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Purchase Agreement (ñPPAò)[1] whereby they will purchase generating unit contingent power for 15 years from their Federal Energy Regulatory Commission (ñFERCò) regulated affiliate company FirstEnergy Solutions Corp. (ñFESò). In particular, the Companies propose to purchase all power products which are currently sold at wholesale in FERC-regulated markets from FESô Davis-Besse (nuclear fueled) and Sammis (coal fueled) generating units.[2] These purchases would be made at the plantsô fully embedded costs, providing a fixed return of and on capital, as if the plants were still regulated by the Public Utilities Commission of Ohio (ñPUCOò or ñCommissionò). The Companies would then re-sell the acquired power products into the FERC-regulated wholesale markets. Any losses that the Companies might experience in these transactions would be covered by a non-bypassable charge ð a so-called Retail Rate Stability Rider (ñRider RRSò) ï paid by their captive local ratepayers, and any gain that might be realized would be flowed through to those ratepayers. In the simplest economic terms, the proposed ESP asks the Companiesô local ratepayers to go into the merchant power business by shifting the next 15 yearsô costs and risks of ownership of the noted power plants to the Companiesô retail ratepayers in exchange for the right to sell the plantsô output into the wholesale electricity markets operated by PJM.

The generating plants that the Companies propose to purchase power from over the 15-year term of the PPA are heavily in debt.[3] [redacted]

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[1] The Companies have not provided the PPA. However, the Companies produced a term sheet for the PPA through discovery. See IEU-Set-1-INT-25, included in Appendix B.

[2] The proposal also includes the purchase by the Companies of a small portion (115.9 megawatts) of Ohio Valley Electric Corporation (ñOVECò) capacity. My understanding is that FES does not control the OVEC facilities and that OVEC plant operating decisions are not made by either the Companies or FES.

[3] See Harden Direct Testimony, at 10.

[redacted] In spite of these investments ð the most recent of which is the completion in 2014 of a $600 million steam generator replacement at Davis-Besse ð FES now indicates that the plants may be retired without the regulated ratepayer backing provided by a PPA which prices the plantsô outputs at their fully embedded costs (including the costs of debt).

To the extent that the subject plants cannot cover their full embedded costs, local Ohio ratepayers are being asked to assume the debt and subsidize the costs of the FES plants. In making their proposal, however, the Companies have projected that, over the longer term, the PPA will provide a significant financial benefit to ratepayers. Yet, the proposal as proffered then involves an economic *non sequitur*: If the plants face retirement, it is because they do not yield a positive expected net present value for an efficient owner going forward ï and would not do so for ratepayers. That is, the plants are ñlosers.ò On the other hand, if the plants can and will produce a positive net present value on the open market (claimed by the Companies to total fully $770 million[5]) for ratepayers even when those ratepayers pay the full embedded cost (plus return) of the plants, they would also do so for an efficient, non-subsidized owner and would therefore not rationally be retired. Indeed, under the latter conditions, FES is inexplicably giving the rights to the plantsô outputs away to ratepayers at below their fair market value.

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[4] [redacted]

[5] See Direct Testimony of Steven E. Strah (at 16:12-13, errata filed November 14, 2014) and Direct Testimony of Jay A. Ruberto (at 6:5-6, errata filed November 14, 2014, and Attachment JAR-1 Revised) on behalf of Ohio Edison Company, The Cleveland Electric Illuminating Company, and The Toledo Edison Company, Case No. 14-1297-EL-SSO, August 4, 2014, hereinafter ñStrah Direct Testimonyò and ñRuberto Direct Testimony.ò

transaction shifts the risk of this ñbetò from FESô private investors to the Companiesô captive ratepayers. That is, without the proposed PPA, the investors who own FESô Davis-Besse (nuclear fueled) and Sammis (coal fueled) generating units would either find that market-generated revenues would be sufficient to cover the fully embedded costs (including a return) of the plants, or they ï the lenders and equity investors ï would be on the hook for any shortfall.

**Q7. PLEASE SUMMARIZE YOUR FINDINGS.**

**A7.** Based on the economics and the evidence, I find that the proposed ESP and associated Rider RRS are anticompetitive, portend harm to Ohio ratepayers, and would distort the sound functioning of the PJM wholesale electric power markets. Although the proposed ESP claims to provide resource diversity, reduced consumer power price volatility, and eventually customer savings (assuming the Companiesô 15-year forecasts are correct), resource diversity and insulation from price volatility are available to the Companies and their ratepayers through the open market, and there is no basis for assuming or contending that self-dealing between the Companies and their affiliated wholesale generation company will enable them to ñbeat the marketò when it comes to pricing. I find that the central economic character of the proposed ESP is most properly seen as the use of captive ratepayers to subsidize and bail out two of FESô largest unregulated power generation facilities [redacted].

