APPROACHES FOR ALL LEVELS OF GOVERNMENT: FEDERAL LEGISLATIVE AND ADMINISTRATIVE FRAMEWORK

EXECUTIVE SUMMARY

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The Challenge

Achieving net-zero carbon emissions by 2050 will necessitate significant changes to most of America's physical assets, from its power generation and transmission infrastructure to its buildings, vehicles, factories, forests, and farms. These broad changes will need to address all four pillars of deep decarbonization – electricity decarbonization, energy efficiency and conservation, electrification of transportation and buildings, and carbon capture – supplemented by significant reductions in emissions of non-CO_2 pollutants. Such comprehensive change will necessitate the coordinated action of most of the departments of the Federal Government, from the Environmental Protection Agency (EPA) and Department of Energy (DOE) to Department of Defense (DOD), Department of Housing and Urban Development (HUD), the General Services Administration (GSA), and other federal agencies, including the Departments of Transportation, Commerce, Agriculture, Interior, Education, and Justice over a 30-year period. In addition, the states, territories, and local and tribal governments must be engaged in the legislative process to promote successful implementation and enhance the credibility of the Federal Government.

The Solution

Congress should adopt a Zero Carbon Action Plan committing the nation to net-zero or net-negative anthropogenic GHG emissions by no later than 2050. The Federal Government also needs to set short- and long-term goals to guide and motivate the decarbonization efforts of governments, private actors, nongovernmental organizations, and citizens. Clear and effective implementation mechanisms for implementing and tracking these goals are also needed.

- Congress should establish a binding national goal of achieving net-zero or net-negative anthropogenic GHG emissions by 2050.
- Congress should also establish intermediate and sector-specific emissions reduction goals that further and are consistent with the goals for 2030, 2040, and 2050 that are set out in Chapter 2.
- The goals should be adopted and implemented to fully engage not only the federal government but also state, territorial, tribal, and local governments as well as all sectors of society to participate in their achievement.

Cross-Cutting Recommendations

National climate change office: The Administration should establish a White House Office on Climate Change to coordinate federal agency implementation of the Zero Carbon Action Plan, including climate change mitigation and adaptation activities; and to the extent authorized by law, direct the development of plans, establish program metrics, track progress, and otherwise oversee those activities.

Research, development, demonstration and deployment (RDD&D): Congress should triple the current funding for deep decarbonization research, development, demonstration and deployment. The principal focal points of this enhanced effort should include elimination of technological and cost barriers to accelerated decarbonization.

Social cost of carbon: The Federal Government should establish a scientifically based Social Cost of Carbon (SCC) consistent with the Paris Climate Agreement objective of stabilizing greenhouse gases in order to limit global warming to 1.5°C, including decarbonization of the energy system by 2050. The Federal Government should use the SCC to guide the development of regulations, cost-benefit analyses, public procurements, and other policies.

Carbon pricing: It is important that our market economy has a price signal instilled to reduce carbon. We define "carbon pricing" to embrace a large number of various policy instruments, including but not limited to a carbon tax, cap-and-trade mechanisms, fuel pricing, subsidies, feed-in tariffs, tradable credits, and the like. Carbon pricing in its various forms should be an important part of the national effort to reduce greenhouse gas emissions. Congress should use carbon-based border adjustments to address leakage concerns as part of setting a price on CO_2 and other GHGs.

Procurement: The Federal Government should use its procurement power to accelerate the development of markets and technologies for low-emission and negative-emission building materials, products, and services, as well as pavements.

Climate Regulation: The Federal Government should reinstate and strengthen climate change regulations that have been rescinded or weakened under the Trump Administration.

Subsidies: The Federal Government should eliminate monetary fossil fuel subsidies (except direct payments to low-income households).

Social Justice: In all actions taken to reduce GHG emissions, the Federal Government should:

- Foster a just transition for those individuals and communities dependent on the carbon economy.
- Ensure that minority and low-income communities are protected.

