

Questions and Answers Regarding the “Low Carbon Economy Act” of 2007

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1. Why do we need to reduce greenhouse gas emissions?

The latest scientific reports from the United Nations Intergovernmental Panel on Climate Change (IPCC) assert with 90% certainty that rising levels of greenhouse gases in the atmosphere are altering the Earth's climate and that human activities are largely responsible for these changes. The IPCC is the authoritative international scientific voice on climate change; its reports represent the work of over 1,200 scientists and are extensively reviewed and negotiated by over 130 countries. In its most recent (fourth) assessment of the state of climate science, the IPCC concludes that evidence for the warming of the climate system is now "unequivocal." Moreover, most of the warming that our climate system has experienced in the last 50 years is "very likely" (meaning over 90% likely) due to human-caused greenhouse gas emissions.

Meanwhile, global and domestic emissions of greenhouse gases continue to rise. U.S. emissions are now 20% higher than they were in 1990 and the Energy Information Administration (EIA) predicts that they will grow another 34% by 2030 if current trends continue. Global emissions, meanwhile, are on track to grow by as much as 50% in the same timeframe. Each year that we delay reducing emissions commits us to higher levels of greenhouse gases in the atmosphere and increased risks from global warming. These risks include a host of threats to the health, well-being, and livelihood of hundreds of millions of people and to the integrity of vital natural systems. According to the IPCC, the specific impacts of continued warming include:

- It is "very likely" (meaning over 90% likely) that hot extremes, heat waves, and heavy precipitation will become more frequent.
- "Coasts are projected to be exposed to increasing risks, including coastal erosion, due to climate change and sea-level rise, and the effect will be exacerbated by increasing human-induced pressures on coastal areas."
- Warming in North America's western mountains is projected to cause "decreased snowpack, more winter flooding, and reduced summer flows, exacerbating competition for over-allocated water resources."
- "Disturbances from pests, diseases, and fire are projected to have increasing impacts on forests, with an extended period of high fire risk and large increases in area burned."
- Heat waves will increase during the course of the century in North America, and the "growing number of the elderly population is most at risk."

2. Why use a cap-and-trade system to reduce U.S. greenhouse gas emissions?

Cap-and-trade programs can achieve environmental results at lower cost than other regulatory approaches, largely because they create a consistent price incentive for avoiding emissions and allow the market to produce the most cost-effective emissions reductions. Individual sources are not required to meet pre-determined control requirements, but have the flexibility to choose different compliance strategies without compromising the overall environmental objective being pursued. Market-based approaches such as cap-and-trade

make particular sense when there are a wide variety of emissions sources and abatement opportunities. The greenhouse gas trading program established under the Act will create a tangible financial incentive for companies and consumers to seek cost-effective means of reducing emissions by investing in energy efficiency, adopting lower-carbon technologies, and addressing sources of potent warming gases such as methane, sulfur hexafluoride, and certain fluorocarbons.

Although it is true that there is currently no “end-of-pipe” solution for greenhouse gases, a modest price signal in the short term can be coupled with effective technology incentives to drive the long-term breakthrough technologies that we need to address climate change.

3. Shouldn't we wait for technology to develop before starting a mandatory greenhouse gas reduction program?

Effectively addressing climate change requires that we begin using the lower-carbon technologies we already have, while investing in the new climate-friendly technologies we will need for the future. Neither is likely to happen as long as companies have no real economic incentive to avoid emissions. A greenhouse gas trading program by itself will stimulate the adoption of already-available low- and no-carbon energy technologies, ensure that companies account for greenhouse gas emissions in their long-term planning and investment decisions, and spur innovation to develop new abatement options. At the same time, even a relatively modest greenhouse gas price signal can generate the funds needed to overcome deployment hurdles for next-generation technologies, such as carbon capture and storage, that are unlikely to be adopted based on the price signal alone. In fact, pricing strategies (such as a cap-and-trade program) and direct technology incentives are best viewed as complementary. As the Congressional Budget Office concluded in a 2006 report: “Neither policy alone is likely to be as effective as a strategy involving both policies.”

