<u>10:00 a.m. (EST)</u>
1-866-362-9768
940-609-8246#

OMA Energy Committee Agenda
August 29, 2019

Welcome and Introductions	Brad Belden, President, Belden Brick Committee Chair Bruce Quinn, Vice President of Public Affairs, Rockwell Automation, Meeting Host
State Public Policy Report • State Government Overview • Power Plant Subsidies / House Bill 6 • Other Legislation	Ryan Augsburger, OMA Staff Rob Brundrett, OMA Staff
Energy Engineering Report • House Bill 6 Customer Cost Impact • HB 6 & Wholesale Electricity Markets • Nuclear Power Plant Profitability	John Seryak, PE, RunnerStone, LLC OMA Energy Engineer
Counsel's Report • Ohio Supreme Court Decisions • House Bill 6 Legal Analysis • PUCO Case Highlights	Kim Bojko, Carpenter Lipps & Leland OMA Energy Counsel
Special Presentations • *Advancing Energy Management at The Plant Level & Best Practices in Energy Reduction* • *Deregulated Markets Save Ohio Electricity Consumers Billions*	Alex Fitzsimmons, Deputy Assistant Secretary, US Department of Energy Eli Levine, US Department of Energy Dr. Edward (Ned) Hill, Professor of Public Affairs, John Glenn College, The Ohio State University Andrew Thomas, Executive in Residence, Energy Policy Center, Cleveland State University
Natural Gas Market Trends	LeRoy Smith, NiSource, Columbia Gas of Ohio
Electricity Market Trends	Susanne Buckley, Scioto Energy
Lunch	

Meeting sponsored by:

Meeting hosted by:

2019 Energy Committee Calendar
Meetings will begin at 10:00 a.m.

Thursday, November 21

Bruce M. Quinn

Vice President Public Affairs, Rockwell Automation

Bruce is the lead executive of an integrated team that combines government relations, external communications, issues management and corporate citizenship and charitable giving that will influence public policy in order to grow our business, build a strong corporate reputation and find common ground with our company stakeholders.

Bruce joined Rockwell Automation in 2005 and assumed the role of vice president and chief representative for Rockwell Automation China. Since then, Bruce has held roles of increasing responsibility within government affairs and strategic development. Most recently, Bruce was vice president, Global Government Affairs and our senior corporate representative in Washington D.C. Prior to joining Rockwell Automation, Bruce served 20 years in various commercial, trade, and national security roles with the U.S. Government.

To: OMA Energy Committee
From: Ryan Augsburger / Rob Brundrett
Re: Energy Policy Report
Date: August 22, 2019

Overview

Final legislative action on House Bill 6, far-reaching electricity regulation legislation, occurred in mid-July. Everything surrounding HB 6 was supercharged. The bill in its final form will distort electricity markets denying customers of the long-term benefits of competition. New costs, some known and some unknown, will hit customers of all sizes. The legislative skirmish lasted just over three months.

The OMA has been an opponent to the policy changes that require customers to subsidize power plants that are not needed. The OMA is prepared to advocate to protect manufacturing interests in the implementation of the bill. Energy policy will be a top issue area for the entire 2019-2020 legislative session.

Nuke Bailout – House Bill 6 Becomes Law

After being panned by dozens of important stakeholders, legislation to subsidize the uneconomical nuclear power plants stalled out last session. FirstEnergy Corp.'s (FE) unregulated subsidiary, FirstEnergy Solutions (FES), owns Ohio's two nuclear power plants among a portfolio of generation that has been considered uneconomic. Hence, they sought government bailout in various forms over the past five years. Those efforts were repelled.

Then following the 2018 General Election and ensuing legislative leadership election, House Bill 6 was introduced in late April. The bill was extensively revised in order to win support of electric utilities. Mostly this was accomplished with the addition of a bailout subsidy for two old, uneconomic coal power plants (including one power plant in Indiana). These plants are owned by the Ohio Valley Electrical Corporation (OVEC) whose shareholders are utilities and other energy companies. The bill also largely orders a stop to Ohio's utility-administered energy efficiency programs and renewable energy standards.

Throughout the many versions of the bill, OMA staff and retained experts have produced extensive analysis for the membership and engaged the membership. In the end, the bill was narrowly approved by both the House and the Senate. Votes for the divisive bill were not along partisan lines. In the aftermath, several media outlets reported or editorialized on the political activity surrounding the bill. It is believed that proponents spent more money to support HB 6 than any other piece of legislation in modern history.

Many OMA members actively engaged to advocate against the bill and the OMA voice was among the most impactful during the legislative debate. The OMA issued *key vote* alerts. See included HB 6 vote list.

Proponents of the bill made claims that simply were not true, however lulled many policymakers and other stakeholders into thinking the bill was actually a good thing for Ohio. Mark these words – HB 6 is only a win if you are FirstEnergy, FirstEnergy Solutions, OVEC, or their shareholders. Everyone else loses. The bill is done but the issue is not going away.

HB 6 Referendum

An effort is underway to repeal HB 6 via state referendum. The initial phase of signature collection is underway. If successful, the issue could be placed on the November 2020 General Election ballot. The OMA government affairs committee heard a presentation on the referendum effort at their August 22 meeting.

The proponents of HB 6 proved they will invest significant resources to support the bill. As such, the cost of a referendum challenge will be significant. Resource material is included. We have already seen a glimpse of the messaging by supporters of the bill. Expect claims of lower customer costs, coupled with the need for fuel diversity and China-bashing.

FES Bankruptcy
Simultaneous to the legislative theater, FES filed for bankruptcy protection in March 2018. Shortly thereafter the bankrupt company notified regulators of its intent to shutter the power plants in a few years.

A settlement between FE, FES, and the stakeholders is still pending approval. The plant owners together with concerned local government leaders have used the plant closure announcements to lever political support for state and federal bailouts. The beneficiaries of any possible bailout would seem to include speculative investors (hedge funds), former parent FE, and local governments hoping to prevent local job loss and tax revenue.

Government attorneys and judges have expressed concern to FE and FES of their continued liability for decommissioning costs at some point in the future. More recently, FES informed the bankruptcy court that the company would not recognize the terms of the company's collective bargaining agreement. An irony since unionized workers were prominent spokespeople for the bill during the legislative process.

HB 6 Implementation – What Next?
Unless a referendum is duly filed, the provisions of HB 6 go into effect mid-October. An abundance of rulemakings and determinations must be made by the PUCO and other state agencies. The OMA Energy Group will be participating in those proceedings to protect manufacturing interests. Members are invited to support this effort.

An analysis by OMA Energy Engineering partner RunnerStone explains how the soon-to-be-subsidized generation will be walled off from the PJM capacity market and a state construct will likely be required to facilitate the purchase of the subsidized electrons…this move is believed to hike customer costs. Stay tuned for the sequel to HB 6.

Trump Administration Favors Nuke and Coal Bailouts
For nearly two years, some nuclear and coal interests have had success in lobbying the federal government to order nuclear and coal (as specified) power plant bailouts on a national basis. The Trump Administration backed away from plans to require customers to subsidize unprofitable power plants under the guise of national security or resiliency. The government involvement bears continued scrutiny. DOE Secretary Perry told a groups of lawmakers at an ALEC meeting mid-August that preservation of nuclear generation is important for US fuel diversity.

PJM Opines on Resiliency
Throughout the recent legislative subsidy debates at the General Assembly, grid operator PJM Interconnect had been clear to dispel the myths of poor fuel diversity and electric supply shortages affecting "reliability." However, more recently, PJM issued a report justifying some possible basis for grid "resiliency." The OMA has an analysis on current PJM activity but further proceedings at PJM will be needed for clarity. Remarkably, PJM has postponed indefinitely the planned energy auction to assess how the market can fairly operate in the face of widening market manipulation via state subsidies.

Utility Seeks to Shift Risk from Shareholders to Customers
The regulated monopoly electric distribution utility (EDU) AEP Ohio has a controversial application pending at the PUCO to allow the utility to develop in-state renewable energy generation. If the application is approved, customers will be required to pay an additional rider on their power bill to subsidize the renewable energy projects.

The case is not about renewable energy which is flourishing in Ohio as a result of increasingly favorable market attributes. To the contrary, the case is about whether a utility should be allowed to violate a prohibition of an EDU controlling generation rather than being the agnostic distributor for power. Ohio deregulated the generation of electricity decoupling it from distribution twenty years ago. As such, the proposal is anti-competitive.

There is nothing preventing AEP Ohio's parent company (AEP) or an unregulated affiliate from developing the same renewable project while taking on ordinary business risk instead of offloading the company's (shareholders') risk to the captive customers. In fact, AEP recently announced they would invest over a billion dollars to develop renewable generation following rejection of similar proposals in other states. The OMA Energy Group has been a leading opponent of the proposal at the PUCO.

House Bill 6 now contains language to change the law to authorize this sort of activity. The costs to customers can be significant. This is yet another erosion to the marketplace. See HB 6 analyses.

Protecting Competitive Electric Markets
In 1999, with the passage of Senate Bill 3, Ohio began a transition to deregulated generation. That transition has delivered customer choice, cost-savings and innovation. One of the main tenets of deregulation was forcing then-integrated utility companies to sell or spin-off their generation. "Stranded costs" and other above-market surcharge constructs enabled the utilities to have their generation paid for by Ohioans for a second time. HB 6 represents yet another above-market payment to utilities and power plant owners by customers who realize no benefit.

The OMA has been a proponent of markets, supporting the original deregulation legislation and opposing utility profit subsidy schemes that distort the market and result in new above-market charges on manufacturers' electric bills. Several noteworthy studies have demonstrated how the market delivers lower prices, choice and innovation without compromising reliability. NOPEC just issued an updated study that pegs customer savings at $24 billion over eight years. With the passage of HB 6, competitive markets are under attack in Ohio.

OVEC Bailout
Last session, the OMA opposed legislation to provide over one hundred million dollars per year to the owners of aging coal plants (one in Ohio and one in Indiana) operated by the Ohio Valley Electric Corporation (OVEC). The OMA had also opposed subsidies for OVEC in rate cases at the PUCO. In a decision by the Supreme Court in late 2018, the Court effectively allowed utilities to collect the rider to subsidize OVEC under terms of a specific Electric Security Plan (ESP). An OVEC bailout for the out years beyond the terms specified in the Court decision is now included in HB 6.

Excessive Earnings
With all eyes on HB 6, lobbyists for FirstEnergy also won House approval of a provision that allows the Akron-based electric distribution utility to earn more profit. The OMA opposed the provision and urged lawmakers to remove it in both the House and Senate. The consequence: all FirstEnergy service customers will not get relief from overpayment.

Pro-Utility Legislation Ready for Hearings
With HB 6 completed and a robust legislative session calendar for the remainder of 2019, other pro-utility legislation may now advance:

- HB 104 (Stein) establishes the Ohio nuclear development authority to spur investment in modular and advanced nuclear technologies.
- HB 246 (Vitale) placeholder legislation to modernize the PUCO and Office of Consumers' Counsel.
- HB 247 (Stein) expand the authority of a utility to offer customer-focused energy services or products under the justification of smart grid technology and opens to door to new non-

bypassable riders to pay for the buildout. The bill significantly erodes market protections on the books since deregulation or longer.

Federal Tax Reform Reduces Electric Prices, Finally
It took utilities in Ohio longer to pass along savings to customers stemming from federal tax reform last winter. The OMA Energy Group has been active in these proceedings. Ask staff how your company can support the work of the OMA Energy Group.

PowerForward* and *Goldplating
Over the past few years, the PUCO undertook a study of future grid technologies. The study and resulting report bear the brand, PowerForward. In the months since the report was finalized, a collaborative has been meeting. Utilities are using the findings in PowerForward to justify new mandated customer payment requests to produce “grid modernization.” The OMA Energy Group is watching out for goldplating in these proceedings.

Ohio electric utility executives have been announcing to investors their bold new initiatives to upgrade their grid infrastructure touting costs in the tens of billions of dollars. These transmission and distribution costs, if allowed by federal and state regulators, will layer new costs onto customers. The OMA Energy Group will be monitoring utility requests and will be commenting on the need and benefit of improvements to customers. Utility applications for customer cost-recovery that fail to provide offsetting customer benefits will be met with scrutiny and possible objection by this organization.

On-Site Generation Taxed in Ohio
The Ohio Department of Taxation is sending out tax bills to third parties operating on-site generation, be it wind, solar or onsite gas generation. The Department contends that a customer who generates power should pay generation tax the same as a utility. The Department’s basis for collecting the tax is tenuous. Legislation was introduced in HB 6 that goes a long way at addressing the issue for on-site wind. The OMA supports a legislative correction for all forms of onsite generation.

OMA Appeals Utility Subsidies
Kim Bojko, Chief Counsel for the OMA Energy Group (OMAEG) presented oral argument before the Supreme Court of Ohio challenging customer charges in the FirstEnergy DMR case. Like other recent rate cases and litigation, customer power costs are heavily impacted by these cases. Your company can strengthen the association’s efforts. Contact staff for information on joining the OMAEG. See included memo.

Energy Standards Legislation
After six years of back and forth policy battles, HB 6 appears to have dismantled the standards for efficiency and renewable energy. Siting requirements for large scale wind generation projects are not part of the debate. See HB 6 analysis documents.

Energy

Supreme Court Denies FirstEnergy Rider Appeal
August 23, 2019

The Supreme Court of Ohio this week rejected FirstEnergy's appeal to reconsider the legality of its Distribution Modernization Rider (DMR). The denial to reopen the case confirms the court's **earlier 4-3 ruling** that customers of FirstEnergy's Ohio utilities have been overcharged by hundreds of millions of dollars since 2017. The court in June said the Public Utilities Commission of Ohio (PUCO) improperly authorized utility surcharges for grid modernization subsidies, and ordered the charges to be removed immediately.

The OMA Energy Group led the legal challenge to remove this rider. *8/22/2019*

Thanks, HB 6. Another Ohio Power Plant Scrapped
August 23, 2019

Another competitive power generation project has been cancelled due to the enactment of **House Bill 6**, the nuclear bailout plan. *The Youngstown Vindicator* this week **reported** on the decision by Clean Energy Future to shelve its plans to develop a third natural gas-fueled power plant in Lordstown. It is estimated the $1.1 billion plant would have brought $29 billion worth of economic benefit to the region over its 50-year life.

Approved by the General Assembly and signed into law in mid-July, HB 6 forces Ohio customers, including manufacturers, to subsidize the state's nuclear power plants, as well as certain coal-fired generation facilities, giving those generators an unfair advantage and undercutting market economics. Last month, it was **announced** that a planned gas-fired power plant slated for Wood County had been cancelled due to HB 6. *8/21/2019*

Study: Electric Utility Riders, Subsidies Could Cost Ohio Billions
August 16, 2019

New **research** shows Ohio's deregulated electricity markets have saved the state's ratepayers nearly $24 billion over the past eight years, or roughly $3 billion a year. Conducted by researchers at The Ohio State University and Cleveland State University — and commissioned by the Northeast Ohio Public Energy Council (NOPEC) — the study shows that competition has driven down average electricity prices in deregulated Midwestern states, while their regulated peers have seen steady price increases.

Unfortunately, the research also finds that Ohio's investor-owned utility companies are chipping away at those customer savings through the use of subsidies, surcharges, and riders. This is occurring as efforts have intensified to re-regulate electricity markets. See the **whitepaper** and **executive summary**. *8/12/2019*

Industry Accounts for One-Third of Ohio's Energy Use
August 9, 2019

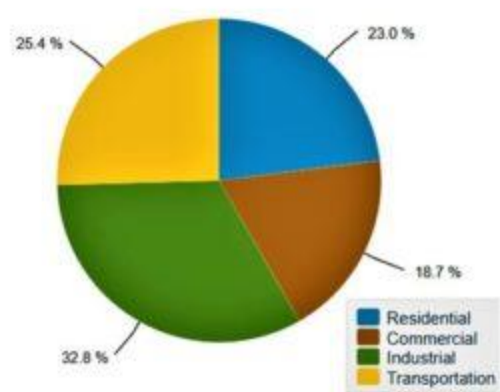
Why is the OMA passionate about energy policy? Because manufacturers and other industrial users account for nearly one-third of Ohio's total energy consumption — including motor fuel and electricity. The U.S. Energy Information Administration (**EIA**) has posted its most recent breakdown of **Ohio's energy consumption**. Key facts include:

- Ohio's industrial sector is a major user of **natural gas**.
- As of April, Ohio's average **industrial electric rate** was 6.26 cents/kWh compared to 6.53 cents/kWh nationally.
- Ohio is the **third-largest coal-consuming state** after Texas and Indiana, and nearly 90% of the coal consumed in Ohio is used for electric power generation. Nationwide, coal-fired generation **continues** to be retired.

As stated in the OMA's **Public Policy Competitiveness Agenda**, energy policy can enhance — or hinder — Ohio's ability to attract business investment, stimulate economic growth, and spur job creation. This is especially true in manufacturing. *8/5/2019*

Ohio Energy Consumption by End-Use Sector, 2017

August 9, 2019



eia Source: Energy Information Administration, State Energy Data System

Remember to Thank Lawmakers Who Voted 'No' on HB 6

August 9, 2019

Last month, during the final days of legislative action on **House Bill 6** — the nuclear bailout bill — 70 Ohio lawmakers from the House and Senate voted to approve the power plant subsidy package. However, another **50 lawmakers** stood firm and voted against the bill. The votes were not along partisan lines and lawmakers from both parties were pressured heavily by their leadership, as well as multiple stakeholders.

This was a difficult vote, so hearing directly from constituents will mean a great deal to every lawmaker. If your state representative or senator voted "no" on HB 6, take a moment to send him/her a note of thanks. You can find your state lawmakers **here**. *8/5/2019*

HB 6 Referendum Process Now Underway

August 2, 2019

Just over a week since the nuclear bailout bill (**House Bill 6**) was approved by the General Assembly and signed into law, efforts are underway to ask Ohio voters to invalidate the legislation.

A group called Ohioans Against Corporate Bailouts is conducting a referendum campaign. This week, it filed **initial paperwork** with the Ohio Attorney General. If the petition language is approved, more than 265,000 signatures must be collected to put the issue on the November 2020 ballot. The group is not yet disclosing specific supporters of the referendum effort, but they expect many HB 6 opponents to continue voicing their concerns about the law.

Here's **more information** on Ohio's referendum process. *8/1/2019*

Feds Halt Electrical Power Sale Due to State Subsidies

August 2, 2019

The decision of Ohio lawmakers to subsidize nuclear and select other power plants is already negatively affecting the wholesale operation of the regionally administered power markets. Two days after Ohio enacted its nuclear bailout under HB 6, federal policymakers ordered PJM

Interconnect — the nation's largest power grid operator, whose territory includes all of Ohio — to indefinitely delay an auction to set power prices.

According to **Bloomberg**, "The halt lays bare the gridlock within the federal energy commission as it grapples with hundreds of millions of dollars in out-of-market subsidies that some states are creating to rescue foundering nuclear power plants." Bloomberg notes that while some power generators have warned that state bailouts are skewing the results of auctions, the Trump administration has pressed for aid to "money-losing reactors and coal units in the name of grid resilience."

The OMA's energy engineer has **analyzed** this situation, which will be discussed at the **Aug. 29 meeting** of the OMA Energy Committee in suburban Cleveland. *8/1/2019*

House Votes to Send HB 6 to Governor DeWine

July 26, 2019

Last Sunday, July 21, Ohio House Speaker **Larry Householder** (R-Glenford) gave notice of a House session for Tuesday morning, July 23, to hold a vote on **House Bill 6**, the nuclear power plant bailout. After the Ohio Senate **narrowly approved** the measure late last week, the House needed to concur with Senate amendments to send it to Gov. Mike DeWine. The House voted to accept the Senate amendments with just 51 "yes" votes, one vote more than the minimum required.

See how your state representative **voted**, and read a list of **major concerns** with the bill as it stands. Leading up to Tuesday's vote, statewide media **reported** that a state aircraft had been scheduled to pick up lawmakers from a meeting in Chicago to ensue enough votes in favor of HB 6. The flight was later cancelled. *7/25/2019*

Governor Signs HB 6

July 26, 2019

Approximately two hours after the House passed HB 6, Gov. Mike DeWine signed the nuclear power bailout into law. The OMA, with the Office of the Ohio Consumers' Counsel, had **written the governor**earlier to urge him to veto the legislation that will redistribute Ohioans' monies to Wall Street hedge funds. The politically influential AARP also urged a veto. *7/25/2019*

What Does HB 6 Mean for Ohio Manufacturers?

July 26, 2019

Aside from the obvious new charges that customers will be forced to pay to subsidize two nuclear facilities and two old coal power plants, HB 6 grants significant new authority to state officials to interfere in competitive power markets. Under HB 6, the Public Utilities Commission of Ohio (PUCO) will have sweeping new authority to determine new charges on customers' power bills. The OMA Energy Group will be participating in upcoming rate making and rule making. All manufacturers are invited to **join this effort** to protect their interests.

Prior to the House vote earlier this week, the OMA dispatched an **alert** to House members detailing key reasons to oppose HB 6. While proponent lawmakers dismissed the concerns, investors have already **warned** they will abandon a planned $500 million expansion of a natural gas power plant in Troy due to the bailout legislation. Read the OMA's **myths-versus-facts document** on HB 6. Join the discussion at the OMA Energy Committee meeting in **Mayfield Heights, Aug. 29**. *7/25/2019*

Referendum on HB 6?

July 26, 2019

The Ohio Constitution allows citizens to initiate a **referendum** at the ballot box to repeal bills enacted by the Ohio General Assembly. The process for initiating a referendum on HB 6 has already begun by one group calling itself Ohioans Against Corporate Bailouts. The OMA staff is evaluating the proposal. Should the signature collection effort succeed, the item would be added to the November 2020 ballot, which will feature the presidential race.

Members of the OMA Government Affairs Committee will discuss this issue in some depth at the **Aug. 22 meeting**. *7/25/2019*

Senate OKs Nuke Plant Bailout on 19-12 Vote
July 19, 2019

Wednesday night, the Ohio Senate voted 19-12 to approve **House Bill 6**, legislation that will heavily subsidize Ohio's two nuclear power plants, along with two coal-fired plants — one of which is in Indiana! The vote followed hours of rancorous debate and a **KEY VOTE ALERT** issued by the OMA, urging senators to vote no. Find out how your state senator **voted**.

In his floor speech, Senate Energy & Public Utilities Committee Chair **Steve Wilson** (R-Maineville) said that "the real winners of this legislation is the ratepayer." Ratepayer groups, including the OMA, oppose HB 6 because it will require Ohio businesses and families to pay hundreds of millions of dollars in new charges annually, while distorting the energy marketplace — which has been delivering lower generation costs and innovation.

Others who spoke in support of the legislation included Sens. Theresa Gavarone, Sandra Williams, Dave Burke, John Eklund, Lou Terhar, and Minority Leader Kenny Yuko. Speaking against the bill were Sens. Joe Uecker, Cecil Thomas, and Bill Coley. **Watch the Senate floor debate** beginning at the 1:51:35 mark. *7/18/2019*

Nuke Bailout: What's Next?
July 19, 2019

The **current version of House Bill 6** now returns to the House for a concurrence vote to approve the Senate amendments. The House had planned to concur Wednesday night, but instead adjourned around 8 p.m. — apparently because they **lacked the votes** to get the 50-vote majority needed to send it to the governor.

House Speaker Larry Householder may try again as early as July 25 to get final approval for the legislation. The OMA has issued a **Key Vote Alert to all state representatives** urging a "no" vote on the concurrence of HB 6.

After the House concurs, the bill will be presented to Gov. Mike DeWine, who has made statements that he favors efforts to protect the jobs at the power plants. The OMA joined forces with the Office of the Ohio Consumers' Counsel in sending a **letter to the governor**, urging him to veto HB 6 to protect Ohio businesses and families.

Take some time over the next week to **call your state representative** (ideally on their mobile phone) to let them know you oppose HB 6 and urge them to do the same. Equally important, call or write your state senator to thank them if they voted no. *7/18/2019*

Senate Amendments to HB 6 Raise More Questions
July 19, 2019

During this week's debate on HB 6, a **floor amendment** was added to delay the bill's subsidy collections and payments to power plants by one year (until 2021). This raises further questions about the need for the bill. For weeks, nuke plant owners contended that customer funds were needed by July 17 to prevent the plants from decommissioning.

Others have questioned the wisdom of passing a "bailout" now, considering the state could wait for the FirstEnergy Solutions bankruptcy proceedings to be completed soon so that lawmakers would be able to see the real financial need, if any. The OMA's **profitability analysis** finds that the nuke plants are in fact going to be profitable after bankruptcy.

Before advancing HB 6 to the full Senate, the Energy and Public Utilities Committee adopted several **other amendments** — some of which add financial protections for utilities at ratepayers' expense, such as the new decoupling mechanism and OVEC revision. A provision was also inserted to allow mid-sized industrial customers to opt-out of paying the energy efficiency rider, but the benefit is fleeting since utility-managed energy efficiency programs will be discontinued under the bill. Also of interest was an added provision allowing mercantile customers to enter into power purchase agreements with distribution utility companies.

The **OMA Energy Group** will be reviewing all the Senate changes at their July meeting. *7/18/2019*

New Budget Gives FirstEnergy Permission to Keep ‘Significantly Excessive’ Profits
July 19, 2019

Among the thousands of law changes made by the new state budget (**HB 166**) is a utility-friendly provision that allows FirstEnergy distribution utility companies to keep even more profit rather than return excessive earnings to customers.

The House added the provision in its version of the budget, and the Senate retained the language. The OMA **lobbied** lawmakers in both chambers to remove the unfair provision. *7/18/2019*

Analysis: Abundant Natural Gas Supplies Spur Lower Electricity Costs for Ohio
July 19, 2019

In energy — like all other sectors of the economy — the free marketplace works, if politicians allow it. That fact was proved again last month when Ohio’s wholesale electricity prices **reached new lows** before rebounding slightly.

According to analysis from OMA Connections Partner **Scioto Energy**, the decline started in June as forward prices dramatically dropped 10% and ended the month with a decline of 8%. The experts at Scioto Energy say this is a new era in wholesale electricity pricing for Ohio as the abundant natural gas in the shale reserves — along with expanded gas storage inventories — have “set the market for the steep decline to all-time lows, now trading an average of only $25 per MWh all the way out through 2024.” *7/15/2019*

Key Lawmaker: Senate ‘on Track’ to Pass Nuclear Bailout Bill
July 12, 2019

With negotiations between Ohio’s House and Senate holding up passage of the new two-year budget, the nuclear bailout bill (**House Bill 6**) is part of the horse-trading between the state’s big three leaders — the governor, speaker of the House, and Senate president. If HB 6 is approved in present form, ratepayers will see higher electricity costs, while Ohio’s energy markets will suffer from market distortion and decreased investment in new generation.

The OMA — a strong opponent of HB 6 — has urged senators to strengthen the bill’s audit provisions to protect ratepayers. However, that has not been among the proposed amendments so far. A recent column in **National Review** highlights how the nuke plants’ hedge fund owners have refused to accept an amendment that would make the facilities open their books and prove they are unprofitable in order to receive subsidies. “That pretty much says it all,” concludes author Travis Kavulla of the R Street Institute, a free-market think tank.

This week, **Sen. Steve Wilson** (R-Maineville), chair of the Senate Energy and Public Utilities Committee, said things are “still on track” for HB 6 to be passed out of the Senate yet this month. **Hannah News Service reported** that the chairman believes Senate leadership still supports the bill.

While there is still time, manufacturers should **contact their state legislators** — especially senators — and tell them NO on the nuke bailout! *7/11/2019*

Nuclear Subsidy Bill Continues to Linger in Senate
July 2, 2019

The Senate Energy and Public Utilities Committee met over the weekend to hear more testimony on House Bill 6, the nuclear bailout bill, but adjourned without an up-or-down vote on the legislation.

The committee did, however, adopt two minor amendments to the legislation. One amendment, offered by committee Chair **Sen. Steve Wilson** (R-Maineville), would allow the Public Utilities Commission of Ohio (PUCO) to modify its rules to ensure businesses with multiple meters are not charged for each meter. That change was requested by the commission to address **concerns raised by the OMA**.

It was evident to Statehouse observers that the failure to pass a new state budget — which is supposed to be passed no later than June 30, as required by the Ohio Constitution — was tied to HB 6, which is the top priority of Ohio House **Speaker Larry Householder**.

If HB 6 is approved in present form, ratepayers will see higher electricity costs, while Ohio's energy markets will suffer costly distortion and decreased investment in new generation.

While there is still time, manufacturers should **contact their state legislators** and tell them NO on the nuke bailout! Make your senator your priority contact. *7/1/2019*

U.S. Oil Output Tops 12M Barrels a Day for First Time
July 2, 2019

Last Friday, a **federal report** showed that U.S. crude oil production soared to new heights in April, hitting 12.16 million barrels a day. Booming shale production has allowed U.S. oil output to overtake that of Saudi Arabia and Russia, thereby helping to stabilize energy costs for manufacturers and other businesses. Overall, Ohio is currently the 13th leading state for crude oil production, and the **fifth largest producer** of natural gas. *7/1/2019*

Senate Improves Energy Bill; Vote Imminent
June 28, 2019

The Ohio Senate Energy and Public Utilities Committee this week held additional hearings on House Bill 6, the nuclear bailout legislation. Committee Chair **Steve Wilson** (R-Warren County) unveiled a new version of the bill Wednesday afternoon. The Senate's **substitute version** of HB 6 makes a number of improvements to the House-passed bill, including some that were suggested by the OMA.

Most notably, the Senate version installs guardrails around the bailout payments to ensure ratepayer funds are actually needed to maintain power plant operations. For example, unlike House language that authorized an audit only of the "Clean Air Credit" program itself, the Senate bill would require plant owner FirstEnergy Solutions to "promptly and fully" provide "any document, information, data, or other request" from the PUCO or its advisers. Failure to do so would result in suspension of the subsidy.

At this week's hearing, the OMA provided **opponent testimony** since the bill would still distort the electricity market in Ohio, and would continue to subject manufacturers to new costs — known and unknown — without providing offsetting benefits. The Senate committee is expected to vote on its version of HB 6 today (June 28) and final passage will likely come Saturday or Sunday.

Look for another update on HB 6 in the July 2 edition of OMA's *Leadership Briefing*. *6/27/2019*

OMA Leaders Testify Before Senate Panel to Oppose Nuclear Bailout Legislation
June 21, 2019

A panel of OMA members appeared before the Senate Energy & Public Utilities Committee on Tuesday, June 18, to share reasons why House Bill 6 is bad for manufacturers.

OMA Energy Committee Chair Brad Belden, president of **Belden Brick Co.** of Canton, **told senators** the bill would directly increase his company's electricity costs. Belden said, "There are a lot of moving parts in HB 6 and the math is not as simple as some would have us believe. For Belden Brick, we estimate the net direct cost of the Clean Air Program, OVEC subsidies and increased capacity costs — minus the renewable portfolio standard costs — is about $40,000 per year, plus a lot of other blank checks that could dwarf the cost increase I just shared with you."

David Johnson, CEO of **Summitville Tiles** in Columbiana County, **reminded lawmakers** of the importance of deregulating Ohio's generation segment. The former OMA chairman noted that Ohio started the deregulation process two decades ago, and that it has produced upwards of $3 billion in savings per year for Ohio's ratepayers.

Anthony Smith, global energy coordinator for **Cooper Tire and Rubber** in Findlay, highlighted how the bill also provides subsidies for the utility owners of two coal power plants, including one in Indiana.

He **informed senators** that newly updated cost estimates show that under HB 6, ratepayers would be charged an additional $488 million. His testimony included a rebuttal of several myths espoused by bill supporters. *6/18/2019*

Testifying against House Bill 6 this week were OMA members (from left) David Johnson of Summitville Tiles, Brad Belden of Belden Brick Co., and Anthony Smith of Cooper Tire and Rubber.

Analysis: HB 6 Could Boost Plants' Profits by Over $330M Annually
June 21, 2019

As unbelievable as it sounds, House Bill 6 would create windfall profits for Ohio's two nuclear plants by as much as $338.5 million per year — or more than $2 billion over the six-year term of HB 6's "Clean Air Program."

Electric ratepayers across Ohio would be left holding the bill.

The OMA has produced an independent analysis of the nuclear plants' potential profitability under HB 6. **Read this document** to better understand how the bill would create multiple compensation mechanisms for these plants; trigger special treatment of the plants' capacity revenue; and make changes in wholesale electricity markets to create even more revenue.

Under the guise of "clean air," this bill is nothing but an audacious money grab. *6/20/2019*

Take Action Now to Prevent Nuke Bailout
June 21, 2019

We reported last week how a dark money group known as Generation Now has continued its **advertising blitz** in support of the nuclear bailout bill, all in hopes of convincing state senators to pass the legislation before the summer break. It is expected the Senate could vote soon on HB 6. The OMA remains a strong opponent of the bill, but senators need to hear directly from manufacturers. **Call your state senator** and tell him/her that your business and household cannot afford to provide more subsidies to electric utilities. (Here is **more information** on the bill for you to communicate with your senator.) *6/20/2019*

Poll: Nuclear Bailout Has Strong, Bipartisan Opposition
June 21, 2019

Ohio Speaks

A **new public poll** released this week shows that 7 in 10 Ohio voters are opposed to House Bill 6, the nuclear bailout bill. The opposition is strongly bipartisan with 73% of Republicans, 67% of Democrats, and 73% of independents against the plan. The poll also found:

* 88% of respondents believe that FirstEnergy Solutions should be subject to review of their financial records by the legislature before another vote on the bill.

* 82% of respondents believe the bill would hurt senior citizens and families living on fixed incomes.

* 82% of respondents oppose allowing money from the fund going to help bail out a plant in Indiana.

* 62% of respondents believe new utility costs could hurt manufacturers across the state, also impacting jobs.

Paid for by API Ohio and overseen by The Harris Poll, the survey was conducted from June 7-12 by telephone. It has a sampling error of +/- 3.4%. *6/18/2019*

Supreme Court Ruling Brings Big Victory for FirstEnergy Ratepayers & OMA Energy Group

June 21, 2019

The Supreme Court of Ohio **ruled** Wednesday that customers of FirstEnergy Ohio utilities have been overcharged by hundreds of millions of dollars since 2017. In a 4-3 decision, the Court said the Public Utilities Commission of Ohio (PUCO) improperly authorized the utilities to impose surcharges for grid modernization subsidies, and ordered the charges to be removed immediately.

Click here for a summary of the decision.

An estimated $450 million has already been unlawfully collected from FirstEnergy customers, according to OMA's energy experts ($204 million in 2017; $168 million in 2018; and $84 million for the first half of 2019). Under current state law, none of this nearly half-billion dollars is refundable to customers.

Fortunately, the foregone costs or savings brought by this week's legal victory is approximately $84 million — and the Court's ruling prevents FirstEnergy from possibly collecting another $336 million during 2020-21, had PUCO approved a pending request to extend the surcharge.

The OMA Energy Group **led the legal challenge** to remove the distribution modernization rider (DMR).

This week's Court decision comes as FirstEnergy continues to urge lawmakers to include **a provision** in the state budget (**House Bill 166**) that would allow its operating companies to keep "significantly excessive profits" rather than issuing refunds to more than a million customers, including manufacturers.

Congrats to the OMA Energy Group legal team on this week's important legal win. *6/19/2019*

OMA Energy Counsel Kim Bojko led the efforts on behalf of the OMA Energy Group to remove the unlawful surcharges imposed on FirstEnergy ratepayers.

Nuclear Bailout Debate Heats Up in Senate

June 14, 2019

State senators this week heard testimony from the sponsors of **House Bill 6**, the nuclear power plant bailout legislation. Reps. **Jamie Callender** (R-Concord) and **Shane Wilkin** (R-Hillsboro) told members of the Senate Energy and Natural Resources Committee that HB 6 would result in cleaner air and reduced power costs. Both senators were peppered with questions from concerned lawmakers who correctly exposed that the bill would do nothing to address air pollutants and would actually increase customer costs.

Senators on the panel were equally skeptical of proponent witnesses who came forward in support of handouts for nuclear power and certain coal-fired plants. An **OMA analysis** shows that the owners (hedge funds) of the nuclear power plants stand to earn a minimum profit of $176 million per year as a result of the subsidy. Interestingly, the beneficiaries did not come forward to offer testimony, instead relying on allies and suppliers to make their plea.

Also this week, Generation Now — a dark money group — has continued its **advertising blitz** in support of the bailout bill in hopes of swaying senators. It is expected that the Senate could vote on HB 6 in the coming days. The OMA remains a strong opponent of the bill, but **senators need to hear directly from manufacturers** who will be exposed to new costs. Call your state senator and tell him/her that your business and household cannot afford HB 6. (Here is **more information** on the bill.) *6/13/2019*

From Your Pocket to Theirs: Nuke Subsidies Unwarranted

June 14, 2019

The House-passed plan to create ratepayer-funded subsidies for Ohio's nuclear power plants (House Bill 6) will discourage independent power plant developers from building new electricity generation in the Buckeye State, despite the ongoing shale boom. That's according to **new analysis** by energy expert Susanne Buckley, managing partner at **Scioto Energy**, an OMA Connections Partner.

