

**Testimony of David G. Hawkins  
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**before the  
Senate Environment and Public Works Committee**

**Hearing on Moving America toward a Clean Energy Economy and  
Reducing Global Warming Pollution: Legislative Tools  
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Thank you, Chairman Boxer and Senator Inhofe, for the opportunity to testify today on legislation to build a clean energy economy and reduce global warming pollution. My name is David Hawkins. I am Director of Climate Programs at the Natural Resources Defense Council (NRDC). NRDC is a national, nonprofit organization of scientists, lawyers and environmental specialists dedicated to protecting public health and the environment. Founded in 1970, NRDC has more than 1.2 million members and online activists nationwide, served from offices in New York, Washington, Los Angeles and San Francisco, Chicago and Beijing.

NRDC is a member of the U.S. Climate Action Partnership (USCAP), the business-environmental coalition that supports enacting climate legislation this year. The House Energy and Commerce Committee drew heavily on USCAP's recommendations in drafting the American Clean Energy and Security Act (ACES). NRDC is also a member of the labor-environmental Blue-Green Alliance, whose legislative principles are also reflected in the ACES bill.

Helping Congress pass effective climate legislation is NRDC's highest priority. It is vital to enact legislation this year – to help deliver economic, energy, and climate

security. As President Obama has said, the choice is “between a slow decline and renewed prosperity; between the past and the future.” Clean, sustainable energy is one of the pillars of growth and prosperity in the 21st Century, and enacting comprehensive energy and climate legislation is the way to put that pillar in place. The time to act is now.

That is why NRDC strongly supports the Committee’s intention to move quickly on legislation before the August recess. Working together with other committees, you have the opportunity to put together comprehensive legislation for consideration and adoption by the full Senate early this fall. Today I will focus on the key issues facing this Committee: in particular, why we believe the best policy package is a comprehensive limit on global warming pollution that becomes tighter each year, combined with complementary programs for key sectors, structured like the one in the ACES bill recently passed by the House of Representatives.

It is often the case that bills passed by the House are based on a fundamentally different political logic than that which is needed in the Senate. But that is not true for the ACES bill. Given the make-up of the Energy and Commerce Committee, the House bill was crafted to meet the needs of the regions of our country that rely on coal-based electricity and that are home to energy-intensive and trade-sensitive manufacturing industries. Thus, in the allocation of allowances and many other features, the ACES bill offers concrete solutions to concerns that will be important in the Senate.

This is certainly not to say that the ACES bill is perfect as is. In this testimony, I’ll address key strengths and shortcomings of the bill, and make recommendations on improvements this Committee should make.

## **I. We Have To Act Now**

Action on global warming has been delayed far too long. Every day we learn more about the ways in which global warming is already harming our planet, our health, and the natural systems on which our civilization is built. We must act now to begin making serious emission reductions if we are to avoid truly dangerous levels of global warming pollution. Climate scientists warn us that we face extreme dangers if global average temperatures are allowed to increase by more than 2 degrees Fahrenheit from today's levels (equivalent to 2 degrees Celsius over pre-industrial levels). The Intergovernmental Panel on Climate Change (IPCC) reports that it is still possible to stay below this temperature increase if atmospheric concentrations of CO<sub>2</sub> and other global warming gases are held to 450 ppm CO<sub>2</sub>-equivalent and then rapidly reduced.

Staying under this target is very challenging, even with allowance for some period of "overshoot." It cannot be done without the cooperation of both the industrial North and the emerging South. But it can be done. And for the United States to secure a claim to leadership in the 21st century, we must be instrumental in forging the necessary coalition. Enacting U.S. legislation this year is the single most important step we can take to unlock the global negotiating gridlock of the past decade.

If we delay and emissions keep growing, bad investments and business uncertainty will continue and it will become much harder to avoid the worst impacts of a climate gone haywire. In short, a slow start means a crash finish, with steeper and more disruptive emission cuts required for each year of delay or insufficient action.

The ACES bill appropriately establishes a declining cap on emissions of carbon dioxide and other heat-trapping gases. It sets long-term limits that are consistent with the

science, reaching a 42 percent reduction by 2030 and an 83 percent reduction by 2050, from 2005 levels. In the near-term, however, NRDC believes we can and must aim to achieve at least a 20 percent reduction in 2020 in the emissions of capped sources and in total U.S. emissions. A slow start in the early years condemns us either to even faster reductions later, or to even more severe climate impacts.

According to both the Environmental Protection Agency and the Congressional Budget Office, the actual per household cost of the ACES bill in 2020 will be less than a postage stamp a day. NRDC's research shows that under this bill by 2020 American households will save \$6 per month on their electricity bills and \$14 per month on the cost of owning and driving their vehicles. Plus, the bill will create a net increase of 1.7 million jobs. These savings and job numbers are detailed on a state-by-state basis in the maps appended to this testimony.

A 20 percent reduction in 2020 is within the range recommended by USCAP. We can achieve that near-term target while continuing to achieve strong economic and job growth for all Americans. According to EPA's most recent analysis, moving from a 17 percent reduction target to 20 percent would increase households' average annual cost by only \$27 (\$140 versus \$113).<sup>1</sup> In the meantime, due to healthy GDP growth, households will have more than \$9,000 in additional income to spend (\$25 per day). Household costs in 2020 would still be less than a first class postage stamp per day, even with this more effective target.

Some will argue that a 20 percent target for 2020 would place too much pressure on coal-fired electricity or energy-intensive, trade-exposed manufacturing, and on the regions where those industries are most important. The most recent Department of

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<sup>1</sup> EPA Analysis of H.R.2454 - Appendix, p. 56

Energy forecast for U.S. emissions in the absence of ACES is for emissions of energy-related carbon dioxide in 2020 to be 1 percent *lower* than 2005 levels, in sharp contrast to the 17 percent increase forecast for 2020 just two years ago.<sup>2</sup> This implies that achieving a 20 percent reduction by 2020 will actually be far easier than the previously anticipated effort required to achieve lesser reductions. Furthermore, the ACES bill's allowance distribution gives the local electricity distribution companies and energy-intensive, trade-exposed manufacturers a large fraction of the allowances they will need for compliance well past 2020. That is true whether the target is a 17 percent or 20 percent reduction. And the bill provides generous incentives for investing in power plants and other industrial facilities equipped with carbon capture and storage. The bill also allows the use of up to two billion tons of offsets per year to further cushion these concerns. A twenty percent reduction by 2020 is both needed and do-able.

## **II. ACES Is Built on a Fundamentally Strong “Cap and Trade” Architecture**

To meet the climate protection challenge, the ACES bill employs a fundamentally sound architecture. As mentioned, it establishes a declining cap between 2012 and 2050, covering approximately 85 percent of U.S. emissions of carbon dioxide and other heat-trapping gases. The cap directly attacks the pollution that drives global warming by setting a specific limit on the total quantity of dangerous pollution emitted each year, creating certainty that our environmental goals will be achieved.

The ACES bill uses proven methods to achieve this pollution cap at minimum cost. Instead of specifying exactly what every source must do to help meet the cap, it creates a defined number of carbon pollution allowances. Covered sources must

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<sup>2</sup> DOE/EIA Annual Energy Outlook 2009 with ARRA (SR/OIAF/2009-03) compared to the Annual Energy Outlook 2007.

surrender an allowance for each ton of carbon emissions at the end of each year. The opportunity to purchase allowances at auction, or to buy and sell them in the marketplace, creates clear economic rewards for investing in energy efficiency and clean energy innovation and allows each covered source to find its lowest cost way to comply – thereby minimizing the cost for the entire economy. Additional cost management flexibility comes from the ability to bank allowances into future years, and to borrow them in limited circumstances.

