

Combatting Climate Change: An Opportunity for Rural America

From agriculture to outdoor recreation, rural economies across the United States depend on a stable climate and consistent weather patterns. Combatting climate change is both a necessity in rural America and also an opportunity to reverse the economic headwinds which are widening the gap between rural communities and their urban counterparts. The unique opportunities for rural America stem from its vast land resources: 71% of U.S. territory (excluding Alaska) is privately-owned rural land¹ where carbon can be sequestered in soils, vegetation and forests; where bio-based and renewable products — fuels, plastics and other renewable materials — can be grown and produced; where captured carbon dioxide can be stored deep underground or utilized in other ways; where wind farms and solar fields can be built on a large scale; and where a plethora of technical training schools like community colleges, tribal colleges, land-grant universities, union-registered apprenticeship programs and technical training colleges can prepare workforces that will grow rural economies while addressing climate change.

Goal

To capitalize on these opportunities, we propose a Rural Green Partnership — a set of policies that work with federal, local and state governments, local businesses, unions, producers, NGOs and other stakeholders to lower greenhouse gas (GHG) emissions in every economic sector of rural America and spur economic growth.

Rural Green Partnership Framework

Five principles will guide Rural Green Partnership climate policies:

- 1) Expand and improve conservation programs that are respected and well known to farmers, and explore new markets for ecosystem services that establish economic incentives to adopt conservation practices that increase resilience, sequester more carbon in soil, crops and forests, prevent erosion and can be scaled up quickly and efficiently.
- 2) Invest in rural infrastructure that will form the foundation of new green economic growth: including faster broadband speeds so farmers can take advantage of GPS for precision agriculture, an expanded grid, green infrastructure and carbon dioxide pipelines to transport captured carbon to locations where it can be stored or utilized.
- 3) Leverage zero and low interest loans, tax credits and grants to incentivize new clean energy development and innovations that drive down GHG emissions.
- 4) Increase basic and applied research funding for farming practices and sustainable land uses, clean energy technologies, energy storage, energy efficiency and carbon dioxide capture, storage and utilization as well as extension efforts and technical assistance to ensure that government research outcomes are transferred effectively to stakeholders.
- 5) Foster green workforce development at union and registered apprenticeship programs, community colleges, tribal colleges, technical training centers and other colleges and universities across rural America.

Rural Green Partnership Policies

The following sections outline policies to reduce GHG and increase clean energy opportunities in rural America across the five economic sectors that comprise total U.S. emissions²: agriculture, electricity, transportation, commercial & residential and industry. Policies will also increase carbon dioxide removals via land use and forestry practices.

¹ USDA, NRCS National Resources Inventory Summary Report, September, 2018, p. 2-1

² Data on greenhouse gas emissions by sector from EPA: <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>

Agriculture, Land Use and Forestry

Agriculture contributes 9% of U.S. GHG emissions²— the least of all economic sectors. In the last 30 years, however, land use and forestry (LUF) activities in the United States have removed greater amounts of carbon dioxide from the atmosphere than they have generated. In 2017, for example, LUF offset nearly 11% of total U.S. GHG emissions.³ Moreover, the largest and most cost-effective potential sink for drawing down significant carbon dioxide emissions still remains the nation’s soils and forests — rural America’s greatest asset. Rural Green Partnership policies for agriculture will therefore focus on increasing soil organic carbon through soil health strategies that help farmers and ranchers manage risk by increasing long-term resiliency and adaptation to proliferating extreme weather events. For forestry, Rural Green Partnership policies will rely on sustainable management, reforestation and uses of forest products. Specifically, the Rural Green Partnership will:

- Increase funding and number of acres available for federal assistance to incentivize adoption and maintenance of proven, science-based, precision agriculture and conservation management farming practices that increase soil carbon, reduce runoff and optimize fertilizer inputs as part of systemic farm management. This work can be done through existing Natural Resources Conservation Service (NRCS), Farm Service Agency (FSA), other federal programs or re-envisioned federal assistance.
- Expand the number and availability of conservation technical experts capable of offering customized, one-on-one conservation advice to agricultural producers.
- Streamline the process to sign up for NRCS/FSA programs.
- Facilitate widespread data collection to aid hyper-localized management strategies that increase carbon sequestration and increase resilience for the various geographies in the U.S.
- Incentivize integrated crop/livestock operations to maximize the soil carbon sequestered in croplands.
- Expand grants, loans and tax incentives for farm and ranch operations that improve energy efficiency, energy generation and drive down GHG emissions through technologies like methane digestors.
- Increase applied agricultural R&D (research and development) for crop breeding, precision agriculture, soil health practices, extension yield trials, and other on-farm conservation research that mitigates risk and increases resilience.
- Guarantee broadband access for farms, homes and small businesses to ensure that data related to best management practices is readily available.
- Incentivize sustainable forestry practices that sequester carbon while creating new markets for biomass to heat and power homes and business.
- Expand sustainable forestry practices such as pre-commercial thinning, establishing forest stewardship plans and developing fire resilient Wildland Urban Interfaces that reduce the incidence and intensity of fires and CO₂ emissions, and further increase resources available for reforestation after catastrophic loss.

