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CLIMATE CHANGE™

LAW & POLICY REPORTER

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JUDICIAL DEVELOPMENTS

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CLIMATE CHANGE NEWS

DEMOCRATIC PRESIDENTIAL CANDIDATES' PLANS TO ADDRESS CLIMATE CHANGE IMPACTS IN THE AGRICULTURAL SECTOR

The Iowa State Fair is known as a staple of presidential campaigns. Over 20 Democratic presidential candidates made the rounds at the fair this summer, with a few of the candidates speaking about the connection between climate change and agriculture. Many of the candidates have released rural policy plans that include components to address climate change impacts in the agricultural sector. Excerpts from a few of the plans are highlighted below.

U.S. Senator Amy Klobuchar

Senator Klobuchar's plan, released August 7, 2019, is known as the "Plan from the Heartland: Strengthening our Agricultural and Rural Communities" (Klobuchar Plan). The Klobuchar Plan's main topics are "Economics," "Living in Rural America," "Protecting Our Future," and "Leaving No One Behind." The agriculture/climate change proposals are in the "Protecting Our Future" portion and include the following (excerpted from the Klobuchar Plan).

Expand Conservation Practices

Senator Klobuchar has been a champion of supporting farmer conservation efforts and promoting farming practices that reduce soil erosion and improve air and water quality, including by helping pass the 2018 Farm Bill, which included several of her priorities. As President, she will support significant new investments in conservation of working and retired lands. Senator Klobuchar will support the continued expansion of the Environmental Quality Incentives Program and increase resources for the Conservation Stewardship Program to help provide farmers the tools they need to protect and enhance natural resources on working agricultural lands. And after successfully increasing the acreage cap of the Conservation Reserve Program, Senator Klobuchar will work to attract more enrollees and ensure payment rates are fair.

Invest in Conservation Innovation

Senator Klobuchar will target research into soil carbon sequestration, which could improve soil health as well as reduce carbon levels in the atmosphere. She will also expand Conservation Innovation Grants to test emerging conservation approaches, including practices that increase carbon sequestration levels. And building on provisions she included in the 2018 farm bill, Senator Klobuchar will further improve agriculture data research of conservation practices to help farmers reduce risk and increase profitability.

Invest in and Provide Incentives for Homegrown Energy

Senator Klobuchar believes that homegrown biofuels are key to our rural economies, our nation's energy security, and reducing greenhouse gas emissions. In the Senate, she has been a leader when it comes to standing up to the administration's misuse of small refinery renewable fuel standard (RFS) waivers. She has also worked successfully in the Senate to provide financing and grant support to biobased manufacturers. She authored an amendment that was included in the Farm Bill that provides mandatory funding to support biobased marketing, manufacturing.

U.S. Senator Cory Booker

On August 8 2019, Senator Booker introduced the "Climate Stewardship Act of 2019." According to a press release issued by Senator Booker, the Climate Stewardship Act is a:

> . . .climate change bill focused on voluntary farm and ranch conservation practices, massive reforestation, and wetlands restoration.
>
> The Climate Stewardship Act will:
>
> •Plant over 4 billion trees by 2030, and 15 billion trees by 2050, on a combination of federal, state, local, tribal, and non-governmental lands. The ambitious level of tree planting outlined in the Climate Stewardship Act makes it the biggest

reforestation measure ever to be introduced in Congress.

•Plant over 100 million of these trees in urban neighborhoods across America, with the priority going to low-income neighborhoods and communities of color. In addition to sequestering carbon, trees also absorb harmful air pollutants and reduce temperatures in urban areas.

•Support voluntary climate stewardship practices on over 100 million acres of farmland, reducing or offsetting agricultural emissions by one-third by 2025, through: Providing tens of billions of dollars of supplemental funding for the U.S. Department of Agriculture (USDA) working lands conservation programs, with new funding dedicated to stewardship practices such as rotational grazing, improved fertilizer efficiency, and planting tens of millions of new acres of cover crops.

•Protecting millions of acres of environmentally sensitive farmland.

•Doubling funding for agricultural research programs, including more funding for soil health demonstration trials.

•Tripling USDA funding to provide farmers with expert technical assistance on climate stewardship practices.

•Providing grant funding to tens of thousands of farmers, ranchers and rural businesses for renewable energy production, such as solar panels and wind turbines, and energy efficiency improvements.

•Invest in local and regional food systems to increase resilience in rural and urban communities.

•Restore or protect over 2 million acres of coastal wetlands by 2030 to sequester carbon emissions and reduce coastal flooding. Coastal wetlands act as an important sponge during extreme weather events with heavy rainfall. For example, although New Jersey has lost more than 40 percent of its coastal wetlands, the wetlands remaining helped prevent $625 million of property damage during Hurricane Sandy in 2012.

•Reestablish the Civilian Conservation Corps to provide youth from low-income communities, indigenous communities, and communities of color with skills and work experience in forestry and wetlands restoration.

Former Vice-President Joe Biden

Former Vice-President Joe Biden's plan, the Biden Plan for Rural America (Biden Plan), focuses on economic strategies for rural communities. One of the main climate change strategies in the Biden Plan is the goal of achieving net-zero emissions in the agricultural sector. The following is an excerpt from the Biden Plan:

•Partnering with farmers to make American agriculture first in the world to achieve net-zero emissions, giving farmers new sources of income in the process. Many farmers are some of the best stewards of our land, air, and water. The government needs to partner with them to accelerate progress toward net-zero emissions. As president, Biden will ensure our agricultural sector is the first in the world to achieve net-zero emissions, and that our farmers earn income as we meet this milestone. Toward this end, the Biden administration will dramatically expand and fortify the pioneering Conservation Stewardship Program, created by former Senate Agriculture Committee Chair Tom Harkin, to support farm income through payments based on farmers' practices to protect the environment, including carbon sequestration. In addition to seeking full federal funding for the program, the Biden administration will ensure the program can participate in carbon markets. Corporations, individuals, and foundations interested in promoting greenhouse gas reductions could offset their emissions by contributing to Conservation Stewardship Program payments to farmers for those sequestering carbon—for example, through cover crops. This will not only help combat climate change, which Vice President Biden has called an existential threat, but also create additional revenue sources for farmers at a time when many are struggling to make ends meet. And, this approach will create a whole series of new businesses that survey, measure, certify, and quantify conservation results. In

addition, the Biden Plan will make a significant investment in research to refine practices to build soil carbon while maximizing farm and ranch productivity. Soil is the next frontier for storing carbon.

U.S. Senator Bernie Sanders

Senator Bernie Sanders has laid out a three part plan to "Revitalize Rural America" (Sanders Plan). The Sanders Plan asserts that rural communities and family farms (as compared with large farms and agribusiness) are not only good for the environment, but resistant to climate change, due to "their greater genetic diversity, local knowledge, and likelihood of using livestock and crop breeds suited to the local environment." The second point of his strategy is entitled "Policies to Empower Farmers, Foresters & Ranchers to Address Climate Change and Protect Ecosystems" and includes plans to:

•Pass comprehensive legislation to address climate change that includes a transition to regenerative, independent family farming practices.

•Help farms of all sizes transition to sustainable agricultural practices that rebuild rural communities, protect the climate, and strengthen the environment.

•Provide grants, technical assistance, and debt relief to farmers to support their transition to more sustainable farming practices.

•Support a transition to more sustainable management of livestock systems that are ecologically sound, improve soil health, and sequester carbon in soil.

•Create financial mechanisms that compensate farmers for improving ecosystems.

•Establish a program to permanently set aside ecologically fragile farm and ranch land.

•Enforce the Clean Air and Water Acts for large, factory farms, and ensure all farmers have access to tools and resources to help them address pollution.

•Ensure rural residents have the right to protect their families and properties from chemical and biological pollution, including pesticide and herbicide drift.

Conclusion and Implications

One publication described the Democratic presidential candidates' willingness to discuss the connection between agriculture and climate change at the Iowa State Fair as "unprecedented." Many observers believe that the weather extremes and recent misfortunes faced by many Midwestern farmers this summer may create future inroads for positive steps to address climate change impacts in the agricultural sector. (Kathryn Casey, Miles Schuster)

WHOSE GREEN NEW DEAL? VARIOUS CLIMATE CHANGE PROPOSALS BY PRESIDENTIAL CANDIDATES COMPETE FOR THE TERM

The concept of enacting a "Green New Deal," a series of policies aimed at addressing climate change and economic inequality, has taken a central place in discussions of climate policy over the past year. Yet the term has become something of a catch-all for a wide variety of policies and proposals forwarded in the U.S. House of Representatives, the U.S. Senate, and on the campaign trail. While all "Green New Deal" policies have the same general outcomes in mind, a wide variety of approaches have been suggested by different stakeholders. It's enough to leave even staunch climate policy wonks confused as to where things stand, and who stands for any particular proposal.

