

## Electric Grid Expert Lays Out Why It's Basically Impossible To Use 100% Green Energy



Andrew Follett  
Energy and Science Reporter

THE DAILY CALLER  
NEWS FOUNDATION  
Energy

Powering the grid with 100 percent green energy may sound like a nice idea, but it would actually be extremely difficult to do, an electric grid expert told Greentech Media in an interview Wednesday.

“Let’s say we have a 100% [renewables] system, hypothetically,” Christopher Clack, a National Oceanic and Atmospheric Administration (NOAA) mathematician, [said in the interview](#).

“Now you have got to think about working out forecasting of load and of the weather, because that’s your fuel source now, seasons or years ahead of time with really good accuracy so that you know how much energy to store, how much to shed, how much to transmit, how much to consume, and you need to do that all the time, predicting far enough ahead that you will never run out of power, because you have got nothing there as backup,” Clack said.

Clack made waves with a recent study that challenged a widely-cited 2015 study claiming the U.S. could run on 100 percent green energy. Clack and 20 colleagues argued the 2015 research “used invalid modeling tools, contained modeling errors, and made implausible and inadequately supported assumptions.”

“Policy makers should treat with caution any visions of a rapid, reliable, and low-cost transition to entire energy systems that rely almost exclusively on wind, solar, and hydroelectric power,” wrote the 21 experts, led by Clack. Clack was worried politicians took the 2015 study too

seriously, and 2016 Democratic presidential contender Bernie Sanders touted the study in his promise to move the U.S. off fossil fuels.

Using 100 percent green energy would require a total restructuring of the world’s economy that’s “unnecessarily daunting” compared to simply adapting to global warming or reducing emissions via other methods, according to Clack.

Clack said low-emissions technologies, like nuclear power and natural gas, would be more cost effective for reducing carbon dioxide (CO<sub>2</sub>) emissions.

To function, power grids require [demand to exactly match supply](#), which is an enormous problem for variable wind and solar power.

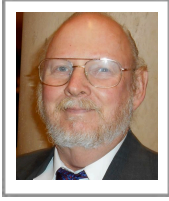
Wind and solar can also burn out the grid if they produce too much, or not enough, electricity, leading to brownouts or blackouts. Such damage has already occurred in power grids relying too much on solar and wind power — for example, in California and Germany.

When the islands of Tasmania and El Hierro tried to power their economies with 100 percent green energy, both islands quickly switched back to diesel generators after suffering from reliability problems and soaring costs. The analysis suggests it would have taken 84 years for El Hierro’s wind and hydropower systems to simply pay back their capital costs. ❁❁

### CONTENTS

- 1, 5, 11** -Power Issues: Electric Grid Expert; Power Plant Construction Costs; Idaho Power Plant Costs;  
**2,, 4-5** - Water Issues: MWD Water Fix; Key to Water Reliability & Sustainability  
**2** - President’s Message                      **3**, - Mystery History ; Board of Directors; Board Member Resignations  
**6** - Book Review: MIRACLE ON THE SALT RIVER: *Water, Family & Farming in the Arizona Desert*, by Meredith Haley Whiteley.  
**7 - 11** 48 Environmental Rules on the Way Out Under Trump                      **11-** Join / Renew WAPA Membership; Soot Fouls Solar

**Water and Power Associates, Inc.** is a non profit, independent, private organization incorporated in 1971 to inform and educate its members, public officials and the general public on critical water and energy issues affecting the citizens of Los Angeles, of Southern California and of the State of California.



the  
President's  
Message



As I begin to write this article the 210 freeway is closed because of the La Tuna Canyon fire. It seems like half of California is on fire, at least from our perspective of just a few miles away. From what I have read, it appears that this fire is the largest in Los Angeles City history.



And while there are fire suppressants water still seems to be the number one choice whether we scoop it from the ocean or a reservoir or land the airplane or helicopter and fill up.

We have a growing population. Presently the state's population is around 39 million. Think about that now and think about what steps might be taken to prepare for the future. I don't know how many aircraft there are that can scoop water from the ocean, but there are some. Do we really know if those aircraft are enough for the next huge fire. I don't know. I don't know if anybody can really determine that either. All we can do is prepare and hope for the best. Seawater is clearly plentiful if we can get enough of it to the fire scene in time.

What I don't know is the effect of dropping large amounts of seawater on the next great fire. The fire may be out but how long will it take for the land to recover. What are the effects on the land, if any? How do we prepare for that? If we can work on methods to desalinate seawater now, so that there is no issue when the next great fire strikes and we have to use seawater, might be a prudent thing to do.



Whose motto is it that says be prepared? We should think about this and do something about it now while we can because there will be another fire and it could be very big we simply don't know.

As always I value your thoughts and ideas. ❁



## Metropolitan Water District California WaterFix Project



[Oct. 10,2017] Following a 2 hour meeting to a packed audience, the MWD Board voted by a two to one margin to approve the California WaterFix Project proposed by Governor Brown.

At this point eight of the state contractors have approved it.

*reported by Duane Georgeson*



**It's been nearly 50 years** since the SWP facilities south of the Delta were built. Since then, the ratepayers and taxpayers of So Cal have fully paid for those facilities, in good faith, with the expectation that the project would prevent water shortages, eliminate the need for drastic water curtailment measures such as those in effect on several occasions over the past 40 years, and comfortably accommodate population growth for the next century or so.

