Our Ocean Backyard
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Progress on Renewable Energy

We are not yet running out of fossil fuels, but what we are running out of is atmosphere to put all of that carbon dioxide produced by burning the fossil fuels into. The greenhouse effect and its diverse impacts are all around us and getting worse, whether droughts and forest fires or sea-level rise and coastal flooding. No individual or nation is going to escape these impacts.

While there are smart people trying to think of ways to suck the carbon dioxide out of the atmosphere, this is a tall order and likely an impossible task. The scale of the atmosphere is truly massive. It is about 60 miles thick, give or take a few miles, so there is a lot of carbon dioxide and other greenhouse gases circulating around up there and affecting our climate down here. Grand ideas have been proposed, but short of building trillions of huge vacuum cleaners and shoving those hoses miles up into the atmosphere to capture the carbon dioxide and then come up with some place to store it all forever, this in my view is really a pipe dream.

Another similar problem we have created is that of plastic in the ocean, with another group of people putting forward ideas of how to clean it all up. While I am generally an optimist, this is as unlikely to happen as pumping all of the carbon dioxide out of the atmosphere. There are about 321,000,000 cubic miles of seawater out there in the world's oceans with an average depth of a little over 12,000 feet. And unfortunately, the millions of tons of plastic we have discharged into the ocean is not concentrated at the surface, nor is it all in large plastic bottles and other containers. Much of the plastic has now broken down to small pieces, and while it is most concentrated at depths between 600 and 1800 feet, it is scattered down to the deep-sea floor. Cleaning the plastic out of the sea is an impossible task and we need to focus our collective energy on reducing and eliminating single use plastics and keeping it out of the ocean, now.

At the same time we need to move to renewable energy sources as rapidly as possible and end our reliance on fossil fuels. Globally, about 80% of our energy comes from coal, oil and natural gas. Renewables such as wind and solar made up 11.2% in 2019, with hydropower providing 6%, renewables (wind and solar) 5%, and nuclear making up 4%.

The renewable energy picture in the USA and abroad has changed significantly over the past year, however, very significantly. From the combination of more stringent climate policies and rapidly declining costs of solar and wind power, there is broad belief that we are going to experience a major boom in the development of renewables. In a recent Massachusetts Institute of Technology Review, the International Energy Agency, well known for underestimating the growth of renewable energy, now projects that global capacity will increase by more than 60% by 2026, that's just four years away. By that time, wind, solar, hydroelectric dams, and other renewables will be neck and neck with the worldwide capacity of fossil-fuel and nuclear plants.

While offshore wind energy development in the US got off to a slow start, with only a five-turbine wind farm built to date offshore (off Rhode Island), this is about to change. The Biden Administration has set a goal of 30 gigawatts of offshore wind capacity by 2030, which would power over 10 million homes. Eight east coast states have individually set goals or mandates that total 39 gigawatts of capacity by 2040.

Although the offshore wind projects in different stages of development already amount to over 35 gigawatts of production, these may take a number of years to complete. The Biden administration has reported that the USA can reach 110 gigawatts of offshore wind energy by 2050, enough to power over 37 million households. This is all good news for us and the Earth.

While most of the planned offshore wind farms are in federal waters (beyond the three-mile limit) and are overseen by the Bureau of Offshore Energy Management (BOEM), state policies around carbon emissions and electricity purchases have played important roles in moving the offshore wind energy industry forward.