4. Why not give the Asia Pacific Partnership or the President's recent announcement enough time to work?

The Asia Pacific Partnership (APP) and the President's recently announced plan to discuss a path forward with top-emitting nations could be a significant part of the effort to address climate change if they result in clear goals and the effort is adequately sustained over a number of years. A U.S. cap-and-trade program would complement those and other international efforts, not impede them. Indeed, by embracing a mandatory policy and “leading by example”, the United States has far more leverage to make efforts like the APP and the President's dialogue with large emitting nations succeed. As long as the world's richest and still highest-emitting nation fails to impose emissions limits, major developing nations are unlikely to follow suit, especially when they are responsible for a far smaller share of historic emissions. Moreover, the five-year review provision in the proposed program provides explicit leverage for convincing all countries to take serious actions under the APP or other frameworks since it conditions continued U.S. progress in further reducing emissions on commensurate actions by key trading partners and other large emitters.

5. How would the cap-and-trade program outlined by the Act interact with other major pieces of energy legislation (CAFE, Renewable Fuels Standard, national Renewable Portfolio Standard, etc.)?

Climate change is a many-sided problem. Other policies and programs can complement an economy-wide cap-and-trade program for reducing greenhouse gas emissions and should be considered as part of a comprehensive strategy for addressing climate and energy security concerns. For example, at 5–11 cents per gallon of gasoline, the price signal generated by the proposed cap-and-trade program over the next two decades is unlikely, by itself, to stimulate significant improvements in vehicle fuel economy or reductions in oil consumption. Similarly, the price signal may be inadequate to overcome early deployment hurdles for some renewable energy technologies. In this context, higher CAFE standards and a national Renewable Portfolio Standard may be necessary to tap longer-term technology opportunities and achieve concurrent policy objectives, such as reducing U.S. oil dependence. In combination with an emissions trading program for greenhouse gases, policies such as CAFE will not produce additional emissions reductions, but will contribute toward meeting program targets and can help to ensure that the burden of achieving reductions is distributed across the economy rather than being concentrated primarily on certain sectors, such as the electric power industry.

6. How will the Low Carbon Economy Act meet the challenge of global climate change?

The Low Carbon Economy Act takes an important first step towards reducing U.S. greenhouse gas emissions and investing in the technologies that will be necessary to achieve even greater reductions in the future. The Act acknowledges that climate change requires global solutions and contains provisions to encourage key developing countries to do their part in reducing greenhouse gas emissions. Key aspects of the Low Carbon Economy approach are described below.

- *Get Started with a Substantive First Step:* Scientific evidence compels us to act with urgency to address the problem of global climate change. To this end, the Low Carbon Economy Act presents a politically viable, economically responsible, technologically feasible, and scientifically justifiable strategy for putting our nation on a trajectory to substantially lower greenhouse gas emissions. The Act aims to stabilize economy-wide emissions at 2006 levels by 2020 and reduce emissions to 1990 levels (approximately 20% below current levels) by 2030. While acknowledging the urgency of the climate change problem and the need for immediate action, the Act contains a number of flexibility provisions (including the five-year review requirement) to ensure that U.S. policy can be adjusted over time as technological, scientific, and international developments merit.
- *Spur Technology Now with a Price on Greenhouse Gases:* From day one, the mandatory emissions program established in the Act will create an economy-wide incentive for implementing cost-effective emission reductions. Putting a tangible price on emissions will spur countless technological and behavioral responses and will encourage innovation.

- *Invest in Next Generation Technologies:* Although many cost-effective options for reducing greenhouse gas emissions already exist, we will need new technologies to make even greater emission reductions in the future. To encourage the development and deployment of these technologies, the Act establishes an Energy Technology Deployment Fund with significant revenues provided by an auction of emission allowances. The legislation also includes a special provision designed to accelerate the deployment of advanced coal technologies with carbon capture and sequestration by awarding valuable bonus allowances to facilities that capture and sequester carbon dioxide emissions.
- *Encourage a Global Solution:* By some estimates, China is now adding new coal capacity at the rate of one large power plant every week to ten days and may have already surpassed the United States in annual carbon emissions. But it remains very unlikely that China or other large developing nations would accept emissions limits if the United States, the largest historic contributor of greenhouse gases and the world's richest nation, does not do so first. The most important step that the United States can take to promote comparable action by other nations is to adopt its own mandatory program. Once it does so, however, it is equally imperative that major trade partners and other large emitters follow suit within a reasonable timeframe. The Low Carbon Economy Act provides significant funding for technology transfer and deployment with key developing countries to encourage action on climate change. The Act also requires countervailing measures starting in 2020 if the President determines that a major trading partner is not undertaking adequate action to limit greenhouse gases.
- *Adjust Target with Changing Science, Technology, and International Developments:* The scientific evidence suggests that large global reductions in emissions will ultimately be necessary. The Low Carbon Economy Act provides a policy framework that is robust enough to support long-term emissions reductions along with the flexibility needed to sustain progress towards the ultimate ecological objective. The Act anticipates that over time, targets will be adjusted to reflect international progress, evolving climate science, and technology developments. Once the President determines that our major trade partners are taking acceptable action on greenhouse gases, the President would recommend changes to the emission target such that emissions are at least 60% below current levels by 2050. Congress could then act on these changes through an expedited legislative process. The Technology Accelerator Payment (TAP) mechanism described below could also be eliminated to ensure necessary reductions.
- *Respond to the Impacts of Climate Change:* While emissions reductions are necessary to slow the accumulation of greenhouse gases and eventually stabilize atmospheric concentrations, the Act acknowledges that the impacts of climate change are already being felt and that impacts from continued warming are inevitable. It therefore directs a significant portion of the revenues generated by auctioning a share of available emissions allowances to adaptation measures designed to assist especially vulnerable areas (*e.g.*, coastal regions, high-latitude regions, and sensitive natural resources—including wilderness conservation areas and water resources).