The failure to complete the peripheral canal has denied the good folks of So Cal any of those benefits. Furthermore, we continue to pay for the operating and maintenance costs of massive but largely unused canals, pumping stations and reservoirs as part of our rapidly increasing water bills. All of this because the people of No Cal believe that we are stealing "their" water.

Our elected representatives in So Cal should be hopping mad at this situation, but are not because they reflect the attitudes of their constituents who are scarcely aware of the water war raging in their own state. ❁

by Robert Yoshimura, 10/13/17

For in-depth information see the WAPA July 2017 Newsletter, pages 10-14 or go to the MWD website, [WaterFix@mwdh2o.com](mailto:WaterFix@mwdh2o.com)



HISTORY

mystery



View of the 300 block of N. Main Street showing one of Los Angeles' 1st electric light poles. It was 150 feet tall and located in front of the St. Charles Hotel.

Historical Notes

C. L. Howland installed the City's first seven 150-foot tall streetlight masts, each carrying three carbon-arc lamps of three thousand candle-power. He also installed a small power plant to provide the electricity for his new street light system.

What year did Howland install LA's first electric streetlights?  
A) 1882 B) 1886 C) 1890 D) 1894

Howland and other investors would go on to form Los Angeles' first electric utility. Name the utility:  
A) L.A. Edison Electric Co. B) L.A. Electric Co.  
C) L.A. Gas and Electric Co. D) Pacific Light and Power Co.

Answers at: [http://waterandpower.org/museum/Mystery\\_History.html](http://waterandpower.org/museum/Mystery_History.html)

Board Member  
Recent Resignations



Steven P. Frie  
★ 25+ years



★ Patti David Crossley,



★ Chin Chang



★ Kent W. Noyes



Carlos V. Solorrza  
★ 20+ years

We thank these and all former Board Members for your invaluable participations in past years. We have enjoyed getting to know each of you, and we have learned so much from you. You are amazing at what you do! we are grateful to have had the chance to work with you.

It's more and more difficult to get the numbers of volunteers the Associates' Board needs—and we appreciate you for having made time in your schedules to work with us. We wish you the very best in your future endeavors.

WE JUST WANT TO SAY...  
**THANK YOU!**

Water And Power Associates, Inc.

BOARD OF DIRECTORS

2017~ 2018



- President *Edward A. Schlotman*
- Vice President *Thomas J. McCarthy*
- Vice President *Rex Atwell*
- Secretary *David J. Oliphant*
- Assistant Secretary *Robert Yoshimura*
- Treasurer / Membership Chairperson *Richard West*
- Assistant Treasurer *Phyllis E. Currie*
- Newsletter Editor *Dorothy M. Fuller*
- Webmaster & E. Newsletter *Jack Feldman*
- Assistant Web & Newsletter *Rex Atwell*
- Historical Preservation Chairperson *Gerald A. Gewe*
- Assistant Historical Preservation Chair *David J. Oliphant*

Members At-Large

- Robert J. DiPrimio*
- Alice Lipscomb*
- Philip Shiner*
- Lawrence A. Kerrigan*
- Melinda Rho*
- Bruce N. Hamer*
- Scott Munson*
- Duane L. Georgeson*
- James McDaniel*
- Roberta Scharin Zinman*





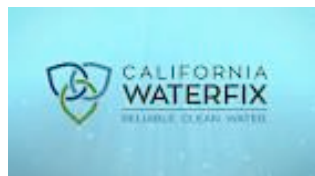
## The Delta Water Fix – A Key to Water Reliability, Sustainability

By Jim McDaniel, Gerald Gewe and Duane Georgeson

The City of Los Angeles has grown to a metropolis of over four million people, due in large part to the availability of a safe and reliable supply of water. However, providing this supply took a tremendous amount of foresight, planning, and investment. Over 80 percent of the City's water supplies originate from sources hundreds of miles away—about 54% from the State Water Project via the Sacramento/San Joaquin Delta, 20% from the Eastern Sierra via the Los Angeles Aqueduct and 10% from the Metropolitan Water District's Colorado River Aqueduct. The remaining 16 percent of the total supply comes from local groundwater and recycled water.

Although the City's population and economy have steadily grown, the sources of water have remained the same. Consequently, one of the greatest challenges facing the City is providing a reliable water supply while balancing a variety of interests, including its commitment to protect and preserve the environment. This balancing act includes planning for the effects of climate change, mitigating against the risk of earthquakes, making proactive investments in local supplies, increasing water-use efficiency, and striving to keep water rates affordable.