Background

While the term "Green New Deal" goes back decades, the proposal in its current form took off after the 2018 midterm elections, when Democrats retook the House. A week after the midterm elections, the climate justice group Sunrise Movement organized a protest in Nancy Pelosi's office, calling on Pelosi to support a Green New Deal, and joining with freshman congresswoman Alexandria Ocasio-Cortez, who launched a resolution to create a committee on the Green New Deal. This push for a committee gained support from over a dozen representatives, before Representative Ocasio-Cortez and Senator Edward Markey released a 14-page resolution for their proposed Green New Deal on February 7, 2019.

That resolution pushes for transitioning the United States to using 100 percent renewable, zero-emission energy sources, including investment into electric cars and high-speed rail, and implementing a carbon tax originally proposed by the Obama administration. The Green New Deal resolution also proposed increasing state-sponsored jobs and addressing poverty by focusing improvements on vulnerable communities. The resolution also called specifically for universal healthcare, increasing the minimum wage, and preventing monopolies.

As the 2020 Democratic Presidential Primary race heats up, multiple candidates have come out in favor of the Green New Deal, including Pete Buttigieg, Marianne Williamson, Andrew Yang, Bernie Sanders, Kirsten Gillibrand, Kamala Harris, Elizabeth Warren, Cory Booker, and Amy Klobuchar. However, many of these candidates have come out in support of a "Green New Deal" in generalized terms, while either declining to adopt the policies in the original resolution or suggesting their own alternatives under the same umbrella term.

This article does not intend to take a normative stance on any of the Green New Deal proposals, nor to advise on the political calculus behind any of these plans. Rather, it attempts to create a brief summary of the climate proposals forwarded by major policymakers on the national stage.

Senator Bernie Sanders' Plan

In August, Senator Bernie Sanders released a $16.3 trillion plan to address climate change, the latest and highest cost proposal from the field of Democratic presidential candidates. Sanders' plan, also called the Green New Deal, calls for the United States to eliminate fossil fuel use by 2050. It would declare climate change a national emergency, invest in solar, wind, and geothermal power sources across the country, and commit $200 billion in foreign aid to help developing nations cope with climate change.

Vice President Joe Biden's Plan

In June, Vice President Biden proposed $1.7 trillion in spending and a tax or fee on planet-warming pollution, with the stated goal of eliminating the nation's net carbon emissions by 2050. Biden's proposal claims to go even farther than the Green New Deal, in terms of offering concrete policy proposals rather than simply setting target goals. Biden proposes Congress pass a law by 2025 to establish a price or tax on carbon dioxide pollution. Biden's plan would also invest in clean energy initiatives, paid for by rolling back President Trump's tax breaks for corporations. The plan also proposes leveraging state, private, and local funds for a total expenditure of $5 trillion over a decade. The proposal also supports environmental justice programs and urges an end to new permits for oil and gas exploration on public lands.

Senator Elizabeth Warren's Plan

Also, in June 2019, Senator Elizabeth Warren proposed investing $2 trillion in climate-friendly industries over a decade, and creating a new cabinet-level Department of Economic Development in order to foster growth in climate-friendly industries. The $2 trillion spending package is intended to help achieve the ambitious targets of the Green New Deal, according to the plan. Among the proposals within Warren's plan is a "Green Apollo Plan" which would create a National Institute of Clean Energy, a "Green Industrial Mobilization" which would push federal spending toward American-made renewable energy technology, and a "Green Marshall Plan" aimed at exporting American renewable energy products and strategies abroad.

In September, Warren took the additional step of adopting Washington Governor Jay Inslee's ten-year climate plan after Inslee ended his presidential campaign. Warren's expanded proposal, which would cost $3 trillion, includes Inslee's aggressive targets to reach 100 percent clean energy in electricity, cars, and buildings, ending coal power, and investing in clean energy union jobs. The expanded Warren plan calls for zero-carbon emission commercial and residential for new buildings by 2028; zero-carbon emission light-duty passenger vehicles, medium-duty trucks and all buses by 2030; and zero-carbon emission and renewable electricity by 2035.

Beto O'Rourke's Plan

Beto O'Rourke's first major policy proposal of his presidential campaign was a $5 trillion plan to combat climate change through measures including executive action. The plan calls for net-zero emissions by 2050, would recommit the United States to the Paris Climate Accords, and would restore Obama-era power plant regulations and fuel standards. The latter two proposals are supported by every major Democratic presidential candidate at present. O'Rourke's plan also supports new regulations including hazardous waste limits, ending fossil-fuel leases and requiring that all federal permitting decisions fully account for climate costs, reducing methane emissions, and investing the proposed $5 trillion over ten years for clean-energy research, infrastructure, and extreme weather preparations.

Mayor Pete Buttigieg's Plan

Mayor Pete Buttigieg released a climate plan in September which promises a "bold and achievable Green New Deal." The plan would aim for net zero emissions economy-wide by 2050, a xero-emissions electricity system and zero-emissions passenger vehicles by 2035, and net zero emissions for all heavy-duty vehicles by 2040. Buttigieg also proposes $200 billion over ten years to retrain workers displaced in the transition away from fossil fuels.

Senator Kamala Harris' Plan

Senator Harris also released a climate plan in September, pledging $10 trillion in investment over ten years into a clean energy transition. Harris calls for 100 percent carbon neutral electricity by 2030. Harris' plan is unique in that she does not propose a ban on fracking, though she does propose phasing out all fossil fuel development on public lands and implementing conservation and renewable energy strategies to make public lands net carbon sinks by 2030.

Senator Cory Booker's Plan

Senator Booker released a climate plan in September that proposes investing $3 trillion in programs to shift the country to 100 percent carbon-free electricity by 2030 and aims to create a carbon neutral economy by 2045, in line with the goals of the Paris climate agreement. Booker proposes ending fossil fuel subsidies, phasing out fracking, banning new fossil fuel leases on federal lands and revoking federal approvals for major oil pipelines. Booker also proposes a carbon fee-and-dividend plan that would charge fossil fuel producers a fee for emissions that would rise over time. Because companies typically pass increased costs onto consumers, Booker proposes the fees would fund dividend checks sent to households monthly.

Conclusion and Implications

Climate change is shaping up to be a central issue of the 2020 Democratic Primary, with more candidates issuing detailed plans as the race heats up. These plans differ in their scope and their specifics, but share the same goal of reducing the effects of climate change and reshaping the economy around clean energy and climate research. Whether the policies specifically take the name Green New Deal, ex-

press support for the existing congressional resolution, or strike their own path towards net zero emissions, the variety of proposals and the ongoing discourse around their efficacy prove that for the Democratic primary voter, climate change is a central issue. (Jordan Ferguson)

REPORT ADDRESSES GLOBAL WARMING AND THE ENDANGERMENT OF PACIFIC SALMON POPULATIONS

Pacific salmon, which spawn in western streams and rivers, have been struggling for decades to survive water diversions, dam construction, and logging. Yet global warming is pushing four important populations in California, Oregon, and Idaho towards the brink of extinction. A recent report indicates that temperature increases in rivers and streams risk populations of chinook, coho and sockeye salmon populations.

Background

A federal study, published in July and entitled "Climate vulnerability assessment for Pacific salmon and steelhead in the California Current Large Marine Ecosystem," shows that several of the region's salmon populations are now bumping into temperature limits, with those that spawn far inland after lengthy summer stream migrations and those that spend much of their time in coastal habitats like river estuaries facing the highest risks. [*See,* Crozier LG, McClure MM, Beechie T, Bograd SJ, Boughton DA, Carr M, *et al.* (2019) Climate Vulnerability Assessment For Pacific Salmon And Steelhead In The California Current Large Marine Ecosystem] The at-risk populations include Chinook salmon in California's Central Valley and in the Columbia and Willamette River basins; coho salmon in parts of Northern California and Oregon; and sockeye salmon that reach the Snake River Basin in Idaho, all of which are already on the federal endangered species list.

Risk Factors Identified

The at-risk populations face warmer waters, more acidic oceans, and changed seasonal streamflow patterns caused by global warming and other human impacts. While the study identifies the resiliency of these species, it also estimates that several populations are hitting their temperature limits, above which populations are likely to dwindle, potentially into outright extinction. In addition to the salmon populations themselves, the fish serve as a key part of the food chain, providing sustenance to a variety of animals, including bears and whales, throughout their lifecycle. They also remain important to indigenous groups in the region, as well as to the United States' fishing industry.

Human infrastructure, including dams and other water diversion structures, have exacerbated issues for salmon populations for decades, reducing the flow of streams and limiting access to the coldest habitats, which can serve as a hiding place for salmon during heat waves or drought. Climate change is now intensifying those impacts. Salmon populations have adapted to some of the warming over recent decades, and their sensitivity to climate factors is built into many conservation plans in the region. Yet beyond 2 degrees Celsius of warming (3.6 degrees Fahrenheit), it is unknown whether salmon populations can adapt, and the significant changes expected in oceans at that level of warming could lead to the catastrophic failure of salmon populations.