As I explain below, the federally regulated wholesale power markets relied upon by the state of Ohio are signaling to the marketplace exactly what we expect. That is,

the competitive market are straightforward. The *de facto* guaranteed returns of and on costs would create incentives for sustaining inefficient operations (i.e., operations that would not be economic if put to the test of PJMôs market-determined prices). Because FES would essentially be allowed to pass through all costs associated with the plants and receive a guaranteed return on investment, the proposed ESP effectively would have ratepayers bear risks otherwise borne by FESô owners. Such subsidization of risk would have readily predictable consequences: FESô owners would rationally seek to make capital investments in the plants to support continued operations, even when such investments are uneconomic relative to alternatives in the open marketplace.[9] The costs of uneconomic and distorted investment choices will surely fall upon the Companiesô ratepayers. At the same time, to the extent that uneconomic operations and investments bring electricity supplies to the market, they cannot help but put downward pressure on power prices and displace power from new and existing efficient sources.

I also find the Companiesô proposal to be internally contradictory. On the one hand, the Companiesô testimony supporting its proposal suggests that the plants in question face imminent retirement, with adverse consequences for resource diversity and reliability, if ratepayers do not step in and backstop the recovery of their costs.[10] On the other hand, the Companiesô assert that the ESP will benefit ratepayers [redacted]

[9] The Companies must seek PUCO approval for costs incurred under the proposed PPA; however, the incentives to overinvest created by rate of return regulation are well documented by economists (see below).

[10] See Moul Direct Testimony at 2:17: ñThe economic viability of the Plants is in doubt.ò See also Moul Direct Testimony at 5-12.

[redacted]

[redacted] the implication is not the imminent abandonment of the plants. If the plants can cover their going-forward operating costs when run efficiently, market forces will direct their continued operation ï either by the current owners or with the current owners taking a loss and putting the plants at written-down value in the hands of owners who can run them efficiently. While the latter alternative would be to the chagrin of the current equity investors and, perhaps, lenders, such outcomes are to the benefit of consumers and the economy: Consumers still get the benefit of the power that the plants can produce and the incentive effects of placing losses and gains on those who put capital at risk are maintained.

Finally, claims that the proposed ESP maintains resource diversity and mitigates retail price volatility are significantly overstated and unsupported by objective analysis. In particular, Ohio already relies on coal-fired generation for 70% of its power supply.[12] Incremental moves toward greater reliance on natural gas resources will not rapidly

[11] See Ruberto Direct Testimony at 6-9.

[12] See http://www.puco.ohio.gov/puco/index.cfm/consumer-information/consumer-topics/where-does-ohioe28099s-electricity-come-from/#sthash.IjoPholv.dpbs, accessed December 20, 2014.

are associated with FESô already invested capital, which it seeks to recover (ñof and onò) from the Companiesô captive ratepayers.[49]

**Q21. HOW DO THE COMPANIES DETERMINE THE IMPACT OF THE PPA ON RATEPAYERS?**

**A21.** Under the proposed Rider RRS, the Companies will determine the difference between margins earned by the plants when making sales of energy, capacity, and ancillary services to PJM and the plantôs capacity charge (or sunk costs, see above). Whenever the margin is greater than the capacity charge, all ratepayer costs will decrease. Conversely, whenever the margin is less than the capacity charge, all ratepayersô costs will increase. As proposed by the Companies, these calculations will be ongoing and trued up from time-to-time under Rider RRS.[50]

**Q22. HOW DO THE COMPANIES PROPOSE TO OPERATE THE TWO PLANTS THEY WILL CONTROL UNDER THE ESP?**

**A22.** The Companies have indicated that Mr. Ruberto will oversee the offer pricing of the generating unitsô energy, capacity, and ancillary services when making sales into PJMôs wholesale markets.[51] Although the Companies have not offered any explanation as to how they will develop market offers, [redacted]. That is, in order for ratepayers to obtain value from the plants, the plants must operate and produce

[49] These costs also include a tax payment which appears to be a transfer from the Companies to FES to shield FES from taxes incurred in association with the Companiesô capacity payment.

[50] See Savage Direct Testimony at 3:7-22.

[51] See Appendix B, OCC Set 1-INT-20.