For further market stability and predictability, ACES creates a strategic reserve of allowances that can be sold into the market should there be a period of unusually high prices. The very existence of this reserve should deter speculative activity in the compliance market. Similarly, to avoid market prices so low that innovation could be stifled, ACES establishes a minimum price for sales of allowances from the regular auction under the bill.

The ACES bill also provides for very large amounts of domestic and international offsets – up to two billion tons per year of reductions achieved outside the capped sectors – to further reduce costs. With a reasonable limit on the total number of offsets, and with strong safeguards to assure that offset credits are earned only for real reductions that would not have happened anyway, offsets can be a valuable component of climate legislation. There are significant problems, however, in the offset provisions added to the ACES bill just before House floor action. I will return to those issues below.

The ACES bill includes important provisions to transparently and effectively regulate the market for trading greenhouse gas allowances, as well as futures and other derivatives. Given recent experience on some other trading markets, the American

people have a right to demand that rules for regulating carbon trading be clear and transparent, and effective in preventing speculative manipulation. The ACES bill gives important new powers to the Commodities Futures Trading Commission, as well as the Federal Energy Regulatory Commission and EPA. Key requirements include limiting any emitting company from purchasing more than 20 percent of the allowances sold in any one auction, fining companies involved in market manipulation up to \$25 million, and preventing any single participant from owning more than 10% of any class of derivatives.

NRDC recommends including three additional safeguards in the bill. First, the Senate should consider requiring all trading in allowances and in futures to take place on regulated exchanges to provide the greatest possible transparency to trading activity and prices, and to reduce counter-party risk – the risk that one of the contract participants will fail to perform when the contract is due. At a minimum, the bill should require the reporting to regulators of all non-standardized trades greater than a specified amount – for example, above \$10 million. As a further safeguard against manipulation, Congress should set tighter “position limits” on the fraction of allowance futures that any one participant can hold in the carbon market. We recommend that no one be allowed to have more than a five percent (not 10 percent as in ACES) position in the market for the most actively traded futures (for example, the market for contracts to deliver allowances at the end of the next compliance year). This would be more than sufficient for hedging and trading purposes and would deny any single market participant the market power to meaningfully influence prices. Congress should also direct the administration to work

with other nations to provide comparable safeguards as a condition of linkage to the U.S. carbon market.

Is there a viable alternative to this cap and trade architecture? Comprehensive cap bills like ACES have been attacked from two contradictory flanks. First, there are those who mischaracterize ACES as a tax bill, and oppose it for that reason. A cap and trade program is not in any way a tax. It is a firm limit on carbon pollution, directly tied to protecting us from the worst effects of global warming. Fundamentally, this is a smart program to curb extraordinarily dangerous pollution. While it guarantees an overall limit on carbon pollution, it also allows individual sources a great deal of flexibility to find the lowest cost pathway to compliance. But the ACES bill is not a tax any more than any of the nation's other air and water pollution control laws.

At the opposite extreme, there are opponents of caps on pollution like the ACES bill who say it *should be* a tax, and oppose it because it is not. Beyond the obvious political obstacles to this approach, NRDC does not support a carbon tax first and foremost because it would not guarantee achievement of the emissions reductions necessary to limit cumulative emissions over time to a level compatible with a stable climate. A carbon tax would represent, at best, a congressional guess at the imposed cost needed to induce myriad covered sources to limit their emissions enough to meet desired annual emissions targets for the country as a whole. That guess could be wrong on the high or low side – most likely on the low side given the aversion of many political actors to charges of raising taxes. It would require Congress to constantly reconsider the tax rate – or to adopt some form of automatic adjustment. Some carbon tax proponents claim a tax would be a lot simpler than cap and trade. But this is the fallacy of comparing an

idealized concept to a flesh and blood bill. When was the last time Congress wrote a simple tax bill? There would be just as many pressures for exemptions, exceptions, offsets, and other special treatment as we have seen regarding emission cap bills. In short, a carbon tax would be neither environmentally effective, simple, nor politically appealing. The ACES architecture is proven to work and is a far better alternative.

Other opponents of the ACES bill have argued for a “New Manhattan Project” like the substitute offered on the House floor that would have authorized a grab-bag of goals, prizes, and grants for new technologies. While most of the goals are laudable, and while prizes and grants have their place, there are two fatal faults to the call for a grand scale research and development program as an alternative to a comprehensive cap and invest approach. First, the proponents of the Manhattan project have identified no visible means of providing the funding they advocate – without a cap and allowance system, they would have to rely entirely on ever-more-difficult annual appropriations. Second, government-sponsored research and prizes, while useful, cannot remotely hope to create private sector incentives for clean energy innovation on the necessary scale. In marked contrast, the ACES bill does create incentives on this scale by establishing an ever tighter cap on emissions that tells every innovator large and small that there is a predictable, expanding market for low-carbon products and services. The primary barrier to a clean energy economy is not a shortage of American ingenuity or even a shortage of financial resources to apply to the task; it is the lack of a powerful and sustained set of predictable market rewards that are needed to motivate private sector innovators to invest in bringing low-carbon options to market rather than products and services where the carbon footprint is ignored. In addition, the ACES bill uses some allowances strategically to

invest in efficiency and clean energy technology. As I explain below, the ACES bill's allowance allocation can be further improved to more fully seize the cost-saving energy efficiency opportunity and save American households and businesses even more.

Others are touting a collection of worn-out ideas stitched together under the catch-all name "All of the Above." The list includes massive subsidies and free rides for all the old energy technologies, with just enough window-dressing on efficiency and renewables to support a talking point or two. It's little more than political point scoring to call for oil and gas drilling everywhere, even in our most precious natural wonders; to massively subsidize construction of economically-dubious nuclear power plants (while ignoring weapons proliferation risks); or to build more conventional coal plants without regard for carbon emissions. In the simplest terms, this is a recipe for *increasing* our carbon pollution, *increasing* our energy bills, *reducing* our energy security, and doing *nothing* to help re-power the American economy. A program that lacks a cap on carbon pollution, and pursues every energy option regardless of merit, just lets global warming keep getting worse and makes our energy and economic challenges worse.

Effective answers for climate protection, energy security, and economic vitality can be found only by wasting less and investing serious sums in clean energy resources, all within the framework of clear limits on global warming pollution. Of all these approaches, only comprehensive legislation like the ACES bill will create the clarity and drivers for the investments we need to shift to the low-carbon economy.

### **III. Complementary Standards to Enhance and Ensure Emission Reductions**

A key element of the ACES bill is its provision for complementary energy efficiency, renewable electricity, and carbon pollution control standards. Strong energy efficiency standards for buildings, appliances, vehicles, and other equipment are crucial to meeting our carbon pollution goals effectively and at the lowest cost. In fact, still-untapped energy efficiency opportunities can save thousands of dollars per household. I will not speak at length about the ACES bill's generally strong energy efficiency standards and its combined renewable energy and efficiency standard, because these fall mainly in the jurisdiction of the Energy and Natural Resources Committee. We will work with that committee and on the floor to achieve the maximum gains in these areas.

