

**BEFORE  
THE PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the Application of Ohio       )  
Edison Company, The Toledo Edison       )  
Company, and The Cleveland Electric       ) Case No. 20-50-EL-ATA  
Illuminating Company for Approval of       )  
Time-Varying Rates.                        )

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

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February 21, 2020

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Time-of-use (“TOU”) rates can benefit customers participating in those rates if they shift their usage away from peak times. They can benefit all customers by lowering demand during peak times, thus putting downward pressure on peak-time market prices for generation and reducing the need for new power plants. To achieve these benefits, TOU rates must be well designed, and customers must understand how to shift their usage to take advantage of the rates.

For most residential customers, time-of-use rates are an unfamiliar concept. Residential customers may pay attention to *how much* electricity they use. But very few pay attention to *when* during the day they use it. Effective implementation of time-of-use rates requires technological upgrades and rates that are appropriately tied to peaks in market prices. It also requires sufficient information and customer education regarding electricity usage, especially in the early stage of the rollout of time-of-use rates.

Given that an underlying premise of Time-of-Use pricing is economic efficiency through consumer response to price signals, it should be noted that FirstEnergy’s preference for (and success in obtaining) generation subsidies from Ohio consumers is at odds with the effective functioning of this pricing for reducing peak usage and correspondingly reducing the need to build power plants that Ohioans pay for.

The Office of the Ohio Consumers' Counsel ("OCC") proposes the following consumer protection recommendations regarding FirstEnergy's proposal to offer time-of-use rates to residential customers (the "Residential Time-of-Use Rates").

## **I. RECOMMENDATIONS**

### **A. FirstEnergy should be required to provide public transparency about the justification for what it is proposing to charge customers in its application.**

In what is becoming a common theme for FirstEnergy filings, FirstEnergy's application (if it can even be called that) provides limited information about the proposed Residential Time-of-Use Rates that consumers would pay. The entirety of FirstEnergy's application is: (i) a cover letter that provides no substantive information, (ii) a form that says only that FirstEnergy is seeking to establish time-varying rates for residential customers and to expand eligibility of time-varying rates for non-residential customers, (iii) a two-sentence "reason for proposal" that repeats what is said in the form, and (iv) tariff sheets.<sup>1</sup> FirstEnergy included no testimony, no workpapers, no calculations, and no supporting documentation for its proposal, other than the barebones information described above.

FirstEnergy's application should have included considerably more detail, including, but not limited to, (i) workpapers showing how FirstEnergy derived the proposed "midday peak," "shoulder peak," and "off-peak" rates, (ii) calculations of the projected benefits to consumers from the proposed Residential Time-of-Use Rates, including an analysis of whether the program is designed to achieve the benefits that were projected in FirstEnergy's grid modernization case,<sup>2</sup> (iii) estimates of the number of customers reasonably expected to participate, (iv) a description of

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<sup>1</sup> See <http://dis.puc.state.oh.us/DocumentRecord.aspx?DocID=ff61fbfb-319c-4d31-9c49-c2e6e88b531c>.

<sup>2</sup> Case No. 16-481-EL-UNC (the "Grid Modernization Case").

how customers will be informed about the availability of the program, including customer education strategy,<sup>3</sup> (v) a timeline for implementing the program, including the expected installation date of AMI meters and other necessary infrastructure, (vi) consumer protections including resources that will be available to help consumers learn about time-of-use rates, (vii) a proposal for how the program will be evaluated for effectiveness, and (viii) how the program will promote fairness to consumers who may not be able to shift consumption to get the benefits of the program.<sup>4</sup>

Some information was provided to parties as part of the FirstEnergy Grid Modernization Collaborative. But the Grid Modernization Collaborative does not provide transparency to the *public* in the same way that proceedings before the PUCO are intended to. Thus, OCC attaches as Attachment A the information that FirstEnergy provided through the collaborative so that the PUCO and the public have the benefit of additional transparency, clarity, and completeness of records for this proceeding.

**B. FirstEnergy should be required to show that its proposed Residential Time-of-Use Rates are designed to achieve for consumers—who will pay hundreds of millions of dollars for FirstEnergy’s grid modernization investments—the savings projected in its cost-benefit analysis from the grid modernization case.**

In its recent Grid Modernization Case (Case No. 16-481-EL-UNC), the PUCO authorized FirstEnergy to charge customers more than \$650 million for FirstEnergy’s grid modernization

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<sup>3</sup> For example, PG&E offers Time-of Use Rates and provides extensive information about these options on their website to help residential customers understand their bill savings options, [https://www.pge.com/en\\_US/residential/rate-plans/rate-plan-options/time-of-use-base-plan/tou-everyday.page](https://www.pge.com/en_US/residential/rate-plans/rate-plan-options/time-of-use-base-plan/tou-everyday.page)

<sup>4</sup> The availability of discovery is not a replacement for transparency in utility filings. First, unless a party files the discovery responses on the docket, the public does not have access to them. Second, utilities often make overbroad claims that information is “trade secret” and thus cannot be publicly disclosed. Third, relying on discovery puts the onus on intervenors when it is the utility that bears the burden of proof. Fourth, comments in this case are due just a month after the application was filed. This gives parties a limited opportunity to serve just one set of discovery (which OCC did), with no chance for follow up. Utilities should be required to file all relevant information. Parties should not be required to extract essential, foundational information about utility proposals through discovery.

investments.<sup>5</sup> The PUCO also ruled that a critical condition on those charges is that the benefits of grid modernization must be greater than the costs:

As a preliminary matter, we note that grid modernization should only be implemented if the benefits of grid modernization outweigh the costs. Thus, a positive cost-benefit analysis is critical in our consideration of grid modernization proposals.<sup>6</sup>

In its cost-benefit analysis, FirstEnergy projected nearly \$1.8 billion in savings (\$808 million in present value) compared to \$683 million in costs (\$574 million in present value) from its grid modernization investments.<sup>7</sup> The PUCO disagreed with some of FirstEnergy's calculations based on testimony of witness Curt Volkmann, who testified on behalf of several intervenors. Adopting some of Mr. Volkmann's recommendations, the PUCO found that the total benefits would be closer to \$1.0 billion over 20 years, and just \$200 million in present value.<sup>8</sup> Further, in discussing the benefits that will purportedly accrue to customers from FirstEnergy's grid modernization plan, the PUCO found that FirstEnergy's "commitment to offer a time-varying rate" would be "[o]f significant benefit."<sup>9</sup>

In the Grid Modernization Case, FirstEnergy projected millions in savings for customers resulting from time-of-use rates. According to FirstEnergy, time-of-use rates will allow customers to lower their energy usage (kWh) and reduce demand (kW) over the next 20 years,

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<sup>5</sup> Case No. 16-481-EL-UNC, Opinion & Order ¶ 92 (July 17, 2019) (\$516 million in capital costs plus \$139 million in O&M costs) (the "Grid Modernization Order"). In other dockets, OCC has raised concerns about the level of charges to customers for grid modernization and proposed that all grid modernization investments be used and useful before customers pay for them. *See, e.g.*, Case No. 17-1263-EL-SSO, Initial Brief of OCC (Sept. 11, 2018) (arguing that customers should not pay for \$69 million in book value of smart meters that are not used and useful).

<sup>6</sup> Grid Modernization Order ¶ 111.

<sup>7</sup> Case No. 16-481-EL-UNC, Stipulation and Recommendation, Attachment B: Cost-Benefit Analysis (Nov. 9, 2018).

<sup>8</sup> Grid Modernization Order ¶ 115.

<sup>9</sup> Grid Modernization Order ¶ 110.

thus resulting in the projected benefits. For these benefits to materialize, there would need to be a steady increase in time-of-use participation among customers with smart meters.

In the Grid Modernization Order, the PUCO noted that under the approved stipulation, FirstEnergy would “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.”<sup>10</sup> The PUCO affirmed this in the current case, reiterating in the January 29, 2020 Entry that “the Companies committed to proposing a time-varying rate offering for non-shopping customers ... which would be designed to achieve the energy and capacity savings detailed in the cost-benefit analysis.”<sup>11</sup>

It is time for FirstEnergy to deliver the promised benefits. FirstEnergy should be required, in this case, to demonstrate how the design and proposed implementation of its time-of-use rates will likely result in the savings for customers that formed the basis of its grid modernization plan. This should include projections, with supporting documentation, of how many customers will participate in the program, the expected energy savings (in kWh and dollars), and the expected demand savings (in kW and dollars), year by year. Without this information, the PUCO (and parties) cannot evaluate whether FirstEnergy’s proposal is “designed to achieve the energy and capacity savings detailed in the cost-benefit analysis.” And without this information, the PUCO cannot adhere to its promise that “grid modernization should only be implemented if the benefits of grid modernization outweigh the costs.”<sup>12</sup>

OCC attempted to obtain this information from FirstEnergy through discovery. FirstEnergy had nothing to provide. For example, OCC asked FirstEnergy to “[p]rovide any

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<sup>10</sup> Grid Modernization Order ¶ 38.

<sup>11</sup> Entry ¶ 5 (Jan. 29, 2020).

<sup>12</sup> Grid Modernization Order ¶ 111.

analysis performed by FirstEnergy showing whether the Residential TOU Rates will achieve the energy and capacity savings detailed in the cost-benefit analysis from the Grid Modernization Case.”<sup>13</sup> In response, FirstEnergy told OCC to look at the cost-benefit analysis from the Grid Modernization Case, and then it paraphrased the question, saying “the Companies’ proposal in this case is designed in a manner consistent with the studies used as the basis for the Companies’ estimated time-varying rate benefits in the cost benefit analysis in the Grid Mod I case.” FirstEnergy is stating the conclusion (that the proposed time-of-use rates are consistent with the cost-benefit analysis) without any support. The mere existence of the cost-benefit analysis does nothing to prove that FirstEnergy’s proposal is consistent with that cost-benefit analysis. Yet FirstEnergy provides nothing more.

Further, it appears that at least some of the savings from participating in the Residential Time-of-Use Rates will be eliminated because FirstEnergy will recoup those savings from other customers in the form of lost revenues. OCC asked FirstEnergy in discovery whether it will “collect lost revenues resulting from the Residential TOU Rates (for example, if a customer’s total charges under the Residential TOU Rates are less than they would be under standard rates).”<sup>14</sup> FirstEnergy responded that these charges would in fact be “reconciled through the Companies’ Generation Cost Reconciliation Rider.”<sup>15</sup> In other words, if a customer saves \$10 as a result of participating in the Residential Time-of-Use Rates and FirstEnergy thus collects \$10 fewer dollars than it expected, FirstEnergy will simply pass those extra \$10 on to other customers through this rider. Thus, for purposes of the cost-benefit analysis, those \$10 in savings are

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<sup>13</sup> See Attachment B at 1.

<sup>14</sup> See Attachment B (OCC Set 1, INT-019).

<sup>15</sup> *Id.*



reduced to \$0. The PUCO must take this into account when determining whether FirstEnergy's grid modernization investments are cost effective, as FirstEnergy claimed they will be.

**C. Customers participating in the Residential Time-of-Use Rates should receive monthly statements on their bills showing how their actual bill compares to what they would have paid under non-time-of-use SSO rates.**

Customers opting for the Residential Time-of-Use Rates can save money on their bills by using electricity when rates are lower and reducing their usage during the peak times. To help customers make informed choices about whether to participate in the Residential Time-of-Use Rates, four consumer protections are necessary and should be adopted.

First, once smart meters are installed, FirstEnergy should provide customers, upon their request and at no charge, with a historical analysis of whether the customer would fare better under time-of-use rates or typical standard service offer rates. That is, the utility should calculate, based on the customer's historical usage patterns, whether the customer should expect to pay more or less under the Residential Time-of-Use Rates than the non-time-of-use rates, assuming no change in those usage patterns.<sup>16</sup> This would provide the customer with a baseline for considering whether time-of-use rates could be advantageous.

Second, when a customer enrolls in the proposed Residential Time-of-Use Rates, the customer's bill should show not only what they paid under the time-of-use rates, but what they would have paid under the standard rates. This way, customers know whether they saved money, and they can make a more informed decision about whether to continue with time-of-use rates.

Third, FirstEnergy should continue to provide education and support for those customers who sign up for the Residential Time-of-Use Rates. This should be done through a monthly

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<sup>16</sup> If FirstEnergy does not have adequate historical data available for that particular customer, it should provide theoretical examples of how a customer's change in its time of usage could impact its bill.

statement to the customer that (i) shows how much the customers saved or lost as compared to standard SSO rates, and (ii) provides tips on how the consumer can shift usage away from peak times to lower his or her bill (and to reduce the need for new generation to support peak loads). FirstEnergy should continue to work with its grid modernization collaborative regarding the type of information to be provided to customers and the form in which it is presented to customers.

Fourth, once time-of-use rates begin to be offered by marketers, the PUCO's apples website should include FirstEnergy's SSO Residential Time-of-Use Rates so that customers can use that as a point of comparison in evaluating marketer time-of-use offers.

**D. Customers should only be enrolled in the proposed Residential Time-of-Use Rates if they affirmatively sign up for the program.**

Customers should only be enrolled in the proposed Residential Time-of-Use Rates if they affirmatively consent to such rates through positive enrollment. The default for all residential customers should remain the typical standard service offer rates found on page 1 of the Generation Service Rider tariff sheet (which rates do not change based on time of day).

FirstEnergy's proposed tariff sheets state that the Residential Time-of-Use Rates shall be for "customers with advanced an [sic] meter installed by the Company who elect to be served under the Time-Of-Day Option (Residential), the charge by rate schedule will be as shown below, for all kWh, per kWh...."<sup>17</sup> In response to OCC's discovery, FirstEnergy confirmed that customers must affirmatively opt in to the Residential Time-of-Use Rates.<sup>18</sup> While FirstEnergy's proposed tariff language suggests that the rates are purely optional, the PUCO should modify the proposed tariff language to state this explicitly.

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<sup>17</sup> Application, redline of Sheet 114, page 2. There appears to be a typo, as the language says "with advanced an meter installed," in what should presumably read "with an advanced meter installed."

<sup>18</sup> See Attachment B (OCC Set 1, INT-021).

**E. FirstEnergy should clearly and adequately describe the program to customers so that they can make an informed decision about whether to enroll.**

FirstEnergy apparently has no plan for how to market the proposed Residential Time-of-Use Rates to customers. Through discovery, OCC asked FirstEnergy to describe “how the Companies intend to inform residential customers about the availability of the Residential TOU Rates.”<sup>19</sup> After claiming that this basic information is somehow irrelevant to this case, FirstEnergy declined to provide any substantive information, stating only that “the process will depend on the terms and conditions of the Commission’s approval of the tariff” and that “[a]dditional information may be available through participation in the Companies’ Grid Mod Collaborative group.” In other words, despite claiming that its proposed time-of-use rates will result in millions of dollars in benefits for customers, FirstEnergy has not even begun to consider how it will market those rates to customers.

OCC makes the following recommendations. When a customer receives an advanced meter under FirstEnergy’s grid modernization plan, the customer should be informed about the availability of the Residential Time-of-Use Rates. The utility should provide full disclosure, in writing, in clear, plain English, of all terms and conditions of the Residential Time-of-Use Rates. The PUCO should approve the language to be provided in this disclosure, following input from stakeholders. The customer should be informed that he or she can terminate participation in the program at any time, including in the middle of a billing cycle, without paying any penalty (*i.e.*, the utility shall not charge, for example, a \$5 fee for canceling). And before a customer is enrolled in the proposed Residential Time-of-Use Rates, the utility should receive written confirmation from the customer that they have received, reviewed, and understand the

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<sup>19</sup> See Attachment B (OCC Set 1, INT-016).

information provided by the utility regarding the time-of-use rates. When a customer terminates participation in the middle of the billing cycle, usage on the day of termination shall continue to be billed under the time-of-use rates, but the following day the rates should revert to standard SSO rates.

Accordingly, the tariff should explicitly state, “No residential customer shall be enrolled in the Time-o- Day Option unless the customer affirmatively elects such option in writing following full disclosure, in clear, plain English, or all terms and conditions. A customer may terminate its participation in this time-of-day option at any time, including in the middle of a billing cycle, without incurring any penalty.”

**F. The bills of customers who participate in the Residential Time-of-Use Rates should include sufficient information for the customers to recalculate their monthly bill for accuracy.**

When customers elect to enroll in the Residential Time-of-Use Rates, their bills should include enough information for the customers to recalculate their bills for accuracy. In particular, the bill should identify the rates for each of the “midday peak,” “shoulder peak,” and “off-peak” hours, and it should identify the hours during which each rate applies. The bill should also provide instructions for how customers can access their real-time hourly energy usage during the billing period (whether via web portal or otherwise<sup>20</sup>) so that they can calculate how much they were charged each hour during the billing period based on the time of day and the applicable rate. The bill should also include information about how customers can access their historical usage

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<sup>20</sup> For example, ConEdison provides on their website a “Time-of Use Rate Calculator” that when the customer provides certain inputs, the calculator shows the standard rate vs. time-of use rate and includes what customers would pay off peak, on peak and during super-peak periods. Finally, the calculator provides an estimated monthly and annual savings by switching to the time-of-use rate for the applicable period. *See* <https://www.coned.com/en/save-money/energy-saving-programs/time-of-use/rate-calculator>

and should provide a link to educational resources on how customers can shift their energy usage to save money.

**G. To build customer confidence in the adoption of time-of-use rates, customers should be protected from excessive bill increases resulting from participation in the Residential Time-of-Use Rates.**

Time of use rates will be unfamiliar to the vast majority of residential consumers. The goal of time-of-use rates is to teach customers that it is better to use energy during off-peak hours and to convince them to do so by charging more for on-peak energy usage. This will not be an easy adjustment for consumers. A typical consumer expects electricity to cost the same amount, regardless of the hour in which it is used. Thus, it will take some time for customers to get accustomed to the idea, for example, that it is better to run their dryer at 10 pm rather than 5 pm in the middle of summer.

If a customer signs up for time-of-use rates and sees a rate increase, the desired result is that the customer adjusts his or her usage by shifting more usage to off-peak hours. This not only lowers that customer's bill, but helps all customers by reducing the need for new generation to meet peak demand. A potentially bad result for consumers would be one where they sign up for time-of-use rates, and before they have a chance to really understand how they work, their bill skyrockets and they cancel their participation altogether. The PUCO should therefore adopt consumer protections to ease the transition for residential customers participating in time-of-use rates and to help build consumer acceptance in using time-of-use rates.

First, FirstEnergy should be required to track the amount that the customers saved or lost as compared to the standard SSO rates. This information alone will provide valuable information to customers about whether time-of-use rates are right for them.

Second, customers who sign up for the Residential Time-of-Use Rates should receive certain bill guarantees for a limited amount of time. Bill guarantees have been offered in

conjunction with time-of-use rate roll-outs as a way to build consumer confidence and support for changing energy usage patterns.<sup>21</sup> One way to help customers avoid losing too much money while they are learning about time-of-use rates is to provide a bill protection that is tied to the non-time-of-use SSO price. For the first year of participation, customers should be guaranteed to pay no more than they would have paid under the standard SSO rates. Customers exceeding the rate cap for this one-year period should be provided a monthly bill comparison showing the charges they would have paid without the rate ceiling. After one year, the utility will provide the customer with a recap of their bills under the Residential Time-of-Use Rates, showing them how much they saved or how much extra they would have paid under the time-of-use rates if not for the bill guarantee. After that point, a customer who voluntarily signs up for time-of-use rates would pay whatever bill results from those rates, even if it is higher than what they would have paid under the standard SSO rates.

Providing limited-in-duration bill limitation guarantees adequately balances several goals of time-of-use rates. It allows for a transition period as customers learn about how the rates work and how they impact bills. It allows customers to obtain real life data about how their own usage patterns contribute to higher or lower rates. It prevents rate shock if customers sign up for time-of-use rates and would otherwise pay much higher bills. And it preserves consumer autonomy (a foundational aspect of competitive markets) by requiring consumers to live with the consequences of their choices, following the initial six-month trial period.

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<sup>21</sup> See, e.g., [https://www.energy.gov/sites/prod/files/2016/12/f34/CBS\\_Final\\_Program\\_Impact\\_Report\\_Draft\\_20161101\\_0.pdf](https://www.energy.gov/sites/prod/files/2016/12/f34/CBS_Final_Program_Impact_Report_Draft_20161101_0.pdf). As an example, Lakeland Utilities offered bill protections for customers after enrolling in a DOE sponsored program evaluating customer acceptance of TOU rates.

## **II. CONCLUSION**

Theoretically, customers who opt to participate in FirstEnergy's time-of-use rates can benefit both themselves and other customers by shifting usage away from peak times (and reduce the need to build new power plants), when market prices for generation are high. But customers need full disclosure of what they are signing up for, and protection from unreasonably high bills that might result from opting into a new type of rate structure. FirstEnergy's proposed TOU program is supposedly advancing competitive market supply and demand principles; however time-of-use customers (and all other SSO customers) will guarantee FirstEnergy revenues for lost standard service offer payments resulting from this program, and they (and all other customers) will also pay to subsidize uneconomic coal and nuclear generation facilities that the utility successfully obtained. OCC encourages the PUCO to adopt the consumer protection recommendations above to maximize the benefits of time-of-use rates, while protecting consumers participating in the TOU program who are at risk of spending more than they otherwise would if they remained on the utility's competitively bid standard offer rate.

Respectfully submitted,

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### **CERTIFICATE OF SERVICE**

I hereby certify that a copy of these Comments was served on the persons stated below via electronic transmission, this 21st day of February 2020.

/s/ Christopher Healey  
Christopher Healey  
Assistant Consumers' Counsel

The PUCO's e-filing system will electronically serve notice of the filing of this document on the following parties:

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**Healey, Christopher**

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**From:** FE Grid Mod Collaborative <FEGridMod@firstenergycorp.com>  
**Sent:** Friday, October 25, 2019 11:55 AM  
**Subject:** FE Grid Mod Collaborative: Save the Date

Pursuant to Case Nos. 16-481-EL-UNC, 17-2436-EL-UNC, et. al., there will be a FirstEnergy Grid Mod Collaborative meeting on November 13, starting at 10:00am, at the PUCO offices in Columbus. Additional details will be provided closer to the meeting.

