access systems and processes.
- d. Advanced Meter Deployment and Data Enhancement. The Companies will install, as part of Grid Mod I, 700,000 advanced meters along with the necessary supporting communications infrastructure, and a MDMS, and associated systems and process. To enable customer opportunity to receive products and services which utilize their meter, the Companies will provide a map of where AMI is being deployed with dates of deployment and an AMI tag on the Customer Information List provided to CRES providers.
 - i. The AMI deployment will utilize a scalable MDMS, which enables the validation, editing, and estimating (“VEE”) of meter data for billing purposes, and can be leveraged for future advanced meter deployments.
 - ii. The AMI deployment will utilize the necessary and generally accepted standards, e.g. Smart Energy by Zigbee Alliance, to implement a Home Area Network, so that customers can connect qualified devices (e.g. in-home displays, smart programmable thermostats, etc.). The technical

eligibility requirements for qualification purposes, including those for security, will be developed through the Grid Mod collaborative group. To enable customer choice and variety of product options, a qualified device will not be limited to devices supplied only by the Companies or an affiliate.

- iii. The Companies will implement data access enhancements for customers and competitive retail electric service (“CRES”) providers. This should include the necessary upgrades to systems and processes for wholesale market settlements, i.e. calculating and settling individual total hourly energy obligation (“THEO”), peak load contribution (“PLC”), and network service peak load (“NSPL”) values for each customer, instead of relying on generic load profiles. The Companies shall exercise best efforts to begin calculating wholesale market settlement statements based upon THEO, PLC, and NSPL as the meters become certified. CRES data transmitted to PJM will be, at a minimum, hourly interval, and data utilized and transmitted to CRES providers will be at the metered level. The THEO, PLC, and NSPL data will be made available to authorized CRES providers, consistent with 4901:1-10-24 of the Ohio Administrative Code, through the pre-enrollment list and electronic data interchange (“EDI”) transactions, as applicable. The Companies will also allow CRES providers to access the data through an Application Program Interface (API). The process will permit batched retrieval of data for both prospective and existing customers. Data retrieved

through API will include the most current data available. The Grid Mod Collaborative will evaluate for purposes of Grid Mod II the benefits and costs associated with providing data (whether through API, EDI, or another technology such as data streaming) using 15-minute intervals, one minute and sub-second data availability and making VEE certified data available as quickly as possible. There will be no fees associated with accessing or requesting data provided via EDI, customer portal, or supplier portal (including data accessed through API). The Grid Mod collaborative will identify ways to make the customer authorization process easy for consumers.

- i. Customer access will be provided by a customer portal and a Home Area Network. The Companies will provide the Green Button “Download My Data” format on their customer portal. The Companies will also provide system-to-system access to authorized third parties through the current standardized format which will allow customer interval data to be automatically accessed. The Grid Mod collaborative will discuss the authorization process for third party access and identify a method to ensure the process is easy for consumers. The Companies will evaluate Green Button “Connect My Data” through the grid modernization collaborative. Any enhancements to data access will be coordinated with the Data and Modern Grid Workgroup.

- iv. The Companies will develop a process for CRES providers to provide customer consent in order to access data for prospective customers. When data is requested, the system will immediately or nearly immediately process and return the requested data.
 - i. The Companies will begin using AMI for calculation of individualized PLC after the meter exchange has occurred where the VEE certified AMI data has been read for any qualifying peak events. For peaks utilized in the PLC calculation before the meter exchange has occurred, the current method of using register reads and profiles will be used. Data for purposes of billing and scheduling will be provided via EDI or the standard form used for billing systems by the Companies and suppliers.
 - ii. VEE certified meters can be used for purposes of settlement of customers receiving net metering service from certified suppliers, so long as it is consistent with the applicable net metering rules.
- v. Within six months of an Opinion & Order in the current case, and after consultation with the Grid Mod collaborative group, the Companies will propose a time-varying rate offering for non-shopping customers, which will be designed to achieve the energy and capacity savings detailed in the cost-benefit analysis and should leverage enabling devices, e.g. smart thermostats. The Companies will work with suppliers to have data ready for a supplier-offered time-of-use product to customers upon VEE certification of AMI meters. Once there are either (a) at least three

suppliers offering products utilizing AMI data or (b) at least three different types of time-varying products utilizing AMI data, then the Companies, with Commission approval, will withdraw their SSO time-of-use rate offering. Costs associated with the implementation, administration, or marketing of the Companies' time-varying rate offering shall be recovered through a bypassable charge upon Commission approval.

- vi. Within six months of the Opinion & Order in these consolidated cases, the Companies will meet with the Grid Mod collaborative group and subsequently submit a plan to Staff detailing the time-varying rate options it reasonably believes will be offered to retail customers by CRES providers. The Companies are not obligated to guarantee that a time-varying rate option will be offered by any CRES.

e. Advanced Metering Infrastructure / Modern Grid Rider (Rider AMI)

- i. AMI meter additions will be recovered through Rider AMI using project-specific individual work orders and project codes.
- ii. There is to be a separate depreciation group for the AMI meters separate and distinct from project retired meters ("PRMs").¹¹
- iii. The PRMs shall be retired through Rider DCR on a real-time basis and the costs associated with the remaining net book value of the PRMs recovered through Rider AMI shall be capped at \$72.2 million, which

¹¹ Project retired meters are those that are being retired specifically for replacement with an AMI meter, as part of Grid Mod I.

includes the cost of removal. The cost of 700,000 PRMs is included as part of the \$139 million as described in section V.C.b.iv, above.

- iv. The PRMs that will be recovered as an expense in Rider AMI, will be based upon the number of PRMs multiplied by the average net book value (“NBV”) of all non-AMI meters.

f. Delivery Capital Recovery Rider (Rider DCR)

- i. PRM retirements in Rider DCR will be reflected pursuant to normal plant accounting.
- ii. The Companies shall subaccount the non-meter items in Account 370. The expense being recovered in the AMI Rider shall be recorded to the Account 370 reserve.
- iii. The treatment of the PRMs will have no impact on the Rider DCR revenue caps.
- iv. The Companies will provide a full depreciation study by June 30, 2023 with a date certain of December 31, 2022.
- v. A target of 5,000 meters removed from service shall be timely tested, refurbished, and restocked where appropriate to replace the failure of non-AMI meters in the Companies’ territories.

- g. DA and IVVC Deployment. The Companies will install DA on at least 200 circuits and IVVC on at least 202 circuits. The Company will work with Staff on the Companies’ selection of circuits for DA and IVVC investments, which will include an explanation of how circuits are prioritized to maximize customer benefits.

- i. The DA deployment in conjunction with ADMS will improve reliability and outage management through: remote fault isolation and diagnostics, automated feeder switching, outage status monitoring and notification, and optimized restoration operations.¹²
- ii. The IVVC deployment in conjunction with ADMS will optimize voltage management through: IVVC, automated voltage regulation, conservation voltage reduction (“CVR”), real-time load balancing, and automated power factor corrections.¹³ Any energy and peak demand reduction savings resulting from the installation of the AMI, DA and IVVC equipment shall count towards compliance with the Companies’ energy efficiency and peak demand reduction benchmarks.
- iii. The Companies, with input from Environmental Defense Fund, Ohio Environmental Council, Staff, and any interested Signatory Parties, will identify best practices and, where possible and appropriate, utilize technologies to achieve energy savings associated with the deployment of IVVC using best practices, with the objective of achieving 4% energy savings when Grid Mod I technologies are fully deployed.
- iv. The Companies agree to not count the energy savings produced from these smart grid investments towards shared savings while the 2017-2019 EE/PDR plan is in effect. Determination of whether smart grid

¹² U.S. Department of Energy, Results from the Smart Grid Investment Grant Program: Distribution Automation, Page 11 (September 2016), available at https://www.energy.gov/sites/prod/files/2016/11/f34/Distribution%20Automation%20Summary%20Report_09-29-16.pdf.

