November 1, 2016

# VIA ELECTRONIC FILING

Barcy F. McNeal, Secretary Public Utilities Commission of Ohio 180 East Broad Street, 11th Floor Columbus, OH 43215-3793

#### Re: In the Matter of the Application of Ohio Edison Company, The Cleveland Electric Illuminating Company, and The Toledo Edison Company for Authority to Provide for a Standard Service Offer Pursuant to R.C. §4928.143 in the Form of an Electric Security Plan, Case No. 14-1297-EL-SSO, et seq.

Dear Ms. McNeal:

Pursuant to Section V.E of the Third Supplemental Stipulation, as approved, modified and adopted by the Commission in Case No. 14-1297-EL-SSO in its March 31, 2016 Opinion and Order and its October 12, 2016 Fifth Entry on Rehearing, Ohio Edison Company, The Cleveland Electric Illuminating Company, and The Toledo Edison Company (collectively, "The Companies") hereby file the attached Resource Diversification Report.

Very truly yours,

/s/ David A. Kutik David A Kutik

# **Resource Diversification Report**

November 1, 2016

# **INTRODUCTION**

Pursuant to Section V.E of the Third Supplemental Stipulation, as approved, modified and adopted by the Commission in Case No. 14-1297-EL-SSO in its March 31, 2016 Opinion and Order and its October 12, 2016 Fifth Entry on Rehearing, this report outlines FirstEnergy's current strategies regarding promoting fuel diversification and carbon reduction and explains how FirstEnergy currently plans to pursue its commitment to protecting the environment while delivering safe, reliable, clean and affordable electricity to customers.

# Commitment to Environmental Stewardship - CO<sub>2</sub> Reduction Goal

FirstEnergy Corp. established a goal to reduce  $CO_2$  emissions by at least 90% below 2005 levels by 2045. This would be among the most aggressive targets in the utility industry. This goal represents a potential reduction of over 80 million tons of  $CO_2$  emissions.

In the ESP IV stipulation the Companies agreed to file with the Commission a report as to the then- status of carbon reductions every five years until 2045. This goal builds on significant reductions in  $CO_2$  emissions we have already achieved since 2005. FirstEnergy works to maintain a diverse fleet of generating sources in order to provide customers with safe, reliable, affordable and clean electricity.

In 2015 our  $CO_2$  emissions were 44% below 2005 levels (from 95,241,545 tons  $CO_2$  in 2005 to 53,376,073 in 2015). These reductions occurred primarily as a result of the retirement of 30 boilers at 12 different power plants, with a combined capacity of 6,080 MW.

FirstEnergy's remaining fleet of generating units consists primarily of a highly efficient mix of nuclear, supercritical coal and gas-fired units, along with wind and hydro. As such, the FirstEnergy fleet has one of the lowest carbon footprints in the region.

# **Carbon Reduction Emissions Plan**

This report serves to outline FirstEnergy's current strategy regarding promoting fuel diversification and carbon reduction, recognizing that renewable resources, energy efficiency, other advanced resources, including batteries, and existing or proposed legislation or regulation may play a role in such strategy and cause it to alter over time.

# Promoting Fuel Diversification and Carbon Reduction

FirstEnergy promotes fuel diversification by encouraging FERC and PJM to implement market enhancements that would appropriately value resource (e.g., baseload clean coal and nuclear generation) and fuel diversity. Along with baseload generation, the

integrated addition of gas combined cycle *with* firm transportation and/or secondary fuel onsite storage as well as renewable resources makes for a diverse and reliable portfolio.

To further promote carbon reduction from generation sources, we continually evaluate the economic potential of: coal-to-gas co-firing or conversion; coal/biomass blending or conversion; addition of low- (gas combined cycle) or zero-carbon (nuclear/renewables) generating resources; coal CO<sub>2</sub> capture and storage; efficiency (heat rate) improvements at fossil fuel plants; additional nuclear uprates and/or license extensions; and additional retirements of uneconomic coal generating plants.

Currently, the PJM regional generation fuel mix is in a state of transition, moving toward heavy reliance on gas. Traditional baseload clean coal and nuclear generation, which provides grid support critical to reliability and provides more fuel security than gas, is retiring at an unprecedented pace. While PJM has yet to study the impacts of reduced fuel diversity due to this transition, IHS estimates that the U.S. fuel mix provides customers an astounding \$93 billion in savings.<sup>1</sup>

Fuel diversity is paramount given that low gas prices could quickly change as a result of worldwide demand for natural gas, unanticipated environmental disturbances and/or infrastructure delays/limitations. Diversity enhances reliability and provides significant economic value to customers. Preserving a diverse portfolio of generation assets allows the option to substitute commodities as cycles change and will mitigate consumer price uncertainty as well as provide additional reliability enhancements.

