

CLIMATE ACTION TOOLBOX

An Assessment of the American Clean Energy & Security Act (H.R. 2454)

NATIONAL WILDLIFE FEDERATION

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There is an immense gap between where we are today in combating the climate crisis and where we should be. The natural world is giving us clear warnings: the planet is warming faster than predicted, and we risk triggering irreversible responses if we act too slowly. At the same time, no area of our economy is as ripe today and as promising for our future as a boom in manufacturing and installing made-in-America clean energy technologies. The United States must get started this year with a serious plan to build America's clean energy economy and reduce pollution – a plan that will create clean energy jobs and bolster the prospects of global cooperation at the climate talks this winter in Copenhagen.

Fortunately, Congress is working to set America on a new energy pathway that combines clean energy incentives and firm limits on carbon pollution to help drive America's economic recovery. The American Clean Energy and Security Act (ACES) offers our country the most important opportunity in generations to jumpstart our economy, create millions of new, well-paying jobs, and set the stage for America to compete and win in a 21st century economy while reducing global warming pollution.

The ACES Act (H.R. 2454), sponsored by Rep. Waxman and Rep. Markey, was passed by the House of Representatives on June 26th by a historic, bi-partisan 219-212 vote. The House members who supported the bill represent states in every region of the nation – from the Rust Belt to the Sun Belt.

When ACES was passed by the House of Representatives, President Obama said:

"Today, the House of Representatives took historic action with the passage of the American Clean Energy and Security Act. It's a bold and necessary step that holds the promise of creating new industries and millions of new jobs; decreasing our dangerous dependence on foreign oil; and strictly limiting the release of pollutants that threaten the health of families and communities and the planet itself. Now it's up to the Senate to take the next step. And I'm confident that in the coming weeks and months the Senate will demonstrate the same commitment to addressing what is a tremendous challenge and an extraordinary opportunity."



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CONFRONTING GLOBAL WARMING

Report

The Right Toolbox? A Framework for Evaluating the American Clean Energy and Security Act

Marine veteran (and former U.S. Senator) John Warner compares the current climate fight in Congress to the military equivalent of establishing a beachhead from which to take the fight to the enemy and win the war. One piece of U.S. legislation cannot single-handedly solve the climate crisis. The full-scale mobilization we need will require not only an evolving set of federal actions that can be updated over time, but also global cooperation, individual action and education, local leadership, and business innovation.

ACES improves significantly on the legislation considered by the House Energy and Commerce committee last year, which would have set emissions targets that were above historic levels until the year 2017. In contrast, ACES would promptly cap global warming pollution, starting in 2012, to reduce emissions from power plants and other major sources. But is ACES good enough to make up for lost time and adequately tackle climate change?

This “toolbox” assessment provides a framework for tracking legislation as it moves through Congress. In evaluating the strengths and weaknesses of ACES, this analysis examines the legislation as a **Climate Action Toolbox** by asking: *To what extent does this legislation provide the right set of new tools to build the clean energy economy and confront the climate crisis?* Even if the shape and size of every tool falls short of our expectations, we need to make sure that final legislation gives us sufficient tools to move forward aggressively, that the tools are strong enough to get us started quickly, and that the tools can be adjusted down the road to ensure we get the job done.

The assessment is broken into the following five sections, each exploring the critical elements needed to confront the climate crisis.

1) REDUCE THE CARBON POLLUTION THAT CAUSES GLOBAL WARMING:

U.S. greenhouse gas emissions, such as carbon dioxide, have been on the rise (increasing 14% from 1990 thru 2005). We need to be steadily reducing pollution to protect the planet for future generations.

2) PUT SCIENCE IN THE DRIVER'S SEAT:

U.S. policy has been guided by politics more than science, and we need Congress to set compelling, national scientific guidelines to steer and adjust U.S. efforts on global warming moving forward.

3) BUILD A CLEAN ENERGY ECONOMY WITH MORE JOBS AND LESS ENERGY WASTE:

It's time to end the era of energy policies and markets that reward pollution. Legislation should unleash clean energy innovation and cut energy waste by making clean energy profitable.

4) FACILITATE AN EFFECTIVE AND FAIR GLOBAL AGREEMENT:

U.S. legislation must be designed to improve prospects of a global solution.

5) USE POLLUTER PAYMENTS TO FUND “CLEAN, GREEN, AND FAIR” CLIMATE SOLUTIONS:

Legislation should follow a “polluter pays” principle and auction or distribute emission allowances to achieve clean, green, and fair climate solutions that serve the public interest.

Highlights of NWF's Toolbox Assessment of the American Clean Energy and Security Act

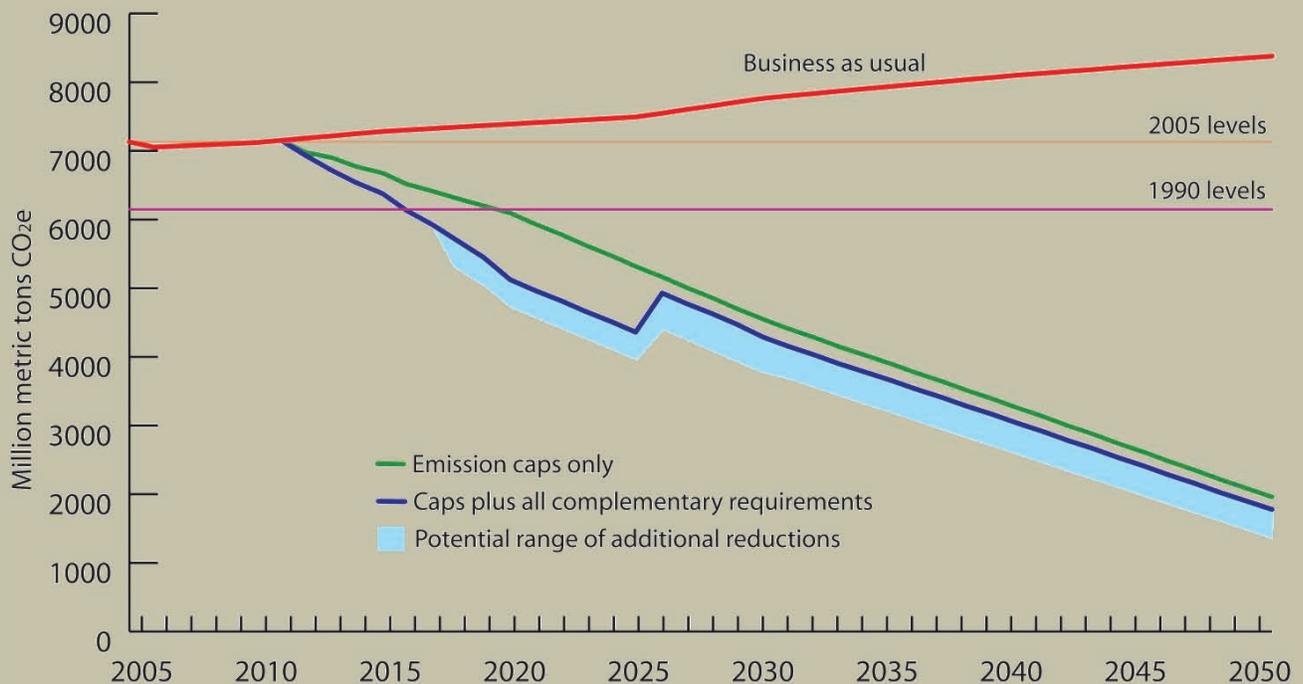
National Wildlife Federation's (NWF) top priority for 2009 is to secure the passage of a strong, comprehensive climate and energy bill. The House-passed American Clean Energy and Security Act combines a clean energy plan, an energy efficiency plan, and a global warming plan that will create millions of new clean energy jobs, set America on a path of global warming action, and enhance America's energy independence. NWF believes this bill is one of the most important legislative efforts of our time, and we will work to improve it and defend it from efforts to weaken its impact while continuing to push it forward to the President's desk. Here are some highlights of NWF's Toolbox Assessment of ACES:

- **ACES adds 39 important new tools to America's toolbox** for building a clean energy future and confronting global warming.
- **ACES reduces global warming pollution significantly.** ACES is a "fork in the road" that puts the U.S. on a new pathway of reducing U.S. greenhouse gas emissions. The pollution reductions in ACES by the year 2020 are equivalent to eliminating the pollution from 500 million cars – half the number of vehicles expected in the world in 2020 (p. 9). ACES also establishes an important set of national scientific guidelines, scientific updates and policy reviews to steer and adjust U.S. efforts on global warming moving forward (p. 12).
- **ACES creates jobs and invests in clean energy and efficiency,** including \$90 billion for state clean energy programs thru 2025 (p. 25). ACES' energy saving provisions – which are only one part of the job creating potential of this legislation and a clean energy economy – will create approximately 770,000 jobs by 2030 (p. 16).
- **ACES increases our energy security and reduces our dependency on oil.** By 2020, ACES would save more than twice as much oil as we could get at peak production from opening up new areas of the Outer Continental Shelf (OCS) to drilling (p. 9). By 2030, ACES would save more oil than we currently get from drilling in all the Rocky Mountain States plus what we could get from opening the OCS.
- **ACES saves America money that is currently spent on wasted energy.** The energy efficiency provisions included in ACES, such as energy saving standards and building codes, could save approximately \$4000 per household by 2030 (p. 16).
- **ACES is fair to low-income and moderate-income families.** ACES includes consumer energy bill protections for all families, and it has added provisions to fully protect low-income families through refundable tax credits and an energy rebate program, which the Congressional Budget Office (CBO) estimates will add up to as much as \$400 annually for some households (p. 28).
- **ACES is a vital lifeline for America's wildlife and natural resources.** ACES provides funding for the most comprehensive program ever contemplated in legislation for protecting and restoring the natural resources that replenish America's water supplies, provide fish and wildlife habitat, and support rural economies. Funding comes from polluter payments and is expected to average approximately \$1.7 billion per year through 2030 – a small fraction of the economic benefits that natural resources provide (p. 27).
- **ACES protects tropical rainforests** by investing approximately \$27 billion of polluter payments thru 2019 into forest protection programs (p. 11, 27).

- **76% of ACES' allowances from 2012-2030 are used for clean, green, and fair climate solutions** that serve the public interest (p. 22; also see pie chart on p. 6). About 20% of allowances are auctioned federally or by states in 2012, growing to about 70% by 2030.
- **ACES is affordable**, costing households “less than a postage stamp a day,” according to analysis by the U.S. EPA (p. 8).
- **ACES includes features to promote global progress.** The bill includes important new funding for international commitments as well as incentives to encourage developing countries to reduce emissions (p. 25-28). This funding should be increased as the bill advances.
- **ACES reduces the federal deficit** by \$9 billion through 2019, according to the Congressional Budget Office.
- **ACES is missing 5 tools that will be needed in the climate action toolbox.** Importantly, the bill should preserve EPA's ability under the Clean Air Act to require existing power plants, refineries and other sources to meet up-to-date carbon pollution standards (p. 11).
- **ACES should also be strengthened by bolstering clean energy standards to create more clean energy jobs.**

EMISSION REDUCTIONS UNDER H.R. 2454 THE AMERICAN CLEAN ENERGY AND SECURITY ACT, 2005-2006

MAY 19, 2009



 WORLD RESOURCES INSTITUTE

This analysis reflects the amendment in the nature of a substitute to H.R. 2454 released on May 18, 2009. For a full discussion of underlying methodology, assumptions and references, please see <http://www.wri.org/usclimatetargets>. WRI does not endorse this proposal.

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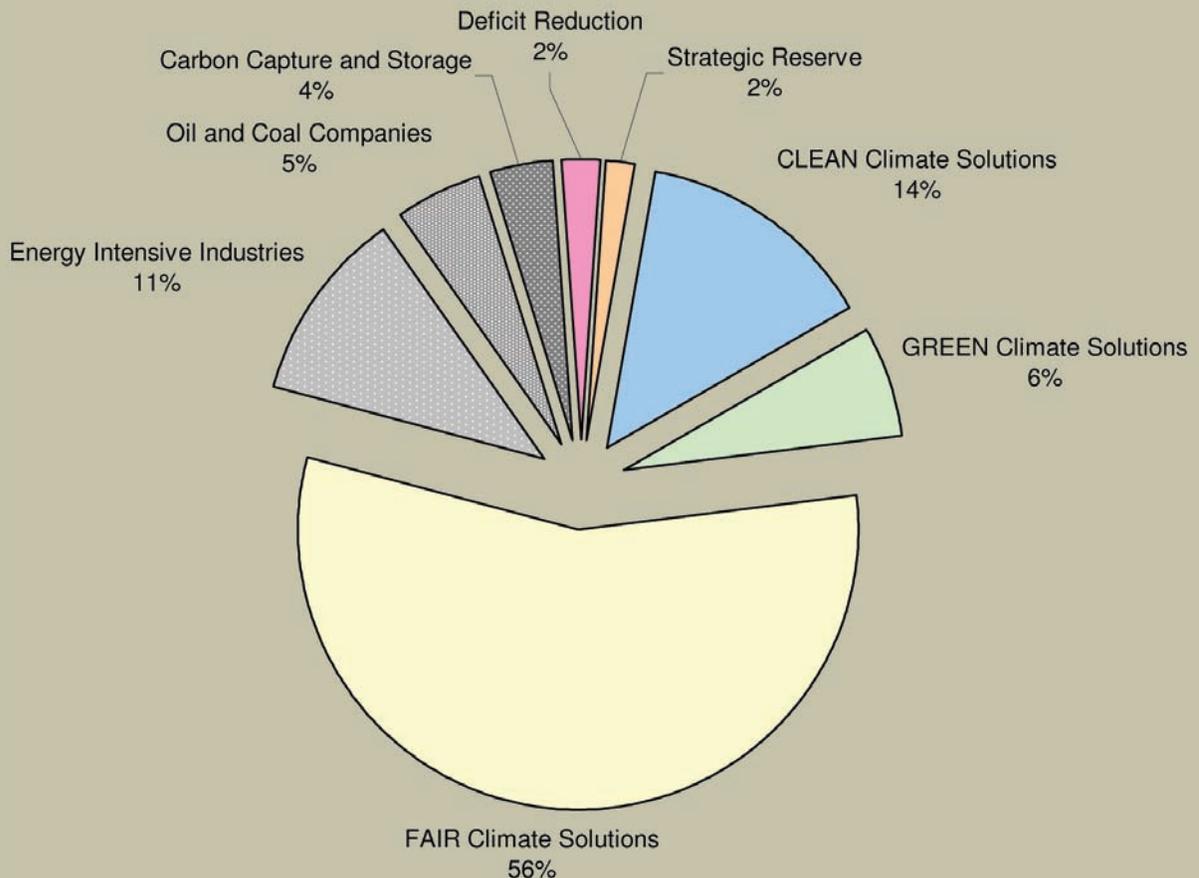
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AMERICAN CLEAN ENERGY AND SECURITY ACT ALLOWANCE USES, 2012-2030



(1) Reduce the Carbon Pollution that Causes Global Warming

NATIONAL WILDLIFE FEDERATION'S VIEW

- **NWF's view is that legislation should cut global warming pollution as swiftly as possible**, and by at least 35 percent below current U.S. emission levels by the year 2020. Longer-term, legislation should aim to phase out carbon pollution, cutting emissions more than 80 percent by no later than 2050.
- **To achieve these targets**, the United States should both reduce its total absolute emissions from fossil fuels and other sources, as well as deploy a robust set of financial incentives and policies to increase the amount of carbon scrubbed (sequestered) from the atmosphere with healthy forests (domestically and internationally), sustainable agriculture, and other actions.
 - ▶ The United States should set aside 5% of the overall value of emission allowances in a federal cap-and-trade system to help prevent tropical deforestation. Deforestation currently accounts for one-fifth of the world's greenhouse gases – more than the emissions generated by all of the world's cars and trucks. An estimated 30 million acres of rainforest disappear every year.
 - ▶ Offsets should only be used with strong quality safeguards to ensure they are real, additional, verifiable, permanent, and enforceable. Offset criteria should promote sustainable habitat and environmental protections.
 - ▶ International offsets should be allowed only if they result in emissions reductions that go above and beyond another nation's commitment to make appropriate, science-based emission reductions.
- **Legislation should preserve the ability of states to set standards** for energy, transportation, and global warming emissions that go beyond what is required nationally.
- **Legislation should not include a "safety valve" loophole** that could allow unlimited emissions at a fixed price or significantly delay emission reductions.
- **Legislation should not allow the construction of new coal-fired power plants** unless they have enforceable plans to capture and sequester the vast majority of their carbon dioxide emissions.

OVERVIEW OF ACES' IMPACT ON GLOBAL WARMING POLLUTION

- The carbon cap is one of several tools in ACES designed to directly reduce global warming pollution. The World Resources Institute (WRI) has estimated the collective impact of many of ACES' tools to reduce greenhouse gas emissions (see chart on page 3).¹ According to WRI:
 - ▶ By the year 2020, ACES would reduce emissions between 2.3 - 2.6 billion tons (CO₂-equivalent) annually through a combination of domestic and international reductions. In 2020, this is equivalent to:
 - ▶ A 28% - 33% reduction below 2005 U.S. emission levels. (Using 1990 emission levels as an alternative reference point, this is the same as 17% - 23% reduction from 1990 levels).

