

Soot to Solar

Waukegan Generating Station – Waukegan, IL

On the shore of Lake Michigan about 50 miles north of Chicago, the coal-fired Waukegan Generating Station looms above a state nature preserve, a municipal beach, and the city's water treatment plant. Despite market forces driving coal into decline (Richardson et al. 2017), despite being sued for violating the Clean Air Act, and despite recent financial struggles in Illinois's deregulated utility market, the plant is still burning coal (US EPA v. IPA 2005).

Toxic coal ash is stored in pits near the lakefront, the subject of an ongoing lawsuit filed in 2012. Groundwater testing in the area has detected multiple pollutants beyond levels considered safe by the Illinois Environmental Protection Agency (KPRG and Associates 2017).

For nearly a decade, Waukegan residents, anchored by the group Clean Power Lake County, have been pushing for a retirement and transition plan for the plant that addresses issues including remediation and revitalization of the plant site; the loss of tax revenue when the plant closes; and opportunities for local economic diversification, worker training, and new, well-paying jobs (Richardson et al. 2017). Clean Power Lake County leader Dulce Ortiz describes how the transition away from coal is critical for the future: "Does the city move forward—embracing a healthy, clean energy future beyond coal? Or does it stay stuck in the past—tethered to a painful history of industrial pollution that has hindered economic revitalization for decades?" (Ortiz 2018). A 2016 poll conducted by the Global Strategy Group found more than 70 percent of people in Waukegan believe that the plant should be closed (Olson 2016).

NRG Energy, which owns the plant, asserts that the plant produces reliable, safe energy. In reality, pollution from the coal plant causes an estimated 18 premature deaths and 118 asthma attacks per year (UCS 2018). The Waukegan residents who bear the brunt of this pollution are disproportionately people of color: 19 percent of the city's 88,000 residents are black (30 percent higher than Illinois as a whole) and 55 percent are Latino (more than three times higher than Illinois as a whole) (US Census Bureau 2017). Reliability is critically important as we move toward a modern and resilient electric

grid. But reliability is not an obstacle to closing the Waukegan Generating Station. Our analysis finds that the generation from retiring the two remaining coal units can be reliably replaced with an equivalent amount of generation spread evenly across all the existing power plant locations in the 13 states served by PJM, a regional transmission organization that the Waukegan



Community leaders who live next door to coal-fired power plants in Waukegan, Romeoville and Pekin, Illinois, stand with local residents at Waukegan Municipal Beach to demand healthier clean-energy economies for their hometowns. At CPLC's Hands Across the Sand event, Waukegan Municipal Beach, September 2014. [Photo by Karen Long MacLeod for CPLC]

coal plant is located in. If the Waukegan coal plant were closed tomorrow, all the lights would stay on.

The Waukegan plant also houses four small oil-burning combustion turbines that are used only rarely when electricity demand is high, and these could also be shut down if (1) 100 megawatts (MW) of new generating capacity were installed in the Chicagoland area (for reference, under the Future Energy Jobs Act (FEJA), Illinois will add about 30 times this much solar over the next decade (Illinois General Assembly 2016), or (2) if a small, 23 MW energy storage installation were put on the Waukegan site in combination with the implementation of

energy efficiency measures. The storage facility would occupy a tiny fraction—0.34 percent—of the Waukegan site and would generate no pollution or noise, making it compatible with other uses for the site.

A 2017 waterfront master plan commissioned by the city articulates a vision for the waterfront. Residents were asked about what they wanted from the waterfront, and their top priorities were sustainable practices, enhanced natural spaces, and an active waterfront. The plan itself cites the importance of past environmental remediation and ecological restoration of the lakefront, as well as the need to “continue improving the lakefront to increase the use, vitality, and economic value of the waterfront to both the community and visitors” (Waukegan Port District 2017). Though the plan does not include the coal plant site, the principles it outlines from both residents and planners can and should be applied to thinking about revitalization of the Waukegan Generating Station site. “We want to move beyond heavy industry,” said Ortiz, “we want revitalization, not ‘redevelopment’ with high-priced condos and gentrification” (Ortiz 2018).



More than 150 Lake County residents join faith leaders in a march and vigil for environmental justice to commemorate Dia de los Muertos. Together, they called on NRG Energy to set a retirement date for its coal-fired power plant on the lakefront and urged Mayor Wayne Motley to convene a transition committee to address the future of the site. Waukegan, near NRG coal plant, November 2015. [Photo by Karen Long MacLeod for CPLC]

Closing the Waukegan coal-fired units would have no negative impact on electricity reliability and would have profound positive effects, saving an estimated 143 lives between 2022 and 2030. A modest amount of energy efficiency, energy storage, and distributed solar generation would allow the closing of the oil-fired turbines as well. The site could be revitalized as usable lakefront space, as well accommodate solar and energy storage installations with only a small footprint on the land.

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There are also four nearby brownfield sites that would qualify for brownfield solar projects under FEJA: Yeoman Creek landfill, the Johns-Manville site, the North Shore Gas north plant site, and the Outboard Marine Corporation site. These sites would all be eligible for brownfield solar incentives under FEJA and could accommodate solar that would help meet Waukegan’s energy needs.

Local elected officials, like Lake County board member Steve Carlson, recognize the harms of the coal and the opportunities presented by clean energy: “Lake County can move beyond coal, toward a 100 percent clean energy future, and invest in fiscally and environmentally sustainable infrastructure” (Guzman 2018).

Our analysis shows that the coal plant units can be closed without any disruption to electricity reliability. Given the expressed goals of community members and the ongoing decline of coal, NRG and local elected officials should be developing a plan for a just retirement that includes remediation of the site; support for economic development including good jobs that are accessible to community members; and plans to address lost tax revenue. Any revitalization of the site and the lakefront should be done in close collaboration with the community and reflect its desire for a just retirement plan. Policy tools under FEJA, like the brownfield solar program and community solar program, can support the development of solar energy in Waukegan, bringing not only clean electricity onto the grid but jobs to the community.

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