Without a balanced consideration of all costs to customers, Ohio could lose the economic and climate benefits of its resources, and increase risk through dependence on other states, all at a higher customer cost.

# Renewable Resources and Other Advanced Resources

FirstEnergy continues to pursue new sources of clean, renewable energy and other opportunities to meet customers' needs in an environmentally sound manner. The diversity of FirstEnergy's renewable energy portfolio has grown significantly, putting us in a strong position to meet changing environmental requirements.

The FirstEnergy Ohio Companies' going forward strategy is to evaluate a variety of potential options and any potential associated carbon reduction.

# Renewable Strategy and Associated Carbon Reduction Impact by FirstEnergy Ohio Companies

<sup>&</sup>lt;sup>1</sup> IHS Energy, *The Value of U.S. Power Supply Diversity*, July 2014.

In accordance with Chapter 4928.64 of the Ohio Revised Code<sup>2</sup>, by 2027 and each year thereafter, the FirstEnergy Ohio Companies, as well as all Ohio electric distribution utilities, are required to provide from qualifying renewable energy resources, a portion of the electricity supply that it provides to its retail customers who are taking standard service offer supply ("SSO"). The renewable supply requirement began in 2009 and was designed to increase in a staged manner for renewable resource and renewable market development until reaching the final legislative requirement of twelve and one-half per cent of retail sales in 2027.

In accordance with the Companies' ANNUAL ALTERNATIVE ENERGY STATUS REPORT AND ALTERNATIVE ENERGY RESOURCE PLAN OF OHIO EDISON COMPANY, THE CLEVELAND ELECTRIC ILLUMINATING COMPANY AND THE TOLEDO EDISON COMPANY filed on April 15, 2016, in Case no. 16-0788-EL-ACP ("AEPS Report"), the Companies' current procurement plan for the period of 2016 through 2025 is to supply the renewable generation requirement through wholesale market purchases in accordance with our commission approved SSO procurement plans.

Given that the Companies do not own alternative energy resource facilities, the Companies' going forward strategy is to evaluate a variety of potential options. Such options include banking and purchasing renewable energy credits ("RECs") through longterm contracts, short-term spot purchases, and competitive requests for proposals. The Companies have purchased and plan to continue to purchase RECs and solar RECs ("SRECs") through competitive request for proposal solicitation structure for the duration of this ten year plan ("RFP REC Procurement Process"). The RFP REC Procurement Process is an efficient means of meeting the annual benchmarks and provides the Companies with market intelligence about potential suppliers and the availability of RECs and SRECs from completed and planned renewable projects. The Companies, as necessary and as part of a contingency plan, will also continue to purchase RECs and SRECs through brokers and bilateral agreements.

With respect to the Companies' carbon reduction impact associated with its renewables program, the Companies have played a significant role in mitigating  $CO_2$ . The following table provides actual compliance baselines and benchmarks for the 2009 through 2015 period, estimates compliance baselines and benchmarks for the 2016 through 2025 period as reported in the AEPS Report and applies the Ohio renewable obligations percentages as defined in OAC 4901: 1-40-03 (A) to estimate the amount of solar and renewable energy credits the Companies would be required to supply for the period. The actual and estimated renewable purchases are then multiplied by the estimated pounds of  $CO_2$  that are emitted from bituminous coal production to determine the amount of pounds of  $CO_2$  that could be mitigated, or 18.5 billion pounds for the 17-year study period. The  $CO_2$  mitigation estimate assumes all mitigated generation MWh are

<sup>&</sup>lt;sup>2</sup> http://codes.ohio.gov/orc/4928

being produced by bituminous coal production and all renewable energy credits purchased are from zero carbon emission resources, however actual generation of each may vary.

