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# How offshore wind drives up global carbon emissions

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## Executive Summary

Offshore wind facilities are enormously expensive and environmentally destructive. The primary purported justification for constructing them is to reduce “carbon” (carbon dioxide or CO<sub>2</sub>) emissions and save the planet from “catastrophic climate change.” However, this justification is not just built on a false premise, but adding offshore wind to a state’s energy mix will most likely also increase global CO<sub>2</sub> emissions. That means the net emission benefits are hugely negative, as are other net environmental and economic effects.

This study finds that carbon dioxide reductions from local (state and national, as opposed to global) wind power generation are greatly overstated. For starters, any CO<sub>2</sub> decrease will be small at best, largely because the intermittency of necessary wind speeds forces backup gas-fired power emissions to increase when the wind isn’t blowing. (Sufficient backup electricity from battery modules is also hugely expensive, heavily reliant on raw materials that are in short supply, and likely a decade or more away.)

The net result is that adding offshore wind to the existing coal, gas, and nuclear and/or hydroelectric power system, though modestly lowering emissions at first glance, does little to reduce local power emissions overall because of the gas (or coal) backup generation now needed to maintain a stable grid.

But the story gets worse.

Often overlooked are the other factors associated with wind energy that actually drive up emissions. For example, supply chain emissions from constructing offshore wind facilities to replace existing generation facilities will be very large. Supply chain emissions include those arising from all the steps required to create an offshore wind facility: mining and processing the necessary metals and minerals, manufacturing components, constructing turbines and substations on site, and operating, maintaining, replacing, and ultimately decommissioning and landfilling worn out, damaged, and obsolete equipment. They also include the myriad transportation steps along the way, via ship or truck.

These supply chain emissions are global and add to the global atmosphere. Thus, the net result of combining small local CO<sub>2</sub> reductions with large increases in emissions via the supply chain is not a reduction in global atmospheric CO<sub>2</sub>, but an overall increase of atmospheric CO<sub>2</sub>.

In short, the “emission reduction” justification touted by proponents of building offshore wind facilities is simplistic and false.

Finally, another justification for building wind farms is that they benefit local job creation. This too is by-and-large false. One reason is that such jobs are subsidized by local electric power ratepayers who will likely see their electricity prices soar, leading to layoffs in many businesses and the closing of businesses and entire industries – making the net benefit minimal, zero, or even negative. Even worse, much of the ratepayer and taxpayer money behind offshore wind facilities will go overseas, because that is where the supply chain exists. In short, the jobs created by wind energy should be viewed as costs, not benefits.

Moreover, few local jobs will be created directly by offshore wind energy facilities, because building them is a simple assembly project, not a construction project. This is because the parts being assembled are primarily manufactured and fabricated overseas. These include the towers, turbines, blades, connecting cables, substations, and transformers. Adding insult to injury, assembling offshore turbines is typically done by highly specialized ships primarily provided by foreign nations.

Local or U.S. jobs are likely to be relatively few and even low-paying installation, maintenance, repair, decommissioning, and recycling/landfilling jobs. Factory jobs manufacturing offshore wind turbine components will likely disappear, because U.S. factories will no longer have reliable, affordable power in a wind-solar-battery-backup-gas-turbine economy, will be faced with hiring highly paid American workers, and thus will not be able to compete with Asian and other foreign competitors.

Also on the local level, once the actual overseas emission increases and local reductions are known, it is possible to calculate a cost per ton of carbon dioxide reduction. This number is likely to be very large, certainly in the thousands of dollars per ton and possibly much more. Moreover, supply chain costs will almost assuredly grow because critical raw material shortages are predicted as demand increases.

This study is only an initial examination of the complex issues surrounding the alleged justification for massive offshore wind development. For illustrative purposes, we have used a few simple examples, such as New Jersey's 11,000-MW offshore wind target and emissions created along the supply chain for installing mostly monopile turbines.

However, our findings are more general in scope and application. In brief, for all offshore wind installations:

Local power system emission reductions will be small.

Supply chain emissions will be large.

Global emissions will therefore increase, not decrease.

**Conclusion 1:** There are no carbon dioxide emission reduction benefits, and thus no manmade climate change amelioration justifications for offshore wind development.

*Our secondary findings explain in greater detail why this is so.*

Any local jobs created will be exorbitantly costly when U.S. wage scales, “clean energy” subsidies, and ratepayer increases are factored in, and thus are likely to be relatively few and low-paying.

Many existing local jobs will disappear, as electricity costs replace fossil fuel costs and rise steadily – resulting in layoffs in many economic sectors and reduced spending by cash-strapped families.

Supply chain costs are bound to go up due to rising U.S. and global demand for and looming shortages of essential metals and minerals.

**Conclusion 2:** Offshore wind projects and infrastructure are tremendously expensive, will provide pricey intermittent electricity, and thus will destroy numerous American jobs, while supporting few long-term jobs that offer similar wages.

**Conclusion 3:** Offshore wind projects and infrastructure inflict numerous other costs that thus far have not been factored into any cost-benefit analyses for the industry.

**Conclusion 4:** The net “carbon” (carbon dioxide) reduction effects of offshore wind development are thus hugely negative and cannot justify further investments in this industry.

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