In areas within this Committee's jurisdiction, the ACES bill contains important carbon pollution performance standards for vehicles and power plants. With regard to light-duty vehicles, it appropriately leaves in place the current requirements of the Clean Air Act under which California and EPA are setting greenhouse gas standards and the Department of Transportation is setting mileage standards. Under the historic agreement announced by President Obama in May, these three regimes will be coordinated and will deliver the benefits of the California program nationwide. The ACES bill includes specific mandates to use existing Clean Air Act authority to set greenhouse gas standards for other classes of vehicles and equipment. Further improvements can be made in these areas to deliver more emission reductions – and fuel savings – from a wide range of mobile sources, including aircraft.

ACES also includes new standards and incentives to deploy carbon capture and disposal technology at scale. Because of the importance of these provisions in shaping

future investments in coal both in the U.S. and globally, I will discuss the ACES coal sections in some detail.

### **The role of carbon capture and disposal**

As you know, coal is used to generate about 50% of U.S. electric generation today. U.S. coal plant capacity is aging: about one-third of U.S. coal capacity is over 40 years old today; in 2025, more than half of U.S. coal capacity will be over 50 years old. I have testified previously before this Committee on the toll from coal as it is mined and burned today and on the need to act now to begin reducing CO<sub>2</sub> emissions from the U.S. coal and global coal fleets and to prevent new coal plant investments that release their CO<sub>2</sub> to the air.

Coal is the most abundant fossil fuel and is distributed broadly across the world. It has fueled the rise of industrial economies in Europe and the U.S. in the past two centuries and is fueling the rise of Asian economies today. Because of its abundance, coal is comparatively cheap and that makes it attractive to use in large quantities if we ignore the harm it causes. However, per unit of energy delivered, coal today is a bigger global warming polluter than any other fuel: double that of natural gas; 50 per cent more than oil; and, of course, enormously more polluting than renewable energy, energy efficiency, and, more controversially, nuclear power.

To reduce the contribution to global warming from coal use, we can pursue efficiency and renewables to limit the total amount of coal we consume but to reduce emissions from the coal we *do* use, we must deploy and improve systems that will keep the carbon in coal out of the atmosphere, specifically systems that capture carbon dioxide (CO<sub>2</sub>) from coal-fired power plants and other industrial sources for safe and effective

disposal in geologic formations. These systems are referred to as carbon capture and storage (CCS) or carbon capture and disposal (CCD), which is the term I will use.

### **The Need for CCD**

Any significant additional use of coal that vents its CO<sub>2</sub> to the air is fundamentally in conflict with the need to keep atmospheric concentrations of CO<sub>2</sub> from rising to levels that will produce dangerous disruption of the climate system. Given that an immediate world-wide halt to coal use is not plausible, analysts and advocates with a broad range of views on coal's role should be able to agree that, if implemented in a safe and effective manner, CCD should be rapidly deployed to minimize CO<sub>2</sub> emissions from the coal that we do use.

Decisions being made today in corporate board rooms, government departments, and congressional hearing rooms are determining how the next coal-fired power plants will be designed and operated. Power plant investments are enormous in scale, more than \$1 billion per plant, and plants built today will operate for 60 years or more. The International Energy Agency (IEA) forecasts that more than \$5 trillion will be spent globally on new power plants in the next two decades. Under IEA's forecasts, about 1800 gigawatts (GW) of new coal plants will be built between now and 2030—capacity equivalent to 3000 large coal plants, or an average of ten new coal plants every month for the next two decades. This new capacity amounts to 1.5 times the total of all the coal plants operating in the world today.

If we decide to do it, the U.S. and the world could build and operate new coal plants so that their CO<sub>2</sub> is returned to the ground rather than polluting the atmosphere.

The ACES bill contains a comprehensive approach to make this happen in the U.S. Modeled closely on the USCAP Blueprint for Legislative Action recommendations, the ACES bill combines a declining cap on greenhouse gas emissions with emission standards that will require new coal plants to capture a substantial amount of their CO<sub>2</sub> emissions. In addition, to allow CCD to be deployed without significant impacts on consumers' electricity rates, the ACES bill provides for a program of direct payments for capture and disposal of CO<sub>2</sub> from the early generations of new coal plants.

### **USCAP Recommendations**

The USCAP Blueprint contains a comprehensive proposal for CCD deployment as part of a broad climate protection law. In addition to an economy-wide cap, the Blueprint recommends Congress adopt the following measures:

- requirements for the government to issue needed regulations for siting CO<sub>2</sub> repositories and pipelines;
- government financial support to build 5 GW of CCD-equipped commercial power plants by 2015;
- a transitional program to pay for tons of CO<sub>2</sub> emissions captured and disposed through use of CCD;
- mandatory emission standards for new coal plants that are not already permitted as of January 1, 2009.

## **ACES CCD Provisions**

Subtitle B of Title I of the ACES bill provides a strong foundation for the deployment of CCD systems that can achieve substantial reductions in emissions from large fossil fuel sources. In NRDC's opinion, proposed sections 111, 112, and 113 of the ACES bill would effectively implement the USCAP recommendation to develop and implement a national strategy to address legal and regulatory barriers to commercial-scale CCD deployment.

USCAP also recommends an early grant program to establish at least 5 gigawatts (GW) of coal fueled facilities equipped with CCD and meeting an emission rate no more than 1100 pounds of CO<sub>2</sub> per megawatt-hour by 2015, including at least one pulverized coal retrofit project. The ACES bill does not contain a provision that specifically requires deployment of this amount of CCD capacity by 2015. The ACES bill does, in proposed section 114, authorize creation of a corporation to provide grants, contracts and financial assistance for commercial-scale demonstrations of carbon capture or storage technology projects. While NRDC believes the section 114 program can be useful in advancing practical knowledge and experience with CCD, we are concerned that as drafted, it does not appear to have a clear enough focus to assure that the USCAP-recommended 5 GW of CCD projects will be established by 2015. If this section is included in a Senate bill, NRDC recommends that it be revised to specifically incorporate an objective to achieve this important early deployment component by 2015.

USCAP also calls for a program of direct payments on a dollar per ton of CO<sub>2</sub> avoided basis for the first ten years of operation of CCD systems. Payments would be based on two sliding-scales. Higher payments per ton avoided would be provided for

earlier projects to reflect estimated higher costs and to provide an added incentive for early operation of CCD projects. The payment schedule would be highest for the first 3 GW of projects in the program, with successively smaller payments for later projects. In addition, a separate sliding scale would provide higher dollar per ton payments for projects with higher capture rates. This would reflect the expected higher costs for high capture rate systems and would provide an incentive to achieve lower emission rates than the minimum mandatory emission standard. For example, for a project in the first 3 GW of the program that achieved a high level of capture (85-90%), the payments for the expected incremental costs are estimated to be on the order of \$90 per ton avoided. USCAP recommends that the total size of the financial incentive program should be large enough to support on the order of 72 GW of CCD projects.

Section 115 of the ACES bill includes a direct payment program for captured and stored CO<sub>2</sub>. This provision includes a requirement for payments to be made based on sliding scales with higher payments provided for early projects and for projects employing higher levels of capture. In NRDC's opinion, this approach is consistent with the USCAP recommendations. As in the USCAP recommendation, ACES specifies payments for the first ten years of CCD system operations and calls for a total program size of 72 GW.