#### FEOU 10-Year Alternative Energy Resource Plan Obligation Projections (2016 - 2025), Annual Alternative Energy Status Compliance (2009 - 2015) & Estimated Carbon Reduction Impact

Year	Company's Calendar-Year SSO Retail Electric Sales	Renewable Energy Resource Target %	Solar Energy Resource Target %	Alternative Energy Baselines	Renewable Energy Resource Benchmark	Solar Energy Resource Benchmark - SRECs	Renewable Less Solar Benchmark - RECs	Pounds of CO2 per MWh of Bituminous Coal / MWh Mitigated <sup>3</sup>
(1)	(2)	(3)	(4)	(5)	(6)=(3)*(5)	(7)=(4)*(5)	(8) = (6)-(7)	(9) = (6)*2070
2009	41,309,781	0.25%	0.004%	47,126,378	117,815	1,886	115,929	243,877,050
2010	20,447,939	0.50%	0.01%	45,500,576	227,503	4,550	222,953	470,931,210
2011	12,806,617	1.00%	0.03%	36,320,796	363,207	10,896	352,311	751,838,490
2012	11,316,147	1.50%	0.06%	24,854,779	372,822	14,913	357,909	771,741,540
2013	10,264,513	2.00%	0.09%	14,856,902	297,138	13,372	283,766	615,075,660
2014	10,379,787	2.50%	0.12%	11,462,425	286,560	13,755	272,805	593,179,200
2015	10,778,747	2.50%	0.12%	10,653,483	266,337	12,784	253,553	551,317,590
2016	10,349,346	2.50%	0.12%	10,474,348	261,858	12,570	249,288	542,046,060
2017	10,411,834	3.50%	0.15%	10,502,627	367,592	15,754	351,838	760,915,440
2018	10,484,855	4.50%	0.18%	10,513,309	473,099	18,924	454,175	979,314,930
2019	10,550,693	5.50%	0.22%	10,415,345	572,843	22,914	549,929	1,185,785,010
2020	10,563,507	6.50%	0.26%	10,482,461	681,360	27,254	654,106	1,410,415,200
2021	10,634,549	7.50%	0.30%	10,533,018	789,976	31,599	758,377	1,635,250,320
2022	10,677,273	8.50%	0.34%	10,582,916	899,548	35,982	863,566	1,862,064,360
2023	10,732,560	8.50%	0.34%	10,625,110	903,134	36,125	867,009	1,869,487,380
2024	10,791,504	8.50%	0.34%	10,681,461	907,923	36,318	871,605	1,879,400,610
2025	10,853,935	10.50%	0.42%	10,708,972	1,124,441	44,977	1,079,464	2,327,592,870

#### Renewable Energy Resources Baselines and Benchmarks<sup>1 2</sup>

1 Baselines and benchmarks for 2009 through 2015 are actual compliance values.

Planning baselines and benchmarks (2016 - 2025) in the forecasted years are calculated using forecasted SSO Retail Electric Sales and the same percentage of customer sales taking SSO service as 12/2015 actual.

Bituminous coal CO2 estimated per MWh from EIA Frequently Asked Questions at

https://www.eia.gov/tools/faqs/faq.cfm?id=74&t=11. Estimate assumes 100% bituminous coal output for the applicable
MWh are being replaced by zero carbon emission resources such as wind or solar. Type of generation being replaced, carbon impact of actual generation and carbon impact of actual renewable energy resources used to create the eligible renewable energy credits used for Ohio compliance may differ from the estimate.

#### Additional Notes:

Column (2) = 2009 through 2010 From PUCO Form(s) SE-1: Monthly Historical Electricity Data, Part A.

- 2009 through 2010 From PUCO Form(s) SE-1: Monthly Historical Electricity Data, Part A.
- 2012 through 2015 were reported by cycle on the SE-1 Report Form. However, the Companies' calculated their baseline based on 2012 and 2014 calendar year sales.
- 2016 through 2024 From Column (2) Times percent of customer sales taking SSO service on 12/2015. Column (3) and (4) from OAC 4901:1-40-03 (A)
- Column (5) Average of the three preceding calendar years of Column (2)
- Column (6) and (7) from OAC 4901:1-40-03 (A) [Column (7) is not incremental to Column (6)]
- Column (8) = Net renewable benchmark

# Advanced Resources, Energy Storage and its Integration

FirstEnergy's current strategy regarding promoting advanced resources and battery energy storage to support renewable generation is to be the infrastructure owner and integrated grid operator to capture the full value of distributed energy resources (DER) for all our customers, founded on an infrastructure built with capacity and flexibility, with secure communications and automated control platforms. FirstEnergy is adopting and developing advanced tools for integration of renewables and storage in dynamic, real-time operations. This will include expanded system visualization, modeling and simulation incorporating data from new sensor technologies and recognizing the impacts and value of distributed energy resources.