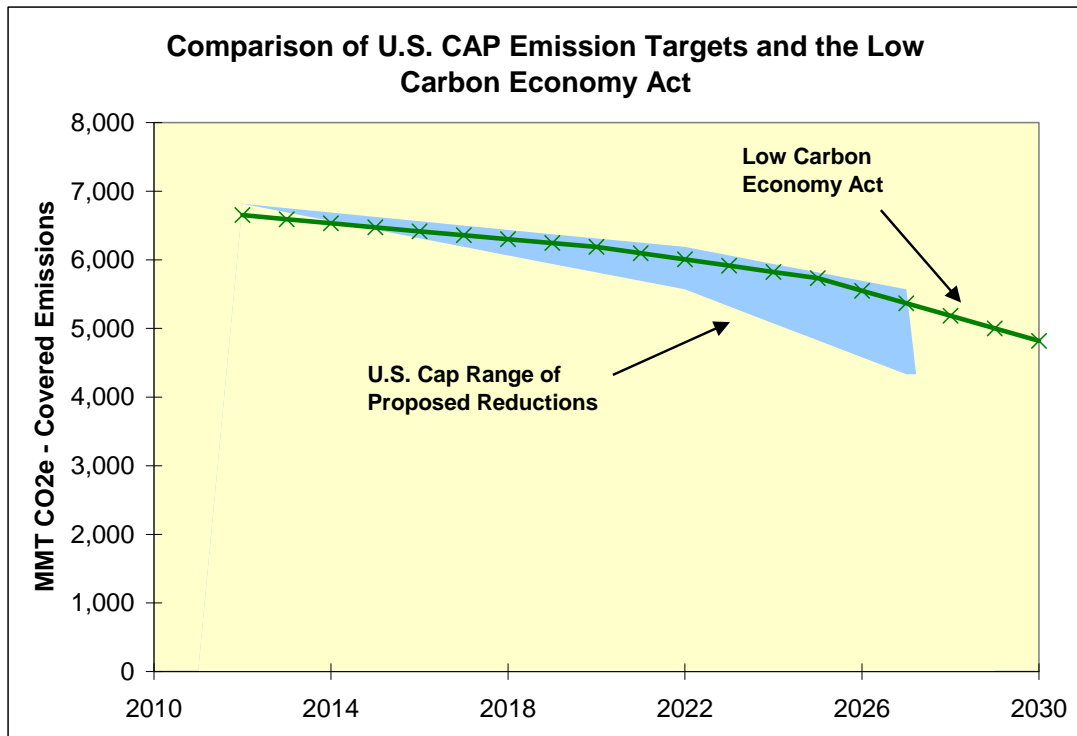
7. How do the environmental benefits of the Act compare to the emissions reductions that may be necessary based on the work of the IPCC and to the specific targets suggested by others, like the U.S. Climate Action Partnership?

According to the Fourth Assessment Report of the IPCC, limiting the projected long-term increase in mean global temperatures to below 2.4°C could require reductions in global greenhouse gas emissions on the order of 50-85% below 2000 levels by 2050. A warming range of between 2 °C and 3 °C is where the IPCC locates the onset of many of the most damaging consequences of climate change (in terms of sea level rise, more severe storms, higher incidence of drought and heat waves, greatly increased risk of species extinction, etc.). To stabilize atmospheric concentrations of greenhouse gases at a level that will avoid the most significant risks associated with climate change, the U.S. will have to act in conjunction with other nations to affect an immediate shift in current emissions trajectories such that it is possible to achieve significant global reductions by mid-century.

