

FEDERAL ACTION ON CLIMATE CHANGE AND CLEAN ENERGY



The past year of extreme heat, drought, flooding and wildfire underscores the need for stronger measures to advance clean energy, reduce carbon emissions and strengthen America's climate resilience. With the start of a new Congress and presidential term, strong and sensible federal action to reduce climate risks and pursue clean energy opportunities must be a priority.

The Center for Climate and Energy Solutions continues to favor market-based approaches that put a price on carbon as the most cost-effective means of reducing greenhouse gas emissions. Apart from such approaches, which would require major new legislation, a range of executive actions by the Administration and steps by Congress can achieve significant progress in reducing emissions, expanding clean energy sources, and making communities and critical infrastructure more climate-resilient. This policy guide outlines some of the options available to the president and Congress.

A PRICE ON CARBON

While 10 U.S. states and a growing number of countries are pricing carbon through cap-and-trade systems, Congress is unlikely at this time to enact this approach nationally. Another way to price carbon is a carbon tax. As part of a broader fiscal package, a carbon tax could be designed to be revenue-neutral, for instance by offsetting reductions in payroll or other taxes. Economically, it makes sense to lower taxes on productive activities, such as employment and investment, and offset those reductions by taxing harmful activities such as pollution. From a climate perspective, a relatively modest carbon price escalating over time could provide the market signal needed to promote the development and deployment of clean energy technologies and achieve long-term emission reductions. Such an approach would afford businesses the flexibility to decide how to reduce emissions most cost-effectively, and could be designed to safeguard both energy-intensive, trade-exposed industries and low-income families.

CURBING EMISSIONS FROM MEDIUM- AND HEAVY-DUTY VEHICLES

New standards supported by the auto industry will nearly double the fuel economy of new cars and light trucks by 2025, while lowering their carbon emissions by 40 percent. These measures by the Environmental Protection Agency (EPA) and Department of Transportation (DOT) represent the largest federal step ever aimed at reducing greenhouse gas emissions. The agencies also recently enacted new standards for medium- and heavy-duty vehicles through model year 2018.

The next step is to adopt tighter standards through 2025 for the medium- and heavy-duty fleet, which accounts for 6 percent of total annual U.S. GHG emissions. New standards could improve the fuel economy of these vehicles by an additional 15 percent, reducing annual emissions by 50 million metric tons of CO₂-equivalent in 2035.

REDUCING CARBON DIOXIDE FROM POWER PLANTS

The greatest potential for emission reduction is in the power sector, which accounts for roughly a third of U.S. greenhouse gas emissions. Legislative options include carbon pricing or a clean energy standard, a market-based approach requiring increased use of low-carbon energy sources. Alternatively, EPA can regulate power plant emissions under the Clean Air Act. A new standard proposed by EPA in early 2012 would limit emissions from new power plants to those generated by a state-of-the-art natural gas-fired plant, effectively barring new coal-fired plants without carbon capture-and-storage technology. After finalizing this rule, the next step required under the Clean Air Act is to set standards for existing power plants. In fashioning the standards, EPA can allow states the flexibility to use a range of implementation measures, including market-based approaches such as tradable credits. This would provide utilities greater regulatory certainty as they weigh large investment decisions on upgrading or retiring older plants, and give them flexibility to reduce emissions as cost-effectively as possible.

STRENGTHENING CLIMATE RESILIENCE

The federal government can take steps to improve its own climate resilience and to help states, businesses and communities prepare for more extreme weather and other climate impacts. Federal agencies can provide more technical assistance to state and local officials on the front lines. For instance, a comprehensive climate information service similar to the National Weather Service could help states and localities factor long-range forecasts into their adaptation and disaster response strategies. Congress also can protect federal assets and promote resilience more broadly by ensuring that climate risks are better factored into federal investments. For instance, it can further reform the national flood insurance program to limit taxpayer exposure by better reflecting increased flooding risk, and can require that new or rebuilt infrastructure receiving federal support be constructed to be more climate-resilient.

TAX CREDITS FOR CLEAN ENERGY

Tax policy also has played a vital role in advancing low-carbon technology. For instance, the wind production tax

credit has helped to significantly expand U.S. wind energy (35 percent of all new generating capacity in the last five years) and position U.S. manufacturers for the growing global market. Continuing the tax credit will help ensure a diversity of options for clean, affordable and reliable electricity. An appropriate timeline for phasing out the incentive can be established by reviewing the full range of U.S. energy subsidies and setting clear criteria for ending those no longer needed.

Another technology that can benefit from tax incentives is carbon capture and storage. Using CO₂ captured from power plants and industrial facilities for enhanced oil recovery (EOR) – injecting CO₂ into declining oil fields to increase their output – has the potential to reduce net greenhouse gas emissions while increasing domestic oil production. Expanding an existing tax credit for the use of captured CO₂ in EOR, as recommended by our National Enhanced Oil Recovery Initiative, has the potential both to store as much as 4 billion tons of CO₂ and to produce an additional 9 billion barrels of domestic oil over 40 years. Over time, the proposed incentive would generate net federal revenue through oil royalties and tax payments, and would enable future emission reductions by improving the economic viability of carbon capture and storage technologies.