For example, FirstEnergy is part of a three-year, collaborative research project funded by the U.S. DOE SunShot Initiative to develop solar energy storage and a more secure and resilient electrical grid. The funding was awarded under DOE's Sustainable and Holistic Integration of Energy Storage and Solar PV, or SHINES, program. Led by the Electric Power Research Institute ("EPRI"), the project team also includes Case Western Reserve University, industrial companies and other utilities. As part of this project, researchers will investigate how to transform the design and operation of the electric power system to seamlessly integrate photovoltaic resources, load management and energy storage systems.

FirstEnergy manages analysis and demonstrations to assess technologies and their applications and impacts regarding their technical and commercial readiness. This work, focused on distributed energy resources (DER), photovoltaics (PV), smart inverters, energy storage (both electrochemical and thermal), sensors and electric vehicle charging, is through collaborative research with EPRI. This pilot project that integrates these technologies with distribution operations will help develop the understanding of utility applications and business cases.

# **Energy Efficiency & Grid Modernization**

Our utility companies help customers better manage their energy use through multiple energy efficiency programs. We have also filed a grid modernization business plan that targets future initiatives.

# **Energy Efficiency**

Ohio Edison, The Illuminating Company and Toledo Edison have offered a portfolio of programs for residential, commercial and industrial customers. Our programs for residential customers included discounted compact fluorescent light and LED bulbs; rebates on the purchase of new, efficient appliances and products; rebates on the cost of home energy audits and heating, ventilation and air conditioning (HVAC) replacements;

incentives to recycle older, less-efficient refrigerators, freezers and room air conditioners; home energy usage reports and energy efficiency kits; and targeted programs for low-income customers.

Our programs for commercial and industrial customers provided incentives to install efficient lighting, HVAC, motors, drives and other energy-efficient equipment and processes.

The results of these programs produce over 3,900,000 MWh<sup>3</sup> of energy efficiency savings every year in Ohio homes and businesses, the equivalent of over 4 million tons of CO<sub>2</sub> mitigated.<sup>4</sup>

Ohio's current mandated goals are to reduce electricity usage by 22.2 percent by 2027 and peak demand by 7.75 percent by 2020. The FirstEnergy Ohio Companies intend to continue offering energy efficiency programs that meet or exceed these state goals. As part of the Companies' recent ESP IV proposal to escalate resource diversification, the Companies proposed significant increases over historic energy efficiency offerings. The Companies filed 3-year energy efficiency and peak-demand-reduction plans with the PUCO, seeking approval to launch enhanced program offerings in January 2017.<sup>5</sup>

As part of energy efficiency program design and development, FirstEnergy Operating Companies explore and evaluate emerging technologies for potential applicability in future efficiency and demand reduction programs. Through partnerships with EPRI, the Companies have contributed to research advancing knowledge in areas of Efficient Appliances, HVAC technologies, LED lighting, Smart Thermostats and Data Center technologies.

# **Grid Modernization**

Pursuant to the Third Supplemental Stipulation in the ESP IV, the Companies filed with the Commission a grid modernization business plan. In that plan, the Companies put forth three scenarios that included various degrees of deployment of automated meters, distribution automation and integrated volt var controls with an advanced distribution management system. Each of the three scenarios was estimated to produce net benefits, including the impact of expected reductions in demand and energy use (and the associated carbon reduction) that could result from the installation of these technologies. The Companies await direction from the Commission.

<sup>&</sup>lt;sup>3</sup> For full details of the Companies' historic Energy Efficiency programs and offerings, please see *In the Matter of the Application for the Energy Efficiency and Peak Demand Reduction Portfolio Status Report on behalf of The Toledo Edison Company and The Cleveland Electric Illuminating Company and Ohio Edison Company*, in PUCO Case Nos. 16-0941-EL-EEC *et. seq*.

<sup>&</sup>lt;sup>4</sup> https://www.eia.gov/tools/faqs/faq.cfm?id=74&t=11

<sup>&</sup>lt;sup>5</sup> For full details of the Companies' Plans, see PUCO Case No. 16-0743-EL-POR

## Existing or Proposed Legislation or Regulation

There are a number of initiatives to reduce GHG emissions at the state, federal and international level. Additional policies reducing GHG emissions, such as demand reduction programs, renewable portfolio standards and renewable subsidies, have been implemented across the nation. However, this report focuses on the existing or proposed legislative or regulatory pathways that may play a role in our future diverse portfolio strategy.