The U.S. Climate Action Partnership (U.S. CAP), an initiative that involves several leading U.S. companies and environmental organizations, has recommended that Congress establish a mandatory emission-reduction program designed to achieve the following targets:

- limiting domestic emissions to 100–105% of today’s levels within five years of rapid enactment
- reducing emissions to 90–100% of today’s levels within ten years of rapid enactment
- reducing emissions to 70–90% of today’s levels within fifteen years of rapid enactment

Assuming an implementation date of 2012, the emission targets in the Low Carbon Economy Act are consistent with the range of reductions proposed by U.S. CAP (see graph below).



Finally, the Act not only establishes a policy architecture designed to shift U.S. emissions to a trajectory consistent with achieving reductions of as much as 60% or more below current levels by 2050 (consistent with U.S. CAP), it also contains a host of provisions that are designed to accelerate technology development and prompt effective international responses to climate change, along with comparable actions to reduce emissions by major developing nations.

8. The European Union (EU) experienced difficulties with its trading plan: carbon prices were volatile, uncertainty hindered new investments, and some companies received large windfalls at the expense of consumers. How will the Low Carbon Economy Act avoid the problems that were experienced by the EU?

There are several critical structural differences between the EU system and the emissions trading program that would be created under the Act:

- The Technology Accelerator Payment provision will limit price volatility. A similar mechanism was not included in the EU Emission Trading Scheme (EU ETS).
- The Act is structured to provide companies with longer-term certainty, enabling them to make sound investment decisions. In contrast, the EU program has had shorter compliance periods and has been characterized by uncertainty about what will happen after the five-year Kyoto period is over in 2012.
- The Act establishes an economy-wide trading program that will draw upon the most cost-effective emissions reduction options across all sectors. In contrast, the EU trading program only covers electric power generators and certain industrial emitters.
- Unlike the EU ETS, the Act distributes a much smaller portion of allowances to regulated entities (e.g., petroleum refiners, natural gas processors, and coal facilities) for free. As discussed below, many of these regulated entities can pass most of the cost of allowances through to downstream consumers in higher fuel prices. In Europe, by contrast, nearly 100% of allowances were allocated for free to regulated entities, producing significant windfall profits in the electricity sector. For example, a recent study commissioned by the UK government found that the EU allocation scheme generated a nearly \$1 billion windfall for British electric utility companies in 2005. Similar windfalls have been documented in Germany and the Netherlands.
- Problems with the EU ETS occurred in the initial compliance period as the institutions and data necessary to run a successful program were still being developed. Many of the difficulties they experienced were startup problems. We have the benefit of learning from the European experience.

9. What is the Technology Accelerator Payment?

The Technology Accelerator Payment (TAP) is a mechanism designed to reduce economic uncertainty and price volatility and to hasten the development of low-carbon technologies. Firms could make a payment at a fixed price into an Energy Technology Deployment Fund in lieu of submitting an allowance. The TAP price starts at \$12 per metric ton of CO₂-equivalent emissions in the first year of the program and rises steadily each year at 5% above

the rate of inflation. If technology improves rapidly and if additional policies such as fuel efficiency standards and renewable portfolio standards are adopted, the TAP option will never be engaged. If program costs exceed predictions, companies could purchase additional allowances at the TAP price. This mechanism ensures that the maximum costs of the program are known in advance and gives companies the regulatory certainty needed to optimize long-term investment decisions in the context of predictable carbon price constraints. The Act also anticipates, however, that environmental considerations may justify elevating emissions certainty over cost certainty in future years. Accordingly, the five-year review provision of the Act provides an opportunity for the President to eliminate the TAP if ecological considerations or other developments warrant.