Even with efforts to increase conservation and develop additional local water supplies, water from the Sacramento-San Joaquin Delta will remain a critical component of the City's water-reliability equation. Unfortunately, the reliability of imported supplies that support both Los Angeles and all of Southern California are at risk due to pumping restrictions, deteriorating environmental conditions in the Delta, and an aging system. State and federal agencies want to modernize this system through a project known as the California WaterFix which has both water delivery and environmental benefits. The California WaterFix doesn't just



provide environmental benefits for the Delta, it's also essential for ensuring future water reliability for Los Angeles. When completed, the project will provide the following benefits:

- Improves the ability to capture water during major storm events, ultimately storing this water under ground and in reservoirs for Los Angeles in years of drought;
- Protects ecosystems and fish in the Delta by constructing intakes with state-of-the-art fish screens; Protects ecosystems and fish in the Delta by constructing intakes with state-of-the-art fish screens;
- Protects the billions of dollars invested by Los Angeles to build and maintain the State Water Project, which transports the City's supplemental water supply from the Delta.



As water agencies in southern California prepare to make decisions on whether to support the California WaterFix, they need to set aside politics and support this project as part of a comprehensive approach to ensuring future water reliability. One can only imagine the calamity that would ensue when, not if, storms or a major earthquake cause a significant breach in the Delta levee system. This would be catastrophic, causing seawater intrusion that could contaminate a third of southern California's freshwater supply and interrupt exports from the southern part of the Delta. Depending on the extent of the damage, it could take 6 to 24 months to repair the system and restore operations. And longer-term disruptions are certainly possible, causing major impacts on the economy and quality of life in Los Angeles. Without the WaterFix or an equivalent solution, this scenario is likely to play out. *(Continued on page 5)*

## [A Key to Water Reliability, Sustainability](#)

(Continued from page 4) According to a study by the Los Angeles County Economic Development Corporation, losses from a 24-month outage of the State Project would result in a loss of 742,000 job-years of employment, \$75 billion of gross domestic product (GDP), and \$135 billion of sales revenue for businesses in LA County.

San Fernando Valley is especially vulnerable to a shortage of State Water supplies. In years when the LA Aqueduct is nearly dry (as happened in 2016), the San Fernando Valley is heavily dependent on imported supplies from the State. Due to the way the MWD and LA systems are plumbed, not enough Colorado River water can make it to the Valley to avoid a shortage.

Plans to reduce the City's dependence on supplies from the Delta and Colorado River, are wise. However, even when the City meets its 2040 local water supply and conservation goals, Angelenos will still be highly dependent on supplies from MWD in dry years, and the majority of this water will still need to come from the Sacramento/San Joaquin Delta.

The process to finalize the design, operation, cost allocation, and financing of the California WaterFix is designed to be open and transparent. Estimates indicate that the project can be very cost effective for LA ratepayers, raising water bills by only \$2 to \$3 per month for the typical residential user. These costs pale in comparison to the economic and quality-of-life impacts of a catastrophe in the Delta, and the ensuing loss of water deliveries from the State Water Project. Amidst all the different arguments, opinions, and perspectives, we need to stay focused on the WaterFix as a way of ensuring future water-supply reliability for the City of Los Angeles and the region as part of a diverse water supply portfolio. 🌱



McDaniel, Gewe and Georgeson, all now retired, served as Assistant General Managers at the Los Angeles Department of Water and Power in charge of the Water System from 2005 to 2015, 1999 to 2005 and 1982 to 1990, respectively.

## Power plant construction costs decreased in recent years, according to survey

Published on July 10, 2017 by Daily Energy Insider Reports



Capacity-weighted average construction costs for most types of power plants have decreased in recent years, a recent survey by the U.S. Energy Information Administration (EIA) found.

EIA's Annual Electric Generator Report, which EIA began conducting in 2013, included new, utility-scale electric generators with a capacity greater than one megawatt (MW). Government grants, tax benefits, and other incentives were excluded from costs.

The cost of installing wind turbines fell by 12 percent between 2013 and 2015 to \$1,661 per kilowatt (kW)

in 2015. Costs were typically lower for larger wind facilities.

Natural gas generator construction costs saw a 28 percent decrease from 2013

to 2015. Combined-cycle units, the most frequently installed type, were the least expensive in 2015 at \$614/kW, while plants with only combustion engines cost \$779/kW and those with internal combustion engines cost \$1798/kW.

The cost of construction for utility-scale solar photovoltaic generators decreased by 21 percent between 2013 and 2015 from \$3,705/kW to \$2,921/kW. Systems that track the sun throughout the day cost slightly more than systems that do not. Systems that use thin-film panels made with cadmium telluride cost slightly more than crystalline silicon systems.

EIA expects Construction costs for generators installed in 2016 to be available in January 2018. 🌱

## Idaho Power to Accelerate closure of Its Coal Plants



As Idaho Power Co. undergoes its transition to what it calls a "new energy world," wholesale energy market conditions are driving a decision to retire its coal plants earlier than previously planned. "Idaho Power has expressed the objective to transition away from reliance on coal-fired generating capacity, provided this transition can be conducted in a responsible, economically beneficial, and measured manner," the company said in its latest integrated resource plan, filed June 30 with the Idaho Public Utilities Commission. 🌱

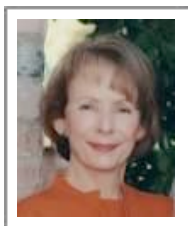
*Environment & Energy Publishing. July 7*



## MIRACLE ON THE SALT RIVER:

### *Water, Family & Farming in the Arizona Desert,*

by Meredith Haley Whiteley. Charleston, SC: The History Press, 2014. 157 pp. Maps, Illustrations, Notes, Bibliography, Index. Paper, \$19.99.