# EPA's Clean Power Plan Clean Power Plan (CPP)

EPA's Clean Power Plan establishes guidelines for states to reduce greenhouse gas emissions from existing fossil-fuel electric generation units (EGUs) under section 111(d) of the Clean Air Act. The EPA states the Clean Power Plan will reduce greenhouse gas emissions from by 32 percent below 2005 levels by 2030. Under the plan, EPA set carbon emissions goals for each state from a 2012 generation baseline. These targets vary from state to state, for example, Ohio must reduce emissions from existing units by 50 percent below 2005 levels by 2030. By 2018, states must submit plans to the EPA on how they will cut carbon emissions to meet their interim targets by 2022 with full implementation of a compliance plan by 2030. States are required to submit plans that demonstrate how the state goals will be achieved. States have several key decisions to make: whether to pursue a rate-based or mass-based approach to compliance; whether to include new units; and whether to authorize affected units to engage in intrastate and interstate trading. States will also have to make a decision to support strategies to meet compliance goals, such as developing renewable energy sources, switching to natural gas from coal-fired power plants, building or preserving nuclear plants or increasing production from existing nuclear facilities, and implementing energy efficiency programs.

It is important to understand that actions associated with CPP compliance are not necessarily compatible with longer term carbon reduction requirements. Because the CPP does not necessarily value the zero-emitting characteristic of the nuclear fleet, the result could be higher compliance costs due to the loss of the nuclear fleet and capping existing fossil units, which could force greater reliance on new (more expensive) generation with higher emissions. Those fossil gas units (post 2012) do not have a compliance obligation under CPP, unless the state decides to include them. So reducing output from nuclear and replacing with natural gas combined cycle units could theoretically meet compliance targets within the CPP, yet raise state emissions.

In February 2016, the U.S. Supreme Court majority granted a petition from 27 states and other stakeholders to stay the Clean Power Plan until after the legal challenges are resolved. Argument in the D.C. circuit court was heard last month. Depending on how quickly the D.C. Circuit issues its decision and resolves any petitions for rehearing, the Supreme Court could hear argument in the case late in the 2016 Term to 2017 Term. The outcome of the court will affect the rulemaking process, extending – for a time – uncertainty in the utility and power generation sectors about the rule's validity and timing; therefore it is premature to speculate on the outcome of how this regulation will impact our fleet.

# Status of Nuclear Power & Strategies for Preservation of Zero-Carbon Nuclear Resources in Ohio

Also, included within the Stipulated ESP IV was a commitment that the Companies would provide a status of nuclear power and strategies for the preservation of the nuclear zero carbon resources in the state.

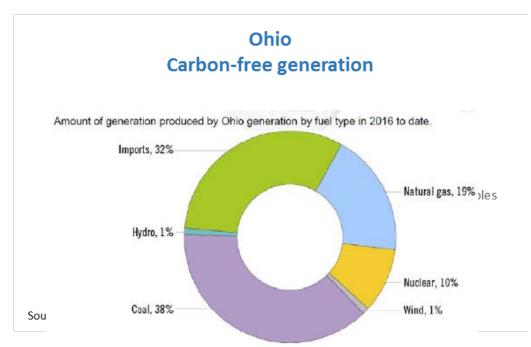
# FirstEnergy Ohio Nuclear Plant Summary

FirstEnergy Nuclear Operating Company (FENOC), a subsidiary of FirstEnergy Corp., operates Ohio's only nuclear power facilities: the Davis-Besse Nuclear Power Station in Oak Harbor, Ohio; and the Perry Nuclear Power Plant in Perry, Ohio. Together, these facilities produce nearly 2,200 megawatts of electricity. Davis-Besse produces 40 percent of the electricity used by residences, businesses and industries in northwestern Ohio, and the Perry Plant produces enough electricity to power more than 1 million homes daily. In December 2015, the Nuclear Regulatory Commission approved a 20-year license extension for Davis-Besse, and the plant is licensed to operate through 2037. The Perry plant received its license in 1986 and is licensed to currently operate until 2026.

