



POWERING A CLEAN, LOW-CARBON FUTURE

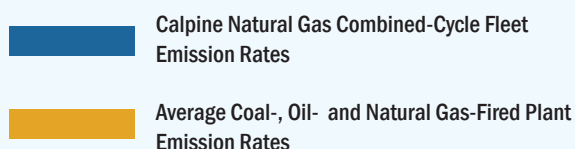
Calpine's commitment to the environment is fundamental to our corporate philosophy and culture. It defines who we are as a company and how we serve our customers. We are America's largest generator of electricity from natural gas and geothermal resources, and our power plant fleet is among the cleanest in the nation.

As a long-time advocate of renewable and energy-efficient power generation, Calpine supports policies to improve air quality standards and reduce emissions of greenhouse gases. Today's clean, fuel-efficient technologies demonstrate that power companies can generate electricity reliably while dramatically decreasing emissions.

Calpine operates one of the newest and cleanest fleets of natural gas power plants in the country and is the largest operator of highly efficient combined heat and power (CHP) plants. Our fleet's fuel efficiency and advanced emissions controls result in dramatically lower greenhouse gas-, smog- and acid rain-producing emissions than coal and other typical fossil-fuel facilities.

Calpine, listed as the nation's 10th largest power producer overall, is among the lowest in air emissions rates. According to the *Benchmarking Air Emissions of the 100 Largest Electric Power Producers in the United States* 2018 report, Calpine ranked 75th for sulfur dioxide and nitrogen oxides and 85th for carbon dioxide. In addition, because Calpine's fossil fuel fleet consists of clean, efficient and flexible natural gas-fired plants, it has no mercury emissions.

Average Emissions of Calpine Natural Gas Combined-Cycle Unit Versus Typical Power Plant⁽¹⁾:



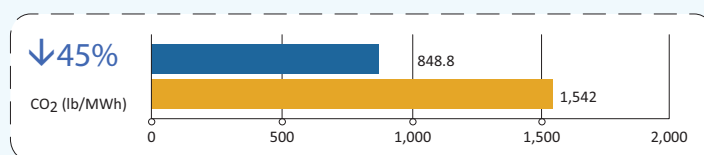
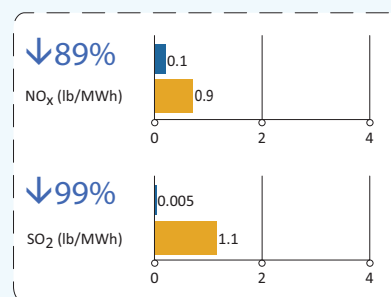
NO_x: nitrogen oxides, acid rain and smog-producing emissions

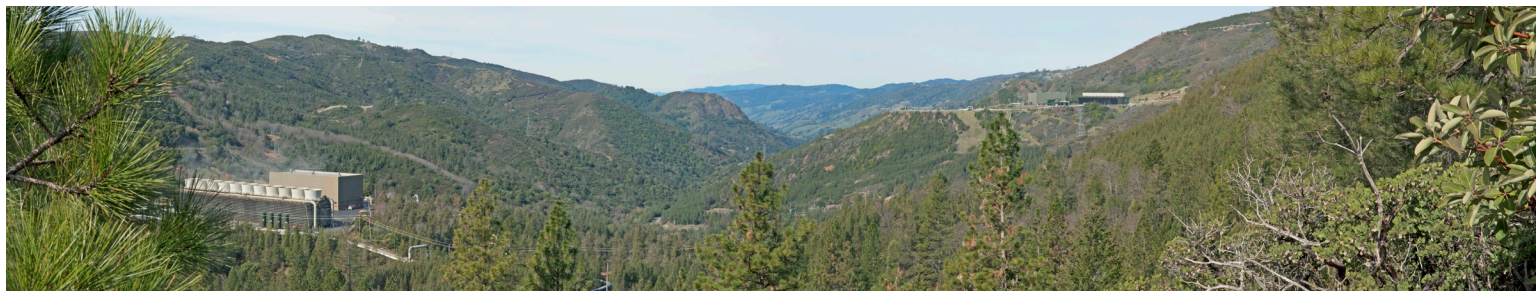
SO₂: sulfur dioxide, acid rain-producing emissions

Hg: mercury, a neurotoxin

CO₂: carbon dioxide, the principal greenhouse gas

⁽¹⁾ Sources: U.S. Department of Energy's Electric Power Annual Report for 2016 and M. J. Bradley & Associates, *Benchmarking Air Emissions of the 100 Largest Electric Power Producers in the United States* (2016). This is compared to Calpine's 2016 combined-cycle, natural gas power plant emission rate data as measured under EPA reporting requirements.





Harnessing Renewable Energy – 24/7

Calpine is the nation's largest producer of renewable geothermal power. Geothermal power is available 24 hours a day, seven days a week. And Calpine is working to sustain and enhance this valuable source of clean energy. By recharging the geothermal resource at The Geysers in northern California with treated wastewater from nearby municipalities, we eliminate discharge into public waterways while increasing long-term productivity.

Integrating Other Clean Energy Options

As the nation relies on intermittent wind and solar power for more of its electricity needs, the availability of reliable, flexible backup generation becomes vitally important. Calpine's fleet of natural gas-fired power plants can adjust generation output quickly when renewable sources go offline or suddenly reduce or increase output. By doing so, we help integrate more renewable resources into the nation's power supply. For example, Calpine's natural gas-fired plants in the Mid-Atlantic region support the Vineland Solar Energy Center in New Jersey, which the company purchased in 2010 as part of its acquisition of Conectiv Energy. In addition, our quick-firing natural gas fleet will help integrate wind power from our 124-megawatt Bluestone Wind Farm, currently under advanced development in New York State.

Moving the Needle on Climate Change Policy

Calpine is committed to powering a lower-carbon and cleaner future. And we back up that commitment not only with our company's renewable and fuel-efficient power plants, but also with our consistent support for efforts to protect the environment. Calpine is taking steps to help the power industry reduce its carbon footprint:

- Completed construction in July 2013 of the nation's first power plant to receive a federal air permit that includes a limit on greenhouse gas emissions (the Russell City Energy Center in Hayward, California)
- Supports adoption of federal climate change legislation, including requiring companies to pay for their carbon emissions
- Supported adoption of state greenhouse initiatives, including California's Global Warming Solutions Act of 2006 (AB32) and the Northeast Regional Greenhouse Gas Initiative (RGGI)
- Filed an amicus brief in support of the landmark Supreme Court ruling that the EPA has the authority to regulate greenhouse gas emissions
- First power producer to earn the distinction of Climate Action Leader; also recognized by the EPA's Combined Heat and Power Partnership for efficient energy production and CO₂ reduction
- Calpine's Garrison Energy Center was highlighted by the EPA as a model of sustainability.

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Creating power for a sustainable future

www.calpine.com

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