

Principles of a Blue-Green Recovery

Principles of a Blue-Green Recovery: Creating Jobs and Tackling the Climate Crisis

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The United States is facing multiple crises. As the country struggles to contain the pandemic, the U.S. economy is under strain. At the same time, climate change is damaging communities and taking a serious economic toll. While meeting immediate public health needs remains a top priority for the incoming Administration and Congress, national policymakers contemplating stimulus legislation should ensure that it will create a “climate-smart” recovery to protect the U.S. economy over the long term. The ocean has a critical role to play: it is a significant economic driver that can contribute climate change mitigation and adaptation solutions that benefit frontline communities.

Background

The COVID-19 pandemic has roiled the world and the United States for nearly a year, resulting in financial instability and enormous loss of life. The virus further burdens communities that are already facing the impacts of climate change, which cost the United States billions of dollars per year in lost productivity and damages overall (1). Many of these communities are near the coasts, where climate change impacts on the ocean contribute to intensifying hurricanes, higher storm surges, the erosion of shorelines, increasing harmful algal blooms, and acidifying waters. Studies show that the costs of climate inaction exceed those of climate mitigation and adaptation measures (2).

As 2021 begins, the U.S. economy continues to struggle and unemployment remains high. Although the Coronavirus Aid, Relief, and Economic Security Act (CARES Act) provided \$2.2 trillion in economic relief last March, and the Consolidated Appropriations Act, 2021 added an additional \$900 billion in COVID-19 relief funds in December, additional funding for relief and economic stimulus is still likely. The seafood industry received relief funds in both bills, while other ocean sectors received attention only in the latter.

The ocean is a valuable natural resource that provides immense environmental and economic benefits to the United States. In 2018, ocean-based industries contributed \$373 billion to U.S. GDP, provided 2.3 million jobs, and outpaced the U.S. economy overall with a 5.8% GDP growth rate (3).

This brief identifies three principles to help guide stimulus legislation to bolster the U.S. economy, reduce greenhouse gas pollution, and enhance community resilience to climate impacts, with a focus on ocean-based opportunities. As the Biden Administration and Congress balance the immediate needs of the nation under the stress of a pandemic with an understanding of what comes next to build a durable economy, they can create a blue-green future that equitably benefits all Americans through federal stimulus investments and policy actions that:

1. Quickly create jobs to support climate mitigation and adaptation, including through ocean-based climate solutions;
2. Support long-term investments that reduce greenhouse gas emissions, including in the marine industry, and build community resilience to climate threats; and
3. Ensure a just and equitable transition towards a climate-ready economy.

Using these principles, this brief also includes specific examples of funding recommendations. While these are not exhaustive, they include a range of opportunities to promote a blue-green recovery, such as efforts to protect and restore blue carbon ecosystems and efforts to reduce port and shipping emissions while protecting coastal infrastructure. Ensuring that local communities fairly benefit from these expenditures further enhances stimulus efforts and ecosystem protections.

The economic recovery alongside a clean energy transformation will take many years, industry shifts, and pieces of legislation, yet a stimulus bill can act on these principles immediately for long-term economic,

environmental, and social benefits.

Principle 1: Quickly Create Jobs for Ocean-Climate Action

Legislation for a blue-green recovery must prioritize projects that can quickly employ people, particularly in industries with growth potential and in economically depressed areas. Official U.S. unemployment reached a historically high 14.7% in April 2020, and though this has significantly decreased to a monthly rate of 6.7% for December 2020, it is still above the 4% average since 2017 (4). However, while speed of implementation is critical, environmental reviews and other protections, such as those granted by the NEPA process, should not be undermined.

