Prepared Testimony of
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Committee on Energy and Commerce
Subcommittee on Energy and Environment
U.S. House of Representatives
Hearing on Allowance Allocation Policies in Climate Legislation
June 9, 2009

Mr. Chairman and Members of the Committee:

I am honored by your invitation to appear today, to testify on the topic of allocating allowance value in a program to reduce greenhouse gas emissions. I am Vice President of CRA International, and an economist by profession and training. Much of my work for close to 20 years has dealt with the economics and policy of climate change. I will provide my perspectives on the economic implications of allowance allocations as currently provisioned in H.R.2454 (hereafter, ACES). My testimony is based on relevant findings in a report recently authored by several colleagues and me, which I would like to submit for the record in order to provide backup for statements in this testimony.[1] My statements in this testimony represent my own opinions and conclusions, and do not necessarily represent the position of my employer or any of its clients.

Key Points

My testimony contains eight key points.

1. The allocation of allowances cannot eliminate the cost of a cap and trade program; it can only change who bears the cost. Free allocations can remove some or all of the cost of obtaining allowances that grant permission to emit up to the stated caps; but no matter how allowances are distributed, none of the cost of the actions that must be undertaken to bring emissions down to satisfy the caps can be removed. At best, that distribution can eliminate the cost of purchasing allowances from the government. Nothing can eliminate the cost of reducing emissions from their projected business-as-usual level to the capped level, though there are many ways of hiding or shifting that cost around.

2. The cost for the average family will be significant even after taking into account free allocations and recycling of auction revenues. These impacts cannot be predicted with certainty, and could range in 2020 from $600 to $1,600 per household.

3. Even with allowance allocations in the current version of ACES, regional impacts are projected to be unequal and uneven. Free allocations to electric local

[1] "Impact on the Economy of the American Clean Energy and Security Act of 2009 (H.R.2454)," prepared for the National Black Chamber of Commerce, May 2009.

distribution companies (LDCs) according to formulae in the bill will lead to different increases in electricity rates and utility bills in different regions.

4. The economic impacts would be much larger if the full amount of international offsets allowed by the bill does not become available. It is unlikely that the full amount will be available because of the difficulty of obtaining adequate verification and assurances of permanence and additionality for avoided deforestation in the countries most likely to offer these offsets.

5. How allowances are allocated or revenues from auctions are used can have economic effects, but it depends on exactly how they are used. In particular, if free allowances are used to reduce energy prices seen by consumers, the incentive to conserve energy will be reduced and the costs of complying with ACES will increase.

6. The regulatory provisions in ACES could make the cost to households much higher, and there is nothing either allocations or offsets can do about that increase. For example, renewable energy and energy efficiency standards mandate specific technology and changes in energy-using equipment, without regard to whether they would be chosen by rational consumers and businesses under the incentives created by the cap and trade program.

7. If limited availability of international offsets, distortions created by free allocations, or unnecessary regulatory measures increase the costs of complying with ACES, then the costs of reducing emissions to the stated caps will increase. Other uncertainties, such as the costs of demand response, could also lead to much higher overall costs of bringing emissions down to the cap.

8. If the costs of meeting the cap turn out higher than expected, for any of these reasons, the decision to insulate some groups from the impacts of the bill through free allocations will force the remainder of the economy – including in particular the general consumer – to face even higher costs.

Summary

Limits on greenhouse gas emissions will impose a cost on the U.S. economy, and the cost will be larger for tighter targets. In a study of ACES, my colleagues and I have estimated a 2020 decline in GDP (relative to what it would be without this policy) of approximately 1.2% (based on our Reference case, as are other results cited in this testimony unless otherwise specified). In ACES and in prior bills, we see exactly the same mechanisms at work. To bring emissions down from business-as-usual levels to the cap, it is necessary to adopt more costly methods of electricity generation, to invest in producing more expensive, low-carbon fuels and to undertake more intensive energy conservation measures. These actions divert resources that would otherwise be available to produce other goods and services that make up GDP into the provision of the same or lower level of energy services.   Higher energy costs raise the costs of U.S. manufacturing relative to competitors in countries that do not adopt limits on greenhouse gas emissions.

