

Analysis of H.R. 2454, the American Clean Energy and Security Act (ACES)

On June 26th the House of Representatives passed H.R. 2454, the American Clean Energy and Security Act. This landmark legislation will help power our economic recovery by investing in clean energy technologies and creating millions of good-paying jobs. The bill will also enhance America's security and global leadership by cutting our oil dependence and curbing the carbon pollution that drives global warming.

The ACES bill combines standards and incentives in a powerful clean energy package:

- Renewable energy and energy efficiency standards will save energy consumers billions of dollars per year while cutting global warming pollution.
- Emissions standards for carbon dioxide and other greenhouse gases will cut pollution from power plants, vehicles, and other industries.
- A cap on carbon emissions will gradually cut global warming pollution 17 percent by 2020, 42 percent by 2030, and 83 percent by 2050, compared to 2005 levels.
- More than 80 percent of the bill's valuable pollution allowances will be used to meet public objectives: protecting consumers, preserving and creating jobs, deploying clean energy and energy efficiency technologies, cutting more carbon emissions, and coping with climate change impacts.

The ACES bill will set us on the right path toward a clean energy future. As the bill goes to the Senate, it can be improved to achieve more emissions reductions by 2020, make more cost-saving investments in energy efficiency, accelerate investments in renewable electricity, improve environmental safeguards for offsets and bioenergy production, and retain the EPA's authority to regulate global warming pollution from the largest sources.

Developing the Clean Energy Economy and Boosting Energy Efficiency

Efficiency and Renewable Electricity Standard

The ACES bill requires retail electricity distributors to meet a rising fraction of demand with renewable energy sources and improved efficiency, starting with 6 percent in 2012 and rising to 20 percent in 2020.

- At least three-quarters of that amount must come from renewable resources. However, the Federal Energy Regulatory Commission (FERC) may, on a governor's petition, lower the renewable component to three-fifths of a utility's obligation, with the remainder to come from efficiency.
- Renewables deployment targets should be raised, credit for non-renewable resources should be deleted, and protections should be added for environmentally sensitive lands.
- ACES also requires federal agencies to get 20 percent of their electricity from renewable sources by 2020 and allows the federal government to enter long-term contracts for renewable energy.

Carbon Capture and Storage

The ACES bill includes standards and incentives to shift away from building conventional industrial facilities and coal-burning power plants and toward newer designs that employ carbon capture and storage (CCS) technology. The bill also promotes retrofits.

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- **CCS regulation and R&D.** The EPA is to issue CCS regulations to prevent leakage from underground reservoirs. A Carbon Storage Research Corporation is tasked with developing and demonstrating new CCS technologies, financed by a small “wires charge” on existing fossil generation.
- **CCS deployment incentives.** The bill creates a large-scale deployment program funded by allowance allocations. Enough funds are provided to support up to 72 gigawatts of CCS-equipped generating capacity. Industrial facilities (e.g., ethanol and fertilizer plants) are also eligible. Participants are rewarded for performance, with more compensation provided for early projects and higher capture rates.
- **Coal-fired power plant standards.** New coal-fired power plants must reduce their emissions by at least 65 percent if they receive air permits after 2020. Plants permitted between 2009 and 2015 have to cut emissions by at least 50 percent within four years after a threshold amount of CCS-equipped capacity is operating. Earlier adoption of CCS is encouraged by time limits on new plants’ eligibility for incentives.

Clean Transportation

The ACES bill encourages cleaner transportation through standards and incentives that will reduce oil dependence and curb global warming.

