

## DOCKETED

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## **The Key Technology for GHG Reduction is Nuclear Power Generation - Part 4**

Here is a two-page summary that underscores the critical role that nuclear power plays in GHG reduction.

*Additional submitted attachment is included below.*

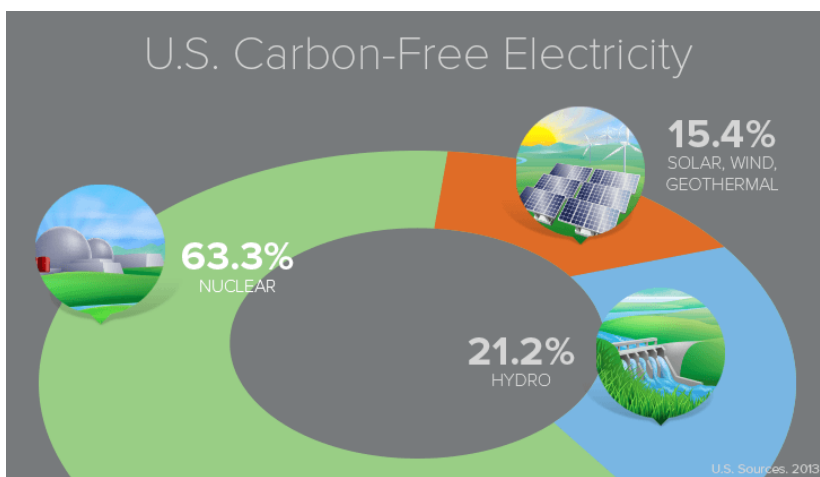
# 4. Nuclear Benefits: Carbon-Free Electricity

<http://www.nuclearmatters.com/resources/fact-sheets/document/4-Nuclear-Matters-Carbon-Free.pdf>

Nuclear energy facilities are among the cleanest sources of electricity available. They produce virtually no carbon dioxide or air pollution. Without nuclear energy, the United States cannot meet its clean energy or carbon reduction goals.

## Clean Air Energy

- Nuclear energy produces more clean air energy than all other sources combined and is the only one that can produce large amounts of electricity around the clock, 365 days a year. Nuclear accounted for 63.3 percent of America's clean energy in 2013.
- Existing nuclear plants prevented 589 million metric tons of carbon dioxide emissions in 2013, equal to CO<sub>2</sub> emissions from 113 million automobiles. Those same plants also prevented 1 million short tons of sulfur dioxide (which contributes to acid rain) and a half-million short tons of nitrogen oxide (which causes urban smog).
- Nuclear energy's "life-cycle" carbon emissions are among the lowest of all electricity sources. Life-cycle emissions include emissions created during mining, fuel production and plant construction, operation and decommissioning. Nuclear life-cycle emissions (17 tons per billion watts) are comparable to geothermal (15 tons) and wind power (14 tons).
- Analyses by diverse organizations show that reducing carbon emissions will require a portfolio of technologies, and that nuclear energy must be part of the portfolio. These organizations include:
  - U.S. Environmental Protection Agency
  - Academies of Science for the G8 + 5 countries
  - Electric Power Research Institute
  - U.S. Energy Information Administration
  - OECD / International Energy Agency
  - Business Roundtable
- After California's San Onofre plant shut down in January 2012, which was also a time of low hydroelectric supply, the state's carbon output increased by 35 percent in the first year, according to the California Air Resources Board.



Source: Nuclear Energy Institute. Sources of Emission-Free Electricity. <http://www.nei.org/Knowledge-Center/Nuclear-Statistics/Environment-Emissions-Prevented>

NUCLEAR MATTERS

## 4. Nuclear Benefits: Carbon-Free Electricity

- Closing even a few nuclear plants would make achieving state and national carbon reduction goals difficult or impossible. In a Feb. 20, 2014, report the global asset management firm UBS Securities wrote the following:

*“Digging deeper into ... nuclear retirements in New York (and elsewhere in the Northeast), we see the region’s carbon targets as seemingly unattainable. ... We see any retirement of Indian Point as increasing NY’s carbon emissions by at least ≈26 percent, making any further nuclear retirements in the state unpalatable. We estimate closing Ginna, Fitzpatrick and Nine Mile (smaller nuclear plants) would add another 37 percent to the state’s projections. As such, we see the state’s carbon goals as entirely unattainable with further retirements, increasing total state emissions by at least 60 percent, and the entire RGGI region’s by ≈25 percent, or 22 [million] tons, a cause for wider regional concern.”*

- Worldwide, 71 new nuclear plants are under construction and 160 are in licensing and advanced planning stages. In the United States — the world leader in nuclear energy production with 100 reactors — only five reactors are under construction. Maintaining existing reactors will be vital to achieving America’s environmental goals and retaining the U.S. position as a world environmental leader.

## Other Environmental Benefits

- Nuclear energy’s environmental protection value extends to safely managing used reactor fuel, protecting water quality and preserving and improving habitat for plants and wildlife.
- All U.S. nuclear energy facilities have extensive environmental monitoring programs, which are under the oversight of the independent U.S. Nuclear Regulatory Commission and state regulators.
- U.S. nuclear plants are so environmentally friendly that many have become habitats for rare species of birds, reptiles and other animals. Others have designated nature preserves on plant property, wildlife nurseries and recreational facilities on cooling lakes and forests adjoining the sites, many with company-sponsored environmental programs for the public.
- Some of the nation’s best-known environmental organizations have recognized these programs, including the Audubon Society, Ducks Unlimited, the National Wildlife Federation, the Nature Conservancy, Trout Unlimited, the U.S. Fish and Wildlife Service and the Wildlife Habitat Council.