Another important impact is the reduction in the standard of living of the average household, which I refer to as "cost to households," which could increase by anywhere between $600 to $1,600 in 2020, taking estimates from our High and Low cases and assuming that all the international offsets authorized by the bill are available. This cost includes all the negative effects of ACES on the average U.S. family, including higher prices for energy and other goods, lower wages and reduced hours of work, reduced returns from savings and retirement investment, and all the offsetting effects of free allowances and rebates of auction revenues on a household's disposable income.

The most important observation is that the allocation of allowances cannot make the cost of a cap and trade program go away, it can only change who bears the cost

Although wise use of revenues from an auction or carbon tax can ameliorate impacts to some segments of the economy, the cost of bringing emissions down to levels required by the caps cannot be avoided.

Free allocations of allowances can at most eliminate the cost of purchasing allowances from the government. These allowances grant permission to emit greenhouse gases up to the amount allowed by the caps specified in the bill. But there is also a substantial cost of bringing emissions down from the level they would reach without ACES – for example levels projected in the EIA 2009 Annual Energy Outlook – to the caps. The only way that free allocations could eliminate all cost to emitters is if the cap were set at a level that required no additional action – a level that emissions would achieve without the cap. Then free allowances would eliminate all cost. Otherwise, if any actions must be taken to reduce emissions, then the cost of these actions cannot be eliminated by recycling allowance values. It is this cost of bringing down emissions that I have discussed, in terms of reductions in GDP and household consumption. Allocations do shift who bears the burden across industries, regions, and income groups, as do decisions about how to spend or return to taxpayers the revenues from allowance auctions.

Therefore, it is to be expected that there will always be more claims for compensation than there are allowances to allocate. Indeed, the higher the cost of bringing emissions down to the cap becomes, the harder it will be to insulate some groups from the impacts, and the larger will be the potential claims by other groups that their losses have not been ameliorated.

It is also important to avoid being deceived by averages in estimating how a particular sector or segment of the population, for example electricity consumers, is affected by the net effect of ACES inclusive of allowance allocations. There are enough hidden differences among recipients of allowances within any identified group that it takes far more to compensate just the losers in a group than to compensate the average. Looking at averages assumes that gainers compensate losers within a group, but that will not occur in practice. Thus, as discussed below, the free allocation of allowances to utilities for the benefit of their consumers appears to hold increases in average bills nationwide to 10% in 2020 (in our High case). But regionally, the unequal distribution of cost increases and allowances leaves a range from almost no increase to an increase of over 16%. The same is likely to be true of every other group targeted with free allowances.

Since aside from free utility allowances, "assistance" and "further consumer rebates" all go to identified groups, those not included in specific allotments of free allowances will see only the cost of bringing emissions down to the specified caps. The one group least likely to be represented in the bargaining for allowances is the average middle-income family, which has the least audible voice in the process of negotiating for a free allocation, and it is this family that is therefore most likely to be saddled with the remaining cost after groups with strong representation are allocated free allowances.

The cost for the average family will be significant even after taking into account free allocations and recycling of auction revenues

Several of the provisions in ACES are designed to help lower the cost to households by providing free allowances to regulated electricity and natural gas LDCs and using auction revenues to assist lower-income households. While these mechanisms will help mitigate the increased *energy* cost borne by households, it is not possible for households to avoid the increases in *other costs* due to the policy. These other costs, which include costs of other goods and services, declining wages, hours worked, investment and retirement income, and increasing taxes, will still rise, because allocations simply shift the cost burden from one segment of the economy to another but do not reduce the overall cost. The overall policy cost of bringing emissions down to levels required by the cap cannot be avoided. It is this cost of bringing down emissions that our analysis estimated, in terms of reductions in GDP and household consumption.