Buckley says that HB 6 tells potential developers who are considering Ohio: "Beware! The playing field is not level. Participate at your own risk as we favor your competition."

She adds, "(T)he bottom line is that customers would be forced to subsidize two nuclear plants that are not profitable on their ow by paying them $176 million per year." At the same time, the bill would "gut" the existing renewable energy and energy efficiency programs. *6/10/2019*

PJM Modeling Shows Nuclear Subsidies Mean Higher Net Costs for Ratepayers

June 7, 2019

Asim Haque, an executive at PJM Interconnection, this week presented informational **testimony** before the Ohio Senate Energy and Public Utilities Committee. PJM's data provides a more accurate understanding of the new costs facing electric ratepayers under **House Bill 6**, as passed by the House last week. Moreover, PJM's modeled scenarios demonstrate how HB 6 will stunt new investment in natural gas generation and increase energy market costs.

Even though the **PJM modeling** examined only the wholesale market — and not the increased costs spurred by changes to the capacity auction — it still shows that ratepayers would experience a net increase in electricity costs due to the subsidies proposed by the nuclear bailout legislation.

A spokesperson for Ohio's residential consumer advocate, the Office of the Ohio Consumers' Counsel, interpreted PJM's data by saying, "Consumers in the region would save more than $1.5 billion in 2023 alone if the nuclear plants in Ohio and Pennsylvania are shut down and expected new, efficient power plants are built. PJM's findings for consumer savings from power plant competition confirm that a competitive generation market is better for millions of Ohio consumers (as opposed to) charging them for bailouts and subsidies under HB 6." *6/6/2019*

HB6 **CLEAN AIR PROGRAM** (CALLENDER J, WILKIN S) To create the Ohio Clean Air Program, to facilitate and encourage electricity production and use from clean air resources, and to proactively engage the buying power of consumers in this state for the purpose of improving air quality in this state.

Current Status: 7/23/2019 - **SIGNED BY GOVERNOR**; Eff. 10/22/19

State Bill Page: https://www.legislature.ohio.gov/legislation/legislation-summary?id=GA133-HB-6

HB20 **SOLAR PANEL LIMITATIONS** (BLESSING III L) To prohibit condominium, homeowners, and neighborhood associations from imposing unreasonable limitations on the installation of solar collector systems on the roof or exterior walls of improvements.

Current Status: 6/26/2019 - House State and Local Government, (First Hearing)

State Bill Page: https://www.legislature.ohio.gov/legislation/legislation-summary?id=GA133-HB-20

HB55 **OIL AND GAS WELL ROYALTY STATEMENTS** (CERA J) To require the owner of an oil or gas well to provide a royalty statement to the royalty interest holder when the owner makes payment to the holder.

Current Status: 2/26/2019 - House Energy and Natural Resources, (First Hearing)

State Bill Page: https://www.legislature.ohio.gov/legislation/legislation-summary?id=GA133-HB-55

HB94 **LAKE ERIE DRILLING** (SKINDELL M) To ban the taking or removal of oil or natural gas from and under the bed of Lake Erie.

Current Status: 3/5/2019 - Referred to Committee House Energy and Natural Resources

State Bill Page: https://www.legislature.ohio.gov/legislation/legislation-summary?id=GA133-HB-94

HB95 **BRINE-CONVERSION OF WELLS** (SKINDELL M) To alter the Oil and Gas Law with respect to brine and the conversion of wells.

Current Status: 3/5/2019 - Referred to Committee House Energy and Natural Resources

State Bill Page: https://www.legislature.ohio.gov/legislation/legislation-summary?id=GA133-HB-95

HB104 **NUCLEAR DEVELOPMENT** (STEIN D) To enact the Advanced Nuclear Technology Helping Energize Mankind (ANTHEM) Act by establishing the Ohio Nuclear Development Authority and the Ohio Nuclear Development Consortium and authorizing tax credits for investments therein.

Current Status: 6/18/2019 - House Energy and Natural Resources, (First Hearing)

State Bill Page: https://www.legislature.ohio.gov/legislation/legislation-summary?id=GA133-HB-104

HB223 **WIND SETBACKS** (STRAHORN F, SKINDELL M) To alter the minimum setback requirement for wind farms of five or more megawatts.

Current Status: 5/8/2019 - Referred to Committee House Public Utilities

State Bill Page: https://www.legislature.ohio.gov/legislation/legislation-summary?id=GA133-HB-223

HB245 **PROPERTY TAX EXEMPTION TIMELINES** (SMITH J) To remove the current deadlines by which an owner or lessee of a qualified energy project must apply for a property tax exemption.

Current Status: 5/21/2019 - Referred to Committee House Energy and Natural Resources

State Bill Page: https://www.legislature.ohio.gov/legislation/legislation-summary?id=GA133-HB-245

HB246 **PUCO/OCC REFORM** (VITALE N) To reform and modernize the Public Utilities Commission and the Consumers' Counsel.

Current Status: 5/21/2019 - Referred to Committee House Public Utilities

State Bill Page: https://www.legislature.ohio.gov/legislation/legislation-summary?id=GA133-HB-246

HB247 **RETAIL ELECTRIC SERVICE LAW** (STEIN D) Regarding the competitive retail electric service law.

Current Status: 6/19/2019 - House Public Utilities, (First Hearing)

State Bill Page: https://www.legislature.ohio.gov/legislation/legislation-summary?id=GA133-HB-247

HB260 **CLEAN ENERGY JOBS** (DENSON S, WEINSTEIN C) To maintain operations of certified clean air resources, establish the Ohio generation and jobs incentive program and the energy performance and waste reduction program, and make changes regarding wind turbine siting.

Current Status: 5/28/2019 - Referred to Committee House Energy and Natural Resources

State Bill Page: https://www.legislature.ohio.gov/legislation/legislation-summary?id=GA133-HB-260

SB86 **UTILITY SERVICE RESELLERS** (MAHARATH T) To regulate certain resellers of utility service.

Current Status: 3/12/2019 - Referred to Committee Senate Energy and Public Utilities

State Bill Page: https://www.legislature.ohio.gov/legislation/legislation-summary?id=GA133-SB-86

RunnerStone, LLC

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MEMORANDUM

Date: August 20, 2019

To: The Ohio Manufacturers' Association

From: John Seryak, PE and Jordan Nader (RunnerStone, LLC)

RE: Amended Substitute House Bill 6 and the Nuclear and Renewable Generation Funds – Impact to Manufacturers

Amended Substitute House Bill No. 6 (H.B. 6) was recently signed into Ohio law. H.B. 6 significantly reworks Ohio's electricity policy in a way that substantially affects manufacturers. OMA energy counsel Kim Bojko has separately provided a legal analysis on what H.B. 6 does, and how it works.

In summary, H.B. 6 creates a $150 million annual fund for nuclear power plants, a $20 million annual fund for select solar power plants, extends a "power purchase agreement" for legacy, uneconomical coal plants in Indiana and Ohio that currently cost Ohioans tens of millions of dollars, defunds Ohio's competitive renewable portfolio standard, effectively eliminates Ohio's energy efficiency standards on investor-owned utilities, creates a mechanism for utility-backed renewable energy projects, and jeopardizes Ohio's participation in competitive wholesale electricity markets.

These changes in Ohio's electricity policy negatively impact three issues of interest to Ohio's manufacturers: cost, competition, and carbon-dioxide emissions.

Impact of H.B. 6

- $150 million/year in new subsidies for nuclear power, from 2021 through 2026
- Extends subsidies for legacy, uneconomic coal plants in Indiana and Ohio, which cost Ohio tens of millions of dollars each year through 2030
- $20 million/year for select solar power projects, from 2021 through 2026
- Likely removes significant portions of Ohio generation and consumer load from competitive wholesale capacity auctions
- Likely to increase capacity prices
- Effectively eliminates renewable energy standards
- Utility efficiency programs
  - Continue through 2020
  - Mandate effectively eliminated starting in 2021
  - Subject to mercantile customer opt-out in 2020
- Creates reasonable arrangement mechanisms for trade-exposed industrial manufacturers

Cost

H.B. 6 creates a net increase in customer costs, including the potential to increase manufacturers' electricity bills. First, and most obviously, H.B. 6 creates new customer charges

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for the Nuclear Generation Fund and Renewable Generation Fund - $10.20 per year for residential customers, $28,800 /year for large consumers who use over 45 million kWh per year, and a charge to be determined later by the Public Utilities Commission of Ohio for other commercial and industrial businesses[1]. Ohio's four investor-owned utilities will be required to collect the combined $170 million per year for the Nuclear Generation Fund and Renewable Generation Fund. Because residential customers and large consumers have prescribed, capped charges, all remaining revenue must be collected from small and mid-sized commercial and industrial businesses.

Second, H.B. 6 extends a subsidy for the Ohio Valley Electric Corporation (OVEC) through 2030. OVEC owns two legacy, uneconomical power plants, Clifty Creek in Indiana and Kyger Creek in Ohio. The OVEC subsidy currently collects tens of millions of dollars each year from customers of AEP Ohio, Duke, and DP&L. FirstEnergy customers would receive new charges to subsidize OVEC.

Third, H.B. 6 reduces Ohio's Renewable Portfolio Standard from 12.5% by 2026, to 8.5%. It also eliminates a 0.5% by 2026 carve-out for solar energy projects, and creates a large-user opt-out of the compliance. The Renewable Portfolio Standard requires retail electric suppliers and electric distribution utilities to procure this percentage of their supply from renewable energy, and is currently at a 5.5% requirement in 2019. For context, we estimate that the renewable standards cost about $40 million in 2017[2], and around $60 million in 2019[3].

Fourth, H.B. 6 directs the PUCO to authorize new power purchase agreements (PPA) for utility renewable energy and customer-sited renewable energy for 3-year terms or longer. The private market currently provides 3-year or greater terms for PPAs to customers who are seeking such projects.

Longer term, H.B. 6 will have an impact on wholesale electricity markets, and the impact could be severe and costly to manufacturers. The exact cost is still elusive. This is because of a domino-effect of state-level nuclear power plant subsidies has left the regional grid operator, PJM, without a FERC-approved capacity auction construct. Based on recommendations from FERC, electricity generators receiving funds from the Nuclear Generation Fund, or via a PPA, would be subject to a "bifurcated" capacity auction, in which the state of Ohio would likely set capacity prices for these power plants instead of PJM, and this potentially higher price would be flowed through to Ohioans.

On energy efficiency, the requirement for a utility to run an efficiency program is effectively eliminated, allowing utility run efficiency programs through 2020. Additionally, a "mercantile opt-out" of the efficiency programs would be enacted in 2020, wherein any customer that consumes over 700,000 kWh/year will be allowed to opt-out of paying into the efficiency programs, but will then not be allowed to receive financial assistance from the programs. While there is no allowance in

[1] Previous versions of H.B. 6 prescribed charges of $180 per year per meter for commercial customers, and $3,000 per year per meter for industrial customers. The per-account rate structure created issues for manufacturers that have multiple electric meters. It is not clear if the PUCO will adopt a rate structure similar to previous versions of H.B. 6, or something completely different.

[2] Renewable Portfolio Standard Report to the General Assembly by the Public Utilities Commission of Ohio for the 2017 Compliance Year.

[3] Pro-rated from 2017's RPS benchmark to the 2019 RPS benchmark. Costs would increase to $142 million by 2026 at 2017 prices, though could be held in check if renewable energy credit prices fall.

H.B. 6 for utilities to continue offering energy-efficiency program, it does not expressly prohibit offering efficiency programs either. For context, during a previous legislative "freeze" of efficiency program requirements in 2015-16, AEP Ohio, Duke, and DP&L continued their programs, while FirstEnergy suspended theirs. In testimony on the original H.B. 6, AEP Ohio, Duke, and DP&L have all expressed interest in operating energy-efficiency programs. Manufacturers should note that there is sharp disagreement over whether efficiency programs represent a cost, or a net benefit, to customers.

Competition

H.B. 6 significantly erodes competition in electricity markets by subsidizing old nuclear and fossil fuel power plants, and favoring specific renewable energy projects over others. H.B. 6 creates subsidies for older generating technologies that have already received cost-recovery from Ohio's ratepayers several times, are unable to compete in the wholesale electricity markets, and are announced for retirement.

Put another way, H.B. 6 creates subsidies to reverse the competitive electricity market formation that Ohio has supported for 20 years. This is serious - competitive electricity markets save Ohio's manufacturers, businesses, and residents around $3 billion per year[4].

Carbon

H.B. 6 no longer explicitly discusses reduction in carbon or other emissions as objectives. However, purported environmental benefits have been used to justify H.B. 6. When considering carbon emissions, it is important to note several trends:

- Many global manufacturers and their supply chains are adopting greenhouse gas reduction goals, energy reduction goals, or renewable energy supply goals. Thus, the carbon intensity of the regional electric grid is important to a growing number of manufacturers. The carbon intensity of the electric grid counts towards a manufacturer's internal accounting of Scope 2 emissions and thus impacts a manufacturer's ability to meet their own corporate emissions reductions goals.
- The US has canceled implementation of the Clean Power Plan, and announced withdrawal from the global Paris Treaty. As a result, there is thus no current federal carbon emissions policy for electricity generation.
- States that have created their own carbon reduction policy for the electricity sector often join regional carbon markets to reduce costs, such as the Regional Greenhouse Gas Initiative comprised of mid-Atlantic and New England states.
- Competitive wholesale electricity markets produce efficiencies of several types, lowering not just cost but carbon emission as well, as producers reduce waste in order to stay competitive.

[4] "Electricity Customer Choice in Ohio: How Competition Has Outperformed Traditional Monopoly Regulation", Thomas, A., Bowen, W., Hill, E., Kanter, A., Lim, T. https://engagedscholarship.csuohio.edu/cgi/viewcontent.cgi?article=2420&context=urban_facpub

Thus, maintaining competitive markets is an important aspect of reducing wastes and improving efficiencies, as supported by multiple academic studies[5].

- Ohio's existing diverse electricity generation mix is keeping costs low, as well as reducing emissions by 38% from 2005 levels[6]. This lower carbon transformation has occurred in a competitive wholesale electricity market.

In light of these trends, a state policy intended to cost-effectively reduce carbon dioxide emissions from the electric sector would likely have the following components:

- Preserve competitive electricity markets.
- Develop a carbon market, typically with regional partners and a fluctuating price.
- Allow broad competition for carbon credits that is technology neutral, and would include nuclear, large scale renewable energy, smaller scale renewable energy, behind-the-meter generation, and energy efficiency.

H.B. 6 does none of this, and in fact, subsidizes uneconomical coal plants. It could impair Ohio's already successful trend of reducing carbon-dioxide emissions in several ways. First, it erodes competitive electricity markets by introducing subsidies for specific technologies and plants. Even zero-carbon nuclear plants are shown to reduce more emissions when they are in competitive markets[7]. Second, H.B. 6 creates subsidies for the OVEC coal plants. Third, H.B. 6 eliminates support for renewable energy technologies and their significant associated emissions reductions.

In conclusion, H.B. 6 is a major reworking of Ohio's energy policy, and could result in significantly higher electricity prices for Ohio's manufacturers, would erode functioning electricity markets, and could even increase Ohio's carbon-dioxide and other emissions from the electricity sector.

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[5] Cicala, Steve. 2015. "When Does Regulation Distort Costs? Lessons from Fuel Procurement in US Electricity Generation." *American Economic Review*, 105 (1): 411-44

Fabrizio, Kira, R., Nancy L. Rose, and Catherine D. Wolfram. 2007. "Do Markets Reduce Costs? Assessing the Impact of Regulatory Restructuring on US Electric Generation Efficiency." *American Economic Review*, 97 (4): 1250-1277.

Craig, J. Dean, and Savage, S., 2013, "Market Restructuring, Competition and the Efficiency of Electricity Generation: Plant-level Evidence from the United States 1996 to 2006", *The Energy Journal*, 34 (1): 1-31

[6] Ohio EPA letter to the US Environmental Protection Agency, Oct. 30th, 2018, Docket ID No. EPA-HQ-OAR-2017-0355

[7] Davis, L., Wolfram, C., 2012. "Deregulation, Consolidation, and Efficiency: Evidence from US Nuclear Power," American Economic Journal: Applied Economics, American Economic Association, vol. 4(4), pages 194-225, October.

Summary of Major Concerns
Senate Substitute HB 6

Updated 7/22/19

Unknown and New Costs

1. There are many **unknown costs and rate design issues** that are left to the PUCO's discretion to decide at some point in the future, especially for the non-residential classes.
2. Parties will have to litigate all of the **unknown cost allocation and rate design issues** and there could be cost shifting between all classes, especially the small to large commercial customers (certain costs are defined only for the residential class and the very large, self-assessor class).
3. **New costs** are created by the bill, including lost distribution revenue for new rate schedules, costs associated with existing renewable purchase power agreements, revenues associated with energy efficiency programs and lost distribution, and costs associated with old coal plants in Ohio and Indiana (**$488 million in additional costs**).

Need for Nuclear Subsidies

1. Although requirements were added to the application process for the nuclear facilities to submit financial information, OAQDA does ***not*** have to consider the financials. Sec. 3706.41. Instead OAQDA is required to certify the facility regardless of what the financials reveal. Sec. 3706.43.
2. While it ***appears*** that a demonstration of need is required, it is not. It only requires information to be included in an application. It does not require OAQDA to make a need determination prior to approving the nuclear resource as a qualifying facility and giving credits.
3. Sec 3706.43 needs to be changed to be a requirement to demonstrate need ***prior to*** becoming certified, not merely an illusory requirement to provide information about a resource's need in its application.
4. All info provided in an application is deemed confidential. So no transparency of "need." Sec. 3706.431.

Monthly Clean Air Charge

1. For non-residential customers that are not self-assessors, no set monthly clean air charge is established, and it is unclear whether the charge will be on a per-customer or per-meter basis. Therefore, many commercial customers could end up paying a large monthly fee on a per-meter basis. It is an **unknown cost**.
2. Utilities in the aggregate must set a charge that generates **$150M** statewide annually for nuclear credits ***and*** **$20M** statewide annually for renewable credits (**total cost to customers annually = $170M)**.
3. Charge is reconciled annually. Clean air credit charge may continue beyond 12/31/26 for reconciliation purposes. Sec. 3706.46.
4. PUCO determines allocation between utilities and customer classes. Therefore, costs unknown.
5. Changed to per-customer monthly charge (at least for these 2 classes) and is capped for 2 customer classes:
    a. Residential = $.85
    b. Industrial self-assessors = $2,400.
    c. Other Non-Residential = **No Cap**—just says the level and design shall be established by PUCO in a manner that avoids abrupt or excessive total net bill impacts for typical customers. All commercial customers that are not the very large industrial customers pay the remaining revenue requirement. Looks like they could pay the bulk of the $170M. Does ***not*** say that this charge is assessed on a per-customer basis for majority of commercial customers.

"Audit"

1. **No audit**—it is called a PUCO ***retrospective*** management and financial review of the owner or operator of a resource and any resource that receives credits. This is paid by the fund (Sec. 3706.53 designates monies from the $170M t to pay it). Sec. 3706.61.
2. **No stakeholder process.** Explicitly excludes the review from PUCO hearing process. No due process. No transparency. The provision has been diluted by not calling it an audit and no due process was added.
3. If overpay, no refunds. It is a retrospective review that can only make prospective changes--any reductions are ***prospective*** only. Sec. 3706.61.
4. PUCO produces same report and will now make it public but no confidential data will be revealed. It will be a high-level summary report.
5. Adds back in concept of Strike Price and a reduction to nuclear credit if Market Price greater than Strike Price (***not*** a genuine customer protection).
    a. Market Price index = (projected energy prices using futures contracts for PJM AEP-Dayton hub + projected capacity prices using PJM's rest-of-RTO market clearing price)
    b. Strike Price = $46/mwh

   c. In order for there to be a reduction in the Clean Air Credit, the Market Price has to be greater than the Strike Price. The current market prices are low (in the low $30/mwh range) so it is unlikely that the Market Price index will go over $46/mwh in the foreseeable future.

6. Ability to decertify resource if need not determined through review was removed.
7. OAQDA ***may*** reduce or cease credits on a going forward basis if:
   a. FERC or Nuclear Commission has established other incentive to continue operations,
   b. 3706.43 is not met (but these are really just application requirements so only required to provide certain information in the resource's application),
   c. owner applied to decommission resource before 5/1/26,
   d. if Market Price exceeds Strike Price on the first day of June in the year when report is submitted then credit price adjustment is applied.
8. Specifically states that info given to PUCO by resource owners are not deemed public records and not subject to public records request. Sec. 3706.65.

<u>OVEC</u>

1. Added definition of prudently incurred costs related to legacy generation resource (this includes OVEC + possibly others?).
2. Recovery of costs incurred due to bankruptcy proceedings (i.e., FES' share of OVEC) are considered prudent. Sec 4928.01(A)(42).
3. Revises existing OVEC recovery riders to ***statewide*** recovery of costs through 2030 with final reconciliation and recovery of all costs "***that exist at that time***." Therefore, all costs that have been incurred but not collected (over the caps) will be due on 12/31/30. This will be a large balloon payment due on 12/31/30, which will negatively impact customers.
4. The bill expands current OVEC recovery to all customers and expands recovery time period through 2030, subject to final reconciliation (currently, AEP's recovery is through 2024, Duke's is through 2025, and DP&L's is through 2023). Sec. 4928.148. **Adds approximately $488 million in costs to customers.**
5. FirstEnergy customers will ***now pay*** the OVEC rider. This will be a **new cost** for FirstEnergy customers.
6. Prudence review for OVEC recovery is only every 3 years. Therefore, utilities will keep customer money that is over collected or that is deemed to be imprudent or unreasonable for 3 years until the next review.
7. PUCO to determine rate design for the recovery of OVEC costs in the future.

8. Establishes caps on the monthly charge or credit (including deferrals):
    a. Res = $1.50 per customer per month
    b. Non-res = PUCO shall establish comparable monthly caps for each class at or below $1,500 per customer.
9. Anything over the cap is deferred and ***shall*** be recovered as determined by the PUCO and subject to monthly caps until 12/31/30 when all costs deferred must be paid to the utilities. Again, this will be a large, unknown cost due on 12/31/30. The provision is silent as to whether interest may be also collected on the amount deferred. Sec. 4928.148(A)(2).
10. Given that FirstEnergy does not own OVEC, there is an added provision that says that the PUCO shall determine the manner in which charges collected under this section should be remitted.

Decoupling Mechanism

1. Creates **new costs** through a new rider by implementing a decoupling mechanism that decouples the base distribution rates for residential and commercial customers to the base distribution revenue AND revenue resulting from implementation of the EE statute (excluding program costs and shared savings) as of the 12-month period ending December 31, 2018. Sec. 4928.471.

2. The new rider will remain in effect indefinitely, until the utility applies for and receives approval of its next distribution rate case.

3. Excludes any utility from receiving a decoupling mechanism if the utility recently had a base distribution rate case and new rates became effective between December 31, 2018 and the effective date of the bill (e.g., Duke).

RPS

1. Reduced the amount of renewables required each year from 2020 through 2025, **but** expanded the renewable requirement until the end of 2026. Sec. 4928.64.
2. Allows recovery for existing long-term renewable purchase power agreements for RPS compliance through 12/31/32. The bill changed it to a guarantee recovery through 12/31/32, regardless as to whether the utility is still incurring costs and regardless of whether the costs are prudent. This could **add new costs** that would have otherwise ended. Sec. 4928.641.
3. In 2020, the PUCO is required to reduce the compliance baselines with the RPS by the amount of kwhs produced by the 5 solar projects that qualify to receive the clean air credit. This will significantly reduce the baselines when those projects are operating. Sec. 4928.642.
4. Retains language to further reduce the RPS and EE compliance baselines by self-assessing mercantile customers' load. Sec. 4928.644.
5. Any renewable project that receives the clean air credit cannot also sell its RECs.

EE

1. Modifies the EE standards to be an additional one percent of the baseline for years 2019-2020. Sec. 4928.66.
2. Extends all EDU EE programs to 12/31/20, but then terminates them on that date.
3. For extended programs, increases the existing EE budget for the utility to the annual average of all budgets that its EE program has been in effect. This creates **new, unknown costs**.
4. PUCO will calculate cumulative energy savings collectively achieved by all EDUs in the state as of 12/31/20 to determine if 17.5% of the baseline has been achieved. If not achieved, then PUCO will determine how further EE programs shall occur. Sec. 4928.66.
5. Cost recovery mechanisms shall terminate upon the date that the PUCO determines full compliance has been achieved subject to final reconciliation. Thus, **future EE costs unknown** and will be determined later by the PUCO.
6. Removed Sec. 4928.143 revised language that required cost recovery approved for EE programs and deferrals related to EE programs to be only for reasonable and prudently incurred costs.

The Ohio Manufacturers' ASSOCIATION

ELEVEN MYTHS SURROUNDING SUB HOUSE BILL 6 (AS PASSED BY THE SENATE)

(This document was updated July 22, 2019.)

There are numerous myths surrounding Ohio 's legislation to bail out uneconomical nuclear power plants. Here are the top 11 myths – and the facts to set the record straight.

MYTH 1: SUB HB 6 IS ALL ABOUT CLEAN AIR – AND NOT A NUCLEAR BAILOUT FOR FIRSTENERGY SOLUTIONS.

FACT: THE BILL CANNOT BE MISTAKEN FOR ANYTHING OTHER THAN A BAILOUT.

- Sub HB 6 provides a Clean Air Credit to nuclear facilities ($9.00 per MWh of generation) (Sec. 3706.45 and 3706.46) in the amount of $150 million annually. FirstEnergy already received subsides for its generation plants during the transition to a competitive market in the amount of $6.9 billion. Sub HB 6 creates additional subsidies for two Ohio nuclear facilities that are currently in bankruptcy. After bankruptcy, it is estimated that the two Ohio nuclear facilities will become just as profitable as the other nuclear facilities that operate at a profit. (See table below.) Poor debt management should not be rewarded in the form of a corporate bailout.

Nuclear unit forward annual surplus (shortfall) ($ in millions)

	Surplus (Shortfall) ($ in millions)		
	2019	**2020**	**2021**
Beaver Valley	$134.3	$93.5	$84.7
Braidwood	$106.4	$80.3	$51.7
Byron	$104.3	$78.6	$50.6
Calvert Cliffs	$131.0	$99.0	$89.3
Cook	$95.8	$48.4	$41.9
Davis Besse	($26.9)	($47.8)	($45.6)
Dresden	$97.3	$76.4	$53.8
Hope Creek	$57.9	$52.0	$43.3
LaSalle	$103.5	$78.0	$50.2
Limerick	$112.2	$100.5	$83.8
North Anna	$138.6	$99.3	$90.0
Peach Bottom	$113.4	$101.5	$84.1
Perry	($22.6)	($49.6)	($47.8)
Quad Cities	$61.3	$42.2	$20.9
Salem	$114.6	$102.8	$85.5
Surry	$120.5	$85.6	$77.6
Susquehanna	$77.7	$37.4	$28.2
Three Mile Island	($56.9)	($69.6)	($72.3)

Source: PJM 2018 State of the Market, Table 7-42, at page 352 of Volume II

- The latest version of Sub HB 6 also provides subsidies to five large solar facilities in the amount of $20 million annually and to the Ohio utilities for their direct or indirect ownership in old coal-generating plants, Ohio Valley Electric Corporation (OVEC), which includes one plant in Indiana and will cost customers over $488 million more than current charges.

MYTH 2: SUB HB 6 WILL REDUCE COSTS.

FACT: SUB HB 6 WILL NOT REDUCE COSTS – IT ACTUALLY CREATES NEW COSTS.

- Sub HB 6 creates the Clean Air Charge that will collect $170 million annually from customers in new charges.
- Sub HB 6 expands the existing OVEC rider through December 31, 2030 and to include costs associated with FirstEnergy's share for the OVEC plants, adding over $488 million in costs to customers' bills. The charge will now be assessed to FirstEnergy customers, adding new costs to those customers.
- Sub HB 6 does not eliminate energy efficiency (EE) costs. The bill continues the existing EE programs through December 31, 2020 with increased budgets, and could possibly continue EE programs beyond 2020. **Allows costs associated with those programs to be collected from customers beyond December 31, 2020** if the EE programs continue and/or to reconcile cost recovery of the programs (Sec. 4928.66(F)).
- Sub HB 6 creates a new rider (decoupling mechanism) that will **continue to collect certain EE costs and may add new costs** (Sec. 4928.471). The new rider will continue until the utility's next base distribution rate case. The utility can collect the revenues it received for the 12 months ending December 31, 2018, associated with implementing EE programs, which includes lost distribution revenues. The rider appears to apply to commercial customers that opted out of paying the EE costs pursuant to R.C. 4928.6611, thereby **increasing some opt-out customers' bills.**
- Sub HB 6 will **increase wholesale capacity prices** by eliminating EE mandates that help suppress capacity prices. Also, Sub HB 6 erodes competition in electricity markets by subsidizing certain generating facilities at the expense of others, thereby increasing costs to customers.

MYTH 3: MANUFACTURERS CAN GET THE CLEAN AIR CREDITS OR OTHER FUNDS.

FACT: THAT'S JUST NOT GOING TO HAPPEN.

- The latest version of the bill clearly defines a Clean Air Resource as nuclear or solar facilities that are interconnected to PJM,and that are major utility facilities certified by the Ohio Power Siting Board prior to June 1, 2019, and the bill only provides for funding to Clean Air Resources (Sec. 3706.40). Therefore, manufacturers will not receive any monies from the Clean Air Fund.

MYTH 4: MANUFACTURES WILL BE EXEMPTED FROM PAYING THE CLEAN AIR FEES.

FACT: MANUFACTURERS WILL NOT BE EXEMPTED.

- There are no longer any provisions in the bill that would exempt a manufacturer from paying the Clean Air Fees.

MYTH 5: COST TO MANUFACTURERS IS MINIMAL.

FACT: MANUFACTURERS' COSTS COULD INCREASE SUBSTANTIALLY.

- The monthly charge to the majority of commercial customers to fund the Clean Air Fund is unknown and undefined as to whether it will be collected on a per-account or per-customer basis or whether it will be a flat monthly charge or a kwh charge (Sec. 3706.46). Typically, utilities assign an account to each meter belonging to a customer; manufactuerers frequently have more than one meter. Thus, a large manufacturer with three accounts could be assessed multiple charges based on consumption.

MYTH 6: SUB HB 6 CREATES DIVERSITY OF GENERATING RESOURCES.

FACT: THE BILL REMOVES INCENTIVES TO INVEST IN A BROADER ENERGY PORTFOLIO.

- If two Ohio nuclear plants, five solar facilities, and two old coal plants (one in Ohio and one in Indiana) receive subsidies and other resources do not receive subsidies, the four subsidized plants will likely be able to be dispatched by PJM, replacing other resources, which could include coal plants that recently invested to add scrubbers and emission control equipment. Unfairly subsidizing certain plants at the expense of all others may enable those subsidized plants to remain in the diversity mix, but could cause other resources to be eliminated from the mix.

MYTH 7: SUB HB 6 PROHIBITS GENERATING FACILITIES FROM RECEIVING MULTIPLE GOVERNMENT SUBSIDIES.

FACT: UNDER THE BILL, GENERATORS COULD GET MANY GOVERNMENT SUBSIDIES.

- Sub HB 6 does not prohibit a facility from receiving multiple government subsidies. It does not specifically prohibit resources from receiving one or more state, federal, or municipal subsidies, or local tax abatements, and only permits, not requires, the Ohio Air Quality Development Authority to cease or r educe payments to nuclear facilities if FERC or NRC establish a monetary benefit or incentive payment to continue commercial operation of the plants. Moreover, Sub HB 6 allows a Clean Air Resource to receive a Clean Air Credit, while also allowing for increased capacity payments from PJM that could be triggered by Sub HB 6 (Sec. 3706.61).

MYTH 8: SUB HB 6 SWAPS MANDATES – OHIO'S ENERGY EFFICIENCY AND RENEWABLE PORTFOLIO STANDARDS ARE REPLACED BY A CLEAN AIR FUND.

FACT: MANUFACTURERS COULD GET STUCK PAYING FOR MULTIPLE MANDATES.

- Sub HB 6 does not simply eliminate EE costs and replace with a lower Clean Air Fee. Rather, Sub HB 6 continues to collect costs associated with existing EE programs through December 31, 2020 and possibly beyond 2020, allows the utilities to collect costs and incentives associated with expanding collection of OVEC, and will assess other new charges to customers, including customers that opted out of EE programs (see Myth #2). Additionally, Sub HB 6 does not just affect the EE and Renewable Portfolio Standards (RPS) mandates. Sub HB 6 modifies the ratemaking statutes enacted to effectuate deregulation and allows utilities to add new above-market charges to customers' bills through their Electric Security Plans (ESPs). Sub HB 6 creates a mechanism for distribution utilities to re-enter the generation market, creating bad energy policies. Sub HB 6 is a step backwards for Ohio.

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MYTH 9: SUB HB 6 REDUCES EMISSIONS IN OHIO.

FACT: THE CURRENT SYSTEM IS WORKING; SUB HB 6 COULD THWART OHIO'S PROGRESS.

- Ohio's existing diverse electricity generation mix has already reduced emissions by 38 percent from 2005 levels. This lower carbon transformation has occurred in a competitive wholesale electricity market. Subsidizing older plants, including two coal plants, with older technologies that may otherwise retire and make way for newer technologies could result in increased carbon-dioxide emissions in Ohio.

MYTH 10: SUB HB 6 SUBSIDIES FOR OHIO VALLEY ELECTRIC CORPORATION (OVEC) ARE INSIGNIFICANT.

FACT: THE NEW OVEC SUBSIDY WILL COST OHIO FAMILIES AND BUSINESSES AT LEAST AN ADDITIONAL $488 MILLION THROUGH 2030.

- Total costs to Ohio ratepayers for OVEC under approved ESPs are approximately $79 million per year.
- The modified OVEC subsidy will expand the duration of the current non-bypassable, above-market charges on customers' electric bills, will include costs associated with FirstEnergy's share of OVEC, and will be expanded to assess the charge on FirstEnergy's customers.(Sec. 4928.148).
- AEP Ohio will recover roughly $38 million per year from customers under the approved ESP through May 31, 2024. Sub HB 6 would allow the company to recover an additional $247 million between June 2024 and December 2030.
- Duke Energy Ohio will recover roughly $32 million per year from customers under the approved ESP through May 31, 2025. Sub HB 6 would allow the company to recover an additional $176 million between June 2025 and December 2030.
- The Dayton Power and Light Company will recover roughly $9 million per year from customers under the approved ESP through November 1, 2023. Sub HB 6 would allow the company to recover an additional $65 million between November 2023 and December 2030.
- Although the OVEC charge will be capped monthly through December 21, 2030, the charge is subject to final reconciliation on December 31, 2030, at which time customers will be responsible to pay all costs that have been deferred and that are due. Customers could be on the hook for a large lump sum payment on December 31, 2030 (Sec. 4928.148(A)(3)).

MYTH #11: SUB HB 6 SUPPORTS ONLY OHIO FACILITIES.

FACT: SUB HB6 WILL GIVE MILLIONS OF DOLLARS TO AN INDIANA COAL PLANT.

- The bill does NOT require that the Legacy Generation Resources (OVEC) be in the state of Ohio to receive subsidies under Sub HB 6 (Sec. 4928.01(A)(41); 4928.148). One OVEC unit partially owned by the Ohio distribution utilities that will receive customer-funded subsidies from Ohioans under Sub HB 6 is in Indiana.

Summary of Improvements

Senate Substitute HB 6

Through OMA's (and others') advocacy efforts, key improvements were achieved from the originally introduced HB 6 bill. To highlight the effectiveness of the opposition, the following are some of the improvements realized:

Clean Air Subsidy:

1. Reduced the overall Clean Air subsidy from $300M to $170M per year.
2. Reduced the credit provided to resources from $9.25 to $9.00.
3. Limited the applicability of the Clean Air subsidy to two Ohio nuclear facilities and 5 Ohio solar facilities.
4. Included a sunset date on the customer charge (April 2021 through January 2028).
5. Modified charge from a 'per meter' to a 'per customer' charge for at least two classes of customers.
6. Implemented a cap on the level of the charge collected from customers for certain classes of customers.
7. Added reduction or elimination of nuclear credits under certain circumstances.
8. Added a customer refund provision for any over collection of the Clean Air charges (monies remaining in the Clean Air Fund at the end of the program).

Certification/Review:

9. Added requirement for the nuclear facilities to produce financials to OAQDA.
10. Implemented a financial review of the resource owners and the resources that receive credits.

Decoupling Mechanism:

11. Modified the decoupling mechanism that decouples base distribution rates to the 2018 base distribution revenues and revenues resulting from energy efficiency programs to exclude shared savings incentives and energy efficiency program costs and prohibit double recovery.
12. Modified the decoupling mechanism to prohibit a utility that had a rate decrease after 2018 to be able to obtain the 2018 level of rates, which would be an increase in distribution rates.