10. How are emission allowances distributed under the Act?

- *Allocation to Private Sector Entities:* For the first five years of the program, 53% of the total quantity of allowances available under the emissions target would be allocated at no cost to private sector entities. This amount is gradually phased out over time. The industry sectors receiving free allocations under this proposed approach are:
 - coal mines
 - petroleum refineries
 - natural gas processing plants
 - non-CO₂ regulated entities
 - coal, oil and natural gas electric generators
 - carbon-intensive industrial sectors
- *Auction:* For the first five years of the program, 24% of the total quantity of allowances available under the emissions target would be auctioned. The share of allowances auctioned would gradually increase over time as free allocation to industry is phased out. Proceeds from the auction would go towards low- and no-carbon technology deployment, climate change adaptation in vulnerable regions, and programs to reduce the impact of higher energy costs on low-income families.
- *Agricultural Sequestration:* 5% of the total quantity of allowances allocated under the emissions target annually would be set aside for agricultural sequestration activities.
- *Early Reduction Credits:* 1% of the total quantity of allowances allocated under the emissions target for each of the first 9 years of the program would be reserved for entities that had undertaken projects resulting in early reductions in greenhouse gases.
- *Distribution by States:* States would receive 9% of the total quantity of allowances allocated under the emissions target for certain defined purposes, such as addressing economic impacts, promoting no- and low-carbon technologies or energy efficiency, and enhancing energy security.
- *Bonus Allowances for Carbon Capture and Sequestration:* The Act reserves 8% of total allowances to create incentives for projects that capture and sequester carbon dioxide emissions from power plants.

11. The Acid Rain Program and other trading programs have distributed virtually all allowances to regulated companies for free, based on historic fuel use or emissions. Why not use this approach?

Economic research has shown that the allowances needed to compensate industry for un-recovered costs represent only a portion of the total asset value represented by all allowances available for allocation. In a competitive sector such as the petroleum industry, oil companies can be expected to pass nearly all of the cost of allowances through to consumers in higher prices; if those companies also receive a substantial allocation of free allowances, they could gain a significant net windfall. In some industries, firms' ability to pass through costs may be constrained by competitive, regulatory, or other circumstances, but in most other instances the number of allowances required to compensate firms for un-recovered costs under an emissions trading program is well below the compliance obligation they face as a result of their emissions or fuel throughput. Thus, under the Act, allowances are allocated in a manner that recognizes and roughly addresses the distribution of actual cost burdens under the program. Allowances are not allocated solely to regulated entities because these entities do not solely bear the costs of the emissions trading program.

12. Why is there an allowance auction? Why does the percentage of allowances auctioned increase over time?

For reasons described in response to the previous question, only a portion of allowances need be allocated for free to affected industry. Over time, allowance distribution under the Act transitions from an approach that fairly compensates sectors for past investments in carbon-intensive technologies to an approach that increasingly creates incentives for energy efficiency and lower carbon technologies. This is accomplished by gradually reducing the quantity of allowances that is distributed for free to industry while gradually increasing the quantity of allowances auctioned. Auction revenues would be used to address other important policy goals such as the deployment of new technologies, adaptation activities to address the impacts of climate change, and programs to reduce energy cost impacts on low-income households.

13. Why not auction 100% of allowances? Why are any allowances being distributed for free to non-regulated entities?

As noted above, some firms and industry sectors will face un-recovered costs under a trading program, as will downstream energy users and consumers who will confront higher fuel prices. Some of these stakeholders face particular competitive pressures (e.g., they compete with overseas suppliers that are not subject to carbon constraints); others may require more time to adjust because they have substantial capital investments in long-lived, carbon-intensive infrastructure. The reason for not auctioning all allowances from the outset is to ease the transition to a low-carbon economy for these firms and industry sectors, thereby addressing fairness and jobs concerns (an advantage of a cap-and-trade program over a carbon tax). By allocating some allowances for free to industry sectors that face more significant cost burdens in the early years of program implementation (such as coal producers, the electric power industry, and carbon-intensive manufacturers) and by directing a share of auction revenues from the sale of remaining allowances to other stakeholder

groups (such as low-income households), the Act strives to fairly balance the cost and equity concerns of workers, shareholders, consumers, and taxpayers.

14. How did you determine how many allowances go to each sector?

Allowances are allocated to each sector in a manner that recognizes and roughly addresses the disparate costs imposed by the program and the ability to pass these costs through to consumers. Certain sectors may have more difficulty than others passing on costs and can be expected to bear a greater economic burden from the program as a result. For example, some energy-intensive manufacturers may face competition from firms in other countries that do not operate under similar emissions constraints. These firms may find it difficult to pass costs through to consumers. Under the Act, firms in such sectors can receive a significant allocation to help offset their increased costs. On the other hand, primary fuel producers or processors such as petroleum refiners can simply pass allowance costs through in the form of higher fuel prices. Any increased costs for these firms can be offset by a relatively small percentage of allowances. Over a number of years, as industry has time to adjust to carbon constraints, the Act would phase out free allocation.

15. Why does the Act place the obligation to submit allowances on “upstream” producers or processors in the case of natural gas and petroleum and on “downstream” users (electric power generators and large industrial users) in the case of coal?

