WRITTEN TESTIMONY OF THE NATURAL RESOURCES DEFENSE COUNCIL

Daniel J. Sawmiller, Ohio Energy Policy Director

on House Bill 118

Before the House Public Utilities Committee

Columbus, Ohio

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Chairman Hoops, Vice chair Ray, Ranking Member Smith and committee members, my name is Dan Sawmiller, Ohio Energy Policy Director for the Natural Resources Defense Council (NRDC). I'm testifying today in opposition to House Bill 118. Thank you for considering our perspective.

NRDC is an international environmental non-profit with more than 30,000 members and online activists in Ohio. I have served as the Ohio energy policy director for three years at NRDC and have worked on climate and clean energy issues in Ohio for approximately 15 years including work for the Ohio Consumers' Counsel as a Senior Regulatory Analyst. I also served honorably in the Ohio Army National Guard for six years, including one tour of duty to Iraq in 2005 where I served as a .50 caliber machine gun operator on an IED search team. I have lived in Ohio my entire life and am originally from Auglaize County; I now live in Columbus.

NRDC opposes House Bill 118 for a number of reasons ranging from the impact on the rights of farmers and other landowners, the duplicative regulatory burdens that the bill places on renewable energy projects only, the negative impact on the investment potential in this rapidly growing sector of Ohio's economy, the impact on Ohio's ability to attract corporate investment from companies with preference for local renewable energy supply, and of course the environmental impact this bill would have on our state's electric generating portfolio.

In this testimony, I will focus on the environmental impacts but am happy to discuss our other reasons for opposing this bill at any time.

Throughout the debate surrounding House Bill 6 over the last years, it's been repeatedly stated that Ohio's nuclear facilities provide 90% of Ohio's zero-carbon electric generation. For example, Rep. Stein expressed concern multiple times that the nuclear facilities produce so much more carbon free energy than renewable energy sources in Ohio that turning them off would see them replaced with fossil fuel plants, noting how this might place Ohio in an undesirable position should federal carbon standards be implemented in the future. Lt. Governor Husted remarked that "Ohio needs zero carbon energy to meet our targeted goals for carbon reduction and in the near-term nuclear is the only large-scale way to do that and we hope over time we will have more wind, solar, conservation options, better battery technology that will enable us to do this. But for the time being, for Ohio to be able to hit any reasonable carbon reduction goals, we have to have nuclear energy."[1] Governor DeWine also remarked that Ohio needs a balanced energy policy in Ohio with a focus on jobs and noted that if the nuclear plants were to close "we would have very little non-carbon generating energy and I think that would not have been good. We need balance in our energy and as much as we'd like to see other forms of energy that are non-carbon, nuclear is where we get the most of it today and certainly where we get most of it in Ohio."

As a first matter, preserving our nuclear facilities - with no corresponding policy support for renewable energy growth - does nothing to <u>reduce</u> carbon emissions in Ohio's power sector. At best, this maintains the status quo. In order to reduce carbon emissions in the state's power

[1] Despite the Lt. Governor's comment, Ohio does not currently have a targeted goal for carbon reduction.

sector, we must invest in energy efficiency, renewable energy and pursue other strategies to reduce transportation sector emissions. And beyond implementing policies that support power sector carbon emission reductions, our state must stop placing frivolous new barriers in front of growing industries, such as House Bill 118. We must keep pace with the speed of business and advancing technology and ensure that clean energy providers are not negatively impacted by duplicative regulations and red tape. The past year has presented unprecedented challenges for individuals, families and governments, but clean energy industries have continued to grow despite the economic downturn, and Ohio is now positioned to benefit greatly from this growth through the addition of tens of thousands of new jobs and billions of dollars of new investment.