Provisions in ACES specify the use of allocations to reduce the fixed portion of electricity and natural gas ratepayer's bills while leaving rates high enough to maintain the incentive for conservation.[2] To the extent that utilities return the value of their free allocations under ACES to customers through reductions in fixed charges, actual total *bills* for electricity and natural gas will not rise as much as the *rates*. In fact, total utility bills may decline in the first years of the policy if there is also substantial investment in end-use efficiency and/or conservation in response to the higher energy rates. However, based on our Reference case, we estimated that average U.S. natural gas utility bills, inclusive of allocations to natural gas LDCs in ACES, would increase by about 2.5% in 2015, and 5% to 6% in 2020 to 2025, and then rise more dramatically as the allocations are phased out. For average U.S. electricity bills, we estimated that given the allocations in ACES that average bills would decline by about 0.5% in 2015, and then rise by about 4% to 5% in 2020 to 2025. Post-2025, as the allocations are phased out bills would rise more dramatically. These bill impacts would roughly double when we consider the possibility that all of the international offsets may not be available (*e.g.*, in our High case).

[2] Sec. 783 (b)(4)(C) and Sec. 784(c)(3).

Our analysis showed that retail rates, exclusive of rebates and credits from allocations and auction revenues, would be significantly higher in the policy than in the absence of ACES. Relative to the baseline, retail natural gas rates would rise by an estimated 10% ($1.20 per MMBtu) in 2015, by 16% ($2.30 per MMBtu) in 2030 and by 34% ($5.40 per MMBtu) in 2050. Retail electricity rates are estimated to increase by 7.2% (1.1 cents per kWh) relative to baseline levels in 2015, by 21% (2.8 cents per kWh) in 2030 and by 44% (6.1 cents per kWh) in 2050.

Figure 1: Change in Natural Gas Rates from the Baseline

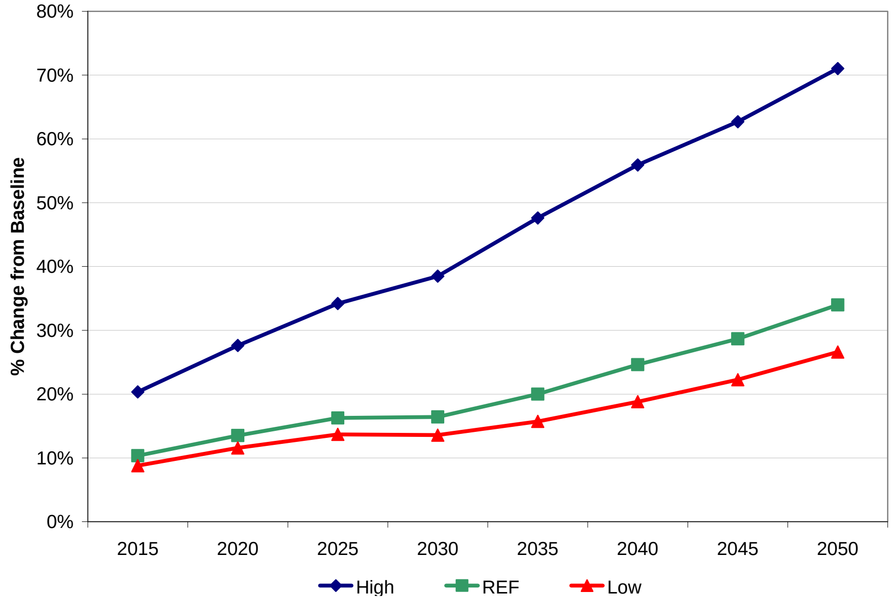
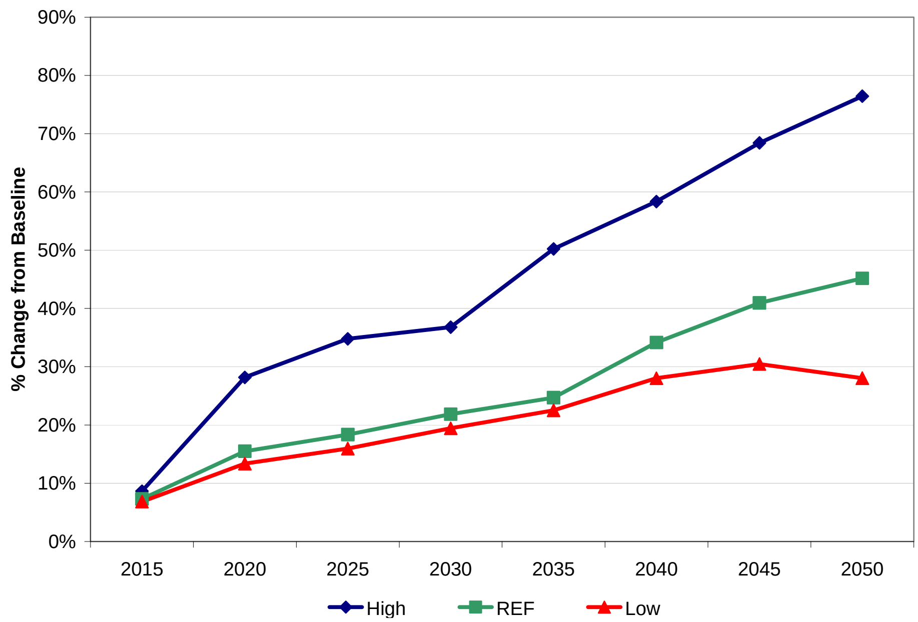


