



the weekly anthropocene



dispatches from the wild, weird world of humanity and its biosphere

By Sam Matey

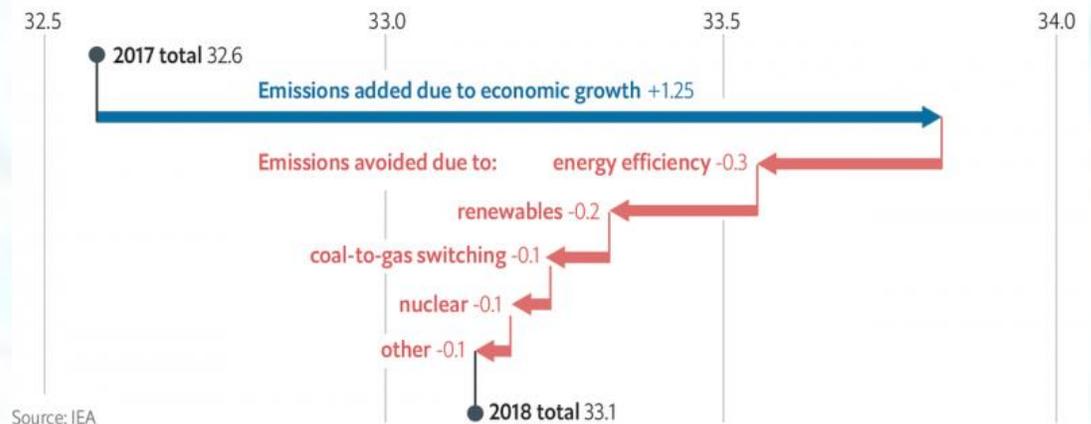
US Climate Policy: Two Huge Court Actions. Two new court decisions have put a halt to irresponsible drilling programs, a powerful step forward in reducing uncontrolled exploitation of fossil fuels. First, U.S. District Court Judge Sharon Gleason ruled that President Trump did not have the authority to rescind President Obama’s bans on oil drilling in the American Arctic and parts of the Atlantic without the consent of Congress. This immediately prevents the sale of leases to drill for oil in these fragile environments. Second, U.S. District Court Judge Rudolph Contreras cancelled 282 oil and gas projects in Wyoming for failing to consider the impact that the drilling would have on climate change in their environmental impact assessments. Judge Contreras wrote “Given the national, cumulative nature of climate change, considering each individual drilling project in a vacuum deprives the agency and the public of the context necessary to evaluate oil and gas drilling on federal land before irretrievably committing to that drilling.” In the absence of a science-literate President, court actions like these are vital tools to prevent uncontrolled extraction and burning of fossil fuels. Spectacular news! For more on Gleason’s ruling, see goo.gl/HxN9ve. For more on Contreras’ ruling, see goo.gl/5mK1mj.

New Reports: Energy Consumption Rising.

In the wake of the two new court actions, two vital new reports have given us valuable new information on climate change. First, the International Energy Agency has released a report on world energy consumption in 2018. The

One step forward...

Change in global energy-related emissions, 2017-18, Gt CO₂



Source: IEA

The Economist

report found that humanity emitted 33.1 gigatonnes of CO₂ in 2018, up from 32.6 gigatonnes in 2017. The report concludes that the majority of the increase was driven by new coal plants in Asia. As can be seen in the graph above, although energy efficiency, renewables (solar power generation rose by 31% in 2018!), and switching from coal to natural gas reduced emissions somewhat, there is still a huge amount of work left to be done. The world needs strong international leadership to enact a transition to renewable energy to ensure a livable Anthropocene, and we need it yesterday. For more, see *The Economist’s* excellent breakdown of the report at goo.gl/dmx8cV.



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New Reports: The Coal Cost Crossover.

