Nuclear New York

Independent Advocates for Reliable Carbon-Free Energy
3961 47th St, Sunnyside, NY 11104
NuclearNY.org
info@NuclearNY.org

February 14, 2023

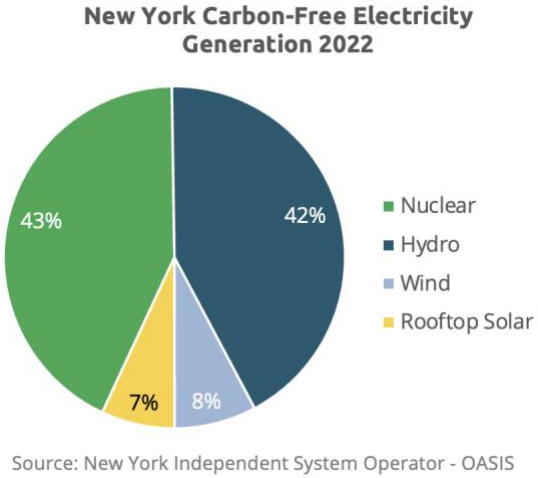
NYS Joint Legislative Budget Committees:

Re: Testimony in Joint Legislative Budget Hearing on Environmental Conservation

Honorable Legislators,

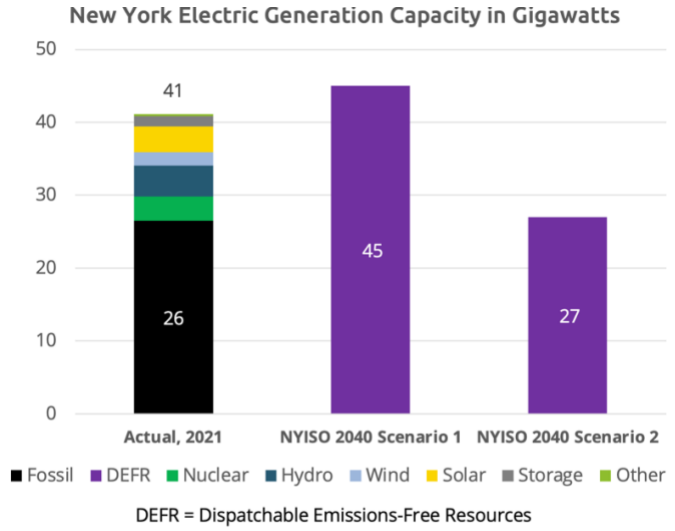
Nuclear New York is an independent, non-partisan advocacy organization working towards a prosperous decarbonized future, well-paid meaningful jobs for New Yorkers, nature conservation, and vibrant communities. The organization conducts rigorous research and policy advocacy.

We are submitting commentary as New York is embarking on implementing the state's Climate Leadership and Community Protection Act (CLCPA). Climate Action Council (CAC) Scoping Plan recognizes the enormous value of existing nuclear plants *and* considers the deployment of advanced nuclear. New York legislators now need to fund the research, development, and deployment of nuclear energy.



Source: New York Independent System Operator - OASIS

Nuclear is our largest source of low-carbon energy.



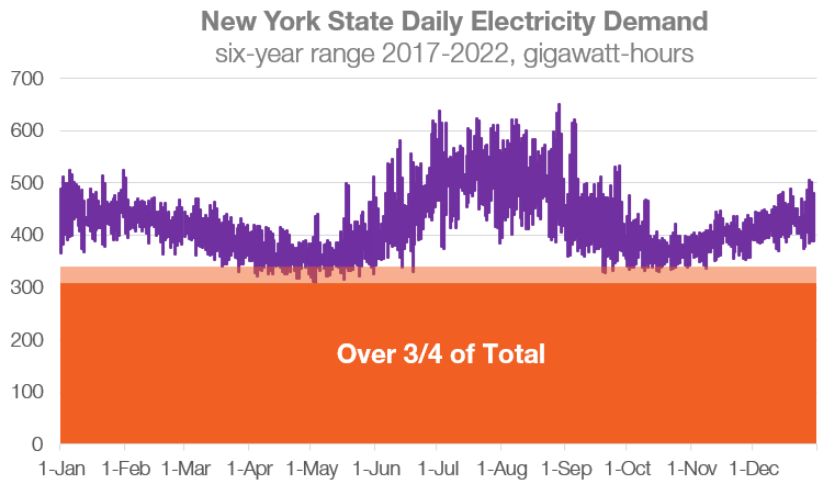
Source: New York Independent System Operator 2021-2040 System & Reliability Outlook

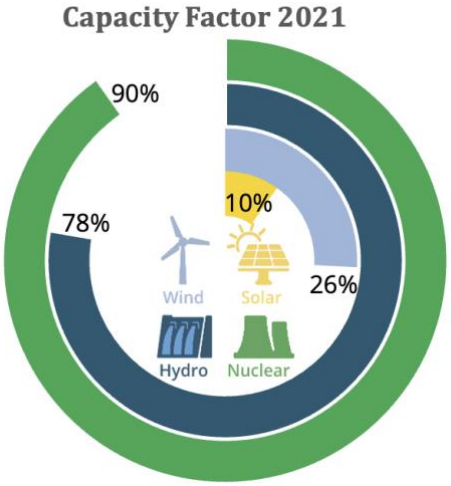
Intermittent generators like wind and solar can reduce the use of fossil combustion early in the decarbonization process. Their deployment accelerates materially in *Bright Future*, the policy brief we co-authored with Clean Energy Jobs Coalition-NY, representing 270,000 skilled energy workers across New York State.[1] However, these weather-dependent technologies are unable to reliably power a modern industrial society. New York Independent System Operator (NYISO) states in its System & Outlook report[2]:

