

THE OPPORTUNITY PROJECT

2023 PROBLEM STATEMENT

Improving Access to Resilient Electrical Power

Department of Energy (DOE)

THE CHALLENGE – Create tools or analyses that help to address any of the following energy goals: 1) inform investments in grid resilience and restoration, 2) deliver immediate benefits to our existing emergency response systems during power outages, and/or 3) provide visibility into gaps in energy access.

THE PROBLEM – Our society increasingly depends on electricity, but more frequent extreme weather events are disrupting Americans' access to power, especially in low-income and historically marginalized communities. We have been gradually electrifying our economy for over a century, enabling sectors like manufacturing, construction, healthcare, and communications. Electricity coverage is expanding rapidly to provide cleaner transport, heating, and other energy needs across the economy. In the zero-carbon future needed to meet our renewable energy goals, around [50% of U.S. energy use is projected to come from electricity compared to 3% in 1950 and 21% today](#). However, as we face a future with greater dependence on electricity, the extreme weather events that have driven recent power outages will worsen. The average annual number of weather-related power outages was roughly [78% higher during 2011-2021](#) than in the prior decade.

These power outages can result in substantial financial losses, such as food spoilage, loss of work, and serious health implications, which can stem from households being unable to maintain a safe temperature, loss of emergency communication, and inoperable life-saving equipment. The impacts of power outages have disproportionately impacted some low-income, predominantly minority, and high unemployment communities (more information [here](#), [here](#), [here](#), and [here](#)).

THE OPPORTUNITY – We challenge sprint teams to create user-friendly digital tools and analyses to ensure that communities overburdened by power outages are not left behind as electrification advances towards an equitable, clean energy future. In the short term, this will allow communities to recover faster, measure progress, and ensure the needs of underserved communities are met. Ultimately, tools created

through this sprint could also help target significant investments to modernize our grid, reduce the severity of power outages, and provide reliable and equitable electricity to all communities.

TARGET END USERS – Federal, state, local, tribal, and territorial officials, community planners, and leaders in the energy, emergency response, and justice spaces that serve members of the public.

RELATED DATA SETS

- ↳ U.S. Department of Energy and Oak Ridge National Laboratory (ORNL)'s Environment for Analysis of Geo-Located Energy Information (EAGLE-I) platform ([Link](#))
- ↳ U.S. Department of Energy and Oak Ridge National Laboratory (ORNL)'s Outage Data Initiative Nationwide (ODIN) ([Link](#))
- ↳ U.S. Energy Information Administration's Electricity Data ([Link](#))
- ↳ The Climate and Economic Justice Screening Tool (CEJST) ([Link](#))
- ↳ U.S. Department of Energy's Disadvantaged Communities Reporter ([Link](#))
- ↳ U.S. Census Bureau's Community Resilience Estimates ([Link](#))
- ↳ FEMA's National Risk Index ([Link](#))
- ↳ CDC/ATSDR Social Vulnerability Index ([Link](#))
- ↳ U.S. Department of Energy's Energy Zones Mapping Tool ([Link](#))
- ↳ Joint Office of Energy and Transportation's Data and Tools ([Link](#))
- ↳ U.S. Department of Energy's Equity-Eligible Buildings Mapping Tool ([Link](#))
- ↳ Argonne National Laboratory's Electric Vehicle (EV) Charging Justice40 Map Tool ([Link](#))