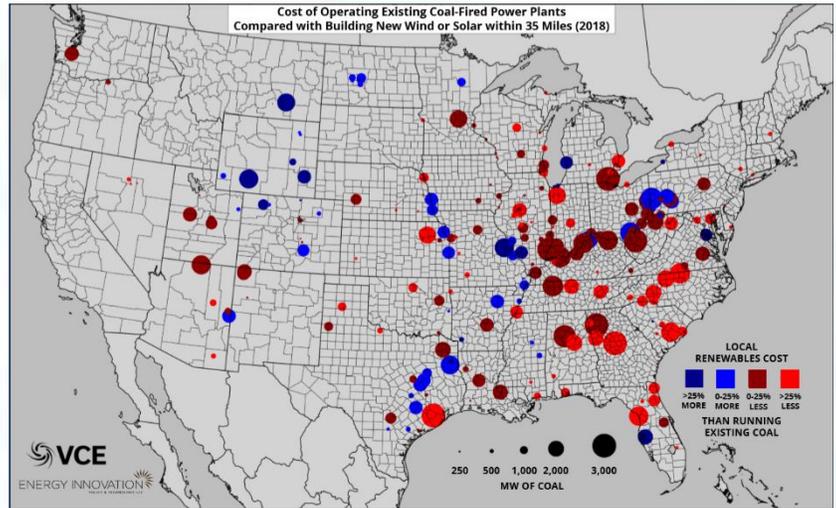
Fortunately, a second new report makes it clear that the economics are ever more in favor of renewable energy. Think-tank Energy Innovation found that replacing 74% of US coal plants with renewables would immediately save money, with it estimated to rise to 86% by 2025.

(Pictured: coal/renewables relative cost map).

This is spectacular news-it indicates that even in the absence of strong leadership from the

federal government on this vital issue, the free market alone should continue to drive the renewables revolution,

although not as quickly as concerted national action could. For more on the “coal cost crossover,” see goo.gl/d7SSka.



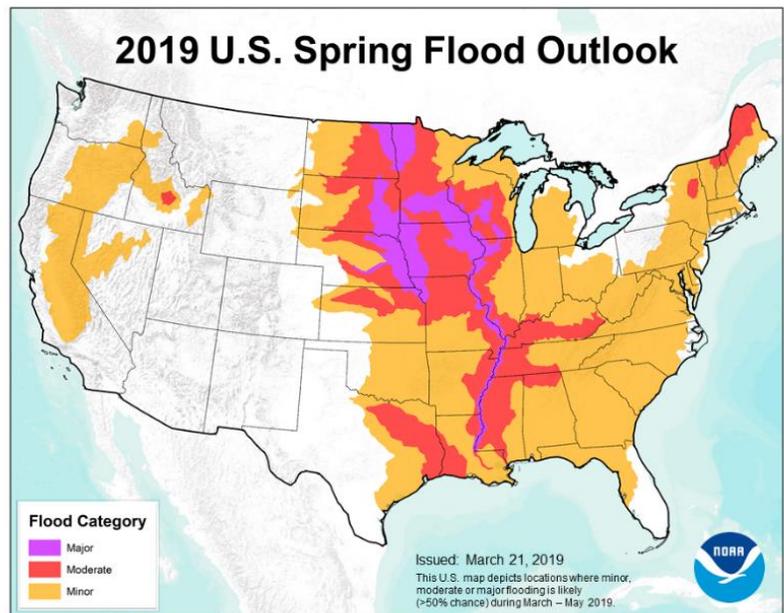
Climate Impacts: The American

Midwest. Huge swathes of America,

primarily in the Missouri and upper Mississippi River basins, have been flooded by a combination of snowmelt and heavy spring rains, up to 200% above normal. The National Oceanic and Atmospheric Administration (NOAA) warns that flood risk is likely to grow over the next month. (Pictured: NOAA’s spring flood outlook).

Already, the governor of Nebraska declared it the worst natural disaster in his state’s history. Farmers across the Midwest have been devastated by the floods,

with over \$800 million in damages from drowned crops and animals estimated from Nebraska alone. Such unseasonal flooding in the northern Great Plains was warned of in a recent National Climate Assessment, and is likely to become more common as the world warms. Sobering news. For more, see goo.gl/xD5xXW, goo.gl/9uA9nY, and/or goo.gl/aBxfyf.





