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Bloomberg
BNA

Daily Environment Report

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Practitioner Insights

Practitioner Insights: Rapid Tests Transform Chemical Safety Calls

The EPA needs to make safety-related decisions on thousands of chemicals to accomplish its mission. To

address this challenge, the EPA is developing faster and more economical approaches to measure and predict the properties of chemicals it oversees and incorporate the data into a range of on-line dashboards to support regulatory and health decision making. 21

Leading the News

Congress

House Vote Possible This Summer on Four Environment Bills: Shimkus

The House could pass four major environmental bills before Congress's August recess, including one delaying implementation of 2015 ozone standards, a key House Republican told Bloomberg BNA.

Three bills reauthorizing brownfields, drinking water and nuclear waste law could then be attached to any Senate-passed infrastructure bill to reach the president's desk, said Rep. John Shimkus (R-Ill.), chairman of the House Energy and Commerce's Subcommittee on Environment. Meanwhile, exploration of other Clean Air Act issues could begin as soon as September, he said.

A "draw [to Republicans] on these authorization bills is the fact that they're reauthorizations," Shimkus said in a June 12 interview. "We have a big debate in our conference—we've had it the last three Congresses—about spending money on things that aren't authorized or reauthorized. So the leadership really wants us to be looking at these programs—what works, what doesn't work—and to reauthorize the programs."

Shimkus' comments offer a roadmap for what comes next for the environment in the House following early Republican efforts to roll back major environmental rules, including the stream protection rule. The House is scheduled to start its August recess July 29 and return Sept. 5.

June 15 Markup Shimkus' subcommittee will hold a markup June 15 on three environmental bills. Those include:

- The Ozone Standards Implementation Act of 2017 (H.R. 806, S. 263) introduced by Rep. Pete Olson (R-Texas) that would delay for eight years implementation of the Environmental Protection Agency's 2015 ozone standards;

- legislation that has not yet been introduced to reauthorize the EPA's brownfields program that allocates federal grants for developers and others to clean up and redevelop contaminated sites; and

- another bill that has not yet been introduced to reauthorize the Nuclear Waste Policy Act that would restart work on Nevada's Yucca Mountain as a permanent repository for spent fuel from the nation's commercial nuclear power plants.

A fourth not-yet-introduced bill that would reauthorize the federal drinking water program under the Safe Drinking Water Act is not a part of this markup, a spokesman for Shimkus told Bloomberg BNA in an e-mail.

On the reauthorization bills in general, including the drinking water bill, Shimkus said he hopes to strike

compromises with Democrats while still working within budgetary guidelines. There won't likely "be much agreement" on the ozone legislation across the aisle, but the other bills, especially on brownfields, are programs broadly supported in Congress, he said.

"We're in the majority, so we have the votes," Shimkus said of the House. "But the way I've operated the last six, eight years is that you really want to make these ones bills where both people are somewhat pleased as you move through the process."

Timeline of Bills The bills would next move to the full House Energy and Commerce Committee for review. Shimkus said he hopes all four bills, including the drinking water efforts, will pass the full House before the August recess.

A spokesman for the full committee didn't respond to Bloomberg BNA's question on how quickly it plans to take up these bills after the markup or whether an August timeline is in the cards.

Should the bills make it through the full committee, the three reauthorizations could find a home for passage in an ever-growing hypothetical Senate infrastructure package, Shimkus said.

"You can easily make the argument that these are all infrastructure issues," he said.

The Senate Environment and Public Works Committee, chaired by John Barrasso (R-Wyo.), didn't directly address Bloomberg BNA's question regarding whether all of these issues—brownfields, nuclear waste and drinking water—could make it into an infrastructure package.

"Modernizing America's roads, bridges, and water systems is a priority for Chairman Barrasso and the focus of the committee's infrastructure work," Mike Danylak, a spokesman for the committee majority, responded to Bloomberg BNA in an e-mail. He didn't respond to a request for clarification.

For the ozone bill, the Senate has already taken an interest in the issue. Environment and Public Works held a hearing on an identical bill introduced by Sen. Shelley Moore Capito (R-W.Va.) May 23.

Rest of the Clean Air Act Shimkus' subcommittee hasn't addressed several other issues under its newest area of jurisdiction, including the Clean Air Act. The issue proved difficult for the last Congress to resolve, with many Republicans calling for a major revamp of the law and redefined jurisdiction.

But—other than ozone—these issues haven't been on the top of Shimkus's agenda. Following recess, more of these issues—from whether carbon dioxide is a pollutant to a vetting of the economic dislocation effects of EPA air rules—could see his subcommittee's spotlight, the chairman said.

For now, there isn't any "major push" to act legislatively on these issues, Shimkus said. Similarly, there isn't much urgency to insert Congress into the review of

the Clean Power Plan rule because the Trump administration is “weighing in on it,” he said.

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News

Energy

Senate Committee to Move Nuclear Regulator Nominees Quickly

Leaders of the Senate Environment and Public Works Committee stressed their commitment to vote soon on three Nuclear Regulatory Commission nominees, weeks before the commission is set to lose its quorum unless at least one nominee is confirmed.

Losing its quorum would “degrade the NRC’s collective ability to fulfill its mission” of regulating civilian use of radioactive materials, Chairman John Barrasso (R-Wyo.) said at a June 13 hearing.

“The committee must act to restore the NRC to a full slate of commissioners expeditiously,” Barrasso said.

The committee is expected to act quickly on at least one nominee, with a planned June 15 vote on the re-nomination of Kristine Svinicki, currently the NRC’s chairman, for a third term at the commission. Svinicki’s current term is set to expire on June 30, after which she would no longer be allowed to serve and the NRC wouldn’t have a quorum, so the committee is expediting her vote.

“Right now, the one I want to move quickly is Kristine Svinicki, and get her confirmed right away,” Sen. Tom Carper (D-Del.), ranking member of the committee, told reporters after the hearing.

He added, “I don’t think we’ll have difficulty with her” getting confirmed.

The office of Senate Majority Leader Mitch McConnell (R-Ky.) said it had no guidance on timing of when a floor vote for Svinicki would be held if the committee approves her as expected.

Seek Renomination of Jeff Baran Carper said during the hearing that he is concerned with the lack of parity of Democratic and Republican commissioners being nominated. In addition to Svinicki, a Republican, the committee considered two other Republicans nominated by the Trump administration: Annie Caputo, a long-time energy policy adviser for the committee, and David Wright, a former chairman of the South Carolina Public Service Commission.

The NRC’s five commissioners serve staggered five-year terms, with three seats belonging to the political party in power in the White House. Currently there are three commissioners: Svinicki, whom President Donald Trump named as chairman in January, Stephen Burns (I), the previous chairman in the Obama administration, and Jeff Baran (D).

Baran’s term will expire on June 30, 2018. Carper said he wants Baran to be re-nominated by the White House so that the Senate can pair his nomination with Caputo and Wright’s nominations.

Light Questioning The committee members had few questions for the NRC nominees during the hearing. The hearing also included the nomination of Susan Parker Bodine to be assistant administrator of the Environmental Protection Agency’s Office of Enforcement and Compliance Assurance, and senators used most of the time asking questions of her.

Barrasso asked the three NRC nominees what were the biggest challenges for the NRC.

Svinicki said, “Enhancing our agility is a significant challenge for the agency.” She added that she joined the NRC in 2008 when there was a “nuclear renaissance where many new reactors were envisioned being under construction.” But after the Fukushima nuclear accident in Japan in 2011 and recent low power prices, there has been a major decline in new nuclear reactor build in the U.S.

“It’s hard in a large organization when we don’t face those circumstances today. We must size ourselves and adjust our policies for the energy system that we have today. So as an agency we need to be able to resource and size ourself in an agile way,” she added.

Both Caputo and Wright said that, if confirmed, they too would work to streamline and reduce the size of the agency, which experienced staff increases in the past due to an expected number of new reactor applications.

While the contentious issue of the future of Yucca Mountain as the nation’s permanent repository for nuclear waste was not brought up during the hearing, Nevada Sens. Dean Heller (R) and Catherine Cortez Masto (D) submitted a letter for the record.

“We recognize that the nominees considered before the Committee today have a history and record of strongly supporting moving forward with the Yucca Mountain repository,” the senators wrote. “We remain hopeful that the nominees, if confirmed, approach this issue without any pre-existing bias and conflicts of interest.”

There is draft legislation in the House Energy and Commerce Committee to move forward with the licensing of Yucca Mountain, located approximately 90 miles from Las Vegas. Also, the Trump administration has requested \$150 million in combination for the Energy Department and the NRC to complete and review the license.

By REBECCA KERN

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Enforcement

EPA Enforcement Office Nominee Says Federal Role Remains

The EPA's enforcement office will manage proposed budget cuts by focusing on high-profile pollution cases and leaving the day-to-day work to state regulators, the nominee to lead the division told senators June 13.

Susan Parker Bodine said she would maintain a federal role for enforcement of high-profile cases that have a deterrent effect, even as Administrator Scott Pruitt pushes for states to take a larger role in enforcement. She made her comments at her nomination hearing to be the Environmental Protection Agency's assistant administrator for enforcement and compliance assurance.

"I strongly support the goals of protecting health and the environment," Bodine told the Senate Environment and Public Works Committee, which must approve her nomination before the full Senate can vote on it.

Bodine called for coordination with states to minimize duplication with the EPA on enforcement. But she said the Office of Enforcement and Compliance Assurance is "uniquely qualified" to carry out such duties as enforcing environmental laws in cases where companies have facilities in multiple states.

The EPA also has "unique capabilities" in criminal enforcement, she added.

Pressed by Sen. Thomas Carper (D-Del.), the ranking Democrat, on the president's proposed budget cuts for the EPA, particularly a 44 percent cut in grants to states, Bodine pointed to a report by the Environmental Council of the States issued June 12 about shared roles between the EPA and states.

Bodine said it showed that a "recalibration" of the federal and state roles "can lead to more effective management at lower cost."

Compliance Assistance Bodine also responded to concerns by Republicans, such as Sen. Joni Ernst (R-Iowa) about offering more help to companies to understand regulations and comply with them.