## IV. THE COMPANIESô JUSTIFICATIONS FOR THE PROPOSED ESP ARE FLAWED

**Q31. HOW DO THE COMPANIES RATIONALIZE THE *DE FACTO* RETURN TO COST-OF-SERVICE SHIFTING OF GENERATOR RISKS TO CAPTIVE RATEPAYERS?**

**A31.** The Companiesô supporting testimony for its ESP proposal makes several claims in association with its proposal, but central to the Companiesô case is the threat that the plants may retire absent the PPA. Mr. Moul indicates that: ñThe economic viability of the Plants is in doubt.ò[60] He goes on to suggest that market-based revenues ñare insufficient to permit FES to continue operating the Plants and to make the necessary investments.ò[61] Thus, if the plants are subsidized by the Companiesô retail ratepayers, the Companies assert that this will eliminate the threat of retirement of base load generation plants and support certainty and stability for longer term pricing of retail electric service.[62] The Companies opine that this will save retail ratepayers money over the long run and ensure that plants that apparently face retirement will continue to operate promoting economic development and job retention.[63]

The Companiesô claims that the PPA provides significant benefits to ratepayers are not based on sound analysis. As I have pointed out, [redacted]

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60 See Moul Direct Testimony at 2.

61 *Id.*

62 See Strah Direct Testimony at 3.

63 *Id.*

[redacted]

Furthermore, claims of preserved resource diversity overstate the impact of what will simply be a gradual shift toward an increased reliance on gas-fired generation resources. Ohio currently relies heavily on coal-fired generation resources, but the marketplace is successfully dictating that this shift be gradual. Finally, claims that power price volatility will be exacerbated with increased reliance on natural gas are also overstated. Retail power price volatility is driven by forward market power prices, not day-to-day or hour-to-hour spot prices. Forward market price volatility is much lower than hourly and daily price volatility and, while underlying shifts in generation resources will impact prices, it does not mean prices will fluctuate wildly.

### A. Resource Diversification Is a Red Herring

**Q32. WHAT HAS THE COMPANY CLAIMED IN RELATION TO ITS PROPOSALôS IMPACT ON RESOURCE DIVERSITY?**

**A32.** Mr. Moul observes in his Direct Testimony that the retirement of additional coal and nuclear plants will change the generation mixture in Ohio.[64] Mr. Moul goes on to suggest that an increase in natural gas-fired resources in Ohio would expose customers to increased price volatility and an alleged higher risk associated with natural gas resources

[64] See Moul Direct Testimony at 9. Note that Mr. Moul indicates that his testimony is focused on Ohio, although I am unaware of any prior nuclear plant retirements in Ohio.

that he assumes are reliant on interruptible fuel supply.[65] However, Mr. Moul offers no analysis to support his contention that an increase in natural gas-fired generation units in Ohio would materially impact consumer power prices and electric system reliability.

**Q33. WHAT IS OHIOôS CURRENT GENERATION RESOURCE RELIANCE?**

**A33.** According to the PUCO, 70% of Ohioôs electricity is generated using coal-fired facilities, while 15.5% and about 13% are obtained from natural gas and nuclear resources, respectively (the remaining balance is from a small number of petroleum and renewable resources).[66] Thus, Ohio relies on coal and nuclear-fueled resources for a large portion of its electricity supply.

**Q34. WOULD THE REJECTION OF THE COMPANIESô PROPOSAL BE EXPECTED TO RESULT IN A SIGNIFICANT SHIFT IN RESOURCE DIVERSITY AS DEFINED BY THE COMPANIES?**

**A34.** No. [redacted] Thus, increased use of natural gas for power generation can be expected to be driven in the near term by continued new development activity in Ohio. Second, even if there was additional plant retirement in Ohio that was replaced by gas-fired generation, it would take a significant shift toward natural gas resources to materially change the proportion of coal-fired resources.[67] Third, the state is embedded in the overall PJM RTO. This means that Ohioôs resources are actually drawn from *PJMôs* portfolio. Ohioôs indigenous

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[65] *Id.* at 7-9.

[66] See http://www.puco.ohio.gov/puco/index.cfm/consumer-information/consumer-topics/where-does-ohioe28099s-electricity-come-from/#sthash.dnN4mb6E.dpbs, accessed December 9, 2014.

[67] However, if a large, high utilization base load generation resource was to suspend or shut down operations and not be replaced by other similar generation a shift in resource mixture could occur more quickly.

**Q39. CAN CAPACITY MARKET PRICES AFFECT THE VOLATILITY OF WHOLESALE ELECTRICITY PRICES?**

**A39.** Capacity market prices are set annually for a one-year period three years in the future. Basic principles of statistics imply that an independent variable (capacity prices) that is constant over a given time period cannot affect the variation of a dependent variable (daily wholesale energy prices) within that time period. PJM routinely holds one base auction per year and three very small incremental auctions per year. So even if PJMôs three incremental capacity auctions are taken into account, capacity market auction results can affect wholesale spot prices at most four times per year.