Ohio nuclear power plants provide significant economic benefits to our communities while serving customers with a safe, reliable and environmentally friendly product. Preserving nuclear power will likely be vital for Ohio to successfully meet future carbon emission goals and requirements. Unfortunately, a sustained period of low and uncertain wholesale market prices are resulting in premature retirements of baseload nuclear power plants that have served as the backbone of our energy infrastructure. To avoid this fate in Ohio, FirstEnergy suggests that policy makers and the Commission take a holistic approach with respect to the cost of reliability for customers and consider approaches that properly value fuel diversity and reliable baseload generation, preserve environmental benefits and promote economic development. These attributes are not valued in market pricing today.

# **Ohio Nuclear Power Background**

Nuclear power is a vital part of the Ohio Economy. According to a recent Brattle report, Ohio's nuclear power plants contribute \$521M to state GDP, provide 3,600 full-time jobs and contribute \$112M in federal and \$17M in state taxes each year. In addition to being vital to local communities, nuclear power represents greater than 90% of Ohio's carbon free megawatt-hours, avoiding 11 million tons of carbon each year. Based on the federal government's valuation of carbon, Brattle estimates that Ohio's nuclear plants preserve \$639M in benefits each year.<sup>6</sup>

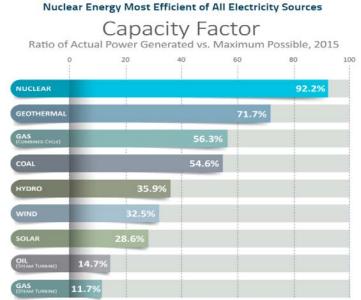


A breakdown of Ohio's generation production shows that nuclear equates to 10% of Ohio's generation fuel mix. <sup>7</sup> Ohio, a net importer of electricity, would further increase its dependency on out-of-state resources with the premature retirement of Ohio's nuclear plants.

From a fuel diversity standpoint, nuclear power provides many attributes that support grid resiliency, including the ability to operate 24 months with onsite fuel, 24/7 round-the-clock production capability and annual capacity factors exceeding 90%. The fact that different resources have unique operational characteristics demonstrates that not every MW produced is equal, and that resources contribute to reliability in different ways.

<sup>&</sup>lt;sup>6</sup> The Brattle Group, Ohio Nuclear Power Plants' Contribution to the State Economy, July 7, 2015, available at http://www.nuclearmatters.com/resources/reports-studies/document/Nuclear-Matters-Report\_Ohio-Value-of-Nuclear.pdf.

<sup>&</sup>lt;sup>7</sup> PJM Interconnection, L.L.C., *Ohio State Report,* June 17, 2016.



#### Source: Nuclear Energy Institute

Nuclear also provides tremendous price stability as fuel only represents 31 percent of production costs. Fuel costs for coal and natural gas resources, however, are closer to 80 or 90 percent of production costs. This makes electricity from fossil-fuel plants highly susceptible to fluctuations in coal and gas prices.<sup>8</sup> Of the most highly traded commodities on the NYMEX (*i.e.* including S&P 500, corn, coffee and gold), natural gas prices had the highest volatility on average from 2000 to 2015.<sup>9</sup> Nuclear power represents a critical component to a well-balanced generation portfolio and offers multiple valuable attributes currently not reflected in market prices.

#### **Nuclear Impacts to National Emission**

According to the Nuclear Energy Institute (NEI), in 2014, nuclear energy represented 19.5% of electricity production, prevented 595 million tons of  $CO_2$  across the U.S., and represented 62.9% of the nation's emissions free electricity.<sup>10</sup> Carbon emissions from the U.S. electric sector would be approximately 25 percent higher without nuclear power.<sup>11</sup> The discrepancy between the carbon benefits provided by nuclear resources

<sup>&</sup>lt;sup>8</sup> http://www.nei.org/Why-Nuclear-Energy/Reliable-Affordable-Energy/Electricity-Supply

<sup>&</sup>lt;sup>9</sup> Case No. 14-1297-EL-SSO *Rebuttal Testimony of Judah L. Rose* 30 (2015).