"We can't protect human health and the environment unless the regulated community knows what they're supposed to do," Bodine said. She added that she would work with EPA program offices, which write regulations, and the states to make sure that the regulations are clear and consistent.

Experience in Environment Bodine noted she had worked on environmental law her entire career.

She most recently was chief counsel of the Senate Committee on Environment and Public Works for the Republican majority. She previously served at the EPA from 2006 to 2009 in the George W. Bush administration as the assistant administrator for the Office of Solid Waste and Emergency Response, the office that manages hazardous and solid waste management and cleanup programs.

Earlier in her career she worked on the water resources and environment subcommittee staff of the House Committee on Transportation and Infrastructure.

Lobbying records show that Bodine represented clients mostly on the Clean Air Act and the Resource Conservation and Recovery Act as a partner at Barnes & Thornburg LLP from 2009 to 2015. Her clients included

the American Farm Bureau Federation, the American Forest and Paper Association, American Process Inc., a company that develops technology for the production of ethanol from biomass; Peoria, Ill., and the Greater Peoria Sanitary District; Lima, Ohio; the Used Oil Management Associations; and Saint-Gobain Containers Inc.

Bodine's lobbying for Saint-Gobain Corp. was not related to a Superfund case involving the company in New York state, but rather for its containers division. Asked about it during the hearing, she said her work was entirely about encouraging recycling.

—With assistance from Sylvia Carignan.

BY RENEE SCHOOF

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Energy

Delayed Appliance Efficiency Rules Spark Lawsuits from States

Eleven Democratic state attorneys general and a coalition of environmental groups sued Energy Secretary Rick Perry June 13 for delaying Obama administration energy efficiency standards for five common electrical appliances (*California v. Perry*, N.D. Cal., No. 4:17-cv-3406, 6/13/17).

The Energy Department's failure to publish the rules in the Federal Register after their December approval violated three federal laws, the states' lawsuit, filed in the U.S. District Court for the Northern District of California, alleged. The Natural Resources Defense Council, the Sierra Club, Earthjustice, and the National Consumer Federation filed a similar action.

The Sierra Club has received funding from Bloomberg Philanthropies, the charitable organization founded by Michael Bloomberg, founder of Bloomberg L.P. Bloomberg BNA is an affiliate of Bloomberg L.P.

The litigation is the latest step in a drive by Democratic-led states and advocacy groups to oppose President Donald Trump's plans to cut federal energy and environmental regulations.

The consumer and commercial products covered by the lawsuits are portable air conditioners, uninterruptible power supplies, air compressors, walk-in coolers and freezers, and commercial packaged boilers.

Uninterruptible power supplies are battery backup systems used to keep computers and other electronic devices running when the power goes out; air compressors are used in a variety of commercial and industrial applications; walk-in coolers and freezers are found in grocery stores and other locations; and packaged boilers heat one-fourth of the nation's commercial space, according to the environmental groups.

30-Day Period Lapsed The efficiency standards, developed over several years during the Obama administration, went through a 45-day period for submission of correction requests after being approved by the Energy Department. They were due to be submitted for publication in the Federal Register 30 days after that, making them legally enforceable.

But the department, under the Trump administration, didn't complete the final step, the lawsuit said, calling that "a clear violation" of the Energy Policy and Conservation Act, the Administrative Procedure Act, and the Federal Register Act.

Leading the legal action were Democratic Attorneys General Eric T. Schneiderman of New York and Xavier Becerra of California. Joining in the action were Connecticut, Illinois, Maine, Maryland, Massachusetts, Oregon, Pennsylvania, Vermont, Washington, and New York City.

The appliance standards, they said, would save consumers and businesses an estimated \$11.6 billion, reduce greenhouse gas emissions by more than 159 million tons, and conserve over 242 billion kilowatt-hours of electricity, over 30 years.

AG: 'Stop Stalling' Becerra said in a statement that the department is "blocking common-sense energy efficiency standards" and called for the Trump administration to "stop stalling and start following the law."

Schneiderman and other Democratic attorneys general took credit for the May 24 publication of energy efficiency standards for ceiling fans after they sued over a similar a delay. Related standards were published May 26 for pool pumps, central air conditioners and heat pumps, and refrigeration products.

The Energy Department told Bloomberg BNA in a statement that it doesn't comment on pending litigation.

By JOHN HERZFELD

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The 11-state lawsuit is available at <http://src.bna.com/pOR>.

The advocacy groups' lawsuit is available at <http://src.bna.com/pON>.

International Climate

EU Set to Commit to Climate Deal, Free Trade in Rebuff to Trump

European Union leaders are planning to use a summit next week to declare their commitment to global free trade and the Paris climate accord in a rebuff to U.S. President Donald Trump.

The bloc's 28 leaders will issue a statement rejecting protectionism and underlining that the Paris agreement is a "cornerstone for global efforts to effectively tackle climate change, and cannot be renegotiated," according to a draft for the June 22-23 summit obtained by Bloomberg.

"The EU is strongly committed to free, fair and mutually beneficial trade and investment," the draft conclusions, dated June 12, say. "The EU will keep its markets open and fight protectionism by pushing for the removal of all trade-distorting practices."

The EU has been angered by Trump's "America First" economic policy and his rejection of global free trade, as well his decision earlier this month to withdraw the U.S. from the Paris climate pact, which he

claimed favors other nations at the expense of American workers.

'Fair Trade Conditions' Trump's trip to Europe in May, during which he failed to explicitly support the North Atlantic Treaty Organization's collective defense policy, criticized allies over military spending and said Germany is "very bad" for flooding the U.S. with cars, damaged U.S.-Europe relations and angered leaders. At a Group of Seven summit in Sicily, passages on free trade and immigration were substantially altered compared with previous years.

German Chancellor Angela Merkel used a speech last month to bemoan Trump's trade policies, referring to "a whole series of protectionist tendencies" emerging worldwide. "It's necessary to be open to achieve fair trade conditions," she said.

In another sign of the EU's increasing belief that it can't rely on the U.S., leaders will declare the bloc's commitment to working together to "develop its common security and defense." While underlining cooperation with NATO, leaders will demand strengthened EU coordination, according to the draft. The conclusions are subject to revision.

The EU's 27 leaders without U.K. Prime Minister Theresa May will hold a separate meeting during the summit to discuss the latest Brexit developments following the British general election that saw May return to office without a parliamentary majority.

--With assistance from Arne Delfs, Patrick Donahue and Jennifer A. Dlouhy.

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Energy

European Parliament Greenlights Energy Labeling Law

The European Parliament June 13 ratified a European Union regulation that will simplify the energy-efficiency labeling of refrigerators, washing machines and other domestic appliances sold in the bloc.

Under the regulation, appliances will be rated on an A-to-G scale for energy efficiency, with A indicating the most efficient products. The first products carrying the new labels will be available in late 2019.

The European Union had an A-to-G energy rating system for appliances until 2010, when it decided to adopt a new A+, A++ and A+++ categories as appliances became less energy consuming. However, the addition of new categories was considered confusing for consumers.

To prevent a situation from recurring in which energy labels become less helpful, energy efficiency criteria will be tightened whenever more than 30 percent of the appliances from a particular category are rated in the A band.

Decade-Long Transition for Some Products Michele Rivasi, a French Green European Parliament lawmaker, welcomed the changes, but said they would allow too long a transition away from the A+, A++ and A+++ labels in some cases.

While products such as televisions and domestic appliances and lighting would have to be relabeled by late 2019, heaters and boilers would be given about a decade to return to the A-to-G system, Rivasi said. “The coexistence of two systems will cause confusion,” she said.

The European Parliament sitting in Strasbourg, France, voted for the regulation by 535 to 46, with 79 abstentions. The Council of the EU, which represents the bloc’s member countries, will finalize the adoption of the regulation by formally approving it at a forthcoming meeting.

BY STEPHEN GARDNER

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The text of the regulation approved by lawmakers is available at <http://bit.ly/2s7wUTf>.

Chemicals

EPA Pledges Long-Term Elimination of New Chemicals Backlog

A top EPA official is promising to develop guidance for industry’s new chemical submissions that will help to completely eliminate the backlog of new chemicals under review.

Office of Pollution Prevention and Toxics Director Jeffery Morris told listeners on a June 12 webinar that the agency will by July clear the backlog of new chemical assessments under the Frank R. Lautenberg Chemical Safety for the 21st Century Act (LCSA). The pledge comes as the chemical sector is expressing frustration with the backlog of 600 applications, saying the agency is stifling innovation and safer chemical substitutes.

Morris said he hopes to speed the process by working with manufacturers and other interested parties to improve the pre-submission process for pre-manufacturing notices (PMNs), the documents chemical companies must file with the EPA before substances may be put on the market.

“I’m willing to devote as many resources as I can to put this program in place,” Morris said on the webinar hosted by Bloomberg BNA and the law firm Bergeson & Campbell P.C. to discuss reviewing new chemicals under the LCSA.

The new law mandates that the Environmental Protection Agency make a determination on all new chemicals. It must evaluate whether the substances present an unreasonable risk, may present an unreasonable risk, are not likely to present an unreasonable risk, or if there is insufficient information to make a determination.

Guidance Draft Set for Fall Morris said he hopes to publicly release guidance this fall to keep that backlog from building back up. This “points to consider” docu-

ment would help advise companies on what risk information may be needed before submitting notices to the EPA. Morris said he would like to beta-test the document with submitters to see if it would improve the evaluation process.

Morris previously told Bloomberg BNA in a May 26 interview that he intended to close the backlog of new chemicals in review by July. The backlog has shrunk from about 600 cases earlier this year to under 150, he said on the webinar.

Despite cuts for most EPA programs, the proposed White House fiscal year 2018 budget would raise funding for the EPA’s chemical risk review and reduction program to \$65 million — a \$6.59 million increase over fiscal 2017 levels. Industry fees are expected to help provide additional resources to run the program, including possibly boosting staff.