Next, USCAP recommends a mandatory emission standard of 1100 pounds per megawatt hour (lbs/MWh) for coal plants permitted between January 1, 2009 and 2020 and an 800 lbs/MWh mandatory standard for plants permitted after the start of 2020, with authority for EPA to establish tighter standards as justified by technical and economic feasibility considerations. Under the USCAP proposal, compliance with the initial

emission standard would be required upon startup for plants permitted after January 1, 2015. For plants permitted between now and January 1, 2015, compliance would be required within four years after either 2.5 GW of commercial scale CCD power plants are operating in the U.S. or 5 GW of such plants are operating globally. This recommendation guarantees that any proposed coal project not already permitted today must meet an emission standard that requires the operation of CCD, either upon startup or early in its operating life.

The ACES bill modifies both the emission standard compliance dates and the CCD payment provisions in some significant respects, with the two provisions working in tandem to create incentives for more rapid compliance and greater levels of emission reduction from new coal plants. The ACES bill also makes CCD projects that are retrofit to existing coal plants eligible for CCD payments.

Section 116 of the ACES bill, creates a new section 812 to the Clean Air Act, which establishes a minimum stringency emission standard for new coal power plants initially permitted after January 1, 2009. The mandatory emission standard in ACES is expressed as a minimum percentage reduction in annual CO<sub>2</sub> emissions produced by the unit: for units permitted after January 1, 2009 and before January 1, 2020, a 50% minimum reduction is required; for units permitted on or after January 1, 2020, the unit must achieve a 65% minimum reduction or meet any more stringent requirement established by EPA. The minimum percentage reduction requirements in ACES are intended to be equivalent to the 1100 and 800 pound emission rate limits recommended by USCAP.

In ACES, the mandatory emission standard compliance dates for units permitted before 2020 are somewhat delayed compared to the USCAP recommendations but as discussed below, the CCD financial incentives program is structured to provide a strong economic incentive for earlier compliance. In general, new units permitted before 2020 must comply within four years after a minimum amount (4 GW) of electric generating capacity equipped with CCD systems is in commercial operation in the U.S. but in no event later than 2025.<sup>3</sup> Units permitted on or after January 1, 2020 must meet the minimum emission standard upon initial operation.

Section 115 of ACES creates a program for direct payments for CO<sub>2</sub> captured from power plants and other industrial sources and disposed of in permanent geologic repositories. The CCD program is structured to reward early projects and projects that achieve greater reductions than the minimum emission standards set in new CAA section 812. In contrast to traditional government R&D grant programs, the earliest projects do not apply for grant approval. Rather, they are paid for performance with a statutory schedule of payments in dollars per ton of CO<sub>2</sub> avoided<sup>4</sup> through the use of CCD systems. The program is technology neutral, with no capture system favored over another.

To encourage early deployment of CCD, phase I of the payment program establishes a statutorily guaranteed payment amount for the first 6 GW of electric power plant capacity that captures CO<sub>2</sub>. The bill specifies a payment of \$90 per ton of avoided CO<sub>2</sub> for phase I units capturing 85% or more of the unit's CO<sub>2</sub> and \$50 per ton for units

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<sup>3</sup> There is provision for a case-by-case 18-month extension of the 2025 date upon a showing of technical infeasibility for the unit.

<sup>4</sup> Technically, the provision awards allowances, not dollars. But the number of allowances is prescribed to equal a specified dollar per ton value.

capturing 50%, with EPA to set payments on a sliding scale for intermediate capture rates. In addition, to reward the very earliest actors, the bill increases the payment amounts by another \$10 per ton for units that begin to capture CO<sub>2</sub> on or before January 1, 2017.

For projects that are built after the initial 6 GW are operating, phase II of the ACES program would provide for payments to be made using an annual reverse auction approach: projects proposing the lowest incentive payment per ton of CO<sub>2</sub> avoided for a ten-year period would be selected first, with higher bidders selected next until the funds available for that auction are fully committed. The bill authorizes EPA to establish an alternative payment distribution approach for phase II if the Administrator determines that the reverse auction would not provide for efficient and cost-effective CCD deployment.

As I mentioned, compared to the USCAP recommendations, ACES delays the mandatory compliance date for new coal units permitted before 2020. But to create an incentive for earlier compliance, ACES would reduce or eliminate the amount of CCD payments available to units that delay compliance. For new units permitted before 2015, if the unit does not have CCD in operation at the minimum 50% reduction level by the earlier of 2020 or five years from unit startup, it would be subject to a 20% reduction in CCD payment amounts for each year of delayed CCD deployment. Second, new units permitted between 2015 and before 2020 are ineligible for CCD payments if they do not employ CCD at the minimum 50% reduction level when the unit starts operations.

This approach allows compliance date flexibility as a legal matter but attaches a loss of financial benefits to significant delays in CCD deployment at new coal units. As a

practical matter, this approach should result in nearly all new coal projects planning to employ CCD either immediately or within a few years of initial plant operation. For example, a new coal unit receiving a permit in 2010 would most likely start commercial operation in 2014. To be eligible for full CCD payment amounts, the unit would need to be operating a CCD system by 2019. For each year past 2019 the unit delayed CCD operation, it would lose 20% of eligible payments—a delay to 2024 would mean the unit would not receive any CCD payments. Since the new unit has an outer limit compliance date of 2025 in any case, there will be a strong economic incentive to deploy CCD within five years of unit operation in order to secure full payments for 10 years of CCD operations. The more generous payment schedule for the first 6 GW of CCD in operation will add to the incentive for these first units to employ CCD promptly.

In the case of a unit permitted in 2015, it would likely start up in 2019 and would have a mandatory compliance date of no later than 2025 in any case. But if it failed to employ CCD upon startup, it would not be eligible for any CCD payments. Accordingly, there would be a strong economic incentive for immediate compliance for units permitted between 2015 and the end of 2019.

These provisions of the ACES bill will help speed the deployment of CCD here at home and set an example of leadership globally. That leadership will help reconcile coal and climate protection; it will bring us economic rewards in the new business opportunities it creates here and abroad; and it will speed engagement by critical countries like China and India.

The first CCD projects are technically ready for deployment today but the lack of a policy framework means there are regulatory and economic barriers that are difficult to

overcome. The ACES bill would correct this problem by directing the adoption of required siting rules and providing both the financial incentives and clear standards for emission performance that are needed to make CCD a reality in a timely manner.

### **Concerns with ACES Clean Air Act and State program provisions**

In constructing a new program to cap and reduce carbon pollution, we should build on, not replace, the existing Clean Air Act. The ACES bill, however, makes a number of unnecessary and, we believe, damaging changes to the Clean Air Act.

Several changes do not, in our judgment, raise significant concerns. Sections 831 and 832 of the ACES bill exclude greenhouse gases from coverage under the ambient standards and hazardous air pollutant programs. NRDC believes these changes are sensible as these programs are not well suited to managing emissions of greenhouse gases.

In addition, NRDC believes it is appropriate to specify minimum CO<sub>2</sub> emission performance standards for new coal- and petroleum coke-fired sources, as is done in the ACES bill's section 812 standards, rather than relying on EPA rulemaking under the more general authority of the current Act's section 111 New Source Performance Standard provision. NRDC also supports a change to the current law's New Source Review (NSR) provisions to establish an applicability threshold for greenhouse gases of 10,000 tons per year carbon dioxide-equivalent, a move that would remove the much trumpeted possibility of subjecting small sources to NSR.

NRDC disagrees, however, with sections 811 and 833 of the ACES bill as written. Section 811 would entirely repeal current Section 111's New Source Performance

Standards for sources covered by the ACES bill's cap. Section 833 would exempt consideration of greenhouse gases under the current Act's New Source Review (NSR) provisions for all sources, capped or not. NRDC believes these provisions are too sweeping and would inappropriately eliminate the government's ability to establish reasonable and affordable performance requirements that would complement the cap and contribute to achieving the goals of the ACES bill in an efficient and cost-effective manner.