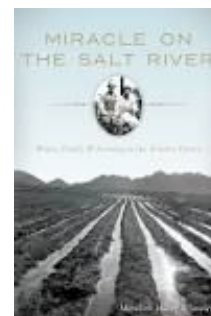


There are history books that approach a topic in a grand manner—the Great Depression, World War I, or the Renaissance—that present the topic at a macro level, offering at best a minimum amount of information as to how these events affected ordinary people. Meredith Haley Whiteley reverses the emphasis in this modest book, putting national and world events in the background as she traces the stories of several families across four generations in Arizona's Salt River Valley. In doing so she involves the reader in the lives of the Brooks, Haley, McAlister, and other families as they struggled to make something of their farms out of desert land.

Farming in the Salt River Valley wasn't feasible without reliable water sources, and in the 1890s many settlers tried and failed against lengthy droughts and disputes over water rights. Some persevered long enough to obtain access to irrigation. However, farming in the valley went through a series of boom and bust cycles. World War I brought on a boom in cotton production; the postwar period saw a dramatic decline in cotton prices and the financial ruin of many farmers. By the late 1920s, another cotton boom; in the Great Depression, busted again.

Somehow the families profiled by Whiteley (who is a descendant of the Haley family) survived the economic extremes. Whiteley describes in fascinating detail what it was like to live on an isolated farm with few amenities—outhouses, dirty water from irrigation ditches, struggles to make mortgage payments, infantile paralysis, the hard labor of plowing, cooking on wood stoves, dust storms. There were religious divisions as Southern Baptists broke away from Northern Baptists over theological issues, and modern Protestantism differed from fundamentalism.

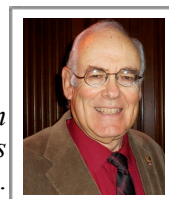
Over time the families surmounted the personal issues, privations and, to some degree, prospered. After World War II Glendale, Arizona, mushroomed in growth, business and industry came to the valley, and developers bought out farms to build tract homes. Farmland gave way to suburbia, though descendants of the families live there to the present day, the older generation sharing memories with children who have no experience in pumping water or plowing a field. Whiteley's book has modest goals, but the story she tells goes far in making people aware of the hardship and sacrifices pioneers were willing to make in hopes of creating a better life for their families. 🌱



## CALIFORNIA'S DEADLIEST EARTHQUAKES

By Abraham Hoffman, Ph.D.  
The History Press, 2017. 171 pp. Illustrations;  
Also available as an e-book. Paper, \$25.00

*Abraham Hoffman  
teaches history at Los  
Angeles Valley College..*



## 48 Environmental Rules on the Way Out Under Trump

By [NADJA POPOVICH](#) and [LIVIA ALBECK-RIPKA](#) OCT. 5, 2017

Since taking office in January, President Trump has made eliminating federal regulations a priority. His administration — with help from Republicans in Congress — has often targeted environmental rules it sees as overly burdensome to the fossil fuel industry, including major Obama-era policies aimed at fighting climate change.

To date, the the Trump administration has sought to reverse nearly 50 environmental rules, according to an analysis by The New York Times.

### 24 rules have been overturned

- Flood building standards
- Ban on chlorpyrifos, a potentially harmful pesticide
- Freeze on new coal leases on public lands
- Methane reporting requirement
- Anti-dumping rule for coal companies
- Decision on Keystone XL pipeline
- Decision on Dakota Access pipeline
- Third-party settlement funds
- Offshore drilling ban in the Atlantic and Arctic
- Ban on seismic air gun testing in the Atlantic
- Northern Bering Sea climate resilience plan
- Royalty regulations for oil, gas and coal
- Inclusion of greenhouse gas emissions in environmental reviews
- Permit-issuing process for new infrastructure projects
- Green Climate Fund contributions
- Mining restrictions in Bristol Bay, Alaska
- Grizzly bear listing as endangered species
- Hunting ban on wolves and grizzly bears in Alaska
- Protection of whales and sea turtles
- Reusable water bottles rule for national parks
- National parks climate order
- Calculation for “social cost” of carbon
- Planning rule for public lands
- Copper filter cake listing as hazardous waste

### 17 rollbacks are in progress

- Clean Power Plan
- Paris climate agreement
- Wetland and tributary protections
- Car and truck fuel-efficiency standards
- Status of 10 national monuments
- Status of 12 marine areas
- Limits on toxic discharge from power plants
- Coal ash discharge regulations
- Emissions standards for new, modified and reconstructed power plants
- Emissions rules for power plant start-up and shutdown
- Sage grouse habitat protections



- Fracking regulations on public lands
- Oil rig safety regulations
- Regulations for offshore oil and gas exploration by floating vessels
- Exploratory drilling in the Arctic Wildlife Refuge
- Hunting method regulations in Alaska
- Emissions standards for trailers and glider kits

### 7 rollbacks are in limbo

- Methane emission limits at new oil and gas wells
- Limits on landfill emissions
- Mercury emission limits for power plants
- Hazardous chemical facility regulations
- Groundwater protections for uranium mines
- Efficiency standards for federal buildings
- Rule helping consumers buy fuel-efficient tires

The chart above reflects three types of policy changes: rules that have been officially reversed; announcements and changes still in progress, pending reviews and other rulemaking procedures; and regulations whose status is unclear because of delays or court actions. (Another five rules were undone but later reinstated after legal challenges.) Regulations have often been reversed as a direct response to petitions from oil, coal and gas companies and other industry groups, which have enjoyed a much closer relationship with key figures in the Trump administration than under President Barack Obama.