¹ World Resources Institute, http://pdf.wri.org/usclimatetargets_2009-06-25.pdf

ACES TOOL #1

THE POLLUTION CAP

- ACES sets a declining cap on global warming pollution that holds energy companies and other large polluters accountable for steadily reducing greenhouse gas emissions by about 2% per year.
- The cap begins in 3 years (2012) and has steadily declining targets to cut overall emissions from capped sources. (CAA Sec. 703) These targets include:
 - ▶ 3% below 2005 levels by 2012 for capped sources
 - ▶ 17% below 2005 levels by 2020 for capped sources
 - ▶ 42% below 2005 levels by 2030 for capped sources
 - ▶ 83% below 2005 levels by 2050 for capped sources
- The cap covers energy companies and other large emitters, accounting for about 85% of total U.S. emissions. It does not regulate small businesses, farms, and ranches. The cap will be phased in over the early years, starting with electricity and oil in 2012 and growing to include industrial emitters in 2014 and natural gas in 2016. (CAA Sec. 722)
- The U.S. EPA has modeled the legislation and estimated that ACES will cost households “less than a postage stamp a day” – about \$10 per month (between \$80 to \$111 per year).⁶
- The EPA has estimated that the price in 2020 would be about \$16 per ton of CO₂.⁷
- ACES includes a minimum “reserve” price for the auction of allowances, which essentially sets a minimum price of allowances for the overall program. The price starts at \$10 per metric ton of CO₂ (equivalent) and increases by 5% annually plus inflation (reaching about \$15 per ton in real dollars by 2020, and \$24 per ton by 2030). (CAA Sec. 791)
- ACES preserves states’ abilities to set standards for energy, transportation, and global warming emissions (including low-carbon fuels standards) that go beyond what is required nationally, except that the Act suspends enforcement of state trading programs for greenhouse gases from 2012-2017. ACES provides an allowance exchange program for states that have already implemented trading programs. (CAA Sec. 790, 861)
- ACES allows emissions banking to encourage earlier emission reductions. ACES does not include a safety valve. ACES creates a strategic reserve of allowances that are available at a minimum price (starting at \$28 per ton in 2012). Importantly, however, these allowances are set aside from the cap itself and do not allow capped sources to increase emissions above the overall emissions budget (2012-2050). Further, revenues generated from the sale of the reserved allowances are used to purchase additional international offset credits, and a portion of these emission reductions are retired in order to increase overall greenhouse gas reductions. (CAA Sec. 726)

² Center for American Progress, http://www.americanprogress.org/issues/2009/05/ghg_reductions.html

³ U.S. EPA, Waxman-Markey analysis Data Annex (Adage), <http://www.epa.gov/climatechange/economics/economicanalyses.html>

⁴ U.S. Energy Information Administration, <http://www.eia.doe.gov/oiaf/aeo/otheranalysis/ongr.html>

⁵ U.S. Energy Information Administration, 2009: <http://www.eia.doe.gov/oiaf/servicerpt/hr2454/index.html>

⁶ U.S. Environmental Protection Agency, http://www.epa.gov/climatechange/economics/pdfs/HR2454_Analysis.pdf

⁷ U.S. Environmental Protection Agency, http://www.epa.gov/climatechange/economics/pdfs/HR2454_Analysis.pdf

ACES TOOL #2

STRONG FINANCIAL MARKET OVERSIGHT

- ACES is a cap-and-trade program that allows trading of emission allowances. ACES provides new powers to the Federal Energy Regulatory Commission (FERC) (Sec. 341) and the Commodity Futures Trading Commission (CFTC) (Sec. 351) to provide for oversight and regulation of the new financial markets for carbon allowances.
 - ▶ ACES requires strict regulation of the carbon market to prohibit fraud, manipulation, excessive speculation, and cornering of the market. Individuals engaged in fraud in the carbon market can be fined up to \$5M and imprisoned up to 20 years.
 - ▶ ACES allows FERC and CFTC to stop attempts to manipulate the market before they occur and preserves states' abilities to protect consumers through existing state antitrust, unfair competition, and consumer protection laws.
- ACES also will prevent the excessive speculation in our existing energy commodity markets (oil, gas, electricity, and coal) that, in the past, has led to wild swings in our gasoline and electricity prices. (Sec 351)
 - ▶ ACES fixes loopholes in existing law that currently prevents the regulation and transparent oversight of commodity and derivatives trading in coal, crude oil, gasoline, natural gas, and electricity markets.

ACES TOOL #3

EPA AUTHORITY TO REGULATE EMISSIONS FROM HEAVY TRUCKS AND OTHER ENGINES

- ACES requires the EPA to establish strong greenhouse gas emission standards for new heavy duty trucks (2010) and non-road vehicles such as construction equipment (2012), locomotives (2012), and large marine vessels (2012). These standards must require the greatest degree of emission reductions achievable from these sources. (Sec. 221)
- The ACES discussion draft originally included provisions to harmonize federal fuel economy standards with EPA carbon emission standards and California's standards for light-duty vehicles. After the Administration reached an agreement on light-duty fuel economy standards with the automakers and California, these provisions became unnecessary and were dropped from the bill.

ACES TOOL #4

TROPICAL DEFORESTATION PREVENTION PROGRAMS

- ACES includes two interlinked programs to secure commitments from developing nations to prevent tropical deforestation, which causes almost 20% of total global greenhouse gas emissions.
 - ▶ ACES creates an offset program (see ACES Tool # 7), which allows international deforestation reduction activities to qualify as international offsets under specific rigorous conditions. (CAA Sec. 743) Offset credits will only be available for demonstrated reductions.
 - ▶ ACES also creates a funding program through the "set aside" of allowances from the emission allowance pool that can be sold to emitters. (CAA Sec. 752-755) The set aside program is essential to enable developing countries to build expertise and institutions to reduce deforestation.

- ▶ This “set aside” program is estimated to reduce global emissions by an amount equivalent to 10% of U.S. emissions (720 million tons CO₂) annually as of the year 2020 (CAA Sec. 704). These emission reductions are “above and beyond” the reductions in the cap-and-trade system.
- ▶ ACES gives the EPA administrator authority to adjust the amount of allowances allocated or set aside to make sure these reduction targets are met. (CAA Sec. 781)

ACES TOOL #5

EPA AUTHORITY TO REGULATE HYDROFLUOROCARBONS (HFC) EMISSIONS

- ACES includes a separate regulatory program and cap to quickly reduce production and imports of HFCs, potent greenhouse gases that can last thousands of years once emitted to the atmosphere. (Sec. 332)
- HFC production and imports will be reduced 85% within 20 years.

ACES TOOL #6

EPA AUTHORITY TO REGULATE POLLUTION FROM CERTAIN LARGE INDUSTRIAL SOURCES

- Beginning in 2012, ACES requires the EPA to set greenhouse gas emission standards for industrial facilities that emit more than 10,000 tons of greenhouse gases annually and are not covered by the cap. (CAA Sec. 801)

ACES TOOL #7

BONUS EMISSION REDUCTIONS FROM OFFSETS & AUTHORITY TO SET STRONG OFFSET STANDARDS

- ACES includes provisions to enhance the impact of international offsets:
 - ▶ Starting in 2018, a surplus ton of reductions is required for every 4 tons of offsets credited from developing countries. These surplus tons would be emission reductions “above and beyond” the cap. (CAA Sec. 722)
 - ▶ For example, if emitters seek to offset 400 million tons of emissions by using international offsets, they would have to generate 500 million tons of actual emission reductions – an environmental bonus of 100 million tons.
 - ▶ For offset credits from deforestation activities, the reductions must be beyond a declining national baseline that would phase out deforestation within 20 years. (CAA Sec. 743)
- ACES requires EPA to establish standardized methodologies that ensure offsets are only available for types of projects that are scientifically assessed to reduce carbon emissions or sequester carbon, and to ensure offsets are additional, verifiable, and permanent. EPA is required to conduct ongoing random audits of offset projects. (CAA Sec. 731-738)
- ACES establishes an Offsets Integrity Advisory Board that reviews the system over time and recommends changes to EPA to “ensure that offset credits issued by the Administrator do not compromise the integrity of the annual emission reductions.” (CAA Sec. 731) EPA can revise the list of eligible offset projects at any time. (CAA Sec. 733)

- ACES also establishes a program for domestic agricultural and forestry offsets under the authority of the USDA. The oversight and enforcement requirements of the USDA program require strengthening to ensure its environmental integrity is equivalent to the EPA program. (Sec. 501-511)
- ACES promotes sustainable agriculture and forest offset practices by ensuring offset projects meet environmental criteria including requiring: use of native species; enhancement of biological diversity; and prevention of the use and spread of noxious or invasive plants. (CAA Sec. 741, Sec. 510)

ACES TOOL #8

EPA AUTHORITY TO REGULATE BLACK CARBON AND NEW POLLUTANTS

- ACES gives EPA new authority to regulate black carbon, a pollutant that has not been previously addressed in climate agreements but is increasingly recognized as a contributor to warming, particularly in the Arctic. (Sec. 333)
- ACES gives EPA authority to identify additional greenhouse gases and incorporate them in the emissions control program over time to keep pace with evolving scientific understanding. (CAA Sec. 711)

ACES TOOL #9

EPA AUTHORITY TO REGULATE UNDERGROUND CARBON STORAGE

- ACES specifies EPA authority under the Clean Water Act to ensure the environmental integrity of geologic sequestration (underground storage) of carbon. (Sec. 112) This is an important step to provide a safe framework for allowing exploration of technologies that capture CO2 emissions from power plants or other large emitters before they reach the atmosphere.