Since the first comprehensive federal clean air law enacted in 1970, Congress has recognized the value of providing complementary approaches to achieving our air quality and emissions objectives, rather than relying exclusively on a single instrument. Thus, Congress coupled an air quality management program focused on ambient air concentrations of pollutants and state implementation plans (sections 108-110) with technology-based programs to continuously reduce emissions from motor vehicles (section 202) and large stationary air pollution sources (section 111). Congress created this dual system because it recognized that without emission reductions from these sources as technology evolves, there would be too much strain placed on the ambient air quality standards. In the 1977 amendments to the Act, Congress established a case-by-case process under the NSR Program in order to assure a more rapid updating of improvements in pollution control technology as new plants were built and old ones modernized.

The argument has been made that with an overall cap or budget on greenhouse gas emissions, we should simply not care about the amount of emissions from individual sources or even entire sectors. But Congress rejected that approach in the 1990

amendments when it enacted a cap on sulfur dioxide emissions from the electric power sector to combat acid rain. Congress retained the NSPS and NSR programs for the sources covered under the acid rain program, and those programs have continued to function well to minimize emissions from new sources, thereby reducing pressure on the sulfur dioxide cap and demonstrating improved and less expensive means of emission reduction that can be used to reduce emissions from existing sources as well.

Like for acid rain, in this case the cap on total greenhouse gas emissions is a core element of an effective greenhouse gas reduction strategy. It creates a market for the many innovations that will be required to achieve the deep reductions we need to protect the climate. But we should not rely on this alone. The RECLAIM program in Southern California is an example of overreliance on the cap mechanism alone: There exclusive reliance on a cap program led to long delays in reducing emissions from major sources, and to a totally avoidable compliance crisis when the final deadline arrived.

For these reasons, NRDC believes it is important to preserve EPA's authority to set reasonable emission standards under Section 111 even for major industrial sources that are subject to the cap. We also recommend retention of NSR provisions for truly large sources of greenhouse gas emissions. Critics have complained that applying NSR to carbon pollution would result in burdensome coverage of barbecues and donut shops. That concern is easily addressed by raising the NSR threshold to a level that would cover only truly large industrial sources, such as 10,000 tons per year of CO<sub>2</sub>-equivalent emissions, and we recommend that change be made.

New legislation should also retain important provisions of the current Clean Air Act that protect the rights of states to go beyond federal minimum requirements. During

the long period of federal abdication, states pioneered control of greenhouse gas emissions from vehicles, and they developed effective programs to deploy energy efficiency and renewable energy resources. States, and entities that states regulate (such as local distribution companies) have program delivery capabilities that the federal government cannot match. If the federal program should fall short of what is needed at some point in the future, it is extremely important that states be able to pick up the slack once again.

We are concerned, however, by section 861, which suspends for six years states' authority to implement or enforce their own cap-and-trade programs. Even temporary preemption of this state authority is very troubling. NRDC does not believe a real case has been made why any such suspension is warranted. In its place, recognizing the potential value of integrating state programs into a suitable national program, NRDC recommends a means through which states can voluntarily suspend the adoption or enforcement of state caps so long as the national program provides a strong national cap, retains other state authorities and adequately supports state energy efficiency, renewable energy, and transportation efficiency programs. As this Committee determines the distribution of the valuable emissions allowances, it is essential to provide sufficient resources for these state-run and state-regulated energy efficiency, renewable energy, and transportation efficiency programs.

The bill should also provide a means to assure that the carbon reduction benefits of these state energy efficiency and renewable energy deployment programs will not be lost when we have a national carbon cap. The bill should allow EPA to reduce the national cap by an appropriate amount if states show that their in-state programs have

reduced emissions beyond the national program and in a way that does not raise allowance prices in other states.

#### **IV. Using Allowance Value for Public Benefit, Not Private Enrichment**

The distribution of the carbon allowances is one of the fundamental decisions that Congress must make. This choice is often debated by using the shorthand “auction versus free allowance giveaway.” However this shorthand misses the important policy point—more important than whether allowances are sold at auction or distributed for free is the question of what purposes are established for the use of distributed allowance value, whether free or auctioned. A free allowance that the law requires be used to serve a public purpose is just as effective in promoting that purpose as a provision that requires an equivalent amount of auction proceeds to be used for that purpose. While the ACES bill allocates most of the allowances without charge in the early years, most of those free allowances are required to be used for public purposes and an increasing number – eventually effectively all of them – are auctioned over time.

Even though most allowances are allocated without charge at the outset, the vast majority – more than 80 percent over the life of the bill, according to Harvard economist Robert Stavins<sup>5</sup> – are distributed for public purposes, not private windfalls. Nevertheless, significant improvements can be made. Here are the most significant categories:

*Consumer protection for utility customers.* The largest fraction of the initial allowance distribution goes to electric and natural gas local distribution companies (LDC) (30-35 percent and 9 percent, respectively, phasing out by 2030). Amendments

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<sup>5</sup> 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/>.

on the House floor allocated an additional fraction of one percent to small utilities, primarily co-ops, and added protections against allocating any LDC more than it requires for compliance purposes. 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 do this by investing in cost-saving efficiency or pass the value on to their customers in ways that lower total electric bills.

There is an important difference between the ACES provisions for electricity and gas utilities, however. The bill directs one-third of the emissions allowances given to natural gas LDCs to helping their residential, commercial, and industrial customers make cost-saving energy efficiency investments. Congress should do the same for electricity LDCs. If local electric companies invested a third of their allowances in efficiency, national energy efficiency investments would increase by about \$10 billion per year. This would lower consumers' electricity bills and lower carbon allowance prices significantly for all sources.

*Low-Income Consumers.* Fifteen percent of the allowances are devoted every year to protecting low-income consumers, who spend a higher percentage of their income on food, transportation, and other necessities. The Congressional Budget Office concluded that these provisions will be effective in assuring that the ACES bill is progressive, with the lowest income fifth of the population being better off under the bill by about \$40 per year.

*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 CO<sub>2</sub> 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 rebates do not adequately address competitiveness.

Refinements are needed, however, to provide the president with appropriate discretion in applying border adjustments, and to ensure that firms are not overcompensated and that these two measures phase out as other countries step up to the plate.

*Oil Refiners and Merchant Coal Generators.* Oil refiners and merchant coal plants do not qualify for allowances either as LDCs or energy-intensive, trade-exposed manufacturers. Nevertheless, under the ACES bill these sources initially receive about seven percent of the allowances for free. The bill contains an important provision for reducing the merchant coal allocation if EPA finds it will lead to windfall profits. The same provision to avoid windfalls should be attached to any allocation to oil refiners.

*Energy efficiency, renewables, and domestic adaptation.* Other major slices of ACES allowances go to State Energy and Environment Deployment (SEED) funds for energy efficiency and renewable energy programs, and to incentivize new clean energy technologies, including carbon capture and storage, retooling and infrastructure for hybrid- and all-electric vehicles, and efficient building and appliance deployment. Allowances are also dedicated to domestic public health and natural resources adaptation programs.

