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Four Pillars of Decarbonization by 2050--Overview

1. Electricity decarbonization
2. Energy efficiency and conservation
3. Electrification of transportation and buildings
4. Carbon capture

Plus: significant reductions in emissions of non-carbon dioxide pollutants
Recommendations for the Administration
Cross-Cutting Recommendations
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.

If Congress fails to act, the President should use all lawful means within his executive authority to drive decarbonization to net-zero or net-negative anthropogenic greenhouse gas emissions by 2050.
Federal Agencies

• The Administration should invite the Department of Energy, Environmental Protection Agency, Department of Transportation, and other relevant agencies to translate the Zero Carbon Action Plan into intermediate and sector-specific emissions reduction goals and timelines for power, transport, industry, buildings, land use and materials, and a process for updating such goals.

• Each federal agency should exercise its existing powers and duties to contribute to the fullest possible extent to the achievement of the Zero Carbon Action Plan including national climate change goals and with specific emission reduction targets.
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.

• The Federal Government should use the SCC to guide the development of regulations, cost-benefit analyses, public procurements, clean-energy subsidies, carbon taxes, feed-in tariffs and auctions, and other policies.
Regulation of Greenhouse Gas Emissions

• The Federal Government should reinstate and strengthen climate change regulations that have been rescinded or weakened under the Trump Administration.

• The EPA should strengthen the regulation of air pollution from coal-fired power plants using existing authority under the Clean Air Act.
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.
Leasing for Fossil Fuels

• The Federal Government should impose a moratorium on leasing of federal onshore and offshore lands for fossil fuel extraction, and a moratorium (subject to project-specific review) on the construction of fossil fuel infrastructure.
Research and Development

• Accelerate, intensify, and fully fund research and development for zero-greenhouse-gas emitting technologies, energy efficiency technologies, and carbon removal technologies.
Other Cross-Cutting Recommendations for Administration

• The Federal Government should design and implement climate laws, policies and programs based on behavioral science to reduce household emissions.

• The Federal Government should design and implement climate regulations, policies, and programs to leverage domestic and international private sector action.

• In all actions taken to reduce greenhouse gas emissions, the Federal Government should:
  • Ensure that people of color and low-income communities are protected.
  • Foster a just transition for those individuals and communities dependent on the carbon economy.
  • Maximize environmental, economic, and social co-benefits.
Foreign Policy

• Rejoin the Paris Climate Agreement and establish a new and stronger Nationally Determined Contribution for U.S. greenhouse gas emissions – including the goal of net zero or net-negative anthropogenic GHG emissions by 2050 and an updated interim goal for 2030.

• The Federal Government should implement the Kigali Amendment on hydrofluorocarbons (HFCs).

• 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 those in Europe.
Pillars of Decarbonization--Administration
Pillar 1: Decarbonize Electricity

• The Administration should:
  • Advance a program for the large-scale construction of offshore and onshore wind, utility-scale solar, distributed solar, and associated transmission and storage to lead to a rapid expansion of zero emissions electricity.
  • Adopt expedited approval procedures for leasing for offshore wind and onshore wind and solar and not unduly delay the National Environmental Policy Act (NEPA) and Endangered Species Act (ESA) processes.
Securities and Exchange Commission

• The Securities and Exchange Commission should require and enforce greater disclosure:
  • of investments in coal and other fossil fuels;
  • of corporate and financial institutions’ exposure to losses due to the energy transition;
  • of physical risks of climate change; and
  • of broader Environmental/Social/Governance impacts.
Federal Energy Regulatory Commission

- The FERC should adopt policies that encourage rather than discourage the development of renewable energy resources.
- In the absence of a federal carbon price, FERC should approve applications by regional transmission organizations (RTOs), independent system operators (ISOs), and state public utility commissions for carbon adders on wholesale electricity rates.
Pillar 2: Energy Efficiency and Conservation

• The Administration should:
  • Require that, starting in 2025 or before, new federal buildings generally will be fossil fuel free and built to meet aggressive standards of efficiency/carbon use reduction.
  • Shift federal funds (including stimulus packages) away from the funding of new highway capacity and lane expansions, and toward multimodal integration, micro-mobility infrastructure, transit-oriented development, and improved bike/pedestrians/transit.
  • Modify road pricing, curb management, vehicle registration fees, and more to encourage pooling and right-sizing of vehicles.
  • Subsidize rural on-demand transit service for small cities and denser rural areas.
  • Develop certification programs for carbon-neutral food products.
Pillar 3: Electrification of Transportation and Buildings

• The Federal Government should tighten GHG emission standards and fuel economy standards to compel an eventual phasing out of internal combustion engines for new passenger vehicles, with substitution by electric vehicles.