MISSING TOOL #1

PRESERVING CLEAN AIR ACT AUTHORITY TO REGULATE LARGE EMITTERS

- ACES replaces potential broad authority under the Clean Air Act to regulate greenhouse gases for new and existing power plants and other large sources with specific performance standards for new coal-fired power plants that received their initial permit after January 1, 2009. (Sec. 116) These plants must reduce their emissions between 50-65% (depending on permitting year) when coal capture and storage technology is demonstrated at scale (and no later than 2025). ACES gives EPA authority to reduce the emissions rate for new coal-fired plants to reflect the best system of emission reduction that has been “adequately demonstrated.”
- ACES should preserve EPA’s ability under the Clean Air Act to require existing power plants, refineries, and other sources to meet up-to-date carbon pollution standards.

MISSING TOOL #2

LOW CARBON FUEL STANDARD

- A Low Carbon Fuel Standard was initially included in ACES but removed during committee negotiations. A Low Carbon Fuel Standard would gradually reduce the carbon content of transportation fuels. Most importantly, this standard is needed to ensure the marketplace does not encourage development of dangerous and expensive new transportation fuel sources like tar sands, oil shale, and liquid coal.

MISSING TOOL #3

PREVENTING THE UNINTENDED IMPACTS OF BIOFUELS

- ACES removes assurances that the use of biofuels will reduce global warming pollution by, at best, delaying a requirement that indirect land use changes be accounted for during the biofuels production process. (Sec. 551) Accounting for indirect land use changes are essential to ensure that biofuels do not contribute to global warming pollution by causing the conversion of carbon sequestering and biologically rich native grasslands and forests to energy production.

(2) Put Science in the Driver's Seat

NATIONAL WILDLIFE FEDERATION'S VIEW

- **NWF's view is that climate legislation must include a mechanism for periodic reviews** of developments in the science and the effectiveness of the program. Legislation should require the Environmental Protection Agency and other agencies, as appropriate, to adjust the regulatory response and propose legislative changes if the latest science indicates that greater reductions are needed.
- **To guide these scientific reviews, the United States should adopt a goal** of keeping further warming to below 2 degrees Celsius over pre-industrial levels and provide for scientific updates of this goal over time.

ACES TOOL #10

ESTABLISHING VITAL SCIENTIFIC BENCHMARKS

- ACES establishes important science goals to guide the analysis of ACES' effectiveness over time. This would be the first policy to establish the goal of "preventing significant irreversible consequences of climate change." (CAA Sec. 705)
- ACES requires regular scientific reviews of whether U.S. actions combined with other nations' actions are sufficient to avoid a 2 degree Celsius increase in global average temperatures (over pre-industrial conditions), and it requires reports from EPA and the National Academy of Sciences on the latest scientific information on increased risks from exceeding the 2 degree target.
- ACES requires a similar assessment for exceeding an atmospheric concentration of greenhouse gases of 450 ppm CO₂-equivalent. Note that this initial "450 ppm" benchmark applies to all greenhouse gases, not just carbon dioxide. While CO₂ concentrations are currently nearing 390 ppm CO₂, total greenhouse gas concentrations for the group of greenhouse gases currently identified in international climate agreements are closer to 440 ppm (in CO₂ equivalency).
- ACES requires EPA to also evaluate whether the 2 degree and 450 ppm thresholds are sufficient to achieve broader science-based goals, such as avoiding significant, irreversible consequences of climate change.

ACES TOOL #11

SCIENTIFIC REVIEWS AND REPORTS

- Starting in July of 2013 and immediately following every presidential election (every 4 years) thereafter, EPA is directed to conduct scientific reviews, including the latest science on potential impacts of global warming, and an analysis of U.S. and worldwide efforts to reduce greenhouse gas emissions.

ACES TOOL #12

PRESIDENTIAL DIRECTIVE TO TAKE ACTION

- Under ACES, “the President shall direct relevant Federal agencies to use existing statutory authority to take appropriate actions identified in the [EPA] reports...to address any shortfalls indicated in the report.” (CAA Sec. 707)

ACES TOOL #13

SCIENCE-BASED ADAPTATION STRATEGIES TO PREPARE FOR GLOBAL WARMING IMPACTS

- ACES establishes that “it is the policy of the Federal Government, in cooperation with State and local governments, Indian tribes, and other interested stakeholders to use all practicable means and measures to protect, restore, and conserve natural resources to enable them to become more resilient, adapt to, and withstand the impacts of climate change and ocean acidification.” (Sec. 472)
- ACES establishes a scientific structure and tools to guide these efforts.
 - ▶ ACES directs the Secretary of Health and Human Services to develop a strategy for mitigating global warming’s impacts on public health, in coordination with other relevant health officials. (Sec. 461-467)
 - ▶ ACES creates a Natural Resources Climate Change Adaptation Panel, led by the Chair of the Council on Environmental Quality, to coordinate all of the federal government’s natural resources adaptation strategies, plans, and programs. (Sec. 474-475)
 - ▶ ACES directs the panel to develop a national Natural Resources Climate Change Adaptation Strategy within 2 years to guide the distribution of adaptation funding (See ACES Tool # 35). The national strategy must include prioritized goals and measures, and a schedule for identifying, monitoring, and conserving natural resources threatened by climate change and ocean acidification. All of these strategic documents must be developed with public and scientific input. (Sec. 475)
 - ▶ ACES creates a National Wildlife Habitat and Corridors Information System. Led by the Department of the Interior, this system will be built collaboratively by federal agencies, states, and tribes and will provide maps, descriptions of projected shifts in fish and wildlife habitats and corridors, and other data to inform land use plans and other key resource management decisions. The Secretary of the Interior will make recommendations on how these data can be used to maximize landscape connectivity for fish, wildlife, and plants and to avoid habitat fragmentation and other negative impacts of economic activity on these resources.
- ACES creates a Scientific Advisory Board (SAB), a National Climate Change and Wildlife Science Center at U. S. Geological Survey (USGS), and a Natural Resources Climate Change Adaptation Science and Information Program to be co-led by NOAA and the Department of the Interior. (Sec. 477)

(3) Build a Clean Energy Economy With More Jobs and Less Energy Waste

NATIONAL WILDLIFE FEDERATION'S VIEW

- **NWF's view is that a cap on global warming pollution should be** one part of a broader clean energy strategy to promote renewable energy technologies and significantly enhance energy efficiency. These additional policies should include:
 - ▶ Strong energy efficiency standards and measures, particularly stronger, enforceable energy codes for new buildings combined with a renovation incentive program for existing buildings.⁸ Additional important efficiency policies include new appliance and lighting standards and an Energy Efficiency Resource Standard (EERS) to reduce electricity usage by at least 15% and natural gas usage by at least 10% by 2020. By 2020, this national EERS target would create 220,000 net new jobs and save consumers \$170 billion in energy bills.⁹
 - ▶ A renewable electricity standard to increase the share of U. S. electricity generated from renewable sources such as solar, wind, and geothermal to at least 25% by the year 2025.¹⁰ The U.S. Department of Energy (DOE) has consistently found that a 25% by 2025 national standard will either lower overall consumer energy costs or result in only modest increases in the range of less than one percent.¹¹
 - ▶ Dedicated funding from pollution allowances to promote energy efficiency and clean energy, targeted to the technologies and practices that are the cleanest, safest for wildlife and people, and fastest at reducing pollution.
 - ▶ Transportation plans, policies, and infrastructure investments to reduce global warming pollution by prioritizing efficiency through mass transit, passenger rail, bicycle and pedestrian options, and more efficient land-use and development patterns.
- **Programs to expand economic opportunities for America's workers and communities** by making investments that help rebuild and retrofit our nation, and through training and job readiness programs to ensure that those who most need work are prepared to do the work that most needs to be done.