*Green jobs and worker transition.* The ACES 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 critical portion of the ACES allowances is devoted to international objectives, including reducing deforestation, helping the most vulnerable countries adapt to climate change impacts, and promoting clean technology exports. NRDC urges this Committee not only to include these allocations for international purposes, but to enlarge them. The five percent of allowances dedicated to reducing tropical forest loss is one of the key provisions of the ACES bill, simultaneously tackling the devastating loss of forests and helping to demonstrate that the U.S. is taking action on a scale comparable to other developed countries. NRDC joined in supporting this deforestation allocation with a strong coalition of business, environmental, and conservation groups including American Electric Power, Environmental Defense Fund, Duke Energy, the Sierra Club and others. We urge the Committee to increase the allocations for helping the poorest countries cope with unavoidable climate impacts, and to promote market opportunities for U.S. clean technology. This is in our national interest. Global warming impacts can significantly increase threats to our national security. These allocations are critical to U.S. credibility and engagement with other countries. The clean energy export provision also provides an important tool to help secure a strong commitment from all major emitters as they are made available only to countries that take significant action to reduce their pollution. At the same time, this provision helps create and support the demand for U.S. clean energy technologies.

## **V. Market Risks from Subprime Offsets and Biofuels**

NRDC's greatest concerns with the ACES bill lie with the agricultural offsets and bioenergy amendments made after mark-up by the Energy and Commerce Committee and before the bill went to the floor. These amendments run the risk of creating a subprime market in both offsets and biofuels. They seriously damage the environmental integrity of the bill, and they will undermine public confidence in the markets for both products.

### *Fixing the offset rules*

The ACES bill allows a very large number of offset credits – up to two billion tons per year. Domestic offset credits can be earned by reducing or sequestering emissions from agricultural sources and smaller industrial sources that are not subject to the emissions cap. International offset credits can be earned by reducing rates of deforestation, as well as by measures taken in the electricity and industrial sectors, and agricultural, and reforestation sectors if determined eligible. In order to turn offset use into an engine for making net reductions in carbon pollution, the original Waxman and Markey proposal provided that capped sources acquire 1.25 tons of reductions or sequestrations for each ton of extra emissions they wished to emit. Thus, with every offset transaction, net global emissions were to be reduced by a quarter of a ton of CO<sub>2</sub>. In this way, using offsets would not merely let us run in place. Rather, the more offsets we used, the faster we would make progress reducing overall emissions. This was a win-win: while offset users benefited from reduced compliance costs, the world benefited from faster emission reductions.

The bill as passed by committee and the full House retained that 25 percent dividend for international offsets after 2017, but allows domestic offsets (and international offsets before 2017) to be used on a one-ton-for-one-ton basis. NRDC believes this Committee should extend the offset dividend to apply to all offsets, as in the original Waxman-Markey proposal.

The Committee also needs to pay close attention to assuring the *quality* of all offsets as this is essential to the integrity of any carbon pollution reduction targets. If an offset credit is not backed by a real reduction, or if that reduction would have happened anyway, then total system emissions actually increase above required levels when that credit is used to enable a capped source to emit an extra ton of carbon.

It is no secret that poor offset quality has been a serious problem in implementation of the Clean Development Mechanism under the Kyoto Protocol. That is why the ACES bill as passed out of the House Energy and Commerce Committee focused much attention on creating a reliable framework for ensuring the reality and additionality of each ton of reductions or sequestrations claimed under an offsets program.

First, the Committee bill established a science-driven process for developing the offset system's rules by creating an Offsets Integrity Advisory Board consisting of experts with the relevant backgrounds and experience, drawn from public, private sector, and university settings. This Board is critical to ensure that regulators are given strong, independent, and scientifically driven guidance on the rules.

Second, the Committee bill placed primary responsibility for ensuring offset quality in EPA, on the sound premise that since offsets are alternate compliance instruments, the agency Congress charges with assuring overall compliance with the cap

should bear primary responsibility for determining the quality of offsets that will be accepted for compliance purposes. Third the Committee bill requires that offset credits be based on standardized performance-based methodologies, rather than case-by-case reviews that have proved so problematic under the Clean Development Mechanism. Fourth, the Committee bill required independent third-parties to play an essential role in certifying that offset projects meet the quality standards established by the regulator. Lastly, the Committee bill provided for random audits of projects and mandated a full program review every five years.

Ensuring offset quality through the development and implementation of sound rules should be in the common interest of business, environmentalists, farmers, foresters, ranchers, and the American public. Otherwise, we run the risk of creating a subprime asset. If offsets do not actually reduce emissions as promised, they will quickly lose public trust and support. The loss of public trust will penalize the good actors by reducing confidence in the offset market, while simultaneously damaging our environment. That result isn't in the interest of anyone. As we have seen in the financial markets, loss of confidence in market instruments can have broad and costly ripple effects.

In this regard, we have serious concerns with changes to the offset provisions made after the ACES bill passed out of the Energy and Commerce Committee. In particular, we are concerned by the floor bill's transfer of authority over the development and implementation of the quality safeguards for domestic agricultural and forestry offsets from the EPA to the U.S. Department of Agriculture (USDA). USDA has an important role to play in bringing its scientific expertise to bear, and in serving as an

extension agent to enable thousands of farmers and foresters to take part in the opportunities provided by a well-run offsets market. But for the reasons mentioned above it is not sound policy to divide compliance determination responsibility between two agencies. We are concerned as well with other changes that weakened aspects of the offsets rules, including diminishing the role of the Offsets Integrity Advisory Board regarding agricultural offsets.

One constructive amendment made on the House floor establishes a domestic program administered by USDA to provide incentives, outside the offsets program, for supplemental farm-based emission reductions and carbon sequestration. This program provides an avenue to encourage practices that are beneficial but would have difficulty meeting the strict measurement, verification, and additionality requirements needed for offsets. This concept provides a leading role for USDA in promoting farm-based practices to reduce emissions and store carbon without presenting any risk to compliance with the cap.

It bears noting that the principals in the House negotiations over these issues have explicitly stated that the formulation included for purposes of floor action in the House should not be viewed as the approach that should become law. In a letter to President Obama, Chairmen Waxman and Peterson stated:

[W]e have not yet agreed upon the appropriate roles of the U.S. Department of Agriculture and U.S. Environmental Protection Agency in developing and implementing the program. For the purposes of House action, we have given responsibility exclusively to USDA, rather than resolve the specific responsibilities of the two agencies.<sup>6</sup>

The letter continues to ask the Obama administration for its advice on appropriate roles for the two agencies.

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<sup>6</sup> Letter from Chairmen Henry Waxman and Colin Peterson to President Barack Obama (June 24, 2009).

NRDC believes this issue can be resolved in a manner that ensures each agency plays an appropriate role both in aiding farmers, ranchers, and foresters to participate and in ensuring that resulting offsets meet the high quality standards needed to ensure that we meet our emissions objectives. Well-designed domestic agriculture and forestry projects can play an important role in solving global warming, and so we look forward to working with this Committee, the administration, and other stakeholders to improve these provisions in the Senate bill and in Conference.

*Fixing the treatment of bioenergy*

Sustainably produced biomass feedstocks, processed efficiently and used in efficient vehicles or burned to generate electricity, can reduce our dependence on fossil fuels, cut emissions of heat-trapping carbon dioxide, and contribute significantly to a vibrant rural economy. Based on its potential, bioenergy has benefited from tremendous public investment in the form of production mandates and tax dollars.