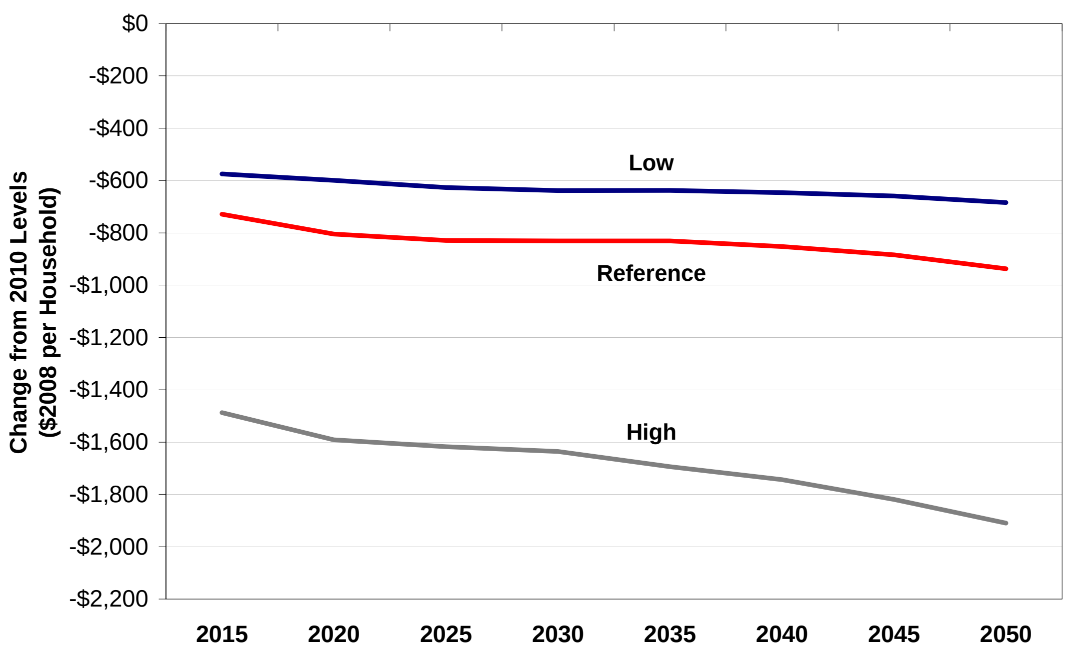
Figure 2: Change in Retail Electricity Rates from the Baseline



For an average household, the total cost due to ACES is estimated to be about $800 in 2020 if all of the international offsets are freely available immediately, as illustrated in Figure 3. Free allowances and programs to return allowance values directly to consumers only partially offset price increases and income losses due to the policy. Although, as discussed above, free allowance allocations to utilities substantially reduce electricity and gas bills for an average U.S. household, they do nothing to reduce higher costs of refined products (gasoline, diesel, and home heating oil) or other goods, and losses in wages by working families and investment income are not addressed.