- **Vehicle standards.** The bill leaves intact the EPA’s and California’s existing authority over passenger vehicle emissions. President Obama has announced that the EPA and the Transportation Department will issue new greenhouse gas and mileage standards that equal California’s landmark standards. The bill also requires the EPA to set greenhouse gas standards for big trucks, locomotives, airplanes, and other mobile sources.
- **Plug-in electric vehicle deployment.** The Department of Energy is to develop a large-scale plug-in hybrid program in selected regions, funding battery exchanges, charging infrastructure, and other measures with a share of revenue from auctioning allowances. Domestic production of plug-in hybrids, assembly plant retooling, and domestic battery production would also receive financial support.
- **Investments in cleaner vehicles.** The bill uses allowance auction revenue to create an auto manufacturing retooling incentive paying up to 30 percent of the cost of retooling facilities to make advanced technology vehicles and components.
- **Transit and other transportation efficiency investments.** The bill changes the direction of transportation planning by requiring state transportation and regional planning agencies to set regional greenhouse gas emission reduction goals. Transportation efficiency planning is eligible for funding through state energy efficiency programs, described next.

State Energy and Environment Deployment (SEED) Fund

The ACES bill funds state programs to promote investments in energy efficiency and renewable energy production. SEED funds initially receive 9.5 percent of the allowances, ramping down to 4.5 percent in 2026 and later years.

- Funding goes to renewable energy and efficiency programs that can substantially reduce consumer energy bills and the overall cost of meeting emission reduction targets. Funds can also be used for transportation efficiency planning.
- Increasing the SEED funds would allow states to capture even more of the cost-effective energy efficiency potential, further lowering the cost of capping carbon.

Clean Energy Development Authority

The bill creates a financing arm in the Department of Energy to fund a range of low- and no-carbon energy projects.

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Smart Grid and Electricity Transmission

The bill encourages deployment of a smart grid to reduce utility peak loads and new transmission to carry renewably-generated electricity.

Building Energy Efficiency

The ACES bill sets strong targets for energy efficiency improvements in new residential and commercial buildings.

- **National building energy performance code.** The Department of Energy is directed to adopt a model national code raising the efficiency of new residential and commercial buildings by 30 to 50 percent, depending on the year. A share of the allowances is given to state and local governments that adopt or exceed these codes. Certain other funds are conditioned on compliance with the national target.
- **Building retrofits.** The bill creates incentives to retrofit existing residential and commercial buildings, a rebate program for replacing old manufactured homes, and a building energy performance labeling program.

Lighting and Appliance Efficiency

The ACES bill strengthens the Department of Energy’s energy efficiency standards.

- The DOE must upgrade standards for products already regulated and add standards for outdoor lighting, other light fixtures, and more appliances.
- The bill establishes a “best-in-class” appliance deployment program with incentives to retailers, a “golden carrot” prize program for manufacturers of super-efficient appliances, and bounty payments for early retirement of inefficient equipment.

Industrial Energy Efficiency

The ACES bill authorizes the DOE to make awards for innovative energy recovery methods such as efficient motors, combined heat and power, and process engineering.

Reducing Global Warming Pollution

Greenhouse Gas Emission Reduction Targets

The ACES bill establishes a cap-and-trade program to limit total emissions of carbon dioxide and other heat-trapping pollutants from major sources.

- **Covered entities.** Facilities responsible for about 85 percent of U.S. emissions are under the cap, including power plants, refineries, and industrial plants emitting at least 25,000 tons of carbon dioxide per year.
- **Emission targets.** The emission caps are consistent with recommendations of the U.S. Climate Action Partnership of companies and environmental organizations:

Year	Reduction below 2005 levels
2012	3%
2020	17%
2030	42%
2050	83%

- **Scientific review.** The bill directs the National Academy of Sciences to review the targets periodically, and the President is required to respond to latest scientific findings by recommending program changes to Congress.

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Supplemental Reductions

The ACES bill achieves significant emission cuts beyond the cap through a program to reduce tropical deforestation, which now accounts for about one-fifth of global carbon emissions.

- Funding comes from auctioning five percent of the emissions allowances. The goal by 2020 is to cut partner countries' tropical deforestation emissions by an amount equal to 10 percent of our own 2005 emissions.
- More emission reductions come through international offsets (described below).
- All told, the combination of domestic and international efforts is equivalent to reducing U.S. emissions 2.0 to 2.4 billion metric tons below 2005 levels in 2020, according to estimates by the World Resources Institute.¹

Complying with the Cap

The ACES bill requires each covered entity to report the amount of emissions that it releases into the air—or in the case of refiners and some chemical producers, the amount that will be released when its products are burned or used downstream.