The study spells out several ways global warming endangers salmon populations, including that young salmon die when water warms above certain thresholds, and droughts can leave salmon stranded or exposes to predators due to low water levels. Flooding can also flush eggs and young fish from their nests, which is an issue in an era of increased floods as a result of climate change. Warmer stream temperatures also increase outbreaks of fish diseases that can affect salmon, including pathogenic parasites. Salmon are also affected by changes in ocean currents that can provide nutrients, as well as sea level rise, which affects the physical connection between ocean and stream ecosystems, including the coastal wetlands in California.

Timing Is Essential

Some salmon migrations coincide with spring runoff from melting mountain snows, while juvenile salmon return to the ocean in sync with seasonal

plankton blooms on the coast. Yet global warming disrupts both sides of this cycle, reducing spring runoff and delaying plankton blooms. To spawn successfully, salmon need exactly the right combination of stream flows and temperatures at exactly the right time of year. But warmer temperatures shift the timing as well as the temperatures, making the spawning cycle much harder on the fish.

Conclusion and Implications

Maintaining any salmon populations will require sustained efforts to ensure they have large areas of sustainable habitat, according to the study. Other conservation strategies include releasing hatchery-spawned salmon, boosting streamflows at the right time with water releases from reservoirs, and even assisted migration, in which fish are trapped, transported, and then released on the other side of dams or other water diversion structures. Awareness of the issue and commitment to protection of endangered salmon populations are essential to ensure the survival of salmon and the ecosystem which they support and maintain. The report abstract is available online at: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0217711
(Jordan Ferguson)

CITY OF SAN FRANCISCO ANNOUNCES OFFER TO ACQUIRE PG&E'S LOCAL ENERGY INFRASTRUCTURE

The City and County of San Francisco (City) recently announced a $2.5 billion offer to acquire Pacific Gas and Electric Company (PG&E)'s electric transmission and distribution system assets that serve the city. PG&E has publicly rebuffed the offer but appears open to negotiation and communication. A PG&E spokesperson, Andy Castagnola stated:

> We don't believe municipalization is in the best interests of our customers and stakeholders, [but] we are committed to working with the city and will remain open to communication on this issue.

Background

Earlier this year the City began reviewing a local PG&E acquisition in the wake of PG&E's announcement in January that it would be filing for bankruptcy protection after incurring significant liabilities related to its role, through its infrastructure, in starting several of California's recent wildfires.

The City already procures energy for its residents through CleanPowerSF, a community choice aggregation program that launched in May 2016. San Francisco residents are automatically enrolled in CleanPowerSF though they have the option to opt-out and back into PG&E's sole service, the City estimates that it provides approximately 80 percent of San Francisco residents with power. CleanPower customers are still billed through PG&E but receive a different line item for CleanPower SF charges related to its energy procurement, while distribution and transmission charges are still incurred by PG&E's network. The City offers CleanPowerSF at competitive rates but with a higher renewable energy content and lower carbon footprint than the resources procured by PG&E in its standard offering (PG&E does offer staggered rates where customers may choose to pay higher prices for cleaner energy resources.) In its latest proposal, the City would be taking on complete energy independence by operating both the distribution and local transmission network in addition to its existing procurement efforts.

The City notes that it has a proven history of providing its residents with its own utilities, and it has provided residents water through the Hetch Hetchy Power Enterprise operated by the San Francisco Public Utilities Commission since 1918. The Hetch Hetchy Power Project, in addition to supply San Francisco residents with water supply, produces approximately 385 megawatts of hydroelectric supply that is used to power the City's municipal facilities (*e.g.*, San Francisco Airport, MUNI services, San Francisco General Hospital, fire stations, *etc.*).

The Report and Options

The City published its report assessing a purchase of PG&E's network on May 13, 2019. The report explains the significant markup and increased costs and

infrastructure requirements for developing infrastructure that is beyond the City's actual needs. For example, it notes that for a new transit worker restroom it proposed to build, PG&E would have required that the City install equipment costing $500,000 rather than the $60,000 for usage proposed by the City. The report examines three different options "for providing affordable, dependable and clean electric service to San Francisco." The first scenario is described as "limited independence," whereby the City continues "fighting for fair treatment and reasonable service from PG&E" by growing its customer base, but the report notes that under this approach the City will remain at risk "to the extent PG&E is able to continue imposing requirements that impact the City's ability to serve customers."

The second, called "Targeted Investment for More Independence," involves targeted investment in electric distribution infrastructure as the City-owned grid is rebuilt and modernized. The report notes that the passage of Proposition A in 2018, which allows for additional city-improvement bonds, enables the City to accelerate its existing efforts in this realm. The last option would create "full [energy] independence" by acquiring PG&E's local assets. This last option appears to be the selected choice as the City has now moved forward with its $2.5 billion offer to PG&E. The report notes that under this scenario, the City would continue to offer jobs to PG&E's union and other employees who currently operate the grid, and would work to upgrade and modernize the City facilities, and would be "able to better control the pace and priority of those improvements."

City Statement on the Plan

In a joint statement announcing the plan, Mayor London Breed and City Attorney Dennis Herrera stated:

> Our offer to PG&E is the result of detailed financial analysis conducted by industry experts and encompassing an extensive examination into the company's assets in San Francisco. The offer we are putting forth is competitive, fair and equitable. It will offer financial stability for PG&E, while helping the City expand upon our efforts to provide reliable, safe, clean and affordable electricity to the residents and businesses of San Francisco. It also considers equity for PG&E's remaining customers and the City's responsibility for ongoing costs.

Conclusion and Implications

A poll conducted earlier this year showed that 68 percent of city-voters favor the SF Public Utilities Commission over PG&E as a utility provider. However, some have warned that a City purchase of PG&E's San Francisco assets and complete removal of its constituents from PG&E's customer base would only serve to increase the burden of non-departing customers and infrastructure network in already fire-prone areas. It is likely that any possible sale will take significant time to negotiate, and would require court approval or emergence from PG&E's ongoing bankruptcy proceeding before Judge Montali.
(Lilly McKenna)

CLIMATE CHANGE SCIENCE

RECENT SCIENTIFIC STUDIES ON CLIMATE CHANGE

Co-Benefits of Climate Change Mitigation on Air Quality and Public Health

Reduction of fossil fuels leads to the reduction of greenhouse gas (GHG) emissions, which contribute to climate change and to the reduction of sulphur dioxide, which in turn contribute to atmospheric aerosol particulates that are highly toxic when inhaled. On the other hand, aerosols also cool the atmosphere, so some climate models have predicted a large uptick in warming if fossils fuels are phased out too quickly, leading to a trade-off between climate change and air quality and human health.

A recent study by researchers at the Duke University and the University of Leeds investigated the effect of modelling parameters on this trade-off between climate change and air quality from reducing fossil fuels. To do this, they studied pathways in the Intergovernmental Panel of Climate Change (IPCC)'s Special Report on Global Warming of 1.5 °C (SR1.5), which they used to model the emissions in the energy sector associated with transitioning to clean energy: 1) assuming rapid fossil fuel reduction and 2) assuming a slower, more realistic phasing out of fossil fuels. The authors used the Finite Amplitude Impulse Response (FaIR) model to estimate the global mean surface temperature response to the different scenarios.

The goal of the study was to determine if the trade-offs between climate change and air quality exist if the realistic transition to clean energy is considered. Using current climate models adjusted for current SO_2 air quality controls, current atmospheric conditions and a realistic transition from fossil fuels to clean energy technologies, the study shows that the trade-off only exists in unrealistic or extreme cases. The authors also conclude that "there is no evidence for a conflict between climate and air-quality goals in the case of a worldwide transition to clean energy."

The authors note that uncertainties exist in the study's results, including those related to the treatment of methane, geospatial uncertainties, and the FaIR model itself, which includes uncertainties regarding equilibrium climate sensitivity (ECS), transient climate response (TCR), and strength of the effective radiative forcing (ERF). However, the authors assert that these uncertainties only impact unrealistic or extreme cases and have a small impact on the overall findings.

See, Drew Shindell, Christopher J. Smith. Climate and air-quality benefits of a realistic phase-out of fossil fuels. Nature, 2019; 573 (7774): 408 DOI: 10.1038/s41586-019-1554-z

Insight into Tarball Formation Hints at Climate Feedback

Forest fires and biomass burning emit large quantities of particulate matter (PM) pollution. This PM pollution has adverse human health impacts, but less defined direct effects on climate change. This is because certain PM reflects light and contributes to atmospheric cooling while other PM absorbs light and contributes to atmospheric warming. Whether a specific particle is a net warmer or a net cooler depends on its chemical and physical properties.

