



Shutting down the single largest source of clean power in the downstate area jeopardizes the economy, safety, and well-being of New York while contributing to catastrophic climate change.

- ▽ The **Indian Point Nuclear Power Plant (IP)** generates 80% of the clean electricity (24% of the total) in downstate New York (Albany on south, NYC, and the surrounding metro area).¹
- ▽ **The agreement** between New York State, Entergy (the plant's owner), and Riverkeeper (a local antinuclear group) to close IP was signed in early 2017 without public notice or participation.
- ▽ Despite a greater appreciation of climate change (NYC declared a "Climate Emergency" in 2019)² **there is scant awareness** that the first reactor (IP2) will permanently close in April 2020, followed by the second reactor (IP3) in April 2021, resulting in significant additional pollution from fossil fuel-fired generation.
- ▽ The closure agreement **stipulated that IP's power would be replaced with clean non-GHG resources**. Unfortunately, these resources are not yet available. The agreement also had a provision allowing up to a 4-year delay in the closure if needed under specific conditions.
- ▽ New York grid operator NYISO's deactivation report³ shows that IP will be **replaced primarily by methane gas-fired generation** at Cricket Valley Energy (to come online March 2020) and CPV Valley (online since February 2018), making New York's electricity grid more fossil fuel-dependent than it has been since 2000.
- ▽ **Opposition to transmission projects**⁴ prevents upstate wind and Canadian hydro power from reaching renewable-starved⁵ downstate NY, where solar and wind provide only 2% of electricity.¹ Approval and construction of needed transmission projects remain highly uncertain.
- ▽ A recent comprehensive report from the Citizens Budget Commission, an influential think tank, found that the **projected expansion of solar and wind was "likely infeasible."**⁶
- ▽ The closure of IP means **NY is going backward** in terms of both GHG emissions and public safety, **for no rational or scientifically supportable reason**.⁷ This is antithetical to combating climate change and is in direct opposition to NY's stated policy of reducing its carbon footprint.
- ▽ IP's closure will **increase annual CO₂-equivalent emissions** by ~8 million metric tons, exacerbating global climate change.⁸ Emissions from NY's power generation will increase ~29% after IP3's closure in 2021,^{9,10} endangering the state's ability to meet its nation-leading goals in the Climate Leadership and Community Protection Act (CLCPA).
- ▽ Electricity from **wind projects offshore Long Island** will not even start to flow until 2024,¹¹ and recent federal actions may cause additional delays.¹²
- ▽ Switching from IP2's electricity to gas-fired generation will induce **77 cardiovascular disease-related deaths per year** from increased particulate matter pollution.¹³ This would hurt the downstate economy \$731 million per year, using EPA's Value of Statistical Life.¹⁴ The number of

preventable deaths could double with the closure of IP3 in April 2021. Regulated **nuclear power is the safest source of energy worldwide**,¹⁵ and the IP generators have operated safely for 54 years.¹⁶ Risks of an extremely low-probability nuclear accident¹⁷ need to be balanced against documented health effects associated with outdoor air pollution.

- ∇ Closing IP will **reduce the reliability** of the electric grid serving downstate New York, possibly causing widespread power outages, brownouts, and increased power costs.¹⁸
- ∇ IP's shutdown will result in additional **fossil fuel burning at some of the dirtiest gas- and oil- "peaker" plants** in NYC, mostly located in poor and minority areas in the City.¹⁹ The CPV plant, in service to NYC since February 2018, already replaces older, less efficient, fossil fuel plants. CPV claims a reduction of around 500,000 metric tons of CO₂ per year compared to the continued usage of the City's older peaker plants.²⁰ This large environmental benefit will be lost if the CPV plant is used to replace power that would have been generated at IP.
- ∇ While closure can be postponed until clean energy sources become available, the operator would likely need to be **compensated with Zero Emission Credits**, currently only afforded to upstate nuclear plants.²¹