The percentage of new chemicals the EPA has regulated before and since the LSCA passed last June jumped from roughly 10 percent to about 70 percent, said Charles Auer, who used to run the agency’s chemicals office, and Richard Engler, a chemist who worked for the EPA’s new chemicals program. Both now work in the Washington, D.C. office of Bergeson & Campbell.

EPA Open to Discussion with Industry The process to get a new chemical onto the U.S. market appears to have become a registration system, which it never was supposed to be, said Robert Mott, global regulatory manager for Sun Chemical Corp.

Morris said some requirements of the Lautenberg act are driving the agency’s need for more data. For example, the determinations the EPA must make that a chemical is “not likely” to pose an unreasonable risk or “may pose an unreasonable risk” may sound esoteric, but are important, he said. The question of how to make those distinctions warrants further discussion, which the agency wants to have, Morris said.

The new approval process is particularly frustrating for makers of small-batch chemicals that rely on “low volume exemptions” to bypass the full pre-manufacture notice review, according to one webinar speaker. Beth Bosley, president of Boron Specialties, said the EPA has not granted exemptions to many manufacturers that plan to produce less than 10,000 kilograms per year.

Morris said he wants to discuss ways the EPA could review low volume exemption requests more quickly, and shift away from a case-by-case approach to the requests. These types of chemicals are particularly important to innovation and need prompt attention, he said.

Mott asked whether the EPA was open to expanding beyond polymers a strategy Morris described that allows certain polymers to enter commerce more quickly than they initially did after the toxic substances law was updated.

Mott referred to the EPA’s adopted policy of allowing certain compounds—which pose little risk due to their large size that limits their ability to enter the body—to be manufactured and placed on the EPA inventory of chemicals in commerce with a “Polymer Flag.” The flag means the chemical may be made by any company as long as its production keeps the polymer a low-risk, typically large molecule.

Morris said he was open to discussing the idea.

The EPA’s precautionary approach to new chemicals review will mean greater regulatory oversight for the

foreseeable future, according to a June 12 alert from the law firm Wiley Rein LLP.

“Regulatory burdens that were once imposed judiciously now should be routinely anticipated by companies that file PMNs,” Wiley Rein attorneys wrote.

“Downstream processors and users should plan to make sure they understand the allowable use restrictions and increased regulatory obligations they may have, at least until PMN submitters and EPA can reach a better understanding of the information that the agency needs to avoid an overly prescriptive result.”

BY TIFFANY STECKER AND PAT RIZZUTO

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Water Resources

Water Wars Roil Midwest in Disputes Over High-Capacity Wells

Water wars are starting to roil the upper Midwest.

Environmental activists are sounding alarms about the increase in high-capacity wells that they say will deplete groundwater supplies. On the other side are farmers, beverage companies, and other users who say they need more water to support their expanding operations.

Environmental groups intend to challenge a new Wisconsin law governing high-capacity wells while Michigan continues to contemplate an application by Nestlé Waters North America Inc. to extract more water through an existing high-capacity well.

High-capacity wells suck large volumes of water out of the ground to support increased agricultural activity and overall economic growth as well as enhance irrigation reliability. Environmentalists worry, however, that removing so much water impairs ground and surface water supplies and jeopardizes the local tourism industry.

The wells also may have an indirect effect on Wisconsin tax receipts, environmental groups claim. Lower levels in the state’s lakes and streams that are partially fed by groundwater can affect tourism and recreation.

Wisconsin’s Act 10 (SB 76), signed by Gov. Scott Walker (R) June 1, allows: high-capacity well owners to repair or replace an existing well without an additional permit, switches the permit holder from the land owner to the land itself, and makes the permit permanent.

In Michigan, Nestlé has applied for a permit to increase the amount of groundwater it withdraws. An opponent of the legislation, Michigan Citizens for Water Conservation, testified on Capitol Hill nearly a decade ago that the company’s well had by that time already lowered the water level of a nearby stream, exposing mud flats, narrowing the stream, and reducing boating and fishing activities.

Environmental groups claim high-capacity wells have the potential to negatively affect drinking water supplies and disrupt wildlife habitat and wetlands, assertions denied by supporters of the Wisconsin law.

Need for Law Farm groups say the Wisconsin law making existing well permits approved by the state’s Department of Natural Resources (DNR) permanent and making it easier to repair or replace a well without additional state approval is helpful. Further state approval. If replaced, the new well must be located within a 75-foot radius of the existing well and be substantially the same depth as the original well.

“A grower can lose his entire crop within 24 to 48 hours if a well fails and cannot be repaired or replaced,” Tammas Houlihan, Wisconsin Potato and Vegetable Growers Association executive director, told Bloomberg BNA. “A new DNR approval of these existing and previously approved wells would be redundant.”

The bill, he said, is needed to establish “a clear process for the maintenance and repair and transfer of existing high-capacity wells so farmers can rely on their well approvals.” The law also protects investments farmers make in irrigated farmland. Without the law, the value of farmland and any financial loans based on that value would be jeopardized, he said.

And complaints the high capacity wells drain aquifers and lead to depletion in surface waters such as lakes and streams isn’t scientifically proven, Houlihan said. “Our position has always been that climate has a much greater effect on stream flow and lake level than irrigation. We only use water from May to September and only when it’s needed to grow healthy vegetables,” he said.

“It’s a case for predictability and certainty for a high-capacity well owner that they’ll have water for their livestock or crops,” Paul Zimmerman, Wisconsin Farm Bureau Federation executive director of government relations, told Bloomberg BNA. Without the law farms can’t properly plan future crops, banks can’t value the land to its fully potential as irrigated land, and property sales or family-succession plans possess uncertainty, Zimmerman said.

Agricultural operations dependent on a reliable source of water fuel \$88 billion in annual economic activity in Wisconsin and support more than 400,000 Wisconsin jobs, state Sen. Scott Fitzgerald (R) said in a statement.

Legal Challenges Seen Proponents of the Wisconsin law also said the statute is needed to provide certainty for high-capacity well owners in the aftermath of a Wisconsin Supreme Court case regarding a Lake Beulah Management District ordinance, purporting to regulate wells in Walworth County, Wisconsin, was invalid as preempted by the legislature’s grant of authority to permit the DNR to regulate high capacity wells (*Lake Beulah Management District v. Village of East Troy, Wis.*, 2009-ap-2021, disposition 7/6/11). Whether that decision extends the state’s public trust doctrine to allow the state to regulate not only navigable waters but aquifers and groundwater as well is a matter of dispute.

While the doctrine doesn’t specifically extend to groundwater, opponents say the new state law’s effects on surface water can be shown through basic hydrology and physics. “The science is pretty clear: this proliferation of high-cap wells has done real damage to public resources as well as private property. We just think it’s irresponsible, we think it’s dangerous, it’s completely turning away from what Wisconsin taxpayers have ex-

pected from the DNR,” Raj Shukla, River Alliance of Wisconsin executive director, told Bloomberg BNA.

Lucas Vebber, Wisconsin Manufacturers & Commerce general counsel, disagreed, saying a state Supreme Court ruling clarifies the doctrine applies only to surface waters. Further, under the doctrine opponents of the wells could petition the DNR to investigate the wells if the opponents concluded the wells were causing environmental harm.

“This legislation simply says if you’ve already permitted a well in the state of Wisconsin you can repair, maintain, and replace that well. And when you sell your land you can transfer ownership of that well to the person who buys the land. It’s a pretty simple bill that I think a lot of hyperbole has been attached to it by groups that are trying to gin up opposition to certain industries that use high cap wells,” Vebber told Bloomberg BNA. Industries targeted by environmental groups include dairy producers and concentrated animal feeding operations (CAFOs), said Vebber, whose organization is the state’s largest business trade organization.

The opposition and legal uncertainty will likely mean the new Wisconsin law is challenged in court, several sources said. “I think it will get challenged, it’s just that we will not be one of the main parties to that,” Bill Davis, Sierra Club’s Wisconsin chapter director, told Bloomberg BNA. The reason his organization isn’t getting more involved in a possible litigation push is because other environmental groups are already preparing to challenge the law in court, Davis said.

Clean Wisconsin, a Madison, Wis.-based environmental protection group, in 2016 challenged the legality of eight high-capacity wells using similar legal theories. Those cases are pending.

Nestlé’s Michigan Well In Michigan, the state’s Department of Environmental Quality (DEQ) is contemplating Nestlé Waters North America Inc. application to increase the volume water pulled from a well near Ewart, Mich. A DEQ spokeswoman said the agency is still reviewing tens of thousands of comment letters it received about the permit application and did not predict when a decision on the application might be made.

The company wants to increase its water withdrawal to 400 gallons per minute. In 2001 the rate was 150 gallons per minute, and in April 2015 the state authorized an increase to 250 gallons per minute. The company’s latest application said it plans to bottle and then sell the water.

Nestlé did not immediately respond to a request for comment.

“It’s clear that environmental damage has already occurred at 150 gallons,” Jeff Ostahowski, Michigan Citizens for Water Conservation vice president, told Bloomberg BNA. “Water taking is only supposed to happen where it’s sustainable,” he said.

By far the biggest corporate water consumer of Michigan is United States Steel Corp., which pulled 146.4 million gallons per day in 2015 out of the ground to cool its machinery plus use in its steelmaking process. In 2015, while several farms made the list of the 20 largest water extractors using high-capacity wells, Nestlé was 85th on the list, excluding power and public water supply sectors, DEQ data said.

The Sierra Club has received funding from Bloomberg Philanthropies, the charitable organization

founded by Michael Bloomberg, founder of Bloomberg LP. Bloomberg BNA is an affiliate of Bloomberg LP.

BY STEPHEN JOYCE

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Regulatory Policy

Regulatory Revamp Fever Running High in Wisconsin

Wisconsin is poised to become the first state in the nation to enact a sweeping regulatory overhaul process pushed by corporate interests and free-market advocacy groups.

Wisconsin’s Assembly is scheduled to vote June 14 on a state version of the proposed Regulations from the Executive in Need of Scrutiny (REINS) Act. A similar bill has passed the U.S. House several times over the last five years but has never been enacted.