- The covered entity must have an emissions allowance for each ton of emissions. The number of emissions allowances issued is limited to the cap, and declines each year. The only other way to comply is to acquire offsets—reductions made outside the cap (see below).
- A firm that does not have enough emission allowances or offsets at the end of the year has to make up the missing allowances and pay a penalty of double the allowance cost, a strong incentive to comply.

Cost-Control Measures

The ACES bill includes many tools to reduce the costs of meeting carbon pollution targets.

- **Investing in efficiency.** Energy efficiency is the cheapest way to reduce carbon emissions, offering billions of dollars in savings for consumers and businesses. Supplementing the standards and incentives already mentioned, the bill dedicates one-third of the emissions allowances given to natural gas local distribution companies to helping their customers make cost-saving energy efficiency investments. If Congress did the same for electricity local distribution companies, national energy efficiency investments would increase by about \$10 billion per year, lowering consumer energy bills and allowance prices for all sources.
- **Emissions trading.** The bill employs tried-and-true tools of allowance trading, banking, and limited borrowing, measures that allow firms to find their cheapest compliance path.
- **Offsets.** Covered sources may use up to two billion tons per year of offsets—reductions achieved outside the cap—split between domestic and international sources. The bill includes an Offsets Integrity Advisory Board and other requirements to assure the quality of offsets. Starting in 2017, a company using international offsets must have 1.25 tons of those offsets to cover a ton of its own emissions—the extra quarter ton is a net emission reduction. This increases the ACES bill's total reductions, as described above.
- **Strategic reserve.** An innovation in the ACES bill is a pool of emissions allowances to address the potential for carbon price spikes. The strategic reserve pool is filled using 1 percent of allowances from 2012 to 2019, 2 percent from 2020 to 2029, and 3 percent thereafter. A portion of the reserve can be auctioned each year if carbon prices spike above 1.6 times the average of recent years' prices.
- **Minimum auction price.** In case allowance prices move in the other direction—much lower than expected—the bill includes a minimum price (starting at \$10 per ton and rising each year) below which allowances are withheld from auction and added to the strategic reserve.

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Distributing Allowances

The ACES bill distributes emissions allowances to a variety of recipients. While the auction component starts relatively small, it will grow steadily as most specific allocations phase out over the next two decades. Even though most allowances are given without charge at the outset, the vast majority—more than 80 percent, according to Harvard economist Robert Stavins²—are distributed for public purposes, not private windfalls. Here are the most significant categories:

- **Consumer protection.** The largest fraction of the initial allowance distribution (30 to 35 percent and 9 percent, respectively, phasing out by 2030) goes to electric and natural gas local distribution companies (LDCs). The LDCs, which are regulated by state public utility commissions, are strictly required to use the value of these allowances for the benefit of their customers. They can invest in cost-saving efficiency or pass the value to their customers in lump-sum rebates. As noted above, gas utilities are required to invest at least one-third of their allowances in efficiency, a requirement that also should apply to electric utilities.
- **Low-Income Consumer Assistance.** Fifteen percent of the allowances are devoted throughout the bill's life to protecting low-income consumers, who spend a higher percentage of their income on food, transportation, and other necessities. The revenue from auctioning these allowances is to be delivered to low-income families through tax credits and energy refunds.
- **Preserving Domestic Competitiveness.** The bill provides as much as 15 percent of the allowances to energy-intensive manufacturers of products such as steel, aluminum, cement, and chemicals that are subject to strong international competition. The rebates are intended to counter pressures to shift production, jobs, and emissions to countries without comparable carbon reduction programs. Rebates are based on an industry average emission rate (e.g., tons of CO₂ per ton of cement) and facility-specific output data (e.g., tons of cement produced) and phase out by 2035. (The bill also provides for border adjustments after 2020 if other countries have not taken appropriate actions and rebates do not adequately address competitiveness.) Refinements are needed, however, to ensure that firms are not overcompensated and that rebates and border adjustments phase out as other countries step up to the plate.
- **Energy efficiency, renewables, and domestic adaptation.** Other major slices of allowances go to the state SEED fund for energy efficiency and renewable energy programs, and to promote new technologies such as carbon capture and storage, cleaner vehicle retooling, and efficient appliance deployment. Some allowances go to domestic public health and natural resources adaptation programs.
- **Green jobs and worker transition.** The bill creates a program of worker training, education, and transition for clean energy jobs. It also provides transition assistance to qualifying workers who may be displaced by the effects of the legislation.
- **International objectives.** A portion of the allowances is devoted to international objectives, including reducing deforestation, helping the most vulnerable countries adapt to climate change impacts, and promoting clean technology exports. The bill recognizes that global warming impacts can significantly increase threats to our national security. The bill also encourages new markets for American innovators' clean technologies.