Other Costs:

13. Reduced the number and types of additional costs that can be passed on to customers.
14. Eliminated broad renewable Purchase Power Programs paid for by all customers.
15. Eliminated a newly created reasonable arrangement provision for only a certain type of customer.
16. Eliminated newly created future energy efficiency programs at PUCO.
17. Delayed commencement of the Clean Air charge to eliminate the overlap with current energy efficiency costs (eliminated the likelihood of bills increasing).
18. Expanded mercantile opt-out of the energy efficiency programs.

Updated 8/27/19

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INFORMATION IS POWER

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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) proceeding[1] 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. FERC[2] 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 state[5]. 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 2018[6]. The average LMP value is based on the 2018 State of the Market Report for PJM[7]. 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

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

The Ohio Manufacturers' Association

An Analysis of Ohio Nuclear Plant Profitability Under House Bill 6

The Ohio House of Representatives recently passed House Bill 6 (H.B. 6), a major rework of Ohio's electricity policy. H.B. 6 would significantly affect customer costs and how electricity markets function in Ohio. Energy counsel for The Ohio Manufacturers' Association (OMA), Kim Bojko of Carpenter Lipps & Leland, has separately provided a legal analysis on what H.B. 6 does and how it works.

In summary, H.B. 6 creates excessive profit for Ohio's nuclear plants of up to $330 million per year over the six-year term of the Clean Air Program. In this memo we examine the nuclear plants' profitability, multiple compensation mechanisms for nuclear power plants in H.B. 6, how the bill would trigger special treatment of the nuclear plants' capacity revenue, and forthcoming changes in wholesale electricity markets that create additional revenue for nuclear plants.

Ohio's Nuclear Plants' Excessive Profit Under House Bill 6

- Currently plants may not need financial support.
  - Dr. Paul Sotkiewicz estimates $72 million annual profit presently.
- H.B. 6 may contribute to excessive profits of an estimated $330 million a year.
  - Of that, $150 million a year from Clean Air Credits.
- H.B.6 triggers changes in capacity auctions.
  - Plants removed from capacity auction - $82 million a year.
  - Possible $157 million a year in State of Ohio capacity revenue envisioned by FES.
- Other changes to PJM electricity market include energy market rule changes - $33 million a year.

Nuclear Plant Profitability

H.B. 6 was passed with the purported intent to keep Ohio's two nuclear power plants, Davis-Besse and Perry, up and running. The owner of these two nuclear plants, FirstEnergy Solutions (FES), is currently going through bankruptcy proceedings. However, FES is expected to emerge from bankruptcy financially solvent. And the financial well-being of FES is not necessarily reflective of the financial viability of its nuclear power plants. Thus, questions remain:

- How financially viable are the nuclear power plants presently?
- And will the nuclear power plants emerge from bankruptcy in a better financial position?

Two authoritative sources have addressed the nuclear power plants' profitability. PJM's Independent Market Monitor releases an annual "State of the Market" report, which includes financial surplus or shortfall of PJM's 18 nuclear power plants.

We have reproduced the Independent Market Monitor's estimates in the table below. The Monitor estimates that three of PJM's 18 nuclear plants are losing money, while the other 15 are profitable.

Table 7-42 Nuclear unit forward annual surplus (shortfall) ($ in millions)[56]

	Surplus (Shortfall) ($ in millions)		
	2019	2020	2021
Beaver Valley	$134.3	$93.5	$84.7
Braidwood	$106.4	$80.3	$51.7
Byron	$104.3	$78.6	$50.6
Calvert Cliffs	$131.0	$99.0	$89.3
Cook	$95.8	$48.4	$41.9
Davis Besse	($26.9)	($47.8)	($45.6)
Dresden	$97.3	$76.4	$53.8
Hope Creek	$57.9	$52.0	$43.3
LaSalle	$103.5	$78.0	$50.2
Limerick	$112.2	$100.5	$83.8
North Anna	$138.6	$99.3	$90.0
Peach Bottom	$113.4	$101.5	$84.1
Perry	($22.6)	($49.6)	($47.8)
Quad Cities	$61.3	$42.2	$20.9
Salem	$114.6	$102.8	$85.5
Surry	$120.5	$85.6	$77.6
Susquehanna	$77.7	$37.4	$28.2
Three Mile Island	($56.9)	($69.6)	($72.3)

Table 1: Independent Market Monitor Estimates of Nuclear Power Plant Annual Financial Surplus or Shortfall.

There are several insights to glean from this analysis. First, Ohio participates in the regional PJM electricity market, and most nuclear power resources in this market will continue to operate and be profitable. In other words, Ohio's access to low-carbon nuclear power is not significantly at risk.

Another insight is that FES's two Ohio nuclear plants are estimated to lose $93 million in 2021. While this is a significant loss, it is substantially less than the $165 million annual payment expected from the Clean Air Program created under H.B. 6.

Estimates of Nuclear Power Plant Annual Financial Surplus or Shortfall

The Independent Market Monitor cannot disclose specific power plant financial data, and so Table 1 presents estimates. Thus, the Monitor relies on average operating costs data from the Nuclear Energy Institute to estimate operating costs, as well as public data on energy production and wholesale electricity market prices to estimate revenue. The estimated operating costs reflect typical single unit nuclear plant costs. If FES's nuclear plants are losing more money than this estimate, it would demonstrate that they are not operating their plants as efficiently as the industry average. This means the Clean Air Program would be compensating for below-average operating performance, not just the benefits of nuclear power.

Another separate financial analysis was completed by Dr. Paul Sotkiewicz, former chief economist for PJM. Dr. Sotkiewicz's financial analysis shows that post-bankruptcy, the Davis-Besse and Perry nuclear plants will likely turn an annual profit. Dr. Sotkiewicz estimates the annual profit to be $28 million for Davis Besse and $44 million for Perry, for a combined profit of $72 million annually[1].

Dr. Sotkiewicz's estimates differ from the Independent Market Monitor's for two main reasons. First, Dr. Sotkiewicz accounts for the nuclear plants' financial situation post-bankruptcy. Second, Dr. Sotkiewicz relies on specific financial filings of these nuclear power plants.

These financial estimates call into question the following:

- Do the Davis-Besse and Perry nuclear power plants need financial assistance?
- Does the Clean Air Program over-compensate the nuclear power plants?
- Is the Clean Air Program compensating poor business decisions, in addition to the environmental benefits of nuclear power?

H.B. 6 Revenue Streams for Nuclear Plants

H.B. 6 creates a Clean Air Program, financed by charges applied to each customer of an Ohio investor-owned utility (AEP Ohio, DP&L, Duke, and the FirstEnergy companies). Each year the Clean Air Program will pay $9 for each MWh of electricity produced by nuclear power plants. According to the U.S. Energy Information Administration (EIA), over the past three years, Davis-Besse produced 7,216,607 MWh on average, and Perry generated 10,390,121 MWh on average. However, HB 6 provides for total compensation to the nuclear plants at $150 million per year.

Therefore, it is estimated that under the Clean Air Program, the nuclear plants would be compensated as follows:

7,216,607 MWh (Davis-Besse) + 10,390,121 MWh (Perry) = 17,606,728 MWh

17,606,728 MWh x $9 /MWh (Clean Air Credit) = $158,460,552/year

Annual compensation = $150,000,000 /year

Nuclear power plant output will vary from year to year, depending on the plants' refueling schedule and up-time.

[1] "The Market and Financial Position of Nuclear Resources in Ohio", Dr. Paul Sotkiewicz, E-Cubed Policy Associations, LLC. Table 12

H.B. 6 Triggered Capacity Auction Changes

H.B. 6 not only sets into sequence a series of reactions in the wholesale electricity market, which will affect Ohio's electricity prices, but also how the nuclear power plants are compensated for electricity, and the level of that compensation. At the heart of this set of reactions are forthcoming changes to PJM's electric capacity auction. The capacity auction is the mechanism by which PJM assures enough electricity resources are available for the grid system at times of peak demand. Please note that capacity payments are an important part of overall economic viability for a power plant.

However, PJM is also charged with ensuring a fair and level playing field for power plants competing for capacity payments. This is especially true now, as PJM is consistently exceeding its reliability goal and there is an abundance of power plants on the grid, with even more new entrants waiting.

With this abundance of generation, uneconomic power plants may be unable to compete and receive a capacity payment. As a result, some uneconomic power plants are seeking subsidies from their respective states to remain viable. This undermines the integrity of the market. And the Federal Energy Regulatory Commission (FERC) has thus deemed PJM's capacity auction as unjust and unreasonable. FERC has issued guidelines, with time for comment, that essentially will wall-off generating plants that receive materially significant state subsidies from participating the PJM's capacity auction.

In simple terms, if H.B. 6 passes, Ohio's nuclear power plants would be removed from PJM's capacity auction, and they would lose the ability to earn this revenue. We estimate this lost revenue potential at around $82 million a year, as shown in the calculation below:

894 MW (Davis-Besse) + 1,256 MW (Perry) = 2,150 MW (combined capacity)

2,150 MW x $105 /MW-day (3-year average capacity price) x 365 days/year = $82 million/year

This is a real, probable, and possibly unintended consequence of H.B. 6 – that Ohio's nuclear power plants will be ineligible to compete in wholesale capacity auctions and will likely be further impaired financially by this loss in revenue. This is probably an untenable financial position for the nuclear plants.

Fortunately, there is no need for speculation. FirstEnergy Solutions has already provided comment on these rules, including advice on how Ohio can make up for this unexpected loss of revenue. Specifically, FES states that credits for zero emissions for nuclear plants are "not intended to provide resources with sufficient revenue, in the absence of a capacity payment, to make continued operation viable"[2].

This is to say, FES intends to ask for capacity payments in addition to Clean Air Credit payments. Because PJM will not provide these capacity payments, the state of Ohio would need to do so, and Ohio ratepayers would need to cover this cost. FES has provided an example of around $200 /MW-day compensation for capacity. At this rate, Ohio would need to create the following additional revenue for the nuclear power plants:

[2] FERC Docket EL18-178, Initial Comments of FirstEnergy Solutions Corp., Page 10

2,150 MW x $200 /MW-day (3-year average capacity price) x 365 days/year = $157 million/year

Note: H.B. 6 does not create a mechanism for Ohio to set capacity prices, collect the costs from ratepayers, or pay the payment to generators.

Other Changes in PJM's Electricity Market

While the nuclear plants will not be eligible for capacity payments from PJM, they will still participate in PJM's energy markets, which compensate generators for the electricity they produce, as opposed to the peak capacity. The energy markets, too, are undergoing rule changes that are expected to create increased revenue for nuclear power plants – specifically, changes to the Operating Reserve Demand Curve included in PJM's Price Formation Filing.

According to the Independent Market Monitor, nuclear power plants will receive an additional $15,344 /MW-year[3] due to changes in the Operating Reserve Demand Curve. This would create an additional $33 million/year for Ohio's nuclear power plants:

2,150 MW x $15,344 /MW-year = $33 million/year

PJM is also investigating carbon pricing for its market. While it is too early to say if a rule would pass, how it would work, and what revenue it would create for Ohio's nuclear plants, one can assume there is the possibility of future payments for carbon-free generation.

Excessive Profits Potential

H.B. 6 thus sets up significant excessive profit potential for Ohio's nuclear plants. For example, should the nuclear power plants be profitable post-bankruptcy, and should Ohio create a capacity payment to replace PJM's for the nuclear plant, Ohio's nuclear plants would have the following annual profits:

$72 million/year (post-bankruptcy profit) + $150 million/year (Clean Air Program revenue) - $82 million/year (capacity auction lost revenue) + $157 million/year (Ohio set capacity revenue) + $33 million/year (PJM price formation changes) = $330 million/year

If we use the Independent Market Monitor's estimates of the two nuclear plants' financial losses – and we assume that Ohio does not create a capacity price and payment mechanism for the plants – the net annual profits of the nuclear plants under H.B. 6 are still $16.5 million.

Conclusions and Findings

Based on the above data, Ohio policymakers should take into consideration the following questions:

- Do the nuclear plants truly need financial support, post-bankruptcy?

[3] Monitoring Analytics, "ORDC Simulation Results: Version 2", Table 20.

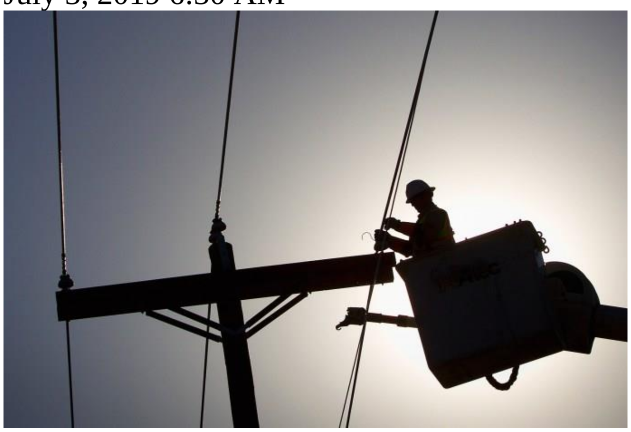
- Does H.B. 6 create excessive profits for the nuclear power plants?
- Can Ohio's payments to the nuclear power plants be lowered if the plants start receiving additional revenue from energy markets?
- Will Ohio be asked, or required, to create a capacity payment mechanism for the nuclear power plants to replace the probable loss of PJM capacity payments to the nuclear power plants?

NATIONAL REVIEW

An Ohio Energy Revolution

By TRAVIS KAVULLA

July 3, 2019 6:30 AM



*(File photo: Carlo Allegri/Reuters)*Consumers have benefitted from competition, but the state's legislators won't take 'yes' for an answer.

Ohio's legislature courageously voted to de-monopolize its electricity sector two decades ago. Since then, power generators have had to compete with one another for consumers' business, rather than having their prices fixed by utility regulators.

Public policy only rarely has direct, and positive, effects on the price of a major commodity. This is one of those policies. Ohio has outperformed its neighbors Indiana and Kentucky, where the electric power industry remains fully monopolized. Those states have seen electricity prices increase about 30 percent from 2008 to 2016. Ohioans' bills have risen, but only by half that. Ohio's energy policy has allowed the state to capitalize on the massive Marcellus Shale gas fields that sit under Ohioans' feet. When customers are not on the hook to monopolies for multi-decadal investments in power plants, capital more easily recirculates into newer, more efficient investments.

Now it's just a matter of convincing state legislators to accept the fruits of their policy. Rather than amplifying the benefits of low-cost energy, the state has diminished them by furnishing handouts to the state's erstwhile monopolies. Four of them — FirstEnergy, AEP, Duke, and Dayton Power & Light — have through legislation and regulation extracted more than $15 billion in subsidies since the state's ostensible "deregulation," according to the Ohio Consumer Counsel.

Many of those fees show up on customers' bills cloaked in happy-sounding euphemisms such as "rate stabilization surcharge." Just last month, Ohio's supreme court tossed out the latest of these subsidies, a $168-million-per-year "grid modernization surcharge." Ohio's utility regulator had labeled the fee an "incentive," but, as the court noted, the program had no requirement that the proceeds be spent on anything having to do with modernizing the grid. It was, plain and simple, a gambit to shuffle money to an actor that found itself on the losing end of Ohio's competitive electricity sector.

This year's grift, Ohio's House Bill 6, would direct north of $1.2 billion in subsidies over the next six years to two nuclear plants as well as a pair of 64-year-old coal power plants owned by a consortium of utilities. Akron-based FirstEnergy and the leader of Ohio's house of representatives, Larry Householder, call this gambit the "Ohio Clean Air Program," a name in rather plain defiance of what the bill actually does. Speaker Householder has pieced together a political coalition that depends on labor unions, who joined with Republican legislators to secure his position as speaker earlier this year. One of the main backers of the Householder faction is FirstEnergy.

In the legislative cram-down that has attended H.B. 6, the bill's utility and labor-union proponents have mouthed a number of weak arguments, hoping to give the bailout some plausible reasoning. None of them have stuck.

First, H.B. 6's sponsors said that if nuclear power plants went out of business, power prices would rise. This is a bizarre argument: Subsidize power plants or else consumers will have to pay more. It is true that the market today is oversupplied with power resources, and if some close, prices will tighten. But the wholesale market operator, PJM, has studied the issue and anticipates total consumer savings of $1.6 billion if the nuclear plants in danger of closing are replaced by natural gas generators.

Furthermore, it is not even clear that Ohio's nuclear plants are unprofitable and would close without subsidies. The plants' going-forward costs appear to be below the anticipated market price of electricity. One analysis, by Paul Sotkiewicz, among the nation's leading energy economists, projects that the nuclear plants will earn $700 million over the next decade. H.B. 6 would more than double those profits. FirstEnergy disputes Sotkwiewicz's report but refuses to accept an amendment that would pay out subsidies only if the plant owners open up their books and prove they are unprofitable. That pretty much says it all.

Flailing, H.B. 6 boosters have also claimed that the bill merely rebalances the playing field after years of renewable subsidies. They've got a right to complain about those. Yet according to the Ohio Public Utilities Commission, the renewable surcharge is less than the H.B. 6 surcharge would be for all but one of the electric utilities in the state. In any case, if the legislature wants to repeal renewable subsidies, then it should do so. But don't use the savings to fund other subsidies. Give them back to customers.

The fix was in for H.B. 6 in Ohio's House, where it sailed to passage early last month despite overwhelming public opposition in committee hearings. The state's governor, Mike DeWine, has suggested he will sign it. But as each bad argument for H.B. 6 has fallen flat, Ohio's senators show signs of skepticism. A more principled bunch of conservatives, they have the task of holding the line on Ohio's successful, if always besieged, experiment in electricity competition.

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Columbus Dispatch

August 2, 2019

https://www.dispatch.com/opinion/20190802/editorial-more-you-learn-worse-house-bill-6-looks

Editorial: The more you learn, the worse House Bill 6 looks

By now, readers might be tired of hearing about the **state law just passed** to bail out two FirstEnergy Solutions nuclear plants and greatly undermine the development of renewable energy in Ohio. We recognize that, but bear with us: The whole exercise has been such a textbook example of legislative abuse that it should be studied, so that perhaps Ohioans won't tolerate it the next time lawmakers are determined to serve moneyed interests over the public good.

The law itself is awful — forcing all Ohio electricity ratepayers to bail out old and uncompetitive nuclear and coal plants even as it drastically undercuts the development of renewable energy in the state, all but guaranteeing Ohio dirtier air and a trailing role in a major industry of the future.

Factor in the $1.65 million in campaign cash that utilities spread around the Statehouse to cultivate support, plus a multimillion-dollar advertising blitz and you get a monumentally discouraging view of How a Bill Becomes a Law.

Dispatch Reporter Randy Ludlow's **story** on Sunday laid out the campaign contributions, with data compiled by the Energy and Policy Institute: Starting in 2017, FirstEnergy Corp. and its employees gave nearly $1 million to state representatives and senators, Gov. Mike DeWine, other officeholders, political action committees and political parties.

The remaining $650,000 or so came from AEP, Dayton Power & Light and Duke Energy, all of which own shares in two 1950s-era coal plants that also will be propped up by the new law.

Looking at giving by all utilities and only to House members, 40 of the 53 who initially voted yes on House Bill 6 received a total of nearly $323,000.

House Speaker Larry Householder's ties to FirstEnergy are extensive, and he made passage of HB 6 a top priority. He received $30,000 from AEP and $24,415 from FirstEnergy, but the utilities also helped him indirectly, with large contributions to House candidates who would support his bid to become speaker.

All spring, lawmakers rushed to get the bill passed because FirstEnergy Solutions declared that it had to have a bailout secured by June 30 or it would be forced to begin the process of shutting the plants down.

The unseemly rush to do the company's bidding reached its peak on July 22, as the next day's final vote approached. It was going to be close, and three "yes" votes — Reps. Bob Cupp of Lima, Jim Butler of Oakwood and Tom Brinkman of Cincinnati — were in Chicago for a conference.

So urgent was the need to get them back to Columbus for the vote that Householder apparently proposed, and DeWine's office agreed, to **send a state plane** to fetch them, at a cost to taxpayers of nearly $5,700.

Thanks to a tipster, word of the extravagance got out, the flight was canceled late on the night before the vote and the lawmakers somehow got back to town without the private plane.

HB 6 passed by a single vote and Ohio is stuck with what one critic called "the worst energy bill of the 21st century."

Other states, including New York, Illinois and New Jersey, have bailed out their old nuclear plants, but only Ohio's legislature has seen fit to also sabotage the future of renewable energy while at it.

It is not a distinction to be proud of.

W00.0001

Petition for Submission to the Secretary of State and Attorney General for Certification of Summary for Referendum Petition

as required under Ohio Revised Code § 3519.01(B)

RECEIVED
AUG 16 2019
Ohio Attorney General
Constitutional Offices Section

PROPOSED SUMMARY

Amended Substitute House Bill No. 6 (the "Act") enacts, amends, and repeals sections of the Ohio (ORC).

The Act enacts ORC §§ 3706.40 through 3706.65, which provide as follows:

- ORC § 3706.40 defines the terms used in §§ 3706.40 through 3706.65, including a "qualifying nuclear resource," which means an electric generating facility in Ohio fueled by nuclear power; a "qualifying renewable resource," which means an electric generating facility in Ohio that (i) uses or will use solar energy as the primary energy source, (ii) obtained a construction certificate from the power siting board prior to June 1, 2019, and (iii) is connected with the transmission grid controlled by PJM Interconnection LLC; and an "electric distribution utility," which means an electric utility that supplies at least retail electric distribution service
- ORC § 3706.41 establishes the process for a qualifying nuclear or renewable resource to submit an application to the Ohio air quality development authority (the "Authority") in order to receive payments for credits through the nuclear or renewable generation funds and provides that: (i) applications must be received by February 1, 2020, and must include all of the following information from the qualifying nuclear resource: financial, certified cost and revenue projections through 2026, operation and maintenance expenses, fuel and spent-fuel expenses, nonfuel capital expenses, fully allocated overhead costs, any other information that demonstrates that the resource is projected not to continue being operational, and the cost of operational risks and market risks that would be avoided by ceasing operation of the resource; and (ii) "operational risks" include the risk that operational costs could be higher than anticipated because of future regulatory mandates or equipment failures and the risk that per-megawatt-hour costs will be higher than anticipated because of a lower than expected capacity factor; and "market risks" include risks of forced outages and the associated costs arising from contractual obligations, and that power may not be sold at projected levels
- ORC § 3706.43 establishes (i) the procedure for review and approval of an application for nuclear or renewable credits by a qualifying resource; (ii) that the Authority would have until March 31, 2020, to review and approve an application; (iii) that an application for renewable credits shall be approved if the resource meets the qualifying renewable resource definition; and (iv) that an application for nuclear credits shall be approved if: the resource meets the qualifying nuclear resource definition; the application meets the requirements for an application for a qualifying nuclear resource; and the operator of the resource maintains a principal place of business in Ohio and a substantial business presence in Ohio
- ORC § 3706.431 provides that financial and proprietary information received from qualifying nuclear resources in their applications is confidential and not a public record
- ORC § 3706.45 requires (i) qualifying nuclear and renewable resources whose applications were approved to report their megawatt hours generated on a quarterly basis to the Authority, and (ii) the Authority to issue one credit for each megawatt hour reported to, and approved by, the Authority, at a default price of $9 for a renewable energy credit and $9 for a nuclear credit, unless the amount for a nuclear credit has been reduced as a result of an annual review of a nuclear resource
- ORC § 3706.46 requires:
    - all electric distribution utilities in Ohio to collect a monthly charge from its retail customers from 2021 through 2027 that will accumulate $150 million annually for the nuclear generation fund and $20 million annually for the renewable generation fund, which collection is permitted to go beyond 2027 if necessary to pay for earned credits from the generation funds, but only so long as is reasonably necessary to reconcile the actual revenue needed;
    - the Ohio public utilities commission (the "Commission") to: (i) prescribe the method of allocation or assignment for collection of revenue by each utility based on number of customers and/or kilowatt sales; and (ii) ensure the monthly charge does not exceed $0.85 (85 cents) for residential customers, $2,400 for eligible industrial customers, and that abrupt or excessive total bills for all other nonresidential customers are avoided;
    - that the level and structure of the charge authorized shall be through a process that is not for an increase in any rate, joint rate, toll, classification, charge, or rental; and
    - the charges authorized by the Commission under this section to be subject to adjustment so as to reconcile actual revenue collected with the revenue needed annually for the nuclear and renewable generation funds, and the Commission to authorize the utilities to establish accounting methods for doing so

- ORC § 3706.49 provides (i) for the creation of the nuclear generation fund and the renewable generation fund, into which the revenue from the monthly customer charges shall be deposited as apportioned by the Act and which shall gain interest; (ii) that the interest generated by each fund shall be retained by each respective fund and used for the purposes as set forth in ORC §§ 3706.40 to 3706.65; (iii) that the funds and their generated interest shall be in the custody of the state treasurer but neither shall be part of the state treasury; and (iv) that the state treasurer shall distribute the money in the funds as directed by the Authority in consultation with the Commission
- ORC § 3706.53 apportions the revenue collected through the utility charges between the nuclear generation fund, which shall receive 88.25% of the funds collected, and the renewable generation fund, which shall receive 11.75% of the funds collected, and this apportionment is subject to adjustment by the Commission in accordance with ORC § 3706.61
- ORC § 3706.55 requires the Authority to (i) direct the state treasurer to remit money from the generation funds between April 2021 and January 2028 to qualifying resources in amounts equivalent to the credits earned by the resource during the quarter that ended twelve months prior to the last day of the previous quarter multiplied by the credit price, provided there is sufficient money in the relevant funds; and (ii) determine, in consultation with the Commission, the manner in which any amounts remaining in the funds as of December 31, 2027, after distributions have been made through January 21, 2028, shall be refunded to customers
- ORC § 3706.59 provides that:
  - if money in the nuclear generation fund is insufficient to cover payment for earned nuclear credits, the Authority shall direct the Ohio Treasurer to remit money from the fund not later than 21 days after the close of any quarter in which an owner or operator was not fully compensated, to pay for the unpaid credits;
  - if money in the renewable generation fund is insufficient to cover payment of earned renewable credits, the Authority shall direct the Ohio Treasurer to prorate the payments and make up payments for unpaid credits in future quarters before making payments for additional earned credits
- ORC § 3706.61 requires:
  - the Commission: (i) to conduct annual retrospective reviews between 2021 and 2027 of the finances and management of the owners or operators of qualified resources receiving payments from the nuclear generation fund; (ii) to submit a report summarizing the findings of each annual review to the legislature and the Authority; and (iii) to make the reports available to the public;
  - owners or operators of qualified resources to provide all information, data, and documents requested for the reviews by the Commission, and allows for the suspension of payments for nuclear credits for any material failure to timely and fully respond, until the failure is cured to the Commission's satisfaction;
  - the Authority, in consultation with the Commission, to consider the findings in the annual review, and permits it to reduce or cease payments out of the nuclear generation fund if the nuclear resource: (i) receives adequate federal funding for operations; (ii) loses its qualified status or if the operator fails to maintain both a principal place of business in Ohio and substantial business presence in Ohio; (iii) applies, before May 1, 2027, to decommission the resource; or (iv) if the market price index exceeds the strike price on June 1 of the year in which the report was submitted;
  - the Commission, upon a determination by the Authority to make reductions to payments out of the nuclear generation fund based on the annual review, to do all of the following, as necessary, made through a process that the Commission determines is not for an increase in any rate, joint rate, toll, classification, charge, or rental: (i) reduce revenue requirements; (ii) reduce the charge or charges from customers; (iii) adjust the percentage of funds allocated to the nuclear and renewable generation funds; and (iv) reduce nuclear credit prices, except when the Authority has reduced the price because the market price index exceeded the strike price on June 1 of the year in which the report was submitted; and
  - the Commission, if payments for nuclear credits are suspended or cease under this section, to instruct the electric distribution utilities to accordingly suspend or cease billing and collecting customer charges under the newly enacted ORC § 3706.46
- ORC § 3706.63 requires the Authority to adopt rules to implement and administer the nuclear generation fund and renewable generation fund
- ORC § 3706.65 permits the Authority to use resources of the Commission to establish and administer the nuclear and renewable generation funds, and provides that any information, data, and equipment will not become a public record as a result of being shared with the Authority

The Act also:

- amends the definition of "net metering system" in ORC § 4928.01 to provide that a facility located on an industrial customer-generator's premises that produces energy using wind, has a capacity of less than 20 megawatts, and is intended to offset the industrial customer-generator's electricity requirements, must be sized so as not to exceed 100% of the industrial customer-generator's annual electric requirements at the time of interconnection, and adds two new definitions in the same section, as follows:
  - "legacy generation resource" is defined to mean all generating facilities owned directly or indirectly by a corporation formed prior to 1960 by investor-owned utilities for the original purpose of providing power to the federal government for the nation's defense or national interests, including the Ohio valley electric corporation; and
  - "prudently incurred costs related to a legacy generation resource" is defined to mean costs of a power agreement related to a legacy generation resource (i) minus certain revenue, return on investment, and debt-recovery if the resource retires early; (ii) including bankruptcy costs of sponsors or co-owners of the resource not otherwise recovered; and (iii) provided that where net revenues exceed net costs, those excess revenues shall be credited to customers
- enacts ORC § 4928.148, which requires:
  - the Commission to: (i) establish a nonbypassable, statewide cost-recovery charge beginning in 2020, which shall replace existing riders with the same purpose and may not exceed $1.50 per month for residential customers or $1,500 per month for all other customer classes; and (ii) establish the rate mechanism, determine what costs can be recovered, and provide for the rate design, discontinuation, and remittance of charges for utilities without ownership interests in a legacy generation resource;
  - the Commission to: (i) review the prudence and reasonableness of the actions of electric distribution utilities with ownership interests in the legacy generation resource and excluding from recovery those costs that the Commission deems imprudent and unreasonable, with the initial determination to be made in 2021 and again in 2024, 2027, and 2030 regarding the prudence and reasonableness of such actions during the three calendar years that preceded the year in which the determination is made; and (ii) provide for the discontinuation, subject to final reconciliation, of the nonbypassable rate mechanism on December 31, 2030; and
  - electric distribution utilities, including those in the same holding company, to bid all output from a legacy generation resource into the wholesale market and not use the output in supplying its standard service offer provided under ORC § 4928.142 or § 4928.143
- enacts ORC § 4928.47, which authorizes electric distribution utilities to enter into contracts with mercantile customers to construct customer-sited renewable energy resources while requiring them to pay all costs associated with such a resource themselves
- enacts ORC § 4928.471, which provides that: (i) an electric distribution utility may file an application with the Commission to implement a decoupling mechanism for the 2019 calendar year and each calendar year thereafter based on 2018 revenue from base distribution and energy efficiency programs; (ii) such a mechanism would recover revenue equal to revenue from 2018, adjusted annually to reconcile over- or under-recovery from the prior year, enabling the utility to recover the same revenue every year; (iii) approval of an application that results in double recovery is forbidden; and (iv) the section does not apply to utilities with base distribution rates that became effective between December 31, 2018, and the effective date of the Act
- amends ORC § 4928.64 to: (i) reduce the portion of the electricity supply required to be generated by qualifying renewable energy resources by 2026 from 12.5% to 8.5% of total sold kilowatt hours; (ii) reduce the renewable energy portion for 2020 from 6.5% to 5.5%, for 2021 from 7.5% to 6%, for 2022 from 8.5% to 6.5%, for 2023 from 9.5% to 7%, for 2024 from 10.5% to 7.5%, and for 2025 from 11.5% to 8%; and (iii) reduce the minimum requirement of kilowatt hours that must be generated from solar energy to 0% for 2020 to 2026
- amends ORC § 4928.641 to permit continued cost-recovery for electric distribution utilities that entered into contracts to procure renewable energy resources before April 1, 2014, through an existing bypassable charge from customers through a fixed date of December 31, 2032, instead of until the prudently incurred costs are fully recovered, regardless of the amendments to ORC § 4928.64 reducing renewable energy requirements
- enacts ORC § 4928.642, which requires the Commission to reduce the number of kilowatt hours required to be produced by qualifying renewable energy resources for all electric distribution utilities and electric service companies by allocating the total amount of qualifying kilowatt hours produced during the previous year among all such utilities and companies in proportion to their baseline for that year, and subtracting that allocation for each such utility's or company's amount

- amends ORC § 4928.644 to require the Commission to lower the baseline for calculating an electric distribution utility's or an electric service company's compliance with the qualified renewable energy resource requirements of ORC § 4928.64 by excluding from the calculation the load and usage of self-assessing purchasers under ORC § 5727.81(C); and exempt those purchasers from bypassable charges imposed by electric distribution utilities in compliance with the amendments to ORC § 4928.64 reducing renewable energy requirements
- amends ORC § 4928.645 to prohibit a qualifying renewable resource that has been issued a renewable energy credit for any megawatt hour from the new renewable generation fund (as provided in ORC § 3706.45) from obtaining a renewable energy credit for the same hour under this section
- amends ORC § 4928.66 to:
  - provide that the annual savings requirements for years 2017 through 2020 shall be an additional one percent of the baseline and eliminate the two percent increases for each year after 2020 provided in current law;
  - define "portfolio plan" for this section as the energy efficiency and peak reduction program required by the Commission and extend portfolio plans that expire between the effective date of this Act and December 31, 2020, to December 31, 2020, and increase the budget of those plans accordingly;
  - require the Commission to determine the cumulative energy savings collectively achieved since 2009 by all electric distribution utilities in Ohio as of December 31, 2020, including excess energy efficiency savings and peak demand reduction under ORC § 4928.662, and calculating a baseline equal to the average of the total kilowatts hours sold by all electric distribution utilities in Ohio in calendar years 2018 to 2020, excluding certain loads and usages described in this section;
  - deem electric distribution utilities in full compliance with this section if the cumulative energy savings are at least 17.5% of baseline, and provide that if the cumulative savings are not at least 17.5% of baseline, then the Commission will determine how to implement additional programs to achieve 17.5% savings and full compliance with other requirements of the section will be deemed achieved by a date established by the Commission regardless of any other provision in this section; and
  - terminate cost-recovery mechanisms authorized by the Commission for compliance with this section upon the date that full compliance of this section is deemed, except those necessary to reconcile revenue collected with the allowable cost of compliance
- amends ORC § 4928.6610 to change the definition of "customer" to include, as of January 1, 2020, mercantile customers, and "portfolio plan" to include plans implemented by the Commission to increase cumulative energy savings under the mandated energy efficiency programs in ORC § 4928.66
- enacts ORC § 4928.75 to require the director of development services to submit a waiver request to the Federal Government each fiscal year to spend 25% of funds from federal low-income home energy assistance programs on weatherization services, beginning in fiscal year 2021
- enacts ORC § 4928.80, which (i) requires electric distribution utilities to file with the public utilities Commission a rate schedule applicable to county fairs and agricultural societies that includes either a fixed monthly service fee or an energy charge per kilowatt-hour; (ii) prohibits the minimum monthly charge from exceeding the fixed monthly service fee and prohibit customers from being subjected to demand-based riders; and (iii) allows electric distribution utilities to be eligible to recover lost revenue from customer migration to this new rate schedule
- enacts ORC § 5727.231 to prohibit (i) the assessment of electric company property that is any part of a qualifying nuclear resource receiving payment for nuclear resource credits at less than its taxable value as of the effective date of the Act; (ii) the electric company from valuing such property at less than its taxable value or filing a petition for reassessment seeking a reduction in taxable value; and (iii) the tax commissioner from granting such a reduction
- amends ORC § 5727.75 to (i) allow qualified energy projects of 20 megawatts or greater, instead of 5 megawatts or greater, to be exempted from property taxation with the formal approval of a board of county commissioners of the county in which property of the project is located, either through 2021, if the project is built between January 1, 2009, and January 1, 2021, and uses renewable resources, or indefinitely if the project is placed into service before January 1, 2021, and uses clean coal, advanced nuclear, or cogeneration technology; (ii) require the owner or lessee of such qualified energy projects to repair affected public infrastructure and train and equip emergency responders; and (iii) require qualified energy projects of greater than 20 megawatts, instead of greater than 2 megawatts, to facilitate certain career training
- amends the definition of "small wind farms" in ORC §§ 303.213, 519.213, and 713.081 to mean wind turbines and associated facilities that are not subject to the jurisdiction of the power siting board

- amends the definition of "economically significant wind farm" in ORC § 4906.13 to exclude wind turbines that are designed to provide electricity to a single customer at a single location that are capable of producing less than twenty megawatts
- repeals ORC § 4928.6616, which requires (i) an electric distribution utility that has opted out of its portfolio plan benefits to submit reports to the Commission summarizing any action the utility may consider taking to reduce energy intensity; and (ii) the Commission to suspend the utility's opt out if it finds that it has failed to achieve a substantial cumulative reduction in energy intensity
- provides that the increase of capacity to 20 megawatts for qualified energy projects applies to energy projects that are certified by the director of development services on or after the effective date of the Act or that have a nameplate capacity of less than five megawatts on the effective date of the Act
- provides that 25% of funds from federal low-income home energy assistance programs obtained under the newly enacted ORC § 4928.75 may be spent on weatherization services as determined by the director of development services

COMMITTEE TO REPRESENT THE PETITIONERS

The following persons are designated as a committee to represent the petitioners in all matters relating to the petition or its circulation:

David J. Eckert
1639 Glenn Ave.
Columbus, OH 43212

Trevor J. Vessels
63 South Riverview Street
Dublin, OH 43017

Brandon Sean Lynaugh
1299 Avondale Avenue
Columbus, OH 43212

What America Is Thinking on Energy Issues June 2019
Ohio

Interviewing: June 7 – 12, 2019
Respondents: 801 Ohio Registered Votes
Method: Telephone
Weighting: Results are weighted to be representative of registered voters in Ohio.
Sampling Error: +/- 3.4% at 95% confidence

Q1 Do you approve or disapprove of the work the Ohio General Assembly has done this year in Columbus?