To better illustrate the non-carbon electric generating potential of Ohio's growing solar industry, NRDC commissioned a study through Ohio University's Voinovich School of Leadership and Public Affairs. The results of that research are attached to my testimony and show that today the two nuclear facilities generate 86.8% of Ohio's zero carbon generation and represent 14.6% of Ohio's total power generation. However, ***the currently pending/approved 6.4GW of solar activity will represent 42.2% of the zero-carbon electricity generated in Ohio and roughly 11% of the state's total generating capacity.*** This will reduce nuclear energy's contribution to Ohio's non-carbon generation portfolio to 50.5%, a stark contrast from the current scenario. This assumes all other non-carbon electric generating resources (wind, hydro) are held constant.

At 6.4GW, there is already enough pending or approved Ohio solar to more than match the output of Davis Besse (3.6GW of solar needed) ***or Perry*** (4.2GW of solar needed). Ohio will need to build 7.7GW of solar to match the output of both nuclear facilities, a mark that the state is quickly approaching. This underscores the massive generating potential of utility scale solar in Ohio that is in some stage of development in the state right now.

Currently, Ohio emits 74.1 million tons of annual greenhouse gases from our electric generating power plants, ***ranking Ohio as the 5th highest polluting state in the U.S***. For each Mwh of electricity displaced by solar, 1.06 tons of greenhouse gasses are mitigated. This means that ***at the current 6.4GW, Ohio solar will mitigate nearly 15 million tons of GHGs annually, or almost 21% of total power plant emissions.*** This is the equivalent of taking 620,000 cars off the road.

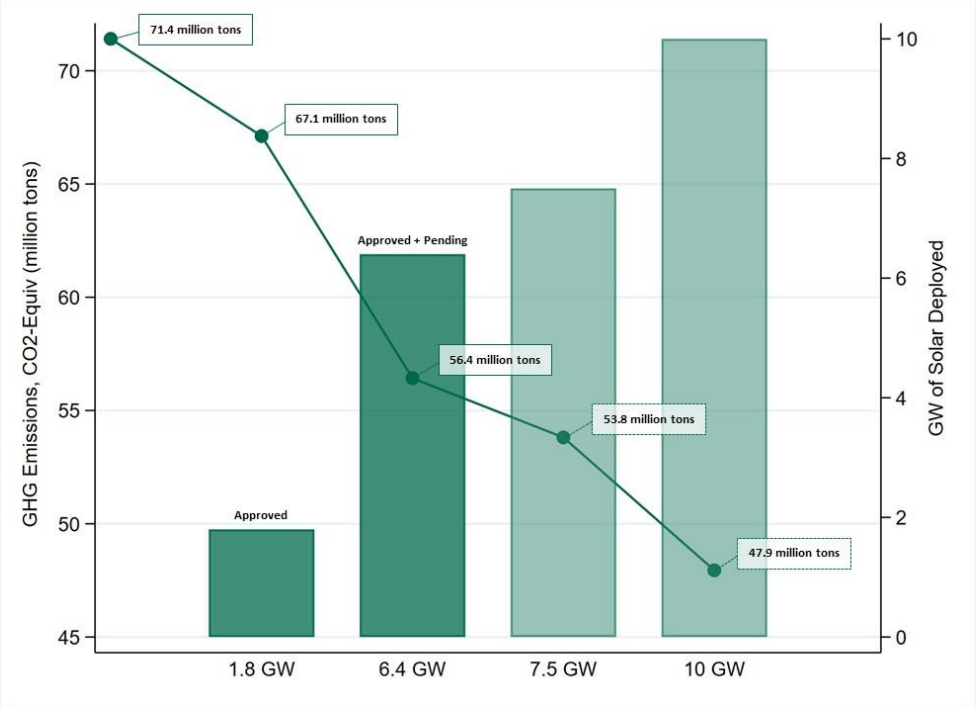
In summary, NRDC encourages lawmakers to oppose HB118. This bill would chill investment in a quickly growing set of industries that have the potential to attract tens of thousands of jobs, billions of dollars in new economic activity and will help Ohio significantly reduce carbon emissions from its power sector.

Thank you.