Pursued without adequate environmental safeguards, however, bioenergy production can damage in significant ways our lands, forests, water, wildlife, public health and climate. As a result of floor amendments, ACES includes three fundamental flaws in bioenergy policy that if not corrected will significantly undermine the achievement of the carbon pollution reduction targets in this legislation, wreak unintended harm on our natural resources, and undermine the market for bioenergy.

- First, the bill creates a large biomass loophole in carbon accounting that ignores the global warming emissions related to biomass production and combustion when determining if the bill's emissions caps are met. The loophole could dramatically diminish the emission reductions achieved by the bill, bringing actual reductions in

2020 achieved by capped sources to as low as 11 percent, rather than the 17 percent reduction promised by 2020.

- Second, the bill weakens current law by stripping from the renewable fuels standard under the Clean Air Act the requirement for a full lifecycle accounting of the carbon emissions from producing and using biofuels – including market-driven impacts such as international deforestation. This would cause the ACES bill to work at cross-purposes, with one part of the bill using allowance revenue to reduce deforestation while another part drives increases in deforestation.
- Third, the bill eliminates safeguards on the sourcing of biomass that protect federal forests, sensitive ecosystems, and wildlife habitat.

These changes fundamentally threaten the foundation of sound bioenergy policy by pitting environmental objectives and bioenergy production objectives against each other. NRDC and many other environmental organizations have championed bioenergy in the past and NRDC wishes to continue to support this potentially clean and sustainable source of energy. However, if bioenergy is sourced and produced in a manner that conflicts irreconcilably with solving global warming and safeguarding natural resources, it will destroy the support -- by a broad coalition, including NRDC -- that bioenergy has up to now enjoyed. For example, NRDC and a wide range of other organizations have already gone on record that without adequate safeguards, they will have to oppose implementation of the existing biofuels mandate under the RFS.

Fixing the biomass loophole in carbon cap accounting. The ACES bill is supposed to require a 17 percent reduction in carbon emissions by 2020. Because of the biomass loophole in the House-passed bill, the real reduction achieved could be far less –

as little as 11 percent.<sup>7</sup> The loophole is created by not requiring covered sources to account for the life-cycle emissions of biomass and biofuels. In other words, if a coal power plant replaces half of its coal with biomass, it has to hold carbon allowances for only half of its pollution. This makes sense only on the assumption that 100 percent of the carbon dioxide released when the biomass is burned was taken up from the atmosphere during its production. That assumption is true when biomass is grown in a sustainable, low-carbon manner. It is not true if biomass is taken from old growth forests or other practices that result in large releases of sequestered carbon into the atmosphere before the fuel reaches the power plant.

A rational, environmentally-sound market for bioenergy would account for these upstream carbon emissions. The marketplace would then favor sustainable, low-carbon sources of biomass, and shun those that make our climate problem worse. The biomass loophole will encourage ineffective “junk” biomass, disadvantaging and punishing providers of sound biomass. It also punishes providers of other low-carbon energy – wind and solar, for example – and even hurts providers of fossil energy who have to incur the cost of carbon allowances, while no allowances would be required if the source switched to bioenergy.

Fortunately, Chairmen Waxman and Peterson recognized in another letter that this issue requires further work.<sup>8</sup> The common sense solution is to close the loophole by ensuring that covered entities that burn or process biomass report the full net carbon

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<sup>7</sup> Drawing on several independent scientific analyses, NRDC estimates that under the ACES bill uncounted bioenergy emissions in 2020 could be 45-354 million metric tons greater than in 2005. Our best estimate is 193 million metric tons, based on results of a preliminary analysis of ACES using a version of the Department of Energy’s NEMS model and land-use-related emission factors from EPA’s RFS2 proposal. This would erode the effective 2020 emission reductions to only 14 percent using our best estimate, and to as little as 11 percent using the high end of the scientific range.

<sup>8</sup> Letter from Chairmen Waxman and Peterson to Speaker Nancy Pelosi (June 24, 2009).

impacts of that fuel, capturing net emissions reduction benefits from the most sound biomass sources and accounting for emissions increases associated with other types of biomass.

Preserving full carbon accounting in the RFS. The ACES bill as passed on the floor compounds the above problem by creating a second biomass loophole that strips, for at least five years, a critical safeguard from the renewable fuels standard (RFS) included in the Clean Air Act by the 2007 Energy Independence and Security Act (EISA).

As this Committee is well aware, the expanded RFS mandate established in EISA 2007 included life-cycle greenhouse gas performance requirements for new biofuels. EISA's amendments to the Clean Air Act required EPA to conduct a full life-cycle analysis of emissions associated with producing biofuels – including the emissions from market-driven impacts like deforestation and land conversion in other countries. The amendments specifically defined life-cycle emissions to include “direct and significant indirect emissions such as significant emissions from land-use changes.”

The amendments made to the ACES bill before floor action would delay inclusion of so-called “international indirect” emissions from the required life-cycle accounting for at least five years, even though the best available science already establishes that these emissions are real and significant. The loophole could not be closed unless EPA and USDA jointly agree on a new accounting methodology after studies by the National Academy of Sciences.

Emissions from market-driven deforestation and land use change are large. In the California Air Resources Board's adopted rule and in EPA's proposed RFS rule, expert

agencies have found that the emissions from the biomass-generated incentive for clearing land equal between 31 percent and 66 percent of the life-cycle greenhouse gas emissions of gasoline.<sup>9</sup>

As the USDA stated in recent testimony to Congress: “There is little question that increased biofuel production will have effects on land use in the United States and the rest of the world.”<sup>10</sup> The USDA testimony also noted: “EPA’s proposal reflects considerable input, guidance, and data from USDA. EPA’s proposal also utilized many of the same data and assumptions that USDA uses regularly in near-term forecasting agricultural product supply, demand, and pricing.”<sup>11</sup>

Ignoring market-driven emissions from land-use change in other countries will allow world-wide emissions to increase as carbon is released from forests and soils, worsening global warming instead of abating it. To be sure, calculation of the emissions associated with market-driven land-use changes is complex. But a sound scientific basis already exists for these calculations. EPA is using the best science and peer-reviewing its proposal.

In fact, EPA is relying on the same peer-reviewed models that the Congress has relied on for years to assess the impacts of the farm bill. These are the same models the corn ethanol industry has pointed to arguing that ethanol subsidies are good because they raise the price of corn and thus lower agricultural subsidies. The main difference in how

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<sup>9</sup> California Air Resources Board (CARB), “Staff Report: Proposed Regulation to Implement the Low Carbon Fuel Standard - Initial Statement of Reasons (ISOR), Volume 1,” March 5, 2009. Table IV-5, p. IV-15 AND Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program (Notice of Proposed Rulemaking). Federal Register 74:99 (May 26, 2009) p. 25041.

<sup>10</sup> USDA, *Statement of Joseph Glauber, Chief Economist, U.S. Department of Agriculture Before The House Agriculture Committee, Subcommittee on Conservation, Credit, Energy, and Research*, May 6, 2009, Pg. 15.

<sup>11</sup> *Id.* at 2.

EPA is using these models is that it is including the economic ripple effect those higher corn and crop prices have around the world. If these models are good enough to make the case for ethanol subsidies, they should be good enough to make sure that ethanol actually provides benefits in return for those subsidies.