REDUCING SHORT-LIVED CLIMATE FORCERS

While CO₂ reductions are critical to long-term efforts to address climate change, curbing greenhouse gases with shorter lifetimes will do more to limit warming and related impacts in the near term. Administrative actions can be taken under existing authorities to reduce emissions of these short-lived climate forcers. “Green completion” rules issued in 2012 will indirectly reduce methane emissions at new natural gas production facilities. Better understanding and more accurate measurement of the emissions from natural gas production and use could potentially identify additional cost-effective emission reduction opportunities along the natural gas value chain. Extending pollution control standards for large landfills to an additional 540 smaller sites could reduce methane emissions by 13 million metric tons of CO₂-equivalent annually. Encouraging or requiring the retrofitting of heavy-duty diesel engines with advanced particle controls would significantly reduce emissions of black carbon. Retrofitting half the U.S. heavy-duty fleet could cut emissions by as much as 120

million tons of CO₂-equivalent over the next 20 years. HFCs, chemical coolants introduced as substitutes for ozone-depleting compounds, are an increasingly significant contributor to climate change. More climate-friendly alternatives now available would allow the phase-out of HFC-134a in auto air conditioning, by far the largest source of HFC emissions.

IMPROVING ENERGY EFFICIENCY

Increasing the energy efficiency of household appliances, industrial equipment and buildings would reduce fuel consumption and, in turn, greenhouse gas emissions. New efficiency standards for appliances and equipment that the Department of Energy can adopt under its existing authority would avoid an estimated 200 million metric tons of CO₂ emissions in 2035, equivalent to the annual emissions of 49 coal-fired power plants. Annual electricity savings from a range of residential, commercial, industrial and lighting products would equal about 306 terawatt-hours, or 7 percent of projected electricity consumption in 2035. Products and equipment with the greatest energy-saving potential include residential electric water heaters, incandescent lamps, walk-in coolers and freezers, television set-top boxes, electric motors, and computers and monitors.

RD&D FOR LOW-CARBON TECHNOLOGIES

Government support for basic and applied research has long played an important role in advancing energy technologies key to America's economic success. For instance, federally-supported research and development led to the technological breakthroughs enabling the current boom in natural gas production. Particularly at a time when plentiful natural gas may discourage investment in other low-emitting technologies, continued support is needed for RD&D in areas such as wind, solar, nuclear, carbon capture and storage, advanced vehicles and fuels (including low-carbon aviation fuels), and energy storage, and for programs at the Advanced Research Projects Agency-Energy (ARPA-E) to move innovative technologies into the marketplace.

HELPING MAKE THE GRID SMARTER

The federal government can play an important role in facilitating a "smarter" electrical grid to better integrate clean energy generation. For example, the Federal Energy Regulatory Commission can continue to implement new policies improving the economic viability of renewable power generation and transmission. The Department of Energy can share data and lessons learned from the grid modernization investments made under American Reinvestment and Recovery Act to improve future efforts.

SHRINKING THE FEDERAL CARBON FOOTPRINT

As the nation's largest consumer of energy, the federal government can directly reduce emissions and drive the low-carbon market through its energy-related procurement and practices. In 2010, President Obama set government-wide goals of reducing direct greenhouse gas emissions, such as those from fuels and building energy use, by 28 percent, and indirect emissions, such as those from employee commuting and landfill waste, by 13 percent, by 2020. Achieving these goals by 2020 could result in a cumulative CO₂ reduction of 101 million metric tons, or 1.4 percent of annual U.S. greenhouse gas emissions in 2010. Of particular priority are the Department of Defense's efforts to improve energy efficiency and shift to clean energy sources such as distributed and renewable generation, batteries, and clean transportation fuels, which offer opportunities to reduce security risks, energy costs and greenhouse gas emissions.

CLEAN ENERGY LEASING ON FEDERAL LANDS

The Department of the Interior oversees extensive public lands in the West with significant wind, solar, and geothermal potential, as well as offshore areas with enormous wind potential. For instance, offshore areas currently proposed for wind lease sales could support more than 4,000 megawatts of wind generation, enough to power an estimated 1.4 million homes. Continued leasing of these federal holdings, and new transmission lines linking them to the existing grid, could substantially increase U.S. clean energy generation.

OPPORTUNITIES IN LEGISLATIVE REAUTHORIZATIONS

Congress can take steps to reduce emissions and promote clean energy as it considers reauthorization of major federal programs. For instance:

- With the next reauthorization of federal surface transportation programs, Congress can include policies that save oil and reduce emissions. These steps include reforming revenue generation from the transportation sector, establishing performance-based programs that use oil savings and greenhouse gas emission reductions as metrics, and allowing states to expand transportation pricing measures.
- In adopting a new farm bill, Congress can restore energy-related provisions eliminated in last year's stopgap measure. These include: provisions promoting biomass research, production, and use, which improve the economic viability of low-carbon transportation fuels; and the Renewable Energy for America Program, which offered grants and loans to farmers to improve energy efficiency and to produce wind, solar and biomass energy. Other measures could include incentives for agriculture and forestry-

related projects that reduce greenhouse gas emissions, such as reforestation, afforestation, low or no-till farming and reduction in N₂O fertilizer use.

INTERNATIONAL ENGAGEMENT

As the United States strengthens its domestic climate effort, it can also work on the international level to promote stronger action by other major economies. With a fresh round of U.N. climate negotiations now underway, the United States can work to ensure that it produces an agreement in 2015 that is ambitious, balanced, and sensible – one the United States can join. It also can help mobilize complementary efforts alongside the United Nations climate process, such as the new coalition addressing short-lived climate forcers, and work through the International Civil Aviation Organization to deliver a meaningful pact to reduce emissions from aviation.

The views expressed here are those of C2ES alone and do not necessarily reflect the views of members of the C2ES Business Environmental Leadership Council (BELC) or C2ES's Strategic Partners



The Center for Climate and Energy Solutions (C2ES) is an independent nonprofit organization working to promote practical, effective policies and actions to address the twin challenges of energy and climate change.