Offshore Wind

# The U.S. Offshore Wind Market is Resilient, Despite Financial Headwinds

Offshore wind is essential to achieving decarbonization goals due to its scale and high-capacity factors. With capacity factors of about 40%, offshore wind can provide energy on the scale of an average nuclear or coal fired power plant making it a cost-effective, competitive, and reliable source of generation.

In 2023, several U.S. offshore wind projects under development encountered financial difficulties due to inflation, supply-chain constraints, interest rate increases, and other macroeconomic factors. As shown in Figure 1, many projects locked in contract prices prior to the pandemic, the unprecedented inflation that followed it, and the higher cost of commodities. Furthermore, the first generation of offshore wind energy contracts did not include inflation adjustment factors, despite being 20-25 year contracts. This combination of factors, plus permitting delays, created serious economic issues for contracted projects that had not yet reached construction. One third of the contracted projects (9GW/25GW) have terminated their contracts.

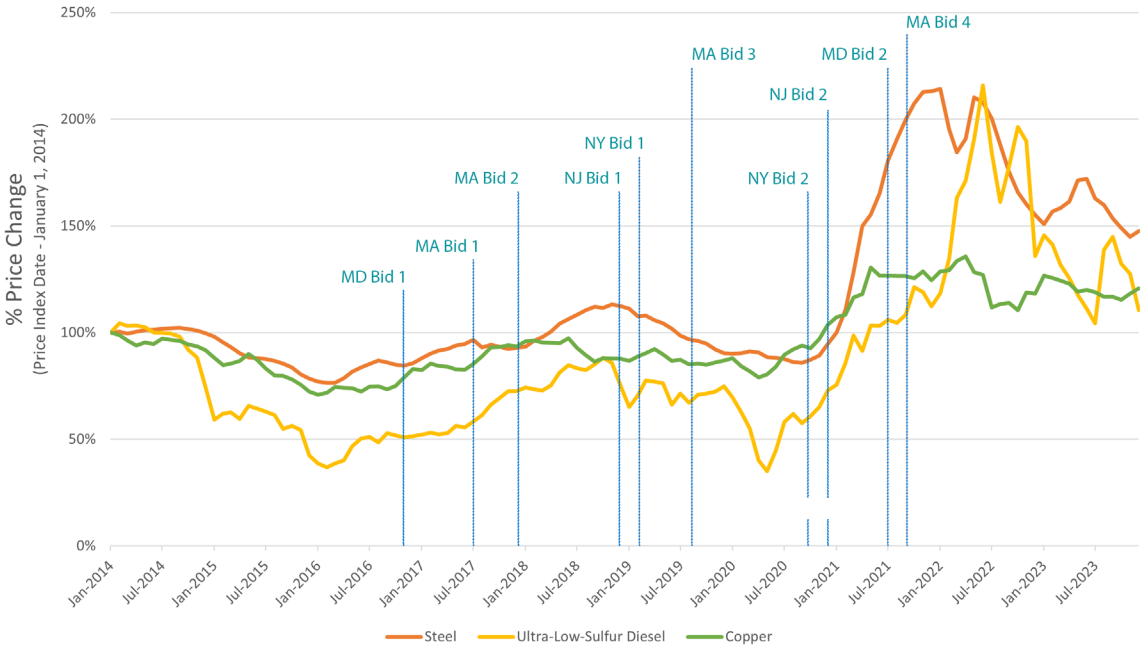
Offshore wind developers have a unique challenge in the United States of needing to secure a lease and electricity offtake agreement prior to acquiring a permit for construction and operation from the Department of the Interior's Bureau of Ocean Energy Management (BOEM) and an interconnection agreement to connect to the electric grid. On the other hand, in Europe, developers do not acquire a contract to sell their electricity, or an "offtake agreement" until after they have their permits, lease, and spot in the interconnection queue, so that they have a better understanding of how much their projects will cost.

The unprecedented inflation and higher interest rates that followed securing leases led to the current financial situation that offshore wind faces. After post-pandemic inflation, supply chain issues, and the war in Ukraine caused global prices to spike, many types of infrastructure projects across the United States that started planning during a low- interest rate, low inflation, and low- price of capital environment had encountered financial difficulties. Offshore wind was no exception.

The US inflation rate rose from 1.9% to 7% during the height of the pandemic, and some important components of offshore wind energy projects rose even more than the general inflation rate. That is why when creating their inflation adjustment equation, the New York State Energy Research and Development Authority (NYSERDA) took into account the much higher costs of copper, steel, and ultra-low sulfur diesel shown in Figure 1.

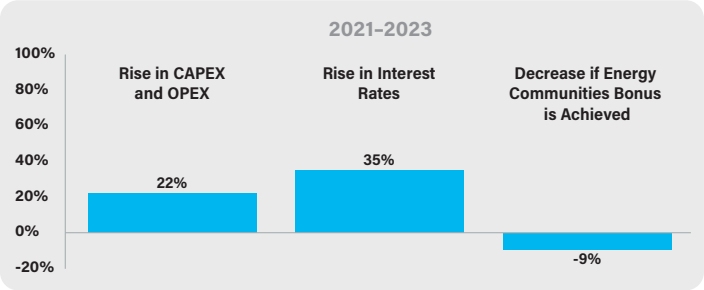
**Figure 1: Relative Change in Price of Steel, Diesel, and Copper**