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**Healey, Christopher**

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**From:** FE Grid Mod Collaborative <FEGridMod@firstenergycorp.com>  
**Sent:** Monday, November 11, 2019 11:58 AM  
**Subject:** FE Grid Mod Collaborative

Pursuant to Case Nos. 16-481-EL-UNC, 17-2436-EL-UNC, et. al., there will be a FirstEnergy Grid Mod Collaborative meeting on November 13, starting at 10:00am, in Room 11C of the PUCO offices in Columbus. We will plan to meet from 10am until noon, take a break for lunch until 1pm, and resume meeting until 2pm.

We will provide an overview of the Stipulation in the above cases, a description of the technologies being installed, and discuss data access and time varying rates. We will have a sign in sheet available to develop a circulation list for future Grid Mod Collaborative meetings. Thanks, and look forward to meeting with you.

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**Healey, Christopher**

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**From:** FE Grid Mod Collaborative <FEGridMod@firstenergycorp.com>  
**Sent:** Thursday, November 14, 2019 5:27 PM  
**Subject:** Grid Mod Collaborative Meeting slides 11.13.2019  
**Attachments:** 11.13.19\_Grid Mod I\_PUCO Collaborative.pdf

Thank you for your participation in the Grid Mod Collaborative meeting on November 13, 2019. Attached please find the slides from the meeting. We will be in touch with additional information and next steps.

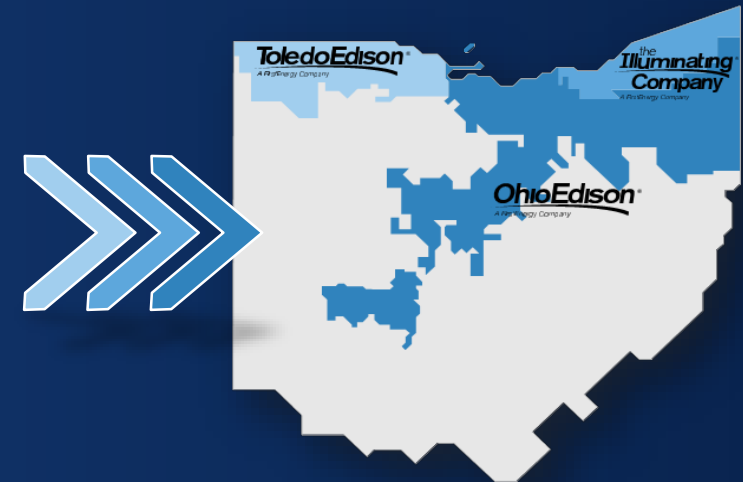
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# OH GRID MOD I

## COLLABORATIVE MEETING

NOVEMBER 13, 2019



# Agenda

Introductions & Opening Remarks

Grid Mod I Stipulation Overview

Organization

Technologies Overview

DA/IVVC

AMI (Smart Meter)

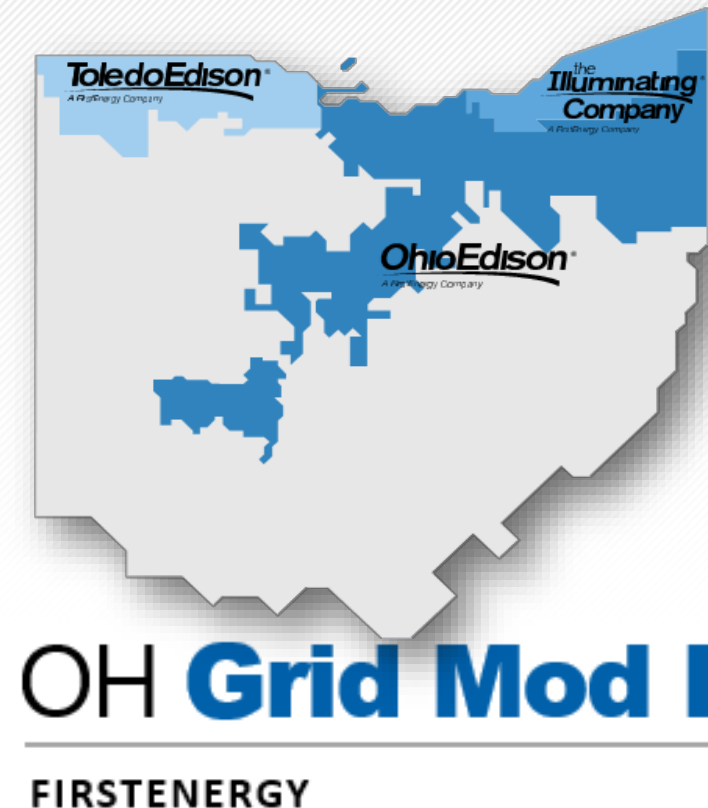
ADMS

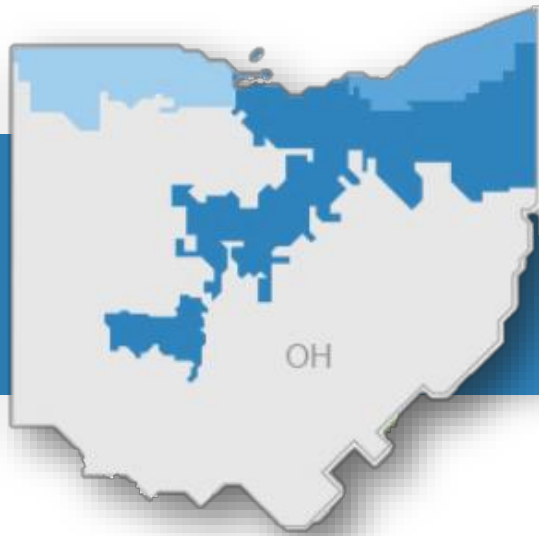
Data Access Systems & Processes

Time Varying Rate Discussion

Circuit Selection

Next Steps & Closing





# Grid Mod I Stipulation

OH **Grid Mod I**

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# Background on the Stipulation

- Grid Modernization Business Plan (Case No. 16-481-EL-UNC)
  - Filed February 29, 2016 in accordance with ESP IV commitment
  - Full Deployment of AMI and DA and IVVC on select number of circuits
- Distribution Platform Modernization Plan (Case No. 17-2436-EL-UNC)
  - Filed December 1, 2017
  - Circuit ties, reconductoring, reclosers, ADMS
- Tax Cuts and Jobs Act (“TCJA”) (Case Nos. 18-1604-EL-UNC, 18-1656-EL-ATA)
  - Proceedings to return to customers the tax savings resulting from the TCJA
- All cases resolved in Stipulation filed November 9, 2018 and Supplemental Stipulation filed January 25, 2019; approved by the PUCO July 17, 2019



# Grid Mod I Stipulation Overview

## Smart Grid Technologies



Distribution Automation (DA) on 200 Circuits  
Integrated Volt Var Control (IVVC) on 202 Circuits  
700,000 Advanced Meter Infrastructure (AMI) Meters  
Advanced Distribution Management System (ADMS)

UP TO

**\$516<sub>M</sub>**

CAPITAL  
INVESTMENT



Settlement approved by PUCO on 7/17/19 includes phase-one capital investments in grid modernization of up to \$516 million over three years.

- Up to \$50M on platform work
- Up to \$16M on AMI related distribution expenditures
- Cap on incremental O&M of \$139M over three years, including \$72.2M for the retirement of non-AMI meters

# Grid Mod Collaborative Group

- Companies will facilitate a Grid Mod Collaborative to update stakeholders on the status of Grid Mod I and to provide for customer input and advice
- Topics to be addressed by the Collaborative include:
  - AMI data access
    - Eligibility requirements for qualified devices
    - Costs and benefits associated with providing data using 15-minute intervals, one minute and sub-second data availability and making VEE certified data available as quickly as possible
    - Ways to make the customer authorization process easy for consumers
    - Authorization process for third party access and methods to ensure the process is easy for consumers
    - Evaluate Green Button “Connect My Data” (coordinated with the Data and Modern Grid Workgroup)
    - Once per quarter facilitate group to gather stakeholder input on data access systems and processes
  - Time-varying rate (TVR) offerings
    - Offering by Companies for non-shopping customers
    - Identify the time-varying rate options offered to retail customers by CRES providers
  - Costs and benefits of providing data to NREL Utility Rate Database
  - Recommendations to maximize actual salvage or sale net proceeds from legacy meters

# Advanced Metering Infrastructure (AMI) Deployment

- Install 700,000 advanced meters with necessary communication infrastructure, MDMS
- Utilize a scalable MDMS that enables the validation, editing, and estimating (“VEE”) of meter data for billing purposes, and can be leveraged for future advanced meter deployments
- AMI deployment map with dates
- AMI tag on the Customer Information List provided to CRES providers
- Utilize generally accepted standards, e.g. Smart Energy by Zigbee Alliance, to implement a Home Area Network, so customers can connect qualified devices.
  - A qualified device will not be limited to devices supplied only by the Companies or an affiliate

# Advanced Metering Infrastructure (AMI) Deployment

- THEO, PLC and NSPL data available to authorized CRES providers through the pre-enrollment list and EDI transactions as applicable:
  - Calculate THEO, PLC, and NSPL for customers as the meters become certified
  - Begin using AMI for calculation of PLC where VEE certified AMI data has been read for any qualifying peak events
  - Data for purposes of billing and scheduling will be provided via EDI or the standard form used
  - CRES data transmitted to PJM will be, at a minimum, hourly interval
  - Data utilized and transmitted to CRES providers will be at the metered level
  - VEE certified meters can be used for settlement of net metering customers, consistent with applicable rules
  - Permit batched retrieval of data for both prospective and existing customers
- Give CRES providers access to data through API
- Provide Green Button "Download My Data" format on customer portal
- Provide system-to-system access to authorized third parties
- Develop process for CRES to provide customer consent for prospective customers

# Advanced Metering Infrastructure (AMI) Deployment

- Target 5,000 meters removed from service for testing, refurbishing and restocking to replace failed non-AMI meters
- Work with suppliers to have data ready for a supplier offered time of use product upon VEE certification of AMI meters
- EPRI will conduct a state-level assessment of expanded efficient electrification to identify opportunities for efficient electrification enabled by AMI deployment
- No fees charged to customers or suppliers for individual access to or requests for data provided via EDI, customer portal, or supplier portal (including API)

# Time Varying Rate (TVR)

- Companies will propose a time-varying rate for non-shopping customers within six months of Order
  - Design to achieve energy and capacity savings detailed in cost-benefit analysis
  - Should leverage enabling technologies
- Once three suppliers offering products utilizing AMI data or three different types of time-varying products utilizing AMI data, withdraw SSO time-of-use rate offering with Commission approval
- Within six months of the Order, the Companies will submit a plan to Staff detailing the TVR options believed to be offered to retail customers by CRES providers

# Distribution Automation (DA) & Integrated Volt/Var Control (IVVC) Deployment

- Install DA on at least 200 circuits and IVVC on at least 202 circuits
  - Work with Staff on selection of circuits including explanation of how circuits are prioritized to maximize customer benefits
  - With input from Staff, EDF, OEC & interested Signatory Parties, identify best practices with objective of achieving 4% energy savings through IVVC
- 
- |  |   |
|--|---|
| <ul style="list-style-type: none"><li>■ DA functionality:<ul style="list-style-type: none"><li>— remote fault isolation and diagnostics</li><li>— automated feeder switching</li><li>— outage status monitoring and notification</li><li>— optimized restoration operations.</li></ul></li></ul> | <ul style="list-style-type: none"><li>■ IVVC functionality:<ul style="list-style-type: none"><li>— automated voltage regulation</li><li>— conservation voltage reduction (“CVR”)</li><li>— real-time load balancing</li><li>— automated power factor corrections.</li></ul></li></ul> |
|--|---|

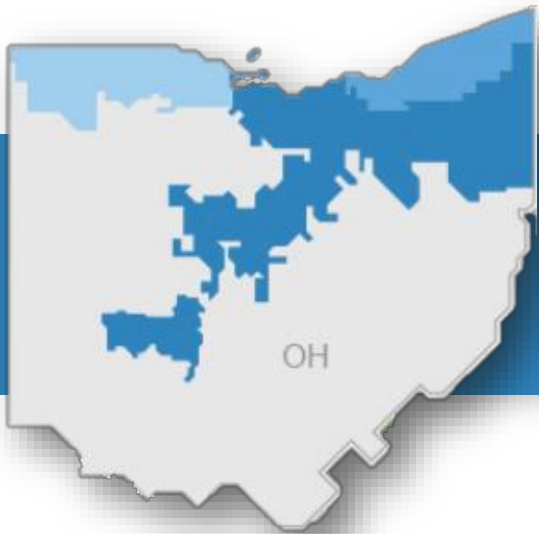
# Advanced Distribution Management System (ADMS)

- Install an ADMS designed to support:
  - 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
  - integration with existing and future utility investments, including MDMS, and SCADA



## Other Grid Mod I Provisions

- Performance Metrics
  - Measure the status of deployment and related impacts for Grid Mod investments
  - Metrics included in the workpapers submitted to Staff in support of Rider AMI quarterly updates
- Cost Recovery through Rider AMI, subject to audit



# Organization

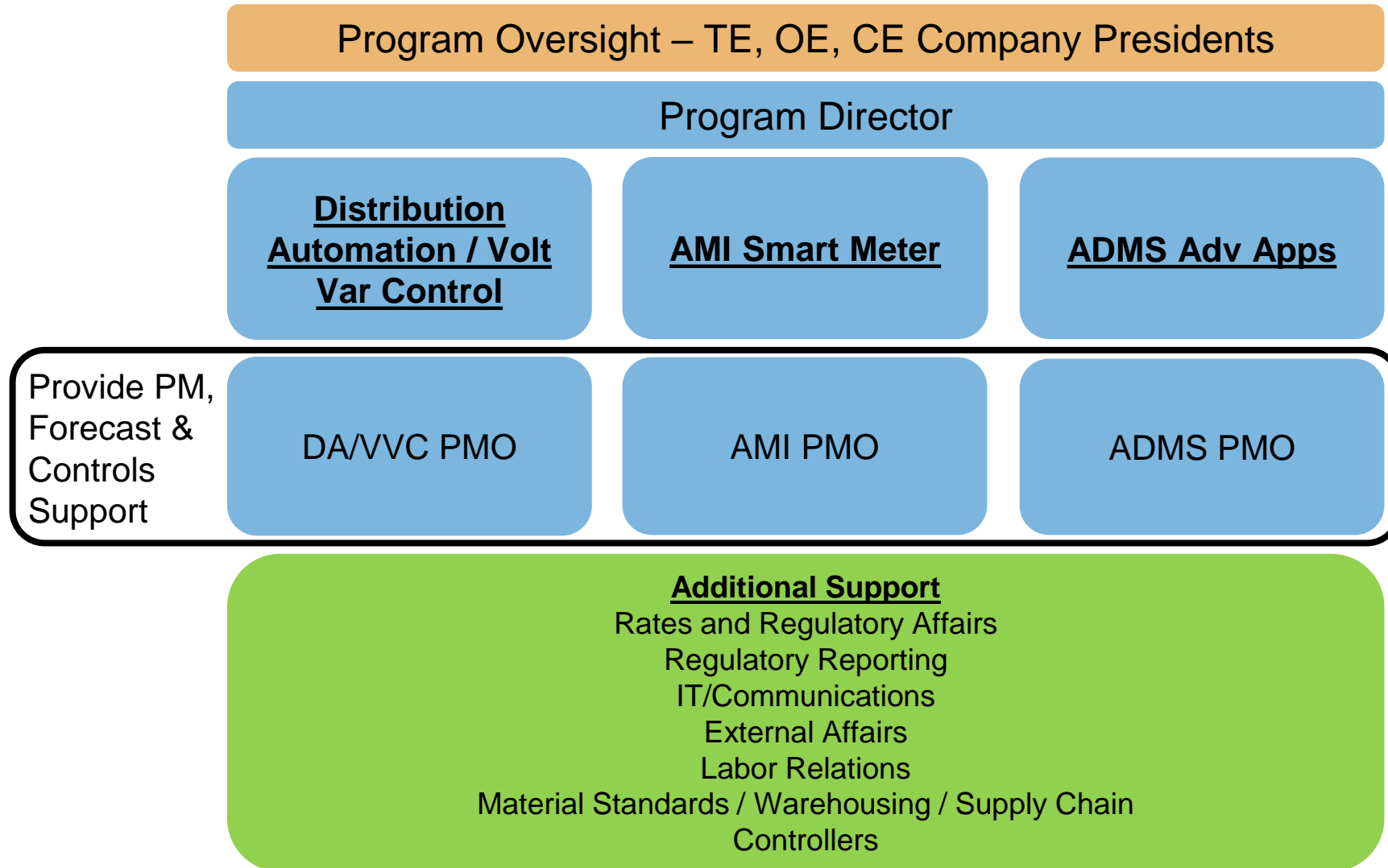
OH **Grid Mod I**

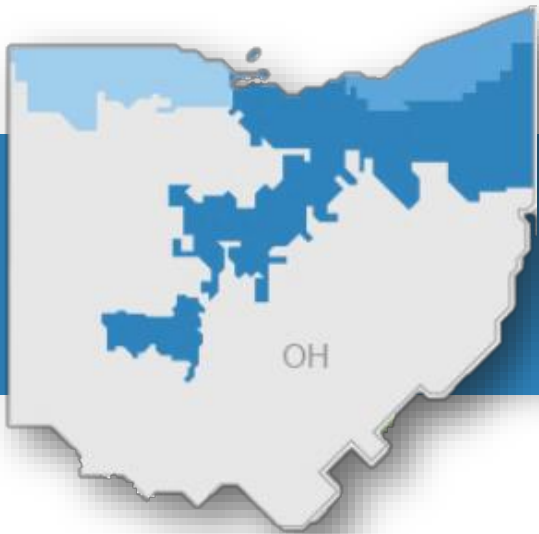
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# Program Execution Organization

- Centralized reporting structure while retaining regional focus
  - Centralized Sponsorship and Oversight provides singular focus and direction (Program Director)
  - Retains ability to maximize investment given unique characteristics of each operating company distribution system
  - Central support organizations provide consistent support and helps to facilitate communication between operating companies
    - Standards for materials, engineering
    - Consistent project management and project controls
- Cross-functional team meeting on regular basis to discuss status reporting (operational and financial), lessons learned, and to resolve material or resource issues

