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Novel EPA Ozone Standard Shows Greater Agency Focus On Ecological Risk

EPA's proposal to set a first-time, biologically relevant secondary air standard for ozone to protect sensitive vegetation and ecosystems is just one of several recent steps that show the growing importance the Obama EPA is placing on considering ecological risk in decisionmaking, sources say, which could spur stricter and more expensive regulations.

In addition to the ozone proposal, sources say there are a number of places EPA is increasingly looking at potential risks to ecosystems, including high-profile actions involving pesticides, such as a greater focus on adverse effects to birds and endangered species, and a new initiative to examine and quantify the role of ecosystems services. Climate change issues, including changes in the use patterns of pesticides, could also drive more movement toward ecological considerations in agency regulation, according to an academic source that tracks the issue.

But the approach is rife with complications, including insufficient data on how pollution can impact ecosystems, spurring some observers to raise concerns that greater ecological risk considerations could lead to more reliance on the precautionary principle of issuing regulations in the Novel Ozone Standard Shows Eco Risk Focus . . . begins on page one
absence of evidence showing no risks. EPA issued Jan. 7 a proposal to tighten the primary ozone national ambient air quality standard to protect human health and for the first time proposed a "biologically relevant" secondary standard designed to protect sensitive vegetation and ecosystems. EPA is proposing to set the level of the secondary standard within the range of 7-15 parts per million hours, consistent with recommendations from its Clean Air Scientific Advisory Committee.

Previous secondary NAAQS have largely been based on the primary standards, though the new distinct secondary standard for ozone was designed to be more protective of ecosystems and biologically relevant.

The move illustrates the agency's growing focus on the ecological risks of air pollution and other pollutants, sources say. In addition to curbing the ecological effects from air pollution, much of EPA's increased focus on ecological risk "ties back to the Endangered Species Act" and the Obama administration's efforts to preserve more land in an attempt to use trees to reduce levels of carbon dioxide (CO2) and CO2 equivalents, a legal source says.

Regulating indirect effects of a pollutant such as CO2 illustrate the trend because, while pollutants like nitrous oxides have direct effects on human health and have long been regulated, CO2 poses indirect effects to ecosystems, including risks to polar bears and adverse impacts on the migration patterns of birds, the legal source says.

EPA is also analyzing ecosystem impacts in non-air regulatory decisions, including pesticide registrations. For example, Debbie Edwards, former head of pesticide program at EPA, told a Nov. 12 meeting hosted by the American Bird Conservancy in Washington, DC, that ecological considerations would be playing a key role as EPA ramps up plans to complete 70 pesticide re-registrations annually. Over the past 10 to 20 years reviews have focused largely on human health risks, but they are increasingly looking at ecological risk and endangered species issues, among other issues, Edwards said.

Ecological risk assessment is "a very different way of looking at the world," because human health assessments that EPA traditionally conducts for rulemakings focus on one organism, while ecological assessments are considering numerous factors in an ecosystem, according to the academic source.

The complexity of considering ecological risk, coupled with the fact many statutes are vague about what they are protecting, have made ecological assessments slow to gain acceptance, but tools have been developed in the past 10 years to help make the assessments more commonplace, the source says. For example, the use of probabilistic risk assessment has become increasingly commonplace over the last 10 years. It is used to estimate the likely extent of damage from a substance to an ecosystem, the source says.

EPA's pursuit of a greater role for ecological risk assessments in rulemakings, however, faces several hurdles including the fact that such assessments are more complex than traditional human health studies.

The academic source says that traditional ecological risk assessment models are based on those used for human health risk assessment, despite the former considering a multitude of factors interacting with one another. There may be little to no data on the effects of certain chemicals on many species of wildlife, which means agency scientists must perform extrapolation to estimate the effects through a system, according to the source.

It is also important to consider how the ecosystem risk assessment interacts with the human health risk assessment, the source says, because EPA will want to make sure, for example, that an action to protect an endangered species will not have an adverse health effect for human. "How do you manage that system to get all of its benefits?" the source says.

"You need to manage systems as an entire entity — not just human, not just ecological." While the tools and methods to achieve these ecological risk assessment goals are increasingly available, it can take time to get the tools out to regional offices and through the department in the agency, and agency scientists with human health or engineering backgrounds may need additional training, according to the source.

Some observers also worry about the precedent being set with the greater consideration of ecological risk in EPA decisionmaking. In particular, sources have concerns about a greater reliance on ecosystem-

based management leading to increased reliance on the precautionary principle in environmental regulation.

The legal source says it is expensive for industry to prove that there is not environmental damage when trying to respond to, for example, the potential secondary impact of pollution on an ecosystem. Further, regulators can use the argument of protecting plants and animals to impose stricter regulation, which resonates with the public who may favor strict rules if they are pitched as protecting wildlife, the source says.

The focus on ecosystems also represents a "nuanced shift from a focus on risk to a focus on hazard," which opens up a "broad universe of harms that need to be regulated" by EPA, says Lawrence Kogan, an attorney with Boston-based Exemplar Law Partners and head of the New Jersey-based non-profit Institute for Trade, Standards and Sustainable Development. These "health and environmental harms are not evaluated on the basis of probability, but possibility," Kogan said in an interview, meaning EPA could give greater consideration to the potential risk on ecosystems of a given pollutant, rather than a proven link between a pollutant and, for example, health effects.

Kogan says the use of a cumulative risk assessment, which combines reviews of both health impacts and ecological impacts at EPA, could address concerns with ecosystem-based management, because the assessment would require the need to prove the link between cause and environmental harms. Such a risk assessment could be made even "more robust" with the addition of variables, he says. *— Aaron Lovell*