Addressing this issue, more than 170 scientists wrote to the California Air Resources Board saying:

As scientists and economists with relevant expertise, we are writing to recommend that you include indirect land use change in the lifecycle analyses of heat-trapping emissions from biofuels and other transportation fuels. This policy will encourage development of sustainable, low-carbon fuels that avoid conflict with food and minimize harmful environmental impacts.<sup>12</sup>

NRDC believes if EISA's requirement for full life-cycle analysis is postponed, then it is necessary to delay further implementation of the Renewable Fuel Standard as well. If a "time-out" is called, it should extend to all the players on the field, including a time out for all increased volume requirements under the RFS. Anything less than keeping the accounting and the volume requirements on the same schedule amounts to cooking the books.

A better approach would be to replace the RFS with a low-carbon fuel performance standard as soon as practically possible. Such a standard should set limits on the average carbon intensity of the entire transportation fuel pool, not simply on the portion added under the RFS. The federal standard, like the California low carbon fuel standard, should be technology-neutral and performance-based, thereby providing the maximum flexibility and incentive to innovate with new fuels and approaches to lower carbon intensity. Any sustainably-produced low-carbon fuel should be allowed to

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<sup>12</sup> Matson et al., letter to Mary Nichols, Chair, California Air Resources Board (Apr. 21, 2009).

compete, including biofuels, electricity, natural gas, or even petroleum fuels produced in a lower carbon, more efficient manner.

At the same time, the full carbon emissions of high carbon fossil fuels, such as tar sands, oil shale and liquid coal, and today's conventional oils must also be counted – if these high-carbon fuels are allowed to grow unabated, they could increase transportation fuel carbon intensity by *one-third* by 2030.

This fuels standard would avoid the inefficiencies of the current technology-specific, volume-based mandates and performance thresholds that currently dominate U.S. biofuels policies. It would encourage maximum innovation across all transportation fuel options, which is the key to ensuring compliance at the lowest cost.

Preserving land and wildlife safeguards. The ACES bill's third step backwards for bioenergy policy is to eliminate key sourcing safeguards for biomass feedstocks. In addition to the minimum greenhouse gas standards, EISA 2007 includes a definition of renewable biomass that provides vital protections for wildlife, native grasslands, old-growth, natural forests, and federal forests. While providing this minimum level of protection, EISA makes available a wide range of high-volume biomass materials, assuring diverse opportunities for landowner participation and a wide diversity of feedstocks. These minimum safeguards should be retained for the RFS and extended to all policies that promote bioenergy, including the bill's Renewable Electricity Standard.

Instead, the floor amendments to the ACES bill move completely in the wrong direction. They eliminate all sourcing guidelines on non-federal lands and significantly dilute the level of protection for our federal forests. These new definitions are applied to the RFS, the RES, and to carbon accounting under the cap itself.

EISA's current definition of renewable biomass ensures that the RFS does not encourage biomass harvesting from sensitive wildlife habitat. The ecosystems placed off limits by the RFS are home to our most rare, threatened, and imperiled wildlife. While tree plantations and young forests are increasing in parts of the United States, older forests that provide critical wildlife habitat and store tremendous amounts of carbon are disappearing faster than they are being regrown, both nationally and globally. Loss of native habitat is the greatest threat to biodiversity here and abroad. The RFS safeguards also protect against the use of biomass harvested from native grasslands and old-growth and late successional forest. Loss of forests is one of the greatest threats to biodiversity worldwide and a major contributor to global warming.<sup>13</sup>

The RFS renewable biomass definition in current law allows use of all biomass from existing tree plantations, from new tree plantations established on previously cleared non-forested lands, and from "slash and precommercial thinnings" from natural forests. In concert, these provisions allow woody biomass to contribute to biofuels feedstocks, while protecting against the clearing of forests or the conversion of natural forests to monoculture tree plantations, thus losing their natural ecosystem functions.

The current definition properly discourages the conversion of natural forests to other uses. These forests are under severe threat from unsustainable logging practices, global warming, and real estate development. While outright deforestation is the most dramatic example, equally critical is the conversion of natural forests to single-species tree plantations. Plantations may look like "forests," but they are biological deserts

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<sup>13</sup> Intergovernmental Panel on Climate Change, *Climate Change 2007: Synthesis Report Summary for Policymakers*, pg. 5. Available at [http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4\\_syr\\_spm.pdf](http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf)

compared to the natural forests they replace – lacking the diversity of species, structure, carbon content, and ecological functions that make natural forests so important.

The RFS sourcing safeguards also protect our federal forests. Federal lands are held in trust for the American public. Freed from immediate market pressures, their core purpose is a set of values and services largely unavailable from private lands. In the climate context, their highest functions are as carbon sinks, measures of U.S. credibility globally, and ecological refuges. Additionally, these forests represent unique reservoirs of genetic and other biologic diversity, provide many other ecological services like drinking water and flood control, and stand to play a critical role in the face of global warming's growing impacts on biodiversity, ecosystem resilience, and the spread of invasive species.<sup>14</sup>

Old growth forests and native grasslands store vast amounts of carbon. Most private and many state lands are managed with an intensity that greatly reduces carbon sequestration. U.S. national forests and Department of Interior lands are the exception. Their undisturbed areas can be kept intact; those damaged can be guided back to carbon-rich status. No other land use decision within Congress' direct control has so much potential to mitigate global warming.

Some logging enthusiasts optimistically argue that restoration of federal lands is actually enhanced by opening them to biomass sourcing. However, it has proven very difficult to create biomass incentives for these lands that provide reliable greenhouse gas benefits but do not jeopardize their core functions and values. Generally, the more wood removed, the greater the adverse impact on net sequestration and ecologic functioning.

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<sup>14</sup> See, for example, Lovejoy, Thomas, *Climate Change and Biodiversity*, Yale University Press, August 2006.

Thus, while light thinning may in some cases help remedy past abuses, allowing industrial demand to drive restoration decisions is a recipe for disaster.

Conservation of these public lands is also essential to American standing internationally. Climate change cannot be managed without halting native forest loss worldwide. To press that point credibly, we must practice what we preach. Putting our own house in order requires preserving intact federal forests and increasing the carbon storage of others.

These public lands are also vital to climate adaptation. Large undisturbed tracts, like national forest roadless areas, enjoy high ecological health. They are better positioned than altered systems to accommodate warming with their essential processes in place. As America's flora and fauna suffer the stress of climate change, these are the landscapes in which many can best survive. Intact public lands will preserve our natural heritage and biological diversity, and thereby help lessen pressure on private lands.

In sum, these floor amendments to ACES should be rejected to ensure that American agriculture reaps the benefits of bioenergy without damaging our natural resources and worsening climate change.

## **VI. Conclusion**

Chairwoman Boxer and members of the Committee, the time for action to address the triple threat of overdependence on insecure energy resources, a weakened economy, and an imperiled climate is long overdue. The ACES bill passed by the other body has the right broad architecture: a comprehensive limit on greenhouse gases that gets tighter over time, a set of complementary policies to spur rapid improvements in emission

performance in key sectors of the economy, a balanced approach to allowance value distribution that addresses the different transition challenges for different regions and economic sectors and provides needed resources for clean energy deployment, well-designed provisions to manage program costs without weakening the program's environmental performance, and modest but important support for forest protection in other countries. The bill has its defects, some of them substantial as discussed above, and these should be corrected in the Senate. But ACES is a very good starting point that should allow the Senate to move promptly to pass a companion measure so that a bill can be presented to the President for his signature later this year.

There is a story about the advice a Chinese gardener gave to his employer. When the landowner asked, "what is the best time to plant an oak tree," the gardener replied, "100 years ago but the second best time is today." For climate protection perhaps the best time to enact a comprehensive program to fight global warming was thirty years ago but the second best time is this year.