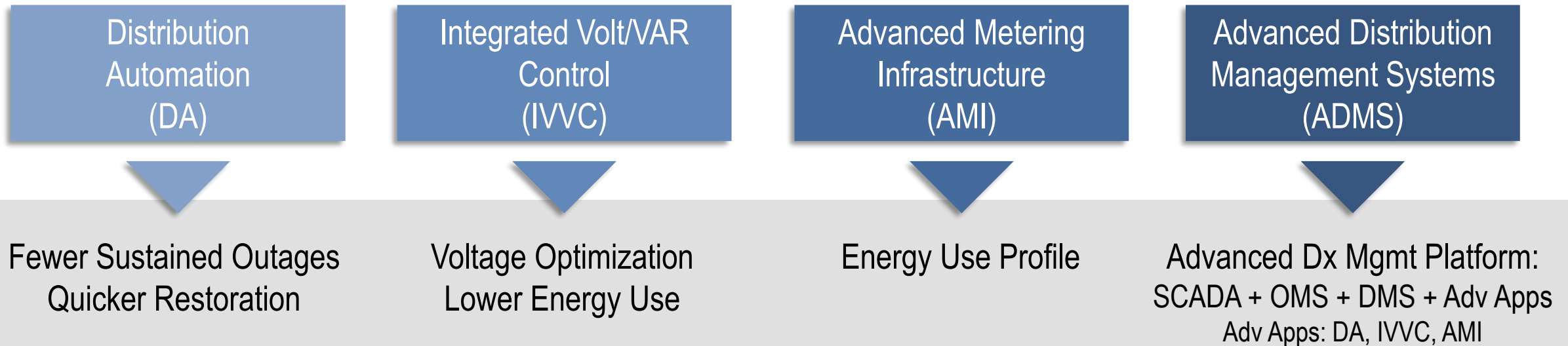
# Program Execution Organization

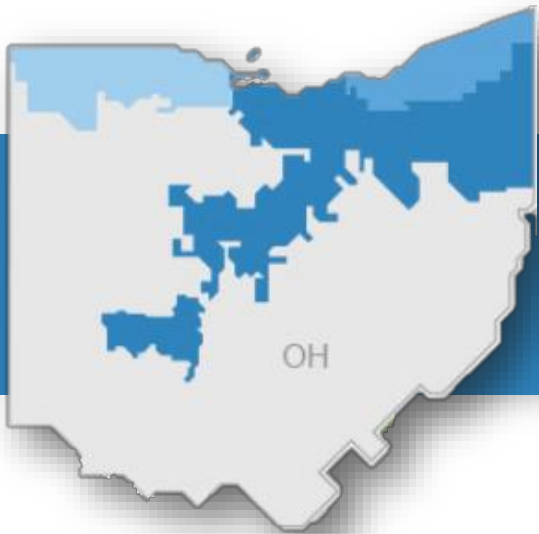




# Technologies Overview

# Technologies Overview

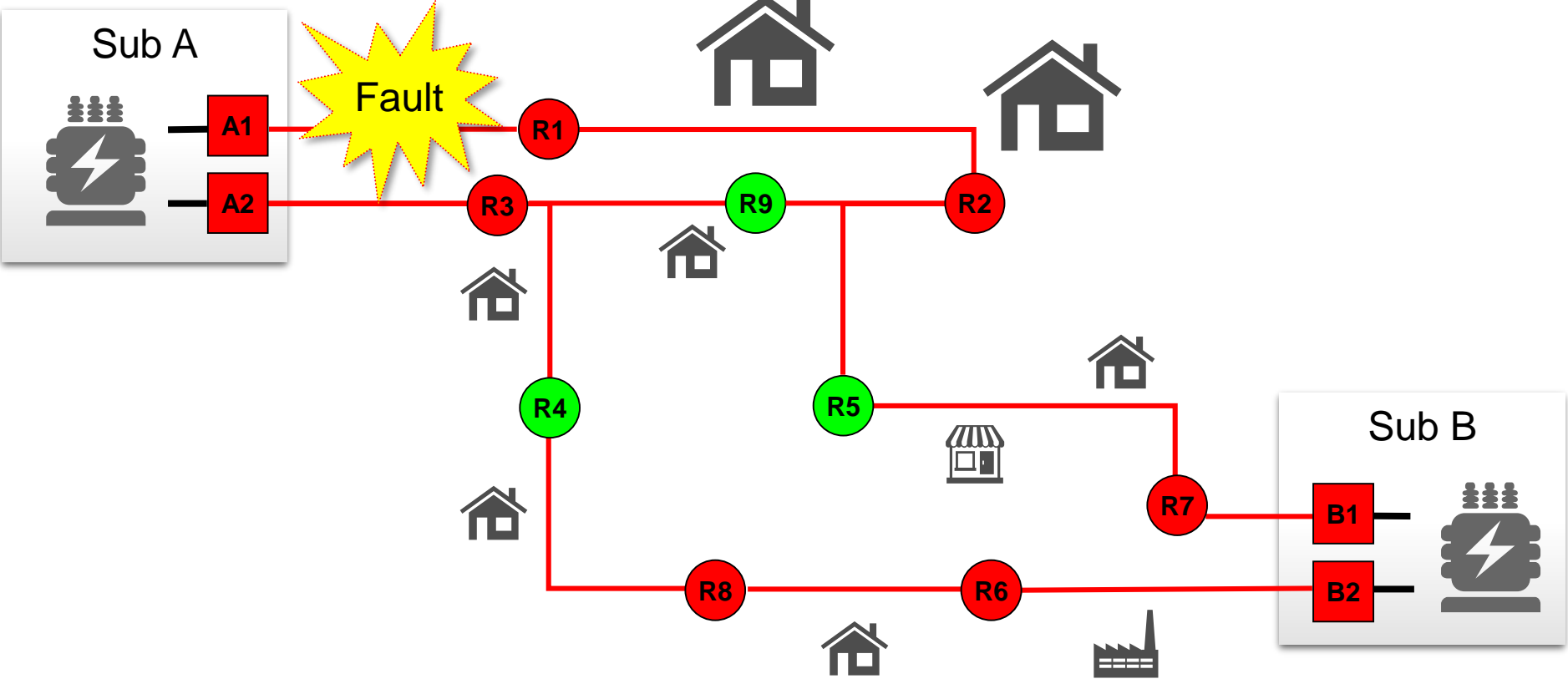




# Distribution Automation & Integrated Volt/VAR Control

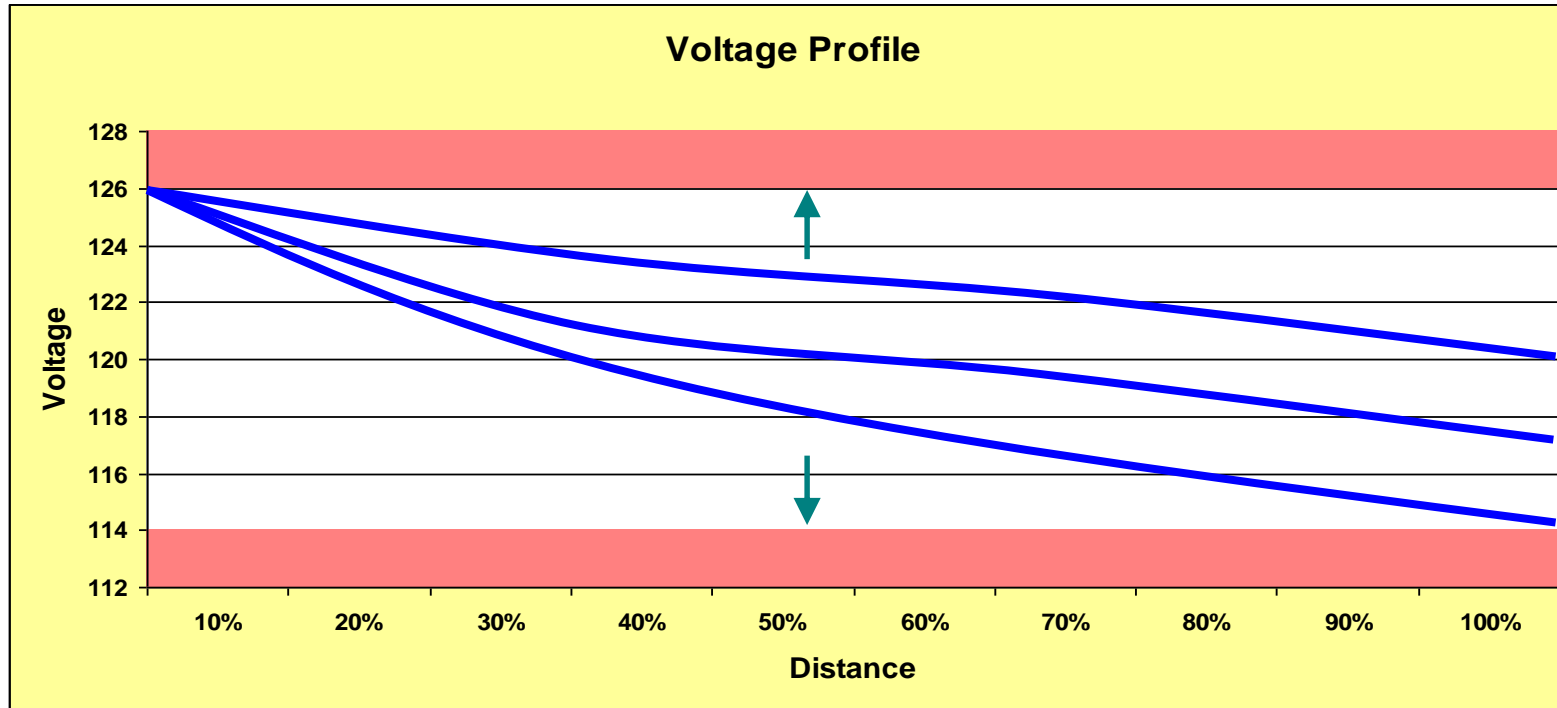
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# Distribution Automation

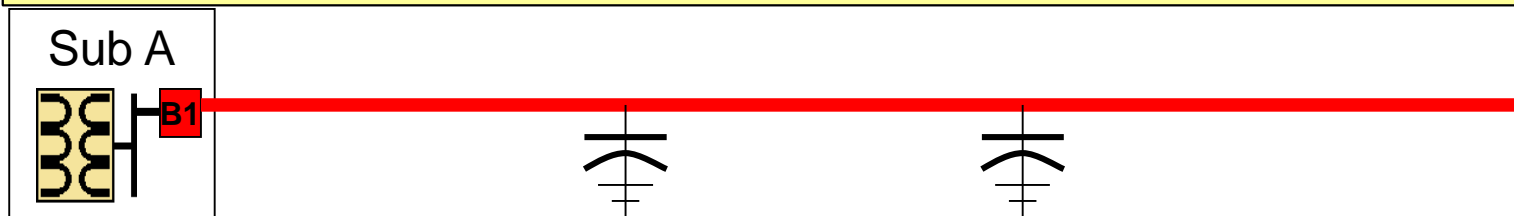




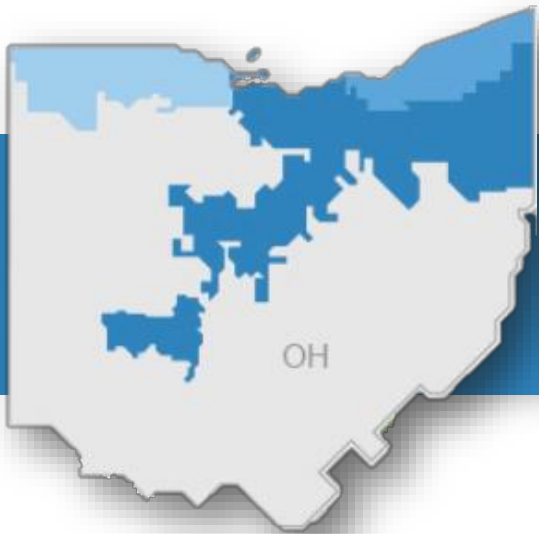
# Integrated Volt/VAR Control (IVVC)



- Provides opportunities to reduce kWh and kW on the distribution lines
- Comprises substation and circuit equipment capable of monitoring and adjusting system level voltage
- Reduced customer energy usage and improved power quality through automated voltage management



Adding capacitors to a distribution circuit allows voltage to be leveled across the circuit and allows finer control over the voltage at all points along that circuit



# Advanced Metering Infrastructure (Smart Meter)

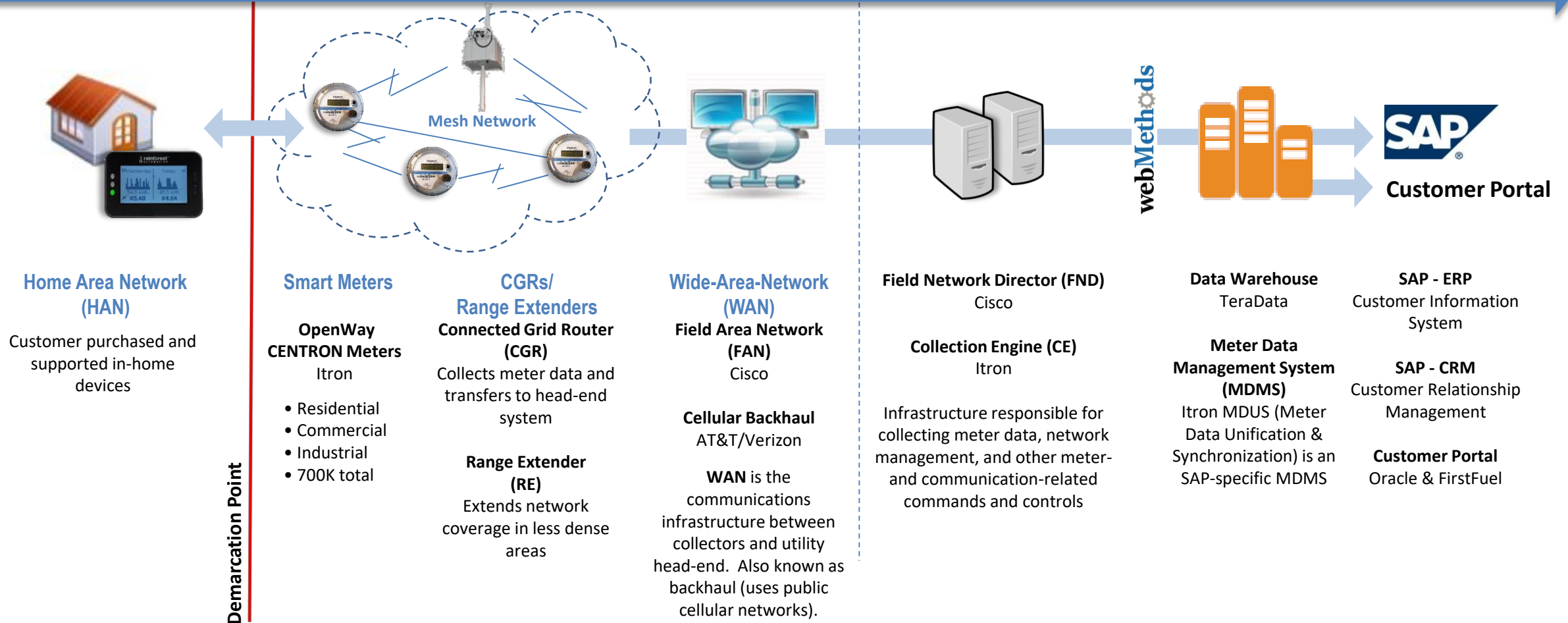
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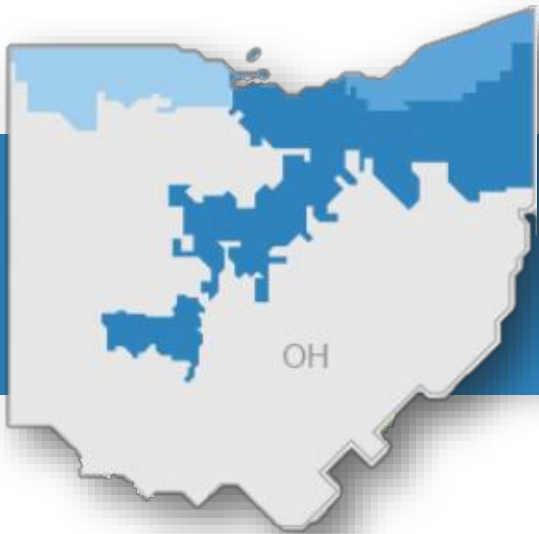
# Advanced Metering Infrastructure (AMI) Systems

## CUSTOMER EQUIPMENT

## SECURE NETWORK INFRASTRUCTURE

## SMART METER SYSTEMS



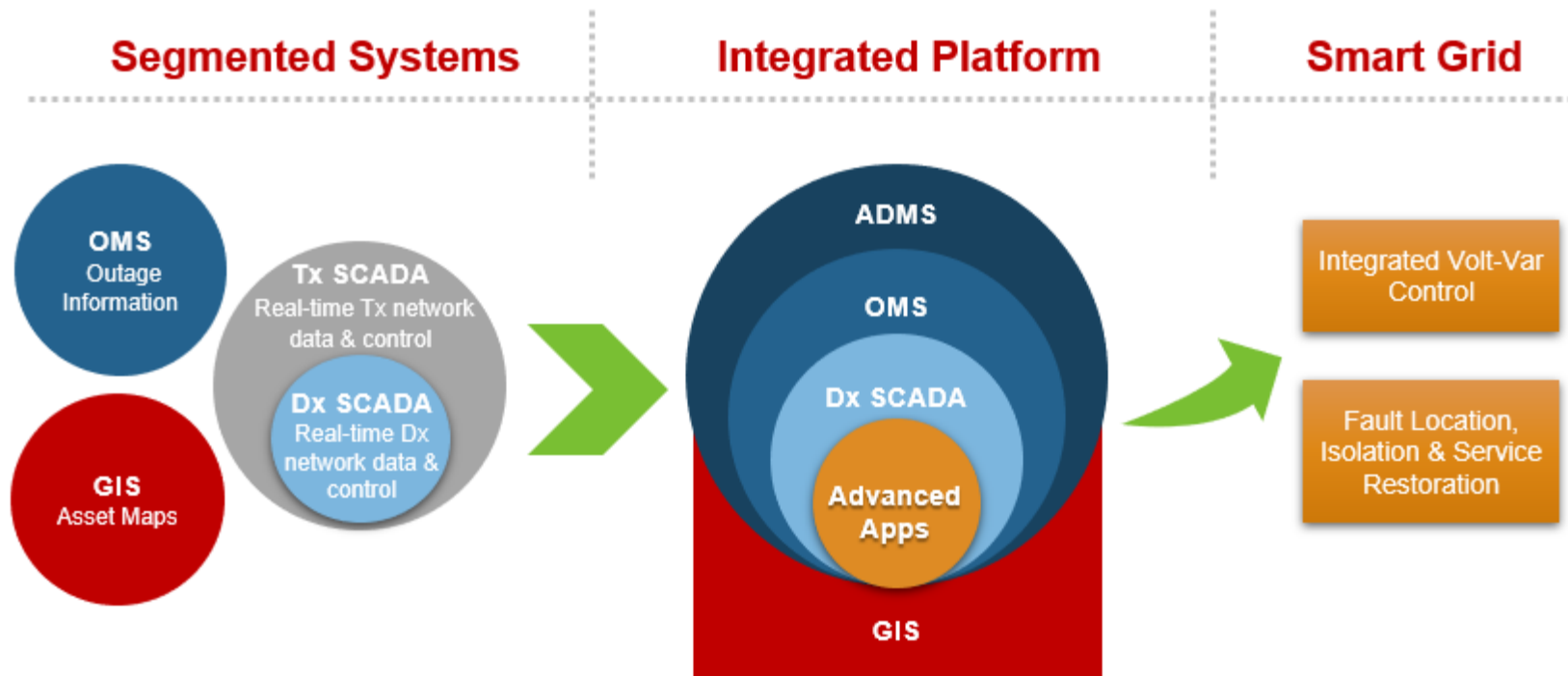


# Advanced Distribution Management System (ADMS)

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# Advanced Distribution Management System (ADMS)

An Advanced Distribution Management System (**ADMS**) provides a foundation to support outage and distribution management. An **ADMS** provides an integrated platform for Dx-SCADA to enable functionality into future Advanced Applications.



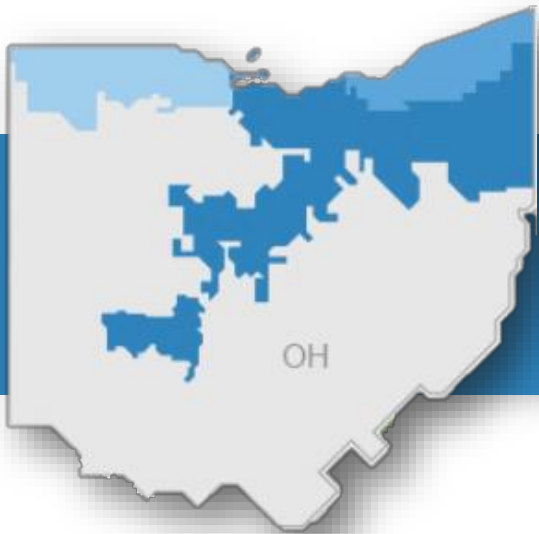
Advanced technology enables operational capabilities through advanced applications

## ADMS Includes:

- OMS functionality
- SCADA control
- Power flow
- Training simulators
- AML integration
- IVVC (integrated volt/var control)
- Distribution automation

## Mobility Includes:

- Damage assessment
- Switching
- Graphical work design



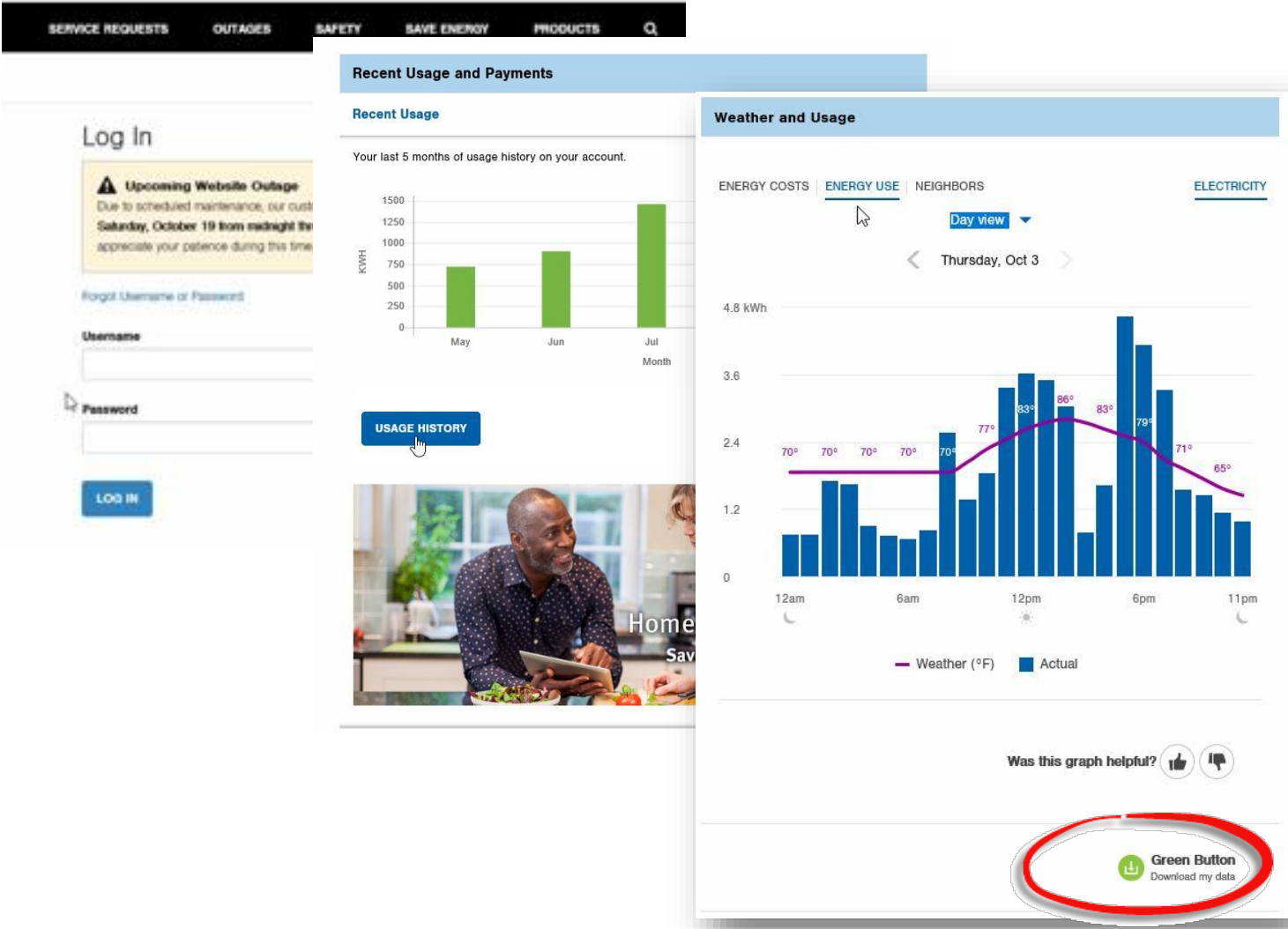
# Data Access Systems & Processes

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# Customer Data Access Systems & Processes