Maximizing Co-benefits: In all actions taken to reduce greenhouse gas emissions, the Federal Government should maximize environmental, economic, and social co-benefits.

Recommendations for 4 Pillars of Deep Decarbonization

Pillar 1—Electricity: Congress should:

- Adopt a national clean energy standard for electricity and incentives to promote the infrastructure investments required to meet the targets established; these should rise over time to 100 percent zero-carbon electricity. The standard should be based on carbon emissions. Each state should be required to achieve zero-carbon electricity production, but the required pace of achieving zero-carbon should depend on its resource mix and legacy generation facilities.

Pillar 2—Energy Efficiency and Conservation: Congress should:

- Amend the Energy Policy and Conservation Act in order to broaden the DOE's authority to establish energy efficiency standards for new products; authorize DOE to adopt energy efficiency standards with multiple efficiency metrics; give DOE discretion to establish shorter compliance lead times for energy efficiency standards; require establishment of standards for sectors that are not currently covered (such as computers and displays); and give DOE binding deadlines for adopting and strengthening standards.
- Require that, starting in 2030 or before, new buildings will be fossil fuel free and built to meet aggressive efficiency and carbon use reduction standards, especially with respect to heat and hot water.

Pillar 3—Electrification of Transportation and Buildings: Congress should establish:

- A national light duty vehicle zero emissions mandate at a minimum of 30 percent of new sales by 2030 and 100 percent of new sales by 2040.
- A national medium duty vehicle and heavy-duty vehicle mandate at a minimum of 20 percent of new sales by 2030 and 80 percent of new sales by 2050.
- A national Low-Carbon Fuel Standard (LCFS) for gasoline, diesel, and jet fuel, with 20 percent reduction in carbon intensity by 2030 and 80 percent by 2050, and allow states to adopt stronger standards.
- A program to manage and enforce building decarbonization at the federal level and provide funding and general resources to states to develop and maintain state programs.

Pillar 4—Carbon Capture: Congress should adopt goals and strategies, and appropriate implementing mechanisms, for the following:

- For RDD&D, carbon capture and negative emissions technologies should be brought to scale at much lower costs as soon as possible.
- For carbon sequestration, Congress should mandate the development of a strategy to achieve a national reforestation goal by 2050.
- Non-carbon dioxide pollutants: Although not a pillar of deep carbonization in this report, deep reductions in these pollutants will help achieve more quickly the level of needed reduction for the other pillars. The federal government should take a variety of actions to reduce emissions of methane, nitrous oxide, fluorinated compounds, and black carbon.

Foreign Policy Recommendations

domestic decarbonization in the same sense as the four pillars outlined in this chapter. It is, however, an absolutely essential component of any overall federal strategy to reduce GHG emissions. While climate change is widely understood as a global problem, the U.S. has among the highest per-capita emissions of any country in the world and produces 13 percent of global GHG emissions. A strong U.S. foreign policy on climate change involves a great many different kinds of approaches to make rapid global progress on deep decarbonization.

- The Federal Government should quickly rejoin the Paris Climate Agreement and set a new, stronger Nationally Determined Contribution for U.S. GHG emissions.
- The Federal Government should quickly ratify the Kigali Amendment, either through existing authority under the Clean Air Act or through formal advice and consent of the U.S. Senate.
- The Federal Government should begin to re-establish foreign policy leadership by, for example, supporting global "Zero-by-2050" commitments, and aligning its policies with other national mid-century transition strategies, particularly that in the European Union.

Outcomes

Large-scale change begins with a firm commitment by the Federal Government to net-zero or net-negative anthropogenic GHG emissions by no later than 2050. The success of this goal will depend largely on the cooperative efforts of federal, state, territorial, tribal, and local governments with an appropriate division of labor among the levels of government and between the public and private sectors. Launching and implementing this comprehensive, coordinated action over three decades will require the establishment of clear and enforceable goals and subgoals; reporting and accountability, including processes for feedback loops and course corrections; and an organizational structure that can manage and drive this sprawling endeavor.