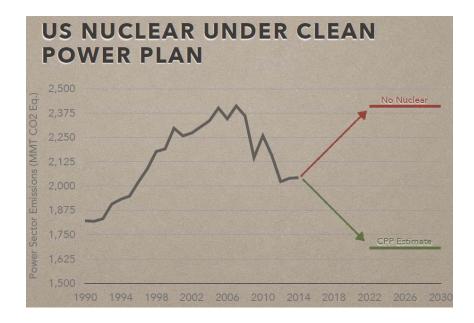
<sup>&</sup>lt;sup>10</sup> http://www.nei.org/Master-Document-Folder/Backgrounders/Fact-Sheets/Nuclear-Energy-America-s-Low-Carbon-Electricity-Le

<sup>&</sup>lt;sup>11</sup> Id.

when compared to other zero emission resources is substantial. For example, in 2013, the 99 gigawatts of nuclear generating capacity in the U.S. prevented 589 million metric tons of  $CO_2$ , over six times more than wind according to the American Wind Energy Association's estimates.<sup>12</sup>

Additionally, nuclear plants provide value in preventing criteria pollutant emissions. NAAQs attainment continues to increase in stringency. For example, the average annual  $SO_2$  and  $NO_x$  emissions would be 18,000 tons and 12,000 tons higher (respectively) without Ohio nuclear plants.

A recent presentation from the Breakthrough Institute highlighted the dramatic impacts to carbon emissions within the US if our nation's remaining nuclear fleet was eliminated.<sup>13</sup> As illustrated below, the nation would lose all progress thus far on decarbonization, making achievement of future emission reduction objectives potentially unattainable without nuclear.



<sup>&</sup>lt;sup>12</sup> http://www.awea.org/MediaCenter/pressrelease.aspx?ItemNumber=6320

<sup>&</sup>lt;sup>13</sup> Raab Associates Energy Policy Roundtable in the PJM Footprint *Future of Nuclear Power in the PJM Footprint* (Lovering, September 28, 2016), *available at http://pjm.raabassociates.org/main/roundtable.asp?sel=144* 

# State Recognition of Nuclear

State awareness of the problem above has prompted discussions and actions across the nation. For example, New York has established a zero-emission credit program that will incrementally compensate nuclear power based attributes including the preservation of the state's carbon intensity. This program was approved by the New York Public Service Commission on August 1, 2016, and received significant support from the Governor and regional grid operator, the New York Independent System Operator. In addition, the New England Power Pool, known as NEPOOL, another northeastern stakeholder group within ISO New England, is in the middle of a stakeholder process evaluating multiple options for addressing these challenges. The state of Connecticut has been also engaged in a process to support its sole nuclear facility through new legislation. On April 29, 2016, the Connecticut Senate passed Senate Bill 344, a bill to provide incentives for nuclear power plants, etc. Finally, the state of Illinois has pending legislation that would recognize the value of nuclear to the state.

# **Nuclear Summary**

In summary, Ohio nuclear provides significant economic benefits to our communities while serving customers with a safe, reliable and environmentally friendly product. But, that benefit is at risk. PJM's wholesale market models do not incorporate public policy considerations important to the state of Ohio and its citizens, and therefore, fail to recognize the value of nuclear resources on numerous issues, including fuel diversity, required transmission investment to replace prematurely retiring resources, local economic impacts (jobs, wages, state and local taxes), long-term price stability, and environmental impacts.

FirstEnergy suggests that policy makers and the Commission take a holistic approach with respect to the cost of reliability for customers and consider approaches that properly value resources for the fuel diversity, environmental contributions, and economic development they provide.

Going forward, FirstEnergy plans to continue working with the Commission and state lawmakers to explore options that support these vital resources.

#### Conclusion

FirstEnergy is committed to protecting the environment while delivering safe, reliable, clean and affordable electricity to our customers. In keeping with our balanced, long-term approach, we're continually looking for ways to minimize the impact of our operations on the environment. We are achieving this by effectively managing the

environmental impact of our activities, using natural resources wisely, improving our performance, enhancing our stewardship, and supporting research on innovative technologies.

We support the core principles of reliability and affordability. Therefore, it will be crucial to maintain diversity within our generation fleet going forward. From a reliability perspective, it is essential that baseload generation remain a feasible and cost-effective source of generation to meet existing and future energy needs. Yet, we are committed to helping our customers better manage their energy use through a variety of programs.

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in

Case No(s). 14-1297-EL-SSO

Summary: Report Regarding Resource Diversification pursuant to Section V.E of the Third Supplemental Stipulation electronically filed by MR. DAVID A KUTIK on behalf of Ohio Edison Company and The Cleveland Electric Illuminating Company and The Toledo Edison Company