The restoration and conservation of coastal ecosystems offers a viable opportunity to boost employment and local economies. These projects often address immediate needs and provide benefits beyond climate change. For example, fishery habitat restoration was the primary goal behind fifty NOAA-led projects funded by the American Recovery and Reinvestment Act of 2009 (ARRA) during the Great Recession. One study of this federal investment showed that, on average, 17 jobs were created per \$1 million spent, a higher figure than a similar monetary investment in the coal, natural gas, and nuclear energy industries. In addition, an impact analysis of these projects found that for every federal dollar spent, an additional 60 cents were generated in the local economy (5). These projects included dam removal, fish passage installations, oyster reef restoration, invasive species removal, and restoration of land areas between rivers and streams. They were funded with a timebound completion limit of two years. While these were not permanent jobs, the benefits of increased fishery habitat and water quality likely yielded increased fishing sales and tourism opportunities that extended well beyond the projects themselves.

Going forward, national policymakers could fund projects with a greater emphasis on blue carbon sequestration. Nature-based fishery habitat restoration, coastal protection, and water quality improvement projects provide immediate benefits and additional climate change mitigation and adaptation benefits. For example, coastal wetlands, seagrass beds, and mangrove forests all sequester enormous amounts of carbon dioxide, up to five times more than tropical forests per hectare (6). They also provide ecosystem services such as habitat for fisheries, water quality improvements, and other recreational opportunities for coastal residents

such as fishing and bird watching. Living shoreline projects should also be funded to improve the resilience of coastal communities and facilities as they face erosion and storm surge flooding. In addition to private residences and businesses, vulnerable public facilities, including ports, wastewater systems, and roads, all face increasing inundation (7).

Federal stimulus recommendation:

The federal government has a record of successful investments in ecosystem restoration projects that yield multiple benefits. In the future, stimulus funds should be used again to:

- Provide NOAA with robust funding to carry out shovel-ready restoration and conservation projects.

Principle 2: Invest in a Long-Term Blue-Green Future

While the aim of a federal stimulus bill is often a short-term economic boost, Congress should emphasize investments that have long-lasting economic and planetary benefits, such as investments in offshore renewable energy and the shipping sector.

Renewable energy is a fast-growing industry that provides jobs and will help confront the climate crisis. Future needs for clean power, especially near large, coastal metropolitan areas necessitate investments in this sector. The global offshore renewable energy sector alone could provide nearly 10% of the emissions reductions needed to keep the world from warming more than 1.5°C by 2050 (8). Federal funding can accelerate this offshore clean energy transition, providing a durable opportunity for the U.S. economic recovery.

Funding for additional science and regulatory capacity would provide an immediate benefit to the offshore renewable energy industry, particularly the wind energy sector. The Block Island Wind Farm is the first demonstration offshore wind site in the US off the coast of Rhode Island, and took nearly eight years to begin generating electricity (9). Additional active wind lease sites along the East Coast are next to become operational, yet face delays due to the increased demands placed on government scientists and staff processing of permits and regulatory reviews. A global assessment of offshore wind costs and benefits found that every \$1 invested in increasing this form of energy production provides \$12 in average benefits from public health improvements, near-zero water use for cooling, fewer biodiversity impacts and greater climate change benefits as compared to other energy sources (10).

The shipping industry has also shown promise in economic growth and greenhouse gas reductions. Cleaner shipping and port electrification technologies already exist and have a significant role to play in a just and climate-smart economic recovery; the technology, however, still needs to permeate the U.S. fleet and shoreside infrastructure. Globally, this sector could reduce emissions by 3% by 2050 using technology upgrades and modifying speeds and shipping routes, among other changes to help keep temperatures from rising over 1.5°C (11). A stimulus bill could increase funding to existing grant programs to invest in further research and development on zero-emission fuels and could finance the ship retrofits and shoreside infrastructure upgrades that will allow us to reach net-zero emissions from the shipping sector. It is also notable that ports can be outfitted with the infrastructure necessary to facilitate renewable energy generation from offshore areas to land-based consumers.

Vulnerable communities would benefit from ports providing electricity to ships, a feature known as shorepower. Specifically, instead of idling their engines to power electrical systems while docked, ships could plug into the local electricity grid and use renewable energy if the proper equipment is installed on the ship and at the port. While saving fuel and reducing greenhouse gas emissions, shorepower has the added benefit of limiting particulate matter and nitrogen oxide pollution in nearby areas, which are often communities of color and low-income communities (12).