[redacted]

**Q40. WHAT IS THE BASIS FOR THE COMPANIES L' CLAIM THAT THE PLANTS ARE POSSIBLY FACING RETIREMENT?**

**A40.** The Companies indicate that the plants are not receiving sufficient market revenues to cover the ongoing costs of keeping the plants operational. The Companiesô witnessesô testimony presents a confusing set of facts as a result of the tension between suggesting that the plants are on the brink of retirement while also projecting that the plants will be very profitable to operate if and when ratepayers become the *de facto* owners. [redacted] In fact, the Companiesô witness Mr. Harden testifies that the plants have recently received almost $2 billion worth of capital investment in 2010 (excluding the recent reported investment of $600 million in Davis-

Besseôs new steam generators),[79] indicating that FES has expected these plants to continue to operate for many years into the future. That is, these plants have recently received enormous capital investments presumably based on FESô expectation that higher future power prices will compensate FES for its capital investments.

**Q41. IS THERE AN EXPLANATION THAT HELPS CLARIFY THIS CONFUSION?**

**A41.** Yes. First, it appears that the Companies have included some *sunk* costs associated with FESô prior capital investments when making the claim that generating plants are not receiving sufficient revenues from the wholesale power markets. As discussed above, the economically rational and fiduciarily responsible decision to operate or shut down ignores sunk costs and, instead, turns on whether going-forward avoidable costs can be covered by expected going-forward operating revenues. Second, over the term of the proposed PPA, [redacted]

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79 Harden Direct Testimony at 10.

80 [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted] Publicly available data do not permit definitive investigation of this issue, but FESô pursuit of the proposed PPA and ESP would clearly be in its interest if, for example, it is not otherwise able to meet its debt obligations or, at least, its equity investorsô anticipated return of and on capital. This type of financial situation arises for companies from time to time and, if debt obligations cannot be met, can push a company into selling assets or going into some form of bankruptcy in order to restructure debt obligations and restore the prospect for profitable operations. Although companies prefer to avoid bankruptcy, it provides an orderly process for writing down the value of under-performing assets. To be sure, lenders and equity providers may suffer financially, but consumers are protected from shouldering the

**A44.** If a particular generating unit, or entire plant under an appropriately structured analysis, was to cease producing positive net cash flow, the asset should be retired. This outcome, which is precisely what we expect to occur in a competitive marketplace, leads to an efficient allocation of resources, and minimizes costs for consumers. In the competitive wholesale marketplace, plants fail to generate positive operating cash flows when their costs exceed the costs of other units which can satisfy consumersô demands. Keeping the inefficient alive at the expense of the efficient is a waste of resources for the economy and, ultimately, harmful to consumers.

As newer, more efficient generation assets are brought on-line in Ohio and throughout PJM, we should expect that older, less efficient plants will be put under competitive pressure. To the extent these newer assets displace less efficient, higher-cost producers, it should not be a surprise that some older assets will retire. As has been observed in PJM, older and less efficient plants will retire over time, but new, more efficient plants are being built to replace these plants (see discussion above). This market-driven process weeds out the most expensive producers and ensures that the most cost-effective producers are the ones available to satisfy consumersô demands.

[redacted]

**Q45. HOW DOES THE COMPANY SUPPORT ITS CLAIM THAT THE PROPOSED PPA WILL BE BENEFICIAL TO ITS RATEPAYERS?**

**A45.** The Companies developed an analysis that compares the projected revenues the Companies expect the plants will receive when selling power into PJMôs wholesale markets against the projected costs under the PPA. The overall results of this analysis ð

presented as Attachment JAR-1 (Revised) to Mr. Rubertoôs Direct Testimony ð show projected revenues below projected costs in the first three years of the PPA. In the fourth year of the PPA, projected revenues rise significantly above projected costs, and thereafter revenues are forecasted to remain considerably above costs throughout the term of the PPA.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

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[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

## V. CONCLUSION

**Q51. WHAT DO YOU CONCLUDE FROM YOUR ANALYSIS?**

**A51.** In light of the substantial capital investments that FES has made in recent years in its Davis-Besse and Sammis facilities and the inherent uncertainty of its ability to recover the costs of those investments by directly participating in PJMôs competitive wholesale markets, it can readily be in FESô interest to avoid the risk of under-recovery by shifting the Companiesô risk onto captive ratepayers. But by the same token, if there is a net benefit to FES from this transfer of risk, there is a net cost for the captive ratepayers. From their perspective, the proposed ESP amounts to a bailout of FES for risks taken and

The proponentsô arguments for the proposed ESP are deeply flawed. [redacted]

[redacted]

Finally, the claims that the risks of the plants and responsibility for recovery of their embedded costs plus a return thereon should be shifted to the Companiesô captive ratepayers in order to preserve generation ñresource diversityò or to insulate ratepayers form ñprice volatilityò do not hold up to scrutiny. The majority of Ohioôs electricity generation is coal-fired. A market-driven shift by Ohio to more efficient technologies (such as gas-fired generation) benefits consumers who pay lower prices as a result. In the end, Ohio is embedded in the PJM RTO, and PJMôs markets and policies promoting

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