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- ¹ NYISO. Power Trends 2019, Figure 16. May 2019. 2018 clean generation in TWh (nuclear 16.3 + hydro 2.6 + solar/other 1.6) vs. 69.3 TWh total downstate generation. <https://www.nyiso.com/power-trends>
- ² Bernard / New York Times. A 'Climate Emergency' Was Declared in New York City. Will That Change Anything? June 2019. <https://www.nytimes.com/2019/07/05/nyregion/climate-emergency-nyc.html>
- ³ NYISO. Generator Deactivation Assessment Indian Point Energy Center. December 2017. The other identified methane project, uprate of the peaker plant at Bayonne Energy Center II in New Jersey has been withdrawn. https://www.nyiso.com/documents/20142/1396324/Indian_Point_Generator_Deactivation_Assessment_2017-12-13.pdf
- ⁴ Eadie / Sierra Club - Atlantic Chapter. Stop CHPE; No need to import Canadian electricity from 1,200 miles away. March 2015. <https://atlantic2.sierraclub.org/content/stop-chpe-no-need-import-canadian-electricity-1200-miles-away>
- ⁵ New York League of Conservation Voters Education Fund. Breaking Down the Barriers to Renewable Energy in New York State. March 2019. <https://www.acenry.org/blog/2019/3/12/breaking-down-the-barriers-to-renewable-energy-in-new-york-state-1>
- ⁶ Getting Greener: Cost-Effective Options for Achieving New York State's Greenhouse Gas Goals. Citizens' Budget Commission. December 2019. https://cbcny.org/sites/default/files/media/files/REPORT_GettingGreener_120602019_3.pdf
- ⁷ Specter / Micro Utilities. The Best Emergency Plan for Indian Point, Rev. 2. November 2019 http://www.infoshare.org/main/The_Best_Emergency_Plan_for_Indian_Point_-_HSpecter.pdf
- ⁸ UN IPCC. Technology-specific Cost and Performance Parameters Annex III, Table A.III.2. 2014. (490 methane – 12 nuclear) $gCO_2\text{-eq/kWh} \times 16.3TWh = 7.8 Mt$ https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_annex-iii.pdf. Incorporating recent findings about U.S. methane leakage (2.3% vs. EPA's 1.4% estimate) implies a worse global warming outcome since methane is a 84x-worse pollutant than CO_2 over a 20-year time horizon. Measuring Methane: A Groundbreaking Effort to Quantify Methane Emissions from the Oil and Gas Industry. 2018. <https://www.edf.org/sites/default/files/EDF-Methane-Science-Brochure.pdf>
- ⁹ NYSERDA. New York State Greenhouse Gas Inventory, Table 1. July 2019. <https://www.nyserdera.ny.gov/-/media/Files/EDPPP/Energy-Prices/Energy-Statistics/greenhouse-gas-inventory.pdf>
- ¹⁰ Environmental Progress. Closure of Indian Point Would Spike Power Emissions 29%, Reversing 14 years of Declines. January 2017. <http://environmentalprogress.org/big-news/2017/1/8/breaking-closure-of-indian-point-would-spike-power-emissions-29-reversing-14-years-of-declines>
- ¹¹ NYSERDA. Offshore Wind Policy Options Paper. January 2018. <https://www.nyserdera.ny.gov/-/media/Files/Publications/Research/Biomass-Solar-Wind/Master-Plan/Offshore-Wind-Policy-Options-Paper.pdf>
- ¹² Storrow / E&E News. Trump admin throws wrench into offshore wind plans. August 2019. <https://www.eenews.net/stories/1060921573>
- ¹³ Pollution impacts from electricity switching modeled using SimaPro V10 by PRE Consultants. Cricket Valley generation (1,100 MW x 85% capacity utilization) will increase $PM_{2.5}$ concentration by $6.0 \mu g/m^3$ over a 25-mile radius, home to 592,161 residents (as per NYC Metro Region Explorer <https://metroexplorer.planning.nyc.gov/People/>). Prorated cardiovascular disease (CVD) mortality of $1,437 \times 0.9\% \times 6.0 \mu g/m^3 = 77.2$ incremental deaths per year. Background particulate matter concentration data extracted from Brauer, et al. Exposure Assessment for Estimation of the Global Burden of Disease Attributable to Outdoor Air Pollution. Environmental Science & Technology 2012, 46, 652–660. <http://dx.doi.org/10.1021/es2025752>. CVD mortality relationship from Dockery, DW; Pope, CA 3rd; Xu, X; Spengler, JD; Ware, JH; Fay, ME; Ferris, BG Jr; Speizer, FE. An association between air pollution and mortality in six U.S. cities. December 1993. N Engl J Med. 329(24):1753-9. <https://www.ncbi.nlm.nih.gov/pubmed/8179653>. Intraurban intake fraction dataset from Apte, JS; Bombrun, E; Marshall, JD; Nazaroff, WW. Global intraurban intake fractions for primary air pollutants from vehicles and other distributed sources, Environmental Science & Technology 46, p. 3415-3423, 2012. <http://dx.doi.org/10.1021/es204021h>
- ¹⁴ EPA. Mortality Risk Valuation. Retrieved February 2020. <https://www.epa.gov/environmental-economics/mortality-risk-valuation>
- ¹⁵ Ritchie / OurWorldInData. What are the safest sources of energy? February 2020 <https://ourworldindata.org/safest-sources-of-energy>
- ¹⁶ U.S. Nuclear Regulatory Commission <https://www.nrc.gov/info-finder/reactors/ip2.html> and <https://www.nrc.gov/info-finder/reactors/ip3.html>
- ¹⁷ Latest findings from the United Nations' WHO study indicate that there will be less than 1 radiation-related fatality due to the Fukushima Nuclear Accident versus over 15,500 from the tsunami caused by a category 9 earthquake, and the https://www.who.int/ionizing_radiation/a_e/fukushima/faqs-fukushima/en/
- ¹⁸ Craig / Daily Voice PLUS. Engineer Predicts Indian Point Closure Will Cause Widespread Blackouts, Pollution. <https://dailyvoiceplus.com/westchester/politics/engineer-predicts-indian-point-closure-will-cause-widespread-blackouts-pollution/746826/>
- ¹⁹ New York City Council Committee on Environmental Protection. Res. No. 320: Resolution calling on the state of New York to phase out Number 4 and Number 6 fuel oil in power plants in its plan to meet carbon dioxide reduction goals. November 2016. Available upon request.
- ²⁰ CPV Valley. Environmental Benefits. Retrieved February 2020. <http://www.cpv.com/our-projects/cpv-valley/environmental-benefits/>
- ²¹ McDermott Will & Emery / EnergyBusinessLaw. NY Creates New Emissions Credit for Nuclear Plants. September 2016. <https://www.energybusinesslaw.com/2016/09/articles/environmental/ny-creates-new-emissions-credit-for-nuclear-plants/>