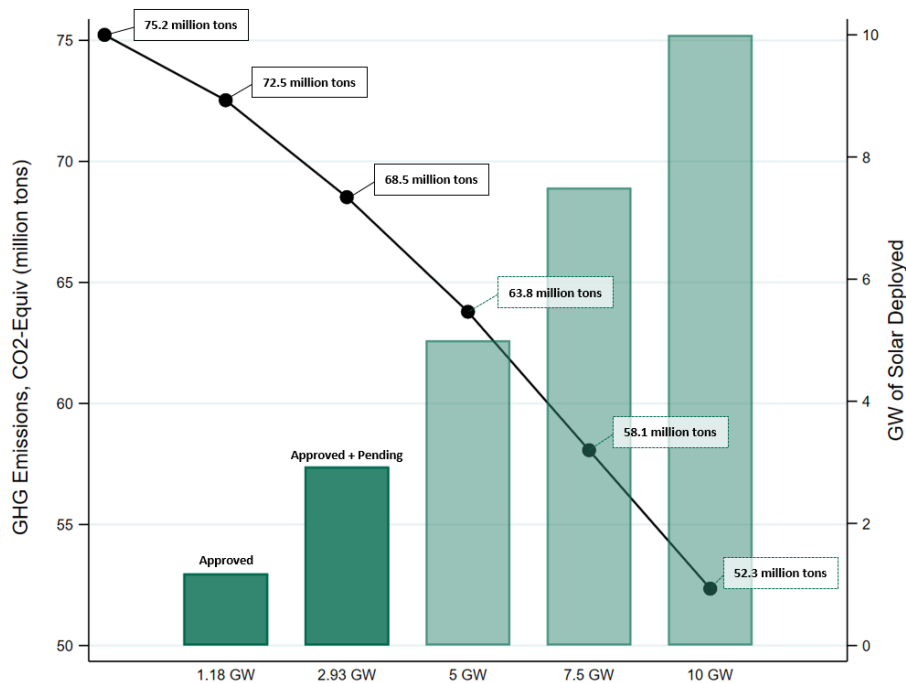




POLLUTION MITIGATION FROM UTILITY-SCALE SOLAR GROWTH IN OHIO ¹

- Currently, the State of Ohio emits **75.2 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 July 2020, 1.18 gigawatts (GW) of utility-scale solar energy projects have been approved by the Ohio Power Siting Board (OPSB), with an additional 1.75 GW pending, summing to **2.93 total GW**. If constructed, this total would increase solar energy to roughly **10% of Ohio's total generation capacity**.
- For each GHG-emitting megawatt hour (MWh) of electricity displaced by solar, 1.04 tons of GHGs are mitigated.²
- Deploying utility-scale solar projects summing to 2.93 GW would bring positive pollution-related benefits to Ohio, such as mitigating roughly **6.7 million tons of GHGs annually**, or almost **9% of total power plant emissions**.
- These annual emissions reductions are the equivalent of avoiding GHG pollution from **nearly 303,000 cars**.
- The figure below illustrates the potential pollution mitigation impacts from solar energy displacing GHG-emitting power generation in Ohio. If all **2.93 GW** of solar projects in the OPSB queue are built, Ohio's annual electricity generation emissions would decrease to **68.5 Mt**. Building out to **10 GW** would reduce this amount to **52.3 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 5, 7.5, and 10 GW. Baseline emissions are calculated using 2018 Ohio eGRID data,³ and removing the J.M. Stuart and Killen Stations, as well as the Conesville Plant, all of which are no longer operational. The mitigation calculation assumes a solar energy capacity factor of 25.2%, per NREL.

¹ Developed in July 2020 by Gilbert Michaud, Ph.D. and 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. (2020). *Emissions & generation resource integrated database (eGRID)*. Retrieved from <https://www.epa.gov/energy/emissions-generation-resource-integrated-database-egrid>.