	Total	**Party ID**		
		GOP	Ind	Dem
Base	801	209	200	303
Approve	27%	46%	24%	19%
Disapprove	25%	13%	38%	27%
Don't know	48%	41%	38%	53%

Q2 House Bill 6 is a bill in the Ohio General Assembly that is entitled the "Ohio Clean Air Program". If the program becomes law, it will be funded through a monthly fee that will be charged to all utility customers in the state, adding up to nearly $200 Million every year. How familiar are you with House Bill 6?

	Total	**Party ID**		
		GOP	Ind	Dem
Base	801	209	200	303
FAMILIAR (NET)	**22%**	**24%**	**25%**	**21%**
Very familiar	3%	4%	4%	3%
Somewhat familiar	19%	20%	21%	18%
NOT FAMILIAR (NET)	**76%**	**76%**	**72%**	**79%**
Not very familiar	23%	20%	26%	27%
Not at all familiar	53%	56%	46%	52%
Don't know	1%	*	3%	*

Q3 It is projected that most of the $200 Million every year will go to nuclear power plants owned by a corporation named FirstEnergy Solutions. Do you support or oppose charging Ohio utility customers a monthly fee to give FirstEnergy Solutions most of the $200 Million from this program every year?

	Total	Party ID		
		GOP	Ind	Dem
Base	801	209	200	303
SUPPORT (NET)	**19%**	**18%**	**17%**	**21%**
Strongly support	5%	5%	5%	5%
Somewhat support	14%	13%	12%	16%
OPPOSE (NET)	**70%**	**73%**	**73%**	**67%**
Somewhat oppose	21%	24%	24%	17%
Strongly oppose	49%	49%	49%	50%
Don't know	12%	9%	10%	12%

Q4 As you may know, some groups oppose House Bill 6 because they believe it will saddle all Ohioans with a new, unfair and unnecessary annual $200 Million nuclear bailout tax. They are particularly worried about those Ohioans who are senior citizens or living on fixed incomes. Do you agree or disagree that imposing a monthly fee on all utility customers in the state could hurt people and families living on fixed incomes?

	Total	Party ID		
		GOP	Ind	Dem
Base	801	209	200	303
AGREE (NET)	**82%**	**89%**	**81%**	**82%**
Strongly agree	58%	68%	59%	52%
Somewhat agree	24%	21%	22%	30%
DISAGREE (NET)	**12%**	**8%**	**13%**	**14%**
Somewhat disagree	5%	2%	7%	6%
Strongly disagree	7%	6%	6%	8%
Don't know	5%	3%	5%	3%

Q5 Some groups also oppose House Bill 6 because they believe it creates new costs for manufacturing plants here in Ohio, and those new costs could hurt manufacturers – large and small – across the state. Do you agree or disagree that imposing a monthly fee on all utility customers could hurt the state's manufacturing sector and impact jobs in the state?

	Total	**Party ID**		
		GOP	Ind	Dem
Base	801	209	200	303
AGREE (NET)	**62%**	**68%**	**68%**	**55%**
Strongly agree	31%	36%	33%	26%
Somewhat agree	31%	32%	35%	29%
DISAGREE (NET)	**26%**	**27%**	**24%**	**31%**
Somewhat disagree	14%	13%	16%	15%
Strongly disagree	12%	14%	8%	16%
Don't know	11%	6%	8%	15%

Q6 House Bill 6 may also allow money collected from Ohio utility customers to be used to bailout a coal plant over in Indiana. Do you support or oppose allowing money collected from utility customers in Ohio to help bailout a plant over in Indiana?

	Total	**Party ID**		
		GOP	Ind	Dem
Base	801	209	200	303
SUPPORT (NET)	**10%**	**11%**	**8%**	**11%**
Strongly support	3%	5%	2%	3%
Somewhat support	7%	6%	6%	8%
OPPOSE (NET)	**82%**	**83%**	**84%**	**86%**
Somewhat oppose	19%	22%	17%	17%
Strongly oppose	63%	61%	67%	69%
Don't know	7%	5%	9%	3%

Q7 Some groups believe that before the state legislature decides whether or not to subsidize FirstEnergy Solution's nuclear plants, the legislature should require the company to open its financial records for review. Do you agree or disagree that the state legislature should require the company to open its financial records for review?

	Total	**Party ID**		
		GOP	Ind	Dem
Base	801	209	200	303
AGREE (NET)	**88%**	**83%**	**89%**	**91%**
Strongly agree	75%	68%	77%	80%
Somewhat agree	13%	15%	12%	11%
DISAGREE (NET)	**9%**	**15%**	**6%**	**8%**
Somewhat disagree	4%	7%	3%	4%
Strongly disagree	5%	8%	3%	4%
Don't know	3%	2%	5%	1%

DEMOGRAPHICS

Gender

	Total
Base	801
Male	49%
Female	51%

Political Party

	Total
Base	801
REPUBLICAN (NET)	**28%**
Strong Republican	18%
Not-so-strong Republican	9%
INDEPENDENT (NET)	**24%**
Lean Republican	7%
Lean Democrat	10%
Do not lean either way	6%
DEMOCRAT (NET)	**36%**
Strong Democrat	25%
Not-so-strong Democrat	9%
Other	9%
Not sure	2%
Decline to answer	1%

Ideology

	Total
Base	801
CONSERVATIVE (NET)	**47%**
Very conservative	20%
Somewhat conservative	27%
Neither	5%
LIBERAL (NET)	**45%**
Somewhat liberal	28%
Very liberal	17%
Don’t know/Refused	3%

Age

	Total
Base	801
18 – 34	27%
35 – 64	48%
65+	19%
Don’t know/Refused	5%

Education

	Total
Base	801
HIGH SCHOOL OR LESS (NET)	**34%**
Less than high school	4%
High school graduate	30%
ATTENDED COLLEGE OR COLLEGE DEGREE (NET)	**53%**
Some college	23%
Associate's degree	8%
College graduate	22%
Post-graduate	12%
Don't know/Refused	*

Race/Ethnicity

	Total
Base	801
White	79%
Black or African American	12%
Hispanic	2%
Asian or Pacific Islander	1%
Native American or Alaskan Native	*
Some other race	5%
Don't know/Refused	2%

Household Income

	Total
Base	801
Less than $5,000	2%
$5,000 but less than $10,000	2%
$10,000 but less than $15,000	2%
$15,000 but less than $20,000	4%
$20,000 but less than $25,000	3%
$25,000 but less than $30,000	3%
$30,000 but less than $35,000	4%
$35,000 but less than $40,000	5%
$40,000 but less than $50,000	5%
$50,000 but less than $60,000	5%
$60,000 but less than $75,000	8%
$75,000 but less than $80,000	5%
$80,000 but less than $100,000	8%
$100,000 or more	28%
Don't know/Refused	17%

OHIOANS AGAINST CORPORATE BAILOUTS LLC

EIN 84-2419335

YES. I would like to make a $____________ contribution to Ohioans Against Corporate Bailouts LLC.

Contribute by wire transfer:
Chain Bridge Bank, N.A
1445-A Laughlin Ave.
McLean, VA 22101
Account Number: 2100139670
Routing Number: 056009479

Beneficiary Address/Phone:
8913 Cincinnati-Dayton Road
West Chester, OH 45069
513.577.7395

Contribute by check:
Ohioans Against Corporate Bailouts
8913 Cincinnati-Dayton Road
West Chester, OH 45069

For additional information or with questions, please contact:

Brandon Lynaugh
614.946.7965
lynaugh@battlegroundstrategy.com

Please provide the following information (for reporting purposes):

Name(s) of contributor(s)*____

Address: ____

Employer:___________________________________ Occupation:______________________________

*Contributions by one person in the name of another are prohibited. The name of the contributor identified above should match the name on the check. If the check is from a joint bank account, only the name of the signer will be reported as the contributor. For wire transfers, please check the box below.

□ I hereby certify that the name listed above is the name of the person making the contribution as it appears on the bank account from which the wire transfer is being made.

Additional information (will not be publicly reported):

E-mail:______________________________________ Mobile Phone:____________________________

Home Phone:_________________________________ Work Phone:_____________________________

Ohioans Against Corporate Bailouts LLC (OACB) is an Ohio nonprofit limited liability company exempt from taxation as a social welfare organization under Section 501(c)(4) of the Internal Revenue Code. Its mission is to oppose the passage of HB 6 and, if HB 6 becomes law, to exercise the citizens' right of referendum to refer the law to Ohio voters for approval or rejection in November 2020.

OACB may accept unlimited contributions from any source, including individuals, corporations, limited liability companies, trade associations, labor organizations, and political organizations. Contributions to OACB are not required to be publicly disclosed. However, if HB 6 becomes law, OACB intends to register with the Ohio Secretary of State as a ballot issue political action committee and disclose all contributions, including those received prior to registering as a ballot issue PAC.

The IRS does not allow contributions to OACB to be deducted as charitable contributions for federal income tax purposes.

Form **W-9**
(Rev. October 2018)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

▶ Go to *www.irs.gov/FormW9* for instructions and the latest information.

Give Form to the requester. Do not send to the IRS.

Print or type.
See **Specific Instructions** on page 3.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.

Ohioans Against Corporate Bailouts LLC

2 Business name/disregarded entity name, if different from above

3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only **one** of the following seven boxes.

☐ Individual/sole proprietor or single-member LLC ☐ C Corporation ☐ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ ________

Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is **not** disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.

☑ Other (see instructions) ▶ **nonprofit LLC / tax-exempt social welfare organization**

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any) ________

Exemption from FATCA reporting code (if any) ________

(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.) See instructions.

8913 Cincinnati-Dayton Road

Requester's name and address (optional)

6 City, state, and ZIP code

West Chester, OH 45069

7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN,* later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number

☐☐☐ – ☐☐ – ☐☐☐☐

or

Employer identification number

8 4 – 2 4 1 9 3 3 5

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here Signature of U.S. person ▶ Date ▶ 7/18/19

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to *www.irs.gov/FormW9.*

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, *later.*

cleveland.com

Pro-House Bill 6 group launches $1 million ad campaign to fend off statewide referendum

Updated Aug 26, 2:34 PM; Posted Aug 26, 2:30 PM

FILE – In this Tuesday, April 4, 2017, file photo, plumes of steam drift from the cooling tower of FirstEnergy Solutions' Davis-Besse Nuclear Power Station in Oak Harbor, Ohio. (AP Photo/Ron Schwane, File)

By Jeremy Pelzer, cleveland.com

COLUMBUS, Ohio—A new group that supports House Bill 6 has embarked on a nearly $1 million statewide ad campaign in an attempt to prevent a referendum on overturning the recently enacted law to bail out Ohio's nuclear power plants and gut the state's green-energy mandates for utilities.

The massive TV and radio ad buy, by the group Ohioans for Energy Security, is an early indication of the deluge of ads Ohioans will be subjected to if the proposed referendum makes the ballot in 2020.

An anti-HB6 group, Ohioans Against Corporate Bailouts, is still working to get the go-ahead from state officials to begin collecting the 265,774 signatures from registered voters needed to hold a statewide vote on overturning the new law, which was signed by Gov. Mike DeWine about a month ago.

The 1-minute advertisement from Ohioans for Energy Security accuses Ohioans Against Corporate Bailouts (without mentioning its name) of "boosting Chinese financial interests." The group, the ad states, "is targeting Ohio's energy, taking Ohio money, exporting Ohio jobs, even risking our national security. They're meddling in our elections."

The justification for these accusations, according an Ohioans for Energy Security release, is that Bill Siderewicz, a natural-gas power plant investor involved with Ohioans Against Corporate Bailouts, has received financing from the Industrial and Commercial Bank of China, which is owned by the Chinese government. Last week, Siderewicz's company, Clean Energy Future, scrapped plans to build a $1.1 billion natural-gas plant in Lordstown; Siderewicz cited HB6 as the reason.

Asked how Ohioans Against Corporate Bailouts is "risking our national security," Ohioans for Energy Security spokesman Carlo LoParo said the anti-HB6 group, with Chinese ties, is "trying to create an energy monopoly in Ohio for their own self-interest."

Ohioans for Energy Security has purchased ad time costing $644,000 on broadcast TV, $316,000 on cable, and $33,000 on radio, according to Medium Buying, a Columbus-based political ad tracking firm. The ads are scheduled to run through Sept. 3.

Ohioans for Energy Security and Ohioans Against Corporate Bailouts are each LLCs, meaning they aren't required to disclose who's funding them. Both groups have declined to reveal their donors.

Gene Pierce, a spokesman for Ohioans Against Corporate Bailouts, said in a statement that the anti-referendum ads "are a ridiculous and desperate smokescreen to distract Ohio voters from the fact that House Bill 6 is a blatantly anti-consumer bill."

HB 6, which takes effect this fall, imposes a new surcharge on every Ohio electricity bill (ranging from 85 cents for residential customers to $2,400 for large industrial plants) to give FirstEnergy Solutions $150 million per year to subsidize its Davis-Besse and Perry nuclear power plants in Northern Ohio.

Starting next January, ratepayers around the state would also have to chip in up to $1.50 monthly (and up to $1,500 per month for commercial and industrial users) to subsidize coal plants in Ohio and Indiana run by the Ohio Valley Electric Corporation.

However, HB6 would effectively halt Ohio's decade-old energy-efficiency and renewable-energy mandates for utilities, which currently cost residential customers an average of $4.74 per month. That means by 2027, residential ratepayers would, overall, save an estimated $3.78 per month compared to what they pay now.

HB 6 has created some strange bedfellows. Supporters of the measure include labor unions, nuclear power advocates, and local officials from areas near the nuclear plants; critics include environmental groups, the fossil-fuel industry, renewable energy companies, and some small-government activists.

It's not surprising that pro-HB6 forces are spending heavily to keep the law on the books. During the legislative debate over HB6, a dark-money group called Generation Now (found to have ties to an adviser to Ohio House Speaker Larry Householder, perhaps the most prominent supporter of HB6) blanketed Ohio's airwaves with ads asking people to contact their lawmaker to urge support for the bill.

CARPENTER LIPPS & LELAND LLP

ATTORNEYS AT LAW

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280 NORTH HIGH STREET
COLUMBUS, OHIO 43215

MEMORANDUM

To: OMA Energy Committee
From: Kim Bojko, OMA Energy Counsel
Re: Energy Committee Report
Date: August 29, 2019

Active Administrative Actions in which OMAEG is Involved:

American Electric Power (AEP):

- **Application to Expand ESP III Case/New ESP (Case Nos. 16-1852-EL-SSO, et al.)**
  - On November 23, 2016, AEP filed its application to amend its ESP extending the term through May 2024 and to add several new riders and charges. AEP also requested an expedited procedural schedule.
  - OMAEG filed the testimony opposing AEP Ohio's plans for microgrids, renewable energy, submetering, and electric vehicle charging stations.
  - On August 25, 2017, most parties reached a Settlement resolving this matter. The Settlement extends the term of the ESP through May 31, 2024 and provides for Distribution Investment Rider caps that are significantly lower than AEP requested, an OVEC PPA Rider that does not affect pending appeals to the Supreme Court regarding the lawfulness of the PPA Rider, and a Renewable Generation Rider (RGR) which will be populated in a separate proceeding that all parties reserve the right to challenge.
  - The PUCO approved the settlement reached between many of the parties with slight modifications affecting residential customers and suppliers. Through the settlement, OMAEG was able to secure benefits for some members who will participate in the BTCR and IRP programs and maintain its opposition to OVEC cost recovery from ratepayers.
  - OCC appealed the PUCO's approval of the stipulation in this case to the Supreme Court of Ohio.

- **AEP Request to Develop Renewable Resources (Case No. 18-501-EL-FOR)**
  - AEP requested that the PUCO permit it to amend its longer-term forecast report to allow AEP and its affiliates to develop at least 900 MW of renewable projects. AEP concedes that PJM wholesale markets already provide sufficient capacity, yet strangely argues that these proposed renewable projects are necessary for AEP to meet its obligation to provide customers with a standard service offer (SSO). The proposal appears to be an attempt by AEP to charge customers for generation supplied by itself and its affiliates, which is contrary to Ohio' s state law and policy, which support competitive electric generation markets.

- AEP has additionally opened separate proceedings seeking approval of specific projects.
- The PUCO held a multi-week hearing on this matter in January and February of 2019. OMAEG participated extensively in the hearing through examination of AEP witnesses and by offering the testimony of John Seryak, which offered additional arguments against AEP Ohio's attempt to develop non-competitive generation at customer expense.
- Briefing is now complete and the parties await a decision from the PUCO.

- **Global Settlement of Several Cases/Retail Stability Rider Charges (Case Nos. 10-2929-EL-UNC, 11-346-EL-SSO, et al.)**
  - AEP set the RSR rider to zero pursuant to the global settlement, effective Cycle 1 August 2019. AEP stated that it has collected approximately $335.3 million of the total allowable amount of $336.
  - AEP noted that there was an under collection for the demand customer classes, and proposes to maintain this regulatory asset on its books pending further direction from the PUCO. But, AEP did suggest that it could be collected through the PPA rider (OVEC).

<u>Duke Energy Ohio (Duke):</u>

- **Duke Global Settlement (Case Nos. 17-32-EL-AIR, et al., 17-872-EL-RDR, et al., 17-1263-EL-SSO, et al.)**
  - The Distribution Rate case, PSR case, and ESP IV case were consolidated in an attempt to reach a global settlement. Duke, Staff, and several other parties reached a settlement intended to resolve these cases. The settlement addresses Duke's distribution service revenue requirements, reliability standards, rate of return, return on equity, the new federal tax law, audit refunds, ESP riders, and other matters. OMAEG agreed not to oppose after ensuring that the settlement, if adopted, would reduce the distribution base rates charged to customers by $19 million, not impose excessive distribution-related charges on customers, allowed the parties to argue for additional customer benefits through the PUCO's investigation of the new tax law, and allowed OMAEG to maintain its position that recovery of OVEC costs from customers is unlawful. Other parties, including OCC, environmental groups, and retail suppliers oppose the settlement.
  - On December 19, 2018, the PUCO approved the global settlement. Duke filed tariffs effective January 2, 2019, so customers should now be seeing a reduction of their monthly bills to reflect some changes in federal tax law and a distribution rate decrease.
  - OCC and electric suppliers sought rehearing of the PUCO's order, which was denied by the PUCO on July 17, 2019. OCC filed a second application for rehearing on August 16, 2019.
  - On July 31, 2019, the PUCO approved Duke's request to modify its Standard Service Offer auction schedule in light of uncertainty created for the 2022-23 delivery year by a July 25, 2019 FERC order delaying the capacity auction as FERC concluded that PJM's rate was unjust and unreasonable. As a result of the modification, Duke will

offer a 24-month (as opposed to 36-month) product when it conducts its auction in September 2019. The 2022-23 delivery year will be adjusted at a future date.

- **Duke-Specific Tax Case (18-1185-EL-UNC, et al.)**
  - As the PUCO's investigation into the impact of the Tax Cuts and Jobs Act of 2017 (TCJA) on the rates charged to customers by public utilities continues, Duke initiated its own proceeding to address the impact of the TCJA on rates that it charges customers. Duke filed an Application to establish a rider that it can use to credit its customers with the benefits of the TCJA.
  - OMAEG intervened in this case on July 31, 2018 in order to ensure that members in AEP's service territory receive the full benefits of the TCJA.
  - Staff of the PUCO reviewed the application and after noting that the rate design for the return of benefits will be consistent with the current base distribution rates and that benefits already accrued by Duke will be returned to customers with carrying costs, it recommended approval of the application.
  - Over the objections of OEG regarding rate design, the PUCO approved the application without a hearing and Duke filed updated tariff sheets implementing the new credit rider effective with the first billing cycle in March 2019. Thus, all customers, except those taking service under Rate TS, will receive a credit equal to 5.6% of the customer' s applicable base distribution charges (i.e., customer charge plus base distribution charge).

- **MGP Remediation Rider (Case Nos. 17-596-GA-RDR, et al.)**
  - On March 31, 2017, Duke filed an application to recover 2016 costs for investigation and remediation of its Manufactured Gas Plant (MGP) site. In Duke's natural gas distribution case (Case No. 12-1685-GA-AIR), the PUCO approved up to $55.5 million for investigation and remediation costs incurred from January 2008 through December 2012.
  - OMAEG filed reply comments regarding Duke' s proposed Manufactured Gas Plant (MGP) Rider to collect costs from customers for the remediation of gas plants which are no longer in service. In those comments, OMAEG argued that the parties to these cases are entitled to a hearing on these issues, that Duke should continue exploring cost recovery from other parties to mitigate the burden on customers, and that any cost recovery should be carefully audited and only persist for a limited duration.
  - Duke has now sought to recover its MGP remediation costs incurred since 2013 through 2018 from customers, requesting an additional $45.8 million.
  - Staff has issued Staff reports recommending that $23.3 million be disallowed and not recovered from customers.
  - On May 10, 2019, Duke filed a motion to continue the recovery of Rider MGP costs at the then current rate.
  - OMAEG and others opposed Duke's attempt to seek recovery of these costs without a full hearing process on the appropriateness of the proposed recovery.
  - On July 23, 2019, Duke informed the PUCO that its recovery of remediation costs is complete and filed revised tariffs setting the MGP rider to zero.
  - On August 13, 2019, the PUCO consolidated all of the cost recovery cases, 2013 through 2018, and set a procedural schedule. The PUCO also denied Duke's request

to continue the MGP rider during the pendency of the cases and set the rider to zero, which will result in cost savings to customers.

FirstEnergy:

- **ESP IV Case on Remand (Case No. 14-1297-EL-SSO)**
  - OMAEG, and others, successfully appealed the PUCO decision to the Supreme Court of Ohio, challenging the PUCO's Order approving FirstEnergy's Distribution Modernization Rider (Rider DMR).
  - On June 19, 2019, the Supreme Court of Ohio agreed with OMAEG and others and struck down FirstEnergy's Distribution Modernization Rider or credit support rider as an unlawful charge under Ohio law.
  - FirstEnergy filed a motion asking the Court to reconsider its decision, which was denied on August 20, 2019 (with Justice Kennedy dissenting).
  - While the motion for reconsideration was pending, the PUCO approved updated tariffs to make all funds collected under Rider DMR since July 2, 2019 subject to refund.
  - Two days after the Court's denial to reconsider its original order striking down the rider, the PUCO issued an Order directing FirstEnergy to immediately file tariffs that set Rider DMR to zero and to issue a refund to customers for any monies collected through Rider DMR for services rendered after July 2, 2019.
  - FirstEnergy filed revised tariff on August 23, 2019, setting Rider DMR to zero, effective September 1, 2019.
  - FirstEnergy is required to submit a proposed customer notice to the PUCO explaining the refund by August 29, 2019, as well as the final calculation of the exact amount to be refunded.
  - FirstEnergy is required to file revised tariffs by September 5, 2019 to credit back the full amount of the refund to customers in the following billing cycle.

- **FirstEnergy Tax Proceeding and Grid Modernization Cases (Case Nos. 18-1604-EL-UNC, 17-2436-EL-UNC, 16-481-EL-UNC)**
  - Pursuant to the PUCO' s Order in its tax investigation that required all utilities to file an application to implement the effects of the Tax Cuts and Jobs Act of 2017 (TCJA) into rates, the FirstEnergy Companies filed an application to initiate a process to resolve TCJA matters in customer rates (Case No. 18-1604-EL-UNC). Simultaneous with this filing, OMAEG and others were presented with a proposal negotiated between FirstEnergy and Staff that would provide the tax refund while also allowing FirstEnergy to collect new charges from customers for its grid modernization efforts, in addition to the above-market charges it already collects from customers under the Distribution Modernization Rider and the Distribution Capital Investment Rider. It appears that the PUCO has made these issues a high priority and fast-tracked the proposed agreement between Staff and FirstEnergy.
  - A settlement was reached between the FirstEnergy Companies, Staff, and some intervening parties. OMAEG did not join the settlement.
  - A hearing on the settlement was held on February5-6, 2019. At hearing, OMAEG opposed the settlement, specifically noting that it fails to adequately protect customers

from unlawful charges, allows for unjust and unreasonable charges for grid modernization, and does not fairly disperse tax savings.

- **Rider DMR Extension Application (Case No. 19-361-EL-RDR)**
  - FirstEnergy applied to extend its Distribution Modernization Rider (Rider DMR) for an additional two years after its expiration at the end of this year. FirstEnergy currently collects $168 million per year from customers under Rider DMR and, as evidenced by the renewal application, is using these funds to subsidize its generation-owning parent company. For this reason, OMAEG appealed the initial establishment of Rider DMR to the Supreme Court of Ohio, where oral argument has occurred and the parties await a decision. The proposed extension, if approved, would authorize FirstEnergy to collect additional amounts, totaling more than $300 million in 2020 and 2021.
  - OMAEG has intervened in this matter.
  - Despite the Supreme Court of Ohio's decision that Rider DMR is unlawful (discussed above), the PUCO has not yet acted upon this application to extend Rider DMR.

__Dayton Power & Light (DP&L):__

- **Distribution Rate Increase (Case Nos. 15-1830-EL-AIR, et al.)**
  - Staff of the PUCO recommended a distribution rate increase of roughly $23-28 million, which is less than the $65 million DP&L had requested. Staff also noted that its recommendations did not account for recent changes in federal tax law and that its recommendations could change based on the outcome of the PUCO's investigation into the impact of those tax changes.
  - OMAEG objected to several of the proposals contained in the Staff Report in this case, which will result in a distribution base rate increase to customers.
  - On June 18, 2018, DP&L, Staff, and a number of parties reached a settlement agreement, which OMAEG agreed not to oppose. After Staff agreed with DP&L that a rate increase was appropriate, OMAEG worked diligently to minimize the impact of that rate increase on customers. Through the filing of objections and negotiations, OMAEG was able to minimize the amount of that increase, secure a rate design that will diminish the burden of the rate increase on several OMAEG members, and ensure that the tax relief resulting from the decrease in the federal corporate income tax is fully passed on to customers, including the amount that has already been collected from customers since January 1, 2018 when the new tax law took effect.
  - The PUCO held its hearing on the settlement on July 23 and 24, 2018, where only the electric suppliers IGS and RESA opposed the agreement.
  - The PUCO approved the settlement reached between the parties in this case.
  - Rehearing is pending.

- **Electric Security Plan (Case Nos. 16-395-EL-SSO, et al.)**
  - DP&L filed an amended application on October 11, 2016, proposing to withdraw its Reliable Electricity Rider (RER) request. Instead, it sought a Distribution

Modernization Rider (DMR) for a term of seven years to recover $145 million per year from customers.

- DP&L and certain intervening parties reached a settlement, which was opposed by numerous other intervening parties, including OMAEG.
- On March 13, 2017, a new settlement was reached between a majority of the parties, including PUCO Staff and OMAEG (as a non-opposing party). Under the new settlement, DP&L will receive $105M/year for 3 years from customers, with an option to request a two-year extension. The Distribution Investment Rider (DIR-B) rider was eliminated (which had been estimated to cost consumers $207.5M), and DP&L agreed to convert the forgone tax sharing liabilities to AES Corporation into equity payments (estimated by DP&L to be a $300M gain for customers). DP&L will also provide several OMAEG members the economic development rider (EDR) credit of $.004/kWh. For OMAEG members that do not qualify for the EDR credit, DP&L agreed to slightly discount those members' previous rates. Thus, those members will receive a collective total of $18,000 per year in shareholder dollars to compensate them for the increase in rates.
- After a hearing, the PUCO approved the settlement, but also modified it to include non-bypassable OVEC recovery. OMAEG filed an application for rehearing, arguing that this modification was unjust, unreasonable, and unlawful.
- The PUCO denied rehearing on its decision to modify the settlement.
- Interstate Gas Supply, Inc. (IGS) withdrew from the settlement and reopened the proceedings based upon the Commission's modification to make OVEC recovery non-bypassable.
- After IGS' withdrawal, the PUCO held a hearing on the reopened proceeding. OMAEG participated in that hearing as a non-opposing party along with Staff, DP&L, and several other parties. Briefing is now complete and a PUCO decision will be forthcoming. OCC, who had opposed the settlement, has appealed the PUCO's modified approval of the settlement to the Supreme Court of Ohio.
- In light of the Supreme Court of Ohio's decision regarding FirstEnergy's credit support rider, the PUCO requested that parties submit comments on how that decision impacts DP&L's Distribution Modernization Rider, which was approved as a part of this proceeding.

- **Application to Establish a Distribution Modernization Plan (Case Nos. 18-1875-EL-GRD, et al.)**
  - DP&L filed an application to establish a distribution modernization plan. DP&L asks the Commission to approve over $600 million in cost recovery for the implementation of this plan. DP&L offers speculative benefits that customers will purportedly receive from this plan and states that it is advancing the PUCO's goals established in the PowerForward initiative.
  - OMAEG has intervened in this proceeding. DP&L has initiated settlement discussions for this case, as well as its DMR Extension case.
- **DMR Extension Application (Case No. 19-162-EL-RDR)**
  - DP&L's Distribution Modernization Rider (Rider DMR) was established in DP&L's most recent ESP proceeding. DP&L filed an application to extend Rider DMR for an additional two years, with Rider DMR set at $199 million per year.

- OMAEG has intervened in this proceeding and settlement discussions have begun.

- **Tax Proceeding (Case Nos. 19-568-EL-ATA, et al.)**
  - DP&L filed an application to establish a new rider to pass remaining savings resulting from the Tax Cuts and Jobs Act of 2017 (TCJA) back to customers. DP&L's rate case settlement partially addressed the TCJA. This application purports to address those TCJA issues that remain and ensure that customers receive the full benefit of the new law.
  - OMAEG has intervened in this proceeding.
  - Staff issued its report on July 1, 2019, and settlement discussions have begun.

<u>Statewide:</u>

- **Net Metering Rules (Case No. 12-2050-EL-ORD)**
  - OMAEG filed comments urging the PUCO to adopt rules that align the compensation schemes applicable to shopping and non-shopping customers.
  - On November 8, 2017, the PUCO adopted new rules for net metering. These rules allow customer-generators to generate up to 120% of their own energy needs and allow customers who obtain their energy through a CRES provider to enter into net metering contracts with those providers. Customer-generators that generate more than they consume may receive a credit to their bill for the excess generation. That credit will be based on the energy-only component of the electric utility's standard service offer. The PUCO held oral arguments on the net metering rules on January 10, 2018. Among other issues, the parties discussed compensation for excess generation, availability of net metering to customers who take service from CRES providers, and location requirements for net metering facilities.
  - The PUCO denied rehearing and the environmental groups appealed the decision to the Supreme Court of Ohio.

- **PUCO PowerForward**
  - The PUCO initiated PowerForward to comprehensively explore technology and consider how it could serve to enhance the customer electricity experience.
  - Phase 1 featured presentations examining technologies affecting a modern distribution grid; what our future grid could offer customers; and what technologies are in development to realize such enhancements.
  - Phase 2 focused on the grid, platforms, the grid's core components, requirements for building the grid of the future, distribution system safety and reliability, planning and operations of the distribution system, and energy storage.
  - Phase 3 focused on grid modernization, the distribution system, data access, ratemaking, and rate design.
  - The PUCO established working groups and proceedings for each of the three PowerForward working groups: the PowerForward Collaborative, the Distribution System Planning Working Group, and the Data and the Modern Grid Working Group. The PUCO stated that it was establishing these proceedings in order to ensure that its PowerForward roadmap is being fulfilled. The PUCO invited interested parties to

participate in these proceedings so that their views can be considered throughout this process.

- OMAEG has been represented at various working groups held by the PUCO to address issues relating to PowerForward.
- The PUCO ordered electric distribution utilities to file reports regarding the current status of their grid architecture and distribution system capability. The PUCO determined the required contents of these reports after reviewing comments submitted by various parties. The PUCO stated that these reports will be an important component in advancing various components of the PowerForward initiative.
- The PUCO continues to hold workshops regarding the various issues included in the PowerForward roadmap. OMAEG is participating in these workshops to ensure that members' interests are being protected.

- **PUCO Tax Cut Investigation (18-47-AU-COI)**
    - The PUCO ordered an investigation into the impact of the reduction of the federal corporate income tax rate from 35% to 21%, effective January 1, 2018, on regulated utilities and to determine the appropriate course of action for passing benefits resulting from this reduction on to ratepayers. The Commission recognized that the significant reduction in the corporate tax paid by regulated utilities will impact those utilities' revenue requirements, and, thus, the rates that they collect from customers. The PUCO also directed all rate-regulated utilities to record on their books as a deferred liability, in an appropriate account, the estimated reduction in the federal corporate income tax resulting from the new law, effective January 1, 2018. This directive by the Commission should allow customers to receive the benefit of the reduction in the federal income tax starting January 1, 2018, pending the resolution of the investigation, and prevent utilities from over-collecting from customers and subsequently arguing that customers are not entitled to refunds. The PUCO also solicited comments from the jurisdictional rate-regulated utilities and interested stakeholders.
    - The four investor owned Ohio utilities— Duke, FirstEnergy, AEP, and DP&L— filed a joint application for rehearing of the PUCO' s January Order in the PUCO's investigation into the impact of recent changes to the federal tax law on rates paid by customers. The utilities are challenging the PUCO' s accounting order requiring the utilities to record the tax savings resulting from the new law as a deferred liability beginning January 1, 2018. OMAEG opposed this attempt by the utilities to deny customers cost relief to which they are entitled.
    - The PUCO partially granted the utilities' application for rehearing. After reiterating that the purpose of this investigation was to determine how—and not if—tax relief will be passed on to ratepayers, the PUCO granted the application for the limited purpose of determining whether utilities should be required to record their tax savings as a liability on their books dating back to January 1, 2018.
    - The PUCO held a hearing on the deferral order on July 10, 2018. The PUCO took testimony from Duke, AEP, and other parties. The PUCO directed all utilities to continue making these deferrals until the PUCO decides otherwise.
    - AEP and Duke have now both opened separate proceedings to deal with the TCJA.

- As this case progresses, utilities have been filing updates to their riders that either adjust the riders to account for the new federal tax law or make the charges collected under those riders, subject to the outcome of this proceeding.
- On October 24, 2018, the PUCO ordered all Ohio regulated public utilities with 10,000 customers or more and that have not yet implemented the Tax Cuts and Jobs Act of 2017 (" TCJA") to file an application explaining how the public utility will pass along to customers its tax savings from the TCJA. Public utilities must file their applications or proposals by January 1, 2019 or be subject to a forfeiture of $10,000per day.

Judicial Actions—Active Cases Presently on Appeal from the PUCO to the Supreme Court of Ohio

FirstEnergy:

- **Appeal of FirstEnergy's ESP IV (Case No. 2017-1444) (Appeal of Case No. 14-1297-EL-SSO)**
  - In FirstEnergy's ESP IV case, the PUCO authorized FirstEnergy to recover $131 million per year (pre-tax) from customers under the Distribution Modernization Rider (Rider DMR), even though Rider DMR contains no promises or commitments on the part of FirstEnergy to actually engage in distribution modernization and represents an unlawful subsidy that could support FirstEnergy's generation component in violation of Ohio law.
  - In ESP IV, the PUCO also approved an unlawful expansion of the Delivery Capital Recovery Rider (Rider DCR) and unreasonably approved a Government Directives Rider in violation of its own precedent.
  - OMAEG, along with other parties appealed the PUCO's decisions in this matter to the Supreme Court of Ohio.
  - OMAEG and others requested that the Court stay the collection of customer money under these unlawful riders by FirstEnergy while this case is pending.
  - Oral argument was held January 9, 2018.
  - In a monumental win for customers, on June 19, 2019, the Supreme Court of Ohio agreed with OMAEG and others and struck down FirstEnergy's Distribution Modernization Rider or credit support rider as an unlawful charge under Ohio law.
  - As you may recall, the PUCO approved the credit support rider, allowing FirstEnergy to collect from customers $204 million in 2017 and $168 million per year in 2018 and 2019 after the federal tax reduction. The PUCO approved the charge as an incentive for FirstEnergy to engage in distribution modernization investments for the grid. The credit support rider did not, however, actually require FirstEnergy to make any investments in distribution modernization. In reality, the credit support rider allowed the FirstEnergy distribution companies to subsidize their parent company using customer money in subversion of Ohio law. At oral argument, counsel for OMAEG illustrated these unlawful aspects of the credit support rider.
  - Recognizing that the credit support rider was not an incentive and did not protect customers, a majority of the Court determined that it was unreasonable and unlawful, and directed the PUCO to immediately remove the charge from FirstEnergy's ESP.

