

Large Scale Utilization of Wind and Solar Power could also be the Cause of Extreme Weather and Global Warming

Wind turbines are powered on only when wind speeds range between 8 and 55 miles per hour (mph)¹. Wind is a movement of air caused by the difference in air pressure. The difference in air pressure is mainly the combined effect of temperature differences across the Earth's surface and temperature variation along the time. Imagine if the majority of the power is generated by wind, then much higher air pressure difference is required to move all those turbines. Normally there are an array of wind turbines along the wind blowing direction, the end result is air is either calm after the turbines or with a much higher wind speed than the cutoff speed. Therefore, it will be reasonably expected that the extreme weather of strong winds would be more often.

Wind and sunlight are considered to be free and clean energy sources². However, harvesting wind and solar energy (converting the wind and sunlight into electricity) is neither free nor clean. Making the wind turbines requires a large amount of rare-earth metals (mining and refining them create a lot of environmental pollutions). Making solar panels also consumes large amount of energy and produces tremendous amount of pollutions (that is why most of solar panels are made in places where environmental regulations are loose, like China). Without government subsidizes, wind or solar energy can't compete with coal or natural gas fired power at all, cost-wise.

It is estimated that the energy of 60 minutes of sun's radiation to earth is equivalent to the entire year's human energy consumption in 2020 (this number is growing due to human energy consumption increase by economic development and population growth). Thermal power plants (coal, natural gas and nuclear) generate huge amount of water vapor mainly for the purpose of cooling. The water vapor forms clouds. Clouds reflect a part of sun's radiation back into space. Coal or natural gas fired power plants also generate exhaust that emits micro-particles into the sky. While the exhaust is mainly carbon dioxide which is a global warming gas, the microparticles serve as seedings for air moisture to condensate to form clouds.

If 100 percent of human energy consumption comes from wind, solar or hydro power, then we would have less clouds, more sun's radiation reaches earth's solid surface, therefore increase the global air temperature. (Certainly, less carbon dioxide emission, less heat trapped by it, global air temperature would be reduced. It should be noted that we are not arguing about this fact.) The conclusion is: 100 percent wind and solar power doesn't necessarily mean the global warming is curbed.

Reference

1. <https://web.uri.edu/offshore-renewable-energy/ate/can-wind-turbines-withstand-storms/#:~:text=Turbines%20are%20powered%20on%20only,renewable%20energy%20to%20the%20grid.>
2. [https://www.eia.gov/energyexplained/wind/where-wind-power-is-harnessed.php#:~:text=Wind%20power%20plants%20require%20careful%20planning&text=Good%20places%20for%20wind%20turbines,\)%20for%20utility%2Dscale%20turbines.](https://www.eia.gov/energyexplained/wind/where-wind-power-is-harnessed.php#:~:text=Wind%20power%20plants%20require%20careful%20planning&text=Good%20places%20for%20wind%20turbines,)%20for%20utility%2Dscale%20turbines.)