¹³ *Id.*

investments are eligible for shared savings after 2019 will be addressed at a later time.

h. Commitment for Reliability Standards

i. The Companies agree to file an application under OAC 4901:1-10-10(B)(7) to revise their reliability performance standards established in Case No. 09-759-EL-ESS, within six months of the issuance of a final Opinion & Order in these consolidated cases.

ii. In addition, the Companies agree to file a subsequent application under OAC 4901:1-10-10(B)(7) to revise their reliability performance standards no later than one year after Grid Mod I deployment is completed.

i. ADMS Deployment. The Companies will install an ADMS. The ADMS will be designed to support a broad range of current and future distribution management and optimization, including but not limited to: fault isolation and system restoration, integration of distributed energy resources, use of the information in distribution planning efforts, more efficient utility operation and planning actions, and integration with existing and future utility investments, including MDMS, and SCADA.

j. Additional Reporting. In the Companies' initial Rider AMI quarterly update filing that incorporates the costs to implement this Stipulation, the Companies will: (a) identify the relevant foundational standards associated with implementing the necessary information technology and software platform systems needed to support the investment; (b) describe how interoperability

will be ensured within each system and across systems; and (c) describe how investments, both new and old, will be leveraged to ensure that benefits associated with these investments are realized.

- k. The Companies will have EPRI conduct a State-Level Assessment of Expanded Efficient Electrification for Ohio to identify opportunities for efficient electrification enabled by AMI deployment.
- l. The Grid Mod collaborative will discuss the costs and benefits of providing data to the National Renewable Energy Laboratory's Utility Rate Database.

D. Performance Metrics

The Companies and Staff agree that a set of performance metrics, which are included as Attachment C, will measure the status of deployment and related impacts from grid modernization investments. Performance metrics will be included in the workpapers submitted to Staff in support of the Rider AMI quarterly updates.

E. Grid Mod Consultant

Midway through the implementation period, Staff will perform an operational benefits assessment or will obtain a consultant to conduct an operational benefits assessment and a review, to be completed prior to the commencement of Grid Mod II, to evaluate whether the actual functionality and performance of the project is consistent with the planned specifications. The consultant may also conduct an independent cost-benefit analysis for this project, which could include a review and possible increase or decrease to the level of operational savings credited to the revenue requirement of Rider AMI during Grid Mod I. The results of the reviews may also be incorporated into future deployment of the Companies' grid modernization investment to ensure the goals of the investments are

being met. The cost of the consultant shall be recovered through Rider AMI, and such costs shall not be subject to the cap set forth in Section V.C.b.iv.

F. Crediting of Operational Savings

Operational savings that are produced by the investment and accrue to the Companies, e.g. reduced meter reading expense, will be credited against the revenue requirement of Rider AMI during the quarterly update and reconciliation process. For the first three years of Grid Mod I deployment, the amount of the credit will be fixed in accordance with the amount listed on Attachment D, as follows for the Companies:

Year 1: \$0.05 million;

Year 2: \$0.90 million; and

Year 3: \$3.28 million.

When applied, the amount of the credit will be specific as to each operating Company. The quarterly credit will be an amount equivalent to one-fourth of the projected annual operational savings (labeled on Attachment D as “Estimated Operational Benefits of Grid Mod I”). The quarterly credit to Rider AMI shall commence with the first year’s operational savings one year following the Commission’s Opinion and Order in this case, i.e., there will be a one year lag, and will continue until new base rates are effective. The level of operational savings will be reviewed by the third-party consultant midway through Grid Mod I and may be used to modify the level of operational savings, following Commission approval. If by the start of the fourth year there is no approved Grid Mod II plan and until such time as there is an approved Grid Mod II, which incorporates the incremental O&M costs and operational savings from Grid Mod I, or if there is no adopted recommendation from the third party consultant review, then the deemed annual

Operational Savings from Grid Mod I shall continue to be based on Attachment D, as follows for the Companies:

Year 4: \$8.58 million;

Year 5: \$9.68 million; and

Year 6: \$9.82 million.

G. Other Cost Recovery Through Rider AMI

Subject to Commission approval, nothing in this plan precludes the Companies from recovering through Rider AMI costs associated with other Commission-approved grid modernization investments outside of this plan, including but not limited to costs associated with directives resulting from the Commission's PowerForward initiative and costs incurred associated with the Smart Grid Modernization Initiative – Ohio Site Deployment, Case No. 09-1821-EL-GRD. As part of the Grid Mod collaborative, parties are not prohibited from offering ideas on future grid modernization investments.

H. Grid Mod II Development

During the term of this plan, the Companies agree to begin development of the next phase of grid modernization investments (Grid Mod II) using these or other technologies in order to facilitate a cost-effective, timely transition between Grid Mod I and Grid Mod II. No later than June 1, 2020, the Companies and Staff will initiate discussions with any interested Signatory Parties regarding the development of Grid Mod II, including reliability benefits arising from Grid Mod I deployment.

- a. As part of Grid Mod II, the Companies commit to meet with interested Signatory Parties to discuss the Companies' interconnection process for distributed generation and batteries. The discussion will include, without

limitation, creating a single website or manual for all interconnection and related tariff information, timelines for studies to interconnect to be completed, interruptible and standby charges, and cost of equipment needed. The discussion will also include determining the feasibility of a heat map of the grid to enable private customer investment. Any modifications to the interconnection process will be coordinated with the Distribution System Planning Workgroup.

I. Capital Investment Levels

As long as the Companies' total capital spend during Grid Mod I does not exceed \$516 million in the aggregate, the Companies may make capital investments in AMI, DA, IVVC, or other related grid modernization distribution system upgrades. Other related grid modernization distribution system upgrades include up to \$16 million for AMI related distribution expenditures,¹⁴ and up to \$50 million for work needed to install or support grid modernization technologies as part of Grid Mod II, i.e. new circuit tie miles, reconductoring, new reclosers and associated communications infrastructure, and SCADA devices on substations and circuits. However, capital investments in other related grid modernization distribution system upgrades shall not exceed \$66 million.

J. Pole Attachment Rates

- a. No later than 20 calendar days after the filing of this Stipulation with the Commission, the Companies will make a filing with the Commission, with supporting documentation, to propose that the following pole attachment rates

¹⁴ AMI related distribution expenditures include costs incurred to address safety and protection for customers, such as socket repairs.

be adopted in Case Nos. 18-563-EL-ATA, 18-564-EL-ATA and 18-565-EL-ATA:

Company	Pole Attachment Rates
The Cleveland Electric Illuminating Company	\$11.88
Ohio Edison Company	\$11.48
The Toledo Edison Company	\$9.68

The Signatory Parties agree that these revised rates reflect the inclusion of the Companies' respective EDIT balances as of December 31, 2017.

The OCTA will promptly file a notice with the Commission that, contingent upon Commission approval of the above pole attachment rates, it withdraws its applications for rehearing, which are currently pending in those dockets.

- b. When the Companies make their next pole rate adjustment filing, the Companies will file revised pole attachment tariff language which includes the following: "The Companies will only file to adjust pole attachment rates once in a given calendar year period, unless otherwise required by law."
- c. The Companies will serve the OCTA with a copy of their next applications to adjust their pole attachment rates and at that same time provide to the OCTA the following year-end data for the year prior to the next pole rate adjustment filings:
 - i. Amortization schedules for the refund of the normalized and non-normalized EDIT resulting from the Tax Cuts and Jobs Act of 2017 as

of the year end prior to the year in which the next pole rate adjustment filing is made;

- ii. The filed FERC Form 1 for the year end prior to the year in which the next pole rate adjustment filing is made; and
- iii. A copy of the continuing property records for utility account 364 as of the year end prior to the year in which the next pole rate adjustment filing is made, inclusive of all pole and appurtenance investment costs booked to account 364 and associated units of investment.