> To achieve an emission-free grid, dispatchable emission-free resources (DEFRs) must be developed and deployed throughout New York. DEFRs that provide sustained on-demand power and system stability will be essential to meeting policy objectives while maintaining a reliable electric grid… DEFRs will require committed public and private investment in research and development efforts to identify the most efficient and cost-effective technologies [for] eventual adoption of commercially viable resources.

According to NYISO, the amount of DEFRs that need deployment in 17 short years exceeds the sum of all generation capacity (Scenario 1: 45 gigawatts [GW]) or all our fossil generation capacity (Scenario 2: 27 GW). However, no mechanism for procuring that capacity has been established. To this end, we support Senate Bill 2585A, to incentivize the construction of at least 1 GW of zero-emissions energy (electricity or thermal energy) via low-carbon technologies other than renewable energy.[3]

Firm clean generators like nuclear, hydro, and geothermal are dispatchable and emission-free. Furthermore, over ¾ of New York's daily electricity demand is steady over 365 days of the year. Nuclear plants can produce electricity as needed or around the clock, thereby substantially reducing the *total* amount of installed generation capacity, transmission infrastructure, and storage required. This translates to greater system-level efficiency and lower the cost to consumers. New York State Energy Research and Development Authority (NYSERDA)'s November 2022 presentation to CAC showed that even with conservative capital cost estimates (labeled "Low Nuclear Cost") adding 4 GW of nuclear would obviate the need for 12 GW of intermittent renewables and 5 GW of firm resources and battery storage.[4]





Further, nuclear power —existing and advanced— provides high-wage, family-sustaining jobs. The Scoping Plan states: *"[I]n many of the same ways that New York's existing upstate nuclear fleet strongly supports a variety of energy trades, advanced nuclear offers the potential for a zero-emission power plant setting that current power plant workers could transition into readily."*

Research by the International Monetary Fund found that nuclear has the largest economic multiplier effect of any clean energy technology.[5] Nuclear workers in the U.S. also enjoy the highest wages of all energy sector employees and benefit from the highest rates of unionization.[6] The average annual payroll of over 2,100 employees at New York's nuclear plants exceeded $113,000 in 2018.[1]

As environmentalists, we commend New York legislature and Governor Hochul on passing the 30x30 legislation (S.6191A/A.5390B) to conserve 30% of public land by 2030.[7] An extensive lifecycle analysis by the United Nations confirms that nuclear power is the least impactful of all energy sources with respect to land use, mining, materials, and toxicity.[8] New York's three upstate nuclear plants generate 26.9 terawatt-hours per year —enough power for 3.8 million homes— using merely 2,050 acres of land. We can expand clean energy without extensive energy sprawl that disrupts ecosystems, livelihoods, and rural lifestyles.

The Scoping Plan's inclusion of advanced nuclear is consistent with a *global reckoning* of nuclear power's crucial role in tackling climate change while meeting the needs of a productive industrialized society. The world has learned a painful lesson from Germany's failing "renewable-only" plan that led to dependence on Russian gas and an international energy crisis that persists today.[9] Determined not to make the same mistake, the U.K., Canada, Japan, France, South Korea, and the Netherlands and are advancing the construction of a new generation of nuclear plants.[10] Likewise, here in the U.S., the Bipartisan Infrastructure Law of 2021 and the Inflation Reduction Act of 2022 will allocate $40 billion federal funds into the nuclear sector over the coming decade.[11] Today Michigan, New Hampshire, Virginia, Washington, Idaho, and Wyoming are all exploring or actively developing advanced nuclear.[12] So is the Tennessee Valley Authority — the nation's largest producer of public power.[13] If New York hesitates to act on advanced nuclear, it will miss out on federal funding that other states receive.

Nuclear also provides the ability to create clean hydrogen to help decarbonize industry, transportation, and manufacturing. NYSERDA and the U.S. Department of Energy are already funding a demonstration project at Nine Mile Point that will become the nation's first nuclear-powered clean hydrogen production facility.[14] Expanding this work would help New York State become a Regional Clean Hydrogen Hub.[15]

With abundant, affordable, reliable, carbon-free energy, New York can attract and retain industry to create a clean energy revolution supporting middle-class-sustaining job creation. Cost-optimized deep decarbonization pathways without arbitrary technology limits show nuclear supplying around 20-48% of U.S. clean electricity in 2050.[16] Early planning for and incorporation of firm, clean, dispatchable generating capacity reduces total decarbonization costs vs. inefficient retroactive deployment due to emerging system needs.[16] The "invest" portion of New York's Cap-and-Invest funds can overcome the CLCPA's biggest challenges. We urge New York Legislators to direct most, if not all, of this investment towards advancing nuclear energy in our state. New York possesses the skills, spirit of innovation, and financial prowess to be a leader in this emerging high-tech industry. We look to your leadership to turn that into reality.

Sincerely,

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