⁸ Specifically, standards that meet the goals of a 50% reduction in energy as soon as possible, improving to zero-net-emission buildings by 2030, as outlined by the Architecture 2030 Challenge supported by the Conference of Mayors, the American Institute of Architects, NWF and others (www.architecture2030.org).

⁹ Testimony of David Gardiner, http://energycommerce.house.gov/Press_111/20090424/testimony_gardiner.pdf

¹⁰ Today, only three percent of U.S. electricity is generated by solar, wind, and geothermal sources. To get to this point, the amount of electricity generated from these sources doubled from 1995 thru 2005, and then doubled again in only three years (2005-2008). The United States has vast renewable energy resources and the technologies are available and affordable for a rapid build-up that can create millions of jobs throughout the nation. Twenty-eight states have set renewable energy standards that will increase renewable energy generation in their states. The Department of Energy (DOE) projects that current federal and state initiatives will increase the share of wind, solar, and geothermal and biomass to 9% of U.S. electricity by 2020. (Source: U.S. Energy Information Administration, Annual Energy Outlook 2009).

¹¹ U.S. Energy Information Administration, <http://www.eia.doe.gov/oiaf/servicerept/acesa/execsummary.html>

OVERVIEW OF ACES' IMPACT ON REDUCING WASTED ENERGY THROUGH BETTER EFFICIENCY

- The American Council for an Energy-Efficient Economy (ACEEE) has found that several of the energy saving measures in ACES would combine to:¹²
 - ▶ Save approximately more than \$4,000 per household by 2030
 - ▶ Create approximately 770,000 jobs generated by 2030
 - ▶ Save more energy (5.4 quads) than used by the entire state of New York
 - ▶ Avoid 345 million metric tons of CO₂ in 2020, equal to taking 57 million cars off the road

ACES TOOL #14

NATIONAL BUILDING CODES

- Buildings account for most of the electricity consumption in the United States. Counting indirect power plant emissions, the energy used in buildings is responsible for more than 40% of greenhouse gas emissions. ACES provides new authority to the Department of Energy (DOE) to establish the first enforceable national building codes. ACES specifies a schedule for new building codes that would cut energy consumption in new buildings in half within the next 7 years compared to the current industry standards. And ACES creates financial incentives to encourage states to adopt and enforce the codes.
- ACES directs the DOE to establish building codes for new homes and buildings that require (Sec. 201):
 - ▶ Within one year of enactment of ACES, reduce energy use by 30%
 - ▶ Reduce energy use by 50% by 2015 for homes and 2016 for commercial buildings
 - ▶ Reduce energy use another 5% every three years in subsequent years
- After a phase-in, ACES withholds 100% of all emissions allowances and funding to states that fail to adopt and enforce the building code standard, as certified by DOE. ACES also provides DOE with authority to federally enforce codes wherever states and local governments both fail to act.
- ACES devotes 0.5% of allowances starting in 2012 to states for building code enforcement, which will help encourage state participation in the program. (Sec. 201)

ACES TOOL #15

HOME WEATHERIZATION AND BUILDING RETROFIT INCENTIVE PROGRAM

- ACES establishes the Retrofit for Energy and Environmental Performance (REEP) program to provide incentives to retrofit homes and office buildings in order to improve energy efficiency and water efficiency. (Sec. 202)
- Allows a maximum incentive that is tied to total energy savings (for example, a maximum of \$2,000 for home retrofit measures specified in an audit to achieve energy savings of 20%; and a maximum of \$5,000 for measures that have been demonstrated to reduce energy use by 40%).
- ACES devotes 0.05% of allowances starting in 2012 to states for the establishment and minimum funding of the home and building retrofit program. (Sec. 202)

¹² American Council for an Energy Efficient Economy, "HR. 2454 Addresses Climate Change Through a Wide Variety of Energy Efficiency Measures." <http://www.aceee.org/energy/national/index.htm>

ACES TOOL #16

STATE ENERGY AND ENVIRONMENTAL DEVELOPMENT PROGRAMS

- ACES provides emission allowances worth approximately \$4.5 billion annually to fund State Energy and Environmental Development (SEED) programs that support state efforts on energy efficiency and renewable energy. Funding can be used for:
 - ▶ The REEP program for weatherization and building retrofits (See ACES Tool #15)
 - ▶ The Low-Income Community Energy Efficiency Program (See ACES Tool #17)
 - ▶ Indian renewable energy and energy efficiency programs (See ACES Tool #18)
 - ▶ Renewable energy programs
 - ▶ Developing transportation plans to meet the Act's pollution reduction goals through public transport, teleworking, reducing vehicle idling, bicycle- and pedestrian-friendly infrastructure, etc.
 - ▶ Developing the Smart Grid for public buildings and facilities

ACES TOOL #17

LOW-INCOME COMMUNITY ENERGY EFFICIENCY PROGRAM

- ACES creates and funds a grant program to help non-profit community development organizations provide energy efficiency services and clean energy supplies to low-income residents in rural and urban communities. (Sec. 264)
- States must use a portion of the allowances allocated to the SEED program (see ACES Tool # 16) to fund this program.

ACES TOOL #18

SUPPORT OF INDIAN RENEWABLE ENERGY AND ENERGY EFFICIENCY PROGRAMS

- ACES directs the DOE to issue regulations to distribute some of the allowances from the SEED program (See ACES Tool #16) on a competitive basis to Indian tribes for energy efficiency and renewables. (Sec. 133)

ACES TOOL #19

GREEN RESOURCES FOR ENERGY EFFICIENT NEIGHBORHOODS

- ACES creates incentives for Housing and Urban Development (HUD) programs to make neighborhoods more energy and location efficient. (Sec. 281-299)
 - ▶ Creates efficiency incentives to encourage greater participation in existing HUD energy efficiency programs. (Sec. 283)
 - ▶ Increases energy efficiency requirements for existing HUD programs. (Sec. 284)
 - ▶ Ensures wide availability of mortgage, loan, and insurance programs tied to energy efficiency and location efficiency. (Sec. 286-288)

ACES TOOL #20

NEW LIGHTING AND APPLIANCE STANDARDS

- ACES includes new energy saving standards for the manufacture of outdoor lighting fixtures, commercial furnaces, and other energy-using equipment. (Sec. 211-212)
- ACES makes a number of improvements to DOE's existing authorization for setting standards, including adding the benefits of reducing greenhouse gas emissions to the considerations in setting standards. (Sec. 213)

ACES TOOL #21

COMBINED EFFICIENCY AND RENEWABLE ELECTRICITY STANDARD

- Requires utilities to meet 20% of their electricity load through renewable energy or energy efficiency by the year 2020 (starting at 6% in 2012 and gradually increasing). (Sec. 101)
 - ▶ 5-8% of the electricity load can be met through efficiency instead of renewables, with a minimum of 12-15% required from renewable energy. States need a waiver from FERC to meet the 12% standard for renewables instead of the 15% standard.
 - ▶ Energy sources that satisfy the renewable energy standard include: wind, biomass, solar, geothermal, certain projects at existing hydropower facilities, marine energy, landfill gas, certain waste-to-energy projects, coal mine methane, biogas, and biofuels derived exclusively from "renewable" biomass.
 - ▶ Projects such as small wind and rooftop solar projects receive bonus credits to encourage greater deployment of distributed generation.