## Customer Portal

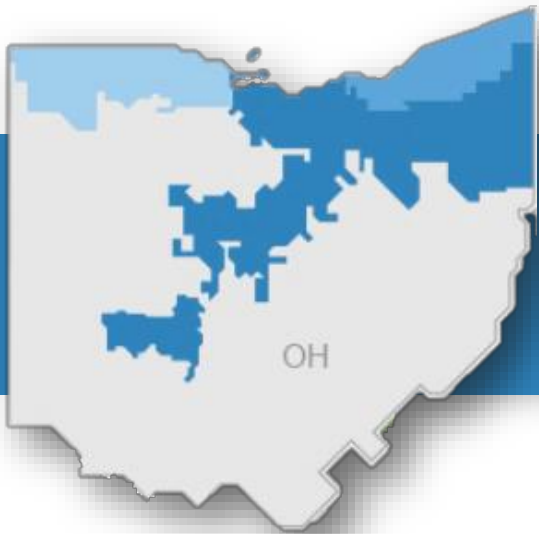
## Customer HAN Devices



# CRES Supplier Data Access Systems & Processes

- **Supplier Portal**
  - Will provide AMI interval data like legacy MV90 interval data
  - Existing functionality
    - *Single User – Single Request* functionality that will include AMI interval metered accounts
  - Future functionality
    - *Single User – Multiple Requests* allowing supplier to request and receive AMI interval usage for one or more account numbers as part of a single request
    - *System to System Rolling 10 Day* is a “provide-and-park” approach for sharing smart meter data. The EDC publishes a file that includes all available detailed bill quality meter-level interval usage in hour ending format for the set of accounts served by a particular supplier on a specific usage delivery date
    - *System to System Historical Interval Usage* allows supplier’s IT systems to communicate directly with the web portal system of the EDC without requiring a user to manually log into the web portal itself and leverage the user interface. The requestor connects to the EDC’s system exchanging data via XML transactions
- **Supplier EDI**
  - Will pass AMI interval data like legacy MV90 interval data





# Time Varying Rate Discussion

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# Existing Time-Varying Rates

## ■ Residential

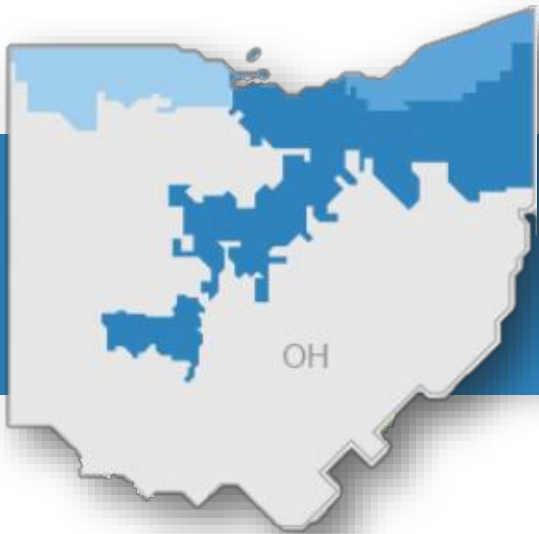
- Residential Critical Peak (RCP)
- Participation is Limited

## ■ Commercial and Industrial

- Generation Service Rider - Time of Use Option (Rider GEN)
- Real Time Pricing Rider (Rider RTP)
- Critical Peak Pricing Rider (Rider CPP)

# Potential New Time-Varying Rate Options

- Residential Time Varying Rate Options
  - Time of Use
  - Peak Time Rebate
  - Critical Peak Price
- Language from Stipulation
  - 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 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.



# Circuit Selection

# Circuit Selection Process

*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.*

**The following circuit & meter selection considerations were taken into account by the Companies to identify viable candidates:**

<b>Ranking &amp; Prioritization Criteria</b>	<ul style="list-style-type: none"> <li>▪ Highest average three-year customer minutes interrupted</li> <li>▪ High customer count</li> <li>▪ Longer circuit miles</li> </ul>	
<b>Circuit Selection Considerations</b>	<ul style="list-style-type: none"> <li>▪ Only distribution Wye connected circuits</li> <li>▪ Tie capability/capacity between substations</li> <li>▪ Alternate transmission sources</li> <li>▪ Energy savings based on internal conservation voltage reduction study</li> </ul>	<b>Exclusions:</b> <ul style="list-style-type: none"> <li>▪ Exclusively underground circuits</li> <li>▪ Delta connected circuits (i.e. 4kV)</li> </ul>
<b>Meter Selection Considerations</b>	Overlaid meter installs to ensure alignment with selected circuits and optimize customer benefits	

# Circuit Selection – Reliability & Energy Conservation Impacts

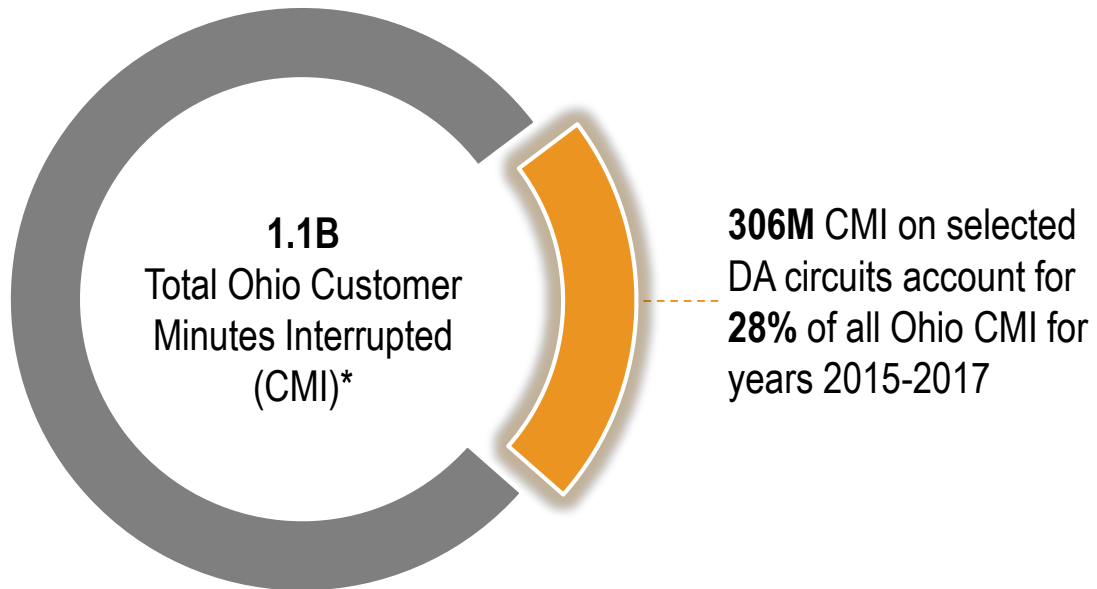
Out of FirstEnergy's 2,077,692 customers and 2,821 circuits in Ohio, Grid Mod I will impact:

## Customers

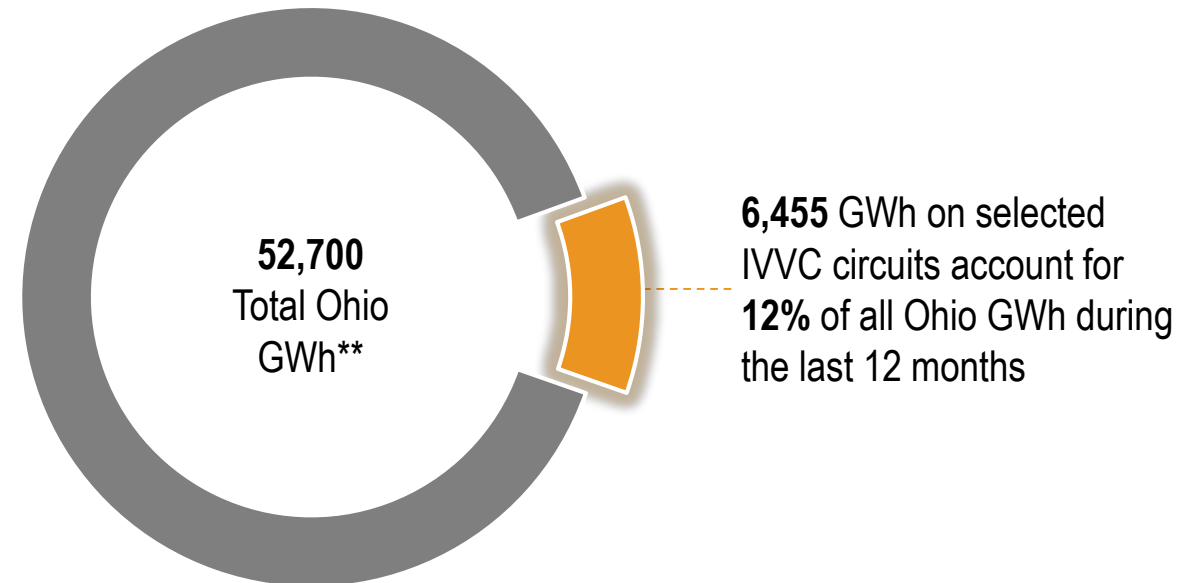
- 18% overall
- 16% impacted by DA
- 14% impacted by IVVC

## Circuits

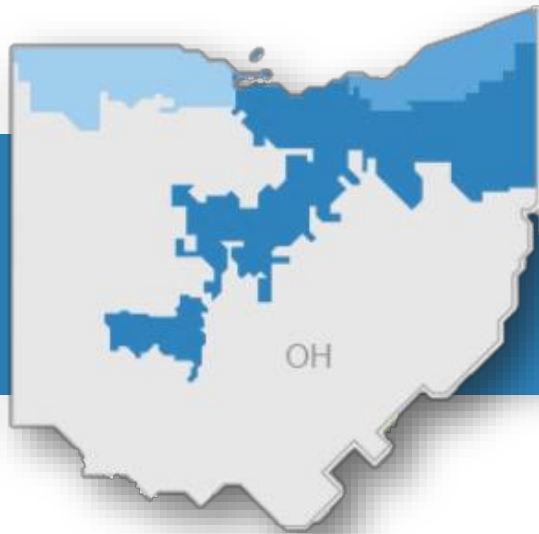
- 7% of circuits
- 18% of circuit miles
- 66 of the Worst Performing Circuits identified over the last 3 reporting periods



\*Total Ohio CMI including storms for years 2015-2017



\*\*Total GWh in Ohio for past 12 months



## Next Steps & Closing

**OH Grid Mod I**  
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# Thank You

THANK YOU





# Appendix | Glossary of Terms

Term	Definition
ADMS	Advanced Distribution Management System
AMI	Advanced Metering Infrastructure
CMI	Customer Minutes Interrupted
API	Application Program Interface
CVR	Conservation Voltage Reduction
DA	Distribution Automation
DERMS	Distributed Energy Resource Management System
DMS	Distribution Management System
DSO	Distribution System Operator
IVVC	Integrated Volt/Volt-Ampere Reactive Control
MDMS	Meter Data Management System
NREL	National Renewable Energy Laboratory
NSPL	Network Service Peak Load
OMS	Outage Management System
PLC	Peal Load Contribution
SCADA	Supervisory Control and Data Acquisition
THEO	Total Hourly Energy Obligation
VEE	Validation, Estimation and Editing

**Healey, Christopher**

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**From:** FE Grid Mod Collaborative <FEGridMod@firstenergycorp.com>  
**Sent:** Tuesday, November 26, 2019 3:44 PM  
**Subject:** FE Grid Mod Collaborative Time Varying Rates Conference Call

Thank you for your attendance and discussion at the FirstEnergy Grid Mod Collaborative meeting held on November 13<sup>th</sup>. We would like to continue our discussion regarding time varying rates with interested parties and therefore will have a conference call on Dec 10<sup>th</sup> from 2pm – 3pm. We will provide additional information, including copies of our current time-of-use tariffs, prior to the call. A conference line will also be provided.

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**Healey, Christopher**

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**From:** FE Grid Mod Collaborative <FEGridMod@firstenergycorp.com>  
**Sent:** Monday, December 09, 2019 1:25 PM  
**Subject:** Grid Mod Collaborative - Time Varying Rate Conference Call  
**Attachments:** Rider GEN- Generation Service Rider.pdf; Rider RCP- Residential Critical Peak Pricing Rider.pdf; TVR Slides\_12\_10\_2019.pdf

As a follow-up to our last meeting on November 13, attached please find copies of two of the Companies' current time of use tariffs: Rider GEN Time-of-Day Option (Rider GEN) and Resident Critical Peak Rider (Rider RCP). Also attached please find the slides we will review during tomorrow's call. We look forward to a good discussion with the group. Please see the conference call in information below.

Dial-In #: 866-209-2820  
Conference Code: 4052564706  
Leader Pin: 8626

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# **Grid Mod I Collaborative: Time-Varying Rates**

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December 10, 2019



# Agenda

- Introduction
- Existing Time-Varying Rates
- Grid Mod I Stipulation Language Relating to Time Varying Rates
- Companies' Proposed Time-Varying Rates
- Potential Energy and Demand Savings
- Potential CRES Offered Time-Varying Rates

# Companies' Existing Time-Varying Rates

## ■ Residential

- Residential Critical Peak Pricing Rider (RCP)
- Available to non-shopping customers in CEI Pilot area
- Participation is limited to 250 customers

## ■ Commercial and Industrial

- Generation Service Rider - Time of Day Option (GEN)
- Real Time Pricing Rider (RTP)
- Critical Peak Pricing Rider (CPP)

# Grid Mod I Stipulation: Time-Varying Rates

## ■ Companies' Offering

- Within 6 months of the Opinion and Order (i.e., January 17, 2020), 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.

## ■ CRES Offerings

- Within 6 months of the Opinion and Order (i.e., January 17, 2020), 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.
  - Once there are 3 suppliers offering products utilizing AMI data or 3 different types of time-varying products, then the Companies with Commission approval will withdraw their offering

# Companies' Proposed Time-Varying Rate

## ■ Utilize/Update Existing Rider GEN Time-of-Day Option

- Midday-peak time: 12pm-6pm EST Mon-Fri, excluding holidays
- Shoulder-peak time: 6am-12pm and 6pm-10pm EST Mon-Fri, excl. holidays
- Off peak is all other hours
- Holidays are defined as New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day

## ■ File application by January 17, 2020 to revise current Rider GEN Time-of-Day Option

- Expand eligibility to include Rate RS customers
- Include advanced meters as qualifying time-of-day meters



# Companies' Proposed Time-Varying Rate (continued)

## ■ Rationale

- Utilizing existing tariff structure minimizes additional programming needed for Companies' billing system
- Similar to tariff currently offered by FE utilities in Pennsylvania to residential customers
- Known pricing and defined peak periods; easy for customers to understand
- Provides opportunity for energy and peak demand savings
- Enabling devices can be programmed to take advantage of rate
  - Consider providing education materials as part of AMI deployment notifying customers of the tariff option and how their enabling devices can be leveraged

# Companies' Proposed Time-Varying Rate Potential Energy and Demand Savings

## ■ Cost Benefit Analysis for Grid Mod I

- Estimated energy and demand savings benefits from TVR did not start until year 4

## ■ Potential for Demand Savings

- TOU rate can provide 5-20% peak demand reduction
- TOU rate with enabling technology can provide 5-30% peak demand reduction
- Source: Smart Grid Economic and Environmental Benefits. A Review and Synthesis of Research on Smart Grid Benefits and Costs. 2013, SmartGrid Consumer Collaborative

## ■ Potential for Energy Savings

- CEI Pilot: the Companies experienced 10-30% peak demand reduction which translated into a 4% energy reduction

	Time-of-day Option Summer		
	¢/kWh	kWh Used	\$ Billed
Midday Peak	0.085276	10	\$0.85
Shoulder Peak	0.054416	150	\$8.16
Off Peak	0.032459	640	\$20.77
<b>Total</b>			<b>\$29.78</b>
Standard Rate	0.040553	800	\$32.44

	Time-of-day Option Winter		
	\$/kWh	kWh Used	\$ Billed
Midday Peak	\$0.047662	10	\$0.48
Shoulder Peak	\$0.054491	150	\$8.17
Off Peak	\$0.030711	640	\$19.66
<b>Total</b>			<b>\$28.31</b>
Standard Rate	\$0.040553	800	\$32.44

# CRES Offered Time Varying Rate Options

- **Time-varying rate options reasonably believed to be offered by CRES offerings**
  - Electricity plus Free Nights
  - Electricity plus Free Weekends
  - TOU based rates
  - Sources: PowerForward presentations, experience in PA

**RIDER GEN**  
**Generation Service Rider**

**APPLICABILITY:**

For customers taking the Standard Service Offer electric generation service ("SSO Generation Service") from the Company, the following Standard Service Offer Generation Charges (SSOGC) by rate schedule, will apply, effective for service rendered beginning June 1, 2019, for all kWhs per kWh, unless otherwise noted. For billing purposes, the winter rates shall be applicable during each winter billing period as defined in the Electric Service Regulations.

Capacity costs will be developed based on the results from annual PJM capacity auctions (including incremental auctions) and allocated to each Company and tariff schedule based on the average of coincident peaks, including distribution losses, for the months of June through September of the year prior to the applicable PJM delivery year. The calculated wholesale capacity costs are used to develop capacity charges.

These calculated wholesale capacity costs will be converted to an energy basis and will then be subtracted from the SSO competitive bid process ("CBP") results to develop the non-capacity related energy charges.

**RATE:**

<u>Capacity Charges</u>	<u>Summer</u>	<u>Winter</u>
RS*	0.9922¢	0.9922¢
GS	1.0462¢	1.0462¢
GP	0.8400¢	0.8400¢
GSU	0.7709¢	0.7709¢
GT	0.4612¢	0.4612¢
STL	0.0000¢	0.0000¢
TRF	0.8032¢	0.8032¢
POL	0.0000¢	0.0000¢
<u>Energy Charges</u>	<u>Summer</u>	<u>Winter</u>
RS*	4.8447¢	4.0553¢
GS	4.8447¢	4.0553¢
GP	4.6769¢	3.9149¢
GSU	4.5457¢	3.8051¢
GT	4.5411¢	3.8013¢
STL	4.8447¢	4.0553¢
TRF	4.8447¢	4.0553¢
POL	4.8447¢	4.0553¢

\* Customers participating in the Percentage of Income Payment Plan (PIPP) program shall pay 4.9636¢, for all kWh per kWh, in lieu of the Rate RS Capacity and Energy Charges shown above.



**RIDER GEN**  
**Generation Service Rider**

**TIME-OF-DAY OPTION:**

For customers with the appropriate qualifying time-of-day metering and who elect to be served under the Time-Of-Day Option, the charge by rate schedule will be as shown below, for all kWhs, per kWh:

<u>Capacity Charges</u>	<u>Summer</u>			<u>Winter</u>		
	<u>Midday Peak</u>	<u>Shoulder Peak</u>	<u>Off-Peak</u>	<u>Midday Peak</u>	<u>Shoulder Peak</u>	<u>Off-Peak</u>
GS	1.0462¢	1.0462¢	1.0462¢	1.0462¢	1.0462¢	1.0462¢
GP	0.8400¢	0.8400¢	0.8400¢	0.8400¢	0.8400¢	0.8400¢
GSU	0.7709¢	0.7709¢	0.7709¢	0.7709¢	0.7709¢	0.7709¢
GT	0.4612¢	0.4612¢	0.4612¢	0.4612¢	0.4612¢	0.4612¢

<u>Energy Charges</u>	<u>Summer</u>			<u>Winter</u>		
	<u>Midday Peak</u>	<u>Shoulder Peak</u>	<u>Off-Peak</u>	<u>Midday Peak</u>	<u>Shoulder Peak</u>	<u>Off-Peak</u>
GS	8.5276¢	5.4416¢	3.2459¢	4.7662¢	5.4491¢	3.0711¢
GP	8.2323¢	5.2531¢	3.1335¢	4.6012¢	5.2605¢	2.9648¢
GSU	8.0013¢	5.1057¢	3.0456¢	4.4721¢	5.1129¢	2.8816¢
GT	7.9932¢	5.1006¢	3.0425¢	4.4677¢	5.1078¢	2.8787¢

Midday-peak time shall be noon to 6 p.m. EST, Monday through Friday, excluding holidays.

Shoulder-peak time shall be 6 a.m. to noon and 6 p.m. to 10 p.m. EST, Monday through Friday, excluding holidays.

Holidays are defined as New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day. Off-Peak shall be all other hours.

A customer may terminate its participation in this time-of-day option at any time effective with the next scheduled meter reading. A qualifying customer may return to the time-of-day option at any time after a hiatus from the time-of-day option of at least one (1) year.

**METERING:**

The customer must arrange for time-of-day metering consistent with the Company's Miscellaneous Charges, Tariff Sheet 75.

**RIDER RCP**  
**Residential Critical Peak Pricing Rider**

**AVAILABILITY:**

This Rider is only available to those customers taking service at service locations within the particular Ohio geographic area identified in FirstEnergy's Smart Grid Modernization Initiative filed by the Company with the Department of Energy. The Rider is not available to customers during the period the customer takes generation service from a certified supplier or during the period the customer is taking service under the Peak Time Rebate Rider. Participation is limited to 250 customers who enroll on a first come first serve basis.

The experimental Residential Critical Peak Pricing (RCP) Rider shall be applied in lieu of the Generation Service Rider (GEN) to customers participating in this voluntary experimental program.

The Rider RCP charge shall reflect time-of-day pricing or critical peak pricing, for all kWh per kWh, for summer months only. For the winter months, the Rider RCP charge shall reflect non time differentiated pricing for all kWh per kWh, as shown below:

**RATE:**

The following charges will be applicable to customers taking service under this Rider in lieu of Generation Service Rider charges. All other rate schedules and riders that apply to a customer taking Standard Service Offer Generation Service shall apply to customers taking service under the Residential Critical Peak Pricing Rider.