- This decision will not only end collection, but also should result in the rejection of FirstEnergy's application to extend the credit support rider for two additional years and an application by the Dayton Power and Light Company to increase and extend a similar rider currently being charged to its customers. For a full review of the Court's decision, please see the memorandum entitled *Supreme Court Strikes Down FirstEnergy's Credit Support Rider*, prepared by Carpenter Lipps & Leland LLP.

Federal Actions

FERC:

- **MOPR Expansion (Docket EL16-49)**
  - On March 21, 2016, Dynegy and others filed a complaint against PJM requesting that the Minimum Offer Price Rule be expanded to apply to existing resources.
  - The complaint aims to protect against AEP and FirstEnergy offering the subsidized affiliate generating units into the capacity market below costs, which will suppress capacity prices.
  - Dominion, American Municipal Power, and others filed a motion to dismiss on mootness grounds given FERC's order rescinding the waiver on affiliate sales restrictions granted to AEP, FirstEnergy, and their unregulated generating affiliates.
  - The Independent Market Monitor claims that the issues are not moot given the Staff's proposal adopted in the FirstEnergy ESP IV case for a DMR, and the pending DP&L DMR proposal.
  - In a 3-2 decision, FERC found that PJM's current tariff is unjust, unreasonable, and unduly discriminatory because it fails to account for state policies that subsidize favored sources of generation, thus disrupting the competitive wholesale market. FERC is now considering how to best address state subsidies provided to certain generation resources in order to avoid market disruption.
  - OMAEG joined several other industrial consumer groups in filing comments and reply comments urging FERC to adopt measures to account for out-of-market subsidies. Those comments were filed on October 2, 2018 and November 6, 2018, respectively.

- **FERC Rulemaking (Docket RM18-1)**
  - FERC considered a rule proposed by the Secretary of Energy that would subsidize inefficient and failing coal plants in the name of promoting grid reliability and resiliency. In reality, however, the Proposed Rule would only act as a subsidy to prop up failing generators at the expense of electric customers.
  - OMAEG filed initial comments opposing the Proposed Rule on October 23, 2017. It then filed Reply Comments to support the arguments of other manufacturing coalitions and oppose comments of parties who supported the Proposed Rule.
  - FERC agreed with OMAEG and others and rejected the proposed rule. FERC concluded that the record did not support the claim that the grid faces reliability or resiliency threats from the retirement of inefficient generation, and, even if a problem existed, FERC explained that the proposed solution was contrary to FERC's longstanding commitment to markets and market-based solutions and did not satisfy

the legal requirements for the creation of a new rule. Instead, FERC defined resiliency and sought comments and data from the regional transmission organizations and independent system operators regarding their resiliency challenges on a regional basis.
  - Rehearing is pending.

- **Electric Storage Participation in Markets Rule (Dockets RM16-23-000; AD16-20-000)**
  - FERC issued a final rule in a rulemaking proceeding it initiated in order to remove barriers to participation of electric storage resources in the capacity, energy, and ancillary service markets operated by Regional Transmission Organizations (RTOs) and Independent System Operators (ISOs). This rule addresses FERC's concern that existing participation models in these markets unfairly favor traditional resources, thus constricting competition. It went into effect on May 16, 2018.

- **Proposed PJM Tariff Revisions to Address Impacts of State Public Policies (Docket ER18-1314)**
  - On April 9, 2018, PJM filed an application to address state public policies. PJM advocated for two different approaches to addressing these issues.
  - The PUCO filed comments advocating the rejection of PJM's approach and retention of the status quo. The PUCO noted that capacity market has recently been overhauled and that PJM has not substantiated its comments. The PUCO further pointed out that PJM failed to provide cost impacts on customers. The PUCO advocates that PJM should maintain the status quo until a better approach is found.

- **Grid Resilience in RTOs and ISOs (Docket AD18-7)**
  - FERC opened this proceeding to evaluate bulk power system resilience. PJM filed comments that advocated a broader approach to system resilience and asserting that PJM should be involved in improving resilience.
  - The PUCO filed reply comments that supported PJM's position in favor of a broader approach to system resilience, but also urged FERC to avoid adopting PJM proposals without acknowledging the state and local role in the process. The PUCO believes that resilience is already considered in existing reliability standards and does not want ratepayers to be burdened by a new approach to resilience through increased charges without receiving any benefits.

- **FES Bankruptcy Proceeding (Case No. 18-569-EL-UNC)**
  - On March 31, 2018, FirstEnergy Solutions Corporation (FES) filed for bankruptcy in the United States Bankruptcy Court. The PUCO opened an investigation into the various issues raised by FES' filing to reorganize under Chapter 11 of the United States Bankruptcy Code. In its Entry, the PUCO states that it is opening the proceeding "to protect Ohio consumers from any adverse impacts due to the recent filing by FES." The PUCO notes that such a bankruptcy filing is rare but not unprecedented. The PUCO also assures consumers that in no event will customers have electric generation service interrupted as a result of the FES bankruptcy filing because the PUCO, electric distribution utilities, and PJM have measures in place to ensure continued delivery of power. The PUCO cannot, however, guarantee that FES' contracts will not be impacted.

- FES has now asked for approval of its sale to Exelon Generation Company, the parent company of Constellation Energy. The proposed sale relates to FES' retail business and includes primarily the purchase of customer contracts that FES has with various customers either directly or through aggregation programs and does not include FES' generation plants. The purchase price is $140 million.
- The bankruptcy court agreed to allow FES to abandon its contracts with two money-losing OVEC plants. This could cause OVEC charges for AEP, Duke, and DP&L customers to increase.
- The bankruptcy court approved FES' proposal to allow FES to walk away from its obligations under its power purchase agreement with OVEC. This means FES is no longer responsible for the costs and liabilities associated with the OVEC generating plants. As a result, other OVEC owners, including AEP, Duke, and DP&L, costs and liabilities associated with the OVEC generating plants will increase. The increased costs will likely be passed onto customers if the PUCO allows the three Ohio utilities to recover their net OVEC operating costs from customers.
- FES filed a term sheet that contained provisions of an agreement with the Official Committee of Unsecured Creditors, the Ad Hoc group of Pollution Control Notes, the Ad Hoc group of Mansfield bond holders, and certain holders of rejection damage claims. In the next few months, FES will file a Restructuring Support Agreement (RSA), which will contain FES' complete restructuring plan.
- The judge rejected FES' proposed settlement release of FirstEnergy Corp. from its decommissioning and environmental obligations to the government. The judge determined that this proposed release made the plan unconfirmable, which means that FES had to develop a new plan for its exit from bankruptcy. This triggered the renegotiation of the FirstEnergy bankruptcy settlement.
- FES submitted a new bankruptcy settlement plan. The judge refused to confirm the plan unless the unions voluntarily agreed to a new collective bargaining agreement or FES goes through the difficult process to reject a collective bargaining agreement.
- A new status conference has been set for September 10, 2019 to report whether an agreement has been reached with the unions.

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MEMORANDUM

TO: Ohio Manufacturers' Association Energy Group

FROM: Kim Bojko, Carpenter Lipps & Leland LLP

DATE: June 19, 2019

SUBJECT: Supreme Court Strikes Down FirstEnergy's Credit Support Rider

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In a key win for Ohio consumers, the Supreme Court of Ohio today ruled that the Distribution Modernization Rider (DMR) or credit support rider approved as part of the FirstEnergy utilities'—the Ohio Edison Company, the Toledo Edison Company, and the Cleveland Electric Illuminating Company—electric security plan (ESP) is unlawful and unreasonable. The credit support rider was approved by the Public Utilities Commission of Ohio (PUCO), authorizing FirstEnergy to collect an above-market charge from customers in an amount between $168 million and $204 million per year for 2017 through 2019. The charge was approved under the guise that it would improve FirstEnergy's financial state and incentivize FirstEnergy to invest in distribution grid modernization efforts. In a 4-3 decision, the majority stated that the rider does not qualify as an incentive under Ohio law as there are no meaningful conditions attached to the funds collected from customers, and that there "are no discernable consequences or repercussions if FirstEnergy fails to comply with the conditions imposed for receiving DMR funds." The Court stated: "The PUCO staff's wishful thinking cannot take the place of real requirements, restrictions, or conditions imposed by the commission for the use of DMR funds."

Agreeing with OMAEG and others, the Court determined that the credit support rider was unlawful because it was approved as an incentive to undertake distribution modernization efforts; however, the rider did not actually provide any incentive to FirstEnergy because it did not require FirstEnergy to actually make distribution modernization investments as a condition of receiving the funds. The Court concluded that the PUCO's interpretation of Ohio law in approving the charge as an incentive was not reasonable or worthy of deference, stating that the PUCO's finding "lacks evidence and sound reasoning." In reaching its decision, the Court rejected the contention that audits could adequately protect customers as there was no remedy available if it was determined that FirstEnergy had misused the funds. Having struck down the provision on those grounds, the Court declined to address other assignments of error and alternative arguments advanced by OMAEG and others.

Unfortunately, the Court ruled that due to the lack of refund language in the approved tariff, it could not order or require a refund of the monies already collected from customers under the unlawful charge. The Court, however, instructed the PUCO to immediately remove the credit support rider from FirstEnergy's ESP. The Court also left open the possibility that past collection under the rider could be addressed during the PUCO's administration of the Significantly Excessive Earning Test (SEET) for FirstEnergy. Lastly, the Court dismissed the parties' other grounds for appeal, including challenges to the Government Directives Recovery Rider and the Delivery Capital Recovery Rider.

In a concurring opinion, Justice DeWine stated that the PUCO's interpretation of the ESP statute should not be afforded any deference, and that the plain language of the statute should be controlling. Justice DeWine concluded that the rider was not a proper incentive under the law because it did not direct or incentivize FirstEnergy toward a particular course of action. Three justices (Justices O'Connor, Kennedy, and Fischer) dissented, advocating for a broader reading of the term "incentive" and arguing that the PUCO had been reasonable in interpreting Ohio law to authorize the rider.

Although FirstEnergy will be allowed to retain the monies unlawfully collected, which is approximately $450 million, the Court's decision reversing the above-market charge is precedential. First, and foremost, the Court has asserted itself as a check against the PUCO's approval of baseless, unreasonable charges that are not specifically authorized in Ohio law, unambiguously holding that the PUCO is not entitled to unlimited deference and must ensure that proper ratepayer protections are established. Second, FirstEnergy's collection under the rider will cease in the immediate future and FirstEnergy customers will see a rate reduction. Third, the impact will also be felt in cases currently pending before the PUCO. FirstEnergy's pending application to extend the unlawful charge for two additional years should be rejected. Similarly, the Dayton Power and Light Company has its version of the credit support rider in place and has also applied to extend its rider. Both cases may be affected by the Court's decision. Lastly, it is important to note that the Ohio Energy Group (OEG) joined FirstEnergy in opposing OMAEG's appeal and supporting the PUCO's unlawful order and unlawful charge that cost customers millions of dollars.

We will, of course, continue to monitor the ripple effects of this crucial decision by the Court and will advocate that the PUCO honor the ruling when it considers future attempts by Ohio's utilities to assess above-market charges and extract millions of dollars from customers without committing to provide substantial benefits in return. Hopefully, customers will see benefits from today's decision for years to come.

Alex Fitzsimmons

Chief of Staff and Acting Deputy Assistant Secretary for Energy Efficiency

U.S. Department of Energy

Alex Fitzsimmons is Chief of Staff for the Office of Energy Efficiency and Renewable Energy at the U.S. Department of Energy and the Acting Deputy Assistant Secretary for Energy Efficiency (DAS-EE). In his role as Chief of Staff, Alex leads strategic planning, policy and communications, supporting the Assistant Secretary in advancing the mission of the office.

In his role as Acting DAS-EE, Alex leads a diverse energy efficiency program and research portfolio that includes advanced manufacturing, buildings, federal energy management, low income weatherization, and intergovernmental partnerships. As part of EERE's senior leadership, he implements and advances administration priorities and initiatives that increase energy affordability, productivity, and resiliency of the built environment.

Prior to joining the Department of Energy, Alex worked on energy policy for a variety of D.C.-based organizations, including the Institute for Energy Research, where he served as the Policy Director managing energy and environmental issues at the state and federal level.

Alex is a graduate of The George Washington University in Washington, D.C.

Eli Levine

Program Manager, Advanced Manufacturing Office

Eli Levine leads the Department of Energy’s Better Plants Program and Challenge (Better Plants). With over 220 corporate partners, Better Plants is working with leading manufacturers to set and achieve ambitious energy, water and waste reduction goals. Eli also leads the Technologist in Residence (TIR) program, designed to catalyze and strengthen long-term strategic relationships between industry and the National Labs, and the AIM Onshore Prize, strengthening manufacturing readiness for energy hardware innovators.

Before taking on the Better Plants responsibilities, Eli served as the Acting Director of the Clean Energy Manufacturing Initiative (CEMI), a cross-cutting Department of Energy initiative to increase U.S. competitiveness in manufacturing by boosting energy productivity and leveraging low-cost domestic energy resources and feedstocks. Prior to that, he worked on energy issues in the Obama White House, at the Council on Environmental Quality and the Office of Management and Budget. Eli joined the Energy Department as a Presidential Management Fellow to help stand up the Advanced Research Projects Agency-Energy (ARPA-E) in 2010. He is a graduate of Washington University School of Law and Cornell University.

A Year of Energy Innovation

Over the past year, partners in the U.S. Department of Energy's (DOE) Better Buildings, Better Plants Program (Better Plants) and Challenge have implemented innovative practices, integrated new technologies, and shared their successes in order to substantially cut their energy costs. Through this voluntary initiative, manufacturers and water and wastewater treatment agencies step up to meet the challenge to reduce energy intensity by 25 percent over a 10-year period across all their U.S. operations. Better Plants Challenge partners further demonstrate their leadership by also publicly sharing best practices and energy performance data. DOE supports partners by providing technical expertise, convening peer exchange opportunities, and highlighting successful solutions.

There are now more than 200 partners leading the way and providing an example for their industry peers to follow. To date, Better Plants partners have reported estimated cumulative energy savings of 1.06 quadrillion Btu, which translates into energy cost savings of roughly $5.3 billion (see Figure 1).[1] Last year, three Challenge partners and seven program partners met their ambitious energy savings goals – the total number of goal achievers now stands at 53.

A look inside ArcelorMittal's Cleveland-area steel mill.

Figure 2: Estimated Cumulative Energy Cost Savings Over Time:

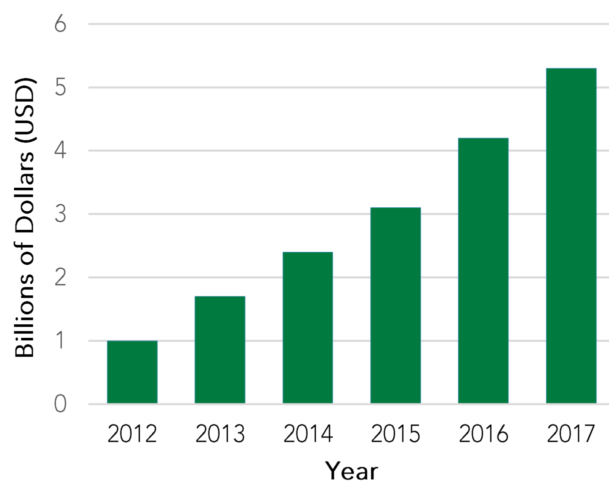

Figure 1: Better Plants Snapshot, October 2018

Partnership Size	Total
Number of Partner Companies	202
Approximate Number of Facilities	3,000
Approximate Percentage of U.S. Manufacturing Energy Footprint	12%
Reported Savings Through 2017	
Cumulative Energy Savings (QBtu)	1.06
Cumulative Cost Savings (Billions)	$5.3
Average Annual Energy-Intensity Improvement Rate	2.8%

Figure 3: Estimated Cumulative Energy Cost Savings Are Roughly Equivalent to:[2]

63,000

annual average salaries of U.S. manufacturing workers

New Program Partners

In the past year, DOE welcomed the following industrial energy efficiency leaders into the program, including single-facility companies like Plastics Engineering Company (Plenco) and Texas Nameplate Company; Better Plants' first mining company, Imerys Carbonates North America; and the world's eighth largest automotive manufacturer, Fiat Chrysler Automobiles.

Avon Lake Regional Water — *Water and sewer service provider to 200,000 residents in northeast Ohio*

Leggett & Platt Incorporated — *Diversified manufacturer of engineered residential and industrial furniture and specialized products*

DixLine — *Metal fabrication and finishing company that sells to a worldwide market*

plenco — *Family-owned manufacturer of phenolic resins and thermoset molding materials*

DONSCO — *North America's leading single source provider of machined iron castings*

PPC Innovate. Connect. A BELDEN BRAND — *Manufacturer and developer of connectivity solutions for broadband service provider market*

FCA Fiat Chrysler Automobiles — *The world's eighth largest automotive manufacturer, including brands like Chrysler, Dodge, Fiat, and Jeep*

City of Sheboygan spirit on the lake. — *Provider of wastewater treatment services for 68,000 residents in the Sheboygan, Wisconsin, area*

IMERYS Carbonates — *Provider of over 250 calcium carbonate and multi-mineral solutions*

Texas Nameplate Company — *Manufacturer of metallic and non-metallic nameplates, custom labels, name tags, and ID tags*

Krage Manufacturing LLC — *Family-owned specialist in sheet metal fabrication, powder coating, and electrical assembly*

Zimmer Biomet Your progress. Our promise. — *Designer, developer, and manufactuer of a wide range of orthopaedic products*

New Challenge Partners

Two Better Plants program partners have joined the Better Plants Challenge, further demonstrating leadership by committing to publicly sharing energy performance data and solutions in addition to striving for an energy saving goal.

CTY — *Producer of torque converters, catalytic converters, and automotive exhaust systems, based in Cardington, Ohio*

L'ORÉAL USA — *Makeup, cosmetics, hair care, and perfume-products manufacturer*

Goal Achievers

Three Challenge partners and seven program partners met their goals last year to reduce energy intensity in their U.S. facilities by up to 25 percent within ten years, bringing the total number number of goal achievers to 53 – more than a quarter of all Better Plants partners.

2018 Better Plants Challenge Goal Achievers

27% energy intensity improvement in three years

26% in nine years

20% in five years

2018 Better Plants Program Goal Achievers

25% in four years*

28% in four years

30% in five years**

28% in two years

28% in ten years

31% in seven years

51% in eight years

*Cardington Yutaka Technologies **Johnson Matthey Emission Control Technologies Division

Message from the Director of DOE's Advanced Manufacturing Office

The Advanced Manufacturing Office (AMO) is the only technology development office within the U.S. Government that is dedicated to improving the energy and material efficiency, productivity, and competitiveness of manufacturers across the industrial sector. With programs like Better Plants, AMO brings together industrial stakeholders to identify challenges; catalyze innovations; and develop cutting-edge material, process, and information technologies needed for an efficient and competitive domestic manufacturing sector. From my position, it is very gratifying to see the more than 200 Better Plants partners not only driving meaningful energy productivity improvements through technical assistance and knowledge sharing, but also leveraging the DOE national labs and supporting the development and validation of technologies and innovation. Cheers to a very productive 2018, and my office looks forward to continuing to partner with you for years to come.

Rob Ivester
Director, Advanced Manufacturing Office

Recognizing Success

Better Plants partners are pushing the envelope and overcoming energy efficiency barriers through increasingly innovative solutions. Every year, DOE honors partners' particularly impressive endeavors through two awards. The **Better Practice Award** recognizes outstanding accomplishments in implementing and promoting the practices, principles, and procedures of energy management in industry. The **Better Project Award** is presented to partners for outstanding accomplishments in implementing energy efficiency projects at individual facilities.

Hi Sang Kim and Naguib Yakoub present on LA Sanitation's 2018 Better Project Award-winning project.

2018 Better Practice Award Winners

ArcelorMittal — *For creating a virtual "USA Energy Management Toolbox" composed of technical best practices; a database of replicable, quick-win projects; and more*

Celanese — *For developing a sophisticated Energy Assessment Matrix to measure and track the strength and continuous improvement of energy management systems*

Ingersoll Rand — *For forming a Green Team at its Waco, Texas, facility that helped double energy productivity, cut electricity costs by 70%, and standardize a method for tracking multiple key sustainability indicators*

Owens Corning — *For launching the Composites Solutions Business Energy Team Challenge with cash prizes to inspire competition between plant energy teams to reduce energy intensity*

Quad Graphics — *For initiating a baseload energy reduction program at its Merced, California, facility that reduced downtime baseload to less than 10%, avoiding an estimated $465,000 in energy costs*

TE connectivity — *For deploying energy treasure hunts across the company, giving sites tools, guidance, and support for a largely "do-it-yourself" approach, with the 30 treasure hunts conducted since the program's inception identifying $2.7 million in savings opportunities*

2018 Better Project Award Winners

GM — *For implementing a building automation system upgrade at its Romulus, Michigan, facility encompassing plant floor lighting, energy metering, and floor HVAC, with an estimated payback of 1.5 years*

Simplot — *For implementing a blending tank system requiring less pumping energy, less fresh water, and less cooling tower load at its Pocatello, Idaho, facility, resulting in $161,000 in annual energy savings*

LA Sanitation — *For implementing a digester biogas generation & CHP project at its Hyperion Water Reclamation Plant to produce electricity and heat, reducing the plant's energy intensity by 37% in two years*

MedImmune — *For installing a 2.5 MW natural gas fired-combined heat and power system at its Gaithersburg, Maryland, facility, helping the site achieve 13.9% energy savings over the previous year*

Raytheon — *For implementing the company's first energy storage system at its Fullerton, California, facility, with an expected return on investment of over 500% through avoided utility peak demand costs*

Saint-Gobain — *For piloting an advanced energy monitoring system with wireless submeters at its Soddy-Daisy, Tennessee, facility that has increased operational efficiency and inspired energy reduction projects yielding approximately $30,000 per year in energy cost savings*

Increasing Access to New Technology

Through the Better Plants program, DOE is helping partners find the latest technological innovations and advances to help meet their energy goals. A key focus area is improving communication and collaboration between the private sector and the DOE national labs, which have already been critical to the development and field validation of technologies like electric vehicle batteries and additive manufacturing.

Technology Days at National Laboratories

Technology Days are designed to expose Better Plants partners' energy and R&D staff to early-stage technologies best positioned to enable American industrial competitiveness and innovation. At Technology Days, tours of state-of-the-art national lab facilities are interspersed with presentations from lab experts on research projects with industrial applications. There are also opportunities to see technology demonstrations and learn how other companies took advantage of lab-industry partnerships.

Better Plants Energy System Validation Working Groups

At the Industrial Energy Technology Conference (IETC) in June 2018, Better Plants hosted the first industrial energy system validation working group meeting, with a focus on steam systems. The working groups bring together representatives from multiple partners and are meant to be platforms to share best practices, identify industry trends and challenges, and gather feedback on industry needs in regard to technology R&D. Working groups on several other focus areas are planned.

New Technology Focus Pages Created on Solution Center

Information for Better Plants partners has been reorganized around thirteen separate technology focus areas to make it easier to find in the online Better Buildings Solution Center. These individual technology focus area webpages are meant to be one-stop shops for partners looking for actionable solutions for energy efficiency challenges involving specific systems. Each page contains links to DOE publications, software tools, webinars, contact information for a subject matter expert, and other helpful resources. Learn more at https://betterbuildingssolutioncenter.energy.gov/better-plants/technology-focus-areas.

Research and Development (R&D) Forum

Better Plants has begun to identify and reach out to R&D staff at partner organizations to further the conversation about industrial technology trends and needs. The ultimate goal is to convene annual R&D forums, enabling industrial stakeholders to provide critical feedback to DOE and national lab researchers and inform their focus areas.

What's New in 2018

Partnership with National Association of Manufacturers Announced

NATIONAL ASSOCIATION OF
Manufacturers

AMO Director Rob Ivester presents to the NAM's Energy Efficiency and Sustainability Task Forces.

In April 2018, DOE and the National Association of Manufacturers (NAM) announced the Sustainability in Manufacturing partnership. The partnership provides DOE – through Better Plants – and the NAM a new opportunity to engage directly with manufacturers, promote program resources, identify opportunities for energy efficiency improvements, and serve as a platform to recognize companies and leaders that have led the way in the application of innovative strategies.

Learn more at https://www.energy.gov/articles/us-department-energy-and-national-association-manufacturers-announce-sustainability.

DOE Visits Martin Guitar to Celebrate Energy Savings

DOE officials tour Martin Guitar's manufacturing facility in Nazareth, Pennsylvania.

DOE officials toured C.F. Martin & Co.'s (**Martin Guitar**) Nazareth, Pennsylvania, flagship plant in June 2018 to promote the Challenge partner's leadership. Through an investment of more than $8 million in an HVAC overhaul, **Martin Guitar** cut electricity use by 46 percent and natural gas consumption by 20 percent. The partner is a goal achiever and winner of a 2017 Better Project award.

Learn more at https://www.energy.gov/eere/articles/energy-department-recognizes-american-guitar-manufacturer-achieving-energy.

General Motors and L'Oréal USA SWAP Energy Teams

*The **General Motors** and **L'Oréal** energy teams put on Kevlar protective sleeves; the **General Motors** energy team uses an infrared temperature gun to read equipment temperatures.*

The fourth season of the Better Buildings Challenge SWAP, the hit DOE web series, featured Better Plants Challenge partners, **L'Oréal USA** and **General Motors**, and debuted in April 2018. Viewers follow along as the two companies swap energy teams and learn from each other's energy efficiency best practices. "None of us are as smart as all of us," **L'Oréal** VP and Plant Manager Eric Fox reflected.

Learn more at https://betterbuildingssolutioncenter.energy.gov/swap/season-4.

"Power Couple" of Kurt and Tari Emerson Featured in Direct Current Podcast

*Tari Emerson and other **Charter Steel** employees participate in an energy treasure hunt; Kurt and Tari Emerson.*

The second season finale of DOE's *Direct Current* podcast featured Kurt and Tari Emerson, husband and wife from two members of Better Plants' own family: **Harley-Davidson** and **Charter Steel**, respectively. The episode explores how the "power couple" met and how they uncover energy savings at their companies. It was downloaded almost 15,000 times in February 2018, the highest monthly total for any *Direct Current* episode to date.

Learn more at https://www.energy.gov/podcasts/direct-current-energygov-podcast/s2-e9-power-couple.

New MEASUR Software Tool Suite

AMO has developed the Manufacturing Energy Assessment Software for Utility Reduction (MEASUR) tool suite to aid Better Plants partners and others in the industrial sector in improving the efficiency of energy systems and equipment within a facility. MEASUR can analyze most major support systems found within industrial facilities, including: compressed air, fans, process heat, pumps, and steam. The tool suite is on an open source platform and enables users to evaluate the energy efficiency opportunities of energy systems using an unbiased approach.

Based on facility-specific operating data, MEASUR estimates how much energy each piece of equipment uses annually – plus the estimated annual energy costs. Assessments are organized to distinguish those with lower levels of opportunities from those that warrant additional equipment analysis. The tool suite suggests methods to save energy in each area where energy is used or wasted and offers a list of additional resources. MEASUR also displays schematics of specific systems to help users better understand their energy systems, as well as a "Sankey diagram" view that breaks down all energy flows for specific scenarios. Finally, users can both view and print or export any information from assessments, including raw data, report graphs, Sankey diagrams, input summaries, or the like. Learn more at https://www.energy.gov/eere/amo/measur.

A look at the MEASUR tool suite interface.

MEASUR's Equipment Calculators

In addition to assessments, MEASUR offers more than 40 equipment calculators, which can, for example:

- Analyze motor performance;
- Calculate steam properties;
- Conduct cash flow analysis;
- Traverse analysis calculations for fans; and
- Build pump and system curves, and much more.

Technology Days 2018 at the National Renewable Energy Laboratory

On April 24 - 25, 2018, Better Plants partners and prospects gathered at the National Renewable Energy Laboratory (NREL) in Golden, Colorado, for the 2018 Technology Days. The event began with overviews of Better Plants and AMO and presentations on lab projects. It included tours of several of NREL's state-of-the-art facilities, talks with onsite researchers, and firsthand looks at their projects. There was also an optional tour of the National Wind Technology Center and Composites Manufacturing Education and Technology Facility; these facilities are located several miles from the main NREL campus, where they take advantage of unique wind patterns.

Technology Days 2018 participants tour the NREL Integrated Biorefinery Research Facility.

Technology Days 2018 inspired partners to think outside the box and consider ways to tap into the national labs. Participants are exploring next steps. "One thing I was particularly interested in was the discussion about how to make fume hoods more efficient," Eastman Chemical's Sharon Nolen said. "That is a big energy hog for our company, and we think we've looked at a lot of ideas, but I'm very interested in some additional discussions just to make sure there's nothing we've overlooked. We hope we can learn something new about that."

Dynamic Resources to Drive Savings

Better Plants strives to provide partners with helpful tools and resources to overcome barriers and identify opportunities to save energy. In-Plant Trainings (INPLTs) have long been a key program resource, but partners are also taking ample advantage of newer offerings like the Diagnostic Equipment Program and the previously mentioned MEASUR tool suite.

In-Plant Trainings

INPLTs are multi-day, hands-on workshops held at partner facilities that train participants how to identify, implement, and replicate energy saving projects. INPLTs are led by DOE-certified energy experts and focus on a wide range of topics, including traditional energy systems like compressed air and pumping, but also processes like treasure hunt exchanges and water and wastewater treatment.

This past year, Better Plants offered the new 50001 Ready topic, which features the 50001 Ready Navigator tool and practical exercises to help partners apply the structure of ISO 50001 to their facilities. As of fall 2018, more than 110 INPLTs have been conducted with over 1,500 participants, identifying more than $37 million in potential energy cost savings. Several new topics for INPLTs are being explored, including motors and drives, industrial water efficiency, and advanced trainings on existing topics.

AbbVie Hosts Inaugural 50001 Ready In-Plant Training

AbbVie held the very first 50001 Ready INPLT at their North Chicago, Illinois, facility in September 2017. The facility consumes a significant amount of energy to manufacture active pharmaceutical ingredients and thus plans to implement the ISO 50001 standard by the end of 2018 to streamline energy savings efforts.

Field Validation and Diagnostic Equipment Program

The Field Validation and Diagnostic Equipment Program (DEP) enables Better Plants partners to borrow 19 different tools to collect energy data and improve equipment performance. Through the DEP, partners' plant personnel can test tools before deciding to purchase their own, or even help justify the cost of purchasing tools by demonstrating their value first hand. The full list of available tools is as follows:

- Anemometer
- Combustion Analyzer
- Conductivity Meter
- Current Transformer
- Digital Manometer
- Digital Multimeter
- Digital Thermometer
- HOBO Data Logger
- Infrared Camera
- Infrared Thermometer
- Manometer-Hydronic
- Pitot Tube
- Power Logger
- Pressure Transducer
- Strobe Tachometer
- Thermocouple
- Time-of-use Logger
- Ultrasonic Flow Meter
- Ultrasonic Leak Detector

Borrowing tools from the DEP is free of charge, including shipping. Equipment can be used for up to four weeks at a time, first come, first serve. While the tools were traditionally loaned to energy experts for use during Better Plants INPLTs, through DEP, partners can access them to conduct their own energy system measurements and verification. For example, in the past year TE Connectivity has borrowed tools for use in their own energy treasure hunts, and Nissan North America has utilized the DEP to assess compressed air equipment.

Supply Chain and Water Savings Initiatives Updates

Better Plants provides partners with opportunities to extend their energy savings through improved supply chain-energy efficiency and water use reduction.

Supply Chain Initiative

Through the Supply Chain Initiative, partners sponsor cohorts of their suppliers to participate in Better Plants. These partners receive customized technical assistance in the form of training webinars and tools to help them meet their energy saving goals. In the past year, two supply chain partners met their goals: **Cardington Yutaka Technologies** (Honda North America cohort) and **Complete Design and Packaging** (Legrand North America cohort); see page 3.

*The rear disc production line at **Asama Coldwater Manufacturing**, a member of **Honda North America**'s supply chain cohort.*

Two supply chain partners, **Asama Coldwater Manufacturing** and **KYB Americas Corporation**, hosted INPLTs. More than 30 employees attended the trainings and came away with a solid understanding of how to optimize compressed air and process heating systems. These trainings also yielded estimated energy cost saving opportunities of more than $330,000 a year. Several other supplier companies received 12 assessments from Industrial Assessment Centers (IACs; see page 12), yielding aggregate energy cost savings potential of more than $2 million per year. By implementing these recommendations, suppliers can drive greater energy savings and move closer to achieving their goals.

Water Savings Initiative

Through the Water Savings Initiative, Better Plants Challenge partners set goals to save water in addition to energy and receive recognition and technical support. Two Challenge partners, **Bentley Mills** and **Electrolux**, joined the initiative in the past year.

BENTLEY® set a goal to reduce water intensity by 20% from 2017 to 2027

Electrolux set a goal to reduce water intensity by 20% from 2015 to 2025

In addition, Better Plants has created a water-focused page on the online Better Buildings Solution Center to gather multiple water efficiency resources in one place (see page 5). The page includes links to a water management primer, several helpful webinars, as well as showcase projects and implementation models by partners in the Water Savings Initiative.

Plant Water Profiler Tool

Water-consuming systems in industrial manufacturing plants include a wide range of processes from cooling and condensing to power generation and steam. The new Plant Water Profiler Tool helps assess total plant water intake, wastewater disposal, and the "true cost"of water in the plant. Thus, it helps management identify systems that contribute to water consumption and cost and enables efforts to prioritize water efficiency measures. Results can also be used to establish a baseline and track water use during subsequent years.

The tool evaluates "water balance" by individual systems, accounting for the source water intake, recirculated water, consumptive water use, and wastewater disposal. This helps users understand water losses and potential water savings. The tool can also provide a tailored list of water efficiency measures and opportunities specific to the plant. It's a "first step" that industrial facilities can follow to minimize their water use and achieve cost savings. Learn more at https://www.energy.gov/eere/amo/plant-water-profiler-tool-excel-beta-version-pwpex-v01.

Getting Partners 50001 Ready

DOE also offers 50001 Ready and Superior Energy Performance (SEP 50001) recognition for facilities and organizations that practice ISO 50001-based energy management. Several Better Plants partners are going through the process of earning 50001 Ready recognition, which can help them meet their energy goals:

1. Complete 25 tasks in the 50001 Ready Navigator

   Track your progress through the Navigator, an online guide for establishing an energy management system (EnMS) to plan, identify, prioritize, and implement projects to improve a facility's energy performance.

2. Self-attest to the tasks' completion

   Submit a simple self-attestation form to confirm the establishment of an EnMS.

3. Measure and improve energy performance over time

   For initial 50001 Ready recognition, organizations must report facility-level energy consumption for operations included in their 50001 Ready EnMS. In subsequent years, organizations must demonstrate continued performance improvement.

50001 Ready
U.S. DEPARTMENT OF ENERGY

Better Plants Partners With 50001 Ready Facilities

ArcelorMittal	Cleveland, Ohio
Charter Steel	Saukville, Wisconsin
COMAU	Novi, Michigan
NISSAN	Canton, Mississippi Decherd, Tennessee Smyrna, Tennessee

Through SEP 50001, facilities with an EnMS that meets the ISO 50001 standard and demonstrate improved energy performance – up to 30 percent over three years – can receive third-party verification and certification. By going beyond ISO 50001 and investing the extra effort in SEP 50001, facilities reveal new energy savings opportunities and develop cultures of continual improvement.

New Better Plants Showcase Projects and Implementation Models

Showcase projects and implementation models are opportunities for Better Plants Challenge partners to document and share their energy efficiency best practices for others to emulate. Here are some of the latest posted on the online Solution Center:

- **Electrolux:** Internal Energy Management Certification Driving Best Practices in Monitoring, Management, and Awareness (https://betterbuildingssolutioncenter.energy.gov/implementation-models/internal-energy-management-certification-driving-best-practices-monitoring)
- **Martin Guitar:** Retrofitted HVAC System at Nazareth, Pennsylvania, Facility (https://betterbuildingssolutioncenter.energy.gov/showcase-projects/retrofitted-hvac-system-at-nazareth-pa-facility)
- **Nissan North America:** Chilled Water System Upgrades and Dashboard (https://betterbuildingssolutioncenter.energy.gov/showcase-projects/chilled-water-system-upgrades-and-dashboard)

Additional Complementary Programs

One of the most valuable features of Better Plants is access to complementary programs offered by AMO. Working with their Technical Account Managers, Better Plants partners can tap resources to help them save money, improve resiliency, and receive no-cost energy assessments. In the past year, many partners leveraged these programs and reaped the benefits.

Industrial Assessment Centers

Better Plants partners can take advantage of no-cost energy assessments from DOE's IACs. Teams at 28 universities around the country conduct the energy audits to identify opportunities to improve productivity, reduce waste, and save energy. To date, IACs have assessed more than 17,600 manufacturers, resulting in over 134,000 savings recommendations. The average IAC assessment leads to 5-7% implemented energy savings and productivity improvement.

Honda North America has eight of its suppliers participating as a cohort in Better Plants' Supply Chain Initiative. As small businesses, these partners have greatly leveraged the IAC assessments as a no-cost way of identifying energy savings opportunities. In total, five **Honda North America** suppliers in Better Plants – **Asama Coldwater Manufacturing**, **Cardington Yutaka Technologies**, **KYB Americas Corp.**, **Newman Technologies**, and **NSK Americas** – have received 11 IAC energy assessments.