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Climate Impacts: Cyclone Idai. In a staggering tragedy, Cyclone Idai has devastated the Southern African nations of Mozambique, Zimbabwe, and Malawi, completely destroying 90% of the Mozambican city of Beira (pictured, post-Idai) and flooding an area large enough to be seen from space. The storm was the largest and deadliest in recorded African history, and was almost certainly exacerbated by warming temperatures that allowed the air to hold more moisture. Currently, the official death toll is over 750 (although is likely much higher, as many bodies will have been washed out to sea), 110,000 people have been left homeless and are living in hastily-assembled camps (pictured), and the UN estimates that over 1.7 million people have been directly harmed by the destruction. A new threat is emerging in the overcrowded camps in the form of cholera, a deadly bacterial infection—as of March 31st, there were 271 confirmed cases from the ruins of Beira alone. The UN World Food Program has declared Idai's



aftermath a Level Three emergency, their highest crisis categorization and the same level as the ongoing wars in Syria and Yemen. In March 28th, UN Secretary-General Antonio Guterres addressed the tragedy. "Every week brings a new example of climate-related devastation. No country or community is immune...As is always the case, the poor and vulnerable are the first to suffer and the worst hit," he said, adding that he would convene a new Climate Action Summit in September 2019. In a painfully ironic twist of fate, the low-lying city of Beira was actually already endeavoring to prepare for climate change, with a new system of drainage canals working perfectly to protect the city from smaller floods two months ago. The devastation wrought by Cyclone Idai has caused immense suffering in impoverished nations that have made insignificant contributions to climate change but were already tirelessly working to protect themselves from it. It is a mark of shame for all of the developed world. To donate to Idai survivors, visit UNICEF USA at donate.unicefusa.org/page/contribute/you-can-make-a-difference-right-now. For more on this story, check out goo.gl/BQXmYE, goo.gl/up73n6, goo.gl/fSwY6n, and goo.gl/vW3hCX.



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Frog Studies (1): Tiny Frogs in Madagascar. In the first of many frog-related news items this week, researchers have announced the discovery of five new species of tiny frogs in Madagascar. Three of them were in an entirely new genus, which the discoverers whimsically named *Mini*. Continuing this memorable trend, the full species names are *Mini mum*, *Mini ature*, and *Mini scule*. All three are small enough to comfortably crouch on a human fingernail with room to spare. (Pictured: an adult male *Mini scule*). Fascinating news! For more, see goo.gl/VHCBYq.



Frog Studies (2): Fluorescent Froglets in Brazil. In another fascinating frog discovery, researchers have found that the tiny, poisonous pumpkin toadlet of Brazil (*Brachycephalus ephippium*) cannot hear its own mating calls. In trying to ascertain how they found each other, they found that the frogs glow brightly under UV light! This is likely some method of communication. (Pictured: a pumpkin toadlet under normal light, left, and UV light, right). This is an awesome example of the wondrous beauty of biodiversity! For more, see goo.gl/AeERWk.



Frog Studies (3): A Global Frog Pandemic. A new study published in the journal *Science* has chronicled and quantified the devastation wrought by *Batrachochytrium dendrobatidis*, a deadly fungus accidentally spread around the world by humans that has been causing mass frog die-offs since the 1980s, with more dead every time a new strain evolves. Also known as “Bd” or “the chytrid fungus,” the disease kills amphibians by eating proteins in their skin, which is a critical component of the frog respiratory system. The new study collected data from around the world to find that the chytrid fungus has driven declines in at least 500 amphibian species, driving 90 to extinction and 124 to the brink of it, with decreases of over 90%. This means that the disease has affected 6.5% of all amphibian species in the world. For comparison, that’s as if a single disease was killing all hoofed and marine mammals in the world at the same time. These results confirm that the chytrid fungus is the single deadliest disease ever recorded, in any species, throughout history. “We’ve known that’s chytrid’s really bad, but we didn’t know how bad it was, and it’s much worse than the previous early estimates,” said Dr. Ben Scheele, lead author of the new study. There is some hope though-60 species out of the 500 affected appear to be evolving resistance and recovering. For more, see goo.gl/Ut9Pr7.