

# Six Reasons Why Nuclear Energy is Clean and Environmentally Friendly

## 1. Nuclear energy is Ohio's largest source of clean energy.

- Ohio depends on nuclear energy to provide a clean, reliable energy source.
  - The Davis-Besse and Perry plants produce 90 percent of the state's carbon-free electricity.<sup>1</sup>
- Nuclear is more cost-effective and efficient than other renewables.
  - Nationally, nuclear produces most of our low-carbon electricity, over 800 billion kWhs – twice as much as all renewables combined.<sup>2</sup>

## 2. Nuclear energy protects air quality.

- Nuclear energy prevents carbon emissions and other harmful pollutants from entering the atmosphere.
  - Ohio's nuclear plants avoid more than 9 million tons of carbon emissions each year, which is equivalent to taking 2 million cars off the road, which is valued at a social cost of \$600 million annually.<sup>3</sup>
- Unlike other energy sources, nuclear prevents air pollution-related health problems and deaths caused by burning fossil fuels.
  - NASA and Columbia University found that nuclear power may have saved 1.8 million lives that otherwise would have been lost to pollution from emissions worldwide.<sup>4</sup>

## 3. If the nuclear plants close, they will be replaced by natural gas and coal, leading to a substantial increase in carbon dioxide and other harmful pollutants.

- Contrary to popular belief, nuclear energy won't be replaced by renewables like wind and solar. Natural gas and coal will quickly fill the vacuum as wind and solar cannot be scaled up or built quickly enough. The amount of wind turbines needed to replace one nuclear plant would take up enough land to cover:
  - An area 6 times the size of Columbus, Ohio
  - 12% of all of Lake Erie
  - All of Yosemite National Park
  - Over 1 million football fields

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<sup>1</sup> [Ohio State Fact Sheet by the Nuclear Energy Institute, 2018](#)

<sup>2</sup> [U.S. CO2 Emissions Rise As Nuclear Power Plants Close by Forbes, 2019](#)

<sup>3</sup> [Impacts of Announced Nuclear Retirements in Ohio and Pennsylvania by The Brattle Group, 2018](#)

<sup>4</sup> [Nuclear Power Prevents More Deaths Than It Causes by Chemical & Engineering News, 2013](#)

#### **4. Nuclear energy produces more electricity on less land than any other clean energy source.**

- Compared to other clean energy sources, nuclear plants have a significantly smaller land footprint.
  - A typical 1,000-megawatt nuclear facility in the United States needs a little more than 1 square mile to operate; in contrast, wind farms require 360 times more land area to produce the same amount of electricity.<sup>5</sup> To put that in perspective, you would need more than 3 million solar panels to produce the same amount of power as a typical commercial reactor.<sup>6</sup>
- Nuclear facilities also serve as their own ecosystems, providing a home to diverse wildlife.
  - The Perry Plant is surrounded by over 850 acres of natural forests and marshes and has been accredited as an Urban Wildlife Sanctuary by the National Institute of Urban Wildlife.
  - Davis-Besse maintains the Navarre Marsh wetlands: 733 acres of land adjacent to the operation as part of Ottawa National Wildlife Refuge with the US Fish and Wildlife Service.

#### **5. Nuclear energy produces very little waste and none of it enters the environment as pollution.**

- All of the used nuclear fuel produced by the U.S. nuclear energy industry over the last 60 years could fit on a piece of land as small as a football field.<sup>7</sup>
- Nuclear power plants do not emit greenhouse gases while in operation. The “smoke” that appears to be coming from the plant is actually harmless steam that comes from generating electricity by boiling water.
  - In the U.S. alone, nuclear electricity prevents more than 555 million metric tons of carbon dioxide from entering our atmosphere annually.<sup>8</sup>

#### **6. Nuclear energy is essential if we want to tackle climate change.**

- According to the Union of Concerned Scientists, if at-risk U.S. nuclear plants close and are replaced with natural gas, then carbon emissions will rise by as much as 1.25 billion metric tons by 2035.<sup>9</sup> Addressing carbon emission goals with wind and solar alone is not realistic in the near term and losing Ohio’s nuclear plants will set back emission reduction efforts for decades.
- In order to tackle climate change, the Nature Conservancy has recently recommended that nuclear capacity be expanded enough to provide a third of the world’s energy by 2050.<sup>10</sup>

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<sup>5</sup> [Land Needs for Wind, Solar Dwarf Nuclear Plant’s Footprint by Nuclear Energy Institute, 2015](#)

<sup>6</sup> [3 Reasons Why Nuclear is Clean and Sustainable by U.S. Department of Energy’s Office of Nuclear Energy, 2018](#)

<sup>7</sup> [3 Reasons Why Nuclear is Clean and Sustainable by U.S. Department of Energy’s Office of Nuclear Energy, 2018](#)

<sup>8</sup> [“Sustainable Development” by the Nuclear Energy Institute, 2019](#)

<sup>9</sup> [The Nuclear Power Dilemma, Union of Concerned Scientists 2018](#)

<sup>10</sup> [A Warming World Needs Nuclear Power, Bloomberg December 31 2019](#)