



The Net-Negative CO₂ Baseload Power Initiative

Addressing Climate Change Concerns

Protecting the Baseload Power
Infrastructure

Securing the Economic Future of Coal
Communities

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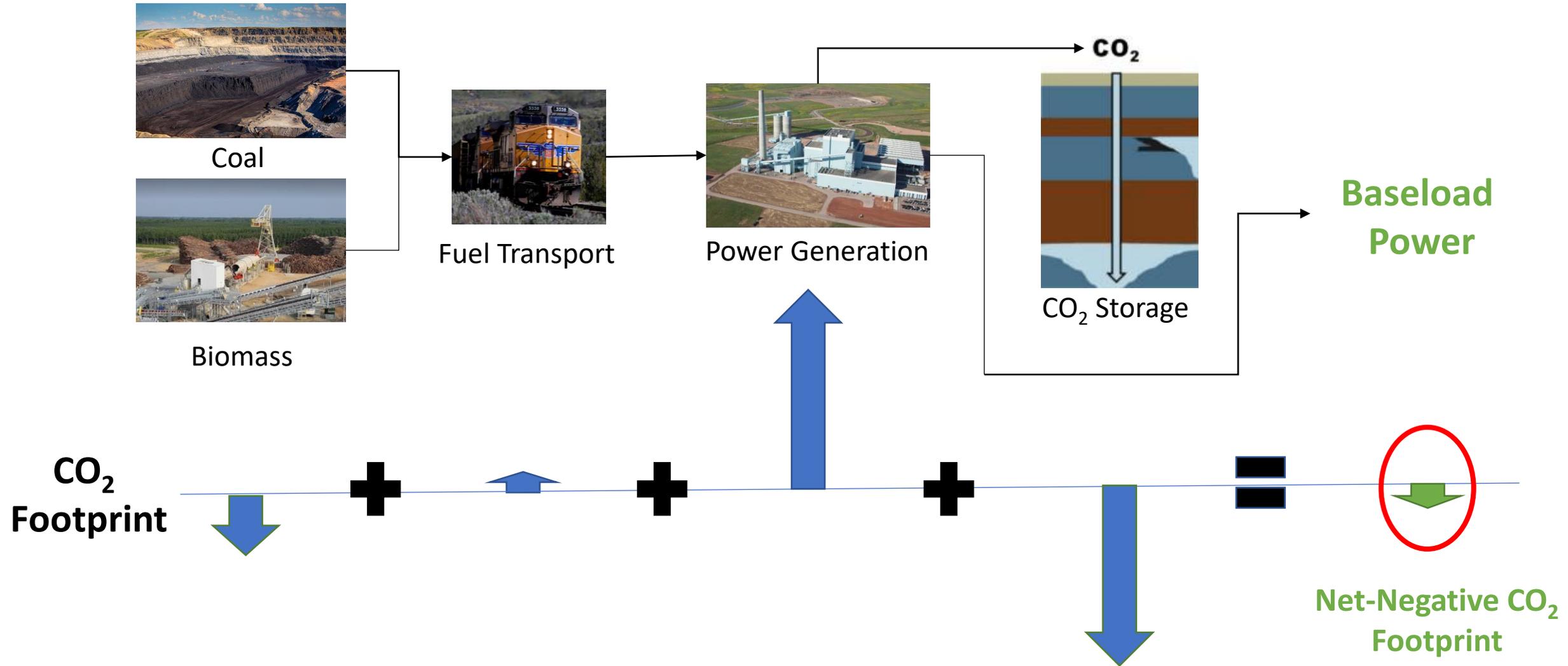
Situation Assessment

The Facts

- The reliability of the electricity grid depends on baseload coal power that can be dispatched 24/7/365.
- Coal states and coal communities depend on coal for their economic livelihood.
- Shareholders, financial markets, the insurance industry, some States, and some U.S. allies will continue the pressure to reduce “unabated” coal.
- Coal’s climate issue is not the fuel itself, but rather its carbon dioxide footprint.
- The Administration’s net-zero GHG emission goals are impossible to achieve without expanded electrification of the U.S. economy and the deployment of negative emission technologies.
- Coal can enable this expanded electrification and existing coal infrastructure can be retrofitted or repowered to have net-negative emissions.
- The costs and reliability impacts of “all renewable” power generation strategies are far from fully understood, but they are measured in the trillions of dollars and electricity supply disruption events.
- CCS, in association with fossil fuels and biomass, have far greater leverage at controlling the costs of achieving aggressive carbon dioxide reduction targets than does expanded wind and solar power generation.
- With technology and a diverse fuel mix, including coal, climate change concerns can be addressed, a reliable U.S. electricity grid can be maintained, and coal communities can prosper.