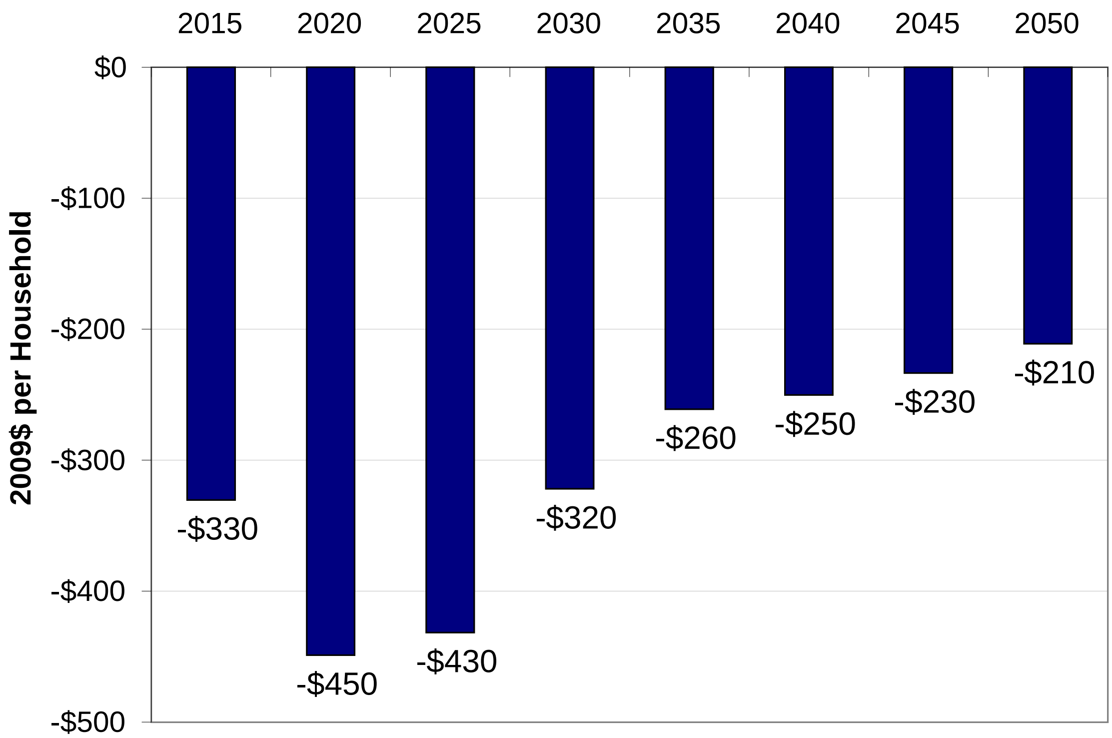
Of the $800 total cost to the average household in 2020, about 25% can be attributed to increases in electricity and natural gas costs (before addressing the benefits of free LDC allocations), and about 10% can be attributed to increases in refined product (gasoline and heating oil prices). The remainder represents the impact of costs of other goods and reduced income, net of allowance value returned to households through the allocation provisions of ACES. We also assumed that all auction revenues would be returned to households, except for the allowance allocations that are given to foreign sources.

Figure 3: Loss in Household Purchasing Power Due To ACES



A large part of the impact on household costs is due to wealth transfers to other countries as shown in Figure 4. In 2020, wealth transfers to other countries account for a loss in per household purchasing power of $450, which represents 56% of the total loss in per household income.