The Companies will work with the OCTA in good faith to timely provide access to any additional information reasonably requested in their next Commission proceedings involving an application to adjust their pole attachment rates.

- d. The Companies agree to include in their pole attachment rate calculations beginning with the next pole attachment rate adjustment filings the following accounting for EDIT as it relates to the FCC's pole attachment formula:
 - i. The normalized EDIT will be amortized each year using ARAM. The entry includes debits to FERC accounts 190, 282, 283 and 254 and credits to accounts 411, 282, 283, and 190;
 - ii. The non-normalized EDIT will be amortized each year for the number of years as determined by the Commission. The entry includes debits to FERC accounts 190, 282, 283, and 254 and credits to FERC accounts 411, 190, 282, and 283; and

- iii. Any other debits and credits to other accounts into which EDIT may be booked. The amortization of normalized and non-normalized EDIT, which is recorded in FERC accounts 410 and 411, is included on lines 17 and 18, page 114 of the FERC Form 1.

This collectively results in the entire unamortized balances of the normalized and non-normalized EDIT being reflected in the pole attachment calculation, along with the FIT savings (reflected in the FERC Form 1 being used to perform the pole attachment calculation).

- e. No later than 60 calendar days after the Commission's approval of the Stipulation, the Companies will meet with the OCTA and the Staff to discuss in good faith improvements and clarifications to the Companies' process(es) and schedule for filing and implementing pole attachment rate adjustments, including mid-year filings and effective dates of the rates.

VI. PROCEDURAL ASPECTS

1. As a result of the terms above regarding grid modernization and the TCJA, the Signatory Parties agree the Companies' applications for a grid modernization business plan in Case No. 16-481-EL-UNC and DPM Plan in Case No. 17-2436-EL-UNC are fully resolved, as is the Companies' application for a TCJA resolution in Case No. 18-1604-EL-UNC and the Commission's TCJA review, with respect to the Companies only, in Case No. 18-47-AU-COI. In addition, the Signatory Parties agree this Stipulation, and the applications "not for an increase in rates" filed concurrently by each of the Companies, fully discharge the Companies' obligations under the Commission's Finding and Order entered October 24, 2018 in Case No. 18-47-AU-COI.

2. Recognizing the value of a timely ruling by the Commission to achieve the benefits described in this Stipulation, the Companies, Staff and other Signatory Parties will endeavor to obtain Commission approval of this Stipulation, and they request the Commission to act expeditiously and approve this Stipulation by December 31, 2018.

3. The Stipulation is presented, collectively, by all three Companies and its offer is conditioned on the Commission's acceptance of all of the Stipulation's provisions in their totality for all three Companies. The Commission's approval of the Stipulation indicates the Commission's acceptance of all of the Signatory Parties' recommendations contained herein.

4. This Stipulation is submitted for purposes of this proceeding only and is not deemed binding in any other proceeding. Except for enforcement purposes or to establish that the terms of the Stipulation are lawful, neither the Stipulation nor any information or data contained in, supporting, or attached to the Stipulation shall be offered or relied upon in any other proceedings or before the General Assembly. In addition, this Stipulation is submitted without any admission against, or prejudice to, any position which any Signatory Party might adopt in another proceeding, including any position taken by a party in a future proceeding regarding the Companies' Distribution Modernization Riders.

5. The agreement of the Signatory Parties reflected in this document is expressly conditioned upon its acceptance in its entirety and without material alteration by the Commission. The Signatory Parties agree that if the Commission or any court of competent jurisdiction rejects all or any material part of this Stipulation, or otherwise materially modifies its terms, any adversely affected Signatory Party shall have the right to file an application for rehearing or a motion for reconsideration. If such application or

motion is filed, and if the Commission or court does not, on rehearing or reconsideration, accept the Stipulation without material modification, then within forty-five days thereafter the adversely affected Signatory Party may terminate its Signatory Party status without penalty or cost and regain its rights as a non-Signatory Party as if it had never executed the Stipulation by filing a notice with the Commission and the other Signatory Parties. However, no Signatory Party shall terminate its status and withdraw from the Stipulation without first negotiating in good faith with the other Signatory Parties to achieve an outcome that substantially satisfies the intent of the Stipulation.

6. Unless the Signatory Party exercises its right to terminate its Signatory Party status as described above, each Signatory Party agrees to and will support the reasonableness of this Stipulation before the Commission, and to cause its counsel to do the same, and in any appeal from the Commission's adoption and/or enforcement of the Stipulation. The Signatory Parties also agree to urge the Commission to accept and approve the terms hereof as promptly as possible.

IN WITNESS WHEREOF, this Stipulation has been signed by the authorized agents of the undersigned Signatory Parties as of this 9th day of November, 2018. The undersigned Signatory Parties respectfully request the Commission to issue its Opinion and Order approving and adopting the Stipulation as filed and without modification. The Stipulation will be held open for additional intervenors and parties to sign on as Signatory Parties until the issuance of an Order by the Commission.

Signatory Parties

s/ Brian J. Knipe
Ohio Edison Company

s/ Brian J. Knipe
The Toledo Edison Company

s/ Brian J. Knipe
The Cleveland Electric Illuminating
Company

s/ Rebekah J. Glover /per email consent
Direct Energy Services, LLC and
Direct Energy Business, LLC

s/ Miranda Leppla /per email consent
Environmental Defense Fund

s/ Thomas Lindgren /per email consent
Staff of the Public Utilities Commission
of Ohio

s/ Michael L. Kurtz /per e-mail consent
Ohio Energy Group

s/ Frank P. Darr /per email consent
Industrial Energy Users-Ohio

s/ Gretchen Petrucci /per email consent*
Ohio Cable Telecommunications
Association

s/ Devin Parram /per email consent
Ohio Hospital Association

s/ Joseph Olikier /per email consent
Interstate Gas Supply, Inc.

