

Innovation

Twitter, Mobile Apps, and Environmental Data

Study Examines Citizen Science on Social Media and Its Implications for the Electric Power Industry and a Cleaner Environment

By Chris Warren

The Twitter feed of the organization “I See Change” has the feel of an environmental diary. One post features a close-up photo of a flower in a Pennsylvania yard, with the caption, “One bloom on what I thought was a casualty of this summer’s drought.” Another displays a Connecticut mulberry tree’s thick canopy of leaves near its top and bare branches at the bottom, with the post speculating whether odd leaf-dying patterns are becoming more prevalent. I See Change, which describes itself as a community-driven almanac for recording local environmental changes, recently released a mobile app that links citizens’ photos and observations with satellite data to support NASA climate research.

I See Change is part of an emerging trend in which citizen scientists use social media to share environmental data with scientists, policymakers, advocacy groups, and other stakeholders—from photos of endangered species sightings to sensor readings for air and water quality.

A new EPRI study assesses this trend, potential public and environmental benefits, and implications for the electric power industry. “We are examining how social media is being used for environmental data, for what purposes, what information is out there, and what areas utilities might be interested in,” said Nalini Rao, EPRI technical leader and a co-author of the report (to be published in Spring 2017).

Governments Encourage Novel Data Collection and Analysis Tools

Governments worldwide are encouraging citizens to collect environmental data, including measurements or information about air, water, species, oceans, landscapes, and coastal areas. For example, the European Union enlisted citizen scientists to collect biodiversity data that have been used to track the continent’s progress toward 2020 habitat and species preservation goals.

The U.S. Environmental Protection Agency (EPA) initiative [Apps for the Environment](#) has led to the development of hundreds of apps for tracking carbon footprint and measuring water quality, ozone, air quality, and more. Data from many apps are shared via social media. The EPA also is soliciting citizen science data through community projects and other avenues, many of which use apps.

Why Social Media Matters to Utilities

Sharing of environmental data on social media has many potential benefits. “Agencies and scientists can use it to supplement traditional data collection efforts and mine it for their research,” said Rao. “It can help educate and elevate public awareness about environmental issues, concerns, and successes.”

Typically, utilities use social media to broadcast information about storms and power outages. EPRI’s research on social media’s evolution points to several implications for the electric power industry.

Data collected and shared by citizens on social media could be directly related to the environmental impacts of power plants and other utility-owned facilities. It is important for utilities to determine the data’s accuracy and quality, and in certain cases they may need to work with citizens to do so. This can support utilities’ efforts to

make their facilities cleaner, benefiting the public and the environment. It can also help with emissions and discharge permitting and reporting to regulatory agencies.

“It’s a good time to pay closer attention to social media and the increasing amount of shared environmental data because citizen science is involving more public stakeholders, and federal agency support is increasing,” said Rao.

“Citizen scientist research projects are becoming more rigorous. If this trend continues, then there are going to be a lot more data sets out there,” said Stephanie Shaw, principal technical leader in EPRI’s Environment Sector. “This could mean more opportunities for collaboration with the public, and more opportunities to deepen our understanding of the environment and the environmental impacts of utility operations.”

“To get ahead of this trend, utilities can obtain and evaluate environmental data sets from citizen scientists,” said Shaw. “They can also identify specific research areas that would benefit from a detailed scouting of social media and app activities.”

The field of citizen science will continue to grow, incorporating new technology and social media platforms. While there are still questions regarding the benefits of this new data collection approach, it is likely that environmental monitoring will be taking on a new, important dimension.

Key EPRI Technical Experts

Stephanie Shaw, Nalini Rao