Combined Heat and Power Technical Assistance Partnerships

Combined heat and power (CHP) is an efficient and clean approach to generating on-site electric power and useful thermal energy from a single fuel source. DOE's CHP Technical Assistance Partnerships (TAPs) are available to help identify CHP market opportunities through vendor, fuel, and technology neutral assessments of CHP viability. Additionally, CHP TAPs help provide technical assistance to end-users and stakeholders considering CHP, and to help them through the project development process, from initial CHP screening to installation.

Shaw Industries' *Columbia, South Carolina, plant.*

In May of 2018, **Shaw Industries**, a Better Plants goal achiever, completed the construction of a 14.1 MW CHP system in their Columbia, South Carolina, plant. This project was in many ways a product of their engagement with the Southeast CHP TAP. In 2013, the TAP had provided some initial CHP screening and recommendations, which was followed up the next year by a CHP feasibility analysis. And in 2017, the Southeast CHP TAP hosted two groups of operators from the partner to visit NC State University's CHP facilities as part of their training, with a wide-ranging discussion on CHP.

Technologist in Residence Program

The Technologist in Residence (TIR) Program pairs senior technical staff from national laboratories and manufacturing companies to work together towards long-term strategic collaborative partnerships and impactful manufacturing solutions. TIR's vision is to catalyze strong national laboratory-industry relationships that result in significant growth in high-impact R&D. More than a one company-one lab partnership, industry gains insight and builds relationships across the national laboratory system, developing streamlined methods for establishing long-term relationships that result in collaborative R&D. Three Better Plants partners, **Alcoa**, **Cummins**, and **Procter & Gamble**, were selected for the first class of TIR pairs.

R&D Projects and Consortia

Through AMO's public-private R&D consortia, manufacturers, small businesses, universities, national laboratories, and state and local governments come together to pursue coordinated early-stage R&D in high-priority areas essential to energy in manufacturing. By participating, Better Plants partners gain access to collaborative communities, expertise, and physical and virtual tools to foster technology innovation; Ford Motor Company, for example, is working with IACMI to develop lightweight carbon fiber composites.

Clean Energy Smart Manufacturing Innovation Institute (CESMII)

Advancing sensors, controls, modeling, data analytics simulation, and platform development to radically improve the efficiency of U.S. manufacturing. Learn more at https://www.cesmii.org/.

Critical Materials Institute: An Energy Innovation Hub

Diversify supply, develop substitutes, improve reuse and recycling of rare earth metals and materials that are crucial for clean energy technologies. Learn more at https://cmi.ameslab.gov.

Institute for Advanced Composites Manufacturing Innovation (IACMI)

Developing cutting-edge technologies for low-cost, energy-efficient manufacturing of advanced polymer composites for many applications. Learn more at https://iacmi.org.

Manufacturing Demonstration Facility (MDF) at Oak Ridge National Laboratory

Collaborations with industry aim to develop additive manufacturing technologies that reduce life cycle energy, lower costs, and create new products. Learn more at https://www.ornl.gov/mdf.

The Rapid Advancement in Process Intensification Deployment (RAPID) Institute

Focused on breakthrough technologies to dramatically improve energy efficiency of novel chemical manufacturing processes. Learn more at https://www.aiche.org/rapid.

Clean Energy Manufacturing Innovation Institute for Reducing Embodied-Energy and Decreasing Emissions (REMADE)

Dramatically reduce life cycle energy consumption through the development of technologies for reusing, recycling, and remanufacturing materials. Learn more at https://remadeinstitute.org.

PowerAmerica

Accelerating development of advanced semiconductor components made with silicon carbide and gallium nitride into a wide range of products and systems. Learn more at https://poweramericainstitute.org.

Better Plants partners interested in the R&D consortia should contact their Technical Account Manager.

Looking Ahead

Better Plants partners are demonstrating that industrial energy efficiency can be an important cost saver and competitiveness driver. By setting and working to achieve long-term energy intensity reduction goals, partners are boosting their bottom lines, growing jobs, and being responsible corporate citizens. In addition to expanding initiatives highlighted in the report, here's how Better Plants plans to carry the momentum forward in the next year:

Energy System Validation Working Groups

At the 2018 IETC, Better Plants piloted a steam working group meeting, designed to allow partners to share successful strategies and challenges, as well as to present DOE tools and resources; see page 5. Better Plants aims to expand to new topics like process heating, compressed air, and pumping.

New In-Plant Training Topics

To date, DOE has offered over 110 INPLTs, which have trained more than 1,500 workers at Better Plants facilities. Better Plants will continue to expand the resource offerings through new potential topics such as motors and drives and industrial water efficiency.

Better Plants Connections and Mentoring Program

This new initiative will leverage the deep knowledge and experience of some of our partners to forge strong relationships and share advice and solutions.

Small-to-Medium Manufacturers Quick Start Guide to Energy Savings

Small and medium manufacturers frequently lack the same dedicated staff and resources to tackle energy efficiency opportunities, and this all too often will deter them from taking first steps. Better Plants will develop a quick start guide to help these manufacturers hit the ground running on the path towards savings.

Energy-Intense Manufacturers Program

Manufacturers in energy-intense sectors like chemical processing face unique challenges, but also the potential to save substantial amounts of energy. Better Plants will dedicate resources – such as specialized guidance for meeting energy goals – to help these partners and bring new, similar partners in.

Greater Engagement with Manufacturing USA Institutes

Manufacturing USA is a network of regional institutes, each with a specialized technology focus. The institutes share one goal: to secure the future of manufacturing in the U.S. through innovation, collaboration and education. Better Plants will facilitate our partners to learn more and potentially participate in these institutes.

Endnotes

1. Better Plants cumulative energy cost savings values are calculated using EPA unit price values and MECS 2010 manufacturing energy distribution summary statistics.
2. Savings equivalency for manufacturing workers' annual average salaries ($84,832 in 2017) is derived from NAM, http://www.nam.org/Newsroom/Facts-About-Manufacturing.

Better Plants Challenge Energy and Water Goal Achievers Since 2009

3M
C.F. Martin & Co. EST. 1833
Celanese The chemistry inside innovation
Cummins
Encina Wastewater Authority
GM
HARBEC Technical Innovation With Environmental Responsibility
Holcim
ingevity
Johnson Controls
legrand
NISSAN
Schneider Electric
TOYOTA
United Technologies
VVWRA
VOLVO

Better Plants Program Energy Goal Achievers Since 2009

at&t
BENTLEY
BPM Inc A Specialty Paper Mill
BRADKEN
CY
COMAU
COMPLETE Design & Packaging
DAIKIN
EATON Powering Business Worldwide
EXPERA specialty solutions
GENERAL DYNAMICS
Graphic Packaging INTERNATIONAL
Ingersoll Rand
Johnson & Johnson
JM
Kingspan
LENNOX INTERNATIONAL
environment LA SANITATION CITY OF LOS ANGELES
LOCKHEED MARTIN
METAL INDUSTRIES, INC.
OSRAM SYLVANIA
OWENS CORNING
PATRICK CUDAHY SINCE 1888
PATRIOT FOUNDRY & CASTINGS
P&G
Roche
Shaw FLOORS
SHERWIN WILLIAMS
TE connectivity
TEXAS INSTRUMENTS
thyssenkrupp
VERSO
Weyerhaeuser

Partners as of October 2018

3M*
AbbVie Inc.
Alcoa Inc.
Alexandria Renew Enterprises
Amcor Rigid Plastics
American Mitsuba Corp.
ArcelorMittal USA
Armstrong Flooring
Asama Cold Manufacturing
AT&T*
Avon Lake Regional Water
Ball Corporation
Bath Electric Gas and Water System
BD
Bentley Mills*
Bosch Rexroth
BPM, Inc.*
Bradken*
Bridgestone Americas, Inc.
Briggs & Stratton Corporation
Bristol-Meyers Squibb
Buck Company
Bucks County Water and Sewer Authority (BCWSA)
C. F. Martin & Company
CalPortland Company
Campbell Soup Company
Cardington Yutaka Technologies
Carlton Forge Works
Cascade Engineering Technologies, Inc.
Celanese Corporation*
Chapco Inc.
Charleston Water System
Charter Steel
Chippewa Valley Ethanol Company
Citrus World, Inc.
City of Grand Rapids Water Resource Recovery Facility
City of Phoenix Water Services Department
City of Roseville, Environmental Utilities Department
Clearwater Engineering, Inc.
Co-Operative Industries Aerospace and Defense
Coilplus Inc.
Comau LLC*
Commercial Metals Company
Complete Design and Packaging
Cooper Standard
Cummins, Inc.*~
Daikin Applied Americas*
Darigold
Davisco Foods
Delta Diablo
Denison Industries
Des Moines Water Works
Didion Milling
Dixline Corporation
Donsco Inc.
Dow Chemical Company
DSM North America
Durex Inc.
EARTH$_2$O
Eastman Chemical Corporation
Eaton Corporation*
Eck Industries
Electrolux
Encina Wastewater Authority*
Expera Specialty Solutions*
Fiat Chrysler Automobiles
Flambeau River Papers
FMC Corporation
Ford Motor Company
General Aluminum Manufacturing Company
General Dynamics Ordnance and Tactical Systems Scranton Operation*
General Electric
General Mills
General Motors~
General Sheet Metal Works, Inc.
GKN Aerospace
Golden Renewable Energy, LLC
Goodyear Tire and Rubber Company, U.S. Tire Plants
Graphic Packaging*
HARBEC, Inc.*
Harley-Davidson
Harrison Steel Castings Co.
Harva Company
Haynes International
HNI Corporation
Holcim (US) Inc.*
Honda North America
Huntsman Corporation
Imerys Carbonates North America
Ingersoll Rand*
Ingevity*
Intel
International Paper
Intertape Polymer Group
Ithaca Area Wastewater Treatment Facility
J.R. Simplot
JBT Corporation
Jedco, Inc.
Johnson & Johnson*
Johnson Controls*
Johnson Matthey Emission Control Technologies Division
Kent County Department of Public Works
Kenworth Truck Company
Kingspan Insulated Panels, Inc.*
Krage Manufacturing
KYB Americas Corporation
L'Oréal USA
Land O' Lakes
Leggett & Platt
Legrand North America*
Lennox International*
Lineage Logistics
Lockheed Martin
Los Angeles Bureau of Sanitation
Los Angeles Department of Water & Power
Lynam Industries Inc.
Magnetic Metals Corp.
MAHLE Engine Components USA, Inc.
Manitowoc Grey Iron Foundry
Mannington Mills
Marquis Energy
Marquis Energy Wisconsin
Massachusetts Water Resources Authority
MB Aerospace East Granby
McCain Foods USA, Inc.
MedImmune
Metal Industries, Inc.*
Mohawk Industries
Mulgrew Aircraft Components, Inc.
Narragansett Bay Commission
Navistar International
Neenah Foundry
NEW Water (Green Bay Metropolitan Sewerage District)
Newman Technology, Inc.
Nissan North America, Inc.*
Novati Technologies
Novelis Inc.
NSK Americas
NY DEP – Bureau of Wastewater Treatment
O'Fallon Casting
OFD Foods, Inc.
OMNOVA Solutions Inc.
Orange Water and Sewer Authority
Oshkosh Corporation
OSRAM SYLVANIA*
Owens Corning
Pactiv
PaperWorks Industries
Parker Hannifin
Patrick Cudahy, Inc.*
Patriot Foundry & Castings*
PepsiCo
Pharmavite
Philadelphia Water Department
Pima County Regional Wastewater Reclamation Dept.
Plastics Engineering Company (Plenco)
PPC Broadband
PPG Industries
Procter & Gamble*
Quad/Graphics, Inc.
Raytheon Company
Research Electro-Optics
Richmond Industries Inc.
Roche Diagnostics Operations*
Rowley Spring and Stamping
Saint-Gobain Corporation
Savage Precision Fabrication
Schneider Electric*
Selmet, Inc.
Shaw Industries Group, Inc.*
Sheboygan Regional Wastewater Treatment Facility
Sherwin-Williams*
Solberg Manufacturing, Inc.
Sony DADC
Spirax Sarco, Inc.
St. Petersburg Water Resources Department
Stanley Spring & Stamping Corporation
Steelcase, Inc.
SunOpta, Inc.
TE Connectivity*
Tenaris
Texas Instruments*
Texas Nameplate Co.
Textron
ThyssenKrupp Elevator*
Toyota Motor Engineering and Manufacturing North America*
TPC Group
Tri-State Plastics, Inc.
United Technologies Corporation*~
Vanguard Space Technologies
Vermeer
Verso Paper Corporation
Victor Valley Wastewater Reclamation Authority*
Volvo Group North America*
W. L. Gore and Associates
Waupaca Foundry
Weber Metals Inc.
Western Lake Superior Sanitary District
WestRock
Weyerhaeuser*
Whirlpool Corporation
Zimmer Biomet

KEY

Bold – Better Plants Challenge Partner
Underline – New Partner
Asterisk* – Energy Goal Achiever
Tilde~ – Water Goal Achiever

Faculty and Staff

LEVIN COLLEGE STAFF

Andrew R. Thomas

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Maxine Goodman Levin College of Urban Affairs

Cleveland State University

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Andrew Thomas is an Executive-in-Residence with the Energy Policy Center in the Maxine Goodman Levin College of Urban Affairs of Cleveland State University. His duties include administering the center, providing support for university facilities, and researching energy law and policy. He teaches courses on oil and gas contracts internationally, and is adjunct to the Cleveland Marshall School of Law and the College of Urban Affairs, where he teaches courses in energy law and policy. He is director of the Renewable Hydrogen Fuel Cell Collaborative and the Midwest Hydrogen Center of Excellence.

Mr. Thomas joined Cleveland State in 2008, after working as general counsel for a fuel cell company for six years. Prior to coming to Ohio, he worked 20 years in the energy industry in New Orleans, Louisiana, as a geophysicist with Shell Oil Company and as a private lawyer. He also served as an editor of the Loyola Law Review. He is currently an Ohio Oil and Gas Commissioner.

Education:

- J.D., Loyola University, New Orleans, Louisiana.
- B.S., M.S., Geology, Kent State University, Kent, Ohio.

Areas of Research:

- Microgrids, energy storage systems, distributed generation
- Electricity and natural gas markets
- Fuel Cells, hydrogen economy, zero emission transportation
- Oil and Gas law, mid and downstream hydrocarbon development

THE OHIO STATE UNIVERSITY

JOHN GLENN COLLEGE OF PUBLIC AFFAIRS

Inspiring Citizenship, Developing Leadership

Ned Hill

Professor, joint appointment with the College of Engineering

Dr. Edward [Ned] Hill teaches economic development policy, public policy and public finance in both the Glenn College and the City and Regional Planning section in the College of Engineering's Knowlton School of Architecture.

Before coming to Ohio State, Hill was dean of the Levin College of Urban Affairs at Cleveland State University for eight years and was Professor and Distinguished Professor of Economic Development.

He serves as nonresident senior fellow of The Brookings Institution, where he is affiliated with the Metropolitan Policy Program. He was chair of the Advisory Board of the National Institute of Standards and Technology's (NIST) Manufacturing Extension Partnership (MEP) from 2007 until 2010. His appointment to the Board ended in April 2014, making him the board's longest serving member.

He has edited *Economic Development Quarterly* and is a member of the editorial board of the *Journal of the American Planning Association*. His latest co-authored book, *Economic Adversity and Regional Economic Resilience*, is expected to be published by Cornell University Press in 2016.

Crain's Cleveland Business recognized Hill's work in 2012 when he was listed in its Who's Who, 150, Names to Know in Northeast Ohio. Hill is listed in Crain's 2014 Power 150. Gov. Taft appointed him to Ohio's Urban Revitalization Task Force, Gov. Strickland named him to the Automotive Industry Support Council, Gov. Kasich placed Hill on the state's manufacturing task force, and former Speaker of the Ohio House of Representatives Bill Batchelder appointed him to the Cooperative Education Advisory Board of the Ohio Board of Regents.

Hill holds a doctoral degree in economics, urban and regional planning, a Master's degree in city planning from the Massachusetts Institute of Technology and a bachelor's degree in economics and urban studies from the University of Pennsylvania.

UPDATE ON ELECTRICITY CUSTOMER CHOICE IN OHIO:

EXECUTIVE SUMMARY

The purpose of this study is to provide an update to the research team's 2016 report "Electricity Customer Choice in Ohio: How Competition Has Outperformed Traditional Monopoly Regulation" using data for 2016 through 2018.

KEY FINDINGS AT A GLANCE:

Deregulated Markets Save Ohio Electricity Consumers Billions

- Since 2011, deregulation has saved Ohio consumers $23.9 billion.
- The Study Team anticipates that savings will continue for the near term to be around $3 billion per year. However, these savings may be lost, in whole or in part, if deregulated energy markets continue to be undermined by cross subsidies.

Competition Outperforms Monopoly Regulation

- Competition has driven down average electricity prices in deregulated Midwestern states while their regulated peers have seen a steady increase in price of generated electricity.

> *"Competitive markets have proven to be a powerful tool to deliver value to Ohio's ratepayers. Efforts to undermine the efficiency of these markets…are a threat to Ohio's economic development and wellbeing."*
>
> *–The Ohio State University and Cleveland State University Research Study*

Total Savings Due to Deregulation in Ohio 2011-2015 (millions of dollars)

Year	Shopping	SSO Auction	Total
2011	$496.70	$2,395.00	$2,891.70
2012	$443.29	$2,366.00	$2,809.29
2013	$744.11	$2,342.00	$3,086.11
2014	$824.21	$2,380.00	$3,204.21
2015	$645.19	$2,339.00	$2,984.19
Total	**$3,153.30**	**$11,822.00**	**$14,975.30**

Below is the update analyzed pricing data from 2016-2018. Total savings over the three years was around $9 billion.

Total Savings Due to Deregulation in Ohio 2016-2018 (millions of dollars)

Year	Shopping	SSO Auction	Total
2016	$540.77	$2,553.90	$3,094.67
2017	$403.59	$2,502.10	$2,905.69
2018	$353.45	$2,612.60	$2,966.05
Total	**$1,297.81**	**$7,668.60**	**$8,966.41**

Total Savings from Deregulation in Ohio 2011-2018 (millions of dollars)

Shopping	SSO	Total
$4,451.11	**$19,490.60**	**$23,941.71**

1. **Since 2011, deregulation has saved Ohio consumers $23.9 billion. Of this total savings, $19.5 billion resulted from competitive auctions driving down the price of the utilities' Price to Compare (PTC).** These savings are realized by Ohio electric consumers who obtain their power from the default generation service that sets the price for this utility service. An additional $4.4 billion has been saved by consumers who contracted with Competitive Retail Electric Service (CRES) providers or governmental aggregators and were able to negotiate electricity prices below the PTC.

   The 2016 report analyzed data through 2015 and estimated that Ohio consumers had saved about $3 billion per year, $15 billion in total, through deregulation between 2011 and 2015. That report set forth two types of savings:

   - "Shopping" are those costs avoided through purchasing electricity from a CRES provider, rather than defaulting into the Standard Service Offer (SSO) (used to create the PTC).

   - "SSO Auction" are the savings resulting from utilities setting their SSOs through a competitive auction process, rather than the traditional cost-based accounting method that was used in Ohio before deregulation.

2. **Competition has driven down average electricity prices in deregulated Midwestern states (Ohio, Pennsylvania, Illinois), while their regulated peers (Indiana, Michigan, Wisconsin) have seen a steady increase in price of generated electricity.** Ratepayers in these regulated states are saddled with the cost of aging, uneconomic power plants, while competitive markets in the deregulated states have incentivized investment into new efficient and cost-effective generation and have accessed wider multi-state markets for generated electricity. Deregulation has also led to the adoption of dynamic pricing programs and more renewable energy resource offerings.

   Competitive markets have proven to be a powerful tool to deliver value to Ohio's ratepayers. Competitive rates are attractive to businesses looking to locate in Ohio. Any attempt to derail competitive generation markets would cause significant harm to all of Ohio's electric consumers and to Ohio's economy.

3. **The Study Team anticipates that savings will continue for the near term to be around $3 billion per year. However, these savings may be lost, in whole or in part, if deregulated energy markets continue to be undermined by cross subsidies of uncompetitive Investor Owned Utility (IOU) generation through Electric Distribution Utility (EDU) riders and surcharges, or through legislatively-mandated, above market Power Purchase Agreements (PPAs) and subsidies.**

   Despite the many benefits of competition, there have been continuing threats to deregulated electricity markets in Ohio. Investor Owned Utilities have used Ohio's regulatory system to obtain cross-subsidies to support their unprofitable generating facilities through riders and surcharges collected by their regulated Electric Distribution Companies on consumers' bills.

   The costs charged to Ohio consumers through these riders and surcharges are not directly related to the purchase of electric power itself. These efforts have served to undermine the billions of dollars of benefits consumers have realized from competitive markets and have prevented consumers from realizing the full benefits from deregulation.

To read the full study and to learn more about how to support energy choice, go to www.saveenergychoiceohio.org.

ABOUT NOPEC

NOPEC (Northeast Ohio Public Energy Council) is a non-profit group of over 230 communities in 17 Ohio counties that negotiates lower utility rates for its members. As Ohio's largest public retail energy aggregator, NOPEC buys gas and electricity in bulk to help lower customers' utility bills. Since 2001, NOPEC has saved residents and businesses over $300 million and awarded more than $28 million in energy-efficiency grants to NOPEC member communities. For more information about NOPEC, visit www.nopec.org.

NOPEC℠

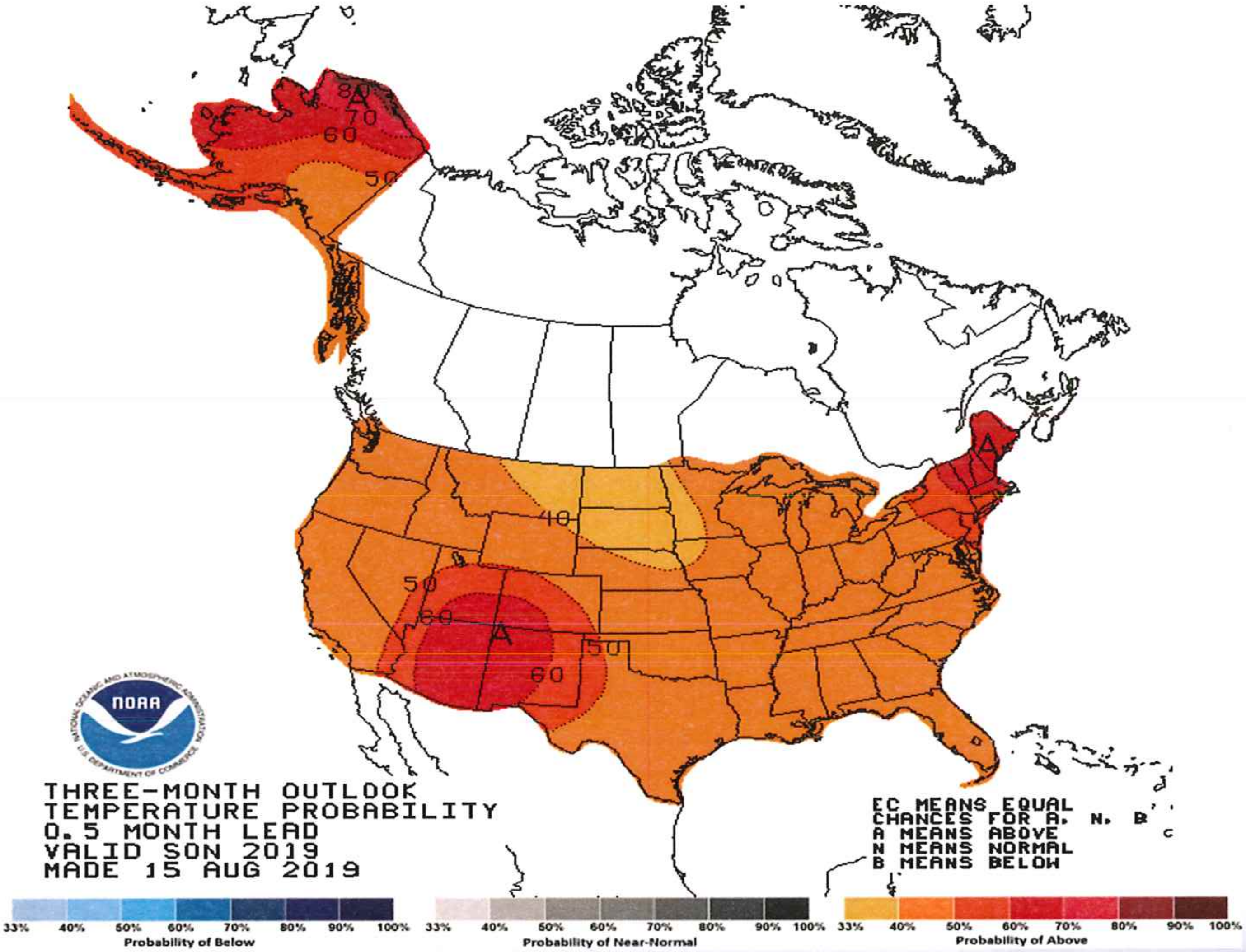
No one does more to lower your utility bills.℠

Natural Gas Update
OMA Energy Committee

LeRoy Smith
NiSource/Columbia Gas of Ohio
August 29, 2019

Columbia Gas of Ohio
A NiSource Company

NOAA Temperature Outlook: Aug 15 – Nov 15, 2019



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National Oceanic & Atmospheric Administration (NOAA) Outlook

- **Warmer or Colder Winter:** NOAA currently favors a relatively "ENSO-Neutral" outlook condition with the odds of El Nino (warmer weather) being twice that of a La Nina (colder weather) occurrence.

- **Atlantic Hurricane Season (June 1 to November 30):** NOAA currently has a slightly favored above normal Atlantic Hurricane Season outlook.

- **Winter temperatures** seem to affect **gas markets** more than **hurricanes** do as of recent; On-Shore/Land shale gas production versus the Gulf of Mexico

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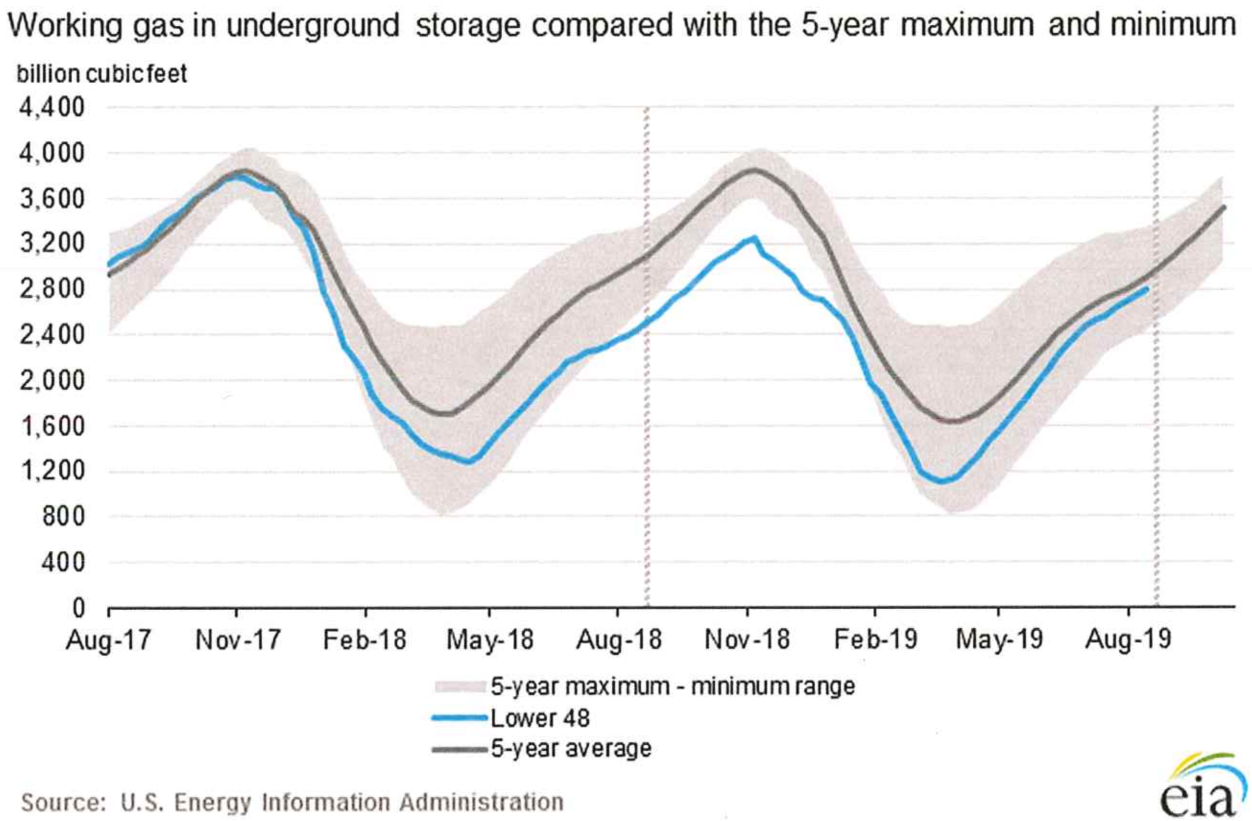
Storage – About at the 5 Yr Average

Working gas in storage was 2,797 BCF as of Friday, August 16, 2019, according to EIA estimates. This represents a net increase of 59 BCF from the previous week. Stocks were 369 BCF higher than last year at this time and 103 BCF below the five-year average of 2,900 BCF. At 2,797 BCF, total working gas is within the five-year historical range.



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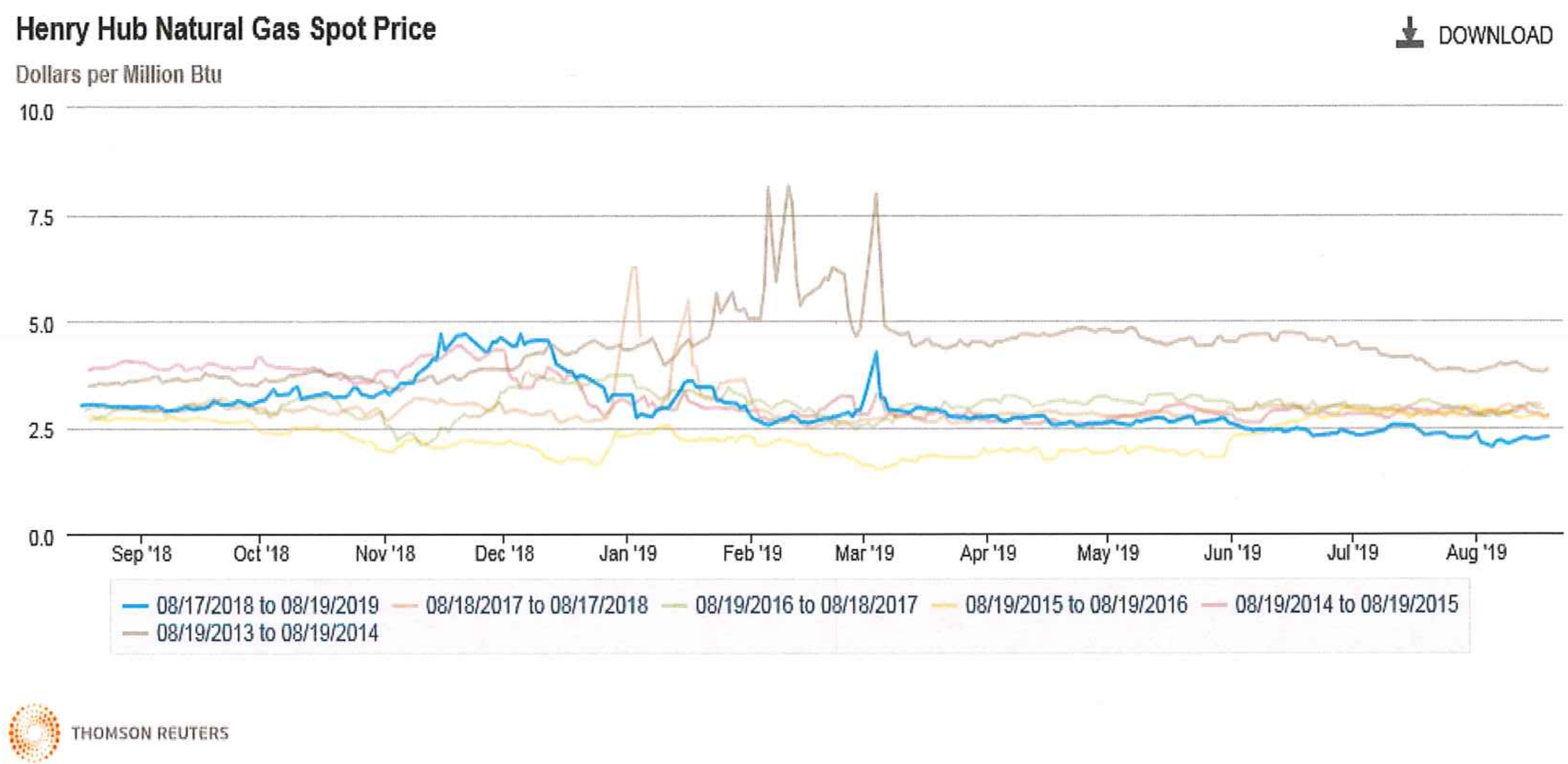
NYMEX Prompt Month Settlement – 5 Years



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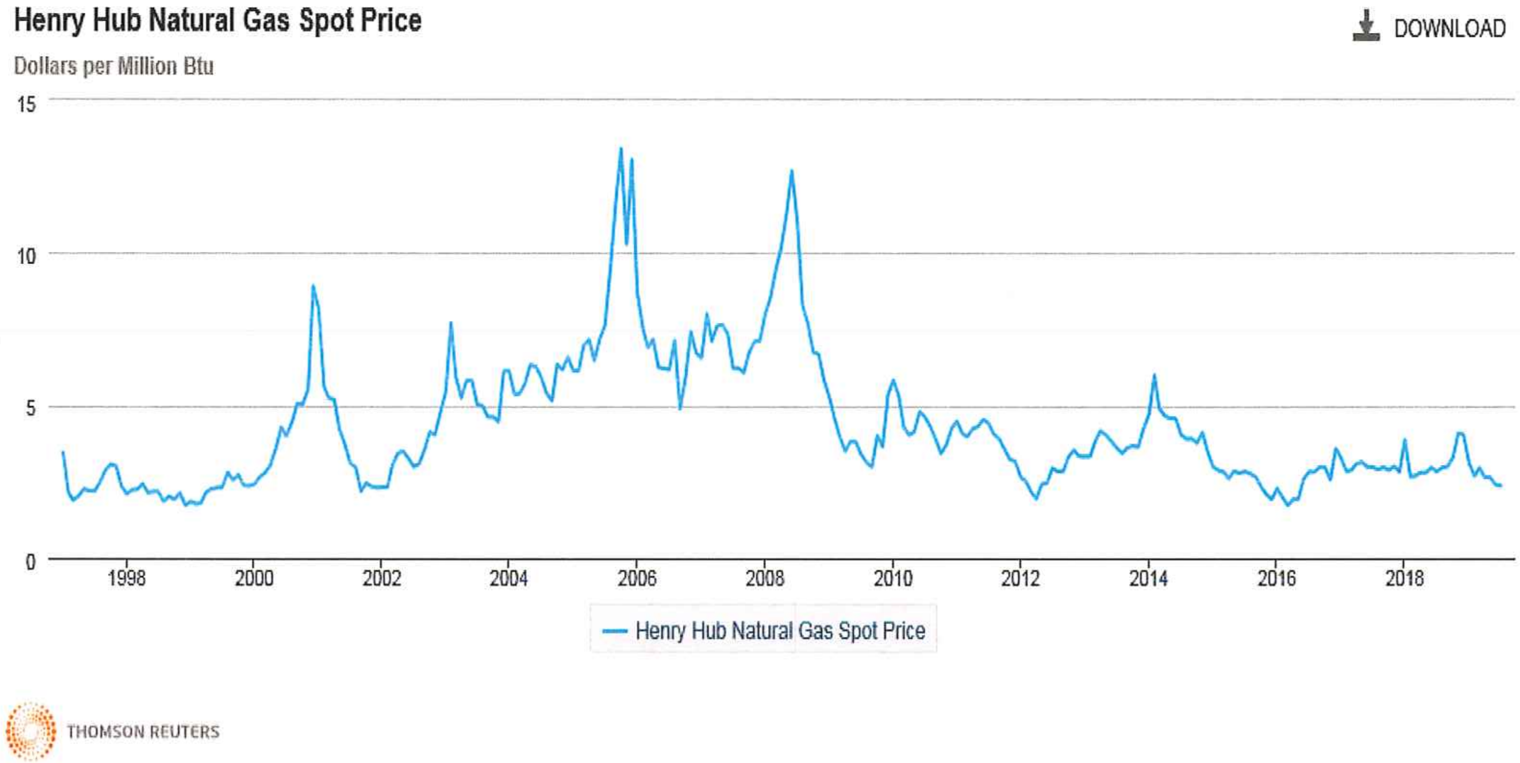
NYMEX Prompt Month Settlement History



Columbia Gas of Ohio

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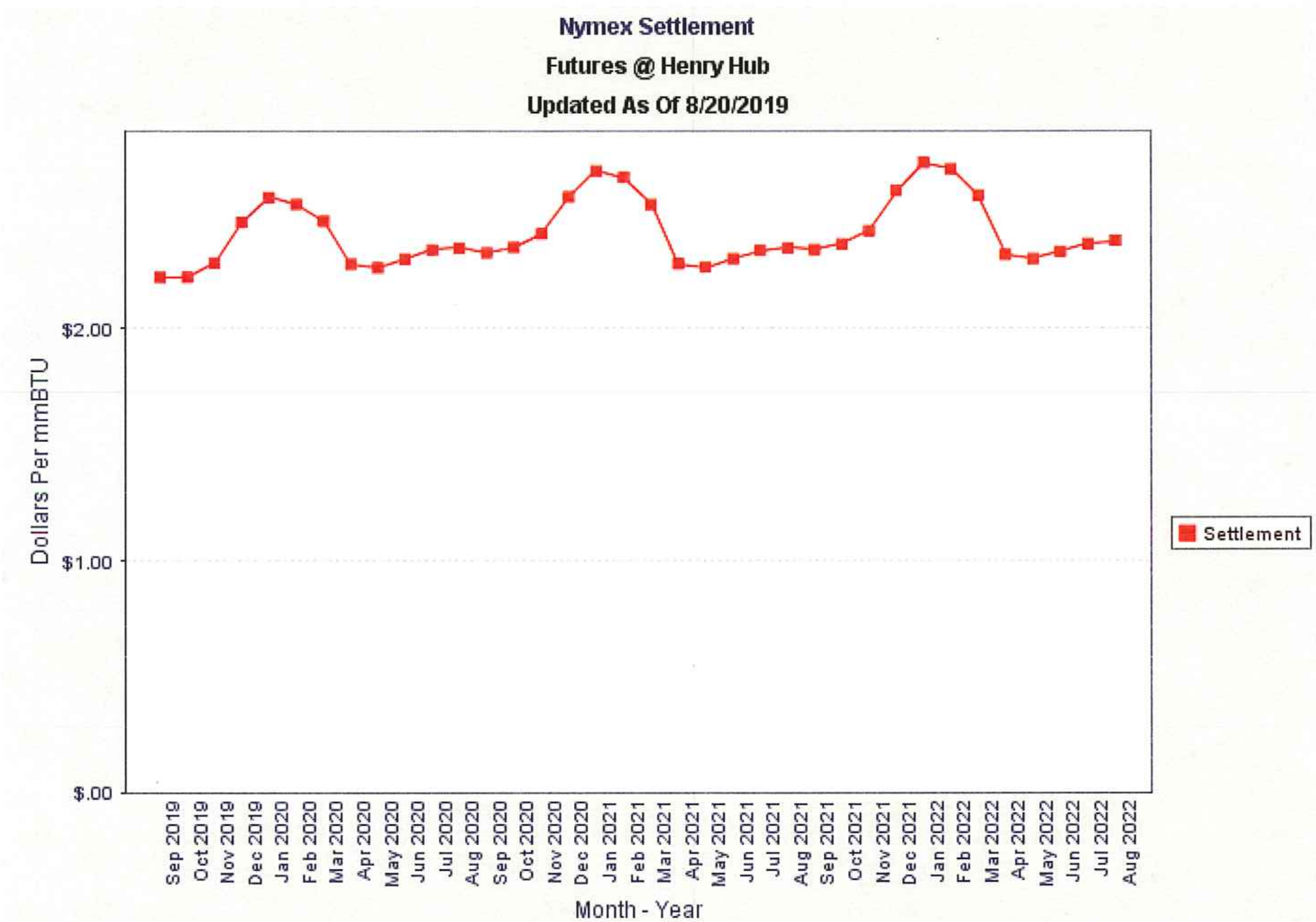
NYMEX Futures Settlement: 8/20/2019 – Where's the $3 at?