* Subject to Board approval

TCJA Credit Mechanism
Rate Calculation

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(1)	Company	OE	CEI	TE
(2)	Current Income Tax Savings ¹	\$ (16,330,521)	\$ (13,356,153)	\$ (5,415,665)
(3)	Carrying Charges (On Stub Period)	\$ (536,465)	\$ (438,755)	\$ (177,907)
(4)	Amortization of Normalized EDIT ¹	\$ (8,059,885)	\$ (8,975,055)	\$ (2,176,897)
(5)	Amortization of Non-Norm. Property EDIT ¹	\$ (11,542,042)	\$ (4,889,337)	\$ (2,893,788)
(6)	Amortization of Non-Property EDIT ¹	\$ 12,411,988	\$ 3,585,904	\$ 2,591,504
(7)	Cumulative Return on Normalized EDIT ¹	\$ 654,207	\$ 724,750	\$ 178,427
(8)	Over/(Under) Recovery	\$ (10,000)	\$ 10,000	\$ (3,000)
(9)	Subtotal	\$ (23,412,717)	\$ (23,338,648)	\$ (7,897,326)
(10)	CAT Gross Up	100.261%	100.261%	100.261%
(11)	Total	\$ (23,473,749)	\$ (23,399,486)	\$ (7,917,912)
(12)				
(13)	Current Income Tax Savings Portion	OE	CEI	TE
(14)	Revenue Requirement	\$ (16,910,954)	\$ (13,830,869)	\$ (5,608,153)
(15)				
(16)	Allocation Factors	OE	CEI	TE
(17)	Rate RS	62.45%	47.55%	57.93%
(18)	Rate GS	27.10%	42.23%	32.13%
(19)	Rate GP	5.20%	0.63%	4.80%
(20)	Rate GSU	0.85%	4.06%	0.11%
(21)	Rate GT	2.19%	0.18%	1.38%
(22)	Rate STL	1.39%	3.53%	2.91%
(23)	Rate POL	0.76%	1.79%	0.69%
(24)	Rate TRF	0.06%	0.03%	0.05%
(25)	Total	100.00%	100.00%	100.00%
(26)				
(27)	Allocation to Rate Schedules	OE	CEI	TE
(28)	Rate RS	\$ (10,560,891)	\$ (6,576,578)	\$ (3,248,803)
(29)	Rate GS	\$ (4,582,786)	\$ (5,841,265)	\$ (1,801,689)
(30)	Rate GP	\$ (879,489)	\$ (86,559)	\$ (269,467)
(31)	Rate GSU	\$ (143,376)	\$ (561,144)	\$ (5,964)
(32)	Rate GT	\$ (370,679)	\$ (25,371)	\$ (77,533)
(33)	Rate STL	\$ (235,062)	\$ (488,230)	\$ (163,197)
(34)	Rate POL	\$ (128,523)	\$ (247,573)	\$ (38,696)
(35)	Rate TRF	\$ (10,147)	\$ (4,149)	\$ (2,804)
(36)	Total	\$ (16,910,954)	\$ (13,830,869)	\$ (5,608,153)
(37)				
(38)	Annual MWH Sales	OE	CEI	TE
(39)	Rate RS	8,958,101	5,338,614	2,410,145
(40)	Rate GS	6,451,699	6,261,027	1,879,377
(41)	Rate GP	2,520,462	488,101	1,025,532
(42)	Rate GSU	876,081	3,651,479	107,482
(43)	Rate GT	4,543,070	2,442,223	4,905,225
(44)	Rate STL	123,895	121,983	49,075
(45)	Rate POL	35,054	52,283	8,980
(46)	Rate TRF	14,295	16,785	2,219
(47)				
(48)	Rate (\$/kWh) - Current Income Tax Savings Portion	OE	CEI	TE
(49)	Rate RS	\$ (0.001179)	\$ (0.001232)	\$ (0.001348)
(50)	Rate GS	\$ (0.000710)	\$ (0.000933)	\$ (0.000959)
(51)	Rate GP	\$ (0.000349)	\$ (0.000177)	\$ (0.000263)
(52)	Rate GSU	\$ (0.000164)	\$ (0.000154)	\$ (0.000055)
(53)	Rate GT	\$ (0.000082)	\$ (0.000010)	\$ (0.000016)
(54)	Rate STL	\$ (0.001897)	\$ (0.004002)	\$ (0.003325)
(55)	Rate POL	\$ (0.003666)	\$ (0.004735)	\$ (0.004309)
(56)	Rate TRF	\$ (0.000710)	\$ (0.000247)	\$ (0.001264)

**TCJA Credit Mechanism
Rate Calculation**

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(57)					
(58)	EDIT Portion	OE	CEI	TE	
(59)	Revenue Requirement - Demand Portion	\$ (3,281,397)	\$ (4,784,309)	\$ (1,154,879)	
(60)					
(61)	Allocation Factors	OE	CEI	TE	
(62)	Rate RS	40.86%	31.75%	27.67%	
(63)	Rate GS	32.65%	39.81%	23.82%	
(64)	Rate GP	10.35%	2.38%	11.30%	
(65)	Rate GSU	3.00%	17.78%	0.91%	
(66)	Rate GT	13.10%	8.22%	36.29%	
(67)	Rate STL	0.00%	0.00%	0.00%	
(68)	Rate POL	0.00%	0.00%	0.00%	
(69)	Rate TRF	0.04%	0.06%	0.01%	
(70)	Total	100.00%	100.00%	100.00%	
(71)					
(72)	Allocation to Rate Schedules	OE	CEI	TE	
(73)	Rate RS	\$ (1,340,724)	\$ (1,519,070)	\$ (319,610)	
(74)	Rate GS	\$ (1,071,373)	\$ (1,904,761)	\$ (275,058)	
(75)	Rate GP	\$ (339,498)	\$ (113,817)	\$ (130,447)	
(76)	Rate GSU	\$ (98,592)	\$ (850,429)	\$ (10,455)	
(77)	Rate GT	\$ (429,814)	\$ (393,225)	\$ (419,148)	
(78)	Rate STL	\$ -	\$ -	\$ -	
(79)	Rate POL	\$ -	\$ -	\$ -	
(80)	Rate TRF	\$ (1,397)	\$ (3,006)	\$ (161)	
(81)	Total	\$ (3,281,397)	\$ (4,784,309)	\$ (1,154,879)	
(82)					
(83)	Rate (\$/kWh) - Demand Portion	OE	CEI	TE	
(84)	Rate RS	\$ (0.000150)	\$ (0.000285)	\$ (0.000133)	
(85)	Rate GS	\$ (0.000166)	\$ (0.000304)	\$ (0.000146)	
(86)	Rate GP	\$ (0.000135)	\$ (0.000233)	\$ (0.000127)	
(87)	Rate GSU	\$ (0.000113)	\$ (0.000233)	\$ (0.000097)	
(88)	Rate GT	\$ (0.000095)	\$ (0.000161)	\$ (0.000085)	
(89)	Rate STL	\$ -	\$ -	\$ -	
(90)	Rate POL	\$ -	\$ -	\$ -	
(91)	Rate TRF	\$ (0.000098)	\$ (0.000179)	\$ (0.000073)	
(92)					
(93)	EDIT Portion	OE	CEI	TE	
(94)	Revenue Requirement - Energy Portion	\$ (3,281,397)	\$ (4,784,309)	\$ (1,154,879)	
(95)					
(96)	Allocation Factors	OE	CEI	TE	
(97)	Rate RS	38.08%	29.06%	23.20%	
(98)	Rate GS	27.43%	34.08%	18.09%	
(99)	Rate GP	10.72%	2.66%	9.87%	
(100)	Rate GSU	3.72%	19.87%	1.03%	
(101)	Rate GT	19.31%	13.29%	47.22%	
(102)	Rate STL	0.53%	0.66%	0.47%	
(103)	Rate POL	0.15%	0.28%	0.09%	
(104)	Rate TRF	0.06%	0.09%	0.02%	
(105)	Total	100.00%	100.00%	100.00%	
(106)					
(107)	Allocation to Rate Schedules	OE	CEI	TE	
(108)	Rate RS	\$ (1,249,650)	\$ (1,390,207)	\$ (267,945)	
(109)	Rate GS	\$ (900,008)	\$ (1,630,409)	\$ (208,938)	
(110)	Rate GP	\$ (351,603)	\$ (127,104)	\$ (114,013)	
(111)	Rate GSU	\$ (122,213)	\$ (950,867)	\$ (11,949)	
(112)	Rate GT	\$ (633,756)	\$ (635,970)	\$ (545,334)	
(113)	Rate STL	\$ (17,283)	\$ (31,765)	\$ (5,456)	
(114)	Rate POL	\$ (4,890)	\$ (13,615)	\$ (998)	
(115)	Rate TRF	\$ (1,994)	\$ (4,371)	\$ (247)	
(116)	Total	\$ (3,281,397)	\$ (4,784,309)	\$ (1,154,879)	