Now Wisconsin is leading the state-level charge against regulations with Senate Bill 15. The legislation would revise the state’s administrative rulemaking process and require legislative authorization for any departmental or agency rule triggering a costly compliance burden.

Lucas Vebber, general counsel and director of environmental and energy policy for Wisconsin Manufacturers & Commerce (WMC), said S.B. 15 is virtually assured to become law. The bill passed the Senate on May 2 and a previous iteration of the bill passed the Assembly last year. Gov. Scott Walker (R), a frequent critic of state regulation, injected a REINS-inspired provision into his budget earlier this year.

“As far as we are aware, we would be the first state to have this kind of comprehensive reform,” Vebber told Bloomberg BNA June 12.

Eric Bott, state director of Americans for Prosperity, issued a statement saying S.B. 15 would make Wisconsin “a model for the nation in providing regulatory transparency and cutting unnecessary red tape.”

Special-Interest Legislation? Government watchdogs and advocates for the environment and consumer protection concede they have little leverage to stop the measure. Some are examining options for a legal challenge following enactment.

“This is a special-interest bill that would curtail the authority of government to regulate businesses and polluters. It’s a way to just clog up the regulatory process,” said Matthew Rothschild, executive director of the Wisconsin Democracy Campaign. “It is one of several bills that are going forward in Wisconsin that would knock the teeth out of the regulatory watchdogs.”

Sally Katzen, a professor at the New York University School of Law and a regulatory policy adviser to the Carter, Clinton and Obama administrations, characterized the Wisconsin legislation as a state-level manifestation of national efforts to “deconstruct” the administrative state.

“This bill multiplies the steps for rulemaking, making the process more complicated and introducing delay and greater uncertainty,” Katzen told Bloomberg BNA

in an interview. “There has been no showing that the rulemaking process is broken, or needs to be fixed. And there has been no showing that these changes would in fact solve whatever problem the critics of the current regime believe exists.”

Scope and Economic Impact S.B. 15 modifies the administrative rulemaking process, particularly with regard to the development of “statements of scope” and “economic impact analysis (EIA).”

The bill requires the Department of Administration to review all statements of scope and determine whether an agency has full authority to promulgate a rule. DOA could then make recommendations to the governor to approve or reject the statement of scope. Proponents see the change as a check against rogue agency rulemaking.

The bill also directs DOA to perform EIAs featuring a determination of whether a proposed rule would cause implementation and compliance costs of more than \$10 million over two years. Agencies would be barred from implementing any \$10 million rules without authorizing legislation from the state Legislature or modifications cutting the cost to less than the \$10 million threshold.

Veber said S.B. 15 is essentially an extension of reforms enacted by Walker under 2011 Wisconsin Act 21. The law gave the governor wider authority over agency rulemaking and enhanced standards for EIAs.

“Before 2011 we really didn’t know how much these rules were costing,” Veber said. “Now that we know how much they cost, this takes the next step and says these costly rules should be voted on by the full legislature before they have the force of law.”

Assault on Regulation? Veber rejected criticism that the proposed REINS regime would be used as an assault on regulation. He said the \$10 million threshold would capture only a handful of regulations every five years.

An all-star cast of corporate interests lined up to back S.B. 15. The Wisconsin Ethics Commission reported lobbying by WMC, Americans for Prosperity, the American Petroleum Institute, the National Federation of Independent Businesses, the Wisconsin Builders Association and the Wisconsin Bankers Association.

Veber said S.B. 15 is part of a broader package of regulatory changes touted by business interests this year.

- Senate Bill 100 specifies that a scope statement expires 30 months after its publication in the Wisconsin Administrative Register and prevents agencies from submitting rules to the governor after a scope statement expires.

- Assembly Bill 317 creates an expedited procedure by which state agencies can repeal a rule that the agency no longer has the authority to promulgate.

- A draft bill would require all administrative rules to expire every seven years unless renewed.

Disasterous Impacts Opponents of Wisconsin’s REINS Act assert it would have a disastrous impact on regulations designed to protect the public, including regulations aimed at the environment, finance, workplace safety and consumer protection.

“Everybody seems to be washing their hands of this responsibility of protecting the public welfare,” James

A. Goodwin, a senior policy analyst with the Center for Progressive Reform, said. “The federal government pushes it to the states and then Wisconsin says, with the REINS Act, we aren’t going to have regulation either. So who’s going to step up and ultimately protect the public in terms of public health, public safety, environment and financial security?”

Goodwin speculated that any legal challenge would be tricky. He said the plaintiffs would probably have to choose a scenario in which a state regulation, modified under the new REINS Act provisions, is less protective than the applicable federal standard, generating a constitutional question.

Veber dismissed the possibility of a potential constitutional challenge, saying states enjoy wide authorities to craft and revise their regulatory processes.

“We think the bill itself and the procedures created in it are certainly constitutional,” he said. “We are not talking about applying this to rules that have already been promulgated. This is just another oversight step in the promulgation process. The legislature created the promulgation process and it can certainly frame that process in any way it chooses.”

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Energy

Lines Drawn in Fight on Increased Ethanol Sales Before Hearing

The battle lines are drawn on the eve of a Senate hearing on transportation fuel with higher ethanol blends.

The legislation in play—which would allow summer sales of fuel containing 15 percent (E15) or higher biofuel—is a nearly non-partisan policy, a rarity in today’s political environment.

The forces now girding for a fight are largely industry members contesting market share.

Petroleum groups oppose the bill (S.517), and biofuel producers argue E15 gives consumers more choice at the pump. The year-round permission to retail E15 would be a huge boon to biofuel producers and representative groups, such as the American Coalition for Ethanol and Renewable Fuel Association (RFA).

The Senate Environment and Public Works Committee will consider the bill June 14.

Smog Restrictions Summer sales are now restricted in most counties nationwide due to Clean Air Act smog regulations.

But biofuel groups, along with many lawmakers, say E15 actually produces less ground-level ozone than fuel containing 10 percent ethanol, which is approved for year-round sales, as well as most gasoline.

“Due to an outdated EPA regulation, retail gas stations are essentially prohibited from selling E15 in more than two-thirds of the nation’s gasoline market,” RFA President Bob Dinneen said in a June 13 statement. The EPA uses the Reid vapor pressure metric to gauge emission rates.

Meanwhile, American Petroleum Institute (API) director Frank Macchiarola said June 13 his group hasn't conducted analysis on E15 smog impacts. Rather, Macchiarola said the E15 legislation is "intrinsically" linked to a "broken" biofuel mandate, and therefore petroleum companies oppose it.

E15 Auto Compatibility The renewable fuel standard—which became law in 2005 and was expanded in 2007—aimed to decrease hydrocarbon emissions and reduce dependence on foreign oil.

It sets annually increasing biofuel quotas through 2022. Nearly all transportation gasoline in the U.S. now contains 10 percent ethanol, mostly made from corn, and biofuel groups are regularly pushing higher blend fuels into the market.

Petroleum groups like API say the law overestimated the amount of U.S. fuel demand in the succeeding years, thereby forcing too much ethanol onto the market.

The ethanol blends continue to face compatibility struggles for auto engines, Macchiarola said on a conference call.

"The fuel E15 is simply not ready for prime time. We have both infrastructure issues that have not been solved and create a real, essential cost burden with E15, and we also have compatibility issues," he said. "You can change the statute all you want, you can mandate the fuel all you want, but if it is simply not ready for the consumer, than we're going to raise objections."

Biofuel groups say E15 is cheaper at the pump than E10, but detractors highlight lower fuel economy as a drawback.

RFS Overhaul Afoot A bipartisan group of House lawmakers is wading through a series of meetings with groups interested in biofuel, such as petroleum companies and associations, biofuel producers, convenience store owners, and auto makers.

An overhaul could include stopping the program altogether or providing relief—possibly in the form of tax credits—for advanced biofuel producers, as well as a range of other proposals. The E15 measure could provide an olive branch to the biofuel producers.

Sens. John Cornyn (R-Texas) and Mark Udall (D-N.M.) are leading the effort in the Senate.

The June 14 hearing features testimony from the Advanced Biofuels Business Council, the Clean Air Task Force, gas retailer Sheetz Inc., an engine manufacturer, and an environmental engineering contractor. No vote has been scheduled.

By BRIAN DABBS

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Energy

The Energy Agency Trump Aims to Kill Could Instead Be a Model

A congressionally mandated study determined that an Energy Department agency the budget of President Donald Trump aims to kill should instead serve as a model for the entire department.

A 239-page report released Tuesday by the National Academies of Sciences, Engineering, and Medicine found the Advanced Research Projects Agency-Energy has been a success and backs experimental energy research that would be unlikely to get funding from the private sector.

The report, mandated by the 2007 legislation that created ARPA-E, concluded that elements of how ARPA-E operates should be adopted by other offices within the department.

"There is no denying that this program fills a critical void in funding high-risk, high-reward research – an essential ingredient for our overall economic competitiveness," said Scott Clausen, policy and research manager at the American Council on Renewable Energy.

ARPA-E was created with bipartisan support under President George W. Bush and has an annual budget of \$290 million. It has funded nearly 600 different projects ranging from flying wind turbines to personal air conditioners since it began its work in 2009. In its budget proposal to Congress, the Trump administration proposed eliminating the program.

The Energy Department did not immediately respond to an e-mail seeking comment.

According to the report, 74 patents had been issued from entities that acknowledged ARPA-E funding and 45 projects have secured more than \$1.25 billion in follow-on, private-sector funding. Thirty-six ARPA-E projects had led to the formation of new companies.

ARPA-E, modeled after the Defense Advanced Research Projects Agency (DARPA), has played a roll in funding technologies ranging from alternative fuels to battery storage and has been championed by Republican lawmakers who are unlikely to along with Trump's request to ax the agency.

"I have been a strong supporter for ARPA-E and the positive outcomes that it produces," Republican Senator Lisa Murkowski, who is chairman of the Senate Energy and Natural Resources Committee, said in an interview.

The National Academies study was led by Pradeep Khosla, the chancellor of the University of California-San Diego, and included a committee of 17 from academia and industry

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Renewable Energy

Apple issuing a Second Green Bond to Finance Green Energy

Apple Inc., which issued the biggest green bond ever sold by a U.S. corporation last year to finance projects fighting global warming, is doing it again.

