



MEMORANDUM

Date: August 19, 2019
To: The Ohio Manufacturers' Association
From: Jordan Nader & John Seryak, PE (RunnerStone, LLC)
RE: FirstEnergy Solutions Corp. Recommended Changes to Wholesale Electricity Markets to Address Power Plant Subsidies

On October 2, 2018, FirstEnergy Solutions (FES) filed initial comments in a Federal Energy Regulatory Commission (FERC) proceeding¹ seeking to determine how best to address out-of-market revenues allocated to generators by states. FES's comments are of particular interest to Ohio's manufacturers, as the Amended Substitute House Bill (Sub. H.B.) 6 was recently signed into Ohio law would create just this – out-of-market revenues for FES' nuclear plants and other power plants. H.B. 6, if enacted, would trigger FERC's forthcoming capacity market rules on subsidized generation for Ohio.

Generally, the question at FERC is how, if at all, PJM's market rules should accommodate state policy decisions relating to generation. If resources that receive out-of-market subsidies from state policy decisions are allowed to participate in the PJM's market without proper safeguards, it will result in the exercise of market power and inefficient market outcomes for Ohio's manufacturers. FERC² has suggested that they would like to solve this issue by modifying the current capacity construct to become a "bifurcated capacity construct (P 161)" wherein subsidized resources will enter into a new "resource specific – fixed resource requirement (P 160)" (RS-FRR) and unsubsidized resources will compete in the traditional capacity auction but be subject to a more stringent minimum offer price rule (MOPR)³.

FES indicated in their initial comments that they support an expanded MOPR (MOPR-Ex) as well as

Impact of FES Recommendations to FERC Capacity Auction Order, as Triggered by H.B. 6

- FERC's recommendation addresses "unplanned reregulation", one subsidy and mandate at a time."
- Creates increased capacity charges
 - \$80 million/year for nuclear plants, using FES example prices
 - Other power plant subsidy recipients of could create additional increased capacity costs
- Would apply to all Ohio investor-owned utility ratepayers
- Would be additional costs to the \$150 million/year Nuclear Generation Fund
- Would not be capped – could cost very large manufacturers approximately \$320,000 /year additional
- FES claims: nuclear credits are "not intended to provide resources with sufficient revenue...to make continued operation economically viable"
- Would allow generators to opt-out of the wholesale capacity market and self-supply customers in a construct similar to a vertically-integrated monopoly utility.

¹ FERC Docket EL18-178

² FERC Order: <https://elibrary-backup.ferc.gov/idmws/common/OpenNat.asp?fileID=14961693>

³ FES Initial Comments: <https://elibrary-backup.ferc.gov/idmws/common/OpenNat.asp?fileID=15057409>



the RS-FRR (Pg 6). The RS-FRR path laid out by FES has potential pitfalls. An RS-FRR is similar to the current fixed resource requirement (FRR) alternative, however it is different in that the FRR allows utilities to opt out of the Reliability Pricing Model (RPM) and self-supply using contracted or owned generation within their territory. RS-FRR, in contrast, would allow specific resource types (ie, generators) to opt out of the RPM on the basis of states seeking to control the in-state generation mix. That is, the market opt-out decision would shift from customers to generators. FES recommends solutions to both the appropriate rate of compensation and how to pair load with this RS-FRR supply in their initial comments.

On the question of appropriate rate of compensation, FES recommends the amount of RS-FRR payment should be determined by the states and whatever factors are appropriate. This is in part due to the fact that the rate would be paid solely by the state’s retail ratepayers. However, if the state did not determine a rate, the RS-FRR generator could file to establish a rate at FERC or accept the default market rate. It is important to note that FES does not envision this payment to be a substitute for a subsidy payment the generator would be receiving for attributes of producing electricity. This is due to the subsidy payments being for environmental benefits, which FES sees as “not intended to provide resources with sufficient revenue, in the absence of a capacity payment, to make continued operation economically viable.”⁴ This suggests FES may view the RS-FRR to be a payment in addition to the potential “Nuclear Resource Credits” that Davis-Besse and Perry nuclear power plants would generate at \$9/MWh.

To address the pairing of load with this supply, FES recommends a few items. First, PJM should adjust the demand curves for each locational deliverability area (LDA) based on whether there is a RS-FRR resource in that area. Second, in order to charge load for the costs of the RS-FRR rate, FES recommends that in keeping with the state policy decisions that first created the RS-FRR rate, the costs should be expanded from the LDA to all ratepayers in the state. The costs would be charged as an average capacity rate to all load (aka, customers) in that state⁵. As an example of this proposal, the table below demonstrates the difference between capacity prices in Ohio for RPM auctions that have already been run based on the assumption that the placement of Ohio’s nuclear fleet of 2,150 MW on the RS-FRR rate would not have altered capacity price outcomes. Additionally, the table assumes that Ohio’s capacity obligation will remain flat for the next three years at 30,633 MW and that Ohio would settle on an RS-FRR rate of \$200/MW-day. This model is based upon the example that FES provided within their initial comments. The results suggest that Ohio would experience an increased annual cost of capacity of at least \$80 million.