**TCJA Credit Mechanism
Rate Calculation**

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(117)						p. 3 of 8
(118)	Rate (\$/kWh) - Energy Portion	OE	CEI	TE		
(119)	Rate RS	\$ (0.000139)	\$ (0.000260)	\$ (0.000111)		
(120)	Rate GS	\$ (0.000139)	\$ (0.000260)	\$ (0.000111)		
(121)	Rate GP	\$ (0.000139)	\$ (0.000260)	\$ (0.000111)		
(122)	Rate GSU	\$ (0.000139)	\$ (0.000260)	\$ (0.000111)		
(123)	Rate GT	\$ (0.000139)	\$ (0.000260)	\$ (0.000111)		
(124)	Rate STL	\$ (0.000139)	\$ (0.000260)	\$ (0.000111)		
(125)	Rate POL	\$ (0.000139)	\$ (0.000260)	\$ (0.000111)		
(126)	Rate TRF	\$ (0.000139)	\$ (0.000260)	\$ (0.000111)		
(127)						
(128)	Rate (\$/kWh) - TOTAL	OE	CEI	TE		
(129)	Rate RS	\$ (0.001468)	\$ (0.001777)	\$ (0.001592)		
(130)	Rate GS	\$ (0.001016)	\$ (0.001498)	\$ (0.001216)		
(131)	Rate GP	\$ (0.000623)	\$ (0.000671)	\$ (0.000501)		
(132)	Rate GSU	\$ (0.000416)	\$ (0.000647)	\$ (0.000264)		
(133)	Rate GT	\$ (0.000316)	\$ (0.000432)	\$ (0.000212)		
(134)	Rate STL	\$ (0.002037)	\$ (0.004263)	\$ (0.003437)		
(135)	Rate POL	\$ (0.003806)	\$ (0.004996)	\$ (0.004420)		
(136)	Rate TRF	\$ (0.000947)	\$ (0.000687)	\$ (0.001447)		

Notes:

- (8) Source: Page 6, line 3
 (9) Σ Line (2) through Line (8)
 (10) CAT Tax Gross Up: $(1 / (1 - .0026))$
 (14) Calculation: $(\text{Line (2)} + \text{Line (3)}) \times \text{Line (10)}$
 (17) - (25) Source: Case No. 07-551-EL-AIR
 (28) - (36) Calculation: $\text{Line (14)} \times \text{Allocation Factor (Lines (17) - (25))}$.
 (39) - (46) Source: 2017 FERC Form 1 MWh
 (49) - (56) Calculation: $\text{Lines (28) - (36)} / (\text{Lines (39) - (46)} \times 1,000)$
 (59) Calculation: $(\text{Sum (Lines (4)-(8))} / 2) \times \text{Line (10)}$
 (62) - (70) Allocations based on 2017 4CP
 (73) - (81) Calculation: $\text{Line (59)} \times \text{Allocation Factor (Lines (62) - (70))}$.
 (84) - (91) Calculation: $\text{Lines (73) - (81)} / (\text{Lines (39) - (46)} \times 1,000)$
 (94) Calculation: $(\text{Sum (Lines (4)-(8))} / 2) \times \text{Line (10)}$
 (97) - (105) Allocation based on 2017 FERC Form 1 MWh
 (108) - (116) Calculation: $\text{Line (94)} \times \text{Allocation Factor (Lines (97) - (105))}$.
 (119) - (126) Calculation: $\text{Lines (108) - (116)} / (\text{Lines (39) - (46)} \times 1,000)$
 (129) - (136) Calculation: $\text{Lines (49)-(56)} + \text{Lines (84) - (91)} + \text{Lines (119)-(126)}$

¹ Includes Stub Period amounts

TCJA Credit Mechanism
Current Income Tax Expense Savings from TCJA

	OE	CEI	TE	TOTAL	Notes
(1) <u>Rate Base</u>					
(2) Net Plant	\$ 1,271,000,000	\$ 1,154,000,000	\$ 394,700,000	\$ 2,819,700,000	Case 07-551-EL-AIR
(3) ADIT Balance	\$ (197,100,000)	\$ (246,400,000)	\$ (10,316,000)	\$ (453,816,000)	Case 07-551-EL-AIR
(4) Other Rate Base	\$ 45,765,124	\$ 22,543,783	\$ (6,464,513)	\$ 61,844,395	Case 07-551-EL-AIR
(5) Subtotal	\$ 1,119,665,124	\$ 930,143,783	\$ 377,919,487	\$ 2,427,728,395	Sum(Line(2):Line(4))
(6)					
(7) <u>Equity Return</u>					
(8) % Equity	49%	49%	49%	49%	Case 07-551-EL-AIR
(9) % ROE	10.5%	10.5%	10.5%	10.5%	Case 07-551-EL-AIR
(10) Total Equity Return	\$ 57,606,771	\$ 47,855,898	\$ 19,443,958	\$ 124,906,626	Line(5) x Line(8) x Line(9)
(11)					
(12) <u>Income Tax Expense</u>					
(13) Rate %	37.5%	36.5%	36.4%	36.9%	Case 07-551-EL-AIR
(14) Expense	\$ 34,544,027	\$ 27,510,967	\$ 11,115,867	\$ 73,170,862	Line(10) x (1/(1-Line(13))) - 1)
(15)					
(16) New Rate %	24.0%	22.8%	22.7%	23.4%	Line 13 with 21% FIT rate
(17) New Expense	\$ 18,213,506	\$ 14,154,814	\$ 5,700,202	\$ 38,068,522	Line(10) x (1/(1-Line(16))) - 1)
(18)					
(19) Savings	\$ 16,330,521	\$ 13,356,153	\$ 5,415,665	\$ 35,102,340	Line(14) - Line(17)

TCJA Credit Mechanism
Excess Deferred Income Tax Amortization

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(1)	EDIT Balances (Pre-Tax)	OE		CEI		TE		Total	Source
(2)	Property Related Normalized EDIT	\$	(202,870,343)	\$	(225,096,763)	\$	(54,795,596)	\$ (482,762,701)	Balance at 12/31/2017
(3)	Non-Normalized Property EDIT	\$	(116,207,017)	\$	(49,050,345)	\$	(29,136,313)	\$ (194,393,675)	Balance at 12/31/2017
(4)	Non-Normalized Non-Property EDIT	\$	62,482,883	\$	17,987,082	\$	13,046,373	\$ 93,516,338	Balance at 12/31/2017

(5)

(6)

(7)	EDIT Amortization (Pre-Tax)	OE			CEI			TE		
(8)		Normalized	Non-Norm. Property	Non-Norm. Non-Property	Normalized	Non-Norm. Property	Non-Norm. Non-Property	Normalized	Non-Norm. Property	Non-Norm. Non-Property
(9)	January	\$ (676,234)	\$ (968,392)	\$ 1,041,381	\$ (750,323)	\$ (408,753)	\$ 299,785	\$ (182,652)	\$ (242,803)	\$ 217,440
(10)	February	\$ (676,234)	\$ (968,392)	\$ 1,041,381	\$ (750,323)	\$ (408,753)	\$ 299,785	\$ (182,652)	\$ (242,803)	\$ 217,440
(11)	March	\$ (676,234)	\$ (968,392)	\$ 1,041,381	\$ (750,323)	\$ (408,753)	\$ 299,785	\$ (182,652)	\$ (242,803)	\$ 217,440
(12)	April	\$ (676,234)	\$ (968,392)	\$ 1,041,381	\$ (750,323)	\$ (408,753)	\$ 299,785	\$ (182,652)	\$ (242,803)	\$ 217,440
(13)	May	\$ (676,234)	\$ (968,392)	\$ 1,041,381	\$ (750,323)	\$ (408,753)	\$ 299,785	\$ (182,652)	\$ (242,803)	\$ 217,440
(14)	June	\$ (676,234)	\$ (968,392)	\$ 1,041,381	\$ (750,323)	\$ (408,753)	\$ 299,785	\$ (182,652)	\$ (242,803)	\$ 217,440
(15)	July	\$ (676,234)	\$ (968,392)	\$ 1,041,381	\$ (750,323)	\$ (408,753)	\$ 299,785	\$ (182,652)	\$ (242,803)	\$ 217,440
(16)	August	\$ (676,234)	\$ (968,392)	\$ 1,041,381	\$ (750,323)	\$ (408,753)	\$ 299,785	\$ (182,652)	\$ (242,803)	\$ 217,440
(17)	September	\$ (676,234)	\$ (968,392)	\$ 1,041,381	\$ (750,323)	\$ (408,753)	\$ 299,785	\$ (182,652)	\$ (242,803)	\$ 217,440
(18)	October	\$ (676,234)	\$ (968,392)	\$ 1,041,381	\$ (750,323)	\$ (408,753)	\$ 299,785	\$ (182,652)	\$ (242,803)	\$ 217,440
(19)	November	\$ (676,234)	\$ (968,392)	\$ 1,041,381	\$ (750,323)	\$ (408,753)	\$ 299,785	\$ (182,652)	\$ (242,803)	\$ 217,440
(20)	December	\$ (676,234)	\$ (968,392)	\$ 1,041,381	\$ (750,323)	\$ (408,753)	\$ 299,785	\$ (182,652)	\$ (242,803)	\$ 217,440
(21)	Total	\$ (8,114,814)	\$ (11,620,702)	\$ 12,496,577	\$ (9,003,871)	\$ (4,905,034)	\$ 3,597,416	\$ (2,191,824)	\$ (2,913,631)	\$ 2,609,275
(22)	Pole Attachment	\$ (54,929)	\$ (78,660)	\$ 84,589	\$ (28,815)	\$ (15,698)	\$ 11,513	\$ (14,927)	\$ (19,843)	\$ 17,770
(23)	Net EDIT Amort	\$ (8,059,885)	\$ (11,542,042)	\$ 12,411,988	\$ (8,975,055)	\$ (4,889,337)	\$ 3,585,904	\$ (2,176,897)	\$ (2,893,788)	\$ 2,591,504