Oil Refiners and Merchant Coal Generators

These sources initially receive a total of seven percent of the allowances for free, but the merchant coal allocation may be reduced if EPA finds it will lead to windfall profits.

Carbon Market Regulation

The bill charges the Commodity Futures Trading Commission (CFTC) to prevent market manipulation. The bill also goes beyond carbon markets to give the CFTC new regulatory powers over financial derivatives.

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Additional GHG Standards

The EPA is required to set new source performance standards for emission sources outside the cap, including enough sources so that 95 percent of all industrially-related emissions are covered either by the cap or supplementary standards.

HFCs and Black Carbon

A separate cap representing about two percent of U.S. emissions is established for hydrofluorocarbons (HFCs)—heat-trapping cousins of the ozone-destroying chemicals already being phased out under the current Clean Air Act. The bill also creates a program to reduce domestic and international emissions of black carbon.

Clean Air Act Modifications

The cap-and-trade program is a new title of the Clean Air Act. At the same time, the bill repeals some existing Clean Air Act authorities. Congress should reconsider some of these provisions:

- The bill retains provisions for regulating motor vehicle emissions and it creates performance standards for new coal plants (reviewed above). It keeps the EPA's authority to set performance standards for new and existing sources that are not covered by the cap.
- In light of the national cap, the bill drops authority for setting ambient air quality standards and hazardous air pollutant standards for greenhouse gases. It also drops authority to set performance standards for new and existing sources that are under the cap and to conduct case-by-case review of new and expanded sources of these pollutants. Some of these changes are reasonable, but total reliance should not be placed on the cap and trade system. Authority for the EPA to establish minimum pollution control requirements for the largest stationary sources should be retained.
- The bill generally protects state authority to set clean energy, energy efficiency, and greenhouse gas control programs more stringent than federal requirements. The one exception, however, is a six-year suspension of authority to impose state cap and trade programs.

Biomass Emissions Accounting and Renewable Fuels

ACES creates large biomass loopholes in carbon accounting by ignoring the “upstream” carbon emissions from clearing lands for biomass production, and by repealing the provision of current law requiring a full lifecycle accounting of carbon emissions from producing and using biofuels, including market-driven impacts such as international deforestation. These loopholes should be closed.

Now is the Time to Pass Clean Energy and Global Warming Legislation

We must act now to develop clean sources of energy and curb emissions of global warming pollution. The American Clean Energy and Security Act (ACES) includes the major policies needed to generate millions of jobs, break our dependence on oil, and reduce the pollution that causes global warming. Congress must strengthen and pass this critically important legislation.

¹ John Larsen and Robert Heilmayr, *Emission Reductions under the American Clean Energy and Security Act of 2009* (World Resources Institute, May 19, 2009), http://pdf.wri.org/usclimatetargets_2009-05-19.pdf

² Robert Stavins, *The Wonderful Politics of Cap-and-Trade: A Closer Look at Waxman-Markey* (May 27, 2009), <http://belfercenter.ksg.harvard.edu/analysis/stavins>