ACES TOOL #22

NATIONAL ENERGY EFFICIENCY GOAL

- ACES was amended in committee to add a national energy efficiency goal of improving overall energy efficiency 2.5% per year through 2030 (which equates to about a 40% efficiency improvement by 2030 compared to today). The bill requires the development of a federal plan for achieving the national goal. (Sec. 272)

ACES TOOL #23

FEDERAL RENEWABLE ENERGY PURCHASES

- The federal government is the nation's single largest energy consumer. In 2006, the federal government consumed about 1.5% of all U.S. energy consumption. By purchasing electricity generated from renewable sources the government can further encourage the use of clean energy technology.¹³
 - ▶ ACES requires 6% of the total amount of energy consumed by the Federal agencies to be generated from renewable energy sources in 2012, ramping up to 20% in 2020. (Sec. 103)

¹³ Alliance to Save Energy, "Improving Federal Energy Management," <http://ase.org/content/article/detail/1479>

ACES TOOL #24

CONSUMER INFORMATION

- ACES directs EPA to design a carbon disclosure and labeling program that would measure and publicly disclose the carbon content of products. EPA must report to Congress on the feasibility and design of a potential program within 18 months, and Congress would need to act on the recommendations to implement the program. (Sec. 274)
- ACES establishes a carbon output appliance labeling requirement so consumers are able to choose the appliances with the smallest carbon footprint. (Sec. 273)
- ACES encourages the integration of “smart grid” technology into appliances so households can choose when to run their appliances for the least energy cost. (Sec. 146)
- ACES establishes an energy rating and labeling program for homes and office buildings, and provides funding to state and local governments (via the SEED program, See ACES Tool #16) to encourage implementation of the labeling program and public disclosure of energy information. (Sec. 204)

ACES TOOL #25

LARGE SCALE VEHICLE ELECTRIFICATION AND ADVANCED VEHICLE TECHNOLOGY PROGRAM

- ACES includes a number of steps to launch vehicle electrification, including:
 - ▶ Requiring utilities to prepare plans to support plug-in electric vehicle infrastructure, as well as smart grid integration that could allow electric car batteries to serve as storage devices and return electricity to the grid when not in use. (Sec. 121)
 - ▶ Providing emission allowances for financial resources to help retool auto manufacturing to develop advanced vehicle technologies, with one-quarter of these allowances directed to support advanced electric vehicle technologies. (See ACES Tool # 34)

ACES TOOL #26

REVISED FEDERAL TRANSMISSION PLANNING GUIDELINES TO PROMOTE RENEWABLE ENERGY, EFFICIENCY, AND SMART GRID TECHNOLOGIES

- ACES amends federal transmission planning efforts by requiring FERC to establish principles based on the following new transmission policies established by ACES: (Sec. 151)
 - ▶ “It is the policy of the United States that regional electric grid planning should facilitate the deployment of renewable and other zero-carbon energy sources for generating electricity to reduce greenhouse gas emissions...”
 - ▶ “It is the policy of the United States that regional electric grid planning to meet these objectives should take into account all significant demand-side and supply-side options, including energy efficiency, distributed generation, renewable energy and zero-carbon electricity generation technologies, smart-grid technologies and practices, demand response, electricity storage, voltage regulation technologies, high capacity conductor and superconductor technologies, underground transmission technologies, and new conventional electric transmission capacity and corridors.”

- ACES charges FERC with coordinating regional planning efforts that recognize the need for new transmission capacity to deploy renewable energy as well as the potential for more efficient operation of the current grid through new technology, demand-side management, and storage capacity. ACES enhances existing regional transmission planning processes by incorporating this federal policy, and charges FERC with supporting, coordinating, and integrating regional planning efforts. (Sec. 151)
- ACES does not provide authority to FERC to bypass state transmission siting procedures and laws.
- ACES requires that utilities establish net metering with federal agencies so the government can sell back any excess electricity it generates using renewable energy sources at federal facilities. (Sec. 152)

ACES TOOL #27

GREEN JOBS TRAINING AND WORKER TRAINING

- ACES includes several important jobs components, including:
 - ▶ Authorizing a program in the Department of Education to provide grants to local education agencies and other institutions for developing curriculum and training workers in clean energy fields. (Sec. 421)
 - ▶ Increasing the authorized funding level for the Energy Efficiency and Renewable Energy Worker Training program and providing .75% of allowances to fund this program in 2012 and 2013. (Sec. 422)
 - ▶ Dedicating a portion of emission allowances to (See ACES Tool #33) to the Department of Labor for worker assistance and job training, particularly for workers in energy-intensive industries impacted by ACES.

MISSING TOOL #4

USE OF UTILITY ALLOWANCES FOR EFFICIENCY

- ACES dedicates a large amount of allowances – about 28% of allowances from 2012-2030 – to electric utility distribution companies (otherwise known as Local Distribution Companies, or LDCs). These are the electric power companies that run the power lines that directly serve households and businesses. The allowances are to be used to help protect electricity consumers from higher electricity bills. The current formula misses an important opportunity to lower consumer electricity bills permanently while also reducing overall energy demand by helping consumers with energy efficiency. A similar program in ACES for natural gas utilities devotes 1/3rd of the allowances for efficiency, and similar provisions should apply to electric utilities as well.

MISSING TOOL #5

EDUCATION FOR A GREEN ECONOMY FUND

- While ACES is a good step towards green jobs and worker training (See ACES Tool #27), we must create an Education for a Green Economy fund to educate, train, and prepare every American for the opportunities of a new clean energy economy to ensure our nation's workforce remains competitive and all Americans understand their role in reducing global warming pollution. A broad base of citizens and leaders including architects, engineers, planners, scientists, business managers, financial experts, lawyers, entrepreneurs, political leaders, resource managers, a clean energy manufacturing workforce, and many others – as well as educated consumers - will all be needed to be successful in a clean energy economy.

- Transforming our nation's economic, energy, and environmental systems to address climate change and move towards a green economy can create millions of jobs and requires a comprehensive program to:
 - ▶ Retool our nation's universities and colleges to become centers of education, workforce training, and research in green economy-related fields.
 - ▶ Bolster funding for existing career pathway programs, including the Green Jobs Act, and ensure that job training opportunities are available for low-income communities.
 - ▶ Revitalize K-12 education by strengthening environmental education.
 - ▶ Bolster consumer education.

(4) Facilitate an Effective and Fair Global Agreement

NATIONAL WILDLIFE FEDERATION'S VIEW

- **NWF's view is that legislation should facilitate work with other nations** to reach an equitable climate agreement at the Copenhagen climate summit (*December 2009*) that keeps average warming to below 2 degrees Celsius over pre-industrial levels.
- **The U.S. should lead a worldwide effort to finance** clean energy deployment, protections for forests in developing countries, and adaptation to unavoidable climate impacts, including a robust U.S. program of international global warming assistance for developing nations.

OVERVIEW OF ACES' CONTRIBUTION TO GLOBAL COOPERATION

- ACES is designed to foster global cooperation through U.S. demonstration of its commitment to action and leadership. As noted in the Act itself: "Nations of the world look to the United States for leadership in addressing the threat of and harm from global warming. Full implementation of the [Act] is critical to engage other nations in an international effort to mitigate the threat of and harm from global warming." (*CAA Sec. 701*)
- ACES establishes that "It is the policy of the United States to work proactively under the United Nations Framework Convention on Climate Change, and in other appropriate forums, to establish binding agreements, including sectoral agreements, committing all major greenhouse gas-emitting nations to contribute equitably to the reduction of global greenhouse gas emissions." (*CAA Sec. 765*)
- An effective and fair global warming agreement will require cooperation by all nations in reducing greenhouse gas emissions. In addition to providing the President with a concrete plan of action to bolster his negotiating position, ACES has several tools to encourage global participation:
 - ▶ Funding international commitments.
 - ▶ Incentives to encourage developing countries to reduce emissions.
 - ▶ Measures to ensure a level playing field for globally competitive industries.

ACES TOOL #28

FUNDING INTERNATIONAL COMMITMENTS

- Developing nations have increasingly expressed interest in stepping up their efforts to reduce emissions, provided that industrialized nations fulfill existing treaty obligations and assist developing nations with clean energy technology and adapting to climate change impacts. This assistance will also help open international markets to U.S. manufacturers of clean energy technology. In addition to the deforestation reduction programs (see ACES Tool #4), ACES distributes allowances to:
 - ▶ Export clean technology and develop global markets for U.S. clean technology. (Sec. 441-446, CAA Sec. 782)
 - ▶ Provide international adaptation assistance to help developing nations prepare for the impacts of unavoidable climate change, which will most severely impact the world's poor. (Sec. 491-495, CAA Sec. 782)

ACES TOOL #29

INCENTIVES TO ENCOURAGE DEVELOPING COUNTRIES TO REDUCE EMISSIONS

- ACES gives the President powerful levers to encourage developing countries “to take nationally appropriate mitigation actions to reduce or avoid greenhouse gas emissions, or sequester greenhouse gases.”
 - ▶ To be eligible for international offset credits of any kind, developing countries must enter into multi-national or bilateral agreements to reduce emissions beyond business-as-usual in key economic sectors, wherever appropriate. Offset credits are only issued to the extent they exceed these commitments. (CAA Sec. 743)
 - ▶ To be eligible for either the tropical deforestation prevention (set aside) program (See ACES Tool #4), or the forest offset program (See ACES Tool #7), developing countries must agree to a goal for phasing out deforestation within 20 years. (CAA Sec. 743, 754) For the forest offset program, large emitting nations (such as Brazil and Indonesia) must immediately have in place a declining national baseline that would require the country to achieve zero net deforestation within 20 years; after a period of 5 years, all the smaller emitting developing nations must also have such a baseline in place to be eligible for forest offsets (with potential exemption for the very poorest nations). (CAA Sec. 743)
 - ▶ To be eligible for the “set aside” programs for deforestation or clean technology, developing countries must commit to take national actions to protect tropical forests or to reduce greenhouse gas emissions, respectively (See ACES Tools #4 and 28).
- Further, in order for any nation to qualify for trading emissions allowances directly with the U.S. emissions trading system, the nation must have an emissions control program that is “at least as stringent” as the ACES cap. (CAA Sec. 728)