Notes:

- Property Normalized EDIT Amort. (Pre-Tax): Based on ARAM (Illustrative at 25 years)
- Non-Normalized Property-Related EDIT Amort: Based on 10-year straight line amortization
- Non-Normalized Non-Property EDIT Amort: Based on 5-year straight-line amortization

TCJA Credit Mechanism
Cumulative Return on Property EDIT

(1)	EDIT Balances (After-Tax)	OE	CEI	TE	Total	Source
(2)	Property Related Normalized EDIT	\$ (157,240,782)	\$ (173,640,455)	\$ (42,962,870)	\$ (373,844,107)	Balance at 12/31/2017

(3)

(4)

(5)	Weighted Average Cost of Capital	OE	CEI	TE	Source
(6)	Debt %	51%	51%	51%	Case No. 07-551-EL-AIR
(7)	Cost of Debt	6.54%	6.54%	6.54%	Case No. 07-551-EL-AIR
(8)	Equity %	49%	49%	49%	Case No. 07-551-EL-AIR
(9)	Return on Equity	10.50%	10.50%	10.50%	Case No. 07-551-EL-AIR
(10)	Composite Income Tax %	22.05%	22.41%	21.85%	Current Composite Tax Rate
(11)	Pre-tax WACC	9.94%	9.97%	9.92%	WACC Calculation

(12)

(13)

(14)	Normalized EDIT	OE	CEI	TE
(15)	Amort. (After-Tax)			
(16)	January	\$ (524,136)	\$ (578,802)	\$ (143,210)
(17)	February	\$ (524,136)	\$ (578,802)	\$ (143,210)
(18)	March	\$ (524,136)	\$ (578,802)	\$ (143,210)
(19)	April	\$ (524,136)	\$ (578,802)	\$ (143,210)
(20)	May	\$ (524,136)	\$ (578,802)	\$ (143,210)
(21)	June	\$ (524,136)	\$ (578,802)	\$ (143,210)
(22)	July	\$ (524,136)	\$ (578,802)	\$ (143,210)
(23)	August	\$ (524,136)	\$ (578,802)	\$ (143,210)
(24)	September	\$ (524,136)	\$ (578,802)	\$ (143,210)
(25)	October	\$ (524,136)	\$ (578,802)	\$ (143,210)
(26)	November	\$ (524,136)	\$ (578,802)	\$ (143,210)
(27)	December	\$ (524,136)	\$ (578,802)	\$ (143,210)
(28)	Total	\$ (6,289,631)	\$ (6,945,618)	\$ (1,718,515)
(29)				
(30)	Annual Return	\$ 654,207	\$ 724,750	\$ 178,427
(31)	Cumulative Return	\$ 654,207	\$ 724,750	\$ 178,427

Notes:

- Normalized EDIT Amort. (After-Tax): Based on ARAM (Illustrative at 25 years)
- Annual Return = -Property EDIT Amort. (After-Tax) x $(1 * (1 + \text{WACC}/12)^{12} - 1)$
- Cumulative Return = Annual Return + Prior Year Cumulative Return

Carrying Charges on Current Income Tax Savings

ILLUSTRATIVE
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OE		Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	Jun 2018	Jul 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018	Dec 2018	YTD Total
(1) Monthly Income Tax Savings	Annual Savings / 12	\$ (1,360,877)	\$ (1,360,877)	\$ (1,360,877)	\$ (1,360,877)	\$ (1,360,877)	\$ (1,360,877)	\$ (1,360,877)	\$ (1,360,877)	\$ (1,360,877)	\$ (1,360,877)	\$ (1,360,877)	\$ (1,360,877)	\$ (16,330,521)
(2) Cumulative Income Tax Savings	Cumulative Line 1	\$ (1,360,877)	\$ (2,721,754)	\$ (4,082,630)	\$ (5,443,507)	\$ (6,804,384)	\$ (8,165,261)	\$ (9,526,137)	\$ (10,887,014)	\$ (12,247,891)	\$ (13,608,768)	\$ (14,969,644)	\$ (16,330,521)	
(3) Balance Subject to Interest	Prior Mo. Line 2 + Line 1 / 2 + Prior Mo. Line 6	\$ (680,438)	\$ (2,045,024)	\$ (3,413,337)	\$ (4,781,671)	\$ (6,150,006)	\$ (7,518,340)	\$ (8,886,674)	\$ (10,255,008)	\$ (11,623,342)	\$ (12,991,676)	\$ (14,360,011)	\$ (15,728,345)	
(4) Cost of Long-Term Debt	Case No. 07-551-EL-AIR	6.54%	6.54%	6.54%	6.54%	6.54%	6.54%	6.54%	6.54%	6.54%	6.54%	6.54%	6.54%	
(5) Monthly Cost of Long-term Debt	Line (4) / 12	0.545%	0.545%	0.545%	0.545%	0.545%	0.545%	0.545%	0.545%	0.545%	0.545%	0.545%	0.545%	
(6) Monthly Interest	Line 3 x Line 5	\$ (3,708)	\$ (11,145)	\$ (18,603)	\$ (26,060)	\$ (33,518)	\$ (40,975)	\$ (48,432)	\$ (55,890)	\$ (63,347)	\$ (70,805)	\$ (78,262)	\$ (85,719)	\$ (536,465)