The iPhone maker on June 13 issued a \$1 billion green bond to fund renewable energy generation. It builds on \$1.5 billion worth of bonds the Cupertino, California-based company sold a year ago to further its

goal of running 100 percent of its operations on renewable energy.

While companies in recent years have issued tens of billions of dollars in green bonds for projects that cut global-warming emissions, the size of Apple's first issuance fueled speculation that other companies would follow. Its latest one comes less than two weeks after President Donald Trump decided to pull the U.S. out of the Paris climate accord, an international pact to curb greenhouse-gas emissions signed by almost 200 countries.

"Leadership from the business community is essential to address the threat of climate change," Lisa Jackson, Apple's vice president of environment, policy and social initiatives, said in the statement. The company was among those that signed an open letter pledging to continue supporting efforts to meet the Paris agreement, and Apple Chief Executive Officer Tim Cook said last week that he sought to persuade the president not to withdraw.

Renewable Energy Apple said it plans to use the proceeds to finance projects involving renewable energy resources and energy efficiency, among other things. The latest bond offering includes a focus on advancing Apple's goal of a closed-loop supply chain, through which products are made using only renewable resources and recycled material.

The debt issuance means Apple doesn't have to tap its vast offshore cash reserves to fund its renewables projects. The company is investing in solar energy, hydroelectric plants and biogas facilities in Oregon, North Carolina, Nevada, Arizona and California, including \$850 million on a 130-megawatt solar farm near San Francisco over the next quarter century, and has received permission to sell power to the wholesale energy markets.

Even with cash and equivalents totaling \$257 billion, Apple has issued debt totaling \$99 billion to fund stock buybacks and dividends, because most of that money is held outside the U.S. and would be subject to a 35 percent corporate income tax if it were repatriated.

—With assistance from Anna Hirtenstein, Kenneth Pringle, Rick Green and Dana Morgan.

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Air Pollution

VW Sleuths Say Fiat Chrysler Diesels Also Spew Excess Pollution

Fiat Chrysler diesel vehicles spewed pollution as much as 20 times the legal limit, according to testing by the same researchers who exposed the Volkswagen AG emissions cheating scandal.

The revelation from a West Virginia University laboratory sheds new light on the U.S. Justice Department's allegations in a civil lawsuit that Fiat Chrysler Automobiles NV has used illegal "defeat devices," software that

helps evade emissions tests. It comes amid growing concerns about the ability of diesel engines to satisfy U.S. emissions limits and the extent to which automakers may be working to navigate around them.

Tests of Jeep Grand Cherokee sport utility vehicles and Ram 1500 pickups revealed nitrogen oxides levels in excess of what is permitted by U.S. clean-air rules, according to West Virginia University's Center for Alternative Fuels, Engines and Emissions. Nitrogen oxides can cause ozone formation and acid rain.

Fiat Chrysler, in a statement, said it has asked for more information about how the study was conducted but "this testing appears to have been commissioned by a plaintiffs' law firm for purposes of litigation."

U.S. pollution standards for emissions are based on laboratory testing, so a comparison with on-the-road tests is "invalid," the company said. The researchers appear to have obtained some of the results by driving faster and with more weight in the vehicle than the regulators call for, according to the statement.

"Despite the report, there is no regulatory protocol for conducting on-road emissions testing," the company said.

Daniel Carder, director of the Center for Alternative Fuels, said some of the on-road tests were more demanding than U.S. laboratory procedures, such as a test route on a steep ascending road. However, Carder said, "we were seeing elevated [nitrogen oxides] levels even on the ascent, which is something we wouldn't expect."

In its civil lawsuit against Fiat, the U.S. argues that any undisclosed software is illegal and that features within the automaker's emissions control systems were designed to evade emissions tests. The case focuses on diesel engines in Jeep Grand Cherokee sport utility vehicles and Ram 1500 pickups for model years 2014 to 2016, alleging that they generate more emissions in normal driving than during laboratory tests.

Fiat Chrysler Chief Executive Officer Sergio Marchionne has said the automaker never set out to cheat emissions tests. And in a statement last month, the Italian-American carmaker said it intends to vigorously defend itself "particularly against any claims that the company engaged in any deliberate scheme to install defeat devices to cheat U.S. emissions tests."

Separately, General Motors Co. was sued May 25 for allegedly putting defeat devices in two models of heavy-duty trucks from 2011 to 2016. The class-action suit by owners or lessees of more than 705,000 GM Duramax diesel trucks argues that the vehicles passed U.S. inspections despite spewing emissions two to five times the legal limit.

The Morgantown, W. Va., center that conducted the recent Fiat tests has played a central role in emissions cheating scandals before, having documented outside emissions as much as 35 times what was expected during testing of Volkswagen vehicles in 2013. Those tests were commissioned by the not-for-profit International Council on Clean Transportation, a group that works closely with regulators worldwide, and helped drive later lawsuits against Volkswagen.

In the Volkswagen tests, the center monitored emissions by driving vehicles while portable measuring equipment was attached via hoses to their exhaust pipes.

Volkswagen admitted in 2015 that about 11 million diesel cars worldwide were outfitted with so-called defeat devices. A U.S. judge on May 11 approved a \$1.225

billion settlement between the German automaker and regulators in which Volkswagen will buy back or repair some 560,000 vehicles.

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Natural Gas

Blast Backlash Hangs Over Drillers as 'Fractivists' Seek Limits

Two months after a Colorado home exploded near an Anadarko Petroleum Corp. well, the reverberations are still rattling the oil industry, driving down driller shares and raising fears of a regulatory backlash.

The April 17 blast, which killed two people and injured a third, was followed a month later by a second deadly explosion at an Anadarko oil tank in the state. The incidents have revived calls to restrict drilling near populated areas within Colorado's rich Niobrara shale formation, the fourth-most productive shale basin in the U.S. They've also spurred the state to order new inspections around thousands of oil and natural gas wells.

While the repercussions aren't expected to kill off operations in Colorado, they could raise costs for an industry already walking a financial tightrope, with oil prices down 14 percent this year. Since May 2, when authorities publicly tied Anadarko to the home explosion, company shares have lost about 15 percent, nine times more than the S&P 500 Energy Index.

"Something like that will be remembered," said Joe Ryan, an environmental engineering professor at the University of Colorado at Boulder who studies the industry. "Even if statistically it's infrequent, that may be the kind of thing that pushes the public to say, 'we have to see improvement.'"

Other drillers active in Colorado have also seen their shares slide, with Extraction Oil & Gas Inc. and Noble Energy Inc. both falling about 8 percent.

Anadarko, one of the world's biggest independent oil and gas drillers, has a long history in Colorado, dating back more than 30 years. Since the April blast, the company has deployed more than 350 workers to comply with a state order to inspect underground pipelines, spokesman John Christiansen said in an email. It's also voluntarily replacing gas-supply lines of the type implicated in the blast at thousands of wells.

"Our current focus is on taking the appropriate actions to help residents feel safe," Christiansen wrote. "We believe any legislative or regulatory action around this issue will be most effective when we have all the information from the investigation."

Still, investors remain nervous about the potential fallout, according to Michael Scialla, a Denver-based analyst with Stifel Nicolaus & Co. While Anadarko is likely to be fined, "the damage already pales in comparison to what they've lost in market value," he said in an interview. The company has shed more than \$7 billion of its value since the end of March.

The April incident leveled a home in Firestone, just north of Denver. Fire officials blamed gas that had seeped into the house from an abandoned line connected to an Anadarko well 200 feet away. Five weeks later, on May 25, an explosion and fire at an Anadarko oil tank in nearby Mead, Colorado, killed one contractor and left three others hospitalized.

The U.S. National Transportation Safety Board is probing the first incident, while the federal Occupational Safety and Health Administration is looking into the second. Anadarko, based in The Woodlands, Texas, voluntarily closed thousands of wells for inspection after the Firestone explosion and has promised to cooperate with authorities in both cases.

Resident Fears State officials have moved to dispel resident fears. Governor John Hickenlooper last month ordered drillers to inspect oil and gas lines throughout the state. Reports covering 17,000 wells had been turned in as of May 30 and are still being reviewed, according to the Colorado Oil & Gas Conservation Commission.

Through a spokeswoman, Hickenlooper, a Democrat and former petroleum geologist, declined to comment on whether he sees a need for more regulation.

What happens next is unclear. After the Firestone blast but before the Mead tank fire, the Republican-led state Senate blocked legislation to increase the buffer, or setback, required between new wells and other properties. The limit now stands at 500 feet for homes and 1,000 for schools and hospitals. The effort could be revived when lawmakers reconvene in January.

"We are in wait-and-see mode but we don't think a major strategic policy shift is likely," said Ethan Bellamy, an energy analyst with Robert W. Baird & Co. in Denver. While "fractivists in Boulder" will still fight drilling, "the practicalities of the state's budgetary reliance on oil and gas revenue likely prevent any overly draconian changes."

Failed Referendum A referendum to expand setbacks to 2,500 feet around occupied buildings and bodies of water failed to gather enough signatures last year to make it onto the November ballot. The proposal could have outlawed operations in 90 percent of the state, the oil & gas commission said last year.

A more likely change may be new restrictions on where developers can build homes near wells. The house in Firestone was constructed after the gas well was in place and highlights a loophole in Colorado regulation, said Stifel's Scialla: While oil and gas companies are barred from drilling close to homes, there are fewer limits on homebuilders who buy land near drilling operations.

The state could also tighten rules on where pipelines are placed or require more mapping and inspections of underground flow lines, the smaller conduits that carry gas and oil from well sites. It's an area that's been "woefully underregulated," Scialla said, even as drilling and homebuilding have both expanded around the state.

"I have to believe at the very least there will be more regulation around flow lines," he said. "They don't even know where half the flow lines are in the state."

Colorado's Sierra Club has called for a moratorium on all oil and gas production until the accidents are better understood and a task force to study how the industry is regulated. Politicians, nudged by millions in in-

dustry campaign donations, have become too lenient with drillers, said Jim Alexee, director of Sierra's Colorado chapter.