These climate mitigation investments have potentially large public payoffs. One estimate for decarbonizing the international transport fleet by 2050 (achieving net-zero emissions) found that every \$1 invested will net \$2 to \$5 of benefits through public health improvements and reductions of ocean acidification hotspots, which harm local fisheries (13).

There is also a need for investments in long-term climate resilience. Ports are key intersections between the land and sea that are vulnerable to climate impacts including sea-level rise. Natural infrastructure upgrades, such as oyster reef installations at ports and shoreside military installations, are options to help prepare these facilities for higher waters and reduce future losses in productivity (14).

Federal stimulus recommendations:

A few federal programs can be immediately funded to facilitate the clean energy transition in the ocean, although future legislation should be considered to provide additional support. Stimulus funds and legislation should:

- Expand the MARAD-run America’s Marine Highway Program and Maritime Environmental and Technical Assistance programs to include low- or zero-carbon fuel infrastructure upgrades, and the grant program under the Diesel Emissions Reduction Act to provide additional grants and loans that focus on green energy infrastructure improvements;
- Provide funding to the Ports Infrastructure Development Program for shore-side infrastructure needed to support zero emission shipping and for natural infrastructure to prepare ports for sea level rise;
- Invest in research and development of zero-emission fuel technology through the Department of Energy’s Advanced Research Projects Agency–Energy (ARPA-E);
- Fund National Marine Fisheries Service Regional Fisheries Offices and Science Centers to advance surveys, regulatory assessment, cooperative research, and science particularly as it relates to adapting to offshore renewable energy by the Regional Fisheries Offices and Science Centers; and
- Fund and direct the Department of Energy, in collaboration with the Federal Energy Regulatory Commission and Bureau of Ocean Energy Management, to proactively plan and finance a more efficient and larger-scale transmission plan that will enable the grid integration of sufficient offshore wind capacity to meet the Administration’s clean energy goals.

Principle 3: Facilitate a Just and Equitable Transition

A blue-green recovery must also be equitable. Because neither the pandemic nor climate change harms all of society equally, national policymakers must ensure economic recovery benefits and climate protections reach the communities that need them the most. Disadvantaged communities of color and Tribal people often bear the disproportionate brunt of environmental injustices (15); addressing these wrongs can yield significant economic and social benefits not only for the communities but for society in general, as additional Americans can more fully attain their economic potential (16).

The next stimulus bill must empower Tribes, communities of color, and other community interests with influence over projects in their locality. In this manner, these representatives will be able to help decide how to transition their economies and communities towards clean energy solutions and increased ecosystem resilience. Whether a stimulus bill funds port infrastructure upgrades or mangrove forest restoration,

these individuals can help choose and locate projects with specific community employment and resilience needs in mind. Furthermore, these voices can ensure no one community segment disproportionately reaps the majority of the economic benefits nor bears the majority of development costs. Without this input, historically overlooked communities might miss an economic recovery and vulnerable ecosystems might be further damaged.

Federal stimulus recommendations:

Federal stimulus investments should:

- Ensure local Tribes, communities of color, and other community interests are represented and given decision-making influence regarding stimulus-funded infrastructure projects in their region; and
- Ensure there is a just transition for local workers who may be displaced by a shifting economy by providing employment opportunities in clean energy industries, job training, and living wages, particularly for historically disadvantaged people groups.

Conclusion

A blue-green stimulus in the United States will include ocean-oriented steps toward not only an equitable economic recovery from the COVID-19 pandemic but also a marked transition to a clean energy economy and climate-ready coastline. Often overlooked, the marine ecosystem provides a multitude of opportunities to address the crises caused by the pandemic and climate change.

The principles described in this brief provide general steps for national policymakers to prioritize stimulus investments. Although the specific actions detailed in this brief illustrate these principles, they are not exhaustive. Furthermore, Congress and the Administration must take further action towards a comprehensive blue-green recovery over and above stimulus legislation for a more enduring impact (17).

Contact

Ryan Ono, Climate Program Manager,
rono@oceanconservancy.org

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CONTACT US

-  +1 800-519-1541
-  memberservices@oceanconservancy.org
-  oceanconservancy.org

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