The Business Council for **Sustainable Energy**

THE CLEAN ENERGY TECHNOLOGY DEPLOYMENT PATH TO CLIMATE SOLUTIONS ACT
PROPOSAL SUMMARY

The Clean Energy Technology Deployment Path to Climate Solutions Act (CETDP) would authorize the creation, expansion and extension of a balanced set of federal policies that will deploy proven and commercially available clean energy technologies to achieve climate change mitigation goals. Through the greater use of renewable energy resources, clean energy fuels and increased supply-side and demand-side energy efficiency investments, real and measurable reductions in greenhouse gas emissions can be realized now, contributing to:

1. Lower overall economic costs for businesses and consumers;
2. A healthier, more sustainable environment; and,
3. Stimulation of U.S. employment and economic growth in the clean technology sector.

The CETDP can be integrated into a national, economy-wide greenhouse gas emissions reduction strategy that sends long-term, predictable signals to capital markets -- providing certainty about the price of carbon and directing new investments in low- and zero-carbon technologies. A national emissions control program should:

- **Incorporate a mandatory, economy-wide and market-based approach**
- **Establish near-term and long-term targets to signal the marketplace and drive capital investments in existing technology and innovation**
- **Establish linkages with existing domestic and international greenhouse gas emissions reduction programs and markets**
- **Expand alternative energy resources from clean energy and energy efficiency technologies**
- **Recognize and reward improvements in both supply-side and demand-side energy efficiency**
- **Recognize that consumer markets and capital markets are different and respond to price signals differently**

WHY WE NEED A CLEAN ENERGY TECHNOLOGY DEPLOYMENT PACKAGE TO ADDRESS CLIMATE CHANGE

To tackle the challenge of global climate change, all technologies at our disposal will be required over a long time horizon. However, in the next ten to fifteen years, existing clean energy technologies such as renewable energy, energy efficiency and cleaner fuels such as natural gas are the viable, readily available and easily deployable solutions. Even with a robust carbon price signal, accelerated deployment may not occur as swiftly as needed due to significant regulatory and market barriers.

By crafting and implementing policies that drive investments in -- and deployment of -- clean energy technologies now, our nation will reduce greenhouse gas emissions and be better able to achieve our long-term climate change mitigation goals at affordable costs to consumers and businesses.

Cost-effective opportunities exist today to help achieve the nearly 80 percent reduction in greenhouse gas emissions called for in pending climate change proposals.[1] An integrated federal energy and climate policy approach will produce immediate benefits and pave the way for a secure energy future.

Beyond the emission reductions achieved, deployment of clean energy technologies and investments in existing proven energy efficiency projects will:

- Foster U.S. economic growth and create new high-quality jobs
- Enhance energy security and independence
- Provide affordable, available clean energy choices for consumers
- Lower the cost of compliance with federal greenhouse gas emissions reduction programs
- Increase the ability of the U.S. to meet mid-term and long-term emission reduction objectives
- Bring necessary efficiency improvements to the electricity industry on a scale comparable to those realized in other, more successful industries

CRITICAL ELEMENTS OF THE CETDP

- Renewable Electricity Standard (RES)
- Energy Efficiency Resource Standard (EERS)
- Tax and/or comparable clean energy technology incentives to more widely deploy existing clean energy technologies and projects
- Energy efficiency savings programs in the form of codes, standards and incentives to promote carbon-efficient buildings and appliances and combined heat and power (CHP)
- Research and development for deployment of emerging technologies

These elements should result in a balanced, competitively neutral and integrated program providing accurate, cost-based price signals to: promote wise use of energy and reduce energy use at peak times; avoid programs that would encourage inefficient use or production of energy; and encourage additional generation with the right size, location and operation times to have real, positive impacts on the grid and on customer cost.

Implementation of these policies should be carefully designed to recognize and reward accomplishments of individual states, consumers and entities within those states, including reducing greenhouse gas emissions, increasing renewable energy generation and enhancing efficient use of energy – both through programs, equipment and installation, and through building and appliance codes.

POLICY AND PROGRAM RECOMMENDATIONS

Renewable Energy

Rationale: Aggressive, near-term and immediate deployment of existing clean energy technologies will move the country closer to achieving its greenhouse gas emissions reduction goals while also reducing dependence on foreign energy resources and aiding the domestic economy.

Barriers: The US lacks a long-term commitment in federal policy that supports new and significant investment in clean and low-carbon energy sources to help achieve greenhouse gas reduction goals.