POLLUTION MITIGATION FROM UTILITY-SCALE SOLAR GROWTH IN OHIO [1]

- Currently, the State of Ohio emits **71.4 million tons (Mt)** of annual greenhouse gases (GHGs) from electricity generating power plants. This ranks Ohio as the **5th highest polluting state** from electricity generation in the U.S.
- As of March 2021, roughly 1.8 gigawatts (GW) of utility-scale solar energy projects have been approved by the Ohio Power Siting Board (OPSB), with an additional 4.6 GW pending, summing to **6.4 total GW**. If constructed, this total would increase solar energy to roughly **11% of Ohio's total generation capacity**.
- For each GHG-emitting megawatt hour (MWh) of electricity displaced by solar, 1.06 tons of GHGs are mitigated.[2]
- Deploying utility-scale solar projects summing to 6.4 GW would bring positive pollution-related benefits to Ohio, such as mitigating nearly **15 million tons of GHGs annually**, or almost **21% of total power plant emissions**.
- These annual emissions reductions are the equivalent of avoiding GHG pollution from **about 620,000 cars**.
- The figure below illustrates the potential pollution mitigation impacts from solar energy displacing GHG-emitting power generation in Ohio. If all **6.4 GW** of solar projects in the OPSB queue are built, Ohio's annual electricity generation emissions would decrease to **56.4 Mt**. Building out to **10 GW** would reduce this amount to **47.9 Mt**.

Annual Ohio GHG Emissions Reductions by Solar Deployment Scenario



Note. This figure displays the emissions reductions of OPSB-approved solar projects, approved + pending projects, and hypothetical deployment scenarios summing to 7.5 and 10 GW. Baseline emissions are calculated using 2019 Ohio eGRID data,[3] and removing the Conesville Plant, which is no longer operational. The mitigation calculation assumes a solar energy capacity factor of 25.2%, per NREL.

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[1] Developed in March 2021 by Dr. Gilbert Michaud, Ph.D. and Dr. Christelle Khalaf, Ph.D. For additional information, contact michaudg@ohio.edu.

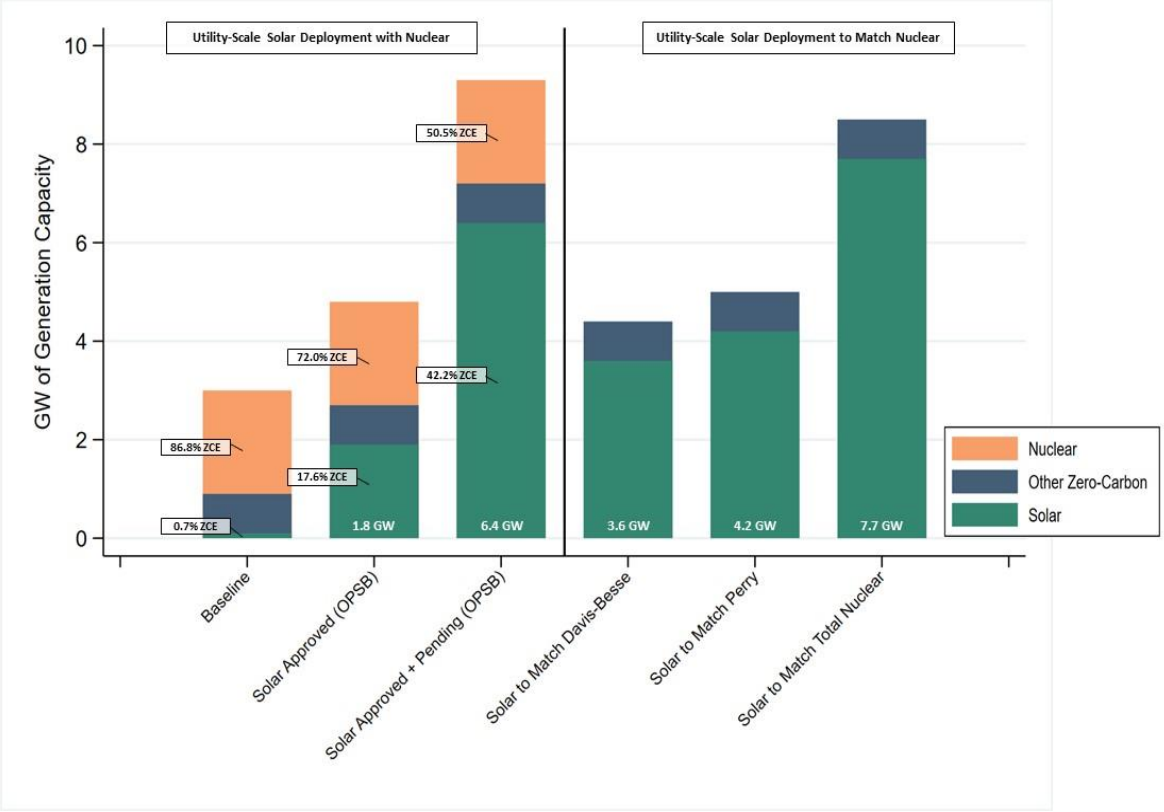
[2] In this analysis, we assume that new utility-scale solar energy capacity would displace future coal production in Ohio, given current trends. As an illustration, a recent AEP report (https://www.aep.com/Assets/docs/AEP2018CleanEnergyFutureReport.pdf) projects a significant decrease in coal generation, a small decrease in gas, and a major increase in renewables. Annual U.S. EIA generation data for Ohio further supports this assumption.