Scott Pruitt, the head of the Environmental Protection Agency, has met almost daily with industry executives and lobbyists. (As Oklahoma’s attorney general, Mr. Pruitt sued the agency he now oversees more than a dozen times to try to block Obama-era rules.) The E.P.A. has been involved in one-third of the policy reversals identified by The Times.

Here are the details for each policy targeted by the administration so far — including who lobbied to get the regulations changed. *Are there rules we missed? Email [climateteam@nytimes.com](mailto:climateteam@nytimes.com) or tweet [@nyclimate](https://twitter.com/nyclimate).* . (Continued on page 8)



## Environmental Rules **OVERTURNED**



(Continued from page 7)

**1. Revoked Obama-era flood standards for federal infrastructure projects.** This Obama-era rule, revoked by Mr. Trump in August, required that federal agencies protect new infrastructure projects by building to higher flood standards. Building trade groups and many Republican lawmakers opposed it as costly and burdensome.

**2. Rejected a ban on a potentially harmful insecticide.** Dow Agrosiences, which sells the insecticide chlorpyrifos, opposed a risk analysis by the Obama-era E.P.A. that found the compound posed a risk to fetal brain and nervous system development. Mr. Pruitt rejected the E.P.A.'s analysis and denied the ban, saying the chemical needed further study.

**3. Lifted a freeze on new coal leases on public lands.** Coal companies weren't thrilled about the Obama administration's three-year freeze pending an environmental review. Mr. Zinke, the interior secretary, revoked the freeze and review in March. He appointed members to a new advisory committee on coal royalties in September.

**4. Canceled a requirement for oil and gas companies to report methane emissions.** In March, Republican officials from 11 states wrote a letter to Mr. Pruitt, saying the rule added costs and paperwork for oil and gas companies. The next day, Mr. Pruitt revoked the rule.

**5. Revoked a rule that prevented coal companies from dumping mining debris into local streams.** The coal industry said the rule was overly burdensome, calling it part of a "war on coal." In February, Congress passed a bill revoking the rule, which Mr. Trump signed into law.

**6. Approved the Keystone XL pipeline.** Republicans, along with oil, gas and steel industry groups, opposed Mr. Obama's decision to block the pipeline, arguing that the project would create jobs and support North American energy independence. After the pipeline company reapplied for a permit, the Trump administration approved it.

**7. Approved the Dakota Access pipeline.** Republicans criticized Mr. Obama for delaying construction after protests led by the Standing Rock Sioux Tribe. Mr. Trump ordered an expedited review of the pipeline, and the Army approved it. Crude oil began flowing on June 1, but a federal judge later ordered a new environmental review.

**8. Prohibited funding third-party projects through federal lawsuit settlements, which could include environmental programs.** Companies settling lawsuits with the federal government have sometimes paid for third-party projects, like when Volkswagen put \$2.7 billion toward pollution-fighting programs after its emissions cheating scandal. The Justice Department has now prohibited such payments, which some conservatives have called "slush funds."

**9. Repealed a ban on offshore oil and gas drilling in the Atlantic and Arctic oceans.** Lobbyists for the oil industry were opposed to Mr. Obama's use of the Outer Continental Shelf Lands Act to permanently ban offshore drilling along parts of the Atlantic coast and much of the ocean around Alaska. Mr. Trump repealed the policy in an April executive order and instructed his interior secretary, Mr. Zinke, to review the locations made available for offshore drilling.

**10. Proposed the use of seismic air guns for gas and oil exploration in the Atlantic.** Following a executive order in April known as the America-First Offshore Energy Strategy, the Trump administration began an application process to allow five oil and gas companies to survey the Atlantic using seismic air guns, which fire loud blasts that can harm whales, fish and turtles. The Obama administration had previously denied such permits.

**11. Revoked a 2016 order protecting the northern Bering Sea region in Alaska.** Mr. Trump revoked Mr. Obama's 2016 order protecting the Bering Sea and Bering Strait by conserving biodiversity, engaging Alaska Native tribes and building a sustainable economy in the Arctic, which is vulnerable to climate change.

**12. Repealed an Obama-era rule regulating royalties for oil, gas and coal.** Lobbyists for the fossil fuel industry opposed 2016 Interior Department regulations meant to ensure fair royalties were paid to the government for oil, gas and coal extracted from federal or tribal land. In August, the Trump administration rescinded the rule, saying it caused "confusion and uncertainty" for energy companies.

**13. Withdrew guidance for federal agencies to include greenhouse gas emissions in environmental reviews.** Republicans

in Congress opposed the guidelines, which advised federal agencies to account for possible climate effects in environmental impact reviews. They argued that the government lacked the authority to make such recommendations, and that the new rules would slow down permitting.