"What Colorado needs more than anything is an honest and objective way of looking at the industry," he said. "Resource extraction is not going to go away in Colorado anytime soon, but we need to talk about how we deal with it in a responsible way."

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Toxic Substances

BP, Shell Face Revived MTBE Claims Despite Settlements

BP and Shell Oil are back on the hook for a California water district's claims that they contaminated groundwater with the gas additive MTBE, after the Second Circuit reinstated the allegations June 12 (*Orange Cty. Water Dist. v. Texaco Ref. & Mktg. Inc.*, 2017 BL 198084, 2d Cir., No. 15-3934-cv, 6/12/17).

The ruling allows the Orange County Water District to pursue claims for methyl tertiary butyl ether contamination at hundreds of sites within its jurisdiction.

A pair of settlements between BP, Shell and the Orange County District Attorney don't bar the water district's claims, the court said.

The DA and the water district do not have an identity of interest, the court said, reinstating the claims.

The water district sued multiple companies in 2003, including BP and Shell, alleging that MTBE in gasoline sold by BP, Shell and other defendants leached from underground storage tanks and contaminated, or threatens to contaminate, the district's groundwater.

A trial court dismissed the claims against the two companies, citing the district attorney's 1999 MTBE suit, which resulted in settlement with BP in 2002 and Shell in 2005.

Judge Barrington D. Parker wrote the opinion, joined by Judges Reena Raggi and Peter W. Hall.

Miller, Axline & Sawyer represents the water district. Sedgwick LLP represents Shell.

Arnold & Porter LLP represents BP.

By PETER HAYES

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Full text at http://www.bloomberglaw.com/public/document/In_re_Methyl_Tertiary_Butyl_Ether_MTBE_Prods_Liab_Litig_No_153934?doc_id=XR7AF95000N.

Proxy Voting

BlackRock Sheds Light on Proxy Decisions When Boards Balk

The world's largest asset manager is experimenting with near real-time reporting on what happens when companies don't respond to its concerns on topics such as climate change.

BlackRock Inc. says it's willing to be patient with companies it invests in, but if it doesn't see progress, it won't hesitate to use proxy voting to send them a message. Now it's disclosing some of its recent votes and the reasons behind them.

When BlackRock first supported and helped pass a shareholder proposal in May seeking a report from Occidental Petroleum Corp. on the business impacts of climate change, it put out a vote bulletin explaining why it didn't follow the board's recommendation. It's put out four more bulletins, including most recently one saying why it voted for a similar climate proposal at Exxon Mobil Corp.

BlackRock's latest bulletin also showed that it voted against two Exxon directors after repeated requests to meet with the board to better understand its oversight of climate risk and other issues were rebuffed.

The bulletins are part of "a bigger story" of transparency around engagement between companies and investors and the impact it has on voting, said Allie Rutherford, a partner at CamberView Partners LLC, which advises public companies on shareholder activism and engagement. "I think we're going to see increased reporting as investors explain how they incorporate engagement into their vote decisions," Rutherford told Bloomberg BNA.

High-Profile Votes Mutual fund managers are required to disclose their voting records and policies by August of each year. The chief executives of Fidelity Investments and the Vanguard Group fought the requirement when it was first proposed by the Securities and Exchange Commission because they thought it would politicize proxy votes.

Fidelity, Vanguard and State Street Global Advisors, the world's third-largest asset manager, didn't comment on whether they'd ever consider going beyond required reporting to do the same kind of voluntary disclosure as BlackRock.

BlackRock already explains votes in quarterly reports, but those explanations usually don't identify the company. Its plan with the bulletins is to publish, on a very limited basis, statements on certain "high-profile" proposals up for consideration at companies' annual meetings, either on the day of the vote or shortly after.

"We want to be more transparent around what's important to us and where we're spending our time," BlackRock spokesman Ed Sweeney told Bloomberg BNA. The bulletins are meant to show clients and others how votes are used when companies are unresponsive to its "engage first" approach.

"This is a more public forum than the private-style engagement that a lot of institutions tend to start with," Donald W. Cassidy, executive vice president of business development and corporate strategy at proxy solicitor Georgeson LLC, told Bloomberg BNA.

Voting Records Cassidy, who previously led the corporate governance policy and voting process for Fidelity's U.S.-based funds and institutional client portfolios, said the bulletins are "an interesting outgrowth" of the different ways that institutions are now seeking to communicate with companies and influence their policies.

State Street Global Advisors is also wielding its voting power on topics such as bringing more women onto corporate boards. The investment management division of State Street Corp. says it will vote against board members responsible for director nominations or governance at companies that fail to act on gender diversity.

As large fund managers get more vocal about what they want to see from portfolio companies, some have been called out by researchers and other investors for not voting in line with their stated positions.

"It isn't just voting and it isn't just engagement," Fiona Reynolds, managing director at the Principles for Responsible Investment (PRI), told Bloomberg BNA. "It's the combination of the two things."

This proxy season, the United Nations-backed PRI, which includes BlackRock, Fidelity, State Street and Vanguard as signatories, launched an online platform where members can declare their proxy votes to each other ahead of time. "We would really like to see much more transparency around voting," Reynolds said.

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BlackRock's vote bulletins are available at <http://src.bna.com/pNx>

Forests

Brazil's Most Degraded Woodland Sees Deforestation Spike

The deforestation rate in Brazil's most degraded woodland spiked nearly 58 percent between 2015 and 2016, the largest increase in a decade, according to an environmental nonprofit.

The rise in deforestation caused the loss of 122 square miles of cover in the Atlantic Forest, a tropical and subtropical woodland that runs along Brazil's coast, according to a report issued by the SOS Atlantic Forest Foundation. The forest has now dwindled to 12.5 percent of its original size of more than 500,000 square miles according to the foundation, which monitors and measures deforestation.

The increase marks a major reversal from recent years, when the woodland's annual deforestation rate tended to drop, the foundation found. Mario Mantovani, public policy director for the SOS Atlantic Forest Foundation, blamed the deforestation rate spike on amnesty provisions included in the revised 2012 Forest Code, Brazil's main woodlands protection law.

The law suspended fines for illegal cutting of permanent protected areas, such as no-cut riverbank areas, and of parcels of up to 988 acres that took place prior to

July 22, 2008, when a decree set more rigorous rules for restoring illegally cleared land. To get such amnesty, landowners have until Dec. 31 to provide state agencies with rural environmental registrations (CARs) of their property that includes maps with GPS coordinates pinpointing any areas that were illegally cut.

"The 2012 Forest Code's amnesty provisions created a culture of impunity and the expectation of future amnesty, which encourages more illegal deforestation," Mantovani told Bloomberg BNA June 12. "And as landowners don't have to file CARs until the end of 2017, we believe that many, including in the Atlantic Forest, illegally cut land between 2015 and 2016 to claim they had cut it before July 22, 2008. Doing so increases property values because it increases the amount of productive land they have."

A Brazilian environmental official told Bloomberg BNA that there is no evidence linking the revised law with increased deforestation, despite the public perception that there is such a link.

"The Environment Ministry knows of no study that shows a link between the revised 2012 Forest Code and an increase in the deforestation rate of any Brazilian biome, including the Atlantic Forest," Gabriel Lui, deputy director at the Environment Ministry's Department of Forests and Control of Deforestation, said June 13.

By MICHAEL KEPP

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A synopsis of the report is available, in Portuguese, at <http://bit.ly/2r54Dh6>

Renewable Energy

Canadian Investor Applies for Chernobyl Solar Project in Ukraine

Canadian investor Refraction Asset Management Ltd. is seeking permission to install 100 megawatts of solar panels inside the radioactive exclusion zone surrounding Ukraine's defunct Chernobyl nuclear plant.

A vehicle owned by the investor, TIU Canada, applied for two blocs of 50 megawatts each around Chernobyl, according to Michael Yurkovich, president of the Calgary-based Refraction Asset Management. Renewable energy developers from China to Germany have said they're also ready to invest in Ukraine solar projects inside the exclusion zone.

"We are actively working with the government of Canada and development partners to complete this process," Yurkovich said in interview in Kiev on June 10. "Canada has been strongly encouraging Canadian infrastructure investing and development of Canadian-Ukrainian trade."

Ukraine seeks to promote investments in renewable energy as part of efforts to diversify power supplies to increase economic competitiveness and improve transparency into the energy market. The country of 42.5 million people has established a feed-in-tariff system through 2030, which offers fixed prices that decline annually. As of April 1, solar accounted for about half the 1,184 megawatts of renewable energy fed onto the

power grid from 316 facilities, according to the government.

TIU Canada broke ground on its first 10-megawatt solar project in Nikopol in central Ukraine last week. Construction is expected to be completed in September and power will be supplied to the grid after feed-in tariff approvals are received, Yurkovich said. TIU is working with a Chinese panel supplier, local Ukrainian engineers, and Canadian specialists to complete the C\$20 million (\$15 million) facility.

Two additional Ukraine projects are scheduled to generate 20 to 30 megawatts of power by year end. Additional projects could raise capacity to 50 megawatts in 2018, according to Yurkovich. TIU Canada sees opportunity for power export to the EU and is looking for institutional and local partners for its projects in Ukraine, he said.

“Ukraine provides clearly outlined legislation which gives advantage to develop projects in the next three years in solar and wind in Ukraine,” Yurkovich said. “We are looking at capitalizing on this opportunity of being among first movers in renewable power sector.”

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Energy

Canadian Oil Production to Rise 33% by 2030, Straining Pipelines

Canada will churn out 33 percent more oil by 2030, exceeding the capacity of existing pipelines to ship the product to market and threatening producers' competitiveness, according to the industry's main trade group.

The nation's output will increase to 5.1 million barrels a day from 3.85 million last year, the Canadian Association of Petroleum Producers said June 13. Production from the oil sands will increase 53 percent to 3.7 million barrels.

Canada's oil producers have long argued that the lack of pipelines reduces their profitability and makes them too dependent on shipments to the U.S. All told, Canada's pipelines will need to be able to move 5.5 million barrels a day by 2030, which is 1.5 million barrels more than the system's current capacity, the trade group said.