Electricity

The electricity sector comprises 28% of total U.S. annual GHG emissions. Despite this, 64% of U.S. electricity is generated from fossil fuels, while 19% comes from nuclear and 17% from renewables. Wind comprises just 7% of the total and solar a mere 1.6%. When accounting for GHG emissions, coal accounts for 27% of electrical production yet close to two-thirds of carbon dioxide emissions. Rural Green Partnership policies for the electricity sector anticipate a future dominated by clean and net-zero energy that also works to reduce GHG emissions from fossil fuel sources. Policies for this sector will:

- Support the immediate and widescale deployment of carbon capture, utilization and storage (CCUS) technologies on existing fossil fuel energy facilities to significantly reduce GHG emissions.
- Expand R&D for direct air capture (DAC) carbon dioxide technologies that can be deployed in rural America.
- Expand R&D to overcome barriers to wider adoption for intermittent renewables (including the integration of battery storage) in order to further drive down costs.
- Ensure the continued safety and operation of the existing nuclear fleet and the research, demonstration and deployment of advanced nuclear reactors.

³ EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks: <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>

- Extend and increase renewable (solar, wind and biogas) tax credits that enable rural businesses, including farms, to adopt cleaner technologies, reduce costs and raise income.
- Invest in and support community colleges, tribal colleges, technical schools, union and registered apprenticeship programs, colleges and universities that engage in workforce development programs for renewables and provide on-farm assistance for renewable deployment.
- Make available investment tools to municipalities, communities and extension services who form partnerships to build and deploy renewables locally.
- Modernize and expand the electrical grid to facilitate the greater utilization and deployment of renewable sources and keep costs low for consumers.
- Provide assistance to rural municipalities and cooperatives that are looking to bundle demand flexibility, energy efficiency and rate design to ensure economic viability and achieve GHG emissions.

Transportation

At 29% of total U.S. GHG emissions,² transportation is now the leading emitting sector. Light-duty vehicles account for 60% of emissions within transportation, while medium- and heavy-duty trucks account for 23% of the sector. To cut emissions and increase economic activity in rural America, the Rural Green Partnership focuses on the use of biofuels which have significantly lower lifecycle GHG emissions than gasoline and can save consumers money at the pump. For example, soybean biodiesel has a 57% reduction,⁴ and corn ethanol has a 19-48% reduced lifecycle GHG emissions compared to gasoline, with estimated reductions of approximately 70% when specific conservation practices are implemented. Moreover, increasing consumption of biofuels would increase stability for farmers while boosting rural economies and providing a catalyst for continuous economic sustainability. Targeted biofuels policies would:

- Expand use of biofuels (including ethanol, biodiesel, advanced and other biofuels) that reduce GHG emissions by strengthening, expanding or optimizing existing fuel standards and/or creating new fuel standards (Renewable Fuel Standard, High-Octane Fuel Standard, Low-Carbon Fuel Standard).
- Limit the expansive use of small refinery waivers that undermine the Renewable Fuel Standard and increase GHG emissions.
- Extend biodiesel and second-generation biofuel producer tax credits.
- Incentivize land use practices, such as cover crops and no till farming, to sequester more carbon, improve soil health and further improve the lifecycle GHG benefits of biofuels.
- Create incentives for automobile manufacturers to produce vehicles designed and warranted for higher blends of ethanol, such as E30-E85 to help meet new efficiency and GHG emissions reduction standards.
- Incentivize states to support fueling stations that install E15 to E85 pumps.