• The Federal Government should accelerate electrification and use of hydrogen and low-carbon biofuels in heavy-duty vehicles.

• The Federal Government should engage with other partners in a massive infrastructure program to construct electric vehicle charging stations.

• In its procurement standards, the Federal Government should prioritize biofuels use for long-haul trucks, aviation, and shipping, and require reduced carbon intensity and more sustainable production of biofuels.
Pillar 4: Carbon Capture

• The Federal Government should direct emissions reductions as well as carbon capture and utilization in a broad range of high-heat-generation industrial activities through a combination of incentives, research and development, procurement mandates, and regulatory requirements.

• The Federal Government should progressively reform agricultural subsidy and crop insurance programs, as well as triple the number of USDA extension agents, to incentivize and facilitate agricultural best practices that enhance soil carbon storage.
Plus: Reduction of non-carbon dioxide pollutants

• The federal government should take a variety of actions, including adoption or modification of regulations, to reduce non-carbon dioxide emissions, including
  • methane,
  • nitrous oxide,
  • fluorinated compounds, and
  • black carbon.
Recommendations for Congress
Cross-cutting recommendations: Congress
Goals

• Congress should:

  • adopt a Zero Carbon Action Plan committing the nation to a binding goal of achieving net-zero or net-negative anthropogenic GHG emissions by 2050.

  • Also establish intermediate and sector-specific emissions reduction goals.
Carbon Reduction Plan

- Congress should require the Administration to:
  - create a specific enforceable national plan by January 2022 to ensure that the country is on the path toward carbon neutrality,
  - require each Administration to update the plan every two years, and
  - require the Administration to report annually to Congress on progress toward carbon neutrality.
- Require a Presidential report to Congress in January 2022 that provides a detailed roadmap to put the country on the path toward carbon neutrality by 2050.
Technology and Pricing

• Congress should triple funding for deep decarbonization research, development, demonstration and deployment from current levels.

• Carbon pricing, in some form such as carbon tax, cap-and-trade mechanisms, fuel pricing, subsidies, feed-in tariffs, or tradable credits, should be an important part of the national effort to reduce greenhouse gas emissions.
Finance

• Congress should launch innovative green financing mechanisms, such as government guarantees for green bonds, tax incentives on utility bonds for renewable energy, direct equity, and funding of state-level green banks.

• Congress should adopt the Master Limited Partnerships Parity Act to extend favorable tax treatment to financing arrangements known as “master limited partnerships” and “yieldcos,” a benefit already available to investors in fossil fuel development, to also include investments in renewable power demand reduction projects.
Subsidies

- The Federal Government should eliminate monetary fossil fuel subsidies (except direct payments to low-income households).
Key recommendations for pillars of decarbonization: Congress
Pillar 1: Decarbonize Electricity

• Congress should:
  • Adopt a national clean energy standard for electricity and incentives to promote the infrastructure investments required to meet the established targets.
  • Mandate the phasing out of all coal-fired power plants by 2030, and make adequate provision for displaced workers as part of that phase out.
  • Adopt a low-carbon fuel (also known as clean fuel) standard for transportation fuels to support and accelerate the transition to electricity, hydrogen and biofuels.
Pillar 2: Energy Efficiency and Conservation

• Congress should:
  • Amend the Energy Policy and Conservation Act:
    • to broaden the Department of Energy’s (DOE’s) authority to establish energy efficiency standards for new products,
    • authorize DOE to adopt energy efficiency standards with multiple efficiency metrics, and
    • give DOE binding deadlines for adopting and strengthening standards.
  • Require that, starting in 2025 or before, all new buildings generally will be fossil fuel free and built to meet aggressive standards of efficiency/carbon use reduction.
Pillar 3: Electrification of Transportation and Buildings

• Congress should prioritize biofuels use for long-haul trucks, aviation, and shipping, and require reduced carbon intensity and more sustainable production of biofuels.