A "tarball" is a specific type of PM also known as "brown carbon." It is notable for being very nearly spherical and being almost entirely organic. In previous studies, tarballs accounted for approximately 30% of PM from biomass burning. Tarballs are significant for climate change, as they are very strong light-absorbing particles. Despite the strong atmospheric warming effect, the scientific community has not yet agreed upon a dominant formation mechanism.

A recent collaboration by scientists led out of the Meteorological Research Institute in Tsukuba, Japan sought to learn more about tarball formation by investigating how the chemical and physical composition of PM emitted from biomass burning changes over time. To do this, they took samples from plumes occurring during large forest fires in the summer of 2013 and analyzed them using transmission electron microscopy. The samples were organized by time and showed a steep increase in tarball presence as the plume aged. Ultimately, they found that as a biomass

burning plume ages, increases in nitrogen and oxygen molecules create chemical reactions that facilitate the formation of tarballs. This suggests that tarballs are forming as a secondary result of the chemical reactions that occur in biomass burning plumes within the first few hours following a burning event or fire.

These results are significant because both the incidence and magnitude of forest fires are expected to increase as a result of climate change. If there are more, larger fires, this work suggests there will be larger concentrations of tarball particles, which contribute to atmospheric warming. This creates a dangerous feedback cycle, as increased warming leads to increased tarball formation and vice versa. Still, more research into these tiny particles is necessary for determining their exact warming effects.

See, Adachi, K., et al. Spherical tarball particles form through rapid chemical and physical changes of organic matter in biomass-burning smoke. PNAS, 2019; DOI: 10.1073/pnas.1900129116.

Full Implementation of Cool Roofs Could Offset Most of Increased Heat Exposure in California

Extreme heat events such as heat waves are expected to become more frequent, longer, and more intense due to climate change. Heat waves cause mortality and hospitalizations, particularly to sensitive populations such as the elderly, children, sick, or people with limited access to air conditioning. Compounding the effects of overall warming, extreme heat risk in urban areas is exacerbated by the urban heat island effect, where the concentration of buildings and asphalt surfaces absorb additional solar radiation and keep cities warmer than surrounding rural areas. Potential mitigation strategies to reduce the urban heat island effect focus on reducing sunlight-absorbing surface area through increased vegetation or more reflective building coating materials.

A recent study from Lawrence Berkeley National Laboratory shows that widespread implementation of reflective "cool roofs" could offset the majority of the increased heat exposure due to climate change in California. The researchers performed high-resolution regional climate simulations to evaluate the interactions between climate change, population growth, and urban heat mitigation measures. They evaluated two potential climate change scenarios and found that locally extreme heat events will increase by mid-century (2035-2064) in almost all part of California. Currently, the state-wide urban population exposure to heat waves is around 37.3 million person-heatwaves per year. By mid-century, this is projected to increase to 52.3 to 74.4 million person-heatwaves per year for a warm or hot warming scenario, respectively. This increase will include longer and hotter heatwaves for populations that already experience hot summers such as in the Central Valley, as well as new exposures to populations that rarely experience heat waves along the Pacific coast such as the San Francisco Bay Area. However, if all existing and new residential, industrial, and commercial buildings in urban areas include cool roofs, the exposure would decrease to 35.0 to 50.9 million person-heatwaves per year for the two scenarios, respectively; where under the less-warming scenario, exposure would be *less* than current heatwave exposure despite the projected increase in population.

Several considerations may affect the effectiveness of cool roofs as a large-scale mitigation strategy. Cool roofs are roofs that generally reflect between 65 and 80 percent of the solar radiation that reaches their surfaces. These can be constructed from reflective materials or can consist of thick paint-like coatings applied retroactively. Cool roofs effectively offset daytime increases in temperature, however are ineffective at reducing nighttime temperatures; therefore, they may be most useful in locations where the nighttime heat stress is not anticipated to rise above dangerous levels. In addition, there are costs associated with cool roof implementation and retrofits, which should be weighed against other potential GHG or health effects mitigation effectiveness. Finally, cool roofs could compete with other rooftop-based GHG mitigation strategies such as solar panels and vegetative rooftops. This study shows that urban rooftop radiation absorption and reflection can make a substantial difference in the human effects of climate change.

See, P. Vahmani *et al.* 2019. Interacting implications of climate change, population dynamics, and urban heat mitigation for future exposure to heat extremes. *Environ. Res. Letters*. DOI: 10.1088/1748-9326/ab28b0.

Finding Methane Leaks Faster and Cheaper Using Mobile Monitoring Technologies

Deep reductions in methane (CH_4) emissions are critical to limiting global warming. Oil and gas activi-

ties comprise the largest industrial source of methane, and fugitive oil and gas methane emissions are increasingly targeted by regulations to reduce methane leakage throughout the oil and gas supply chain. Fugitive emissions are challenging to control because oil and gas activities are geographically dispersed and fugitive emission sources (*e.g.*, leaking equipment) must be found before they can be repaired. Traditional leak detection and repair (LDAR) programs that rely on optical gas imaging (OGI) technology are labor-intensive, slow and expensive.

A recent study reports results from the first independent, peer-reviewed effort to assess emerging mobile methane detection and quantification technologies. Researchers from Colorado State University, Stanford University and Environmental Defense Fund (EDF) assessed ten drone-, plane- and vehicle-based mobile leak detection technologies as part of the Stanford/EDF Mobile Monitoring Challenge. Using single-blind controlled releases tests at two locations, the researchers assessed the ability of technologies to detect, localize and quantify leaks.

The authors find that the mobile technologies are generally effective at detecting leaks and all technologies have the ability to localize leaks at the well pad-level. While the technologies are promising, future work is needed to improve quantification performance and reduce false positive detection rates for improved reliability. As the authors note, the mobile technologies currently require secondary inspection to identify leak location and repair opportunities and therefore complement, rather than substitute for, technology used in traditional LDAR programs.

The Stanford/EDF Mobile Monitoring Challenge was designed to advance mobile methane monitoring technologies by identifying and testing emerging technologies. As this study shows, mobile monitoring technologies promise faster, cheaper or more effective leak detection and have the potential to enable more cost-effective methane reductions. Future work is required to continue to improve and test the technologies, and a critical next step would be larger-scale pilot testing by the oil and gas industry.

See, Ravikumar, A.P., Sreedhara, S., Wang, J., Englander, J., Roda-Stuart, D., Bell, C., Zimmerle, D., Lyon, D., Mogstad, I., Ratner, B. and Brandt, A.R., 2019. Single-blind inter-comparison of methane detection technologies – results from the Stanford/EDF Mobile Monitoring Challenge. Elem Sci Anth, 7(1), p.37. DOI: http://doi.org/10.1525/elementa.373 (Abby Kirchofer, Libby Koolik, Shaena Berlin Ulissi, Ashley Krueder)

REGULATORY DEVELOPMENTS

U.S. FISH AND WILDLIFE SERVICE AND NOAA FISHERIES JOINTLY ANNOUNCE REVISIONS TO REGULATIONS IMPLEMENTING PORTIONS OF THE ENDANGERED SPECIES ACT

The U.S. Fish and Wildlife Service (Service) and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) (collectively: The Services) have revised their regulations implementing the federal Endangered Species Act (ESA). These changes are focused on three aspects: 1) the standards under which listings, delisting, reclassifications, and critical habitat designations are made; 2) the manner in which protections are applied to threatened species; and 3) the parameters under which federal agencies must consult with the Services to ensure that their actions do not jeopardize the continued existence of listed species or destroy or adversely modify critical habitat.

Factual Background

The ESA provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found. The lead federal agencies for implementing ESA are the Service and NOAA Fisheries. Species include birds, insects, fish, reptiles, mammals, crustaceans, flowers, grasses, and trees.

The ESA generally serves to accomplish these goals by way of two principle means. First, it prohibits any action that causes a "taking" of any listed species of endangered fish or wildlife. Likewise, the import, export, interstate, and foreign commerce of listed species are all generally prohibited. Second, the ESA requires federal agencies, in consultation with the Service and/or NOAA Fisheries, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species.

Revisions to Regulations

Listing and Delisting of Species

The ESA prescribes certain standards for the listing and delisting of threatened and endangered species. Among other things, the ESA requires the Services to decide whether to list a species "solely on the basis of the best scientific and commercial data available." The Services' prior regulations provided that they would make listing decisions "without reference to possible economic or other impacts of such determination." That phrase has now been deleted and would allow introduction of economic data (for informational purposes) into some listing decisions.

The ESA provides that a species may be listed as "threatened" if it:

> . . .is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

The new regulations also now specify that:

> . . .[t]he term foreseeable future extends only so far into the future as the Services can reasonably determine that both the future threats and the species' responses to those threats are likely.

The Services will now:

> . . .describe the foreseeable future on a case-by-case basis, using the best available data and taking into account considerations such as the species' life-history characteristics, threat-projection timeframes, and environmental variability.

The rule also adds that "[t]he Services need not identify the foreseeable future in terms of a specific period of time."