Net-Negative CO₂ Baseload Power Technology

Coal with Biomass Co-firing and CCS



Leverages Existing Infrastructure and Abundant Fuels

Accelerates Progress and Controls Total Cost of Reducing America's CO₂ Footprint

- Existing Coal Generation Infrastructure
 - 212 GW of utility-scale coal plants
 - Transmission, supply chain, and permitting infrastructure for the plants are in place
 - 59 GW (28%) are scheduled to retire by 2035 with many of these plant sites candidates for retrofitting or repowering
- Abundant Domestic Coal Resources
 - World's largest reserves
 - 470-year supply at 2020 consumption rates
- Sustainable Domestic Biomass Resources
 - 20% co-firing of entire existing coal fleet would require 100 millions tons/yr of biomass.
 - The 2030 domestic, available biomass resource is estimated to be 991 to 1150 million tons with only ~one-third committed to current uses.
 - The U.S. is the world's largest exporter of wood fuel pellets with 9 million tons of 2020 exports to fuel international coal plants.



Why Pursue Net-Negative CO₂ Baseload Power

Avoids Stranding Existing Assets and Abandoning Coal Communities

- Aggressive Administration Targets
 - 2030 - 50% economy-wide reduction of U.S. GHG
 - 2035 - Net-zero emissions across the electricity sector
 - 2050 - Economy-wide net-zero GHG emissions
- Impact of these targets is premature coal plant retirements
 - Strands valuable infrastructure
 - Economically hollows-out coal and power plant communities
 - Reduces electricity reliability
 - Increases electricity costs, impacting manufacturing jobs and households
- Net-negative technology would
 - Significantly mitigate these impacts
 - Support grid reliability with carbon-negative baseload power
 - Create hydrogen co-product production opportunities
 - Ready the technology for export, which creates U.S. manufacturing opportunities
 - Support U.S. allies that have stated policies to continue the use of coal (e.g., India and Japan)
 - Demonstrate U.S. leadership on pragmatic approaches to address climate change



*Net-zero Targets
are unachievable without
“net-negative” technologies
that balance unabateable
emissions*

Required Federal Actions

Enabling Deployment of Net-Negative CO₂ Baseload Power Technology

Policy commitment to facilitate deployment of net-negative CO₂ baseload power, including:

- Enactment of The Net-Negative Baseload Power Act (H.R. 4891), which
 - Establishes a Net-Negative Baseload Power Program at DOE
 - Authorizes \$300M in immediately available grant funding for engineering and economic studies at existing coal power plants sites
 - Provides DOE with new management tools and directs the acceleration of projects that will reduce the carbon footprint of the existing coal fleet with Net-Negative Technology (CCS and biomass co-firing)
- Appropriating the \$300M in grant funding.
- Providing ~\$30B in funding for the DOE Net-Negative Baseload Power Program for cost-shared retrofits/repowering of a first tranche of plants
 - Accelerates the reduction of the coal fleet's carbon footprint
 - Protects grid reliability and coal communities
- Levelizing the Tax Credit playing field for all low-carbon technologies considering
 - Power plant carbon footprint
 - Power plant dispatchability

Levelizing the Tax Credit Playing Field

Additional Details

- Investment and Production Tax Credits (ITCs and PTCs)
 - Incentivize low-carbon, reliable power
 - Minimum dispatchability requirement (e.g., 90%)
 - Nuclear, Renewable, CCS-enabled fossil plants, and Net-Negative fossil plants can all meet a dispatchability requirement either stand-alone or with battery/low-carbon power back-up
 - Zero-carbon emitting plants would be eligible for a Base PTC.
 - CCS-enabled fossil plants with <100% capture would be eligible for a reduced PTC.
 - Net-Negative plants, effectively with >100% capture would be eligible for an increased PTC.
- 45Q Carbon Capture & Storage Tax Credit
 - Amount should be indifferent to the carbon capture technology employed (e.g., amine capture, ammonia-based capture, or direct air capture). The result “tons captured” not the technology type should be incentivized.

Proposed DOE Net-Negative CO₂ Baseload Power Program

Additional Details

- Qualifying projects:
 - Must retrofit/repower, at the same site, an existing coal-fired power plant to preserve state and community economic benefits.
 - Retrofit or replacement must have net-negative emissions using coal/biomass co-firing with CCS
- \$300M for plant-specific engineering and economic studies
- \$30B to cost-share deployment of the initial ~10 net-negative plants
- Power plant owners may competitively apply
 - Grants for engineering/economic Project Concept Studies
 - Cost-share for pre-FID Project Development Activities
 - A package of incentives to attract commercial co-investment and limit ratepayer impacts



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