

## **Tackling Peak Pollution: Achieving Environmental Justice for Frontline Communities**

### *U.S. House Committee on Oversight and Reform: Hybrid Committee Roundtable*

*August 26, 2021*

Elena Krieger, PhD  
Director of Research  
Physicians, Scientists, and Engineers for Healthy Energy  
1440 Broadway, Suite 750  
Oakland, CA 94610

Chairwoman Maloney, Representative Ocasio-Cortez, and the rest of the committee, thank you for the opportunity to speak with you today.

I am the director of research at Physicians, Scientists, and Engineers for Healthy Energy, a non-profit energy science and policy research institute originally founded in upstate New York and currently based out of Oakland, California. At PSE, we study the health, environment, and equity dimensions of energy production and use. I originally focused my mechanical and aerospace engineering PhD research on energy storage for renewable energy systems, and when I arrived at PSE in 2013 I began with a big question: how do we adopt energy storage in such a way that it achieves the greatest societal benefits, including addressing climate change, the environment, human health, equity, and resilience?

I began by analyzing electricity generation in California and two themes emerged. My first key finding was that our state's peaker power plants, which run a small fraction of time to meet peak electricity demand, jumped out as prime candidates for replacement with energy storage based on operational, environmental health, and demographic measures. The second major finding is that some of the greatest co-benefits come from not just replacing these plants with energy storage and clean electricity sources, but that distributing batteries, efficiency, and other energy resources throughout the community will provide additional resilience and economic benefits.

Peakers are optimal for replacement in part because they are some of the most expensive resources on the grid, and because they often run for only a few hours at a time, making energy storage a good technological match. Far beyond that, however, in states like California and New York we found that these plants have the highest rate of health-damaging air pollutant emissions per unit of electricity generated, meaning that you get the biggest bang for your buck for every megawatt hour of clean generation displacing peak generation. They are often all simultaneously fired up on hot summer days with already poor air quality. In California's San Joaquin Valley, two thirds of generation from some plants is on days exceeding federal ozone or particulate matter standards. In California, we found that half the state's plants are located in our 25 percent most disadvantaged communities who face high cumulative socioeconomic, health, and environmental burdens, meaning that this pollution is disproportionately impacting our most vulnerable populations.

In New York, 39 of the state's 50 peakers are over 30 years old, many older, 40 percent primarily burn oil, which has higher emission rates than gas-burning peakers, and one third are located in areas designated as Environmental Justice communities because they are home to high concentrations of low-income populations and populations of color. We analyzed populations living near plants and found that some of those located in the Bronx and Queens have the highest cumulative socioeconomic, health, and environmental burdens in the state. New York City also has some of the country's most urban power plants, meaning many more people are breathing in pollutants released from their stacks than elsewhere. I have found similar themes in the nine states whose peakers I have analyzed in detail.

We're now at a turning point, however, where we can begin replacing the more than thousand oil- and gas-fired peaker plants across the country, including many of these plants here in New York. Lithium-ion battery prices have plummeted 90 percent in the last ten years and are now cost-competitive with peakers in many places. At the same time, states and the federal government are rapidly expanding clean energy resources to meet climate targets. If we focus some of these efforts on displacing plants with high emission rates, plants in urban areas, and those in our most vulnerable communities, we can simultaneously reduce pollutant emissions while investing in these communities to provide resilience and cost savings to those who need it most, setting a precedent for how we can equitably transition our entire power sector.

Thank you, and I look forward to your questions.