Several competing factors were considered in determining the most appropriate point of regulation for an economy-wide greenhouse-gas trading program. Under the hybrid approach outlined in the Low Carbon Economy Act, coal facilities that use more than 5,000 tons of coal per year would be regulated at the point of emissions. Approximately 94% of coal is used by electric power plants. Most of these facilities are already reporting carbon dioxide emissions under the Clean Air Act and participate in trading programs for other types of emissions such as sulfur dioxide and nitrogen oxides. Thus, the additional reporting burden for these facilities would be minimal. On the other hand, emissions from the combustion of petroleum and natural gas occur at literally hundreds of millions of sources, including individual cars and trucks, residential households, and an endless variety of large and small commercial and industrial facilities. To effectively capture the vast majority of these emissions, while keeping the administrative burden manageable, it makes sense to regulate the carbon content of petroleum and natural gas at the refinery or processing plant. As a result, the total number of entities directly regulated under the Act (in the sense that they are required to track their emissions obligations and submit allowances accordingly) is limited to a few thousand.

16. What emissions sources are covered under the Low Carbon Economy Act?

Covered sources include sources of energy-related carbon dioxide (CO₂) emissions, nitrous oxide emissions from adipic acid and nitric acid production, and industrial gases such as hydrofluorocarbons (HFC's), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).

17. Why do the caps not seem to match up with EPA or EIA emissions data for 2006 or 1990?

The Act generally covers greenhouse gas emissions throughout the economy in a comprehensive manner. However, there are sources of greenhouse gases that are not amenable to being included in a cap-and-trade program. For example, some agricultural sources of emissions are widely dispersed and not easily measured at the source level. Emissions from these types of sources are not covered under the Act, but they are included in aggregate form in the emissions inventories compiled by EPA and EIA.

18. How will the Low Carbon Economy Act lead to the development and deployment of low- and no-carbon energy technologies?

The Low Carbon Economy Act includes an aggressive and comprehensive program to spur the development and deployment of affordable, low-carbon technologies. This technology program is designed to reduce the costs associated with achieving emissions goals while simultaneously advancing energy-security objectives and ensuring U.S. competitiveness in future global markets for clean technologies. Specifically, the Act would establish an Energy Technology Deployment Fund with revenues from the auction of emission allowances. Between 2009 and 2030, approximately \$210 billion would be devoted to technology deployment under this provision. In addition, the Low Carbon Economy Act would provide bonus allowances, worth approximately \$108 billion between 2012 and 2030, for power plants that capture and sequester CO₂ emissions. Both the Energy Technology Deployment Fund and the bonus allowance provision are described below.

Energy Technology Deployment Fund

The Fund represents an unprecedented commitment to developing and deploying the next generation of low- and zero-carbon technologies. The Fund would target key technology opportunities in the following areas:

- *Zero or Low-Carbon Energy Technology:* The Fund would provide incentives for zero- or low-carbon energy technologies, including climate-friendly options for generating electricity and high-efficiency technologies.
- *Advanced Coal Deployment:* Funding would be split between advanced coal generation technologies and carbon capture and sequestration demonstration projects.
- *Cellulosic Biofuels Deployment:* This provision includes loan guarantees and incentives for the production of alternative fuels from cellulosic biomass.
- *Advanced Technology Vehicles:* Funding could cover up to 30% of the costs to “re-tool” domestic auto manufacturing facilities for the production of high-efficiency vehicles.
- *International:* Funding could be provided for a variety of cooperative activities with key developing country partners, including cost-sharing for demonstration projects, joint research and development initiatives, and loan guarantees for U.S. companies that export energy technology to developing countries. No more than 20% of the Fund could be used for international technology deployment.

Carbon Capture and Sequestration Bonus Allowances

This incentive provision would significantly accelerate the deployment of new coal-fired facilities with carbon capture and sequestration by awarding valuable bonus allowances for sequestered carbon dioxide emissions. Bonus allowances would also be available for existing conventional coal generation if it becomes feasible to retrofit these facilities with technology that captures carbon dioxide emissions. The provision is designed to support the development of up to 150 GW of electric generating capacity with carbon capture and sequestration through 2030.

19. How does the Low Carbon Economy Act provide incentives for farmers to sequester greenhouse gases?

The Low Carbon Economy Act provides significant economic benefits for farmers who participate in a program to encourage, and evaluate the benefits of, agricultural soil carbon sequestration. The program would set aside 5% of the total pool of allowances available annually under the emissions target (roughly 300 million allowances per year) for distribution to farmers for soil-based carbon sequestration projects. This set-aside would be worth approximately \$1.8 billion in 2012; its value would rise to \$5.7 billion annually in 2030. The program would be administered by the U.S. Department of Agriculture.