ACES TOOL #30

MEASURES TO ENSURE A LEVEL PLAYING FIELD FOR GLOBALLY COMPETITIVE INDUSTRIES

- ACES includes provisions to eliminate any trade advantages that might discourage countries from taking steps to aggressively reduce greenhouse gas emissions.
 - ▶ Early in the program, ACES provides emission allowance rebates to help U.S. energy-intensive businesses (such as iron, steel, cement, paper, and glass) maintain their competitiveness with industries in nations that do not yet have carbon caps. (CAA Sec. 764, 782)
 - ▶ If by 2018 a large share of any global product (for example, steel) is being produced by nations who do not have sufficient programs to reduce emissions from that sector or otherwise level the playing field, the President has authority to require that emission allowances be purchased for imports of those products into the U.S. (starting in 2020). (CAA Sec. 766-767)

(5) “Clean, Green, and Fair” Use of Polluter Payments

NATIONAL WILDLIFE FEDERATION’S VIEW

- **NWF’s view is that legislation should follow a “polluter pays” principle** and auction or distribute emission allowances to achieve clean, green, and fair climate solutions that serve the public interest.
 - ▶ “Clean” investments are needed to rapidly reduce global warming pollution and transform the ways America and the rest of the world produce and use energy. They should be designed to: achieve dramatic improvements in the efficiency with which we use energy in our homes, businesses, and transportation options; overcome technological and market barriers to accelerate the move to clean, appropriately-sited renewable energy, like wind and solar power; create new and stable jobs in the clean energy economy (including providing assistance to workers in older industries that are highly reliant on carbon-based energy - and the communities they live in, especially underserved communities); and invest in a global clean energy economy by supporting clean energy technology exports and the transition to sustainable low-carbon economies in developing nations that have contributed the least to global warming.
 - ▶ “Green” investments are needed to ensure that wildlife and natural resources are conserved to maintain a healthy economy and quality of life for future generations. When nature thrives, America thrives. A climate policy should dedicate a share of allowance value to implementing carefully designed U.S. natural resources adaptation strategies - strategies that replenish our threatened fresh water supplies, protect communities against intensified floods and storms, provide fish and wildlife habitat, and support rural economies. In addition, a bill must dedicate a share of allowance value to turning the tide on the destruction of the world’s forests.
 - ▶ “Fair” investments are needed to ensure that the plan fairly and justly distributes the economic opportunities and the costs, and alleviates the impacts of climate justice issues. The legislation

should be fair to low- and moderate-income Americans, underserved communities, and Indian tribes, with particular attention to those most in need, recognizing that low- and moderate-income households spend a larger share of their budgets on energy. Additional investments are needed to fairly address the impacts of climate change on people and communities – particularly the poor – throughout the nation and in developing nations that have contributed the least to global warming but may suffer its worst effects.

- Global warming pollution should not result in windfall profits for corporations.

OVERVIEW OF ACES DISTRIBUTION OF EMISSION ALLOWANCES

- Using the Congressional Budget Office's estimates of allowance prices, the total value of the allowances created under ACES will grow over time from about \$70 billion in 2012 to \$155 billion in 2019 (the last year of CBO's forecast).
- Overall, ACES devotes 76% of allowances to "clean, green, and fair" purposes from 2012- 2030, increasing to more than 80% of allowances each year by 2050.
 - ▶ "Clean" funding amounts to 14% of allowances through 2030, and includes funding for: state renewable energy and energy efficiency programs; clean energy innovation centers; deploying advanced vehicle technologies; worker assistance and training; expanding exports of American clean energy technology to global markets; and helping consumers reduce use of natural gas through energy efficiency.
 - ▶ "Green" funding amounts to 6% of allowances through 2030, and includes funding to: safeguard natural resources from climate change impacts; launch a bold initiative to stop the destruction of forests around the world; and implement a strategy to protect public health from climate changes.
 - ▶ "Fair" funding amounts to 56% of allowances through 2030, and includes funding for programs to: protect electricity, natural gas, and home heating oil consumers from higher energy bills; provide additional financial assistance to low-income families; and initiate a new federal consumer refund program. ACES' "fair" funding also includes resources for states and developing nations to help prepare for and mitigate the destructive impact of climate change on communities, people, and infrastructure.
- The remainder of the allowances in ACES are used for the following purposes:
 - ▶ ACES places 1.6% of emission allowances from 2012-2030 in a strategic reserve that is available to industry at a minimum price (starting at \$28 per ton CO₂ and changing over time) to help avoid extreme price volatility (prices surging more than 60% over recent prices). If allowances are purchased, the money is used to purchase additional international offsets to replenish the reserve (and retire a portion of these allowances altogether).
 - ▶ 2.2% of allowances through 2030 are returned to the general treasury to reduce the Federal deficit.
 - ▶ The legislation provides 3.6% of allowances through 2030 to provide bonus incentives for development of carbon capture and sequestration technologies for power plants and other large emission sources.

- ▶ The legislation provides 11.2% of allowances through 2030 (phasing out by 2036) to help energy-intensive businesses (such as iron, steel, cement, paper and glass) compete with companies in nations that do not yet have carbon caps. These allowances are provided on an output basis (per unit of production), and are not “grandfathered” (which would reward companies who pollute more than their competitors).
- ▶ The legislation provides 1.4% of allowances through 2030 to regulated oil refiners (phased out by 2027) and an additional 3.6% of allowances thru 2030 to merchant coal power companies (phased out by 2030).
- The legislation uses direct auctions of allowances to emitters (which brings money into the Treasury), as well as distributing (i.e., allocating) allowances directly to states, companies, research universities, and others, to achieve the above purposes. In some cases, direct allocation of allowances (for resale to emitters) can be preferable to auctioning money to ensure that the financial resources are used for their intended purpose (for example, the 5% annual allowances used for deforestation reduction programs is allocated rather than auctioned).
 - ▶ Allocations to energy companies and industry are phased out to about 10% of overall allowances by 2030 and 5% by 2035.
 - ▶ The legislation transitions toward an auction over time. The amount of allowances auctioned by federal and state governments grows from more than 20% in 2012 to about 70% in 2030.

FUNDING FOR ACES TOOLS #14-18

CLEAN FUNDING: STATE RENEWABLE ENERGY AND ENERGY EFFICIENCY PROGRAMS

- See previous section, “Build a Clean Energy Economy,” Tools # 14, 15, 16, 17, and 18.
- ACES devotes allowances worth an estimated \$60 billion through 2025 to states for clean energy and energy efficiency programs.
 - ▶ 10% of allowances annually from 2012-2015 are directed to the state clean energy SEED programs and for enforcement of new building codes starting in 2012. The amount ramps down from 7% to 5% from 2016-2021, and remains at 5% annually thereafter. (CAA Sec. 782)
 - ▶ Up to 0.14 % of allowance value from 2012 to 2016 is provided to state and local governments to support the deployment of renewable energy infrastructure. (CAA Sec. 788)
 - ▶ 0.05% of allowances annually from 2012-2017 is directed to state REEP programs to provide incentives for energy efficiency retrofits for homes and office buildings. The amount decreases to 0.03% in 2018 and remains there for the remainder of the program. (CAA Sec. 782)

ACES TOOL #31

CLEAN FUNDING: ENERGY AND EFFICIENCY CENTERS AND RESEARCH

- ACES devotes 1.5% of allowances annually to promote commercial deployment of clean, indigenous energy alternatives to oil and other fossil fuels. (Sec. 172-175, CAA Sec. 782)
 - ▶ ACES distributes 0.45% of allowances for the duration of the program to the DOE to establish Energy Innovation Hubs. These allowances are distributed on a competitive basis to networks of research universities, state energy institutions, and/or non-governmental energy organizations to do cross-

disciplinary research and development of clean energy technology, with the goal of establishing eight networks nationwide. (Sec. 171)

- ▶ ACES provides 1.05% of allowances to the Director of the Advanced Research Projects Agency to distribute on a competitive basis to universities, companies, research foundations, and other institutions to conduct advanced energy research. (Sec. 172)

ACES TOOL #32

CLEAN FUNDING: NATURAL GAS AND HOME HEATING OIL EFFICIENCY

- ACES specifies that at least one-third of the emission allowances allocated to natural gas distribution companies must be used for energy efficiency programs for natural gas.
 - ▶ Natural gas distribution companies receive 9% of allowances starting in 2016, resulting in at least 3% of overall allowances being devoted to natural gas efficiency. (CAA Sec. 782, 784)
 - ▶ ACEEE estimates this program could save 0.6 quads of natural gas in 2020 and 1.6 quads in 2030.¹⁴
- A separate allocation of allowances to states to protect consumers of home heating oil can also be used for energy efficiency assistance.