The new regulations also address the delisting of species and clarify that:

> . . .[t]he standard for a decision to delist a species is the same as the standard for a decision not to list it in the first instance.

The Services stated that this is consistent with their existing practice and interpretation of the ESA.

Designating Critical Habitat

The ESA requires the Services to designate "critical habitat" for a listed species at the time of listing "to the maximum extent prudent." A critical habitat designation increases the level of protection afforded a listed species from a jeopardy standard to a recovery standard. The new rules clarify the circumstances under which the Services can decline to designate critical habitat. In particular, they limit the Services' ability to designate as critical habitat areas that are not currently occupied by a listed species—unoccupied habitat will be designated only if the Services determine that occupied critical habitat is inadequate for the conservation of the species.

The rules also add a requirement that, at a minimum, an unoccupied area must have one or more of the physical or biological features essential to the conservation of the species in order to be considered as potential critical habitat, and there must be a "reasonable certainty" that the land "will contribute to the conservation of the species."

Protection of Threatened Species

While the ESA prohibits the "take" of species listed as "endangered," this prohibition does not extend to species listed as "threatened" unless the Service or NOAA Fisheries adopts a rule extending that protection to such species. Historically, the Service has relied on a "blanket" rule that automatically extends these protections to threatened species. The new rules would rescind this blanket protection and permit the Service to extend protection on a species-by-species basis, consistent with the manner in which NOAA Fisheries has treated threatened species. The regulations do not alter any prohibitions for species already listed as threatened.

Agency Consultation

The new rules also change a number of definitions and procedural steps associated with the "Section 7" consultation process. These include, among other things: a simplified definition of "effects of the action"; a definition of "environmental baseline"; and a revision to the definition of "destruction or adverse modification."

Conclusion and Implications

These new and very substantial revisions to the Endangered Species Act modify important standards and procedures under which the ESA is implemented and have been the source of considerable debate. The new regulations are available online at: https://www.fws.gov/endangered/improving_ESA/regulation-revisions.html
(James Purvis)

THE FEDERAL GOVERNMENT AND THE STATE OF CALIFORNIA INTENSIFY THEIR FIGHT OVER THE REGULATION OF VEHICLE EMISSIONS STANDARDS

A confrontation that has been a year (or more) in the making has finally materialized. On September 18, 2019, via Twitter, President Donald Trump announced: "The Trump Administration is revoking California's Federal Waiver on emissions in order to produce far less expensive cars for the consumer, while at the same time making the cars substantially SAFER." The next day, the Trump administration announced its "One National Program Rule."

The Trump administration's actions came a few weeks after four major auto manufacturers agreed with the California Air Resources Board (CARB) to voluntarily reduce emissions under a framework that "can serve as an alternative path forward for clean vehicle standards nationwide." The State of California has vowed to fight any action by the Trump administration to revoke California's waiver.

Trump Administration's 2018 SAFE Vehicles Rule

On August 1, 2018, the Trump administration announced its plan to freeze emission standards at model year 2020 levels as set forth in the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks (SAFE Vehicles Rule). At the time, Governor Jerry Brown called President Trump's proposal "reckless" and vowed that "California will fight this stupidity in

every conceivable way possible." CARB responded to the proposed SAFE by proposing amendments to its vehicle emissions regulations and, close to one year later, it also reached the aforementioned agreement with Ford Motor Company (Ford), Honda Motor Company Ltd. (Honda), BMW of North America (BMW) and Volkswagen Group of America (VW).

California Air Resources Board's Agreement with Ford, Honda, BMW and VW

On July 25, 2019, CARB announced that Ford, Honda, BMW and VW had agreed to the terms of a voluntary framework that supports a national program leading to:

> . . .at least 30 percent more greenhouse gas emission reductions compared to splitting up the standards between those followed by California and 13 other states and the less stringent standards proposed by the Trump administration.

The framework allows gasoline and diesel cars and light trucks to continue at about the same rate as the current program through 2026 versus the Trump administration's plan to roll back emissions standards, effectively freezing them at the 2020 level.

The framework's terms include the following:

- Extend the current 2025 model year standard until 2026 and smooth out the interim years from 2022 through 2025 to provide additional lead time and slightly less aggressive year-over-year reductions. (That is, changing the original year-over-year 4.7 percent greenhouse gas (GHG) reduction over four years to 3.7 percent over five years.)

- Support the transition to electric vehicles by rewarding companies that sell more EVs with additional credits to meet the GHG standard for their entire fleet, while ensuring that gas and diesel vehicles also get progressively cleaner over time.

- Provide an incentive to car companies to install more GHG-reducing technologies (such as making the car more aerodynamic at highway speeds or improving the vehicle's internal temperature control) by modestly revising limitations on their usage, and streamlining agency review and approval for new technologies.

- Simplify compliance by removing the requirement to consider upstream GHG emissions associated with the production of the electricity used by electric vehicles when calculating the GHG emissions for a car maker's fleet.

Participating companies are choosing to pursue a voluntary agreement in which California accepts these terms as compliance with its program, given its authority, rather than challenge California's GHG and zero emission vehicle (ZEV) programs.

The Trump administration responded to the framework in September by launching a Justice Department antitrust investigation against Ford, Honda, BMW and VW, seeking to determine whether the auto manufacturers violated federal law by entering into their agreement with California.

The 'One National Program Rule'

One day after President Trump's California waiver announcement, the National Highway Traffic Safety Administration (NHTSA) and the U.S. Environmental Protection Agency (EPA) announced the "One National Program Rule" to "enable the federal government to provide nationwide uniform fuel economy and greenhouse gas emission standards for automobile and light duty trucks."

According to a fact sheet issued by the NHTSA and EPA, The One National Program Rule finalizes critical parts of the SAFE Vehicles Rule.

The One National Program Rule makes clear that federal law preempts state and local tailpipe GHG emissions standards as well as ZEV mandates.

The NHTSA is affirming its statutory authority to set nationally applicable fuel economy standards under the express preemption provisions of the Energy Policy and Conservation Act dictates that such state and local programs are preempted.

The One National Program Rule signals that EPA is withdrawing the Clean Air Act preemption waiver it granted to the State of California in January 2013 as it relates to California's GHG and ZEV programs (the action does not affect California's ability to enforce its Low Emission Vehicle program and other clean air standards to address harmful ozone-forming vehicle emissions).

The NHTSA and EPA continue work to finalize the remaining portions of the SAFE Vehicles Rule, to

address proposed revisions to the federal fuel economy and GHG vehicle emissions standards.

Conclusion and Implications

For the past year, many stakeholders hoped that California and the Trump administration could reach some type of agreement to establish national vehicle emissions standards acceptable to all. The latest actions from the Trump administration appear to quash any remaining hope and now it appears that California and the Trump administration are entrenched for a long legal battle.
(Kathryn Casey)

PENALTIES & SANCTIONS

RECENT INVESTIGATIONS, SETTLEMENTS, PENALTIES AND SANCTIONS

Editor's Note: Complaints and indictments discussed below are merely allegations unless or until they are proven in a court of law of competent jurisdiction. All accused are presumed innocent until convicted or judged liable. Most settlements are subject to a public comment period.

•On September 19, 2019, the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Justice (DOJ) announced a settlement with Hyundai Construction Equipment Americas Inc. and Hyundai Heavy Industries Co. Ltd (collectively, Hyundai) to resolve alleged violations of Title II of the federal Clean Air Act (CAA) involving the sale of heavy construction vehicles with diesel engines not certified to applicable emission standards. Hyundai has agreed to pay a $47 million civil penalty. From 2012 to 2015, Hyundai pre-purchased or "stockpiled" engines that met outdated emissions standards and then illegally imported, marketed, and sold heavy construction equipment with these engines installed. Additionally, Hyundai imported, marketed, and sold units of equipment in quantities that exceeded their exemption allowance limit under the Transition Program for Equipment Manufacturers. Hyundai allegedly introduced into United States commerce at least 2,269 illegal diesel nonroad vehicles. In 2015, EPA received a whistleblower tip reporting illegal importation of non-road diesel equipment that did not meet applicable emission standards. Based on the information received from the whistleblower, EPA initiated both criminal and civil investigations. In the criminal proceedings, the court imposed a sentence of, among other things, a $1,950,000 criminal fine. Hyundai's illegal nonroad diesel vehicles were not certified as meeting applicable pollution emissions standards, including for nitrogen oxides and particulate matter.