Based on best-available estimates of the potential for agricultural sequestration in the United States, this pool of valuable emission allowances would provide significantly greater resources than would ever be needed to reward farmers for potential agricultural sequestration projects. Even if the program were oversubscribed, however, the legislation makes available an *unlimited* number of additional allowances for agricultural sequestration projects, which would be taken from the program's annual allowance auction pool.

The Act also includes specific provisions for sequestration-related research and education/outreach for agricultural producers and aggregators.

20. Several other legislative proposals have provisions that would allow farmers to apply for offsets for agricultural sequestration projects. Why does the Low Carbon Economy Act use an allowance set-aside?

Agricultural soil sequestration is an important option for reducing greenhouse-gas levels in the atmosphere and will create a significant new source of revenue for farmers. However, there is relatively little long-term experience with monitoring, reporting, and verifying carbon reductions from agricultural sequestration. Using allowances *from within the overall pool of allowances established under the program target* to provide incentives for agricultural sequestration will allow farmers to benefit economically and allow scientists to better understand the effects of such projects, while still ensuring that the program achieves its intended environmental goals. The Act's set-aside provision will guarantee the incentives necessary to accelerate learning for this important greenhouse-gas mitigation strategy.

A second argument for this approach is that it provides increased certainty and lower administrative costs for farmers because it reduces the need for long administrative review processes and expensive reporting requirements such as have characterized past greenhouse gas offset programs. Since awarding set-aside allowances to agricultural sequestration projects would not raise emissions above the overall emissions target—even in a worst-case

scenario where those projects produced only temporary emissions reductions—program administrators would be able to focus on evaluating the overall effectiveness of verification methods, with less emphasis on detailed case-by-case reviews to establish the integrity of individual projects.

21. How does the Low Carbon Economy Act impact jobs and U.S. competitiveness?

The Low Carbon Economy Act provides a balanced approach that is consistent with the climate change recommendations of the AFL-CIO’s Energy Task Force. It has several features that benefit the economy and protect U.S. competitiveness:

- *Economy-wide Structure Is Equitable:* The Act establishes a cap-and-trade program that covers all major sources of greenhouse gas emissions and is designed to elicit cost-effective emissions reduction measures from all sectors of the economy.
- *Targets and TAP Provision in Combination with Substantial Technology Incentives Ensure Modest Economic Impacts:* The Act’s comprehensive, two pronged approach, which combines the market “pull” generated by a predictable price signal with a significant technology “push,” is designed to facilitate a gradual transition to a low-carbon economy while avoiding significant economic impacts or energy price shocks. The Act’s TAP provision (described in question number 9) will limit allowance price volatility and serves to ensure that program costs will never rise above a known, agreed-upon level, even if technology does not advance as rapidly as anticipated and emission reduction costs over the timeframe of the program prove higher than currently expected.
- *Approach to Allocation Promotes Retention of Jobs in the U.S.:* The Act would provide valuable emission allowances to energy-intensive industries to help offset the costs of higher energy prices. Most importantly, within each carbon-intensive manufacturing sector, allocation to individual facilities will be based on the number of production workers employed at those facilities. New facilities would also receive allocations based on the number of production workers. However, if a facility shuts down (e.g., to shift production overseas), the owner of that facility would no longer receive allowances.
- *Investment in Clean Energy Technology:* In addition to the incentives for carbon capture and sequestration mentioned above, the Low Carbon Economy Act requires a portion of program allowances to be auctioned and proceeds to be invested in the deployment of a wide range of clean energy technologies. This provision (which will generate up to roughly \$12 billion per year) will promote the domestic production of clean, climate-friendly energy technologies and jobs for American workers. As noted above, the Act also provides bonus allowances for advanced coal systems with carbon capture and sequestration. Bonus allowances would also be available for existing conventional coal-fired power plants if it becomes feasible to retrofit these plants with technology for capturing carbon.
- *Review of Efforts by Trade Partners and Developing Countries:* The legislation requires a review of greenhouse gas reduction efforts by our major trade partners, such as China, every five years. Starting in 2020, the President could require importers from countries that do not have comparable emission reduction requirements to submit special emissions allowances to cover the carbon content of certain products.

22. How will the Low Carbon Economy Act promote effective international efforts to address the global challenge of climate change?