The situation became more urgent after last month's election in British Columbia resulted in a power-sharing agreement between the New Democratic and Green parties, which have vowed to fight Kinder Morgan Inc.'s proposed expansion of its Trans Mountain pipeline. That project, running from Alberta to the Pacific Coast, would add 590,000 barrels of capacity and increase Canadian producers' access to markets in Asia.

“The urgent need for new pipelines to increase our competitiveness continues to be one of the biggest challenges facing our industry,” said Tim McMillan, the group's chief executive officer. “Without access to emerging new markets, we're putting our economy at risk.”

Capital spending in the oil sands will decline to C\$15 billion (\$11.3 billion) this year, less than half of the C\$34 billion that was spent in 2014, the group said. Drilling by conventional producers will increase 70 percent from last year, but will still be 40 percent below 2014.

The organization's forecast is based on an annual survey of its members conducted in March and April.

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The association forecast is at <http://src.bna.com/pOF>.

Renewable Energy

Brazil's Biggest Wind Farm Starts Spinning Turbines

The largest wind farm in Brazil has started operation as the research arm of the Mines and Energy Ministry predicts wind power will grow in the nation's energy mix over the next year.

Casa dos Ventos Energias Renovaveis SA's 1.8-billion-real (\$541 million) Ventos do Araripe III wind farm complex began operation June 9, the company announced. The complex, which sprawls over 870 square kilometers (336 square miles) of land in northeastern Pernambuco and Piaui states, includes 14 different wind farms with the capacity to generate 360 megawatts of power and provide energy to 400,000 homes.

Wind power should account for 6.6 percent of Brazil's electricity mix in 2017, up from 5.4 percent in 2016, according to the EPE, a division of the Mines and Energy Ministry.

Casa dos Ventos Energias Renovaveis SA sold future wind power from the Ventos do Araripe III wind farm complex at government-held renewable energy auctions in 2013 and 2014 through long-term contracts, which require it to begin delivering electricity in 2017 and 2018 respectively, a company spokeswoman told Bloomberg BNA June 13.

By MICHAEL KEPP

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A statement about the inauguration of the wind farm complex is available in Portuguese at <http://bit.ly/2raA3nI>.

Oil & Gas

Water Concerns Keep Australia From Getting at Gas Reserves

In the tight-knit Outback town of Narrabri, the cold-shoulder treatment farmer Peter Gett has felt over the natural gas wells on his property has shown him that promoting Australia's energy security comes at a cost.

The fifth-generation wheat grower opened gates and cleared tracks to smooth a path for exploration of the gas reserves beneath his farm. Seven years after allowing three wells to be drilled, he says enthusiasm for the gas project run by Santos Ltd., Australia's third-largest energy producer, isn't shared by the majority of his neighbors worried that extracting methane from between layers of coal could ruin the town's precious water wells.

"People who aren't directly involved are skeptical and wary," Gett said. Anti-drilling placards have been nailed to boundary fences by activists and even farmers who support the project have left the signs up, fearful of being ostracized. "It's close to a fifty-fifty split," the 60-year-old said. "Some farmers don't want to get on the wrong side of businesses who oppose the project. They keep quiet instead."

Others have been more vocal, even locking themselves to machinery to stop drilling operations, and 45 protesters were arrested last year. Gas has divided the 13,000-strong community in Australia's cotton-growing heartland, making it a microcosm of a national debate. Land users and environmentalists are pitted against companies and conservative-government politicians wanting to secure Australia's energy needs.

That has meant a plan by Santos to drill 850 wells in the farms and forest surrounding Gett's property has been mired in red tape, delaying the project by at least two years. The company has only 16 wells operating around Narrabri six years after its purchase of a controlling stake in the venture made it the largest holder of gas reserves in the state.

A decade after the shale revolution transformed the U.S. energy landscape, Australia—poised to overtake Qatar as the world's biggest exporter of liquefied natural gas—is experiencing its own quandary over natural gas.

Gas Shortage While the country is endowed with some of the world's largest reserves of the fuel, a drive to export gas to energy-hungry customers in Asia has spawned a crisis at home. As it currently stands, Australia's most-populous eastern states won't have sufficient gas to power their own generators next year.

The gas pinch at home is now so acute that plans have been hatched to build a terminal which can receive imports of LNG so customers aren't caught short at peak periods. It would be cheaper to buy supplies from Western Australia or Papua New Guinea than relying on the domestic pipeline network, analysts at Credit Suisse Group AG wrote in a report June 13.

Santos, based in Adelaide, South Australia, is at the core of the dispute. Because its gas fields have underperformed, the company has needed to buy supplies from the domestic market to help cover its export commitments, worsening the prospects for a local shortage. Developing the project in Narrabri, 520 kilometers (320

miles) northwest of Sydney in New South Wales state, would help plug the shortfall.

The town and surrounding district could supply as much as half of the state's gas needs, according to Santos, which has promised that none of the gas will be siphoned off to lucrative export markets.

For Gett, cashing an annual paycheck of A\$30,000 (\$23,000) is a bonus from living above productive gas fields. About a third of eastern Australia's gas is now supplied by coal-seam gas.

The concern for farmers is that, by drilling through layers of rock and sandstone to tap the gas, the hydrogeological structures that maintain vast aquifers used to supply water for livestock and irrigating crops could be compromised, leading to water loss or contamination for farms sharing the resource. There are also questions over the disposal of hundreds of thousands of tons of salt the project will produce.

Impact Statement A 7,000-page environmental impact statement received feedback from community and indigenous groups, environmental activists, and the cotton industry, the state government said in a statement June 14. Most of the almost 23,000 submissions objected to the project.

The coal seams that Santos is targeting have fractured naturally beneath Narrabri, meaning it won't need to undertake any hydraulic fracturing, which involves injecting a mixture of water, sand and chemicals to crack open formations to help release gas, the company said. It plans to drill first vertically, and then horizontally to intersect the natural fractures. In addition, Santos says it is using layers of steel and cement in wells to protect aquifers.

Still, Narrabri farmers have been spooked by the experience of their counterparts 530 kilometers north in Queensland state. In the town of Roma, where Australia's first gas field was discovered in 1900, landowners have told stories of gas leaks, contamination, and corporate bullying to bus-loads of curious Narrabri locals over the past few years. Santos is the operator of one of Queensland's three liquefied natural gas projects.

Sally Hunter, who owns a farm 48 kilometers from Narrabri, grew up in Roma and says she harbors a deep mistrust of the petroleum industry. "That's where my skepticism comes from," she says. "People didn't think they had any option back then."

Others have been swayed by activists drawing on missteps and fears in both Queensland and the U.S. to oppose the project. Narrabri resident Tanya Charlton saw scenes from the 2010 anti-fracking film "GasLand" and was concerned about the health impacts for Narrabri if the project proceeds, she said.

"I know what happened up in Queensland and I know what happened over in America, and I'm worried about that happening here," Charlton said.

Bruce Clement, the Santos executive in charge of the Narrabri venture, acknowledges that the project is divisive. The 134-year-old town, whose name is derived from the Aboriginal word meaning "big creek" and "forked sticks," is best known for the cotton fields that zigzag across its surrounding plains.

Public Mistrust Clement, a former Exxon Mobil Corp. executive who spent part of his childhood in the sleepy rural town and went to school with farmer Gett's wife Helen, said part of the public's mistrust of the gas industry comes down to being uninformed.

“I talk to quite intelligent people—tertiary-educated people in Sydney—who just say coal-seam gas is bad,” Clement said. “I ask them what is coal-seam gas and they actually don’t know. For a tertiary-educated person, you think that’s bloody stupid that you have formed an opinion without any knowledge.”

Laden with US\$3.5 billion of debt and a stock price hovering just above a two-decade low, Santos is under pressure to turn the project into a money-making endeavor. It’s invested A\$1.5 billion, including the cost of buying former operator Eastern Star Gas in 2010.

Clement says the Narrabri project could have been handled better before its acquisition by Santos, describing Eastern Star Gas’s attempts to “exploit an opportunity early” as leaving a number of “legacy issues.”

Polluted water spills in 2013 from coal-seam gas production under Eastern Star Gas heightened distrust in the community. Clement, who is reluctant to apportion blame, says Santos is confident with its environmental monitoring. “The government to some degree allowed what was being done, but that’s not going to be our approach,” he said.

In an area overlooking three existing water ponds not far from the site of the 2013 pollution, Clement holds up a chart showing how drilling for coal-seam gas extends far beneath Australia’s largest groundwater system: the Great Artesian Basin.

Gett, the farmer paid by Santos for three gas wells, said it was economics that won out in his case.

“In all fairness, if this company came onto my land and I got nothing from it, none of us would be for it,” he said in an interview on his farm. But, with no evidence of harm to his water supply and limited impact on his land, Gett is willing to accommodate more gas wells.

“If they want to do 12 wells on my property, I will take them,” he said. “I can’t see a problem with it.”

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Practitioner Insights

Chemicals

Practitioner Insights: Rapid Tests Transform Chemical Safety Calls

DR. RUSSELL THOMAS AND DR. JOHN WAMBAUGH

The Environmental Protection Agency needs to make safety-related decisions on thousands of chemicals to accomplish its mission. These range from prioritizing chemicals for additional study to performing in-depth risk assessments and are typically based on an understanding of the chemistry, hazard (inherent toxicity), dose-response, and exposure.

The ability to fulfill these obligations is challenging due to the lack of hazard and exposure data available for these chemicals and the cost of generating data on potential health effects using traditional animal toxicity tests. Apart from the economic considerations, there are ethical concerns with the number of animals required to thoroughly test all the chemicals the EPA regulates.

To address these challenges, the EPA is developing faster and more economical approaches to measuring and predicting these properties and incorporating the data into a range of online dashboards to support regulatory and health decision-making.

By the Numbers Lack of data: Although nearly 60 percent of chemicals on various EPA chemical lists have acute toxicity data, less than 30 percent have data for other types of toxicity such as cancer, developmental, and reproductive endpoints. Of the chemicals that have at least limited toxicity information, less than one-fifth also have exposure information.