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NYMEX Term Pricing: 8-22-2019 – Lower, Again

TERM	PRICE 5-24-19	PRICE 8-22-19
3 month	$2.59	$2.20 (-$0.39)
6 month	$2.62	$2.34 (-$0.28)
12 month	$2.70	$2.33 (-$0.37)
18 month	$2.67	$2.38 (-$0.29)

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Select Hub Pricing – August 22, 2019 – Lower, Again

HUB LOCATION	5-24-19	8-22-19	
Henry Hub	$2.56	$2.25	(-$0.31)
Houston Ship Channel	$2.51	$2.13	(-$0.38)
TCO Pool	$2.25	$1.97	(-$0.28)
Dominion South Point	$2.15	$1.79	(-$0.36)
TETCO M-2	$2.13	$1.76	(-$0.37)
TGP Zone 4	$2.05	$1.71	(-$0.34)

Dominion, TCO, TETCO, & TGP pricing is Marcellus/Utica Area. Note that they all have a one dollar in their pricing before the decimal point.

NOTE: The convergence of the Appalachian basin prices; Due to all of the recent pipeline projects in Appalachia taking the gas to market.

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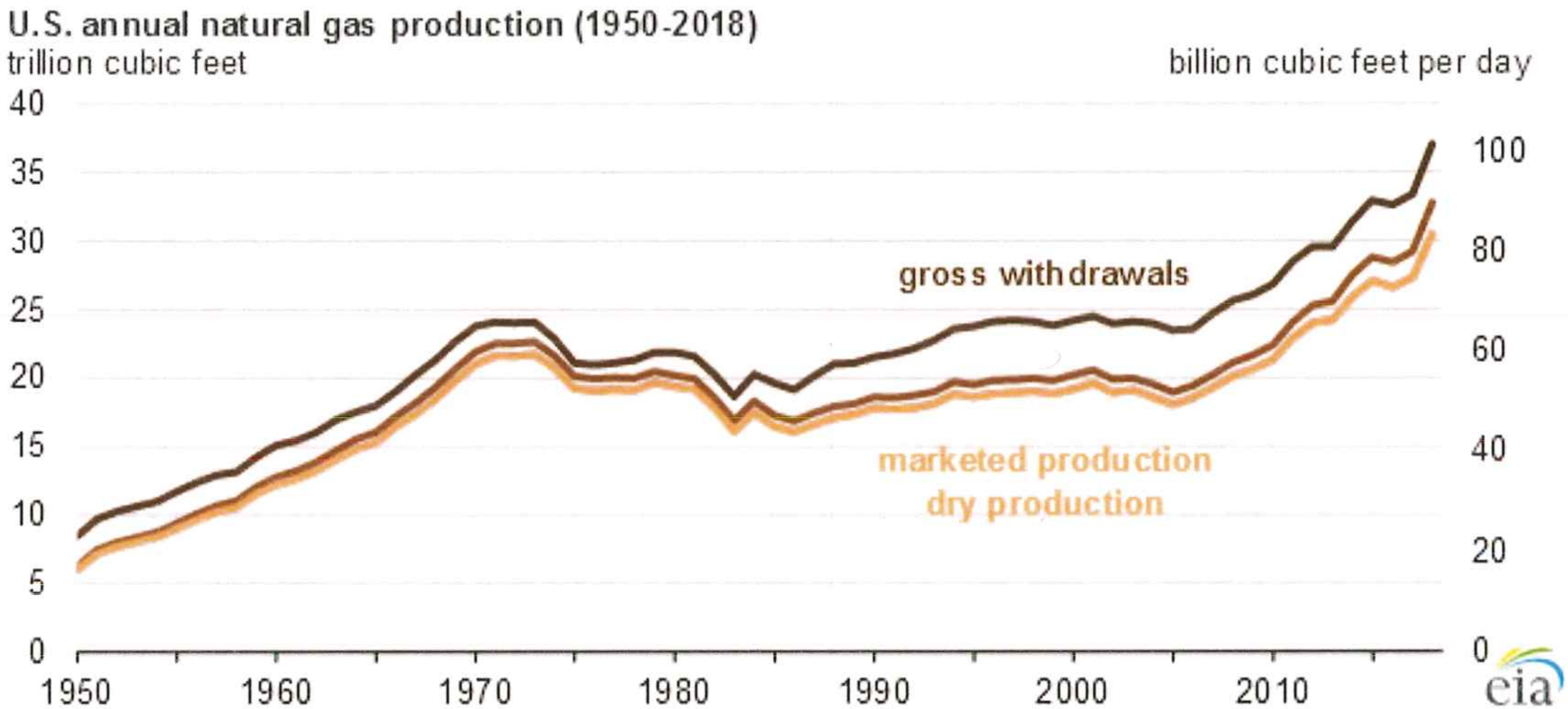
Historic US Gas Production – The Recent Rise



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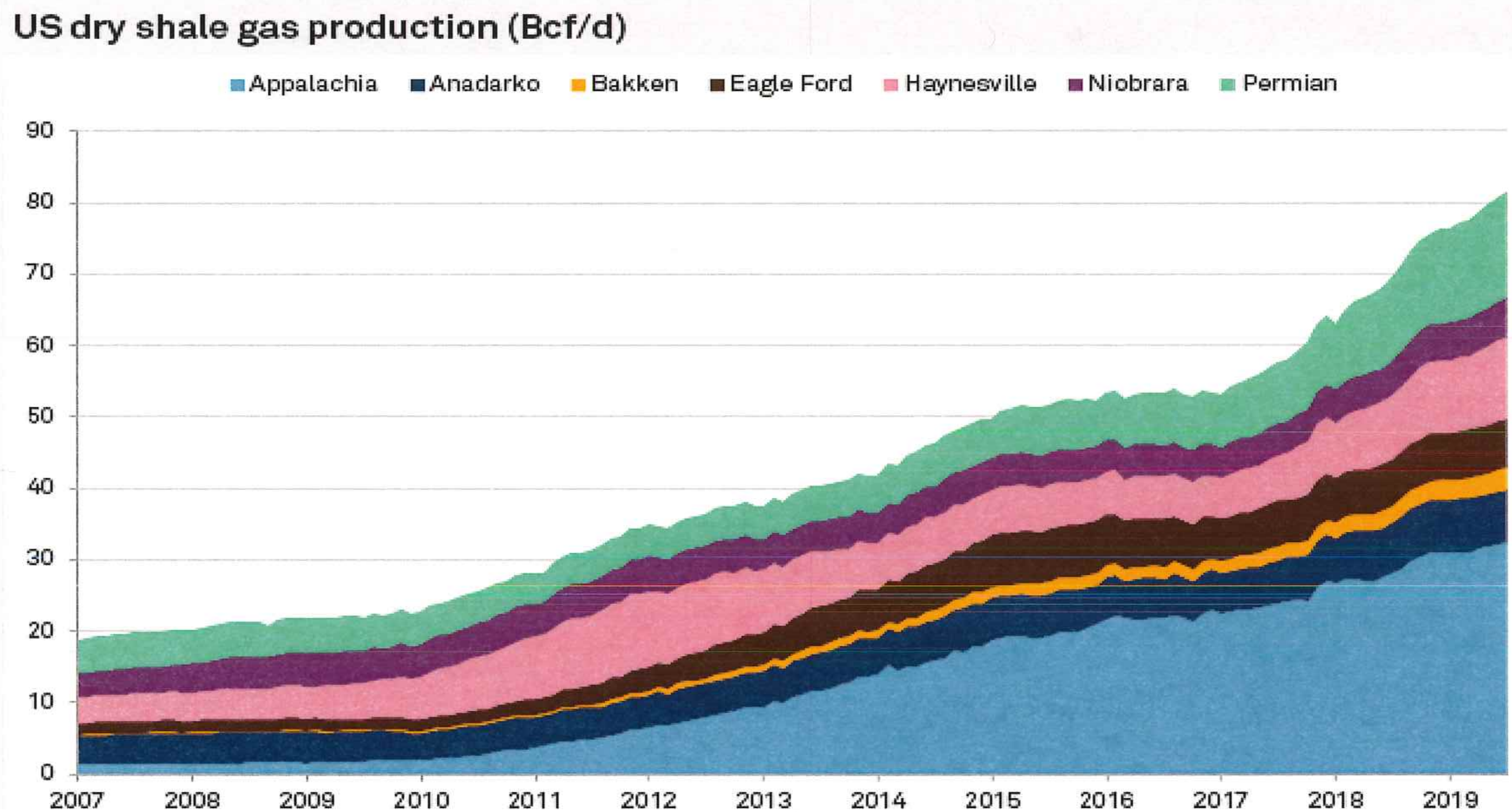
US Shale Gas Production



As of May 13, 2019.
Source: U.S. Energy Information Administration

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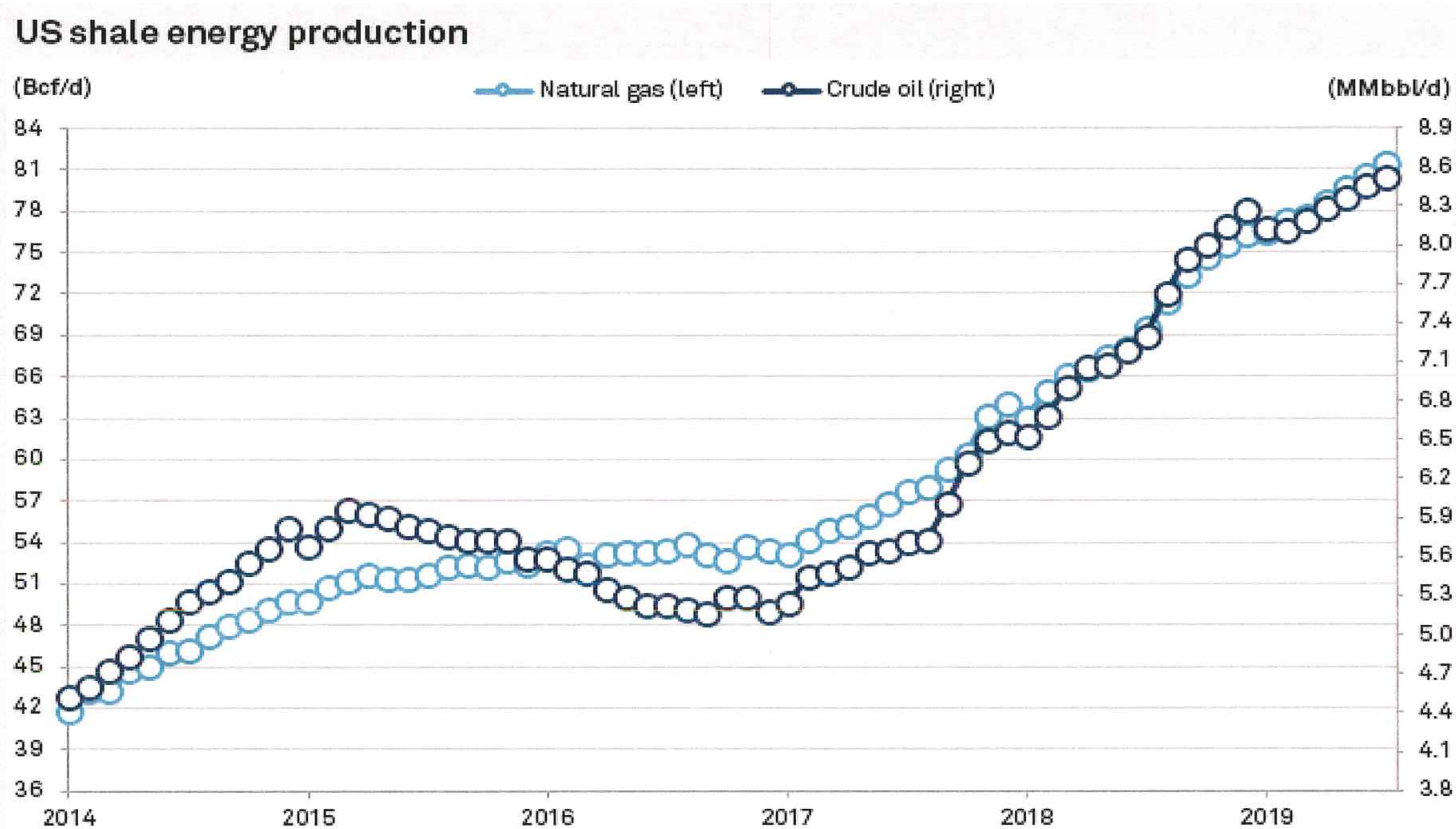
A NiSource Company

US Shale Energy Production



As of May 13, 2019.
Source: U.S. Energy Information Administration

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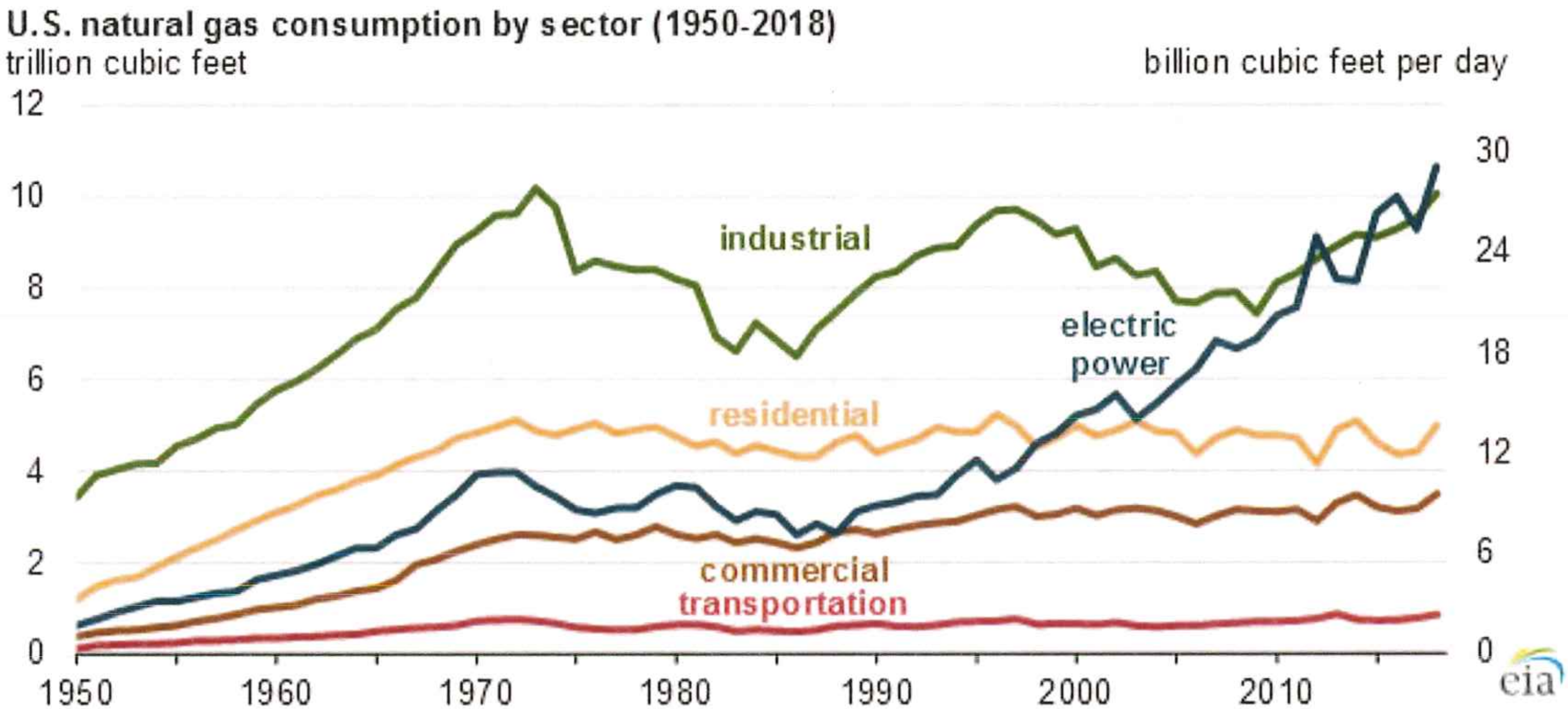
Historic US Gas Consumption



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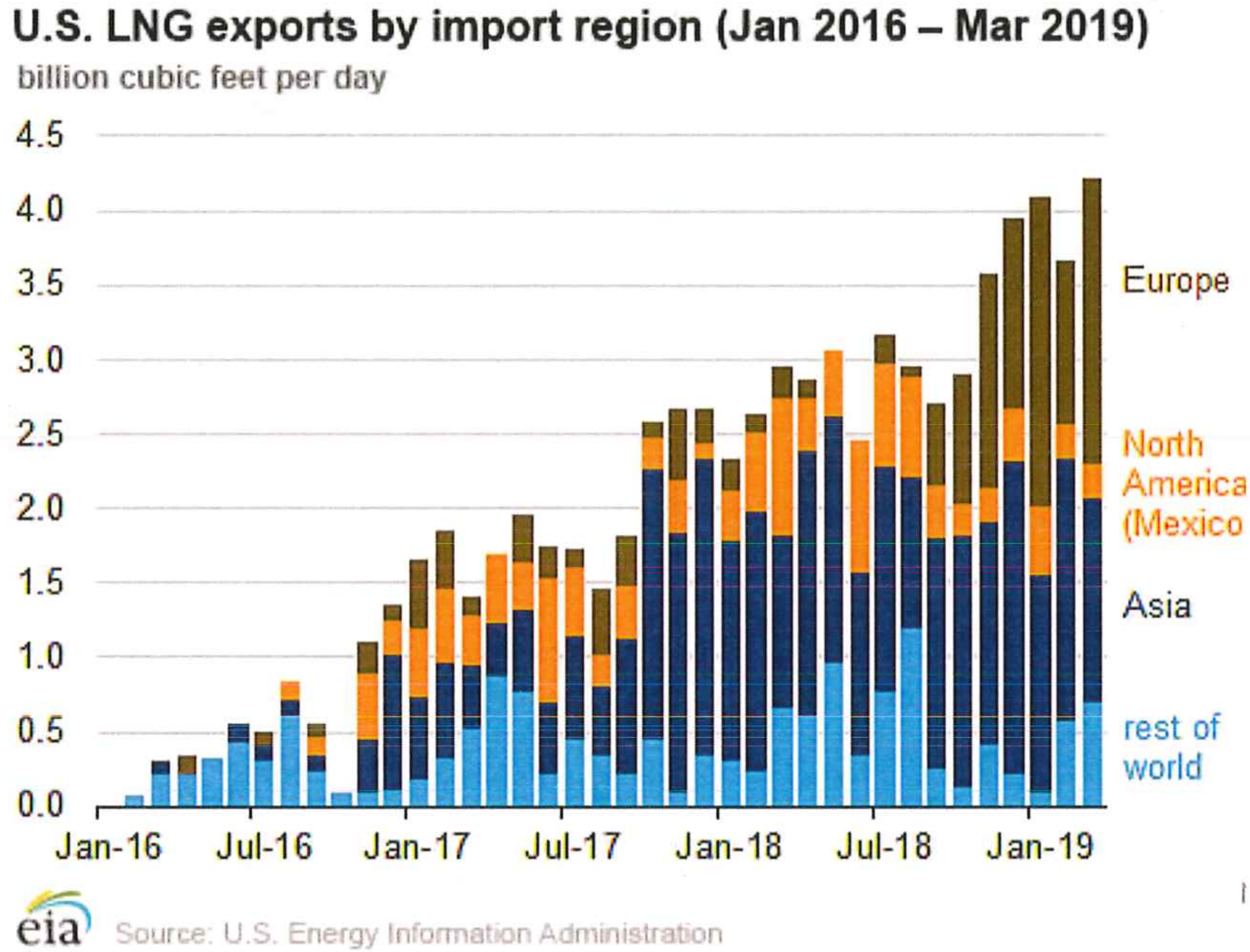
US LNG Export Markets



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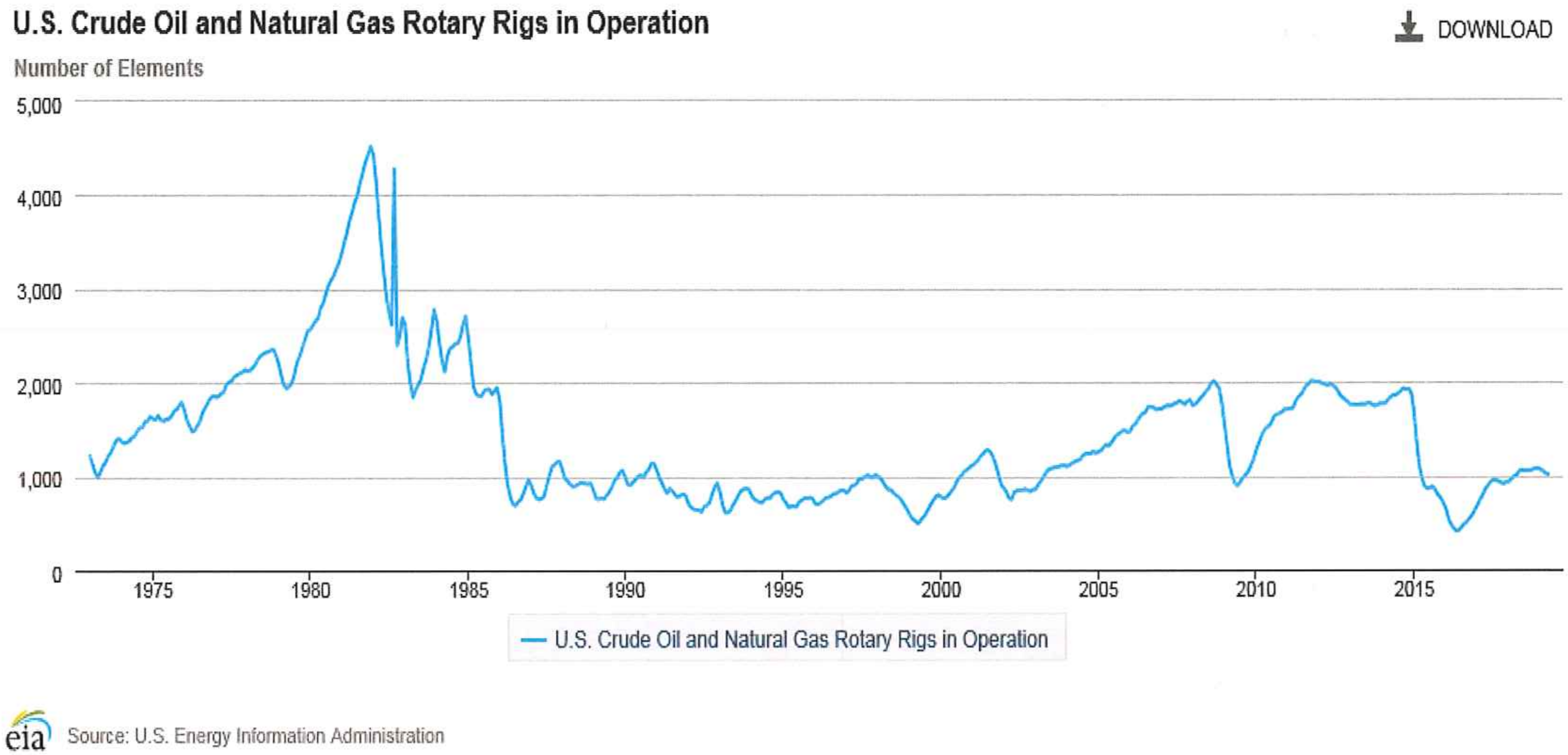
Oil & Gas Rig Count Details – Slightly Down

Rotary Rig Count
8/16/2019

BAKER HUGHES a GE company

Location	Week	+/-	Week Ago	+/-	Year Ago
Land	907	-2	909	-127	1034
Inland Waters	1	1	0	-1	2
Offshore	27	2	25	6	21
United States Total	935	1	934	-122	1057
Gulf Of Mexico	25	2	23	6	19
Canada	142	2	140	-70	212
North America	1077	3	1074	-192	1269
U.S. Breakout Information	**This Week**	**+/-**	**Last Week**	**+/-**	**Year Ago**
Oil	770	6	764	-99	869
Gas	165	-4	169	-21	186
Miscellaneous	0	-1	1	-2	2
Directional	68	3	65	-2	70
Horizontal	815	-2	817	-107	922
Vertical	52	0	52	-13	65
Canada Breakout Information	**This Week**	**+/-**	**Last Week**	**+/-**	**Year Ago**

US Oil & Gas Rig Count – Historic View



Columbia Gas of Ohio
A NiSource Company

Recent Developments - Energy

- Seems to be considerable development of the concept of "electrification of America" as well as several states declaring "fossil free" energy platforms by 2030 to 2050.
- City of Berkeley, CA "bans" hook ups to natural gas for new buildings; other cities particularly coastal cities, considering similar restrictions.
- On August 9, US EPA issues proposed rule intended to keep States (i.e., New York) from blocking pipeline infra-structure projects by ensuring that States do adhere to the statutory language & intent of the Clean Water Act and Section 401.
- As the OMA Energy Committee constituents are most fully aware of, Ohio House Bill 6 passed.

Columbia Gas of Ohio
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Electricity Market Update

August 27, 2019

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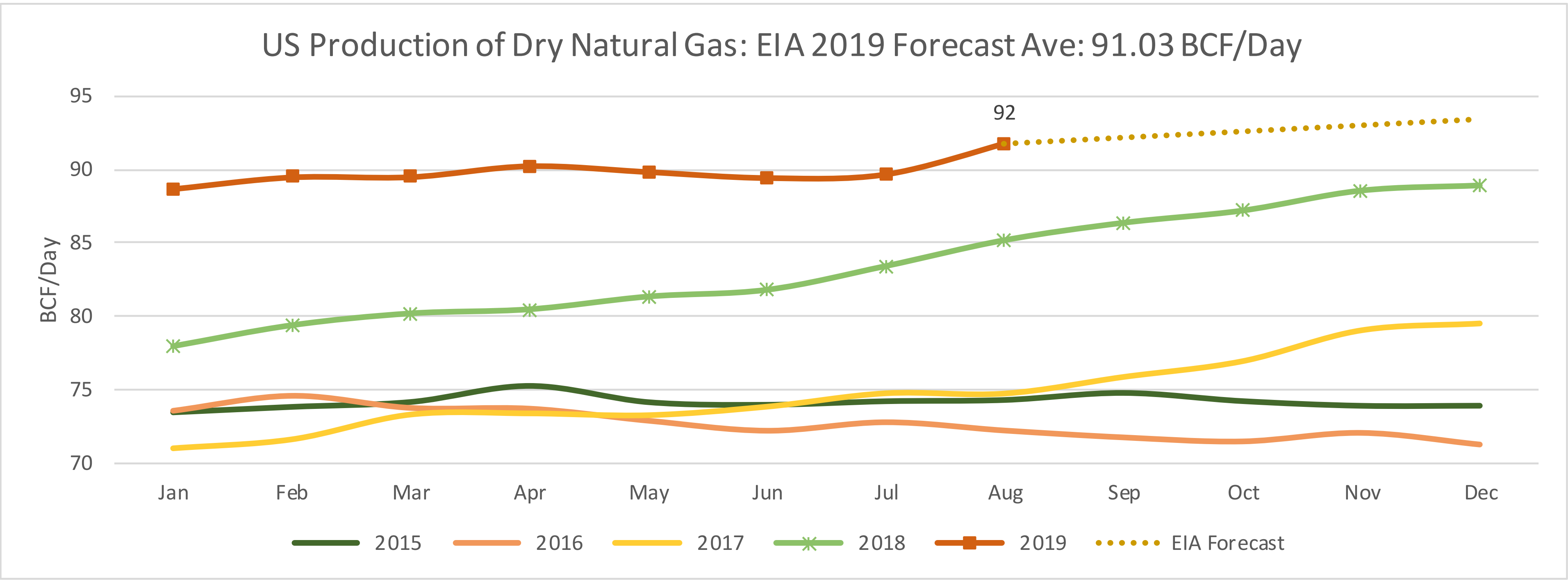
Natural Gas Production



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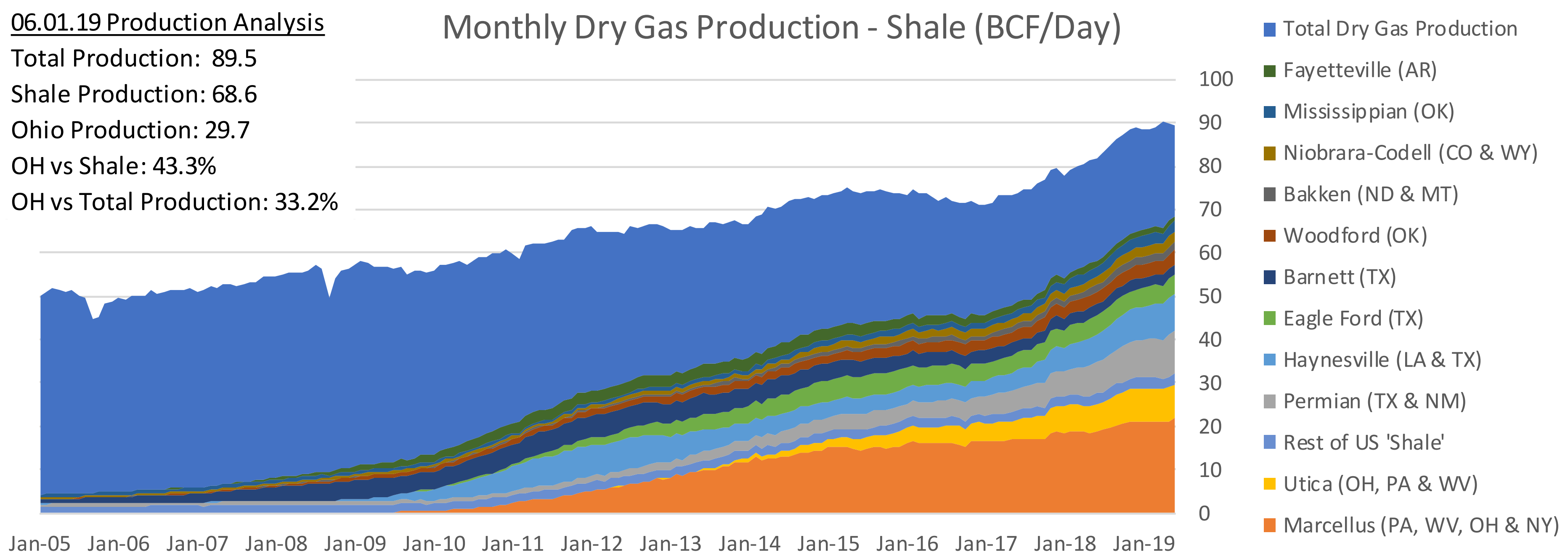
Dry Natural Gas Production

<u>06.01.19 Production Analysis</u>
Total Production: 89.5
Shale Production: 68.6
Ohio Production: 29.7
OH vs Shale: 43.3%
OH vs Total Production: 33.2%



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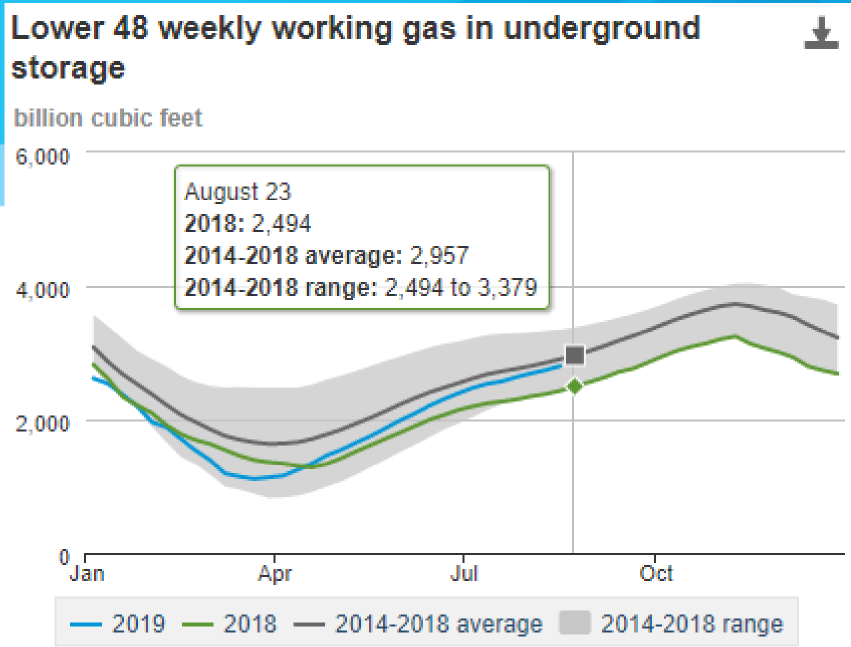
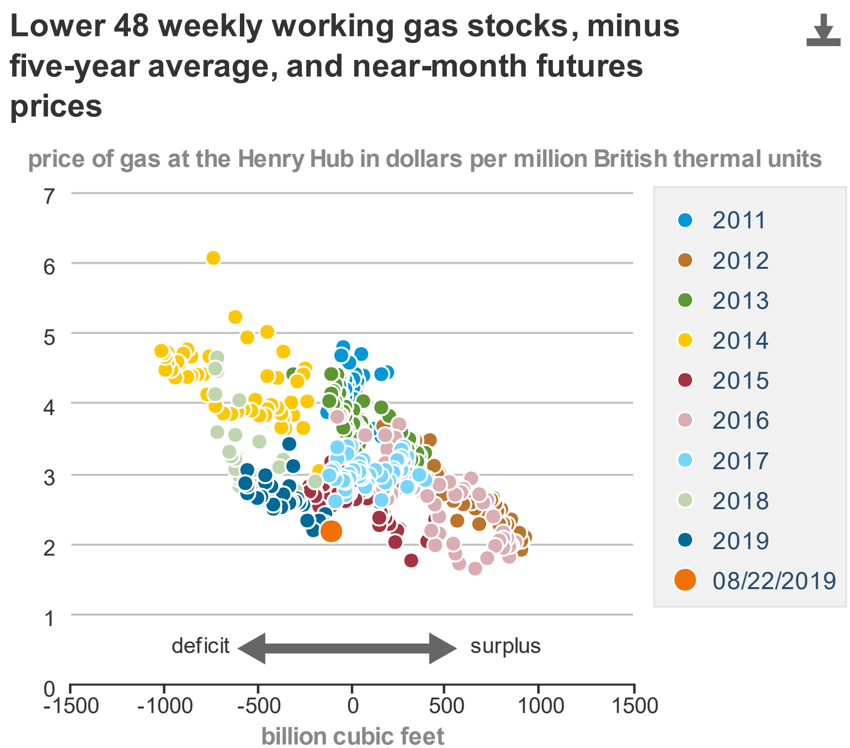
Natural Gas Storage