•On September 12, 2019, EPA and DOJ announced a settlement with Performance Diesel Inc. for alleged violations of the CAA associated with the manufacture, sale, and installation of aftermarket products that defeat the emissions control systems of heavy-duty diesel engines. As part of the settlement, Performance has agreed to stop the sale of all products the government alleges violate the CAA. Performance will pay a civil penalty of $1,100,000 over two years, due to its limited financial ability to pay a higher penalty. The United States alleges that Performance sold at least 5,549 aftermarket products that defeat the emissions control systems of heavy-duty diesel engines. Before May 1, 2018, Performance manufactured, sold, and installed electronic tuning software, known as "tunes," that allowed Performance to disable emissions control devices, or otherwise bypass, defeat, or render inoperative parts of the engine used to comply with CAA emission standards. Perfomance's aftermarket products are designed for use with numerous models of heavy-duty diesel engines manufactured by Caterpillar, Cummins, Detroit Diesel, International, and Paccar. For any new tuning products, Performance must demonstrate a reasonable basis that its products do not increase emissions by obtaining a California Air Resources Board (CARB) Executive Order prior to manufacture, sale, offering for sale, and installation of the products. For existing products not currently covered by a CARB Executive Order, Performance must demonstrate a reasonable basis by submitting a complete application to CARB that covers the tunes prior to manufacture, sale, offering for sale, and installation. A complete application would include emission test results sufficient to satisfy CARB's requirements for obtaining an Executive Order.

•On September 18, 2019, EPA announced that it had reached a settlement with Hexion Inc. for allegations that the company failed to comply with federal chemical reporting requirements. Hexion, based in Columbus, Oregon, is a chemical company that formulates and sells specialty adhesives, coatings, and composites for business and industry. Hexion's Springfield, Ohio facility failed to fully comply with Toxics Release Inventory reporting obligations. Under the settlement, Hexion has agreed to pay a $60,000 penalty for its alleged violations of section 313 of

the Emergency Planning and Community Right-to-know Act from 2013 to 2017. Specifically, Hexion did not report is on-site waste treatment and on-site energy recovery of the toxic chemicals: formaldehyde, phenol, and methanol, as well as the on-site recycling of methanol. Hexion will undertake a supplemental environmental project, worth an estimated $135,000 as part of the settlement, installing additional pollution reduction equipment at its facility. The equipment will reduce plant emissions of formaldehyde, methanol, and phenol.

•On September 12, 2019, EPA announced an agreement with Chemical Solvents, Inc. resolving allegations that the company violated the CAA, Resource Conservation and Recovery Act (RCRA), and Clean Water Act at the company's Jennings and Denison sites located in Cleveland, Ohio. Chemical Solvents has solvent reclamation and chemical blending operations at the Denison site and a commodity chemicals business at the Jennings site. Chemical Solvents allegedly failed to comply with emission control requirements for process vents, control devices, hazardous waste tanks, and equipment leaks under RCRA. It also allegedly failed to meet control efficiency requirements and to operate and maintain monitoring equipment, and lacked proper recordkeeping under the CAA. Chemical Solvents' alleged Clean Water Act violations also included numerous exceedances of effluent discharge limits into the regional sewer systems and stormwater violations. Under the consent decree, Chemical Solvents will pay a $400,000 penalty and upgrade control devices and monitoring equipment, implement a leak detection and repair program for waste and product tanks, and close a wastewater sump. The company will also install a new sewer lateral, hire a professional engineer to complete a piping audit, submit a compliance plan based on the wastewater sampling results, and update its stormwater pollution prevention plan.

•On September 11, 2019, EPA, along with the Alabama Department of Environmental Management and the U.S. Department of Justice, announced a settlement agreement with Nouryon Functional Chemicals LLC to resolve allegations that the company violated the CAA at its sulfuric acid plant located in Axis, Alabama. Pursuant to the settlement, Nouryon Functional will pay $300,000 in civil penalties and perform an environmental mitigation project valued at $150,000. The cost of associated compliance measures is approximately $9.2 million, of which Nouryon Functional has already spent approximately $8,000,000 to install a peroxide scrubber. Nouryon allegedly violated CAA requirements related to the Prevention of Significant Deterioration (PSD) program, Title V operating permits, and the federally-enforceable Alabama State Implementation Plan (SIP). Nouryon's facility is a chemical plant with six different process areas: sulfuric acid, crystex, carbon disulfide, sodium hydrosulfide, monchloroacetic acid, and sulfur chlorides units. The sulfuric acid plant, one of the oldest process units at the facility, was originally constructed in 1956. EPA alleges that Nouron undertook a major modification, specifically the replacement of the external superheater, without obtaining pre-construction permits or installing and operating the best available control technology for sulfur dioxide and sulfuric acid mist emissions as required under PSD and the SIP.

•On September 5, 2019, EPA announced that Delta Western, LLC has settled alleged CAA violations at the company's bulk petroleum storage and distribution facility in Juneau, Alaska. Delta Western distributes diesel and gasoline to commercial customers in Alaska from its facility in Juneau. After issuing an information request to the facility in April 2018, EPA alleged that Delta Western violated the CAA New Source Performance Standards for storage vessels and gasoline distribution terminals. EPA also alleged that the company failed to comply with the National Emission Standards for Hazardous Air Pollutants that apply to bulk gasoline distribution and dispensing facilities. In addition to paying a $400,000 penalty, Delta Western will install internal floating roofs to control emissions from three high capacity gasoline storage tanks and install additional controls to reduce emissions from gasoline delivery trucks loading at their terminal. These upgrades are scheduled to be completed in 2019.

•On August 26, 2019, EPA announced that the Environmental Appeals Board had approved a settlement resolving violations of the Formaldehyde Standards for Composite Wood Products Act of 2010 and its implementing Formaldehyde Rule, which was effective June 1, 2018. This is the first enforcement

action taken by EPA for violations of the Formaldehyde regulations. The settlement with Global Sourcing Solutions, a division of Turner Logistics, LLC of Montvale, New Jersey, resolves violations associated with the importation of noncompliant composite wood products. Under the consent agreement, Global Sourcing Solutions agreed to take corrective actions to come into compliance and will pay a penalty of $544,064. As part of the settlement, Global Sourcing Solutions, although not admitting liability, has modified its practices in construction projects across the country to assure future compliance with the Formaldehyde Rule.
(Allison Smith)

LAWSUITS FILED OR PENDING

CALIFORNIA WATER DISTRICT CONTINUES LITIGATION DESIGNED TO THWART PROPOSED WATER DESALINATION PROJECT

On August 15, 2019, the Marina Coast Water District (District) filed a petition for writ of mandate and injunctive relief in Monterey County Superior Court to prevent California American Water (Cal Am) from moving forward with the construction of a desalination plant project (Desal Project). The petition claims that the approval of a permit for the Desal Project by the County of Monterey (County) on July 15 violated the California Environmental Quality Act (CEQA), the Water Code and California Planning and Zoning Law. The lawsuit is part of an ongoing effort by the District to derail the Desal Project, fearing its potential impact on key District water supplies. [*Marina Coast Water District v. California American Water,* Case No. 19CV003305(Monterey County Super. Ct.).]

The California American Desalination Project

Cal Am, a private investor-owned utility that provides water and wastewater services to over 600,000 customers in the Monterey area, considers the $329 million Desal Project necessary for securing adequate future supply, due to a State Water Resources Control Board cease and desist order limiting Cal Am's pumping from the Carmel River and other supply challenges facing the company. The Desal Project is one of three primary components included in the broader Cal Am initiative known as the Monterey Peninsula Water Supply Project (Water Supply Project). According to Cal Am, the Desal Project involves drawing seawater through the ocean floor using subsurface slant wells constructed near the tide line north of the City of Marina. Water would then be piped to the new 6.4 million gpd desalination plant Cal Am intends to build near the Monterey One Water Regional Treatment Plant.

The District believes that instead of seawater, the slant wells for the Desal Project will draw freshwater from a nearby aquifer that is recharging the Salinas Valley Groundwater Basin (Basin) and protecting the Basin against seawater intrusion, jeopardizing a critical source of groundwater supply for the District and Marina and Ord communities served by the District. The District has argued that Cal Am will effectively be taking 16,000 acre-feet of Basin water to which it has no rights, when the Basin has already been deemed to be in a state of critical overdraft by the California Department of Water Resources.

The District's Lawsuit

The District's August 2019 petition alleges the county board of supervisors approved a use permit for the Desal Project without adequate review of environmental impacts under CEQA, in light of new data suggesting that groundwater impacts of the Desal Project would be more substantial than assumed by the Environmental Impact Report (EIR) previously approved by the California Public Utilities Commission (CPUC) and relied upon by the County for purposes of issuing the disputed permit. The District further claims that the EIR fails to consider alternatives to the extent required by CEQA, such as an expansion of the Pure Water Monterey purchase program, another part of the Cal Am Water Supply Project. The District's petition also alleges violations of the Water Code and zoning laws resulting from the County's approval of the permit prior to a showing by Cal Am that it had secured the requisite water rights for the Desal Project.