• Congress should require building decarbonization at the federal level, and direct the adoption of a model National Energy Code for Buildings for use by the states.
Pillar 4: Carbon Capture

• Congress should set up research, development, demonstration and deployment (RDD&D) for carbon capture and negative emissions technologies, so they can be brought to scale at much lower costs as soon as possible.

• Congress should mandate a strategy to achieve a national reforestation goal by 2050.
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Zero Carbon Action Plan: State and City Policy Framework

Kit Kennedy, Senior Director, Climate & Clean Energy Program, NRDC
What’s the Role of States and Cities in Decarbonization?

1. States and cities are important drivers of climate and clean energy progress
   • States regulate in-state power generation and electricity distribution
   • States regulate electric and gas utilities and engage in energy planning
   • States have broad authority to regulate pollution, including GHGs
   • Cities drive demand for clean energy and are incubators of innovation

2. States and cities are still important even under a climate-friendly federal administration
   • Implementation of federal policy (e.g. Clean Power Plan 2.0)

3. Limits on state and city authority and ability to act:
   • Preemption
   • Resource issues
   • Limits on reach
State and City Policy: Cross-Cutting Climate Action

• States:
  • Ambitious climate legislation and mandates, e.g. New York Climate Leadership and Community Protection Act, CA AB 32 – include equity provisions
  • Executive Orders, e.g. Michigan Governor Whitmer (net zero GHG economy-wide by 2050)
  • Regional carbon initiatives, e.g. Regional Greenhouse Gas Initiative
  • State collective action, e.g. U.S. Climate Alliance

• Cities:
  • Climate plans
  • City collective action, e.g. “We’re Still In”, American Cities Climate Challenge
  • GHG mandates, e.g. NYC Local Law 97, Climate Mobilization Act
  • Some cities regulate municipal utilities
City and State Policy: Energy Efficiency

• States:
  • Energy Efficiency Portfolio Standards
  • State Energy Efficiency Standards
  • Energy efficiency financing, e.g. Green Banks, PACE Financing
  • Utility commission policy, e.g. utility rate cases, integrated resource planning
  • State building energy efficiency codes

• Cities:
  • NYC and DC energy efficiency mandates for existing buildings
  • Benchmarking and retrofitting/building energy performance ordinances (e.g. St. Louis)
  • City stretch energy efficiency codes
  • Energy efficiency financing, e.g. Green Banks, PACE Financing
City and State Policy: Building Electrification

- States:
  - Building Electrification Policies Must be Closely Aligned with Energy Efficiency Policies
  - Align electrification policy with low-income protection and housing policy
  - Market transformation and incentive policies
  - State all-electric building codes, e.g. California Energy Commission proceeding
  - Financing
  - Utility commission policy, e.g. gas and electric utility rate cases, future of gas proceedings
  - Fund or support electrification via system benefit funds
  - Set outdoor and indoor air pollution standards to address the health risks of gas
  - Use permitting authority to say no to gas infrastructure

- Cities:
  - City all-electric building codes, e.g. San Jose, many other CA cities
  - Land use and affordable housing policy
  - Financing, e.g. Portland Clean Energy Fund
  - Regulation of municipal utilities (e.g. Philadelphia Gas Works)
    - Set outdoor and indoor air pollution standards to address the health risks of gas
    - Use permitting authority to say no to gas infrastructure
City and State Policy: Clean Transportation

• States:
  • CA Clean Cars Standards
  • ZEV Mandates
  • CA Advanced Clean Trucks Rule and 15-state NESCAUM Clean Trucks MOU
  • Utility commission policy to support EV infrastructure, e.g. utility rate cases
  • Transportation carbon caps, e.g. CA AB 32 (economy-wide cap), Transportation & Climate Initiative
  • Low-income EV programs
  • State role on public transportation VMT reduction planning and improving clean mobility options

• Cities:
  • Land use policy, e.g. encourage housing near transit
  • Congestion pricing
  • Policies to reduce VMT and improve clean mobility options
City and State Policy: Clean Transportation

• States:
  • CA Clean Cars Standards
  • ZEV Mandates
  • CA Advanced Clean Trucks Rule and 15-state NESCAUM Clean Trucks MOU
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Upcoming Webinars (Eastern Time)

**Materials**
November 17
1:00 – 2:00 pm

**Industry**
November 18
3:00 – 4:00 pm

**Food & Land-Use**
November 24
3:00 – 4:00 pm