January 2014 - December 2023




*Source: Saint Louis Fed Economic Data, FRED*

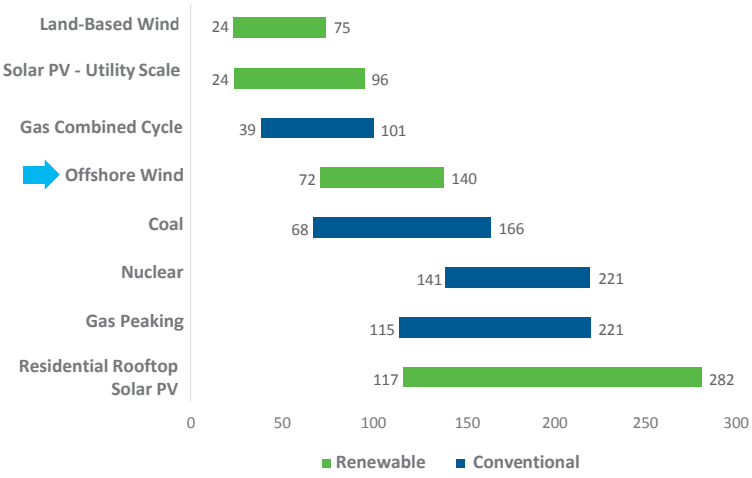
## Figure 2: Percent Change in Offshore Wind LCOE




*Source: BloombergNEF. Note: Assumes projects meet either the domestic content bonus or the energy community bonus to qualify for 40% investment tax credit (ITC). LCOE is levelized cost of electricity.*

These macroeconomic effects therefore increased the Levelized Cost of Energy (LCOE) for offshore wind energy projects. A case study found that for one project, LCOE increased by 48% from 2021 to 2023. The Inflation Reduction Act (IRA) is helping, but not enough to make up the difference. For example, the IRA's Energy Community bonus, would account for a decrease in 9% for the sample offshore wind project, which is not enough to make up for the 57% difference, as shown in Figure 2.

## Figure 3: Unsubsidized LCOE Comparison Across Technnologies




Source: Lazard, *2023 Levelized Cost of Energy+*

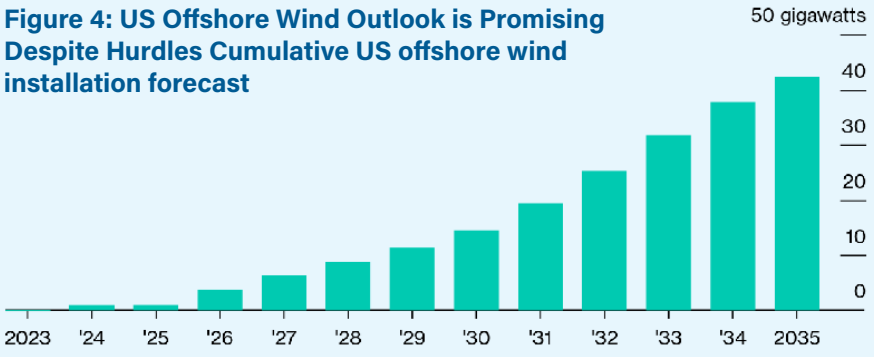
## Given these significant cost increases, why is the outlook still positive for the offshore wind industry?

First, even with these increases, the LCOE of offshore wind is still within the average unsubsidized LCOE across energy types, including coal and nuclear. Second, offshore wind energy can deliver pollution-free power at a large scale, close to the population density and significant energy demand located on U.S. coasts. These unique attributes have stimulated significant state policy commitment to this growing industry and upcoming state solicitations for offshore wind energy projects bring hope. New York awarded 4 GW of offshore wind offtake in October 2023 and has a fourth solicitation of up to 4 GW whose results will be announced in February 2024. New Jersey awarded 3.7 GW in January of 2024 and has an upcoming solicitation in quarter 1 or 2 of 2024. Massachusetts, Connecticut, and Rhode Island have a joint solicitation in March 2024 with awards in August 2024. Maryland has a solicitation in July 2024. Maine, California, Carolina, and Louisiana solicitations have yet to be scheduled. This next tranche of offshore wind contracts can respond to today's economic landscape, take advantage of economies of scale, and include inflation adjusters and other lessons-learned.

The Biden administration has a goal of approving 16 Construction and Operation Plans (COPs) by 2025. As of January 2024, four COPs have been approved. To achieve current market projections[1] of 42.3 GW of offshore wind energy by 2035, 12 COPs need to be approved by the end of 2024. BOEM and its cooperating agencies are currently permitting 15 COPs and more are in the queue.[2] Improving the permitting process by making it more efficient and reliable is a key part of helping deploy the U.S. offshore wind industry.

Despite the economic headwinds of 2023, continuing federal and state commitments to this nascent industry – and the family-sustaining jobs it will bring – make the industry resilient and the outlook optimistic (Figure 4). This current procurement reset – if combined with improved and efficient permitting at the federal level – could allow for remarkable growth of over 42.3 GW by 2035.

## Figure 4: US Offshore Wind Outlook is Promising Despite Hurdles Cumulative US offshore wind installation forecast




*Source: BloombergNEF*

1 Bloomberg New Energy Finance. January 29, 2024.

2 FIPSC. Permitting Dashboard. FAST-41 Covered Projects: Wind: Federal Offshore. https://www.permits.performance.gov/projects/fast-41-covered?title=&term_node_tid_depth=All&term_node_tid_depth_1=2406&field_permitting_project_adpoint_administrative_area=All&field_project_status_target_id=All