[3] U.S. EPA. (2021). *Emissions & generation resource integrated database (eGRID)*. Retrieved from https://www.epa.gov/egrid.

ZERO-CARBON ELECTRICITY STRATEGIES FOR OHIO: COMPARING SOLAR TO NUCLEAR [1]

- Currently, zero-carbon (i.e., non-polluting) electricity accounts for 16.7% of Ohio's total generation, 86.8% of which is from nuclear energy (roughly 2.1 total gigawatts (GW)).[2]
- The State of Ohio has two operating nuclear plants: Davis-Besse and Perry. Davis-Besse generates about **7.8 million megawatt hours (MWh)** of electricity, while Perry generates nearly **9.2 million MWh**. Taken together, this represents 14.5% of Ohio's total electricity generation (from *all* sources).
- As of March 2021, 1.8 GW of utility-scale solar energy projects, another source of zero-carbon electricity, have been approved by the Ohio Power Siting Board (OPSB), with an additional 4.6 GW pending, summing to **6.4 total GW (or 14.1 million MWh of potential generation)**. On average, these projects have 12–18 month construction timeframes.
- If constructed, this 6.4 GW of solar would represent **42.2%** of the zero-carbon electricity in Ohio, assuming that Davis-Besse and Perry remain open. In this scenario, nuclear's share of zero-carbon electricity would decrease from 86.8% to **50.5%**.
- As shown below, **7.7 GW of solar energy** would be needed to match the total generation lost if the two nuclear plants were no longer operating.

Zero-Carbon Electricity (ZCE) Mix by Solar Deployment Scenario



Note. This figure illustrates potential utility-scale solar growth scenarios as part of Ohio's total zero-carbon electricity strategy. Our baseline (i.e., current) scenario specifies that nuclear energy supplies over 86% of Ohio's zero-carbon electricity (denoted here as ZCE), while solar represents 0.7%. If all 6.4 GW of solar facilities in the OPSB queue are built, solar would represent 42.2% of Ohio's ZCE, and nuclear 50.5% of Ohio's ZCE. The right-hand side of the figure displays the GW totals of solar that would need to be constructed to match the generation lost if Davis-Besse was retired (3.56 GW), Perry was retired (4.16 GW), and then if both were retired (7.72 GW). "Other Zero-Carbon" electricity sources incorporated here include hydropower and wind, which we assumed were held constant.

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[1] Developed in March 2021 by Dr. Gilbert Michaud, Ph.D. and Dr. Christelle Khalaf, Ph.D. For additional information, contact michaudg@ohio.edu.

[2] U.S. EPA. (2021). *Emissions & generation resource integrated database (eGRID)*. Retrieved from https://www.epa.gov/egrid.