Delivery Year	A Capacity Obligation (MW)	B Capacity Price (\$/MW-Day)	C Example RS-FRR Rate (\$/MW-Day)	D Ohio Nuclear Capacity (MW)	E Total Capacity Cost w/o RS-FRR	F Total Capacity Cost w/ RS-FRR*	G Increased Cost to Ohioians (\$)	
2019/2020 Ohio	30,633	\$100	\$200	2,150	\$1,118,111,749	\$1,196,586,749	\$78,475,000	
2020/2021 Ohio	30,633	\$77	\$200	2,150	\$855,690,921	\$952,584,004	\$96,893,083	
2021/2022	Ohio w/o FE	18,093	\$140	\$200	2,150	\$924,547,118	\$971,632,118	\$69,583,783
	FE only	12,540	\$171	\$200	2,150	\$784,213,304	\$806,712,086	

*F = [(A - D) x B + (C x D)] x 365 Days

Table 1: Increased Capacity Costs to Ohioans from Sub. H.B. 6 Triggering a PJM Capacity Auction Bifurcation, Based on FES Comment Price Estimates

⁴ Initial Comments of FirstEnergy Solutions Corp., Page 10

⁵ This is currently interpreted to mean all wholesale load that takes service from the PJM system. This may mean that in the State of Ohio, all municipal and cooperative electric companies would have their capacity prices adjusted to this average capacity price as well, not just investor owned utility ratepayers.



As stated previously, the RS-FRR payment is an additional capacity payment that would exist because a resource is receiving a subsidy as a result of a state policy and thus cannot participate in the RPM auction. The table following models the annual benefits to Davis-Besse and Perry nuclear power stations based on that assumption. The first column reflects the payments that each plant would receive under an RS-FRR rate of \$200/MW-day. The energy produced is based on EIA Form 923 for 2018⁶. The average LMP value is based on the 2018 State of the Market Report for PJM⁷. And the Nuclear Resource Credit is defined in H.B. 6. The difference in benefit to these two plants would currently amount to nearly \$250 million annually if H.B. 6 and RS-FRR were to be approved by the Ohio Legislature and FERC respectively.

Annual Payment	Capacity Payment w/o RS-FRR (\$)	Energy Produced (MWh)	Average LMP 2018 (\$/MWh)	Energy Payment (\$)	Clean Air Credit (\$/MWh)	Clean Air Payment (\$)	Status Quo (\$)
Davis-Besse	\$32,631,000	7,380,271	\$38.24	\$282,221,563	\$0.00	\$0	\$314,852,563
Perry	\$45,844,000	10,934,736	\$38.24	\$418,144,305	\$0.00	\$0	\$463,988,305
Total:							\$778,840,868
Annual Payment	Capacity Payment w/ RS-FRR (\$)	Energy Produced (MWh)	Average LMP 2018 (\$/MWh)	Energy Payment (\$)	Clean Air Credit (\$/MWh)	Clean Air Payment (\$)	HB 6 & RS-FRR
Davis-Besse	\$65,262,000	7,380,271	\$38.24	\$282,221,563	\$9.25	\$68,267,507	\$415,751,070
Perry	\$91,688,000	10,934,736	\$38.24	\$418,144,305	\$9.25	\$101,146,308	\$610,978,613
Total:							\$1,026,729,682
Increase:							\$247,888,815

Table 2: Increased Revenue to FES Nuclear Power Plants from HB 6 and RS-FRR Payment, Based on FES Comment Price Estimates

The last table shows the average capacity cost increase to various sized Ohio manufacturers for the three next delivery years.

Manufacturer Size	Annual Energy Use (kWh)	Average Monthly Demand (kW)	Average 3 Year Capacity Price (\$/MW-Day)	Average 3 Year Capacity Price for FE (\$/MW-Day)	Average 3 Year Capacity Price w/ RS-FRR (\$/MW-Day)	Average 3 Year Capacity Price for FE w/ RS-FRR (\$/MW-Day)	Average Annual Cost Increase to Ohio Manufacturer (\$/Year)	Average Annual Cost Increase to FE Manufacturer (\$/Year)
Small (Secondary Service)	1,000,000	190	\$ 106	\$ 116	\$ 113	\$ 123	\$ 527	\$ 476
Medium (Secondary Service)	7,500,000	1,142	\$ 106	\$ 116	\$ 113	\$ 123	\$ 3,170	\$ 2,862
Large (Primary Service)	100,000,000	12,684	\$ 106	\$ 116	\$ 113	\$ 123	\$ 35,207	\$ 31,790
Very Large (Sub/Transmission Service)	1,000,000,000	126,839	\$ 106	\$ 116	\$ 113	\$ 123	\$ 352,070	\$ 317,896

Table 3: Increased Cost of Capacity to Ohioans for Nuclear Plant Subsidies, Based on FES Comment Price Estimates

There are several caveats to the above analysis. First, FES' price estimates within their comments to FERC may be conservative. While we believe they are suitable enough to ballpark a cost impact to Ohio's manufacturers, which is critical to understanding HB 6, the RS-FRR, and other regulatory and policy changes, the cost impacts we detail here should be considered as estimates. Second, we account in this analysis only for the two Ohio FES nuclear plants. HB 6 creates subsidy payments for other generators, including uneconomical coal plants. Those plants could also be put into an RS-

⁶ <https://www.eia.gov/electricity/data/eia923/>

⁷ http://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2018.shtml



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FRR, and would increase Ohioan's capacity costs even more. The same could be true for a distribution utility power purchase agreement for renewable energy facilities.

Lastly, FES' comments respond to FERC's recommendation that PJM's capacity auction should implement an expanded MOPR and bifurcated auction. The scenario described in this memo is likely with H.B. 6 passage. This should not be confused with FERC approval of state policies to subsidize generation. In its order, FERC notably describes state actions as "unplanned reregulation," one subsidy and mandate at a time". And, FERC further states that their order will ensure that PJM's capacity construct "will not interfere with the states' ability to choose the path of re-regulation, whether via a conscious policy decision or a simple failure to take steps to prevent reregulation as described on an unplanned basis".⁸

⁸ FERC Order: <https://elibrary-backup.ferc.gov/idmws/common/OpenNat.asp?fileID=14961693>, Section 163