**14. Relaxed the environmental review process for federal infrastructure projects.** Oil and gas industry leaders said the permit-issuing process for new infrastructure projects was costly and cumbersome. In an August executive order, Mr. Trump announced a policy he said would streamline the process for pipelines, bridges, power lines and other federal projects. The order put a single federal agency in charge of navigating environmental reviews, instituted a 90-day timeline for permit authorization decisions and set a goal of completing the full process in two years.

**15. Announced intent to stop payments to the Green Climate Fund.** Mr. Trump said he would cancel payments to the fund, a United Nations program that helps developing countries reduce emissions and adapt to climate change. Mr. Obama had pledged \$3 billion, \$1 billion of which Congress has already paid out over the opposition of some Republicans.

**16. Dropped proposed restrictions on mining in Bristol Bay, Alaska.** A Canadian company sued the E.P.A. over an Obama-era plan to restrict mining in Bristol Bay, an important salmon fishery. The Trump administration settled the suit and allowed the company to apply for permits to build a large gold and copper mine in the area. Alaska Republicans, including Senator Lisa Murkowski, supported the mine.

**17. Removed the Yellowstone grizzly bear from the endangered list.** Noting that the species population had "rebounded from as few as 136 bears in 1975 to an estimated 700 today," the Interior Department delisted the Yellowstone grizzly. Delisting the bears was first formally proposed by the Obama administration in March 2016.

**18. Overturned a ban on the hunting of predators in Alaskan wildlife refuges.** Alaskan politicians opposed the law, which prevented hunters from shooting wolves and grizzly bears on wildlife refuges, arguing that the state has authority over those lands. Congress passed a bill revoking the rule, which Mr. Trump signed into law.

**19. Withdrew proposed limits on endangered marine mammals caught by fishing nets on the West Coast.** Under Mr. Trump, the National Marine Fisheries Service withdrew the proposed rule, noting high costs to the fishing industry and arguing that sufficient protections were already in place.

**20. Stopped discouraging the sale of plastic water bottles in national parks.** The National Park Service had urged parks to reduce or eliminate the sale of disposable plastic water bottles in favor of filling stations and reusable bottles. The International Bottled Water Association called the action unjustified.

**21. Rescinded an Obama-era order to consider climate change in managing natural resources in national parks.** The 2016 policy, which called for scientific park management, among other objectives, was contested by Republicans. In August, the National Park Service said they rescinded the policy in order to eliminate confusion among the public and National Parks Service employees regarding the Trump administration's "new vision" for America's parks.

**22. Directed agencies to stop using an Obama-era calculation of the "social cost of carbon."** As part of an expansive March 2017 executive order, Mr. Trump directed agencies to stop using an Obama-era calculation that helped rulemakers monetize the costs of carbon emissions and instead base their estimates on a 2003 cost-benefit analysis. Mr. Trump also disbanded the working group that created estimates for the social cost of carbon.

**23. Revoked an update to the Bureau of Land Management's public land use planning process.** Republicans and fossil fuel industry groups opposed the updated planning rule for public lands, arguing that it gave the federal government too much power at the expense of local and business interests. Congress passed a bill revoking the rule, which Mr. Trump signed into law.

**24. Removed copper filter cake, an electronics manufacturing byproduct, from the "hazardous waste" list.** Samsung petitioned the E.P.A. to delist the waste product, which is produced during electroplating at its Texas semiconductor facility. The E.P.A. granted the petition after a public comment period. (Continued on page 9)



## Environmental Rules **IN PROGRESS**



(Continued from page 8)

**25. Proposed repeal and replacement of the Clean Power Plan.** Coal companies and Republican officials in many states opposed the plan, Mr. Obama's signature climate policy, which set strict limits on carbon emissions from existing coal- and gas-fired power plants. Mr. Trump issued an executive order in March instructing the E.P.A. to re-evaluate the plan, which is tied up in court and has not yet taken effect. In October, the E.P.A. proposed repealing the plan and opened a public comment period soliciting suggested replacements.

**26. Announced intent to withdraw the United States from the Paris climate agreement.** Arguing that it tied his hands in matters of domestic energy policy, Mr. Trump announced that the United States would withdraw from the Paris accord, under which the United States had pledged to cut emissions by 26 to 28 percent below 2005 levels by 2025. The Trump administration has formally notified the United Nations of its intent to withdraw, but it cannot complete the process until late 2020.

**27. Proposed rescinding a rule that protected tributaries and wetlands under the Clean Water Act.** Farmers, real estate developers, golf course owners and many Republicans opposed an Obama-era clarification of the Clean Water Act that extended protections over small waterways. Under Mr. Trump's direction, Mr. Pruitt released a proposal in June to roll back the expanded definition.

**28. Reopened a review of fuel-efficiency standards for cars and trucks.** Automakers said it would be difficult and costly to meet fuel economy goals they had agreed upon with the Obama administration. Under Mr. Trump, the E.P.A. and Department of Transportation have reopened a standards review for model years 2021 through 2025. The administration is also considering easing penalties on automakers who do not comply with the federal standards.

**29. Recommended shrinking or modifying 10 national monuments.** Republicans in Congress said the Antiquities Act, which allows presidents to designate national monuments, had been abused by previous administrations. Mr. Obama used the law to protect more than 4 million acres of land and several million square miles of ocean. Mr. Trump ordered a review of recent monuments; his interior secretary, Ryan Zinke, recommended changes for 10 sites.