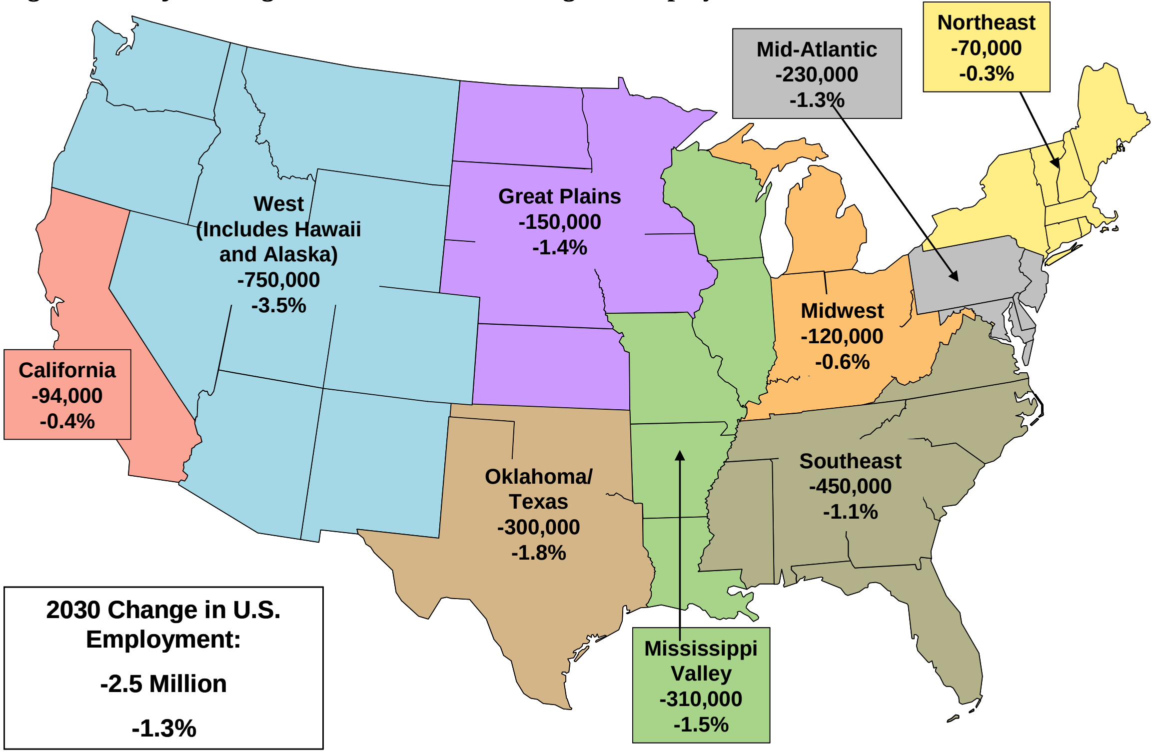
Figure 4: Impacts of International Wealth Transfers on Households



Even with current allowance allocations, regional impacts are projected to be unequal and uneven

Figure 5 indicates that the projected job losses would be distributed throughout the country. Regions that experience a larger decline in employment relative to the U.S. average are the West, Oklahoma/Texas and the Mississippi Valley; regions that suffer a smaller decline than the U.S. average are the Midwest, Northeast, and California. Losses in the Great Plains, Mid-Atlantic, and the Southeast are near the national average for the U.S. as a whole.

Figure 5: Projected regional distribution of changes to employment in 2030 due to ACES



Source: CRA Model Results, 2009

A region's industrial impacts, and hence employment effects, strongly correlate with the region's composition of industries and the energy-intensity of these industries. The Northeast and California fare better than other regions because of their initial economic circumstances. Namely, these regions' industries are less energy-intensive, as is the overall composition of industry. At the other end of the spectrum are the Mississippi Valley, Oklahoma/Texas and West regions, which are more concentrated in conventional energy production activities and energy-intensive industries.

Allocations of allowances have regional implications that are sometimes hidden within national results. For example, on a national level allowance allocations soften some of the impacts on household electricity bills until 2030, when the allowance allocations to electric LDCs are completely phased out. However, the allowance allocations still result in widely divergent regional impacts on household electricity *bills* and do not eliminate the significant differences in the percentage changes in regional electricity *rates*.

The results in the table and figures below are from the High case from our recent report on ACES. The High case results are in the middle of the results of the four cases we analyzed (Low, Reference, High and No International Offsets). However, each of the cases we analyzed exhibits a similar pattern.