Summer Charges per kWh (Capacity and Energy Charges)

	<u>Off-peak</u>	<u>On-peak</u>	<u>Critical Peak</u>
RS	3.2494¢	6.4775¢	23.4017¢

Winter Charges per kWh

	<u>Capacity Charges</u>	<u>Energy Charges</u>
RS	0.9922¢	4.0553¢

Summer On-peak period shall be 7 a.m. to 11 p.m. EDT, Monday through Friday, excluding holidays and periods when Critical Peak Summer Charges apply.

Holidays are defined as New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.

The Critical Peak Period shall be 1 p.m. to 7 p.m. EDT for up to fifteen (15) Critical Peak Periods as determined solely by the Company during the summer. The hours of 7 a.m. to 1 p.m. and 7 p.m. to 11 p.m. EDT during the same day as the Critical Peak Periods shall be defined as Summer On-peak hours.

Summer Off-peak period shall be all hours when Summer Charges apply that are not Summer On-peak or Critical Peak Period hours.

For billing purposes, the Winter Charges shall be applicable beginning with service rendered during each winter billing period as defined in the Electric Service Regulations. The Summer Charges shall apply in all other billing periods.



**RIDER RCP**  
**Residential Critical Peak Pricing Rider**

**METERING**

The customer must have an AMI meter defined as an automated meter with two-way communication capability.

**NOTIFICATION:**

For Critical Peak Periods, the Company will endeavor to notify RCP customers by 6 P.M. the day before the Critical Peak Period commences, or as soon as practically possible thereafter. Notification of a Critical Peak Period consists of an electronic message issued by the Company to a device or devices such as telephone, facsimile, pager or email, selected and provided by the customer and approved by the Company. Operation, maintenance and functionality of such communication devices selected by the customer as well as receipt of notifications of Critical Peak Periods shall be the sole responsibility of the customer.

**TERM:**

A customer may terminate their participation in this Rider, effective with the next scheduled meter reading following at least 12 days notice to the Company by the customer.

**Healey, Christopher**

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**From:** FE Grid Mod Collaborative <FEGridMod@firstenergycorp.com>  
**Sent:** Friday, December 27, 2019 1:38 PM  
**Subject:** FE Grid Mod Collaborative – TVR Follow-up  
**Attachments:** TVR Analysis.xlsx

Thank you to all for the feedback on our conference call on December 10 with respect to our commitment to file a Time-Varying Rate for non-shopping customers. In that discussion, we don't believe any parties had significant concerns with a three-peak TVR rate structure, but there was a lot of good feedback questioning how best to define those three peak periods. As a follow-up to that discussion, and per requests from the group, please find attached some additional information that may be helpful.

The first two tabs titled "Summer Data" and "Winter Data" provide the average hourly usage, by class, over the last 36 months, excluding weekends and holidays. This data is depicted on the graphs to the right. The peak periods shown on the graph are based on FE's current time-of-use tariff, as discussed on December 10. These peak periods are illustrative at this point, and subject to further feedback and discussion among the group. The bottom half of these tabs shows the aggregate usage, by class, over the last 36 months.

The tab "LMP" shows the average hourly real-time LMPs over the last 36 months.

The tab "Rate Design" provides an illustrative calculation of the TVR for residential customers. For illustrative purposes again, the peak periods are set up to align with the current time-of-use tariff, but this is subject to further review and discussion among the group. The bottom half of these tabs calculates illustrative TVR pricing, where the Midday and Shoulder Peak prices utilize shaping factors determined from the LMP data and the Off-Peak price is calculated to achieve revenue neutrality for a typical residential customer using 800 kWh per month.

For those who are interested and available, we plan to continue our discussions on this topic with a conference call on Thursday, January 9<sup>th</sup> at 2pm. Additional call-in information will be sent around before the call.

We appreciate everyone's input and look forward to our discussion on January 9<sup>th</sup>. If anyone has any questions, comments, or concerns in the meantime, please let us know. Happy Holidays.

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**Summer - Average Hourly MW (36 Months Ended November 2019)**

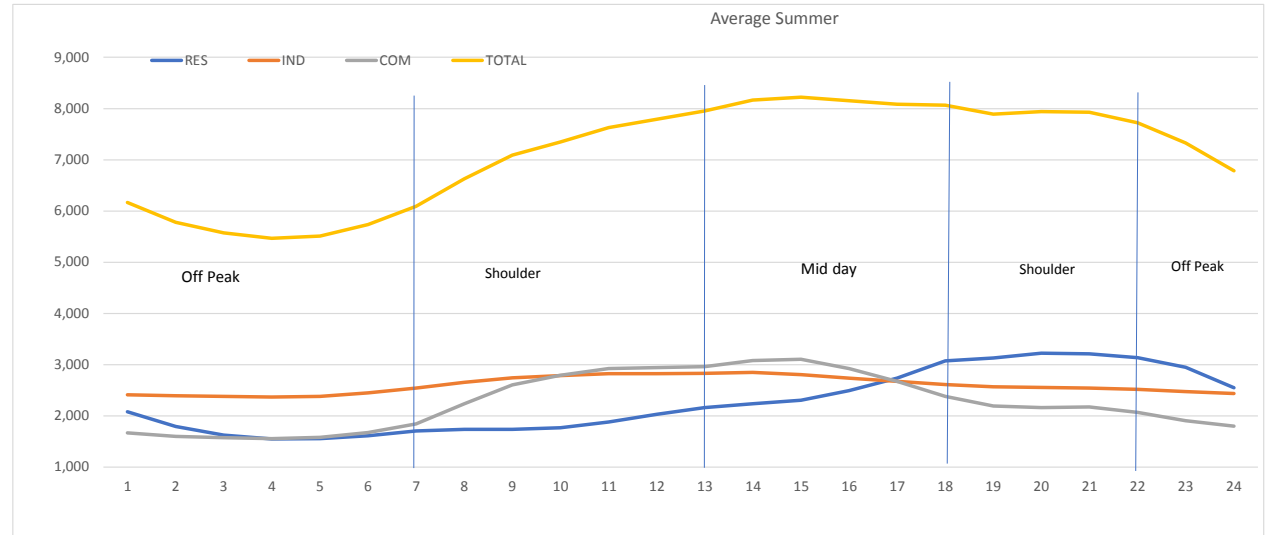
Excludes Weekends and Holidays

HR End	Peak Days			
	RES	COM	IND	TOTAL
1	2,083	1,669	2,415	6,167
2	1,790	1,597	2,393	5,780
3	1,621	1,571	2,382	5,575
4	1,550	1,551	2,364	5,465
5	1,553	1,579	2,382	5,514
6	1,611	1,677	2,451	5,739
7	1,708	1,841	2,541	6,091
8	1,738	2,239	2,654	6,631
9	1,739	2,607	2,744	7,090
10	1,765	2,795	2,786	7,347
11	1,881	2,926	2,823	7,630
12	2,031	2,941	2,821	7,794
13	2,160	2,962	2,830	7,952
14	2,237	3,080	2,850	8,167
15	2,306	3,105	2,806	8,217
16	2,491	2,925	2,740	8,156
17	2,734	2,673	2,677	8,084
18	3,073	2,380	2,613	8,066
19	3,133	2,190	2,570	7,893
20	3,225	2,160	2,556	7,940
21	3,214	2,175	2,540	7,930
22	3,137	2,069	2,519	7,725
23	2,948	1,906	2,472	7,326
24	2,548	1,801	2,438	6,787
	<b>2,262</b>	<b>2,268</b>	<b>2,599</b>	<b>7,128</b>

**Illustrative Peak Periods**

Midday = 12pm - 6pm (HE 13 - HE 18); Shoulder = 6am - 12pm (HE 7 - HE 12) and 6pm - 10pm (HE 19 - HE 22); excludes weekends and holidays

*Subject to Further Discussion*



**Summer - Total Hourly MW (36 Months Ended November 2019)**

HR End	Peak Days				Holidays and Weekends Only				All Days			
	RES	COM	IND	TOTAL	RES	COM	IND	TOTAL	RES	COM	IND	TOTAL
1	404,174	323,783	468,414	1,196,371	163,080	129,655	177,377	470,112	567,253	453,438	645,791	1,666,483
2	347,328	309,776	464,295	1,121,400	149,055	119,174	174,567	442,796	496,384	428,950	638,863	1,564,196
3	314,564	304,848	462,203	1,081,615	135,661	116,119	173,420	425,199	450,225	420,966	635,623	1,506,814
4	300,617	300,953	458,632	1,060,202	129,959	113,555	171,841	415,355	430,576	414,508	630,473	1,475,557
5	301,320	306,271	462,118	1,069,709	124,459	112,360	171,770	408,588	425,779	418,631	633,888	1,478,297
6	312,571	325,268	475,531	1,113,370	120,600	112,270	172,571	405,441	433,172	437,538	648,102	1,518,811
7	331,313	357,230	493,035	1,181,578	116,199	106,276	172,871	395,345	447,512	463,506	665,906	1,576,923
8	337,108	434,329	514,905	1,286,342	126,048	112,423	174,854	413,325	463,156	546,753	689,758	1,699,667
9	337,372	505,787	532,260	1,375,419	141,751	120,693	176,579	439,023	479,123	626,480	708,840	1,814,443
10	342,418	542,265	540,562	1,425,245	161,157	127,683	178,155	466,995	503,575	669,948	718,717	1,892,240
11	364,910	567,727	547,608	1,480,245	169,278	134,775	179,767	483,821	534,188	702,502	727,375	1,964,066
12	393,958	570,616	547,368	1,511,942	186,115	136,180	180,415	502,709	580,073	706,796	727,782	2,014,652
13	419,025	574,640	548,941	1,542,606	190,945	138,623	181,394	510,961	609,970	713,263	730,335	2,053,568
14	434,058	597,432	552,922	1,584,412	200,955	138,779	180,862	520,596	635,013	736,212	733,784	2,105,009
15	447,414	602,408	544,312	1,594,133	208,399	140,483	180,161	529,043	655,813	742,890	724,472	2,123,176
16	483,196	567,538	531,496	1,582,230	210,670	137,583	178,756	527,009	693,865	705,122	710,252	2,109,239
17	530,382	518,566	519,257	1,568,206	220,529	133,443	177,873	531,844	750,911	652,009	697,130	2,100,050
18	596,167	461,694	506,935	1,564,796	241,846	132,530	177,135	551,511	838,013	594,225	684,070	2,116,307
19	607,850	424,852	498,547	1,531,249	264,500	128,976	175,202	568,677	872,350	553,828	673,749	2,099,926
20	625,563	419,084	495,775	1,540,422	268,025	126,457	174,907	569,389	893,588	545,541	670,681	2,109,811
21	623,529	421,978	492,828	1,538,335	273,091	129,919	175,080	578,090	896,620	551,897	667,908	2,116,425
22	608,649	401,379	488,643	1,498,671	253,928	132,347	175,340	561,615	862,577	533,726	663,983	2,060,286
23	571,971	369,752	479,586	1,421,310	237,723	128,931	175,298	541,952	809,694	498,683	654,885	1,963,262
24	494,289	349,322	473,031	1,316,641	199,854	125,455	176,166	501,475	694,142	474,777	649,197	1,818,116
	<b>10,529,746</b>	<b>10,557,499</b>	<b>12,099,205</b>	<b>33,186,450</b>	<b>4,493,825</b>	<b>3,034,689</b>	<b>4,232,360</b>	<b>11,760,874</b>	<b>15,023,570</b>	<b>13,592,188</b>	<b>16,331,565</b>	<b>44,947,324</b>

**Winter - Average Hourly MW (36 Months Ended November 2019)**

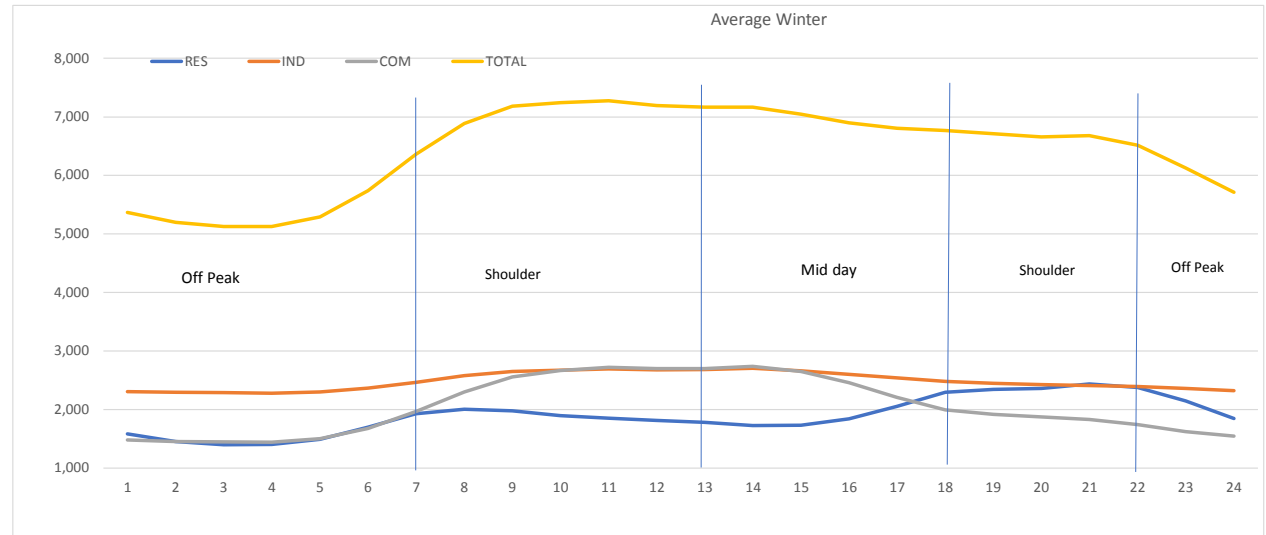
Excludes Weekends and Holidays

HR End	Peak Days			
	RES	COM	IND	TOTAL
1	1,585	1,481	2,304	5,370
2	1,453	1,452	2,293	5,198
3	1,396	1,445	2,288	5,129
4	1,405	1,440	2,278	5,123
5	1,489	1,500	2,303	5,293
6	1,697	1,677	2,365	5,739
7	1,930	1,968	2,464	6,361
8	2,007	2,302	2,579	6,888
9	1,978	2,556	2,649	7,182
10	1,898	2,669	2,674	7,241
11	1,855	2,725	2,694	7,273
12	1,817	2,698	2,680	7,195
13	1,782	2,699	2,686	7,168
14	1,728	2,737	2,703	7,168
15	1,733	2,651	2,662	7,045
16	1,841	2,458	2,602	6,901
17	2,054	2,209	2,544	6,807
18	2,294	1,992	2,482	6,769
19	2,347	1,916	2,448	6,710
20	2,362	1,874	2,424	6,660
21	2,439	1,831	2,412	6,681
22	2,375	1,745	2,395	6,515
23	2,147	1,624	2,359	6,129
24	1,846	1,547	2,322	5,715
	<b>1,894</b>	<b>2,050</b>	<b>2,484</b>	<b>6,428</b>

**Illustrative Peak Periods**

Midday = 12pm - 6pm (HE 13 - HE 18); Shoulder = 6am - 12pm (HE 7 - HE 12) and 6pm - 10pm (HE 19 - HE 22); excludes weekends and holidays

*Subject to Further Discussion*



**Winter - Total Hourly MW (36 Months Ended November 2019)**

HR End	Peak Days				Holidays and Weekends Only				All Days			
	RES	COM	IND	TOTAL	RES	COM	IND	TOTAL	RES	COM	IND	TOTAL
1	904,845	845,561	1,315,768	3,066,174	403,550	340,965	503,037	1,247,552	1,308,395	1,186,526	1,818,805	4,313,726
2	831,013	830,504	1,311,519	2,973,036	373,212	329,514	504,920	1,207,646	1,204,225	1,160,018	1,816,439	4,180,682
3	798,349	826,608	1,308,615	2,933,572	344,077	319,174	491,595	1,154,845	1,142,426	1,145,782	1,800,210	4,088,417
4	803,885	823,571	1,303,036	2,930,491	345,421	319,334	495,453	1,160,208	1,149,306	1,142,905	1,798,489	4,090,700
5	851,971	857,969	1,317,386	3,027,325	351,211	323,712	495,112	1,170,035	1,203,182	1,181,681	1,812,497	4,197,360
6	970,613	959,405	1,352,514	3,282,532	368,174	334,248	498,898	1,201,320	1,338,788	1,293,653	1,851,412	4,483,852
7	1,103,691	1,125,786	1,409,251	3,638,729	396,851	344,635	503,940	1,245,426	1,500,542	1,470,422	1,913,191	4,884,155
8	1,147,805	1,316,847	1,475,101	3,939,753	448,573	342,755	506,764	1,298,092	1,596,378	1,659,602	1,981,866	5,237,845
9	1,131,159	1,461,850	1,515,131	4,108,141	500,274	357,689	509,442	1,367,405	1,631,434	1,819,539	2,024,573	5,475,546
10	1,085,512	1,526,714	1,529,734	4,141,960	526,436	372,518	510,949	1,409,903	1,611,948	1,899,232	2,040,683	5,551,863
11	1,061,021	1,558,427	1,540,746	4,160,194	532,736	374,860	512,146	1,419,742	1,593,756	1,933,288	2,052,892	5,579,936
12	1,039,250	1,543,401	1,532,920	4,115,571	533,427	369,418	509,261	1,412,106	1,572,676	1,912,820	2,042,182	5,527,677
13	1,019,573	1,544,000	1,536,357	4,099,931	528,446	360,267	508,410	1,397,123	1,548,019	1,904,267	2,044,768	5,497,054
14	988,192	1,565,697	1,546,217	4,100,107	514,433	354,485	507,004	1,375,922	1,502,626	1,920,182	2,053,222	5,476,029
15	991,020	1,516,282	1,522,572	4,029,874	504,368	350,088	503,269	1,357,726	1,495,388	1,866,370	2,025,841	5,387,600
16	1,053,000	1,406,019	1,488,490	3,947,509	507,461	338,080	500,292	1,345,833	1,560,460	1,744,099	1,988,782	5,293,341
17	1,174,730	1,263,701	1,455,131	3,893,562	530,906	332,837	498,614	1,362,357	1,705,635	1,596,538	1,953,746	5,255,919
18	1,312,453	1,139,405	1,419,964	3,871,822	560,330	342,091	497,145	1,399,566	1,872,783	1,481,495	1,917,109	5,271,388
19	1,342,364	1,095,721	1,400,258	3,838,344	568,198	343,339	494,845	1,406,382	1,910,562	1,439,060	1,895,103	5,244,726
20	1,351,140	1,071,659	1,386,716	3,809,516	568,913	348,825	494,527	1,412,265	1,920,054	1,420,484	1,881,243	5,221,781
21	1,394,858	1,047,316	1,379,521	3,821,695	578,084	353,904	496,152	1,428,140	1,972,941	1,401,220	1,875,673	5,249,835
22	1,358,725	997,919	1,369,973	3,726,618	558,023	347,774	496,700	1,402,498	1,916,749	1,345,694	1,866,673	5,129,116
23	1,228,127	928,733	1,349,181	3,506,042	511,888	340,539	498,426	1,350,853	1,740,016	1,269,271	1,847,608	4,856,895
24	1,057,861	886,359	1,330,459	3,274,679	445,218	334,000	498,137	1,277,355	1,503,079	1,220,359	1,828,596	4,552,034
	<b>26,001,157</b>	<b>28,139,455</b>	<b>34,096,563</b>	<b>88,237,176</b>	<b>11,500,211</b>	<b>8,275,052</b>	<b>12,035,039</b>	<b>31,810,301</b>	<b>37,501,368</b>	<b>36,414,507</b>	<b>46,131,602</b>	<b>120,047,477</b>

ATSI Zone LMP Data (\$/MWH)

Hour Ended	Summer					Winter				
	Peak Days	Non-Peak Days	All Days	Midday	Shoulder	Peak Days	Non-Peak Days	All Days	Midday	Shoulder
1	\$ 20.65	\$ 20.29	\$ 20.54			\$ 24.77	\$ 26.91	\$ 25.41		
2	\$ 19.72	\$ 19.97	\$ 19.80			\$ 24.48	\$ 24.86	\$ 24.59		
3	\$ 18.48	\$ 18.57	\$ 18.50			\$ 23.63	\$ 24.95	\$ 24.02		
4	\$ 17.65	\$ 17.39	\$ 17.57			\$ 23.57	\$ 23.81	\$ 23.65		
5	\$ 17.85	\$ 16.52	\$ 17.45			\$ 25.53	\$ 24.47	\$ 25.21		
6	\$ 19.67	\$ 16.29	\$ 18.67			\$ 28.25	\$ 25.09	\$ 27.30		
7	\$ 21.68	\$ 14.91	\$ 19.67		\$ 21.68	\$ 40.78	\$ 26.05	\$ 36.33		\$ 40.78
8	\$ 22.70	\$ 17.05	\$ 21.02		\$ 22.70	\$ 42.56	\$ 29.87	\$ 38.74		\$ 42.56
9	\$ 24.22	\$ 20.32	\$ 23.06		\$ 24.22	\$ 35.33	\$ 29.98	\$ 33.71		\$ 35.33
10	\$ 28.53	\$ 22.75	\$ 26.82		\$ 28.53	\$ 35.85	\$ 30.35	\$ 34.19		\$ 35.85
11	\$ 31.63	\$ 27.17	\$ 30.31		\$ 31.63	\$ 36.88	\$ 29.90	\$ 34.77		\$ 36.88
12	\$ 33.94	\$ 30.98	\$ 33.06		\$ 33.94	\$ 36.35	\$ 30.10	\$ 34.47		\$ 36.35
13	\$ 35.61	\$ 33.77	\$ 35.07	\$ 35.61		\$ 37.95	\$ 28.88	\$ 35.21	\$ 37.95	
14	\$ 38.03	\$ 33.74	\$ 36.76	\$ 38.03		\$ 38.29	\$ 27.43	\$ 35.02	\$ 38.29	
15	\$ 39.27	\$ 36.52	\$ 38.45	\$ 39.27		\$ 39.93	\$ 28.42	\$ 36.46	\$ 39.93	
16	\$ 46.71	\$ 36.82	\$ 43.77	\$ 46.71		\$ 39.31	\$ 31.05	\$ 36.82	\$ 39.31	
17	\$ 49.11	\$ 45.01	\$ 47.90	\$ 49.11		\$ 44.05	\$ 31.86	\$ 40.37	\$ 44.05	
18	\$ 45.56	\$ 43.30	\$ 44.89	\$ 45.56		\$ 45.90	\$ 35.89	\$ 42.88	\$ 45.90	
19	\$ 39.00	\$ 36.40	\$ 38.23		\$ 39.00	\$ 39.01	\$ 34.55	\$ 37.66		\$ 39.01
20	\$ 33.27	\$ 31.38	\$ 32.71		\$ 33.27	\$ 39.01	\$ 35.46	\$ 37.94		\$ 39.01
21	\$ 31.57	\$ 29.30	\$ 30.89		\$ 31.57	\$ 38.16	\$ 33.82	\$ 36.85		\$ 38.16
22	\$ 30.04	\$ 28.46	\$ 29.58		\$ 30.04	\$ 33.88	\$ 29.88	\$ 32.67		\$ 33.88
23	\$ 24.43	\$ 23.69	\$ 24.21			\$ 28.07	\$ 26.20	\$ 27.51		
24	\$ 22.24	\$ 21.46	\$ 22.01			\$ 25.40	\$ 23.63	\$ 24.86		
Total	\$ 29.65	\$ 26.75	\$ 28.79	\$ 42.38	\$ 29.66	\$ 34.45	\$ 28.89	\$ 32.78	\$ 40.90	\$ 37.78
Factor				147%	103%				125%	115%