**30. Reviewing 12 marine protected areas.** As part of his April executive order aimed at expanding offshore oil and gas drilling, Mr. Trump called for a review of national marine sanctuaries and monuments designated or expanded within the past decade. In June, NOAA announced that 12 protected marine areas were under review.

**31. Reviewing limits on toxic discharge from power plants into public waterways.** Utility and fossil fuel industry groups opposed the rule, which limited the amount of toxic metals — arsenic, lead and mercury, among others — power

plants could release into public waterways. Industry representatives said complying with the guidelines, which were to take effect in 2018, would be extremely expensive. In September, Mr. Pruitt postponed the rule until 2020.

**32. Reviewing rules regulating coal ash waste from power plants.** Utility industry groups petitioned to change the rule, which regulates how power plants dispose of coal ash in waste pits often located near waterways. The E.P.A. agreed to reconsider the rule.

**33. Reviewing emissions standards for new, modified and reconstructed power plants.**

In addition to the Clean Power Plan, Mr. Trump's Executive Order on Promoting Energy Independence called on the E.P.A. to review a related rule limiting carbon dioxide emissions from new, modified, and reconstructed power plants.

**34. Reviewing emissions rules for power plant start-ups, shutdowns and malfunctions.** Power companies and other industry groups sued the Obama administration over the rule, which asked 36 states to tighten emissions exemptions for power plants and other facilities. The E.P.A. under Mr. Trump asked the court to suspend the case while the rule undergoes review.

**35. Announced plans to review greater sage grouse habitat protections.** Oil and gas industry leaders called the Obama administration's plan for protecting the bird "deeply flawed" and welcomed the Interior Department review, which will reassess restrictions on energy production.

**36. Announced plans to rescind water pollution regulations for fracking on federal and Indian lands.** Energy companies petitioned the Bureau of Land Management to rescind the rule, which was proposed by Mr. Obama in 2015 but never enforced amid legal challenges. In July, the bureau announced plans to revoke the rule, citing Mr. Trump's "prioritization of domestic energy production."

**37. Reviewing new safety regulations on offshore drilling.** (The American Petroleum Institute and other trade groups wrote to the Trump administration, raising concerns over oil rig safety regulations implemented after the 2010 Deepwater Horizon explosion and oil spill. In August, the Bureau of Safety and Environmental Enforcement confirmed it was moving forward with the review. Mr. Trump had ordered a review of the rules earlier in the year.)

**38. Ordered a review of a rule regulating offshore oil and gas exploration by floating vessels in the Arctic.** As part of the expansive executive order on offshore drilling, Mr. Trump called for an immediate review of a rule intended to strengthen safety and environmental standards for exploratory drilling in the Arctic. The rule, a response to the 2013 Kulluk accident in the Gulf of Alaska, increased oversight of floating vessels and other mobile offshore drilling units. *Continued on page 10*



## Environmental Rules **IN PROGRESS**

(Continued from page 9)

### **39. Proposed ending a restriction on exploratory drilling in the Arctic National Wildlife Refuge.**

Republicans have long sought to open the Alaska refuge to gas and oil drilling. In August, an Interior Department internal memo proposed lifting restrictions on exploratory seismic studies in the region, which covers more than 30,000 square miles and is home to polar bears, caribou and other Arctic animals.

**40. Ordered a review of federal regulations on hunting methods in Alaska.** Obama-era rules prohibited certain hunting methods in Alaska's national preserves.

They overruled state law, which had allowed hunters to bait bears with food, shoot caribou from boats and kill bear cubs with their mothers present. Alaska sued the Interior Department, claiming that the regulations affected traditional harvesting. The Trump administration ordered a review.

**41. Announced a review of emissions standards for trailers and glider kits.** Stakeholders in the transportation industry opposed the Obama-era rule, which for the first time applied emissions standards to trailers and glider vehicles. They argued that the E.P.A. lacked the authority to regulate them, because their products are not motorized.

## Environmental Rules **IN LIMBO**



**42. Reviewing a rule limiting methane emissions at new oil and gas drilling sites.** Lobbyists for the oil and gas industries petitioned Mr. Pruitt to reconsider a rule limiting emissions of methane and other pollutants from new and modified oil and gas wells. A federal appeals court has ruled that the E.P.A. must enforce the Obama-era regulation while it rewrites the rule. The E.P.A. said it may do so on a "case by case" basis.

**43. Put on hold rules aimed at cutting methane emissions from landfills.** Waste industry groups objected to this Obama-era regulation, which required landfills to set up methane gas collection systems and monitor emissions. In May, the E.P.A. suspended enforcement of the new standards for 90 days, pending a review. Environmental groups challenged the action in court, but the delay period has since passed, throwing the status of the case into question.

**44. Delayed a lawsuit over a rule regulating airborne mercury emissions from power plants.** Coal companies, along with Republican officials in several states, sued over this Obama-era rule, which regulated the amount of mercury and other pollutants that fossil fuel power plants can emit. They argued that the rule helped shutter coal plants, many of which were already compliant. Oral arguments in the case have been delayed while the E.P.A. reviews the rule.