FUNDING FOR ACES TOOL #28

CLEAN FUNDING: CLEAN TECHNOLOGY EXPORTS

- ACES distributes allowances to a clean technology transfer program that opens up access to emerging global markets for U.S. clean technology while fulfilling existing international treaty commitments that will help foster a new global climate agreement.
 - ▶ ACES dedicates 1% of emission allowances to these programs in 2012, climbing to 4% by 2027.

ACES TOOL #33

CLEAN FUNDING: WORKER ASSISTANCE AND TRAINING

- From 2012 through 2021, 0.5% of allowances will be allocated to the Department of Labor for worker assistance and job training. The amount increases to 1% thereafter. (CAA Sec. 782, Sec. 425-427).

ACES TOOL #34

CLEAN FUNDING: ADVANCED VEHICLE TECHNOLOGIES

- To help car companies retool their manufacturing and produce cars with better fuel economy and lower emissions (pursuant to the recent agreement to set a federal greenhouse gas pollution standard for new cars), ACES allocates 3% of allowances from 2012 through 2017 and 1% of allowances from 2018 through 2025. (CAA Sec. 782)
- Portions of this money will be used to fund the transformation to electric vehicles and battery technology. (See ACES Tool #25).

¹⁴ American Council for an Energy Efficient Economy, "HR. 2454 Addresses Climate Change Through a Wide Variety of Energy Efficiency Measures." <http://aceee.org/energy/national/WMSavingsUpdate0624.pdf>

ACES TOOL #35

GREEN FUNDING: SAFEGUARDING AMERICA'S NATURAL RESOURCES FROM GLOBAL WARMING IMPACTS

- ACES sets forth the most comprehensive program ever contemplated in legislation for protecting and restoring U.S. species, habitats, ecosystems, and ecological processes threatened by climate change and the related phenomenon of ocean acidification. (Sec.471-482)
- ACES allocates the following percentage of total allowance value toward natural resources adaptation: 1% annually from 2012-2021, 2% annually from 2022-2026, and 4% annually thereafter. Average annual funding through the year 2030 would be about \$1.7 billion per year, based on EPA estimates of allowance prices. (CAA Sec. 782)
 - ▶ Funding in ACES is distributed to state and Tribal fish and wildlife agencies, state coastal agencies, the Land and Water Conservation Fund, the Department of the Interior, U.S. Forest Service, EPA, NOAA, and the Army Corps of Engineers (for aquatic ecosystems). (Sec. 479-480)
 - ▶ A portion of this funding (the portion allocated to states) is not dependent on future decisions by appropriators. The non-state portion of this funding is subject to the Congressional annual appropriations process, where these funds are at risk of being diverted to other purposes in future years.
 - ▶ ACES funding is used to implement science-based adaptation plans (See ACES Tool #13).

ACES TOOL #36

GREEN FUNDING: PREPARING FOR CLIMATE CHANGE HEALTH IMPACTS

- ACES allocates 0.1% of allowance value annually (valued at approximately \$70-130 million annually, depending on allowance prices) to the Department of Health and Human Services to implement a strategic action plan to assist health professionals in preparing for and responding to the impacts of climate change on public health in the U. S. and other nations, particularly developing nations. (Sec. 461-467, CAA Sec. 782)

FUNDING FOR ACES TOOL #4

GREEN FUNDING: TROPICAL DEFORESTATION PREVENTION

- ACES devotes allowances to the tropical deforestation prevention program (See ACES Tool #4). The amount of allowances allocated to this purpose starts out at 5% per year, and declines to 2% by 2031. (CAA Sec. 781)

ACES TOOL #37

GREEN FUNDING: PROMOTING BENEFICIAL FARMING PRACTICES

- ACES directs up to 0.28% of allowance value from 2012 to 2106 to create incentives encouraging American farmers to undertake agricultural practices that reduce greenhouse gas emissions, sequester carbon, adapt to the impacts of climate change, or prevent the conversion of land to practices that would release greenhouse gas emissions. (CAA Sec. 788)

ACES TOOL #38

FAIR FUNDING: CONSUMER PROTECTION

- ACES establishes five key programs to protect consumers from potential energy price increases. In combination, these programs substantially reduce the impact of ACES on American consumers. EPA estimated that the global warming provisions in the initial draft of ACES would cost the average household \$80 to \$111 per year, less than a postage stamp per day.¹⁵
 - ▶ **Protection of Low-Income Families:** ACES directs that 15% of the allowances be auctioned each year and the proceeds distributed back to consumers through a combination of refundable tax credits and electronic benefit payments. The Center for Budget and Policy Priorities estimates that these provisions will fully protect low-income families from any direct or indirect energy price increases.¹⁶ The CBO estimates that families in the lowest income quintile would receive tax credits and energy rebates of up to \$400 per year combined. Overall, they would see a net benefit of about \$40 per year.¹⁷
 - ▶ **Protection from Electricity Price Increase:** Electricity price impacts will be regional in nature. To mitigate any price increases, the regulated utilities that distribute electricity to consumers will receive 28% of allowances, with an additional 0.04% going to rural electric co-ops through 2030. These utilities are directed to use these allowances exclusively to reduce consumer electricity bills, and to apply any rebates to the fixed-rate portion of consumer electricity bills.
 - ▶ **Protection from Natural Gas Price Increases:** The regulated utilities that distribute natural gas to consumers will receive 9% of allowances starting in 2012. One-third of these allowances must be used for energy efficiency programs. The remainder must be passed through to consumers to reduce energy bills (these provisions are similar to those that apply to the regulated electric utilities).
 - ▶ **Protection from Heating Oil Price Increases:** To mitigate increases in home heating oil prices, states will receive 1.8% of allowances starting in 2012 under a formula based on home heating oil use. These allowances must be used for rebates to consumers and investments in energy efficiency.
 - ▶ **Consumer Climate Dividend:** Under ACES, many of the allowance provisions phase out starting in 2026. As these allowance allocations are phased out, ACES directs that the remaining allowances be auctioned and the proceeds distributed to consumers through tax credits. These rebates amount to approximately 17% of total allowances from 2012-2050.

FUNDING FOR ACES TOOL #28

FAIR FUNDING: INTERNATIONAL ADAPTATION AND PREPAREDNESS

- ACES directs the Secretary of State to create an International Climate Change Adaptation Program to assist the most vulnerable developing nations in preparing and financing adaptation plans, including building resilience to climate change impacts such as threats to water availability, agricultural productivity, coastal resources, biodiversity, economic livelihoods, health, and flood risk. (Sec. 493)
- ACES dedicates 1% of emission allowances in 2012, climbing to 4% by 2027, to these programs.

¹⁵ EPA Analysis of the American Clean Energy and Security Act of 2009, http://www.epa.gov/climatechange/economics/pdfs/HR2454_Analysis.pdf

¹⁶ Center on Budget and Policy Priorities, "Waxman-Markey Climate Change Bill Fully Offsets Average Purchasing Power Loss for Low-Income Consumers," <http://www.cbpp.org/cms/index.cfm?fa=view&id=2822>

¹⁷ Congressional Budget Office, <http://www.cbo.gov/ftpdocs/103xx/doc10327/06-19-CapAndTradeCosts.pdf>

ACES TOOL #39

FAIR FUNDING: STATE AND TRIBAL STRATEGIES TO BUILD RESILIENCE TO THE IMPACTS OF CLIMATE CHANGE

- ACES allocates the following percentages of total allowance value to states and tribes for measures to make communities more resilient to climate impacts: 0.9% annually from 2012-21, 1.9% annually from 2022-26, and 3.9% after 2026. (CAA Sec. 782)
- Most of this funding will be used according to new state climate adaptation plans to implement projects and programs that build resilience to the impacts of climate change, including: (1) extreme weather events such as flooding and tropical cyclones; (2) more frequent heavy precipitation events; (3) water scarcity and adverse impacts on water quality; (4) stronger and longer heat waves; (5) more frequent and severe droughts; (6) rises in sea level; (7) ecosystem disruption; (8) increased air pollution; and (9) effects on public health. (Sec. 453). A small share of this funding (1 percent) will be used for tribal resiliency-building measures.
 - ▶ Requires that to the “maximum extent practicable” such projects protect or enhance natural ecosystems and use “non-structural” approaches (i.e. restoration of natural infrastructure such as wetlands).

CLIMATE ACTION TOOLBOX

An Assessment of the American Clean Energy & Security Act (H.R. 2454)

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