Table 1: Summary Comparison of Regional Wealth, Declines in Purchasing Power and Electricity Bill (High Case)

Region Name	Baseline Income Level (Consumption per Household in 2010)	Decline in Purchasing Power ($/Household)		Increase in Household Electric Utility Bills	
		2020	2030	2020	2030
Northeast	$86,800	$1,500	$1,620	0.6%	12.3%
California	$86,300	$1,390	$1,440	10.5%	12.6%
Mid-Atlantic	$80,700	$1,310	$1,440	4.3%	21.4%
Midwest	$76,200	$1,760	$1,810	16.5%	47.2%
US Average	***$75,700***	***$1,620***	***$1,690***	***10.1%***	***29.3%***
Great Plains	$75,700	$2,280	$2,400	15.4%	38.5%
Mississippi Valley	$75,200	$1,340	$1,580	10.2%	36.3%
West	$74,000	$930	$500	12.3%	23.1%
Oklahoma/Texas	$66,800	$2,270	$2,490	7.6%	29.3%
Southeast	$66,800	$1,920	$2,090	15.0%	40.0%

The regions in Table 1 are ordered from highest to lowest baseline income levels. Table 1 shows a fairly wide range of baseline income across regions, with the Northeast and California having the highest levels and the Southeast and Oklahoma/Texas having the lowest levels. With ACES, the national average decline in purchasing power per household is $1,620 in 2020 ($1,690 in 2030), but is as little as $930 in the West in 2020 ($500 in the West in 2030) and as high as $2,270 in Oklahoma/Texas in 2020 ($2,490 in 2030, also in Oklahoma/Texas). This range of results is a function of the relative importance of different economic sectors across the regions and differences in each region's share of allowance allocations. Although the pattern is not always true, generally the largest declines in household purchasing power are occurring in the regions with the lowest baseline income levels.

Table 1 also shows the changes in household electric bills across the regions, *after accounting for the benefits of the allowance allocations to electricity LDCs*. In 2020, the average increase to household electric bills in the U.S. is 10.1% (29.3% in 2030), with the smallest increase of 0.6% in the Northeast (12.3% in the Northeast in 2030) and the largest increase of 16.5% in the Midwest (47.2% in the Midwest in 2030). A review of these results makes it clear that the allowance allocations do not result in an even distribution of the impacts on household electricity bills across the U.S. Again, the larger utility bill impacts tend to occur in the poorer regions. To achieve a more equitable percent impact distribution would require changes to the LDC allocation formula. However, some of the true diversity across individual utility companies is masked because of the still aggregate nature of the regions in Table 1. A more disaggregated analysis is therefore still needed.

Figure 6: Increases in Household Electricity Bills (High Case)