Solutions

- Adoption of a National Renewable Electricity Standard, requiring retail electric utilities to provide a minimum amount of electricity from renewables or in the event this minimum is not met, purchase tradable credits representing an equivalent amount of renewable generation
- Passage of tax incentive legislation providing full-value and long-term extensions (minimum of 8 years) and project eligibility expansions of production tax credits, clean renewable energy bonds and investment tax credits for renewable energy technologies, including incentive coverage for distributed energy systems such as electrical generation from small multiple fixed or mobile zero- or low-carbon units
- Continuation of federal accelerated depreciation benefits for the renewable energy investments
- Adoption of federal capacity incentives for certain new renewable installations and for the installation of new equipment on existing facilities
- Allow renewable energy installation in federal Energy Savings Performance Contracting (ESPC)
- Increase in federal research, development and deployment funding to utilities, developers, consumer and others that use renewable energy technologies

Electricity Delivery Infrastructure

Rationale: Current electricity infrastructure is outdated and requires significant upgrading to meet growing U.S. energy demand. An improved system could cut energy costs (lowering line losses; improving system peak efficiency) and better deliver power from more remotely situated areas that have significant potential to produce low or zero carbon energy. An improved transmission and distribution system could provide greater reliability, flexibility for distributed generation, cleaner generation and demand side management, including the development of 'smart' appliance applications or demand side or "net" meters.

Barriers: High cost of transmission technologies and local resistance to deployment; uncertain environmental and siting rules; uncertain market

[1],[2] According to the McKinsey & Company report, *"Reducing U.S. Greenhouse Gas Emissions: How Much at What Cost: 2007,"* the U.S. could reduce greenhouse gas emissions in 2030 by 3.0 to 4.5 gigatons of CO_2e using existing technologies.

rules; and need for standardized approaches to interactive communication from system operator to central and distributed generation sites to end use sites.

Solutions

- Increase investment and capacity in an aging transmission grid in order to meet future load requirements, increase reliability and reduce grid congestion
- Ensure application of provisions of the Energy Policy Act of 2005 to expedite the siting of new electric transmission infrastructure
- Accelerate research and development for technologies that increase the carrying capacity of the electric system (high voltage DC transmission, superconductivity, high-strength overhead conductors, advanced sensors and controls)
- Adopt national interconnection standards and procedures that provide distributed generation and CHP systems of any size (including district heating and cooling systems) access to the local grid
- Sufficiently fund research and development for deployment of industrial and building-related distributed generation and CHP technologies, which can reduce grid congestion, be used for load management and allow consumer choice in their power generation needs
- Develop and deploy "smart grid" technologies, standardized interactivity protocols and architecture inherent to program effectiveness, that at a minimum provide the ability for meter-to-meter communication
- Promote use of smart meter technology and allow smart meters to qualify as Qualified Technological Equipment with a five-year tax depreciation
- Encourage states and customers to deploy advanced metering technologies
- Develop and deploy low-cost, advanced storage capabilities and clean generation technologies to provide load management for intermittent generators
- Enable advanced storage facilities that employ renewable energy to qualify for production tax credits
- Support tax credits for hydrogen infrastructure in order to facilitate increased use of fuel cell technology in early applications
- Allow power generation in federal Energy Savings Performance Contracting (ESPC)

Energy Efficiency Investments

Rationale: Greater use of energy efficiency, focused on both supply and demand applications, will play a substantial role in reducing greenhouse gas emissions. According to the 2007 McKinsey study [2], increased energy efficiency in buildings, industry, transportation, and energy production could meet almost all increased demand for energy services in the U.S. while preventing more than 1.5 billion tons of carbon dioxide emissions each year by 2030 – with an annual net savings of over $50 billion. Insulating buildings, for example, represents the most cost effective way to reduce greenhouse gas emissions. Improving building codes could save at least 150 million tons of carbon dioxide emissions a year by 2030. Dedicated allocations under a climate cap and trade program for energy efficiency initiatives will spur energy efficiency policies and programs – and incorporate end-users into the mix.

Barriers: Current federal energy efficiency standards are outdated and minimal in scope.