CEI		Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	Jun 2018	Jul 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018	Dec 2018	YTD Total
(1) Monthly Income Tax Savings	Annual Savings / 12	\$ (1,113,013)	\$ (1,113,013)	\$ (1,113,013)	\$ (1,113,013)	\$ (1,113,013)	\$ (1,113,013)	\$ (1,113,013)	\$ (1,113,013)	\$ (1,113,013)	\$ (1,113,013)	\$ (1,113,013)	\$ (1,113,013)	\$ (13,356,153)
(2) Cumulative Income Tax Savings	Cumulative Line 1	\$ (1,113,013)	\$ (2,226,026)	\$ (3,339,038)	\$ (4,452,051)	\$ (5,565,064)	\$ (6,678,077)	\$ (7,791,089)	\$ (8,904,102)	\$ (10,017,115)	\$ (11,130,128)	\$ (12,243,141)	\$ (13,356,153)	
(3) Balance Subject to Interest	Prior Mo. Line 2 + Line 1 / 2 + Prior Mo. Line 6	\$ (556,506)	\$ (1,672,552)	\$ (2,791,647)	\$ (3,910,759)	\$ (5,029,871)	\$ (6,148,983)	\$ (7,268,095)	\$ (8,387,207)	\$ (9,506,319)	\$ (10,625,431)	\$ (11,744,543)	\$ (12,863,655)	
(4) Cost of Long-Term Debt	Case No. 07-551-EL-AIR	6.54%	6.54%	6.54%	6.54%	6.54%	6.54%	6.54%	6.54%	6.54%	6.54%	6.54%	6.54%	
(5) Monthly Cost of Long-term Debt	Line (4) / 12	0.545%	0.545%	0.545%	0.545%	0.545%	0.545%	0.545%	0.545%	0.545%	0.545%	0.545%	0.545%	
(6) Monthly Interest	Line 3 x Line 5	\$ (3,033)	\$ (9,115)	\$ (15,214)	\$ (21,314)	\$ (27,413)	\$ (33,512)	\$ (39,611)	\$ (45,710)	\$ (51,809)	\$ (57,909)	\$ (64,008)	\$ (70,107)	\$ (438,755)

TE		Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	Jun 2018	Jul 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018	Dec 2018	YTD Total
(1) Monthly Income Tax Savings	Annual Savings / 12	\$ (451,305)	\$ (451,305)	\$ (451,305)	\$ (451,305)	\$ (451,305)	\$ (451,305)	\$ (451,305)	\$ (451,305)	\$ (451,305)	\$ (451,305)	\$ (451,305)	\$ (451,305)	\$ (5,415,665)
(2) Cumulative Income Tax Savings	Cumulative Line 1	\$ (451,305)	\$ (902,611)	\$ (1,353,916)	\$ (1,805,222)	\$ (2,256,527)	\$ (2,707,833)	\$ (3,159,138)	\$ (3,610,443)	\$ (4,061,749)	\$ (4,513,054)	\$ (4,964,360)	\$ (5,415,665)	
(3) Balance Subject to Interest	Prior Mo. Line 2 + Line 1 / 2 + Prior Mo. Line 6	\$ (225,653)	\$ (678,188)	\$ (1,131,960)	\$ (1,585,738)	\$ (2,039,517)	\$ (2,493,295)	\$ (2,947,074)	\$ (3,400,852)	\$ (3,854,631)	\$ (4,308,409)	\$ (4,762,188)	\$ (5,215,966)	
(4) Cost of Long-Term Debt	Case No. 07-551-EL-AIR	6.54%	6.54%	6.54%	6.54%	6.54%	6.54%	6.54%	6.54%	6.54%	6.54%	6.54%	6.54%	
(5) Monthly Cost of Long-term Debt	Line (4) / 12	0.545%	0.545%	0.545%	0.545%	0.545%	0.545%	0.545%	0.545%	0.545%	0.545%	0.545%	0.545%	
(6) Monthly Interest	Line 3 x Line 5	\$ (1,230)	\$ (3,696)	\$ (6,169)	\$ (8,642)	\$ (11,115)	\$ (13,588)	\$ (16,062)	\$ (18,535)	\$ (21,008)	\$ (23,481)	\$ (25,954)	\$ (28,427)	\$ (177,907)

**TCJA Credit Mechanism
Prior Period Reconciliation****ILLUSTRATIVE
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	OE	CEI	TE
(1) Amount of Annual Credit	\$ (100,000)	\$ (120,000)	\$ (85,000)
(2) Actual Amount Credited	\$ (90,000)	\$ (130,000)	\$ (82,000)
(3) Over/(Under) Credit	\$ (10,000)	\$ 10,000	\$ (3,000)

Attachment B: Cost-Benefit Analysis

Total Project: Grid Mod I		
(\$ in millions)	Nominal	NPV
Estimated Benefits	\$ (1,782)	\$ (808)
Estimated Costs		
Capital	\$ 516	\$ 445
Incremental O&M	\$ 342	\$ 207
Operational Savings	\$ (175)	\$ (78)
Total	\$ 683	\$ 574
Net Benefits	\$ 1,098	\$ 234
Benefit-to-Cost Ratio	2.6	1.4

Attachment C: Performance Metrics

AMI / Meter Metrics	
Physical Meters	Metric Definition
Certified meters	The number of AMI meters installed, communicating, and available for billing. <ul style="list-style-type: none"> • Meters certified each month
AMI meters installed, but not certified	The number of AMI meters installed, but not communicating and considered Active. <ul style="list-style-type: none"> • Meters installed each month that have not been certified
Certified smart meter failures	The number of certified AMI Meters that are replaced each month due to fatal errors.
Meters salvaged (#)	The number of meters sent to salvage. <ul style="list-style-type: none"> • Meters (physical count) retired and replaced with an AMI meter and sent to salvage each month.
Meters salvaged (\$)	The salvage value of legacy meters retired and replaced with an AMI meter.
Meters transferred (#)	The number of legacy meters retired and replaced with an AMI meter and transferred between Operating Companies. <ul style="list-style-type: none"> • Meters (physical count) salvaged or transferred each month
Meters transferred (\$)	The dollar value of legacy meters retired and replaced with an AMI meter and transferred between Operating Companies.
Meter Reading	Metric Definition

Manual Meter Reads	<p>The number of meter reads conducted by an individual on-site for monthly billing. Broken into the following categories: AMR and Non-emitting.</p> <ul style="list-style-type: none"> • Number of meter reads requiring reader to physically read meter, each month in grid mod deployment area (excluding pilot area)
Successful ("actual" for the purpose of billing) AMI meter reads	Total of actual reads recorded from AMI meters, excluding pilot
Meter readers employed by CEI/OE/TE, expressed in FTEs	Number of meter readers (expressed in FTE) employed by the Companies each month
Meter readers employed by external contractor, expressed in FTEs	Number of meter readers (expressed in FTE) employed by contractor each month
Data Access & Utilization	Metric Definition
Web Portal CEUD Downloads	Number of customers who have accessed customer energy usage data through the web portal each month
HAN Authorized Devices	Number of customers who have authorized the connection of home area network (HAN) devices, including a break out of devices by category, each month
CRES Data Access	Number of customers who have authorized CRES access to customer energy usage data each month
Time of Use (TOU) Rate Offerings	Number of TOU rate offerings available to SSO customers with certified AMI meters each month
TOU Participation	Number of SSO customers with certified AMI meters participating in TOU rate offerings each month, including a subtotal of customers with authorized HAN devices, broken out by rate type.
Enabling Technologies	Rebates or incentives available for enabling technologies, e.g. smart thermostats; number

	of devices provided to each customer class, broken out by technology.
Net Metering	Number of customers taking service under the net energy metering rider each month
Net Metering (AMI)	Number of customers with certified AMI meters taking service under the net energy metering rider each month
Shopping Levels	Number of customers with certified AMI meters shopping each month, broken out by customer class
Billing Related	Metric Definition
Residential bills issued	Number of residential bills issued each month, system-wide
Residential bills based upon estimated read	The number of estimated customer bills for all customers. <ul style="list-style-type: none"> • Number of estimated residential bills issued each month, system-wide
Customers eligible for disconnect due to non-pay (System)	Number of customers eligible for disconnection each month, system-wide
Customers eligible for disconnect due to non-pay (Grid Mod Deployment Area)	Customers with an AMI meter eligible for disconnection each month, excluding pilot AMI customers
Non-Pay Disconnects (System)	Number of customers disconnected due to non-pay each month, system-wide
Non-Pay Disconnects (Grid Mod Deployment Area)	Customers with an AMI meter installed disconnected due to non-pay each month, excluding pilot AMI customers
AMI Meter Tampering Cases (#)	Number of AMI meter tampering cases found each month, system-wide
AMI Meter Tampering Case Investigation Outcomes (\$)	Outcomes of AMI meter tampering investigations, including any monetary value identified each month, system-wide