According to the IPCC, stabilizing atmospheric concentrations of greenhouse gases at levels that will avoid the most important risks from continued warming (e.g. limiting the long-term rise in mean global temperatures to below 2.5°C) could require that global greenhouse gas emissions be reduced by as much as 50–85% below 2000 levels by 2050. Given the historic contribution of the United States to the build-up of warming gases that has already occurred and the rapid growth of emissions in developing countries, it is important both that the U.S. shows leadership by adopting a mandatory program to limit its own emissions, while simultaneously working to create compelling reasons for rapidly developing countries to do their share. The Low Carbon Economy Act includes the most detailed and comprehensive strategy proposed to date for bringing about an adequate international response to the global problem of climate change. Accordingly, we believe that the Act offers the most credible approach yet considered by Congress for achieving the *global* greenhouse gas reductions that will ultimately be necessary to protect the Earth’s climate system.

Specifically, the Low Carbon Economy Act includes the following “carrots” and “sticks” to promote effective international action:

Carrots

- 20% of the new Energy Technology Deployment Fund created and funded by the Act would be leveraged to promote the deployment of energy technologies with low or no greenhouse gas emissions in key developing countries. Components of the strategy could include: (i) loan guarantees and other funding mechanisms; (ii) cost sharing for demonstration projects; (iii) information sharing and capacity building; (iv) cooperative benchmarking efforts; (v) joint research and development initiatives; (vi) elimination of financing and market barriers; and (vii) pursuing carbon reduction strategies that align with general economic or social development objectives (such as diversifying energy sources and developing indigenous resources, improving efficiency, reducing conventional pollution, or avoiding deforestation).
- The President may promulgate rules that authorize regulated entities to submit credits issued under foreign greenhouse gas regulatory programs in lieu of domestic allowances so long as: (1) the President determines that the foreign regulatory programs have a level of environmental integrity that is not less than the level of environmental integrity of the U.S. program; and (2) the foreign credits are not also submitted under any foreign regulatory program (i.e., double-counted).
- The Act authorizes the President, after taking into consideration the results of an initial interagency review, to establish a program for distributing credits to entities that implement offset projects outside the United States, provided that these credits are not double-counted in any foreign regulatory program.

Sticks

- On January 1, 2019 and each year thereafter, the President may require—upon determining that a major trading partner is not undertaking comparable action to limit

greenhouse gases—that greenhouse-gas-intensive goods and primary products imported from that country carry sufficient allowances to cover their embedded emissions content. Importers could purchase allowances to satisfy this requirement through a special international reserve allowance pool where prices are set at (or below) the current market price for U.S. allowances in the subsequent year. All proceeds from the sale of international reserve allowances would be deposited into a special fund for expenditures on international technology development. The President would review the effectiveness of this provision in meeting its purposes and could make adjustments accordingly.

23. How does the Low Carbon Economy Act address cost impacts on low-income families?

Although the greenhouse gas trading program proposed in the Act will have relatively modest impacts on energy prices, any increase in prices to reflect climate externalities will have a disproportionate effect on low-income families. The Low Carbon Economy Act includes several provisions to address these impacts, either by limiting overall energy price increases through the TAP mechanism or by providing specific assistance to low-income households through revenues generated by the sale of allowances.

In particular, the bill provides for an Energy Assistance Fund, which would be funded with a portion of the revenues raised from the annual allowance auction. By 2030, the Fund would provide up to \$6.3 billion in annual revenues; this amount would be in addition to current funding commitments and would represent about a 300% increase in federal expenditures on energy assistance to low-income households. Two existing assistance programs and one new program would receive funding under the Act:

- *Low-Income Home Energy Assistance Program (LIHEAP)*: LIHEAP is an existing federally-funded program that helps low-income households with their energy bills. Fully half (50%) of the Energy Assistance Fund would be dedicated to the LIHEAP program.
- *Weatherization Assistance Program*: This federally-funded program helps low-income families reduce their energy bills by making their homes more energy efficient. One-quarter (25%) of the Energy Assistance Fund would go to the Weatherization Assistance Program.
- *Rural Energy Assistance Program*: A new program, the Rural Energy Assistance Program, would be established to help electricity consumers in rural, off-grid areas. One quarter (25%) of the Energy Assistance Fund would go to this new program.

A final provision that can help low-income households is the Act's allocation of a portion of emission allowances directly to States. States can sell these allowances and use the proceeds at their discretion for a variety of purposes, including mitigating impacts on low-income consumers and investing in energy efficiency programs.