In addition, transportation policies should expand opportunities for electric vehicles (EV) and hybrid electric vehicles (HEV) in rural America. Because rural communities often generate significant business by providing service to interstate highway travelers (hotels, restaurants, gas stations), programs should not only focus on increasing U.S. EV sales (in 2017, these were still only a little over 1% of total car sales), but also should assist rural businesses in installing EV charging infrastructure to facilitate interstate EV travel. To facilitate EV/HEV sales and infrastructure development, policies will:

- Make federal funds available (low interest loans or grants) to increase EV charging stations across rural America.
- Maintain and expand the EV tax credit for lower income purchasers by making it available at the point of purchase.
- Make investment tax credits available for EV/HEV auto manufacturers and businesses that manufacture EV/HEV parts in rural America.
- Provide grant funds for community colleges, technical schools, union and registered apprenticeship programs, colleges and universities that engage in workforce development programs for EV technicians and electrical workers.

Finally, public transit is an important way to increase commerce and drive down GHG emissions in rural America. Rural Green Partnership policies will:

- Invest in high speed rail service to link rural communities with urban job centers and markets.
- Support rural transit services that facilitate access to jobs, schools and services across rural America.

⁴ EPA Office of Transportation and Air Quality, July, 2016. <https://www.epa.gov/sites/production/files/2016-07/documents/select-ghg-results-table-v1.pdf>

Commercial & Residential

Approximately 11% of total U.S. GHG emissions come from homes and commercial businesses (not including industry). Rural households typically face a higher energy burden than their urban and suburban counterparts. Low-income rural households are especially hard-hit, with an energy burden triple that of higher income families.⁵ Rural housing stock is typically older and less energy efficient. On average, energy efficiency upgrades can reduce energy burden by up to 25% in rural communities.⁶ Rural Green Partnership priorities for this sector would:

- Expand energy efficiency and renewable energy programs for homes and buildings (new programs and retrofits).
- Help rural energy co-operatives expand innovative programs to increase beneficial electrification programs in rural America.
- Increase R&D for supporting more distributed energy systems and integrated energy efficiency measures.
- Incentivize methane emission capture standards from landfills and the efficient recycling and use of food waste.
- Provide loans and grants for energy efficiency at wastewater treatment plants throughout rural America.

Industry

Industrial processes produce goods and raw materials that are essential to our economy yet contribute to roughly 22% of annual GHG emissions. Many industrial plants that manufacture chemicals, vehicles and equipment, food products, pulp and paper, iron and steel, petroleum and biofuels are located throughout rural America and are the economic backbone of many of these communities. This is the only economic sector expected to significantly increase GHG emissions in the next decade, so creative policy solutions will be needed to help rural manufacturers cut GHGs while supporting economic growth. The Rural Green Partnership will:

- Implement zero and low interest loans for CCUS infrastructure projects that transport carbon dioxide from industrial sources to locations in rural areas where it can be used or permanently stored in geologic sinks.
- Facilitate permitting for CCUS infrastructure and storage reservoir assessments.
- Increase R&D funding and prizes for innovative, scalable uses of carbon dioxide that will lead to new businesses in rural America.
- Offer investment tax credits for industries that use carbon dioxide and reduce emissions.
- Introduce tax incentives to encourage industries to switch from higher CO₂ emission fuel sources to zero or low CO₂ emission fuel sources.
- Establish tax incentives, loans and grants for the development and use of bio-based and sustainable forestry products that lower GHG emissions.
- Provide a federally-backed match to all Small Business Innovation Research (SBIR) recipients that receive funding for the production of sustainably sourced bio-based or recycled products.
- Provide tax incentives, grants and technical assistance for rural business that invest in industrial energy efficiency.

Conclusion

Rural America continues to acutely experience the negative effects of climate change. This year alone, farmers across the heartland have faced record flooding and weather events that jeopardize both personal health and economic livelihoods. At the same time, rural communities could contribute significantly to clean energy utilization and more sustainable land use practices. The Rural Green Partnership focuses on economic growth through mitigation of and adaptability to the effects of climate change. Importantly, it gives rural America a front and center seat at the climate change table while respecting the unique needs and interests of the 19% of the population that call rural America home. Significantly lowering future GHG emissions is achievable, and rural America is primed to lead the way.

⁵ Ross et al., 2018. The High Cost of Energy in Rural America: Household Energy Burdens and Opportunities for Energy Efficiency (Prepared by ACEE) <https://acee.org/sites/default/files/publications/researchreports/u1806.pdf>

⁶ Ibid.