Customers Impact Measures	Metric Definition
Total call center calls	Number of call center calls received each month, system-wide
Call center calls related to meter reading	<p>We will provide a value based on Investigation orders type for check reads initiated from the call center.</p> <ul style="list-style-type: none"> • Number of call center calls related to meter reading received each month, system-wide
Call center calls related to billing complaints	<p>We will provide a value based on Investigation orders type for HI/LO Bill - Cust Complaint initiated from the call center.</p> <ul style="list-style-type: none"> • Number of call center calls related to billing complaints received each month, system-wide
DA Metrics	
DA Circuit Metrics	Metric Definition
Circuits equipped with DA	Number of circuits with DA infrastructure installed each month
Circuit Information	For circuits equipped with DA, breakdown of circuit load by customer class or rate schedule.
DA opportunities	Number of opportunities for DA to operate each month, system-wide
DA successes	Number opportunities when DA operated as intended each month, system-wide
DA failures	Number opportunities when DA did not operate as intended each month, system-wide
ADMS Utilization	The number of DA circuits that are fully functional based on integration with the ADMS.
ADMS Utilization	The number of circuits on which specific ADMS functions are operational, broken out by function, i.e. fault location, isolation, and service restoration, conservation voltage reduction, volt-ampere reactive controls, etc.
DA Operational Efficiency Gains	Metric Definition

Truck rolls related to an outage	Number of truck rolls related to an outage each month, system-wide
Outage-related truck rolls avoided	Number of avoided truck rolls related to an outage each month, system-wide
DA Direct Customer Benefits	Metric Definition
Customer Minutes Saved from self-healing events	Total customer minutes interrupted avoided monthly due to successful self-healing events
Customer interruptions saved from self-healing events	Total customer interruptions saved each month due to successful self-healing events
IVVC Metrics	
IVVC Energy Efficiency	Metric Definition
MW saved due to IVVC	Total MW saved due to IVVC per month, system-wide
MWh saved due to IVVC	Total MWh saved due to IVVC per month, system-wide
Average system voltage	For IVVC Circuits only, the average of the voltage at the substation on the secondary side of regulation.
Average circuit voltage	For all IVVC circuits, the average circuit voltage profile to demonstrate the meter performance of the IVVC equipment during different modes of operation.
IVVC GHG Impact	Metric Definition
Reduction in greenhouse gases due to IVVC (estimate)	Estimated reduction in greenhouse gases due to IVVC per month, system-wide, based on 2016 EPA eGRID data

FIRSTENERGY COMPANIES
Estimated Operational Benefits of Grid Mod I

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	20-Yr Total
		\$/Mil	\$/Mil	\$/Mil	\$/Mil	\$/Mil	\$/Mil	\$/Mil	\$/Mil	\$/Mil	\$/Mil	\$/Mil	\$/Mil	\$/Mil	\$/Mil	\$/Mil	\$/Mil	\$/Mil	\$/Mil	\$/Mil	\$/Mil	\$/Mil
AMI - Meter Reading	Avoided O&M Cost	\$ -	\$ (0.66)	\$ (2.56)	\$ (5.09)	\$ (6.07)	\$ (6.16)	\$ (6.16)	\$ (6.16)	\$ (6.16)	\$ (6.16)	\$ (6.16)	\$ (6.16)	\$ (6.16)	\$ (6.16)	\$ (6.16)	\$ (6.16)	\$ (6.16)	\$ (6.16)	\$ (6.16)	\$ (6.16)	\$ (106.73)
AMI - Meter Services	Avoided O&M Cost	\$ -	\$ (0.01)	\$ (0.11)	\$ (0.24)	\$ (0.28)	\$ (0.28)	\$ (0.28)	\$ (0.28)	\$ (0.28)	\$ (0.28)	\$ (0.28)	\$ (0.28)	\$ (0.28)	\$ (0.28)	\$ (0.28)	\$ (0.28)	\$ (0.28)	\$ (0.28)	\$ (0.28)	\$ (0.28)	\$ (4.77)
AMI - Back Office	Avoided O&M Cost	\$ -	\$ -	\$ -	\$ (0.09)	\$ (0.13)	\$ (0.13)	\$ (0.13)	\$ (0.13)	\$ (0.13)	\$ (0.13)	\$ (0.13)	\$ (0.13)	\$ (0.13)	\$ (0.13)	\$ (0.13)	\$ (0.13)	\$ (0.13)	\$ (0.13)	\$ (0.13)	\$ (0.13)	\$ (2.20)
AMI - Call Center Efficiency	Avoided O&M Cost	\$ -	\$ -	\$ -	\$ (0.04)	\$ (0.04)	\$ (0.04)	\$ (0.04)	\$ (0.04)	\$ (0.04)	\$ (0.04)	\$ (0.04)	\$ (0.04)	\$ (0.04)	\$ (0.04)	\$ (0.04)	\$ (0.04)	\$ (0.04)	\$ (0.04)	\$ (0.04)	\$ (0.04)	\$ (0.61)
ADMS Operational Savings	Avoided O&M Cost	\$ -	\$ -	\$ -	\$ (2.17)	\$ (2.21)	\$ (2.25)	\$ (2.30)	\$ (2.35)	\$ (2.39)	\$ (2.44)	\$ (2.49)	\$ (2.54)	\$ (2.59)	\$ (2.64)	\$ (2.69)	\$ (2.75)	\$ (2.80)	\$ (2.86)	\$ (2.92)	\$ (2.97)	\$ (43.36)
DA Operational Savings	Avoided O&M Cost	\$ (0.05)	\$ (0.11)	\$ (0.16)	\$ (0.17)	\$ (0.17)	\$ (0.17)	\$ (0.18)	\$ (0.18)	\$ (0.18)	\$ (0.19)	\$ (0.19)	\$ (0.19)	\$ (0.20)	\$ (0.20)	\$ (0.21)	\$ (0.21)	\$ (0.21)	\$ (0.22)	\$ (0.22)	\$ (0.23)	\$ (3.64)
Revenue Assurance--Theft Detection & Meter Accuracy	Increased Revenue	\$ -	\$ (0.13)	\$ (0.45)	\$ (0.79)	\$ (0.79)	\$ (0.79)	\$ (0.79)	\$ (0.79)	\$ (0.79)	\$ (0.79)	\$ (0.79)	\$ (0.79)	\$ (0.79)	\$ (0.79)	\$ (0.79)	\$ (0.79)	\$ (0.79)	\$ (0.79)	\$ (0.79)	\$ (0.79)	\$ (14.03)
Total Estimated Operational Benefits of Grid Mod I		\$ (0.05)	\$ (0.90)	\$ (3.28)	\$ (8.58)	\$ (9.68)	\$ (9.82)	\$ (9.87)	\$ (9.92)	\$ (9.97)	\$ (10.02)	\$ (10.07)	\$ (10.12)	\$ (10.18)	\$ (10.24)	\$ (10.29)	\$ (10.35)	\$ (10.41)	\$ (10.47)	\$ (10.53)	\$ (10.59)	\$ (175.34)

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in

Case No(s). 16-0481-EL-UNC, 17-2436-EL-UNC, 18-1604-EL-UNC, 18-1656-EL-ATA

Summary: Stipulation and Recommendation electronically filed by Mr. James F Lang on behalf of Ohio Edison Company and The Cleveland Electric Illuminating Company and The Toledo Edison Company