Solutions:

- Adopt a National Energy Efficiency Resources Standard (EERS) to encourage more efficient generation, transmission and use of electricity and natural gas
- Enact and extend tax incentives for Homes, Commercial Buildings and Building Equipment
- Encourage vertically integrated power energy suppliers (and states) to decouple revenues from the amount of energy generated. Congress should encourage regulated entities to implement innovative rate designs that further encourage energy conservation and energy efficiency, including properly designed and cost-effective decoupling programs for utility rates
- Fully fund and expand federal support for both supply- and demand-side energy efficiency
- Utilize full fuel energy cycle analysis when considering energy efficiency programs and incentives
- Authorize and encourage green building practices through authorization or full funding of zero energy homes and buildings and accelerated use of Energy Star labeling and promotion of LEED building standards
- Allow new construction in federal Energy Savings Performance Contracting (ESPC)
- Require the Department of Energy to support development of advanced building energy codes and encourage states to adopt those advanced codes

Barriers: State energy policies rarely put energy efficiency on the same footing as other energy investment options

Solutions:

- Consider federal legislation providing technical support, incentives and general policy guidance to encourage deployment of residential and commercial waste heat or other similar self generation technologies

Industrial Greenhouse Gas Emissions

Rationale: To address all sources of emissions, the industrial sector should reduce on-site electricity consumption through energy efficiency measures

Barriers: Manufacturers (and competitive retailers) confronting global competition may be reluctant to invest in new technologies that might alter their processes, or require higher up front costs. Some firms are stretched by supply costs.

Solutions:

- Develop, demonstrate and deploy new, more efficient on-site generation such as CHP, including systems that can use blends of natural gas, biomethane and/or hydrogen
- Ensure that legislation to promote CHP is properly structured so that industrial, commercial, governmental and/or institutional power consumers that choose to install on-site CHP are recognized for the environmental attributes of their investments, corresponding to the indirect emissions reduction achieved through a reduction in purchased power
- Develop and deploy heat recovery systems, oxy-gas combustion systems, and other similar technologies to improve thermal efficiency in process heating
- Provide tax incentives to new facilities producing renewable natural gas from biogas sources such as landfills, animal and crop waste and municipal sewage
- Provide financial incentives for high efficiency industrial products that are not covered by a climate change cap-and-trade program
- Encourage aggregation of small clean energy systems
- Deploy ultra-high efficiency steam generation technologies
- Develop waste heat recovery systems and system optimization technologies for retrofit to existing boilers
- Develop integrated systems that can combine solar thermal input with industrial boilers and process heating systems
- Promote electrochemical conversion technology, including small systems of any power generation capacity for commercial, industrial or residential use
- Address facility environmental disadvantages for adding on-site generation systems
- Develop fuel cell lift trucks and other material handling equipment and install onsite hydrogen generation systems for fueling

CLEAN ENERGY TECHNOLOGY DEPLOYMENT PATHS

Renewable Energy	Electricity Delivery Infrastructure	Energy Efficiency Investments	Industrial Greenhouse Gas Emissions
Adoption of a National Renewable Electricity Standard	Increase investment and capacity of aging grid to improve transmission	Adopt a National Energy Efficiency Resources Standard	Develop, demonstrate and deploy new, more efficient on-site generation
Passage of tax incentive legislation	Ensure application of provisions of the Energy Policy Act of 2005 to expedite new siting	Enact and extend tax incentives	Properly structure CHP policy to recognize environmental attributes
Continuation of federal accelerated depreciation benefits	Accelerate research and development of technologies that increase carrying capacity	Encourage vertically integrated power energy suppliers (and states) to decouple rates	Develop and deploy heat recovery systems
Adoption of federal capacity incentives	Adopt national interconnection standards and procedures (for DG & CHP)	Fully fund and expand federal support for supply-side and demand-side energy efficiency	Provide tax incentives to facilities producing renewable natural gas
Allow renewable energy installation in federal Energy Savings Performance Contracting	Sufficiently fund research, development and deployment of industrial & building-related distributed generation and CHP technologies	Utilize full fuel energy cycle analysis when considering efficiency programs	Provide financial incentive for high-efficiency industrial products
Increase federal research, development and deployment funding	Develop and deploy low-cost, advanced storage and technologies to provide load management for intermittent generators	Authorize and encourage green building practices	Encourage aggregation of small clean energy systems
	Develop and deploy "smart grid" technologies	Allow new construction in federal Energy Savings Performance Contracting	Deploy ultra-high efficiency steam generation technologies
	Promote use of smart meter technology	Require Department of Energy to support development of advanced building energy codes	Develop waste heat recovery systems
	Encourage states and customers to deploy advanced metering technologies		Develop integrated systems that utilize clean energy technologies
	Enable advanced storage facilities for renewable energy to qualify for tax incentives		Promote electrochemical conversion technology
	Support tax credits for hydrogen infrastructure to facilitate use of fuel cell technology		Address facility environmental disadvantages for adding on-site generation systems
	Allow power generation in federal Energy Savings Performance Contracting		Develop and deploy fuel cell material handling equipment and infrastructure

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