- Source: Real-Time LMP at ATSI zone from 12/1/2016 through 11/30/2019

- Factor represents average LMP during Midday Peak Hours and Shoulder Peak Hours compared to the seasonal round-the-clock average LMP

**Illustrative Residential Time-Varying Rate Design - Summer****Subject to Further Discussion**

Midday = 12pm - 6pm (HE 13 - HE 18); Shoulder = 6am - 12pm (HE 7 - HE 12) and 6pm - 10pm (HE 19 - HE 22); excludes weekends and holidays

(1)	Hr Ending	Peak Days	Non-Peak Days	Total	Midday	Shoulder	Off	Total
(2)	1	404,174	163,080	567,253			567,253	567,253
(3)	2	347,328	149,055	496,384			496,384	496,384
(4)	3	314,564	135,661	450,225			450,225	450,225
(5)	4	300,617	129,959	430,576			430,576	430,576
(6)	5	301,320	124,459	425,779			425,779	425,779
(7)	6	312,571	120,600	433,172			433,172	433,172
(8)	7	331,313	116,199	447,512		331,313	116,199	447,512
(9)	8	337,108	126,048	463,156		337,108	126,048	463,156
(10)	9	337,372	141,751	479,123		337,372	141,751	479,123
(11)	10	342,418	161,157	503,575		342,418	161,157	503,575
(12)	11	364,910	169,278	534,188		364,910	169,278	534,188
(13)	12	393,958	186,115	580,073		393,958	186,115	580,073
(14)	13	419,025	190,945	609,970	419,025		190,945	609,970
(15)	14	434,058	200,955	635,013	434,058		200,955	635,013
(16)	15	447,414	208,399	655,813	447,414		208,399	655,813
(17)	16	483,196	210,670	693,865	483,196		210,670	693,865
(18)	17	530,382	220,529	750,911	530,382		220,529	750,911
(19)	18	596,167	241,846	838,013	596,167		241,846	838,013
(20)	19	607,850	264,500	872,350		607,850	264,500	872,350
(21)	20	625,563	268,025	893,588		625,563	268,025	893,588
(22)	21	623,529	273,091	896,620		623,529	273,091	896,620
(23)	22	608,649	253,928	862,577		608,649	253,928	862,577
(24)	23	571,971	237,723	809,694			809,694	809,694
(25)	24	494,289	199,854	694,142			694,142	694,142
(26)		10,529,746	4,493,825	15,023,570	2,910,242	4,572,670	7,540,659	15,023,570

(27)	Average kWh Breakdown per Customer				Midday	Shoulder	Off	Total
(28)	% Average kWh				19.4%	30.4%	50.2%	100.0%
(29)	Average Monthly kWh per Customer				155	243	402	800

(30)	Monthly Bill Comparison		Rate (\$/kWh)		Average Monthly kWh		Monthly Charges
(31)			Factor	Price	% Total	kWh	
(32)	Standard Rider GEN Rate			\$0.048447	100.0%	800	\$38.76
(33)	Time-Varying Rate						
(34)	Midday Peak		147%	\$0.071323	19.4%	155	\$11.05
(35)	Shoulder Peak		103%	\$0.049912	30.4%	243	\$12.15
(36)	Off Peak		80%	\$0.038730	50.2%	402	\$15.55
(37)	Total TVR			\$0.048447	100.0%	800	\$38.76
(38)	Difference			\$0.000000			\$0.00

**NOTES**

(1) - (25) Source: FE Ohio aggregate hourly MWH consumption 12/1/2016 through 11/30/2019

(29) Calculation: Portion of total on Line 26

(30) Estimated average monthly usage of typical residential customer

(35) Source: Rider GEN Energy Charge in effect December 1, 2019; typical residential customer uses 800 kWh monthly on average

(38-39) Shaping Factor for Midday and Should Peaks based on average LMP from ATSI zone zone, 12/1/2016 through 11/30/2019

(40) Off-Peak: Price needed to achieve revenue neutrality on average

(43) Line 41 - Line 35

**Illustrative Residential Time-Varying Rate Design - Winter****Subject to Further Discussion**

Midday = 12pm - 6pm (HE 13 - HE 18); Shoulder = 6am - 12pm (HE 7 - HE 12) and 6pm - 10pm (HE 19 - HE 22); excludes weekends and holidays

(1)	Hr Ending	Peak Days	Non-Peak Days	Total	Midday	Shoulder	Off	Total
(2)	1	904,845	403,550	1,308,395			1,308,395	1,308,395
(3)	2	831,013	373,212	1,204,225			1,204,225	1,204,225
(4)	3	798,349	344,077	1,142,426			1,142,426	1,142,426
(5)	4	803,885	345,421	1,149,306			1,149,306	1,149,306
(6)	5	851,971	351,211	1,203,182			1,203,182	1,203,182
(7)	6	970,613	368,174	1,338,788			1,338,788	1,338,788
(8)	7	1,103,691	396,851	1,500,542		1,103,691	396,851	1,500,542
(9)	8	1,147,805	448,573	1,596,378		1,147,805	448,573	1,596,378
(10)	9	1,131,159	500,274	1,631,434		1,131,159	500,274	1,631,434
(11)	10	1,085,512	526,436	1,611,948		1,085,512	526,436	1,611,948
(12)	11	1,061,021	532,736	1,593,756		1,061,021	532,736	1,593,756
(13)	12	1,039,250	533,427	1,572,676		1,039,250	533,427	1,572,676
(14)	13	1,019,573	528,446	1,548,019	1,019,573		528,446	1,548,019
(15)	14	988,192	514,433	1,502,626	988,192		514,433	1,502,626
(16)	15	991,020	504,368	1,495,388	991,020		504,368	1,495,388
(17)	16	1,053,000	507,461	1,560,460	1,053,000		507,461	1,560,460
(18)	17	1,174,730	530,906	1,705,635	1,174,730		530,906	1,705,635
(19)	18	1,312,453	560,330	1,872,783	1,312,453		560,330	1,872,783
(20)	19	1,342,364	568,198	1,910,562		1,342,364	568,198	1,910,562
(21)	20	1,351,140	568,913	1,920,054		1,351,140	568,913	1,920,054
(22)	21	1,394,858	578,084	1,972,941		1,394,858	578,084	1,972,941
(23)	22	1,358,725	558,023	1,916,749		1,358,725	558,023	1,916,749
(24)	23	1,228,127	511,888	1,740,016			1,740,016	1,740,016
(25)	24	1,057,861	445,218	1,503,079			1,503,079	1,503,079
(26)		26,001,157	11,500,211	37,501,368	6,538,967	12,015,525	18,946,876	37,501,368

(27)	Average kWh Breakdown per Customer				Midday	Shoulder	Off	Total
(28)	% Average kWh				17.4%	32.0%	50.5%	100.0%
(29)	Average Monthly kWh per Customer				139	256	404	800

(31)	Monthly Bill Comparison	Rate (\$/kWh)		Average Monthly kWh		Monthly Charges
(32)		Factor	Price	% Total	kWh	
(33)	Standard Rider GEN Rate		\$0.040553	100.0%	800	\$32.44
(34)	Time-Varying Rate					
(35)	Midday Peak	125%	\$0.050606	17.4%	139	\$7.06
(36)	Shoulder Peak	115%	\$0.046741	32.0%	256	\$11.98
(37)	Off Peak	82%	\$0.033159	50.5%	404	\$13.40
(38)	Total TVR		\$0.040553	100.0%	800	\$32.44
(39)	Difference		\$0.000000			\$0.00

**NOTES**

(1) - (25) Source: FE Ohio aggregate hourly MWH consumption 12/1/2016 through 11/30/2019

(29) Calculation: Portion of total on Line 26

(30) Estimated average monthly usage of typical residential customer

(35) Source: Rider GEN Energy Charge in effect December 1, 2019; typical residential customer uses 800 kWh monthly on average

(38-39) Shaping Factor for Midday and Should Peaks based on average LMP from ATSI zone zone, 12/1/2016 through 11/30/2019

(40) Off-Peak: Price needed to achieve revenue neutrality on average

(43) Line 41 - Line 35

**Healey, Christopher**

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**From:** FE Grid Mod Collaborative <FEGridMod@firstenergycorp.com>  
**Sent:** Tuesday, January 14, 2020 10:44 AM  
**Subject:** TVR Analysis Update  
**Attachments:** TVR Analysis - Updated.xlsx

Thank you to all for the feedback on our conference call on January 9<sup>th</sup> with respect to our commitment to propose a Time-Varying Rate for non-shopping customers.

Pursuant to our discussion, we have incorporated the group's feedback and made the following modifications:

1. modified the mid-day peak period to 2pm – 6pm;
2. modified the evening offpeak period to begin at 8pm rather than 10pm; and
3. modified the ratio of onpeak prices to offpeak prices to reflect the suggested 2:1 ratio

These modifications are reflected on the attached updated version of the analysis previously circulated on December 27<sup>th</sup>.

We appreciate everyone's participation in our discussions on this topic and for the helpful feedback. We plan to file our proposed time-varying rate by January 17.

Again, thank you all for your help with this.

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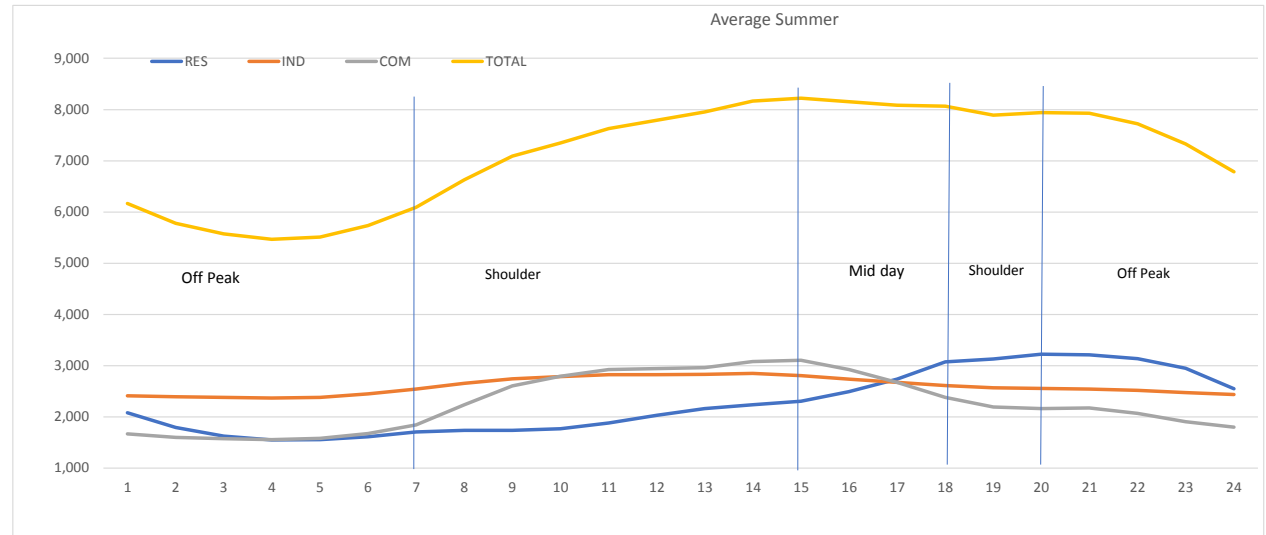
**Summer - Average Hourly MW (36 Months Ended November 2019)**

Excludes Weekends and Holidays

HR End	Peak Days			
	RES	COM	IND	TOTAL
1	2,083	1,669	2,415	6,167
2	1,790	1,597	2,393	5,780
3	1,621	1,571	2,382	5,575
4	1,550	1,551	2,364	5,465
5	1,553	1,579	2,382	5,514
6	1,611	1,677	2,451	5,739
7	1,708	1,841	2,541	6,091
8	1,738	2,239	2,654	6,631
9	1,739	2,607	2,744	7,090
10	1,765	2,795	2,786	7,347
11	1,881	2,926	2,823	7,630
12	2,031	2,941	2,821	7,794
13	2,160	2,962	2,830	7,952
14	2,237	3,080	2,850	8,167
15	2,306	3,105	2,806	8,217
16	2,491	2,925	2,740	8,156
17	2,734	2,673	2,677	8,084
18	3,073	2,380	2,613	8,066
19	3,133	2,190	2,570	7,893
20	3,225	2,160	2,556	7,940
21	3,214	2,175	2,540	7,930
22	3,137	2,069	2,519	7,725
23	2,948	1,906	2,472	7,326
24	2,548	1,801	2,438	6,787
	<b>2,262</b>	<b>2,268</b>	<b>2,599</b>	<b>7,128</b>

**Peak Periods**

Midday = 2pm - 6pm (HE 15 - HE 18); Shoulder = 6am - 2pm (HE 7 - HE 14) and 6pm - 8pm (HE 19 - HE 20); excludes weekends and holidays



**Summer - Total Hourly MWH (36 Months Ended November 2019)**

HR End	Peak Days				Holidays and Weekends Only				All Days			
	RES	COM	IND	TOTAL	RES	COM	IND	TOTAL	RES	COM	IND	TOTAL
1	404,174	323,783	468,414	1,196,371	163,080	129,655	177,377	470,112	567,253	453,438	645,791	1,666,483
2	347,328	309,776	464,295	1,121,400	149,055	119,174	174,567	442,796	496,384	428,950	638,863	1,564,196
3	314,564	304,848	462,203	1,081,615	135,661	116,119	173,420	425,199	450,225	420,966	635,623	1,506,814
4	300,617	300,953	458,632	1,060,202	129,959	113,555	171,841	415,355	430,576	414,508	630,473	1,475,557
5	301,320	306,271	462,118	1,069,709	124,459	112,360	171,770	408,588	425,779	418,631	633,888	1,478,297
6	312,571	325,268	475,531	1,113,370	120,600	112,270	172,571	405,441	433,172	437,538	648,102	1,518,811
7	331,313	357,230	493,035	1,181,578	116,199	106,276	172,871	395,345	447,512	463,506	665,906	1,576,923
8	337,108	434,329	514,905	1,286,342	126,048	112,423	174,854	413,325	463,156	546,753	689,758	1,699,667
9	337,372	505,787	532,260	1,375,419	141,751	120,693	176,579	439,023	479,123	626,480	708,840	1,814,443
10	342,418	542,265	540,562	1,425,245	161,157	127,683	178,155	466,995	503,575	669,948	718,717	1,892,240
11	364,910	567,727	547,608	1,480,245	169,278	134,775	179,767	483,821	534,188	702,502	727,375	1,964,066
12	393,958	570,616	547,368	1,511,942	186,115	136,180	180,415	502,709	580,073	706,796	727,782	2,014,652
13	419,025	574,640	548,941	1,542,606	190,945	138,623	181,394	510,961	609,970	713,263	730,335	2,053,568
14	434,058	597,432	552,922	1,584,412	200,955	138,779	180,862	520,596	635,013	736,212	733,784	2,105,009
15	447,414	602,408	544,312	1,594,133	208,399	140,483	180,161	529,043	655,813	742,890	724,472	2,123,176
16	483,196	567,538	531,496	1,582,230	210,670	137,583	178,756	527,009	693,865	705,122	710,252	2,109,239
17	530,382	518,566	519,257	1,568,206	220,529	133,443	177,873	531,844	750,911	652,009	697,130	2,100,050
18	596,167	461,694	506,935	1,564,796	241,846	132,530	177,135	551,511	838,013	594,225	684,070	2,116,307
19	607,850	424,852	498,547	1,531,249	264,500	128,976	175,202	568,677	872,350	553,828	673,749	2,099,926
20	625,563	419,084	495,775	1,540,422	268,025	126,457	174,907	569,389	893,588	545,541	670,681	2,109,811
21	623,529	421,978	492,828	1,538,335	273,091	129,919	175,080	578,090	896,620	551,897	667,908	2,116,425
22	608,649	401,379	488,643	1,498,671	253,928	132,347	175,340	561,615	862,577	533,726	663,983	2,060,286
23	571,971	369,752	479,586	1,421,310	237,723	128,931	175,298	541,952	809,694	498,683	654,885	1,963,262
24	494,289	349,322	473,031	1,316,641	199,854	125,455	176,166	501,475	694,142	474,777	649,197	1,818,116
	<b>10,529,746</b>	<b>10,557,499</b>	<b>12,099,205</b>	<b>33,186,450</b>	<b>4,493,825</b>	<b>3,034,689</b>	<b>4,232,360</b>	<b>11,760,874</b>	<b>15,023,570</b>	<b>13,592,188</b>	<b>16,331,565</b>	<b>44,947,324</b>

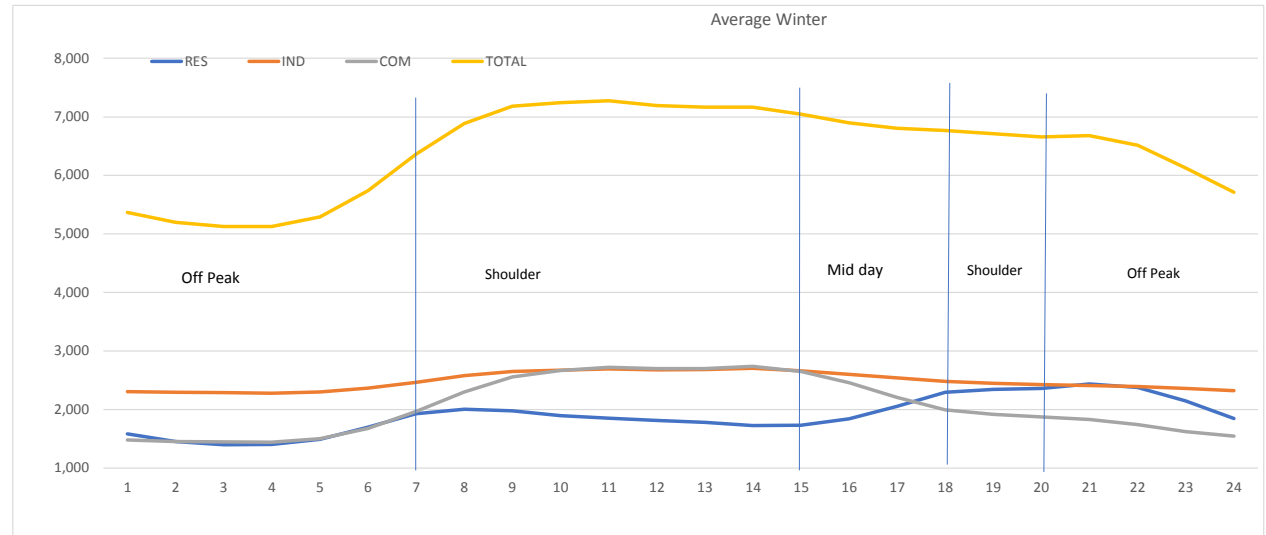
**Winter - Average Hourly MW (36 Months Ended November 2019)**

Excludes Weekends and Holidays

HR End	Peak Days			
	RES	COM	IND	TOTAL
1	1,585	1,481	2,304	5,370
2	1,453	1,452	2,293	5,198
3	1,396	1,445	2,288	5,129
4	1,405	1,440	2,278	5,123
5	1,489	1,500	2,303	5,293
6	1,697	1,677	2,365	5,739
7	1,930	1,968	2,464	6,361
8	2,007	2,302	2,579	6,888
9	1,978	2,556	2,649	7,182
10	1,898	2,669	2,674	7,241
11	1,855	2,725	2,694	7,273
12	1,817	2,698	2,680	7,195
13	1,782	2,699	2,686	7,168
14	1,728	2,737	2,703	7,168
15	1,733	2,651	2,662	7,045
16	1,841	2,458	2,602	6,901
17	2,054	2,209	2,544	6,807
18	2,294	1,992	2,482	6,769
19	2,347	1,916	2,448	6,710
20	2,362	1,874	2,424	6,660
21	2,439	1,831	2,412	6,681
22	2,375	1,745	2,395	6,515
23	2,147	1,624	2,359	6,129
24	1,846	1,547	2,322	5,715
	<b>1,894</b>	<b>2,050</b>	<b>2,484</b>	<b>6,428</b>

**Peak Periods**

Midday = 2pm - 6pm (HE 15 - HE 18); Shoulder = 6am - 2pm (HE 7 - HE 14) and 6pm - 8pm (HE 19 - HE 20); excludes weekends and holidays



