

There's a smartphone app for that? EPA compliance: The next generation

Nearly two-thirds of Americans now own smartphones, a massive increase from the 35% ownership reported in 2011. Smartphone users increasingly use their devices to identify, obtain, or communicate with a wide range of service providers. In 2015, 62% of smartphone users used their phone to look up information on a health condition; 57% used their device for banking; and 40% used their device to look up government services or information. These rapid developments can outpace the ability of businesses and government to provide appropriate tools.

The U.S. Environmental Protection Agency's (EPA) Next Generation Compliance initiative is the agency's effort to leverage available technologies to streamline enforcement and strengthen compliance with federal environmental laws. While some consent agreements already use Next Generation Compliance tools, in January 2015, Assistant Administrator for Enforcement and Compliance Assurance (OECA) Cynthia Giles formally requested that EPA civil enforcement staff consider Next Generation Compliance tools in all cases and include those tools in settlements when appropriate. The EPA has outlined five key elements of its Next Generation Compliance initiative – more effective regulation and permits through built-in Next Generation Compliance, advanced pollution monitoring technologies, electronic reporting, increased transparency, and innovative enforcement.

The EPA can already point to a number of settlements that include Next Generation Compliance tools. In 2010, for example, the EPA announced a settlement that included an ambient monitoring system in the nearby community (in response to public concerns for information about neighborhood air quality) that will operate for at least nine years. In addition to monitoring for the affected community, this settlement set the now-current standard of making real-time information publicly available on a website.

Other examples of the EPA's efforts to include Next Generation Compliance in its settlements include a 2014 settlement with one of the world's largest producers of titanium parts for jet engines. This settlement requires electronic submission of monitoring data to the EPA and allows state regulators to make reports available to the public through a website. In another example, a 2013 amendment to an earlier consent decree between the EPA and a petroleum refiner includes an obligation to conduct "fenceline" air quality monitoring and to post the monitoring data each week.

Continuous on-site monitoring and public reporting of environmental data may just be the tip of the iceberg. The regulated community may soon face the possibility of millions of smartphone users monitoring permit compliance directly in their spare time. As smartphones have become nearly ubiquitous, increasingly sophisticated tools and applications have been developed for them. Wireless technologies like Bluetooth have made adding new accessories to smart devices as simple as a button push, while processing power and speed perennially increase.

To meet demand from environmentally-conscious consumers and scientists, a number of smartphone-enabled environmental monitoring devices already exist. For example, TZOA has designed two small devices: a consumer model that can be clipped to clothing or a backpack to measure air quality, temperature, humidity, pressure, ambient light, and ultraviolet exposure—with results streamed to a smartphone app; and a research model intended for longer-term use that contains expansion slots for additional sensors. The company plans to eventually post its data to the cloud to create "environmental maps" available to anyone.

As these technologies become more widely adopted, and the EPA continues to press for Next Generation Compliance terms in settlements, regulators may eventually be inundated with environmental quality data. "Armchair enforcement" by smartphone users providing real-time data on permit compliance and environmental

quality may not be science fiction for long.

The regulated community—and the regulators themselves—may find themselves struggling to keep up with the pace of technological innovation. There are benefits, of course: regulated entities can leverage these technologies to reduce costs of compliance. Reporting will likely become less expensive. But how to handle the influx of data, to what extent it can be relied on, how it impacts enforcement, whether and how to make citizen-reported data available to the public — these questions will arise for the foreseeable future. But there can be no question whether the impact of these technologies will be substantial.

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