**45. Delayed a rule aiming to improve safety at facilities that use hazardous chemicals.** Chemical, agricultural and power industry groups said that the rule, a response to a 2013 explosion at a fertilizer plant that killed 15 people, did not increase safety. Mr. Pruitt delayed the standards until 2019, pending a review. Eleven states are now suing over the delay.

**46. Continuing review of proposed groundwater protections for certain uranium mines.** Republicans in Congress came out against the 2015 rule. They said the E.P.A. had not conducted an adequate cost-benefit analysis of the rule,

which regulated byproduct materials from a type of uranium mining. The Obama administration submitted a revised proposal one day before Mr. Trump was sworn into office. The Trump administration must now decide the fate of the rule.

**47. Delayed compliance dates for federal building efficiency standards.** Republicans in Congress opposed the rules, which set efficiency standards for the design and construction of new federal buildings. The Trump administration delayed compliance until Sept. 30, but it is unclear whether the rules are now in effect.

**48. Withdrew a rule that would help consumers buy more fuel-efficient tires.** The rule required tire manufacturers and retailers to provide consumers with information about replacement car tires. The tire industry opposed several aspects of the rule, but had been working with the government to refine it. The Trump administration withdrew the proposed rule in January but has not said whether it may be reinstated.

### **At least five other rules were reinstated after legal challenges**

*Environmental groups have sued the Trump administration over many of the proposed rollbacks, and, in some cases, have succeeded in reinstating environmental rules.*

**1. Reinstated rule limiting methane emissions on public lands.** The oil and gas industry opposed the rule, which required companies to control methane emissions on federal or tribal land. The House voted this year to revoke the rule, but the Senate rejected the measure, 51 to 49. The Bureau of Land Management later suspended enforcement of parts of the rule. In early October, a federal court ruled that the B.L.M. had acted unlawfully in delaying the rule, and ordered its immediate enforcement. (Continued on page 11)



## Environmental Rules *IN LIMBO*

(Continued from page 10)

**2. Reinstated a requirement for reporting emissions on federal highways.** Transportation and infrastructure industry groups opposed a measure that required state and local officials to track greenhouse gas emissions from vehicles on federally funded highways. The Trump administration twice postponed the rule's effective date, putting it off indefinitely on May 19. The rule was reinstated after environmental groups and eight states challenged the delay in court.

**3. Delayed by one year a compliance deadline for new ozone pollution standards, but later reversed course.** Mr. Pruitt initially delayed the compliance deadline for a 2015 national ozone standard, but reversed course after 15 states and the District of Columbia sued.

**4. Delayed publishing efficiency standards for household appliances.** After being sued by a number of states and environmental groups for failing to publish efficiency standards for appliances including heaters, air conditioners and refrigerators, the Trump administration released its rules on May 26.

**5. Reinstated rule limiting the discharge of mercury by dental offices into municipal sewers.** The E.P.A. reinstated an Obama-era rule that regulated the disposal of dental amalgam, a filling material that contains mercury and other toxic metals. The agency initially put the rule on hold as part of a broad regulatory freeze, but environmental groups sued. The American Dental Association came out in support of the rule.

Sources: Harvard Law School's Environmental Regulation Rollback Tracker; Columbia Law School's Climate Deregulation Tracker; Federal Register; Environmental Protection Agency; White House

**Note:** This list does not include new rules proposed by the Trump administration that do not roll back previous policies, nor does it include court actions that have affected environmental policies independent of executive or legislative action.

Additional reporting by Tatiana Schlossberg.

**Electric Companies Join Partnership to Share Transmission Equipment During Disasters**

A consortium of electric companies Oct. 3 entered into a binding agreement to participate in the RESTORE, or **R**egional **E**quipment **S**haring for **T**ransmission **O**utage **R**estoration, program, which establishes an approach to provide critical equipment for electric companies during disaster recovery to improve the energy grid's durability. "Electric companies' cooperation and the ability to call on additional resources play a critical role during times of natural disasters and other emergencies that can impact our electric transmission system," Chair of RESTORE's Operating Committee and Southern Co. General Manager of Transmission Policy and Services John Lucas said in a news release. 🌱

[SNL](#), Oct. 3



## Soot Is Fouling Beijing's Solar Push Study

Dirty air could significantly undercut China's ambitious effort to expand the use of clean energy, a new study finds. While the world's most populous nation wants solar energy to satisfy 10 percent of its electricity demand by 2030, its notoriously sooty air is blocking sunlight and reducing potential generating capacity by as much as 35 percent, according to the study, led by Princeton University researchers and scheduled for publication in the Proceedings of the National Academy of Sciences.



NATIONAL ACADEMY  
OF SCIENCES

Join tens of thousands others worldwide who visit our website at [www.waterandpower.org](http://www.waterandpower.org)  
Electronic Newsletters are available to be sent individually to Associates members.  
Send your requests and  
Share your comments at  
[comments@waterandpower.org](mailto:comments@waterandpower.org)

To **renew** your membership,  
or to join our organization,  
or to make a donation,  
go to the Membership Section, [http://  
waterandpower.org/membership.html](http://waterandpower.org/membership.html)

*Thank you*