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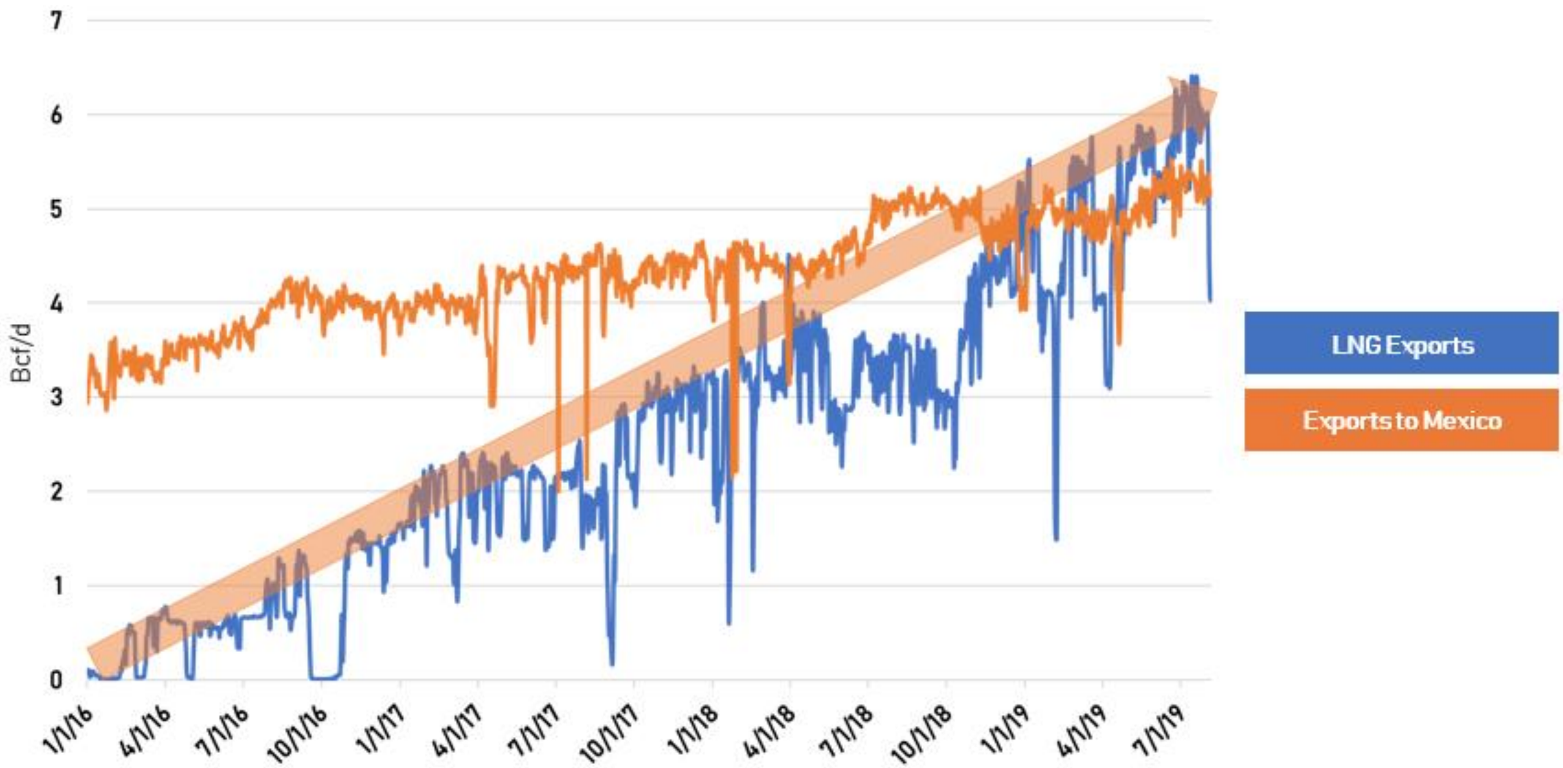
Natural Gas Exports



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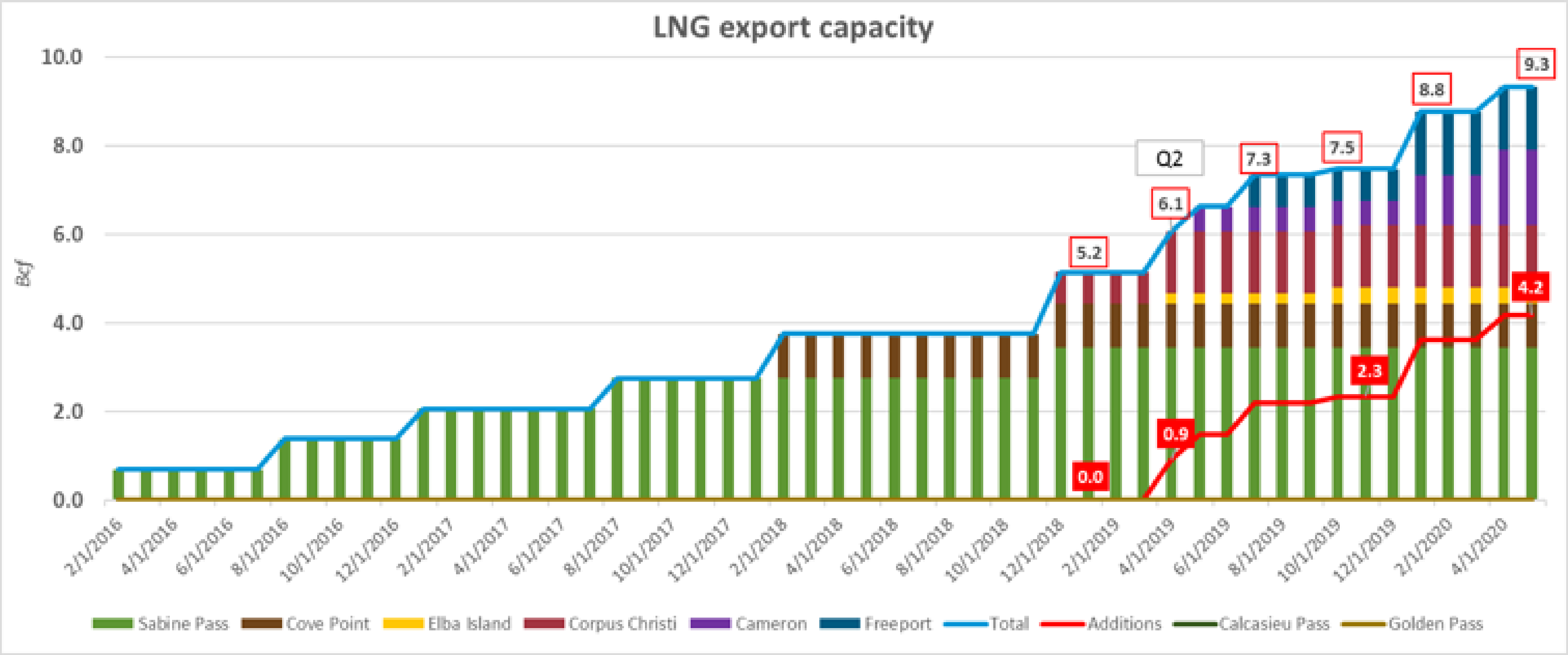
LNG Projected Exports



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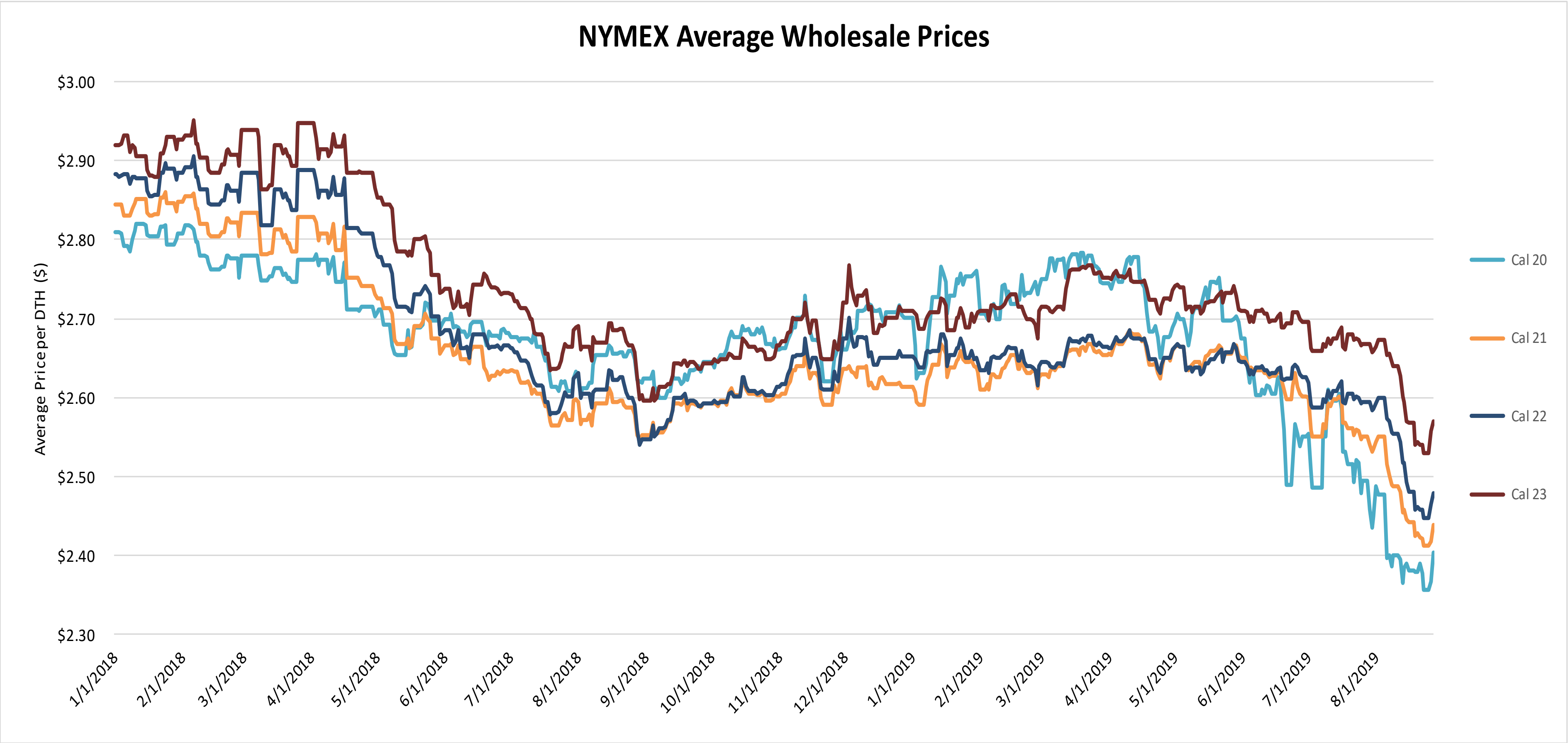
NYMEX Natural Gas Forwards



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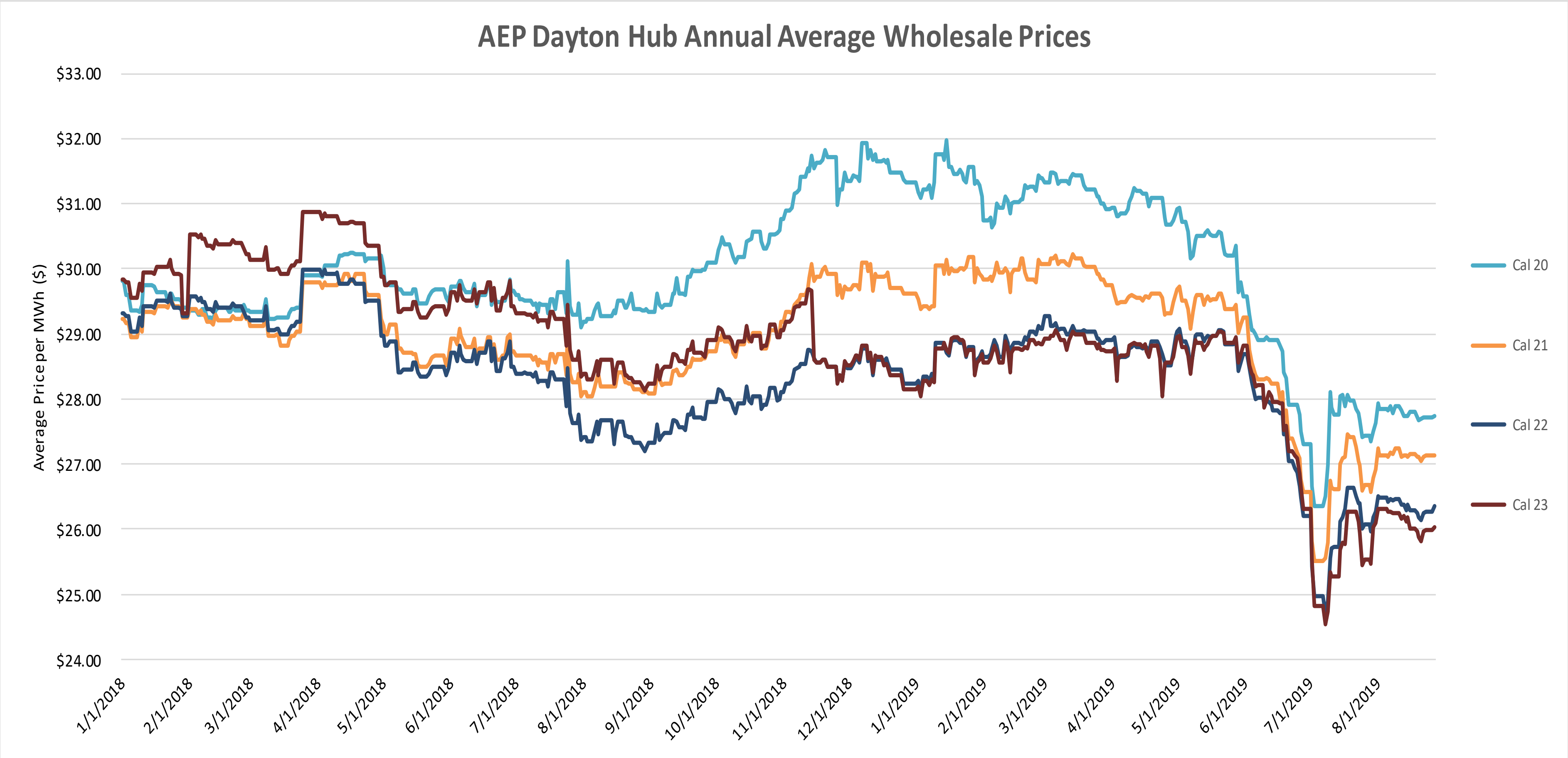
PJM AD Hub Electricity Forwards



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PJM AD Hub Electricity Forwards

Power RTC $ / MWh on 08.27.19					
From	6/11/2015	1/1/2016	1/1/2017	1/1/2018	1/1/2019
To	8/27/2019	8/27/2019	8/27/2019	8/27/2019	8/27/2019
Cal Year	2020	2021	2022	2023	2024
Current Price	$ 27.74	$ 27.13	$ 26.36	$ 26.03	$ 25.96
Maximum Price	$ 36.96	$ 30.22	$ 30.22	$ 30.87	$ 29.22
Minimum Price	$ 26.35	$ 25.51	$ 24.69	$ 24.54	$ 24.75
Date of Maximum	6/11/2015	3/14/2019	12/28/2017	3/25/2018	5/20/2019
Date of Minimum	7/3/2019	7/3/2019	7/8/2019	7/8/2019	7/8/2019
Compared to Low	5.3%	6.3%	6.8%	6.1%	4.9%

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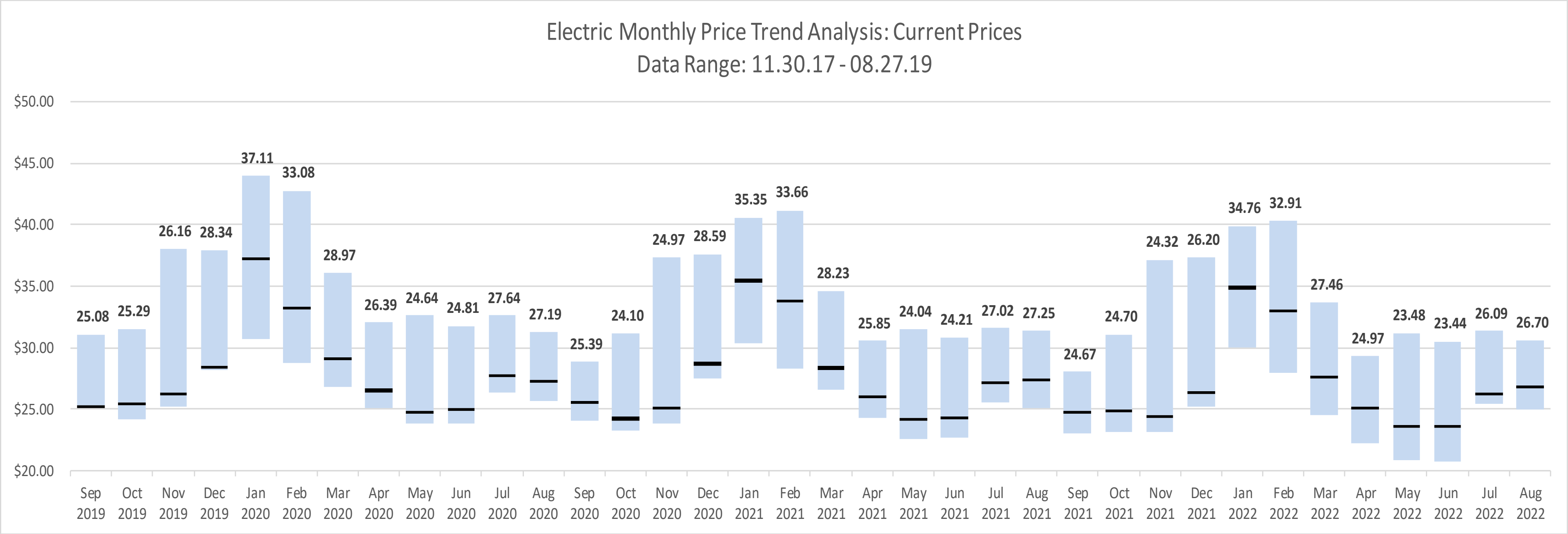
PJM AD Hub Electricity Forwards



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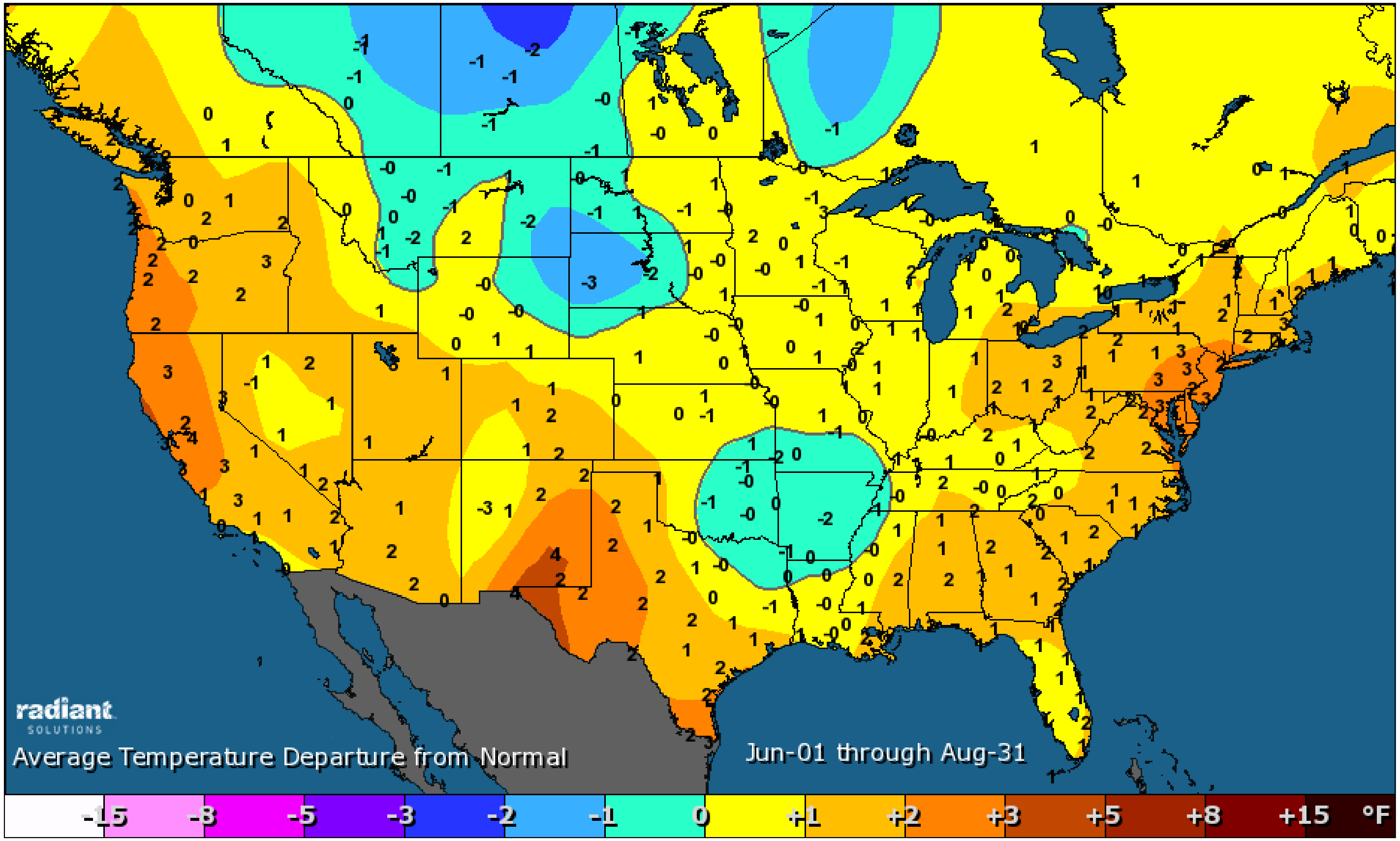
Temp Deviation from Normal
June 2019 – August 2019



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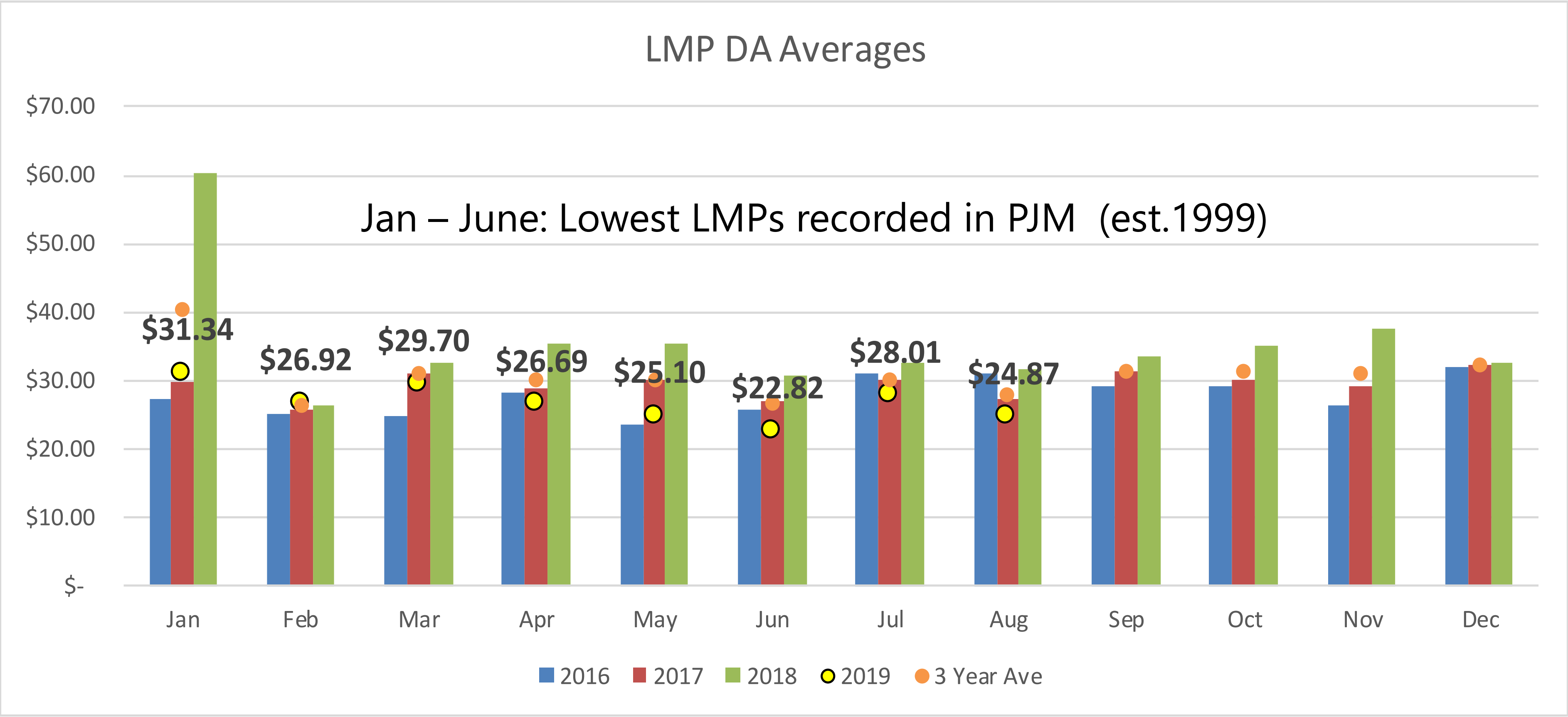
PJM AD Hub Day Ahead LMP's



*Pricing listed is for 2019 averages

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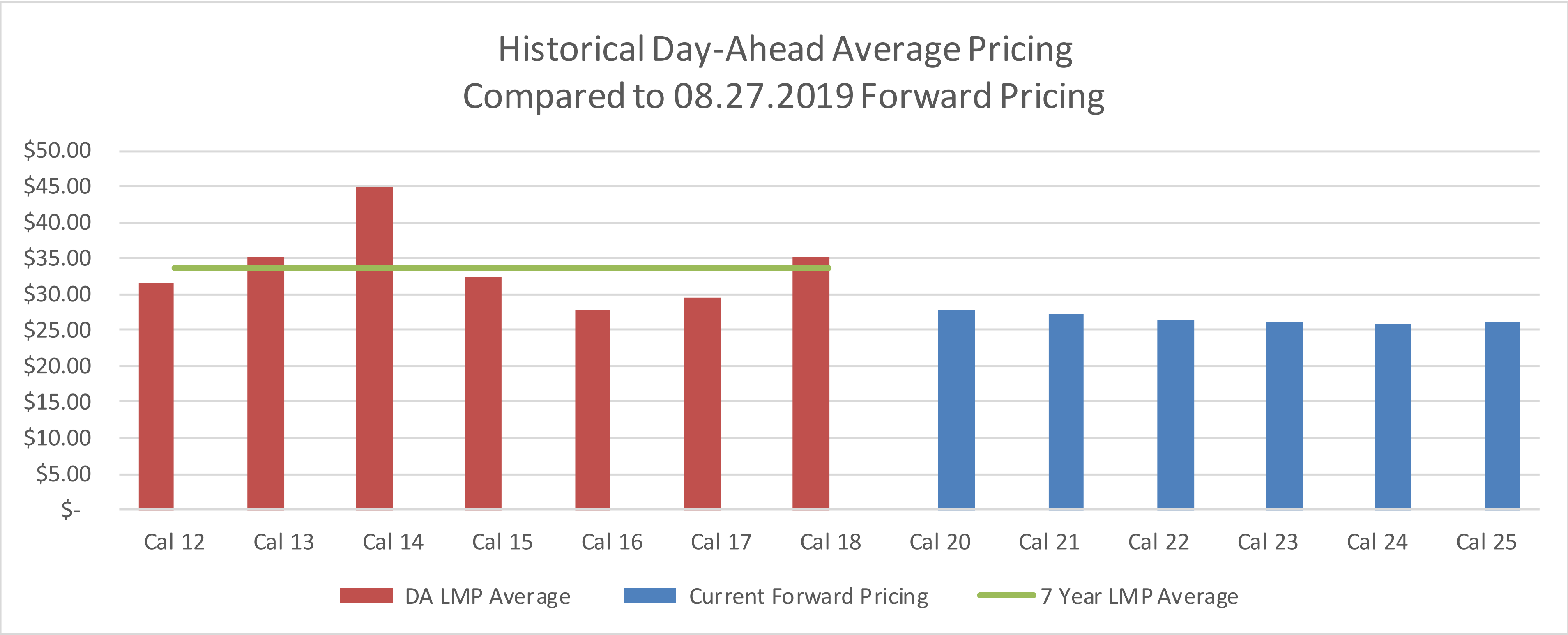
PJM AD Hub Day Ahead LMP's



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PJM Current 5 CP Hours - 2019

Rank	Date	HE	Load MW
1	7/19/19	18	151,552
2	7/17/19	17	143,161
3	7/10/19	18	141,842
4	8/19/19	17	141,381
5	7/29/19	17	139,865

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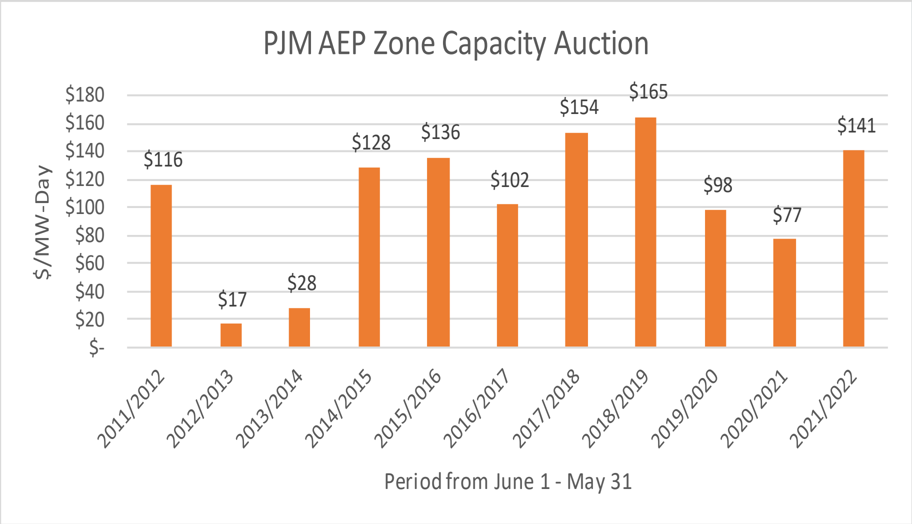
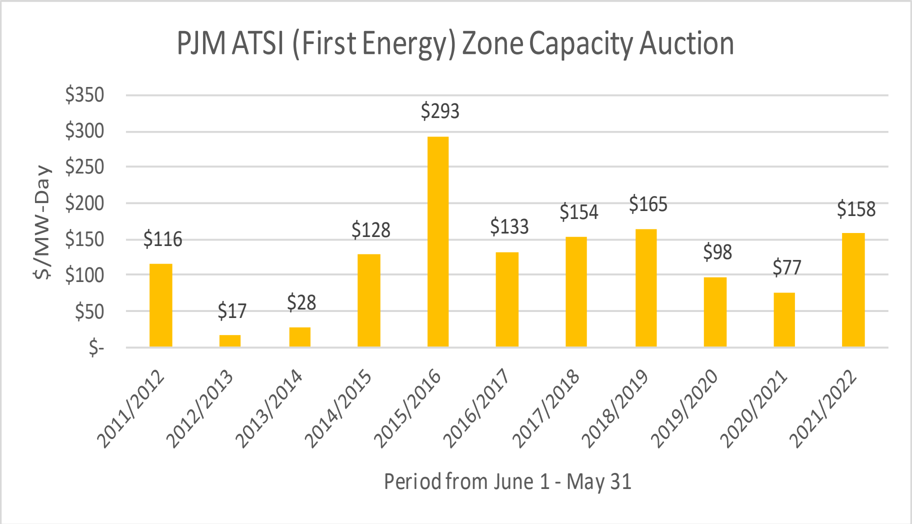
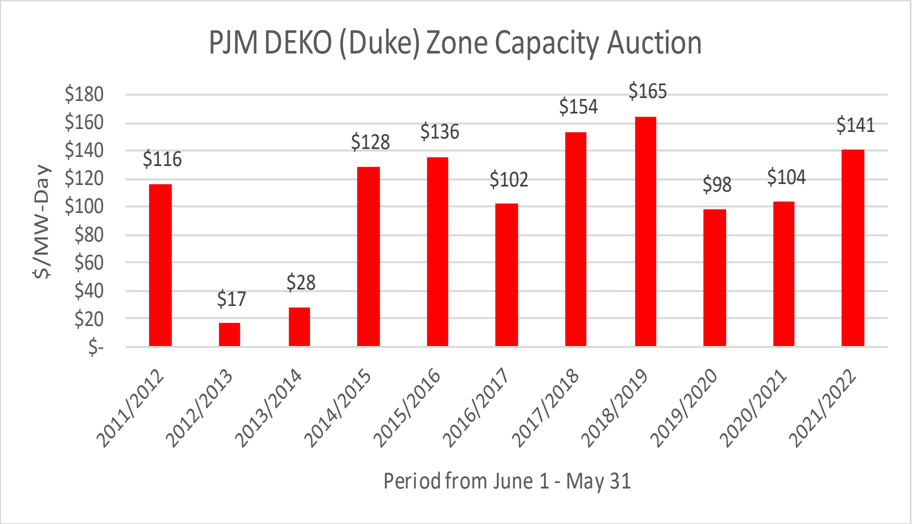
AEP Ohio Current 1 CP Hour

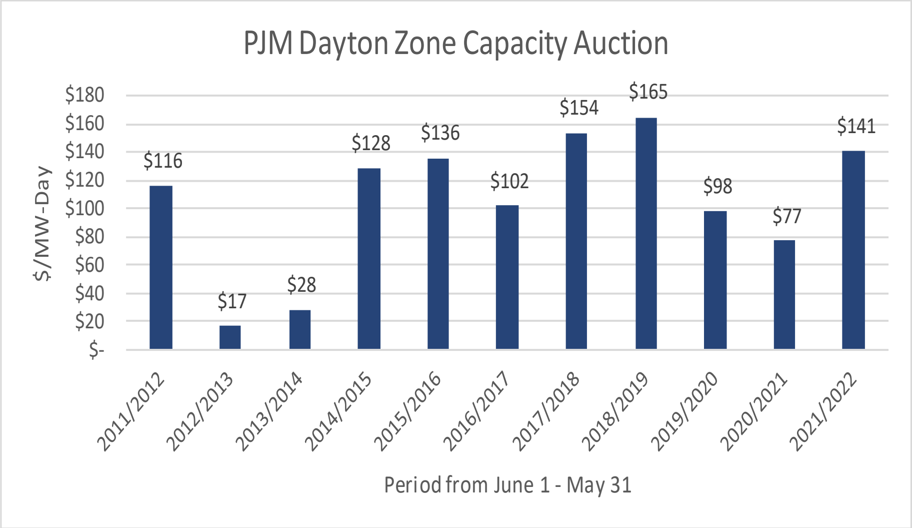
Rank	Date	HE	Load MW
1	**1/31/19**	**7**	**22,867**
2	1/31/19	20	22,432
3	1/21/19	9	22,376

Capacity Auction Rates









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