the weekly anthropocene

Dispatches From The Wild, Weird World Of Humanity And Its Biosphere

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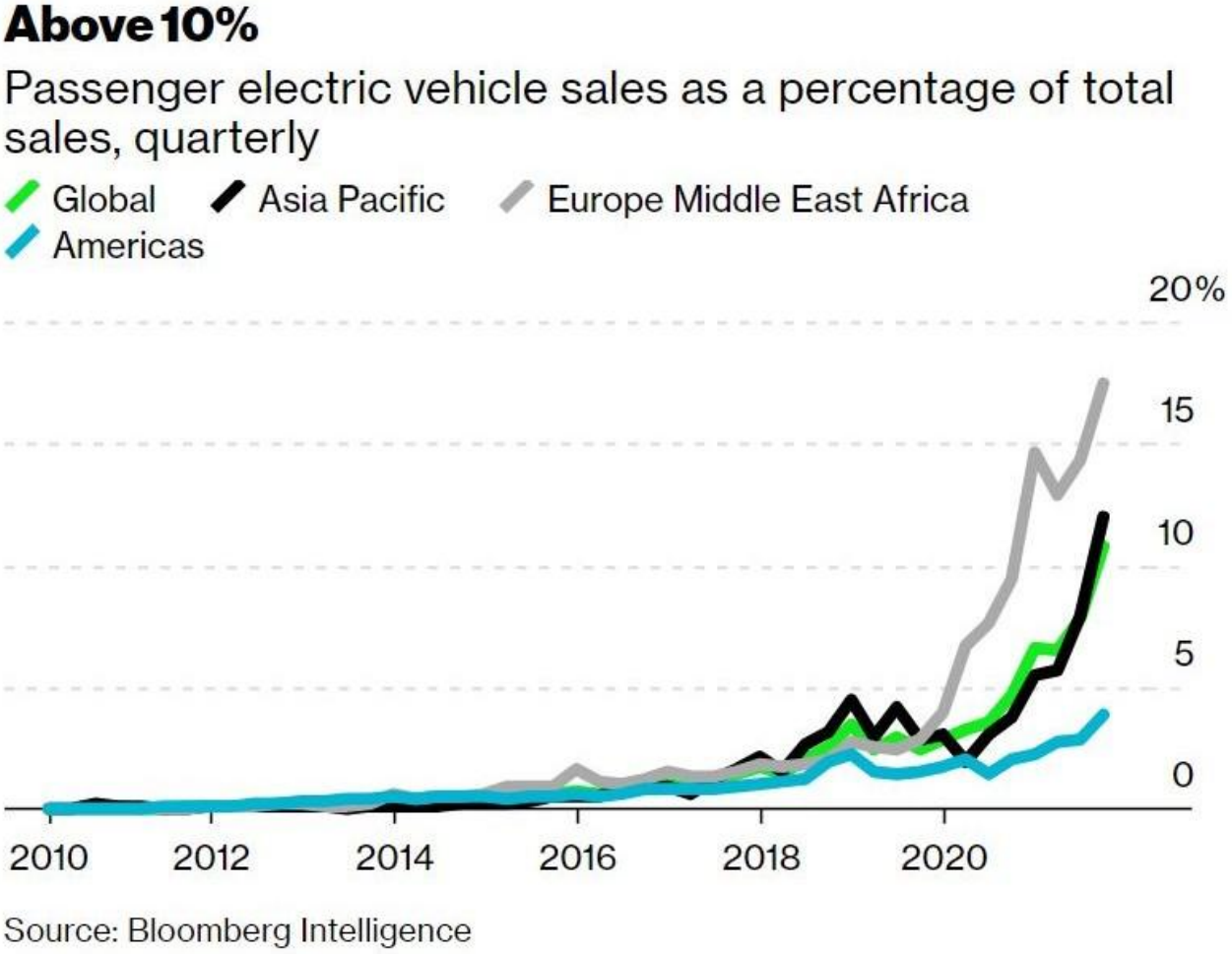
Antarctica

As the impacts of climate change continue (see: the record flooding in Brazil's northeast, and the unprecedented "urban firestorm" in Colorado) one major threat is advancing disturbingly swiftly. The Thwaites Glacier in West Antarctica (pictured, behind research vessel) is about the size of the island of Britain, holds enough water to raise global sea levels by over half a meter (specifically, 65 centimeters), and is currently slowly melting, contributing about 4% of all ongoing global sea level rise. However, what scientists are really worried about is its particular geographic position: the Thwaites Glacier currently acts as a massive "cork" holding in most of the West Antarctic ice sheet. If it collapses, the entire West Antarctic ice sheet will have nothing to stop it from slowly sliding into the sea, potentially then raising global sea levels by a whopping 3.3 meters by itself-on top of whatever we get from the Greenland ice sheet and other sources-over the next few centuries. (Check out NOAA's Sea Level Rise Viewer and this excellent international one to see what those numbers mean on a map). And the latest reports from the international scientific collaboration studying the Thwaites Glacier are not encouraging: warm water iscurrently circulating under the glacier and melting the ice from beneath. It appears that the outer ice shelf holding the Thwaites Glacier in place (which in turn holds the entire West Antarctic Ice Sheet) has recently suffered extensive, miles-long cracks, and may be only a few years away from critical failure.