**Winter - Total Hourly MWH (36 Months Ended November 2019)**

HR End	Peak Days				Holidays and Weekends Only				All Days			
	RES	COM	IND	TOTAL	RES	COM	IND	TOTAL	RES	COM	IND	TOTAL
1	904,845	845,561	1,315,768	3,066,174	403,550	340,965	503,037	1,247,552	1,308,395	1,186,526	1,818,805	4,313,726
2	831,013	830,504	1,311,519	2,973,036	373,212	329,514	504,920	1,207,646	1,204,225	1,160,018	1,816,439	4,180,682
3	798,349	826,608	1,308,615	2,933,572	344,077	319,174	491,595	1,154,845	1,142,426	1,145,782	1,800,210	4,088,417
4	803,885	823,571	1,303,036	2,930,491	345,421	319,334	495,453	1,160,208	1,149,306	1,142,905	1,798,489	4,090,700
5	851,971	857,969	1,317,386	3,027,325	351,211	323,712	495,112	1,170,035	1,203,182	1,181,681	1,812,497	4,197,360
6	970,613	959,405	1,352,514	3,282,532	368,174	334,248	498,898	1,201,320	1,338,788	1,293,653	1,851,412	4,483,852
7	1,103,691	1,125,786	1,409,251	3,638,729	396,851	344,635	503,940	1,245,426	1,500,542	1,470,422	1,913,191	4,884,155
8	1,147,805	1,316,847	1,475,101	3,939,753	448,573	342,755	506,764	1,298,092	1,596,378	1,659,602	1,981,866	5,237,845
9	1,131,159	1,461,850	1,515,131	4,108,141	500,274	357,689	509,442	1,367,405	1,631,434	1,819,539	2,024,573	5,475,546
10	1,085,512	1,526,714	1,529,734	4,141,960	526,436	372,518	510,949	1,409,903	1,611,948	1,899,232	2,040,683	5,551,863
11	1,061,021	1,558,427	1,540,746	4,160,194	532,736	374,860	512,146	1,419,742	1,593,756	1,933,288	2,052,892	5,579,936
12	1,039,250	1,543,401	1,532,920	4,115,571	533,427	369,418	509,261	1,412,106	1,572,676	1,912,820	2,042,182	5,527,677
13	1,019,573	1,544,000	1,536,357	4,099,931	528,446	360,267	508,410	1,397,123	1,548,019	1,904,267	2,044,768	5,497,054
14	988,192	1,565,697	1,546,217	4,100,107	514,433	354,485	507,004	1,375,922	1,502,626	1,920,182	2,053,222	5,476,029
15	991,020	1,516,282	1,522,572	4,029,874	504,368	350,088	503,269	1,357,726	1,495,388	1,866,370	2,025,841	5,387,600
16	1,053,000	1,406,019	1,488,490	3,947,509	507,461	338,080	500,292	1,345,833	1,560,460	1,744,099	1,988,782	5,293,341
17	1,174,730	1,263,701	1,455,131	3,893,562	530,906	332,837	498,614	1,362,357	1,705,635	1,596,538	1,953,746	5,255,919
18	1,312,453	1,139,405	1,419,964	3,871,822	560,330	342,091	497,145	1,399,566	1,872,783	1,481,495	1,917,109	5,271,388
19	1,342,364	1,095,721	1,400,258	3,838,344	568,198	343,339	494,845	1,406,382	1,910,562	1,439,060	1,895,103	5,244,726
20	1,351,140	1,071,659	1,386,716	3,809,516	568,913	348,825	494,527	1,412,265	1,920,054	1,420,484	1,881,243	5,221,781
21	1,394,858	1,047,316	1,379,521	3,821,695	578,084	353,904	496,152	1,428,140	1,972,941	1,401,220	1,875,673	5,249,835
22	1,358,725	997,919	1,369,973	3,726,618	558,023	347,774	496,700	1,402,498	1,916,749	1,345,694	1,866,673	5,129,116
23	1,228,127	928,733	1,349,181	3,506,042	511,888	340,539	498,426	1,350,853	1,740,016	1,269,271	1,847,608	4,856,895
24	1,057,861	886,359	1,330,459	3,274,679	445,218	334,000	498,137	1,277,355	1,503,079	1,220,359	1,828,596	4,552,034
	<b>26,001,157</b>	<b>28,139,455</b>	<b>34,096,563</b>	<b>88,237,176</b>	<b>11,500,211</b>	<b>8,275,052</b>	<b>12,035,039</b>	<b>31,810,301</b>	<b>37,501,368</b>	<b>36,414,507</b>	<b>46,131,602</b>	<b>120,047,477</b>



ATSI Zone LMP Data (\$/MWH)

Hour Ended	Summer					Winter				
	Peak Days	Non-Peak Days	All Days	Midday	Shoulder	Peak Days	Non-Peak Days	All Days	Midday	Shoulder
1	\$ 20.65	\$ 20.29	\$ 20.54			\$ 24.77	\$ 26.91	\$ 25.41		
2	\$ 19.72	\$ 19.97	\$ 19.80			\$ 24.48	\$ 24.86	\$ 24.59		
3	\$ 18.48	\$ 18.57	\$ 18.50			\$ 23.63	\$ 24.95	\$ 24.02		
4	\$ 17.65	\$ 17.39	\$ 17.57			\$ 23.57	\$ 23.81	\$ 23.65		
5	\$ 17.85	\$ 16.52	\$ 17.45			\$ 25.53	\$ 24.47	\$ 25.21		
6	\$ 19.67	\$ 16.29	\$ 18.67			\$ 28.25	\$ 25.09	\$ 27.30		
7	\$ 21.68	\$ 14.91	\$ 19.67		\$ 21.68	\$ 40.78	\$ 26.05	\$ 36.33		\$ 40.78
8	\$ 22.70	\$ 17.05	\$ 21.02		\$ 22.70	\$ 42.56	\$ 29.87	\$ 38.74		\$ 42.56
9	\$ 24.22	\$ 20.32	\$ 23.06		\$ 24.22	\$ 35.33	\$ 29.98	\$ 33.71		\$ 35.33
10	\$ 28.53	\$ 22.75	\$ 26.82		\$ 28.53	\$ 35.85	\$ 30.35	\$ 34.19		\$ 35.85
11	\$ 31.63	\$ 27.17	\$ 30.31		\$ 31.63	\$ 36.88	\$ 29.90	\$ 34.77		\$ 36.88
12	\$ 33.94	\$ 30.98	\$ 33.06		\$ 33.94	\$ 36.35	\$ 30.10	\$ 34.47		\$ 36.35
13	\$ 35.61	\$ 33.77	\$ 35.07		\$ 35.61	\$ 37.95	\$ 28.88	\$ 35.21		\$ 37.95
14	\$ 38.03	\$ 33.74	\$ 36.76		\$ 38.03	\$ 38.29	\$ 27.43	\$ 35.02		\$ 38.29
15	\$ 39.27	\$ 36.52	\$ 38.45	\$ 39.27		\$ 39.93	\$ 28.42	\$ 36.46	\$ 39.93	
16	\$ 46.71	\$ 36.82	\$ 43.77	\$ 46.71		\$ 39.31	\$ 31.05	\$ 36.82	\$ 39.31	
17	\$ 49.11	\$ 45.01	\$ 47.90	\$ 49.11		\$ 44.05	\$ 31.86	\$ 40.37	\$ 44.05	
18	\$ 45.56	\$ 43.30	\$ 44.89	\$ 45.56		\$ 45.90	\$ 35.89	\$ 42.88	\$ 45.90	
19	\$ 39.00	\$ 36.40	\$ 38.23		\$ 39.00	\$ 39.01	\$ 34.55	\$ 37.66		\$ 39.01
20	\$ 33.27	\$ 31.38	\$ 32.71		\$ 33.27	\$ 39.01	\$ 35.46	\$ 37.94		\$ 39.01
21	\$ 31.57	\$ 29.30	\$ 30.89			\$ 38.16	\$ 33.82	\$ 36.85		
22	\$ 30.04	\$ 28.46	\$ 29.58			\$ 33.88	\$ 29.88	\$ 32.67		
23	\$ 24.43	\$ 23.69	\$ 24.21			\$ 28.07	\$ 26.20	\$ 27.51		
24	\$ 22.24	\$ 21.46	\$ 22.01			\$ 25.40	\$ 23.63	\$ 24.86		
Total	\$ 29.65	\$ 26.75	\$ 28.79	\$ 45.16	\$ 30.86	\$ 34.45	\$ 28.89	\$ 32.78	\$ 42.30	\$ 38.20
Factor				157%	107%				129%	117%

- Source: Real-Time LMP at ATSI zone from 12/1/2016 through 11/30/2019

- Factor represents average LMP during Midday Peak Hours and Shoulder Peak Hours compared to the seasonal round-the-clock average LMP

**Residential Time-Varying Rate Design - Summer**

Midday = 2pm - 6pm (HE 15 - HE 18); Shoulder = 6am - 2pm (HE 7 - HE 14) and 6pm - 8pm (HE 19 - HE 20); excludes weekends and holidays

(1)	Hr Ending	Peak Days	Non-Peak Days	Total	Midday	Shoulder	Off	Total
(2)	1	404,174	163,080	567,253			567,253	567,253
(3)	2	347,328	149,055	496,384			496,384	496,384
(4)	3	314,564	135,661	450,225			450,225	450,225
(5)	4	300,617	129,959	430,576			430,576	430,576
(6)	5	301,320	124,459	425,779			425,779	425,779
(7)	6	312,571	120,600	433,172			433,172	433,172
(8)	7	331,313	116,199	447,512		331,313	116,199	447,512
(9)	8	337,108	126,048	463,156		337,108	126,048	463,156
(10)	9	337,372	141,751	479,123		337,372	141,751	479,123
(11)	10	342,418	161,157	503,575		342,418	161,157	503,575
(12)	11	364,910	169,278	534,188		364,910	169,278	534,188
(13)	12	393,958	186,115	580,073		393,958	186,115	580,073
(14)	13	419,025	190,945	609,970		419,025	190,945	609,970
(15)	14	434,058	200,955	635,013		434,058	200,955	635,013
(16)	15	447,414	208,399	655,813	447,414		208,399	655,813
(17)	16	483,196	210,670	693,865	483,196		210,670	693,865
(18)	17	530,382	220,529	750,911	530,382		220,529	750,911
(19)	18	596,167	241,846	838,013	596,167		241,846	838,013
(20)	19	607,850	264,500	872,350		607,850	264,500	872,350
(21)	20	625,563	268,025	893,588		625,563	268,025	893,588
(22)	21	623,529	273,091	896,620			896,620	896,620
(23)	22	608,649	253,928	862,577			862,577	862,577
(24)	23	571,971	237,723	809,694			809,694	809,694
(25)	24	494,289	199,854	694,142			694,142	694,142
(26)		10,529,746	4,493,825	15,023,570	2,057,158	4,193,576	8,772,836	15,023,570

(27)	Average kWh Breakdown per Customer				Midday	Shoulder	Off	Total
(28)	% Average kWh				13.7%	27.9%	58.4%	100.0%
(29)	Average Monthly kWh per Customer				110	223	467	800

(32)	Monthly Bill Comparison	Rate (\$/kWh)		Average Monthly kWh		Monthly Charges
(33)		Factor	Price	% Total	kWh	
(34)	Standard Rider GEN Rate		\$0.048447	100.0%	800	\$38.76
(35)	Time-Varying Rate					
(36)	Midday Peak	163%	\$0.079156	13.7%	110	\$8.67
(37)	Shoulder Peak	107%	\$0.051937	27.9%	223	\$11.60
(38)	Off Peak	82%	\$0.039578	58.4%	467	\$18.49
(39)	Total TVR		\$0.048447	100.0%	800	\$38.76
(40)	Difference		\$0.000000			\$0.00

**NOTES**

(1) - (25) Source: FE Ohio aggregate hourly MWH consumption 12/1/2016 through 11/30/2019

(29) Calculation: Portion of total on Line 26

(30) Estimated average monthly usage of typical residential customer

(35) Source: Rider GEN Energy Charge in effect January 1, 2020

(38-39) Shaping Factor for Midday and Shoulder Peaks based on average LMP from ATSI zone, 12/1/2016 through 11/30/2019, with Midday adjusted to achieve a 2:1 relationship with Off Peak

(40) Off-Peak: Price needed to achieve revenue neutrality on average

**Residential Time-Varying Rate Design - Winter**

Midday = 2pm - 6pm (HE 15 - HE 18); Shoulder = 6am - 2pm (HE 7 - HE 14) and 6pm - 8pm (HE 19 - HE 20); excludes weekends and holidays

(1)	Hr Ending	Peak Days	Non-Peak Days	Total	Midday	Shoulder	Off	Total
(2)	1	904,845	403,550	1,308,395			1,308,395	1,308,395
(3)	2	831,013	373,212	1,204,225			1,204,225	1,204,225
(4)	3	798,349	344,077	1,142,426			1,142,426	1,142,426
(5)	4	803,885	345,421	1,149,306			1,149,306	1,149,306
(6)	5	851,971	351,211	1,203,182			1,203,182	1,203,182
(7)	6	970,613	368,174	1,338,788			1,338,788	1,338,788
(8)	7	1,103,691	396,851	1,500,542		1,103,691	396,851	1,500,542
(9)	8	1,147,805	448,573	1,596,378		1,147,805	448,573	1,596,378
(10)	9	1,131,159	500,274	1,631,434		1,131,159	500,274	1,631,434
(11)	10	1,085,512	526,436	1,611,948		1,085,512	526,436	1,611,948
(12)	11	1,061,021	532,736	1,593,756		1,061,021	532,736	1,593,756
(13)	12	1,039,250	533,427	1,572,676		1,039,250	533,427	1,572,676
(14)	13	1,019,573	528,446	1,548,019		1,019,573	528,446	1,548,019
(15)	14	988,192	514,433	1,502,626		988,192	514,433	1,502,626
(16)	15	991,020	504,368	1,495,388	991,020		504,368	1,495,388
(17)	16	1,053,000	507,461	1,560,460	1,053,000		507,461	1,560,460
(18)	17	1,174,730	530,906	1,705,635	1,174,730		530,906	1,705,635
(19)	18	1,312,453	560,330	1,872,783	1,312,453		560,330	1,872,783
(20)	19	1,342,364	568,198	1,910,562		1,342,364	568,198	1,910,562
(21)	20	1,351,140	568,913	1,920,054		1,351,140	568,913	1,920,054
(22)	21	1,394,858	578,084	1,972,941			1,972,941	1,972,941
(23)	22	1,358,725	558,023	1,916,749			1,916,749	1,916,749
(24)	23	1,228,127	511,888	1,740,016			1,740,016	1,740,016
(25)	24	1,057,861	445,218	1,503,079			1,503,079	1,503,079
(26)		26,001,157	11,500,211	37,501,368	4,531,202	11,269,708	21,700,459	37,501,368

(27)	Average kWh Breakdown per Customer				Midday	Shoulder	Off	Total
(28)	% Average kWh				12.1%	30.1%	57.9%	100.0%
(29)	Average Monthly kWh per Customer				97	240	463	800

(32)	Monthly Bill Comparison	Rate (\$/kWh)		Average Monthly kWh		Monthly Charges
(33)		Factor	Price	% Total	kWh	
(34)	Standard Rider GEN Rate		\$0.040553	100.0%	800	\$32.44
(35)	Time-Varying Rate					
(36)	Midday Peak	158%	\$0.064245	12.1%	97	\$6.21
(37)	Shoulder Peak	117%	\$0.047260	30.1%	240	\$11.36
(38)	Off Peak	79%	\$0.032123	57.9%	463	\$14.87
(39)	Total TVR		\$0.040553	100.0%	800	\$32.44
(40)	Difference		\$0.000000			\$0.00

**NOTES**

(1) - (25) Source: FE Ohio aggregate hourly MWH consumption 12/1/2016 through 11/30/2019

(29) Calculation: Portion of total on Line 26

(30) Estimated average monthly usage of typical residential customer

(35) Source: Rider GEN Energy Charge in effect January 1, 2020

(38-39) Shaping Factor for Midday and Shoulder Peaks based on average LMP from ATSI zone, 12/1/2016 through 11/30/2019, with Midday adjusted to achieve a 2:1 relationship with Off Peak

(40) Off-Peak: Price needed to achieve revenue neutrality on average

**OCC Set 1**  
**As to Objections: Christine E. Watchorn**

Case No. 20-0050-EL-ATA  
In the Matter of the Application of Ohio Edison Company,  
The Toledo Edison Company, and The Cleveland Electric Illuminating Company  
for Approval of Time-Varying Rates.

**RESPONSES TO REQUEST**

**OCC Set 1 –  
INT-001**

The Grid Modernization Stipulation states: “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.”

- a) Explain how the Residential TOU Rates will leverage enabling devices, including but not limited to smart thermostats.
- b) Provide any analysis performed by FirstEnergy showing whether the Residential TOU Rates will achieve the energy and capacity savings detailed in the cost-benefit analysis from the Grid Modernization Case.
- c) Describe all of the options that were considered for implementing time-varying rate offerings and explain why the Companies chose to propose the program that is described in the Application.

**Response:**

- a) Objection. This subpart of the request is vague, ambiguous, and misstates the Stipulation to the extent that it says “will leverage” not “should leverage.” The request also seeks an improper narrative response. Subject to and without waiving the foregoing objections, the Companies’ proposal offers time-differentiated pricing for different peak periods which provides the opportunity for enabling devices such as smart thermostats to be programed to reduce or shift usage to achieve savings.
- b) Objection. This subpart of the request is based on a mischaracterization of the Stipulation. Subject to and without waiving the foregoing objections, the Companies’ proposal in this case is designed in a manner consistent with the studies used as the basis for the Companies’ estimated time-varying rate benefits in the cost benefit analysis in the Grid Mod I case. A copy of the confidential cost benefit analysis and the supporting workpapers are already in OCC’s possession.
- c) Objection. This request is vague and ambiguous in its use of the phrase “all of the options that were considered” and calls for a narrative response. Subject to and without waiving the foregoing objections, see the Companies’ response to OCC Set 1- RPD1-019 for options discussed with the Collaborative group. The Companies proposed the TOU rate included in their Application based on input from the Collaborative group and the ability to implement the rate in the Companies’ billing systems.

**OCC Set 1**  
**As to Objections: Christine E. Watchorn**

Case No. 20-0050-EL-ATA  
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**RESPONSES TO REQUEST**

**OCC Set 1 –  
INT-002**

For each of the Companies, how many residential customers (Class RS) are projected/estimated to participate in the Residential TOU Rates in each of the next five years. Provide all supporting calculations for any projections or estimates.

**Response:**

Objection. This request seeks confidential information contained in the Companies' Cost Benefit Analysis. A copy of the confidential Cost Benefit Analysis and supporting workpapers are already in OCC's possession. Further, this request is overbroad in its timeframe and seeks information that is irrelevant and is not reasonably calculated to lead to the discovery of admissible evidence.

**OCC Set 1**  
**As to Objections: Christine E. Watchorn**

Case No. 20-0050-EL-ATA  
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**RESPONSES TO REQUEST**

**OCC Set 1 –  
INT-003**

The Grid Modernization Stipulation states: “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.” The proposed amendment to Tariff Sheet 114 says, “The customer must arrange for time-of-day metering consistent with the Company’s Miscellaneous Charges, Tariff Sheet 75, or have an advanced meter installed by the Company.”

a) Have the Companies started installing any of the 700,000 advanced meters to be installed as part of Grid Mod I? If so, when did that begin, and how many such meters have been installed for residential customers? (Provide your response separately for each of the three Companies.)

b) What is the projected date on which the installation of the 700,000 advanced meters will be complete?

c) Provide any projections regarding the installation of the 700,000 meters (e.g., 100,000 expected by end of 2020; 300,000 expected by end of 2022, etc.).

d) For each of the Companies, how many residential customers currently have an advanced meter installed by the Company?

e) Has the “supporting communications infrastructure” been installed? If not, when is it expected to be completed?

f) Is the “supporting communications infrastructure” a prerequisite to offering the Residential TOU Rates?

g) Has the MDMS been installed? If not, when is it expected to be completed?

h) Is the MDMS a prerequisite to offering the Residential TOU Rates?

i.) Have the “associated systems and process” been installed? If not, when are they expected to be completed?

j) Are the associated systems and process a prerequisite to offering the Residential TOU Rates?

k) If a residential customer wants to participate in the Residential TOU Rates but does not have an advanced meter installed by the Company, can the customer have an advanced meter installed by request so as to be able to participate in the Residential TOU Rates?

**OCC Set 1**  
**As to Objection: Christine E. Watchorn**

Case No. 20-0050-EL-ATA  
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for Approval of Time-Varying Rates.

**RESPONSES TO REQUEST**

**OCC Set 1 –  
INT-004**

The Grid Modernization Stipulation, Attachment B, shows “Estimated Benefits” of \$1,782,000,000 (Nominal) and \$808,000,000 (NPV).

- a) How much of these projected benefits (in dollars or percentage) are attributable to time-varying rates? Provide all supporting calculations, including all assumptions.
- b) How many residential customers need to participate in the Residential TOU Rates for the projected benefits to be realized?

**Response:**

Objection. This request seeks confidential information contained in the Companies' Cost Benefit Analysis. A copy of the confidential Cost Benefit Analysis and supporting workpapers are already in OCC's possession. Objecting further, the request seeks information that is irrelevant and not reasonably calculated to lead to the discovery of admissible evidence.

Objection. This request, including all subparts, seeks information that is irrelevant and is not reasonably calculated to lead to the discovery of admissible evidence. Further, the request is overly broad and unduly burdensome and answers to many of these questions can be obtained through participation in the Companies' Grid Mod Collaborative. Subject to and without waiving the foregoing objections, the Companies respond as follows:

- Response:**
- a) Per the stipulation, deployment updates will be provided through the Grid Mod I collaborative process.
  - b) See response to a)
  - c) See response to a)
  - d) Currently, there are no Grid Mod I customers who have advanced meters installed.
  - e) See response to a)
  - f) Objection. The request is vague and ambiguous as to the terms "prerequisite" and "offering." Subject to and without waiving the foregoing objections, the supporting communications infrastructure is needed to bill participating customers under the proposed time-varying rate through automation.
  - g) See response to a).
  - h) Objection. The request is vague and ambiguous as to the terms "prerequisite" and "offering." Subject to and without waiving the foregoing objections, the MDMS is needed to bill participating customers under the proposed time-varying rate through automation.
  - i) See response to a)
  - j) Objection. The request is vague and ambiguous as to the terms "prerequisite" and "offering." Subject to and without waiving the foregoing objections, the associated systems and processes are needed to bill participating customers under the proposed time-varying rate through automation.
  - k) No.