The Ongoing Legal Battle

The District's ongoing legal battle against the Desal Project has been waged on multiple fronts and formally began in October 2018, when the District and the City of Marina petitioned the California Supreme Court for review of CPUC's approval of the EIR, citing the same deficiencies referenced in the new superior court suit. The Supreme Court denied the District's petition for review on August 28, 2019 without addressing the merits of the claim. According to a Cal Am spokesperson, the District has now brought five separate lawsuits to stop the Desal

Project, three of which have been unsuccessful. Thus far, the District's claims have largely been based on similar arguments involving the sufficiency of environmental review and water rights.

Conclusion and Implications

The District's August 2019 lawsuit shows that it remains committed to contesting the Cal Am Desal Project despite previous setbacks, reflecting the severity of the perceived threat to District water supplies. Though similar CEQA and water rights claims have been unsuccessful in other contexts, the District appears willing to exhaust its opportunities to make those arguments. As the legal battle over the Desal Project continues, the District will likely consider future challenges which may not presently be available. Cal Am still needs to secure approvals for parts of the Desal Project from the State Water Resources Control Board, the Regional Water Quality Control Board, and the California Coastal Commission. (Wesley A. Miliband, Andrew D. Foley)

JUDICIAL DEVELOPMENTS

U.S. DISTRICT COURT FINDS DELIBERATIVE PROCESS PRIVILEGE SHIELDS EPA ALGORITHMS FOR REDUCING GREENHOUSE GAS EMISSIONS FROM DISCLOSURE UNDER FOIA

Natural Resources Defense Council v. U.S. Environmental Protection Agency, ___F.Supp.3d___, Case No. 18-cv-11227 (S.D. N.Y. Aug. 22, 2019).

Exemption 5 from the Freedom of Information Act (FOIA, 5 U.S.C. § 552 *et seq.*)—also known as the "deliberative process privilege"— shields from disclosure inter- and intra-agency memoranda and letters documenting "open and frank discussion among" public officials who make agency decisions, where such documents "would not be available by law to a party other than an agency in litigation with another agency." 5 U.S.C. § 552(b)(5); *Dept. of Interior v. Klamath Water Users Protective Ass'n*, 532 U.S. 1, 8-9 (2001).

The U.S. District Court for the Southern District of New York has held that Exemption 5 supports the U.S. Environmental Protection Agency's (EPA) decision to withhold an algorithm developed to assist the agency in developing automobile emissions standards.

Background

The federal Clean Air Act (CAA, 42 U.S.C. § 7401 *et seq.*) requires that EPA establish nationwide standards for greenhouse gas emissions from new automobiles. 42 U.S.C. § 7521(a)(1). Auto manufacturers can choose from among "an almost infinite number of technology combinations" to ensure their products comply with the standards. Emissions standards:

> . . .shall take effect after such period as … necessary to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance within such period. 5 U.S.C. 7521(a)(2).

EPA developed a computer program, the "Optimization Model for Reducing Emissions of Greenhouse Gasses from Automobiles" or "OMEGA":

> . . .to assist itself in evaluating the cost and effectiveness of certain technologies, predicting the various ways that manufacturers could combine technologies to achieve compliance, and estimating the cost of complying with various emissions standards.

Quantitative data, "such as the specific vehicle models on the market, available emission-reduction technologies and corresponding costs, hypothetical emission targets, and fuel costs," is fed into OMEGA, and the algorithms in the "core model" yield the output data:

> . . .including which combinations of technologies a manufacturer could use to meet a given emissions target and the cost to each manufacturer, per vehicle, of implementing those technologies.

EPA has used OMEGA in creating emission standards for greenhouse gas emissions from automobiles in the past, but in 2018 EPA relied instead on the Department of Transportation's Corporate Average Fuel Economy (CAFE) and tailpipe carbon dioxide emissions standards for passenger cars and light trucks to establish new standards for model years 2021-2026. However, EPA stated it could use OMEGA to formulate emissions standards in future rulemaking.

Plaintiff environmental group sought disclosure of OMEGA, including its core model, via FOIA; EPA withheld the core model pursuant to FOIA Exemption 5, the deliberative process privilege. The environmental group sought review of that decision.

The District Court's Decision

FOIA Exemption 5 "has two requirements. First, 'the communication must be "inter-agency or intra-agency."' … Second, 'the document must be (i) "predecisional, *i.e.*, prepared in order to assist an agency decision-maker in arriving at his decision,"

and (ii) "deliberative, *i.e.*, actually related to the process by which policies are formulated."'" *Brennan Ctr. For Justice at New York Univ. Sch. of Law v. Dep't of Homeland Sec.*, 331 F.Supp.3d 74, 93 (S.D. N.Y. 2018). Further, withholding:

> . . .is permissible only if an 'agency reasonably foresees that disclosure would harm an interest protected by [the] exemption.' *New York Times Co. v. United State Dep't of State*, No. 19-cv-645, 2019 WL 2994288 at *3 (S.D. N.Y. July 9, 2019).

Computer Core Model May Be a Communication and May Be Withheld

The District Court rejected plaintiff's argument that the core model falls outside Exemption 5 "because it is not a 'letter' or 'memorandum,' … define[d] as 'prose documents used for interpersonal communication.'" The court cited Circuit Court of Appeals authority holding "computer printout[s]" (*Chilivis v. S.E.C.*, 673 F.2d 1205, 1212 n.15 (11th Cir. 1982)) and "data on government computers" (*Hunton Y Williams v. U.S. Dep't of Justice*, 590 F.3d 272, 280-281 (4th Cir. 2010)) may be "communications" within Exemption 5's scope. *See also, Lead Indus. Ass'n, Inc. v. Occupational Safety & Health Admin.*, 610 F.2d 70, 84–85 (2d Cir. 1979) ("tabular or graphic summaries" of data may be withheld); *Goodrich Corp. v. U.S. E.P.A.*, 593 F. Supp. 2d 184, 189–90 (D.D.C. 2009) (a "groundwater flow model and a draft of the model itself properly withheld); *Cleary, Gottlieb, Steen & Hamilton v. Dep't of Health & Human Servs.*, 844 F. Supp. 770, 782–83 (D. D.C. 1993) (computer software program shielded from disclosure).

OMEGA Constitutes a 'Predecisional' Documentation

Although EPA did not rely on OMEGA in the most recent round of decision-making regarding greenhouse gas emission standards, the District Court nonetheless found that OMEGA constitutes "predecisional" documentation of agency decision-making "A document is predecisional when it is 'prepared in order to assist an agency decisionmaker in arriving at [a] decision.'" *Grand Cent. P'ship, Inc. v. Cuomo*, 166 F.3d 473, 482 (2d Cir. 1999).

> To find that a document is predecisional, [a] court must be able 'to pinpoint an agency decision or policy to which the document contributed,' or was intended to contribute. *Brennan Ctr. for Justice*, 331 F.Supp.3d at 93.

And, the agency:

> . . .need not 'point to a specific decision made by [the agency] in reliance on [the document] ... [as long as the document] was prepared to assist ... decisionmaking on a specific issue. *Amnesty Int'l USA v. C.I.A.*, 728 F.Supp.2d 479, 516, 518 (S.D. N.Y. 2010).

The court rejected plaintiff's argument that OMEGA was not predecisional because EPA instead relied on the Department of Transportation's CAFE standards.

The parties did not dispute that the EPA developed OMEGA to assist EPA decisionmakers in establishing standards for GHG emissions from new automobiles pursuant to the EPA's duty under the federal Clean Air Act. Though the EPA ultimately relied on the Department of Transportation's CAFE model instead of OMEGA in developing the proposed Safe Vehicles Rule, OMEGA:

> . . .nonetheless qualifies as "predecisional" because it was "intended to contribute" to EPA policy decisions regarding GHG emissions standards for new vehicles. (Internal citations omitted.)

OMEGA was 'Deliberative' Rather than Merely a Compilation of Data

Lastly, the District Court found that EPA's evidence "adequately explain[ed] how OMEGA … 'bears on the formulation or exercise of agency policy-oriented *judgment*'" so as to qualify as "deliberative," rather than merely being a compilation of numerical data. Quoting *Cuomo*, 166 F.3d at 482, emphasis original. Specifically, a declaration from the Assistant Administrator for the EPA Office of Air and Radiation stated that:

> . . .[t]he inclusion or exclusion of analytical tools, including changes to the algorithms themselves, track the analytical and policy framework

of draft versions of or discussions about potential accompanying regulations.

The court analogized this to the withholding, as deliberative, of "cost estimates prepared by [the Navy] in the course of ... selecting homeports for ships"…, though they could plausibly be labeled "factual material." *Quarles v. Dep't of Navy*, 893 F.2d 390, 391–393 (D.C. Cir. 1990). The *Quarles* court explained that:

> . . .'[n]umbers have a surface precision that may lead the unsophisticated to think of them as fixed,' but sometimes they can 'derive from a complex set of judgments—projecting needs, studying prior endeavors and assessing possible suppliers, [and thus] partake of just that elasticity that has persuaded courts to provide shelter for opinions generally.' *Ibid.*

But while the Navy's cost estimates "*derive* from a complex set of judgments," OMEGA's core model "is a manifestation of that 'complex set of judgments' *itself*" and thus shielded from disclosure by Exemption 5.