In sum, it's entirely possible that even if we do everything right on emissions reduction and end up halting CO_2 emissions and global warming this century, we'll have done such damage to the physical ice sheet structure of West Antarctica that the breakup will continue and we end up with sea level rise continuing

through the 2100s and 2200s. This is not an end-of-the-world scenario, but it is a hard-to-avoid one, and one that we'll need to address carefully. Sea level rise adaptation and mitigation planning, currently being developed by most major coastal jurisdictions, now becomes all the more important.

Electric Vehicles



As renewable energy continues to grow (the IEA estimates that renewables will account for "almost 95% of the increase in global power capacity through 2026"!), another key component of the decarbonization transition is experiencing equally impressive progress. In the first quarter of 2010, only 395 **electric vehicles** were commercially sold worldwide (and no, that's not missing any zeroes!), accounting for only 0.002% of passenger car sales. In a recent quarter in 2021, over 1.7 million EVs were sold, reaching 10.8% of all new vehicle sales globally and almost 20% of all new vehicle sales in China! (See chart above). This is excellent: comprehensive life cycle assessments have found that EVs have **much lower carbon emissions than internal combustion engine cars under all circumstances**, even factoring in all manufacturing and component sourcing and even in places like China where there's lots of coal still in the electricity mix.

Furthermore, this progress is likely to accelerate rapidly: EV battery tech is just getting better and better (as is EV battery recycling!), and most every major automaker has made substantial pledges to pivot their focus to electric vehicles. Six major automakers (Ford, Volvo, Jaguar Land Rover, General Motors, Mercedes Benz, and China's BYD) pledged at the November climate conference in Glasgow to sell only zero-emissions vehicles worldwide by 2040, and by 2035

in "leading markets" like Western Europe. A wide array of countries, cities, and states worldwide, from California to the United Kingdom, have already set dates to ban new gas cars. And Biden's already-signed-into-law bipartisan infrastructure bill included $7.5 billion to set up more EV chargers across America.
Most recently, in December 2021, Toyota, historically perhaps the least EV-friendly automakers, announced that it would be investing $35 billion in EV technology, setting a goal of selling 3.5 million EVs and 30 different EV models annually by 2030 and making all of its Lexus models all-electric by 2035. And electric vehicles aren't just critical for cutting carbon emissions-they also dramatically improve local air quality by reducing emissions of stuff like nitrogen oxides and volatile organic compounds. In sum, the 2020s and 2030s are likely to see EVs replace gas cars as the norm for automobiles on Earth-and that's spectacular news!

Excerpts of Interest

Jordan's Za'atari refugee camp opened in 2012, and has since provided emergency refuge for 80,000 Syrians fleeing their country's brutal civil war. Over the years, it has evolved into a permanent settlement, with tents giving way to cabins, shops, and marketplaces. And this nascent city is powered by renewable energy: starting in April 2017, a German government-funded program built 40,000 solar panels on the outskirts of Za'atari, providing 12.9 megawatts of energy capacity and enabling the deployment of fridges, Internet device charging, and a network of street lights to provide safety at night. (Pictured: a resident cleaning a smaller solar panel on the roof of her cabin). Great news!

A story recommended by a reader: cities around the US, from Tallahassee to Augusta, are building **solar farms** on the rooftops and disused land of airports

The end of 2021 saw the loss of two incredibly influential conservation scientists: Doctors E.O. Wilson and Thomas Lovejoy. To do justice to either of their legacies would require a book series, not a newsletter. E.O. Wilson coined the term and developed the idea of "scientific humanism," developed the theory of island biogeography, wrote perhaps the best and most comprehensive biology textbook ever and made it available for free, won two Pulitzer Prizes and the U.S. National Medal of Science, and founded the "Half Earth" conservation movement. Thomas Lovejoy coined the term "biodiversity," was instrumental in developing the concept of debt-for-nature swaps, and was one of the first scientists to draw attention to the crisis of deforestation in the Amazon Rainforest. They will be missed, and their ideals will live on.

And finally: if you're in need of some good news, check out the amazing end-of-year post from Future Crunch chronicling the incredible progress made in 2021 on everything from malaria vaccines to literacy rates to tuna conservation! Many of the stories they highlighted were previously discussed in *The Weekly Anthropocene.* Humanity really is doing some incredible things to make the world a better place!

99 Good News Stories You Probably Didn't Hear About in 2021

If you were asked to list the top global news stories of 2021, off the top of your head, what would they be? Chances are you'd come up with some combination of COVID-19, economic woes, political conflict, Afghanistan, natural disasters, and maybe ...

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