**OCC Set 1**

**As to Objections: Christine E. Watchorn**

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**RESPONSES TO REQUEST**

**OCC Set 1 –  
INT-005**

Describe the process by which a residential customer would enroll in the Residential  
TOU Rates.

**Response:**

Objection. The request seeks an improper narrative response. Subject to and without waiving the foregoing objection, the customer would need to notify the Companies of its intent to participate in the Residential TOU Rate. The process will depend on the terms and conditions of the Commission's approval of the tariff.

**OCC Set 1**  
**As to Objections: Christine E. Watchorn**

Case No. 20-0050-EL-ATA  
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**RESPONSES TO REQUEST**

**OCC Set 1 –  
INT-006**

The proposed Tariff Sheet 114 states: “A customer may terminate its participation in this time-of-day option at any time.”

- a) Describe the process that a customer would need to follow to terminate its participation.
- b) Can a customer terminate its participation within the same billing cycle?

**Response:**

Objection. The request seeks an improper narrative response. Subject to and without waiving the foregoing objection, the customer would need to notify the Companies of its intent to terminate participation. The process will depend on the terms and conditions of the Commission's approval of the tariff.

**OCC Set 1**

Case No. 20-0050-EL-ATA  
In the Matter of the Application of Ohio Edison Company,  
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**RESPONSES TO REQUEST**

**OCC Set 1 –** Is there any limit on the number of residential customers that will be allowed to participate in the  
**INT-007** Residential TOU Rates? If so, what is that limit, and how was it determined?

**Response:** There is no limit on the number of residential customers allowed to participate in the Residential TOU Rates, subject to the terms and conditions of the tariff.

**OCC Set 1**  
**As to Objections: Christine E. Watchorn**

Case No. 20-0050-EL-ATA  
In the Matter of the Application of Ohio Edison Company,  
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for Approval of Time-Varying Rates.

**RESPONSES TO REQUEST**

**OCC Set 1 –  
INT-008**

Will residential net-metering customers be permitted to enroll in the Residential TOU Rates?

**Response:**

Objection. This request is vague and ambiguous in its omission of information regarding whether the customer meets the tariff's terms and conditions for the Residential TOU Rates. Subject to and without waiving the foregoing objections, yes, a residential net-metering customer will be permitted to enroll in the Residential TOU Rates if the customer is non-shopping and satisfies all other tariff requirements.

**OCC Set 1**  
**As to Objections: Christine E. Watchorn**

Case No. 20-0050-EL-ATA  
In the Matter of the Application of Ohio Edison Company,  
The Toledo Edison Company, and The Cleveland Electric Illuminating Company  
for Approval of Time-Varying Rates.

**RESPONSES TO REQUEST**

**OCC Set 1 –  
INT-009**

What metrics does FirstEnergy propose be used to evaluate the effectiveness of the Residential TOU Rates program?

**Response:**

Objection. This request seeks information that is irrelevant and is not reasonably calculated to the lead to the discovery of admissible evidence. Further, it is vague and ambiguous as to the term “effectiveness.” Subject to and without waiving the foregoing objections, please refer to the metrics approved by the Commission in the Grid Mod I stipulation in Case No. 16-481-EL-UNC, et al.

**OCC Set 1**  
**As to Objections: Christine E. Watchorn**

Case No. 20-0050  
In the Matter of the Application of Ohio Edison Company,  
The Toledo Edison Company, and The Cleveland Electric Illuminating Company  
for Approval of Time-Varying Rates.

RESPONSES TO REQUEST

**OCC Set 1 –  
INT-010**

How will FirstEnergy measure customer satisfaction for the Residential TOU Rates program?

**Response:**

Objection. This request seeks information that is irrelevant and is not reasonably calculated to lead to the discovery of admissible evidence. Further, it is vague and ambiguous as to the term “customer satisfaction.” Subject to and without waiving the foregoing objections, see the Companies’ response to OCC Set 1-INT-009.

**OCC Set 1**

Case No. 20-0050-EL-ATA  
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**RESPONSES TO REQUEST**

**OCC Set 1 –  
INT-011**

In designing the Residential TOU Rates, did FirstEnergy review other residential time of use rate programs in Ohio and other jurisdictions? If so, identify all such programs.

**Response:**

Yes, the Companies reviewed the following residential time of use rate programs and pricing in Ohio and other jurisdictions: Rider GEN (Time-of-Day Option), Rider PTR, Rider RCP, Rider K, Electricity plus Free Nights, Electricity plus Free Weekends.

**OCC Set 1**  
**As to Objections: Christine E. Watchorn**

Case No. 20-0050-EL-ATA  
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**RESPONSES TO REQUEST**

**OCC Set 1 –  
INT-012**

Will FirstEnergy provide information to customers (either on their bill or elsewhere) showing them how much they saved, or how much their bill increased, as a result of participating in the Residential TOU Rates as opposed to the standard rates under the Generation Service Rider?

**Response:**

Objection. This request is vague and ambiguous in its use of the phrase “how much they saved,” and seeks information that is irrelevant and is not reasonably calculated to lead to the discovery of admissible evidence. Subject to and without waiving the foregoing objections, customers will be able to access their usage data consistent with the terms and conditions of the Grid Mod I stipulation.



**OCC Set 1**

Case No. 20-0050-EL-ATA  
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**RESPONSES TO REQUEST**

**OCC Set 1 –  
INT-013** Describe how FirstEnergy decided to use 2 p.m. to 6 p.m., Monday through Friday (excluding holidays), as the “Midday Peak” hours.

**Response:** This was decided after consultation with the Grid Mod Collaborative group.

**OCC Set 1**

Case No. 20-0050-EL-ATA  
In the Matter of the Application of Ohio Edison Company,  
The Toledo Edison Company, and The Cleveland Electric Illuminating Company  
for Approval of Time-Varying Rates.

**RESPONSES TO REQUEST**

**OCC Set 1 –  
INT-014** Describe how FirstEnergy decided to use 6 a.m. to 2 p.m. and 6 p.m. to 8 p.m., Monday through Friday (excluding holidays), as the “Shoulder Peak” hours.

**Response:** See the Companies’ response to OCC Set 1-INT-013.

**OCC Set 1**  
**As to Objections: Christine E. Watchorn**

Case No. 20-0050-EL-ATA  
In the Matter of the Application of Ohio Edison Company,  
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for Approval of Time-Varying Rates.

**RESPONSES TO REQUEST**

**OCC Set 1 –**  
**INT-015** Are residential customers who are currently served under the Experimental Real Time Pricing Rider (Rider RTP) or the Experimental Critical Peak Pricing Rider (Rider CPP) eligible participate in the Residential TOU Rates without having the Company install another advanced meter?

**Response:** Objection. The request assumes facts not in evidence and/or is premised upon an incorrect assumption. Subject to and without waiving the foregoing objections, residential customers are not currently eligible for Rider RTP or Rider CPP.

**OCC Set 1**  
**As to Objections: Christine E. Watchorn**

Case No. 20-0050-EL-ATA  
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**RESPONSES TO REQUEST**

**OCC Set 1 –  
INT-016**

Describe how the Companies intend to inform residential customers about the availability of the Residential TOU Rates.

**Response:**

Objection. The request seeks information that is irrelevant and is not reasonably calculated to lead to the discovery of admissible evidence. The request also seeks an improper narrative response. Subject to and without waiving the foregoing objections, the process will depend on the terms and conditions of the Commission's approval of the tariff. Additional information may be available through participation in the Companies' Grid Mod Collaborative group.

**OCC Set 1**  
**As to Objections: Christine E. Watchorn**

Case No. 20-0050-EL-ATA  
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**RESPONSES TO REQUEST**

**OCC Set 1 –  
INT-017**

What are the projected costs associated with implementing the Residential TOU Rates program?

**Response:**

Objection. This request is vague and ambiguous as to “implementing the Residential TOU Rates program”. The request may seek confidential information contained in the Companies’ Cost Benefit Analysis. A copy of the confidential Cost Benefit Analysis and supporting workpapers are already in OCC’s possession.

**OCC Set 1**  
**As to Objections: Christine E. Watchorn**

Case No. 20-0050-EL-ATA  
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**RESPONSES TO REQUEST**

**OCC Set 1 –  
INT-018**

Regarding Miscellaneous Charges, Sheet 75, #9 Meter Service Charges:

- a) To participate in the Residential TOU Rates, does a residential customer need an Interval Meter and Modem or a Time-of-Day Meter (as those terms are used on Sheet 75)?
- b) Describe the difference between an Interval Meter and Model and a Time-of-Day Meter.
- c) Are the advanced meters to be installed under the approved Grid Modernization Stipulation different than the Interval Meters and Time-of-Day Meters described on Sheet 75? If so, how?
- d) How many residential customers currently have an Interval Meter and Modem?
- e) How many residential customers currently have a Time-of-Day Meter?

**Response:**

- a) No. Residential customers need an advanced meter installed and certified by the Companies to participate in the Residential TOU rates.
- b) Objection. The request seeks information that is irrelevant and not reasonably calculated to lead to the discovery of admissible evidence, and further calls for a narrative response.
- c) Objection. The request seeks information that is irrelevant and not reasonably calculated to lead to the discovery of admissible evidence, and further calls for a narrative response.
- d) Objection. The request seeks information that is irrelevant and not reasonably calculated to lead to the discovery of admissible evidence.
- e) Objection. The request seeks information that is irrelevant and not reasonably calculated to lead to the discovery of admissible evidence.

**OCC Set 1**

Case No. 20-0050-EL-ATA  
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**RESPONSES TO REQUEST**

**OCC Set 1 –  
INT-019** Will FirstEnergy collect lost revenues resulting from the Residential TOU Rates (for example, if a customer's total charges under the Residential TOU Rates are less than they would be under standard rates)? If so, how?

**Response:** Revenue from the Residential TOU Rates will be included in and reconciled through the Companies' Generation Cost Reconciliation Rider (GCR).

**OCC Set 1**

Case No. 20-0050-EL-ATA  
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**RESPONSES TO REQUEST**

**OCC Set 1 –** If a customer's total charges under the Residential TOU Rates are greater than they would be  
**INT-020** under standard rates, will the difference be credited to customers? If so, how?

**Response:** See the Companies' response to OCC Set 1-INT-019.



**OCC Set 1**

Case No. 20-0050-EL-ATA  
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**RESPONSES TO REQUEST**

**OCC Set 1 –  
INT-021** Will any residential customer be placed on the Residential TOU Rates without affirmatively  
opting in to the Residential TOU Rates option?

**Response:** No.

**OCC Set 1**

Case No. 20-0050-EL-ATA  
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The Toledo Edison Company, and The Cleveland Electric Illuminating Company  
for Approval of Time-Varying Rates.

**REQUEST FOR PRODUCTION OF DOCUMENTS**

**OCC Set 1 –  
RPD-001** Please provide copies of all formal and informal requests (e.g. interrogatories, requests for documents, requests for admission, and informal data requests) propounded upon the Companies with respect to this proceeding, by the PUCO, PUCO Staff, and/or the PUCO's Attorneys, and the Companies' response to each request.

**Response:** No formal or informal requests have been received.

**OCC Set 1**

Case No. 20-0050-EL-ATA  
In the Matter of the Application of Ohio Edison Company,  
The Toledo Edison Company, and The Cleveland Electric Illuminating Company  
for Approval of Time-Varying Rates.

**REQUEST FOR PRODUCTION OF DOCUMENTS**

**OCC Set 1 –  
RPD-002** Please provide a copy of all discovery requests received by the Companies from parties other than the Commission, PUCO Staff, or the PUCO's Attorneys in this proceeding, and the Companies' response to each request.

**Response:** No discovery requests have been received.

**OCC Set 1**

Case No. 20-0050-EL-ATA  
In the Matter of the Application of Ohio Edison Company,  
The Toledo Edison Company, and The Cleveland Electric Illuminating Company  
for Approval of Time-Varying Rates.

**REQUEST FOR PRODUCTION OF DOCUMENTS**

**OCC Set 1 –  
RPD-003**

Please provide all documents, workpapers, electronic files, schedules, exhibits, and all other responses to informational requests provided to other parties in connection with this proceeding.

**Response:**

Objection. This request is vague and ambiguous as to “in connection with this proceeding.” Objecting further, this request seeks or may purport to seek confidential information contained in the Companies’ Cost Benefit Analysis. A copy of the confidential Cost Benefit Analysis and supporting workpapers are already in OCC’s possession. Additionally, the request is overbroad. Subject to and without waiving the foregoing objections, please see the Companies’ response to OCC Set 1 RPD-019.

**OCC Set 1**

Case No. 20-0050-EL-ATA  
In the Matter of the Application of Ohio Edison Company,  
The Toledo Edison Company, and The Cleveland Electric Illuminating Company  
for Approval of Time-Varying Rates.

**REQUEST FOR PRODUCTION OF DOCUMENTS**

**OCC Set 1 – RPD-004** Provide a copy of all documents provided to the PUCO Staff related to this proceeding, and the Application.

**Response:** Objection. This request is vague and ambiguous as to “related to this proceeding.” Objecting further, this request seeks or may purport to seek confidential information contained in the Companies’ Cost Benefit Analysis. A copy of the confidential Cost Benefit Analysis and supporting workpapers are already in OCC’s possession. Additionally, the request is overbroad. Subject to and without waiving the foregoing objections, please see the Companies’ response to OCC Set 1-RPD-019 and refer to the docket in case number 20-0050-EL-ATA.

**OCC Set 1**

Case No. 20-0050-EL-ATA  
In the Matter of the Application of Ohio Edison Company,  
The Toledo Edison Company, and The Cleveland Electric Illuminating Company  
for Approval of Time-Varying Rates.

**REQUEST FOR PRODUCTION OF DOCUMENTS**

**OCC Set 1 –** Provide all documents showing how FirstEnergy calculated the proposed “Midday Peak,”  
**RPD-005** “Shoulder Peak,” and “Off-Peak” rates under the Time-of-Day Option found in the Application.

**Response:** Please see the Companies’ response to OCC Set 1-RPD-019.

**OCC Set 1**

Case No. 20-0050-EL-ATA  
In the Matter of the Application of Ohio Edison Company,  
The Toledo Edison Company, and The Cleveland Electric Illuminating Company  
for Approval of Time-Varying Rates.

**REQUEST FOR PRODUCTION OF DOCUMENTS**

**OCC Set 1 –  
RPD-006** Please provide a sample customer bill for a participating customer on the Time of Day Residential program.

**Response:** Objection. The request is vague and ambiguous as to “sample customer bill” and “Time of Day Residential program.” Subject to and without waiving the foregoing objections, the bill format for customers participating under the proposed time-varying rate has not yet been developed and could depend on the terms and conditions of the PUCO’s approval of the proposed tariff.

**OCC Set 1**

Case No. 20-0050-EL-ATA  
In the Matter of the Application of Ohio Edison Company,  
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**REQUEST FOR PRODUCTION OF DOCUMENTS**

**OCC Set 1 –  
RPD-007**

Provide a copy of all documents you relied on or which otherwise support your response to INT-1-1.

**Response:**

Objection. This request is vague and ambiguous in its use of the phrase “which otherwise support.” Subject to and without waiving the foregoing objection, see the Companies’ objections and responses to OCC Set 1-INT-001.



**OCC Set 1**

Case No. 20-0050-EL-ATA  
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**REQUEST FOR PRODUCTION OF DOCUMENTS**

**OCC Set 1 –  
RPD-008**

Provide a copy of all documents you relied on or which otherwise support your response to INT-1-2.

**Response:**

Objection. This request is vague and ambiguous in its use of the phrase “which otherwise support.” Subject to and without waiving the foregoing objection, see the Companies’ objections and responses to OCC Set 1-INT-002.

**OCC Set 1**

Case No. 20-0050-EL-ATA  
In the Matter of the Application of Ohio Edison Company,  
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**REQUEST FOR PRODUCTION OF DOCUMENTS**

**OCC Set 1 –  
RPD-009**

Provide a copy of all documents you relied on or which otherwise support your response to INT-1-3.

**Response:**

Objection. This request is vague and ambiguous in its use of the phrase “which otherwise support.” Subject to and without waiving the foregoing objection, see the Companies’ objections and responses to OCC Set 1-INT-003.

**OCC Set 1**

Case No. 20-0050-EL-ATA  
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**REQUEST FOR PRODUCTION OF DOCUMENTS**

**OCC Set 1 –  
RPD-010** Provide a copy of all documents you relied on or which otherwise support your response to INT-1-4.

**Response:** Objection. This request is vague and ambiguous in its use of the phrase “which otherwise support.” Subject to and without waiving the foregoing objection, see the Companies’ objections and responses to OCC Set 1-INT-004.

**OCC Set 1**

Case No. 20-0050-EL-ATA  
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**REQUEST FOR PRODUCTION OF DOCUMENTS**

**OCC Set 1 – RPD-011** Provide a copy of all documents you relied on or which otherwise support your response to INT-1-11.

**Response:**

See OCC Set 1-RPD-011 Attachment 1  
See OCC Set 1-RPD-011 Attachment 2  
See OCC Set 1-RPD-019 Attachment 3  
See OCC Set 1-RPD-019 Attachment 4  
<https://www.directenergy.com/freeweekends>  
<https://www.directenergy.com/pa/electricity-plans>

**OCC Set 1**

Case No. 20-0050-EL-ATA  
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**REQUEST FOR PRODUCTION OF DOCUMENTS**

**OCC Set 1 – RPD-012** Provide a copy of all documents you relied on or which otherwise support your response to INT-1-13.

**Response:** Objection. This request is vague and ambiguous in its use of the phrase “which otherwise support.” Subject to and without waiving the foregoing objection, see the Companies’ response to OCC Set 1-INT-013.

**OCC Set 1**

Case No. 20-0050-EL-ATA  
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**REQUEST FOR PRODUCTION OF DOCUMENTS**

**OCC Set 1 –  
RPD-013** Provide a copy of all documents you relied on or which otherwise support your response to INT-1-14.

**Response:** Objection. This request is vague and ambiguous in its use of the phrase “which otherwise support.” Subject to and without waiving the foregoing objection, see the Companies’ response to OCC Set 1-INT-014.

**OCC Set 1**

Case No. 20-0050-EL-ATA  
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**REQUEST FOR PRODUCTION OF DOCUMENTS**

**OCC Set 1 –  
RPD-014** Provide a copy of all documents you relied on or which otherwise support your response to INT-1-17.

**Response:** Objection. This request is vague and ambiguous in its use of the phrase “which otherwise support.” Subject to and without waiving the foregoing objection, see the Companies’ objections and responses to OCC Set 1-INT-017.

**OCC Set 1**

Case No. 20-0050-EL-ATA  
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**REQUEST FOR PRODUCTION OF DOCUMENTS**

**OCC Set 1 –  
RPD-015** Provide a copy of all documents you relied on or which otherwise support your response to INT-1-18.

**Response:** Objection. This request is vague and ambiguous in its use of the phrase “which otherwise support.” Subject to and without waiving the foregoing objection, the Companies have not identified any documents responsive to OCC Set 1-INT-018(a), which asked a yes or no question. Responding further to OCC Set 1-INT-018(b) through (e): see the Companies’ objections and responses to OCC Set 1-INT-018.



**OCC Set 1**

Case No. 20-0050-EL-ATA  
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**REQUEST FOR PRODUCTION OF DOCUMENTS**

**OCC Set 1 –  
RPD-016** Provide a copy of all documents you relied on or which otherwise support your response to INT-1-19.

**Response:** Objection. This request is vague and ambiguous in its use of the phrase “which otherwise support.” Subject to and without waiving the foregoing objection, see the Companies’ response to OCC Set 1-INT-019.

**OCC Set 1**

Case No. 20-0050-EL-ATA  
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**REQUEST FOR PRODUCTION OF DOCUMENTS**

**OCC Set 1 – RPD-017** Provide a copy of all documents you relied on or which otherwise support your response to INT-1-20.

**Response:** Objection. This request is vague and ambiguous in its use of the phrase “which otherwise support.” Subject to and without waiving the foregoing objection, see the Companies’ response to OCC Set 1-INT-020.

**OCC Set 1**

Case No. 20-0050-EL-ATA  
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**REQUEST FOR PRODUCTION OF DOCUMENTS**

**OCC Set 1 –  
RPD-018** Provide a copy of any draft marketing materials that FirstEnergy has created regarding the Residential TOU Rates.

**Response:** Objection. The request seeks information that is irrelevant and not reasonably calculated to lead to the discovery of admissible evidence. Subject to and without waiving the foregoing objection, marketing materials have not yet been developed and could depend on the terms and conditions of the Commission's approval of the proposed tariff.

**OCC Set 1**

Case No. 20-0050-EL-ATA  
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**REQUEST FOR PRODUCTION OF DOCUMENTS**

**OCC Set 1 –  
RPD-019** Provide a copy of all documents distributed to the Grid Mod Collaborative Group (as that term is used in the Opinion and Order in the Grid Modernization Case), or any individual members or subset of members, regarding time-varying rates, on or after July 17, 2019. This should include, but not be limited to, all email communications and attachments.

**Response:** Objection. This request is overbroad. The request also seeks documents already in OCC's possession. Subject to and without waiving the foregoing objection, see OCC Set 1–RPD–019 Attachments 1-11. Additional information responsive to this request will be provided upon execution of a confidentiality agreement in this case.

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

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**Case No(s). 20-0050-EL-ATA**

Summary: Comments Comments by the Office of the Ohio Consumers' Counsel electronically filed by Ms. Deb J. Bingham on behalf of Healey, Christopher Mr.