Costs: The costs and time associated with traditional animal toxicity testing is significant. A developmental toxicity test costs approximately \$100,000 per chemical and can take up to six months to complete. An animal cancer bio-assay costs nearly a million dollars and takes several years to perform.

Dr. Russell Thomas is the Director of EPA's National Center for Computational Toxicology. He has broad multidisciplinary training in chemistry, physics, and toxicology and has worked in the pharmaceutical sector and with chemical safety institutes in the past.

Dr. John Wambaugh is a physical scientist with EPA who works as a team member on the ToxCast and Virtual Tissues projects and is a co-leader of the Rapid Exposure and Dosimetry project.

During the past 12 years, the EPA's Computational Toxicology (CompTox) research efforts have developed transformative scientific approaches that can help prioritize chemicals to find those that are most in need of testing. To date, the EPA's CompTox efforts have compiled or generated data on thousands of chemicals. Apart from prioritization, these approaches are showing promise for use in a broad range of chemical-safety decisions, including screening-level chemical assessments, as well as supporting in-depth risk assessments.

Chemical assessments typically include chemistry, hazard (inherent toxicity), dose-response, and exposure and incorporate uncertainty and variability in each area. This article summarizes progress in the EPA's CompTox research in each area and how it is being integrated to support chemical safety decisions.

Chemistry The foundation of chemical safety testing relies on high-quality chemistry information. This includes chemical structures, identifiers, and physicochemical properties. To provide the chemistry data needed for rapid and efficient risk assessments, the EPA recently released the CompTox Chemistry Dashboard (<https://comptox.epa.gov/dashboard/>), which provides access to a variety of information on more than 700,000 chemicals.

Within the CompTox Chemistry Dashboard is information on chemical structures, intrinsic properties, identification of related chemicals or mixtures, and physicochemical properties. This database includes thousands of experimental measurements of chemical properties, as well as predictions made by quantitative structure activity relationships (QSAR) developed using the measured data. For predicted chemical properties, the domain of applicability of the predictions are provided and details on the model are provided in standard QSAR Model Reporting Format (QMRF), where available.

Hazard To identify the potential hazard of a chemical, the EPA's Toxicity Forecaster (ToxCast) uses advanced high-throughput screening technology to rapidly screen thousands of chemicals for effects on biological processes and pathways. ToxCast has so far generated biological activity data on more than 1,800 chemicals in 700 high-throughput assays that cover a range of high-level cell responses and approximately 300 cellular signaling pathways.

In addition to ToxCast, the EPA participates in the U.S. Federal Collaboration-Toxicology in the 21st Century (Tox21), which includes the National Toxicology

Program (NTP), National Institute for Environmental Health Sciences (NIEHS), National Center for Advancing Translational Sciences (NCATS), and the Food and Drug Administration (FDA). The Tox21 partnership also uses high-throughput screening to evaluate potential hazards and has screened almost 10,000 chemicals across 50 assays.

An essential component in the interpretation of high-throughput screening data for hazard is the integration of this data into predictive computer models. To date, these computational models have included statistical and dynamic models, as well as empirical and biological based models.

Examples of pathway-based models are those for estrogen and androgen receptors in the endocrine system. The computational models combine data from multiple assays in the pathway to reduce statistical “noise” and compensate for technological deficiencies. Statistical models also have been developed to predict organ-specific hazards, identify mode-of-action, and estimate toxicological “tipping points” associated with the concentration-dependent transition from cellular adaptation to adversity.

Lastly, the high-throughput screening assays have been used to inform and put parameters around dynamic computational modeling of biological processes involved in human development to understand the impacts of chemically related perturbations.

Dose Response The high-throughput screening data in ToxCast and Tox21 are collected in concentration-response format, that is, looking for increased disease response as the chemical concentration is increased. An automated data analysis pipeline the EPA developed provides a quantitative estimate of the potency of a chemical for disrupting a biological process or pathway.

To be useful for risk assessment, however, the potency estimate must be translated into an external dose using toxicokinetics. This is the study of how chemicals enter, distribute around, and leave the body and affords a bridge between toxicity and exposure assessment by providing a quantitative link between external exposure to a chemical and resulting blood and tissue concentrations.

Although traditional animal-based toxicokinetic studies are expensive and time-consuming, a collection of methods called high-throughput toxicokinetics have been used in the pharmaceutical industry to determine likely efficacious doses when designing human clinical trials. These methods rely on high-throughput measurements of plasma protein binding and hepatic metabolism.

The experimental data from these assays are scaled from the laboratory setting to predicted human (or animal) conditions using *in vitro*-to-*in vivo* extrapolation to build predictive toxicokinetic models. These toxicokinetic models can then estimate blood concentrations associated with a given dose.

With some modification for application to environmental and industrial scenarios, these *in vitro* methods and toxicokinetic models allow translation of potency estimates from the ToxCast and Tox21 high-throughput screening assays to external dose equivalents.

Exposure Exposure data such as daily chemical intake rates are needed to provide a risk context to the hazard dose response relationship. Understanding how much chemical a person is exposed to can be a signifi-

cant challenge, however, since human exposure involves human activity.

For example, exposure could result from the amount of air breathed, food eaten, and/or consumer product used. Since the exposure event is often difficult to observe, surrogate measures are used either leading to exposure (such as concentration of chemical in air) or resulting from exposure (such as amount of chemical excreted from the body). In either case, mathematical models have been developed to relate the surrogate measures to exposure estimates.

For example, an ongoing survey by the Centers for Disease Control and Prevention (CDC) quantifies markers of chemical exposure in the urine of a representative sample of the U.S. population. Using knowledge about human physiology (amount of urine excreted in a day) and several simplifying assumptions, daily exposure rates were inferred for approximately 100 chemicals. The process is complicated by the fact that the chemicals monitored in the urine are often metabolites of the parent chemical and, in some cases, different chemicals share the same metabolite.

The EPA’s Exposure Forecaster (ExpoCast) is developing computational and experimental approaches to provide quantitative exposure estimates across thousands of chemicals using limited data. ExpoCast has used computer-driven statistical approaches (including machine learning) to identify trends in daily exposure rates inferred from the CDC data.

Information on national production volume and product use can broadly predict the CDC exposure monitoring data. These trends are then used to predict exposures to other chemicals that are lacking exposure measurements.

For example, chemicals with sources within the home have been found to be more likely to have higher exposure rates than other chemicals. This finding has led to an increased effort to develop new databases of chemicals known to be in consumer products in order to increase the accuracy of the exposure predictions. These databases are being expanded with new experimental methods for the analysis of chemicals in the home (including house dust and consumer products).

Despite these efforts, a significant number of chemicals still have no easily obtained information about how they are used, leading to the development of new computer models that can predict likely uses for a chemical based on structure.

Uncertainty and Variability A critical part of any chemical assessment or prioritization activity is an understanding of the uncertainty and variability surrounding each component used in the process.

In this context, uncertainty is defined as a lack of knowledge, while variability is a true difference among a population. For decades, the uncertainty and variability in traditional animal studies were captured using standardized adjustment factors called “uncertainty factors.”

By contrast, efforts to characterize uncertainty and variability in high-throughput hazard, toxicokinetic, and exposure data have generally focused on chemical-specific methods. This focus leads to better informed chemical safety decisions, as well as the ability to identify where in the process additional data may be useful for reducing uncertainty in risk decisions.

In the analysis of the high-throughput screening assays, statistical methods are being developed and evaluated to establish uncertainty bounds around the potency and efficacy estimates. These statistical methods involve resampling the data and refitting the concentration response curves thousands of times to quantitatively estimate the uncertainty.

For the toxicokinetic modeling, the experimental uncertainty in the plasma protein binding and hepatic metabolism is being propagated to the toxicokinetic models that estimate steady-state blood concentrations from a given administered dose. Inter-individual variability is incorporated into toxicokinetic models by changing how physiological parameters (such as age and body weight) are distributed across the population.

Finally, the ExpoCast model is built on a statistical framework that provides quantitative estimates of uncertainty and predictions for a range of demographic groups within the U.S. population (that is, variability).

Moving the Science Forward The EPA CompTox effort has developed and applied innovative new approaches to toxicity testing, toxicokinetics, and exposure. The resulting data provide a valuable resource for beginning to shift from the traditional paradigm of testing small numbers of chemicals in resource-intensive animal studies toward higher throughput approaches that evaluate disruption of biological processes and pathways across thousands of chemicals.

The initial translation of the developments in the EPA CompTox effort into regulatory decisions occurred first in the U.S. Endocrine Disruptor Screening Program. During the past two years, the agency has announced its intent to use the high-throughput and computational approaches for replacement of specific *in vitro* and *in vivo* tests in the Tier 1 EDSP battery and prioritizing chemicals for further evaluation.

In building on these successes, the EPA is developing a semi-automated online decision support tool with a dashboard interface called RapidTox. This online tool will integrate a range of information related to chemical properties, fate and transport, hazard, and exposure. It will be transparent and interactive enough to enable expert users to review the assumptions made. It also will be flexible enough to refine the data or models used as needed for specific decision contexts.

Initially, the RapidTox dashboard is being developed to support chemical safety decisions using two case studies. The first case study is to prioritize non-food use pesticidal inert ingredients for additional study in partnership with the Office of Pesticide Programs. The second case study is to estimate screening levels with associated uncertainty for data-poor chemicals at Superfund sites in partnership with the Office of Land and Emergency Management and the Regions.

Following completion of the case studies, the RapidTox tool will be expanded to cover the full range of decisions related to chemical safety that the EPA faces. The RapidTox tool will enable the agency to make decisions on thousands of chemicals quicker, cheaper, and more transparently.

Dr. Russell Thomas is the Director of EPA's National Center for Computational Toxicology. He is a trained toxicologist with multidisciplinary experience in molecular biology, bioinformatics, and genomics and has worked in the biotechnology industry and with chemical research institutes in the past.

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The views expressed in this article are those of the authors and do not necessarily represent the views or policies of the U.S. Environmental Protection Agency.