Conclusion and Implications

The District Court's analysis recognizes the extent to which complex, iterative policy analysis is increasingly embodied in algorithms. While raw data inputs and post-analytical outputs may still be subject to disclosure, internal agency policy debates and considerations reflected in evolving computer analytical tools meet the definition of "deliberative" agency communications shielded from disclosure under FOIA. (Deborah Quick)

CALIFORNIA COURT UPHOLDS CITY'S APPROVAL OF INFILL PROJECT IN THE FIRST OPINION TO ADDRESS SUSTAINABLE COMMUNITIES ENVIRONMENTAL ASSESSMENT

Sacramentans for Fair Planning v. City of Sacramento,
___Cal.App.5th___, Case No. C086182 (3rd Dist. July 18, 2019).

California's Third District Court of Appeal upheld the City of Sacramento's reliance on a Sustainable Communities Environmental Assessment (SCEA), a relatively new method for conducting streamlined review under the California Environmental Quality Act (CEQA) for certain projects that help the state meet its greenhouse gas (GHG) reduction targets. (*See*, Pub. Resources Code, § 21155.2, subd. (b).) The decision is the *first published opinion* addressing the propriety of an SCEA. The court held that the transit priority project at issue was consistent with the region's Sustainable Communities Strategy and therefore the city's reliance on the SCEA complied with CEQA.

The court also upheld the city's reliance on a unique provision in its General Plan that allows the city to approve projects that are inconsistent with the city's height and density limits if the projects offer significant community benefits.

Sustainable Communities and Climate Protection Act

The Sustainable Communities and Climate Protection Act (SB 375) was created to integrate transportation and land use planning to reduce GHG emissions. SB 375 directed the California Air Resources Board (CARB) to develop regional targets for automobiles and light trucks to reduce emissions. In turn, federally designated metropolitan planning organizations (MPOs) must now include a Sustainable Communities Strategy (SCS) in their regional transportation plans/ metropolitan transportation plan (MTP). (Gov. Code, § 65080, subd. (b)(2)(B).) MTP/SCSs direct the location and intensity of future land use developments on a regional scale to reduce vehicle emissions. The Sacramento Area Council of Governments (SACOG) is the MPO for the Sacramento area. SACOG adopted an MTP/SCS for the region in 2012 and certified an EIR for the MTP/SCS at that time.

Under SB 375, the mandated reductions may be achieved through a variety of methods, including "smart growth planning." The Legislature determined that one type of development that can help reduce vehicular GHG emissions is a "transit priority project." As defined in the statute, this type of project contains at least 50 percent residential use, has a

minimum density of 20 units per acre, and is located within one-half mile of a major transit stop.

To boost development of transit priority projects, SB 375 allows for streamlined CEQA review through an SCEA if the project: 1) is consistent with the general use designation, density, building intensity, and applicable policies specified for the project area in the strategy; and 2) incorporates all feasible mitigation measures, performance standards, and criteria set forth in the prior applicable environmental impact reports and which were adopted as findings. (Pub. Resources Code, §§ 21155, subd. (a), 21155.2, subds. (a), (b).)

Factual and Procedural Background

The "Yamanee" project at issue in *Sacramentans* is a proposed 15-story multi-use building made up of one floor of commercial space, three levels of parking, residential condominiums on ten floors, and one floor of residential amenities. The building is proposed to be located near public transit in Sacramento's growing "Midtown" area, adjacent to the city's downtown. The project is located in the MTP/SCS's central city subarea of a "Center and Corridor Community." Under the MTP/SCS, Center and Corridor Communities are typically higher density and more mixed than surrounding land uses. SAGOG organized the MTP/SCS in such a way that policies for reducing GHG emissions were embedded in the MTP/SCS's growth forecast assumptions. Thus, projects that are consistent with the MTP/SCS's growth forecasts are automatically consistent with the MTP/SCS's emission-reduction policies.

The city determined that the Yamanee project qualified as a transit priority project and that the project was consistent with the general land use designation, density, building intensity, and applicable policies in the MTP/SCS. Therefore, the city used an SCEA to review the project under CEQA. The SCEA explained that, as a transit priority project, the Yamanee project would increase housing options near high quality transit and reduce vehicle miles traveled. It also explained that the project is consistent with the MTP/SCS's forecast of low to high-density residential and mixed uses in the center subarea of the Center and Corridor Community.

The development proposed by the project is also denser and more intense than what would ordinarily be allowed under the city's General Plan and zoning code. The city approved the project, however, under a provision in its General Plan that allows the city to approve more intensive development when a project's "significant community benefits" outweigh strict adherence to the density and intensity requirements. The city determined that the project would have several significant community benefits, including helping the city to achieve its goal of building 10,000 new residential units in the central city by 2025, and reducing dependency on personal vehicles. The city found that these, and other benefits, outweighed strict adherence to the city's density and intensity limits.

The city council upheld the city planning and design commission's approval of the project and rejected the petitioner's appeal of that decision. The petitioner sought a writ of mandate in the Superior Court, claiming that the city's approval of the project violated CEQA and the State Planning and Zoning Law. The Superior Court denied the petition and this appeal followed.

The Court of Appeal's Decision

The California Environmental Quality Act

The Court of Appeal rejected the petitioner's claim that the city erred by relying on SACOG's MTP/SCS to justify using an SCEA. The petitioner argued that because the MTP/SCS lacked specific density and building intensity standards, the city could not rely on it as a basis for an SCEA. Further, petitioner claimed that the MTP/SCS undermined the city's General Plan because it treats the city's center as "higher density," whereas the General Plan sets forth a more nuanced approach under which building intensities and densities increase the closer a development gets to the downtown. These arguments, concluded the court, were premised on a misunderstanding of the MTP/SCS's role. An MTP/SCS does not regulate land use. The purpose of an MTP/SCS is to establish a *regional* development pattern, not site-specific zoning. SB 375 authorized the city to review the project in an SCEA if the project was consistent with the regional strategy. Because it was, the city was allowed to rely on an SCEA. Although, as the petitioner contended, reliance on an SCEA could mean that certain projects receive less environmental review than traditionally required under CEQA, the court advised that the petitioner should take this con-

cern to the California Legislature, not the courts.

The court also rejected the petitioner's claim that the city erred by relying on previous EIRs for the General Plan and MTP/SCS to avoid analyzing the project's cumulative impacts. In particular, the petitioner claimed that streamlined review was inappropriate in this case because no prior environmental analysis had considered the cumulative impacts of high-rise development in Sacramento's midtown. The court explained that CEQA required the city to prepare an Initial Study (IS) before drafting the SCEA. The city's IS for the project concluded that cumulative effects had, in fact, been adequately addressed and mitigated, and therefore did not need to be analyzed further in the SCEA. Additionally, the project included all applicable mitigation measures recommended in the prior EIRs. The petitioner failed to show that the city's analysis was not factually supported. Accordingly, the city did not err by relying on prior cumulative impact analyses.

Planning and Zoning Law

The petitioner argued that the city's decision to allow the project to exceed the General Plan and zoning code's intensity and density standards constituted unlawful "spot zoning." The court explained that spot zoning occurs where a small parcel is restricted and given fewer rights than the surrounding property (*e.g.*, when a lot is restricted to residential uses even though it is surrounded by exclusively commercial uses). This case, explained the court, is not a spot-zoning case in that the property was not given lesser development rights than its neighboring parcels. The petitioner argued that the neighboring parcels had, in fact, been given lesser development rights through the city's approval of the project, but there was no evidence in the record that any neighboring owner sought and was denied permission to develop at a greater intensity or that the city would arbitrarily refuse to consider an application for such development.

The petitioner also argued that the phrase "significant community benefit" as used in the city's General Plan was unconstitutionally vague. The court disagreed, explaining that zoning standards in California are required to be made "'in accord with the general health, safety, and welfare standard,'" and that the phrase "significant community benefit" was no less vague than the phrase "general welfare." Additionally, held the court, the phrase "significant community benefit" provides sufficient direction to implement the policy in accordance with the General Plan.

The court also held that the city had articulated a rational basis for the policy allowing the city to waive the density and intensity standards for projects that provide significant community benefits, which is all that the California Constitution required.

Conclusion and Implications

In this case, the City of Sacramento successfully employed CEQA's streamlined provisions for transit priority projects to expedite and simplify its environmental review of an infill project that will help the city meet its aggressive new housing goal and reduce GHG emissions. As California continues to combat the dual threats of a housing shortage and climate change, cities and counties are likely to increasingly rely on streamlined approaches to the approval process for mixed-use projects near public transit. The court's opinion is available online at: https://www.courts.ca.gov/opinions/documents/C086182.PDF
(Caroline Soto and Christina Berglund)

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