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MEMORANDUM

Date: April 19, 2019

To: The Ohio Manufacturers' Association

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

RE: House Bill 6 and the Clean Energy Program – Impact to Manufacturers

House Bill No. 6 (H.B. 6) was recently introduced into the Ohio General Assembly. H.B. 6 significantly reworks Ohio's electricity policy in a way that could substantially affect 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 effectively defunds Ohio's renewable portfolio standard and energy-efficiency programs, while creating a $300+ million annual fund for nuclear and fossil-fuel power plants, paid for by all customers served by an investor-owned utility.

This potential change in Ohio's electricity policy negatively impacts three issues of interest to Ohio's manufacturers: cost, competition, and carbon-dioxide emissions.

Cost

H.B. 6's net impact on customer costs is murky at best, but with the potential to increase manufacturers' electricity bills. First, and most obviously, H.B. 6 creates new customer charges for the Clean Air Program - $30 per year for residential customers, $300 /year for "commercial" customers, $3,000 /year for "industrial" customers, and $30,000 /year to large consumers who use over 45 million kWh per year. Across Ohio's four investor-owned utilities, this would create $300+ million/year in funds for the Clean Air Program.

Impact of H.B. 6

- Creates $300+ million/year in new subsidies for nuclear and fossil-fuel power via a Clean Air Program
  - An unfair playing field: customer projects are ineligible for the clean air program
  - Most renewable energy projects likely will not qualify
- Effectively eliminates renewable energy standards and energy-efficiency programs, their benefits, and some costs
  - But, preserves customer charges for renewable and efficiency standards where a contract is in place or programs have been approved by PUCO
- May result in significant wholesale and retail electricity price increases to Ohioans
- May result in significant additional carbon-dioxide emissions per year for Ohio
- Allows state authorities considerable discretion in handing out customer funds with little customer protections or legal process
- May create new utility power-purchase agreements, and costs for renewable energy
- May subsidize out-of-state generation

Second, H.B. 6 automatically exempts any customer who pays into the Clean Air Program from paying into both the Renewable Portfolio Standard, and the Energy-Efficiency Resource Standard. Because all customers are mandated to pay into the Clean Air Program, this auto-exemption effectively ends the renewable and energy-efficiency standards by completely defunding them. While a bill provision allows customers to voluntarily opt-in to the program, the process is onerous, and it is unlikely the utilities will cover administration costs to keep programs open and on stand-by. We estimate that the efficiency programs cost about $300 million statewide, and the renewable standards cost about $40 million in 2017[1], and around $60 million in 2019[2]. Thus, statewide costs of the efficiency and renewable standards this year are about $360 million. However, the cost reductions in renewable energy and energy efficiency may not occur in the near term, and thus will not fully offset the new Clean Air Program charges. This is because H.B. 6 actually preserves much of the renewable energy and efficiency costs. For example, any costs associated with these standards that are in a contract will not be eliminated, and will continue to be recovered through the term of the contract. Moreover, some costs associated with efficiency programs, such as "shared savings" profit and lost revenue for utilities, will be preserved and shifted to base distribution rates, and would be recovered for years until the next utility distribution case. Utility efficiency program profits, aka "shared savings", are typically a third of total costs, or around $88 million statewide. As a result, manufacturers may not see full cost reductions from the renewable and energy-efficiency standards for several years.

Third, H.B. 6 directs the PUCO to authorize new power purchase agreements (PPA) for utility renewable energy, customer-sited renewable energy, or even nuclear power plants, 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. Under H.B. 6, PPAs could be funded by other customers and without regard to need. It would create a whole new set of riders and potential costs for utility-owned or operated renewable energy, and would not exclude the nuclear plants from establishing a PPA of their own. Importantly, this language creates a mechanism for distribution utilities to re-enter the generation market.

Longer term, H.B. 6 will have an impact on wholesale electricity markets, and the impact could be severe and costly to manufacturers. Unfortunately, at this time, the exact effect can't be known. 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. At this time, the PJM capacity auction has been delayed from its typical May until August[3], though FERC may require a rules change at a later time. Consider though, that previously proposed rules could have the effect of increasing wholesale electricity prices in conjunction with state subsidies of power plants. Because the nuclear and fossil-fuel plant recipients of Clean Air Program funds are inherently more expensive to operate than new generating plants, a subsidy prevents the cost savings from lower-cost new generation.

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

[2] 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.

[3] https://www.rtoinsider.com/pjm-capacity-auction-august-114319/

Competition

H.B. 6 significantly erodes competition in electricity markets by subsidizing old nuclear and fossil fuel power plants. H.B. 6 eliminates renewable energy and efficiency market support, and creates nuclear and fossil fuel subsidies. However, it is important to note that the renewable portfolio and energy efficiency programs were created to support new and emerging technologies and energy management practices with the *goal to create functioning, competitive markets* in what was until recently a monopolistic industry dominated by incumbent businesses, that had themselves received full cost recovery without competition. Moreover, renewable energy and energy-efficiency have been shown to reduce prices in the wholesale electricity markets.

Instead, 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

An intriguing aspect of H.B. 6 is its treatment of carbon dioxide emissions and other environmental emissions. This bill would set a precedent by introducing a price specifically tied to carbon-dioxide emissions in the electric sector.

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.

[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

- 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. 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, could end up creating subsidies for large carbon-dioxide emitting generating stations that might have otherwise retired. It thus impairs 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 fossil-fuel plants. Third, H.B. 6 eliminates support for renewable energy technologies and energy efficiency technologies and practices, all of which have significant associated emissions reductions. Should H.B. 6 subsidize older coal plants, it could result in increased carbon-dioxide emissions in Ohio, as compared to Ohio's current electricity policy.

Alternately, H.B. 6 does not require the subsidized power plants to be located in the state of Ohio, but instead to contribute to the air quality of the state. Ohio and western Pennsylvania are part of the same EPA eGrid subregion. Thus, the Beaver Valley nuclear plant in Pennsylvania would be technically eligible for Ohio's Clean Air Program. The total Clean Air Program compensation for FirstEnergy's three nuclear power plants – Beaver Valley (PA), Davis-Besse (Ohio), Perry (Ohio) –

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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.

would be approximately $305 million per year, which would fully subscribe Ohio's Clean Air Program.

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 or subsidize out-of-state generation.