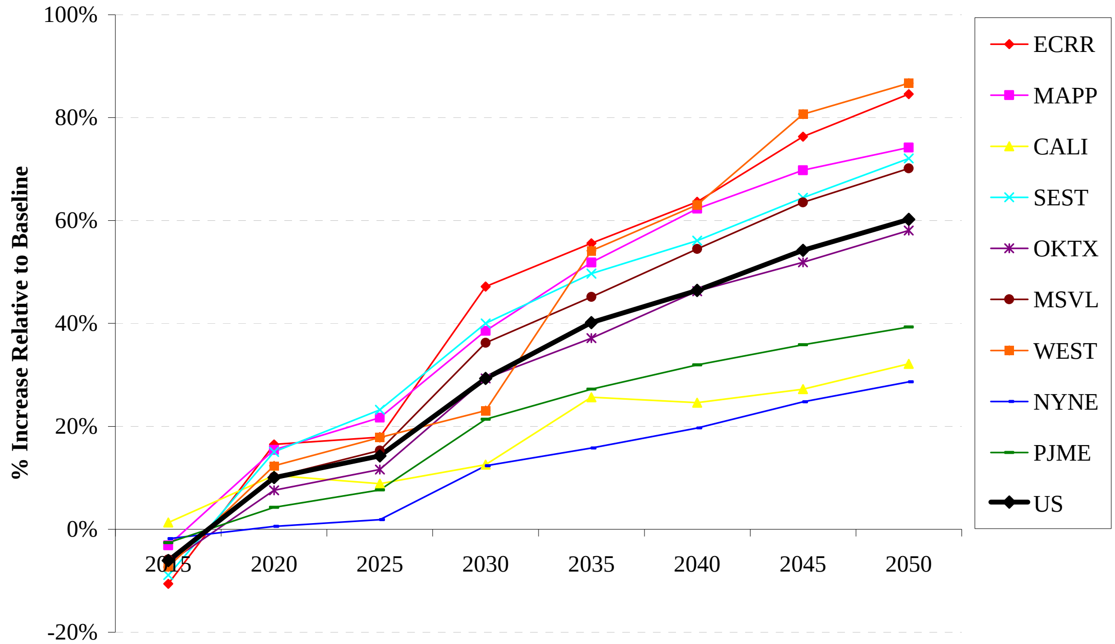
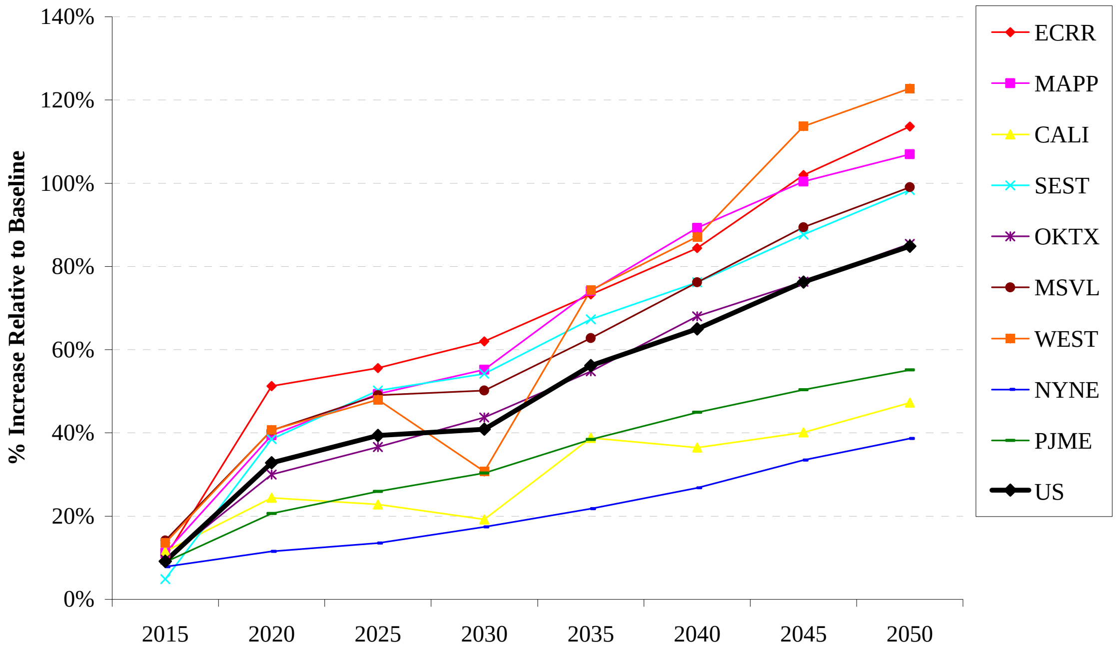


Figure 6 shows the regional distribution of increases in household electricity bills. The increases in the bills are reflective of allowance allocations to electricity LDCs, increases in electricity rates and changes in electricity demand in response to electricity rates. Figure 7 shows the regional distribution of increases in household electricity rates.

Figure 7: Increases in Household Electricity Rates (High Case)



International offsets are unlikely to be available in the amounts allowed by ACES, increasing the difficulty of insulating target groups from the costs impacts of ACES

ACES allows for up to 2 billion offsets per year to be used toward meeting the greenhouse gas cap. In our analysis of the bill (and in EPA's and the Congressional Budget Office's analysis of the bill), we all found that this quantity of offsets, *if readily available in the market*, would lead to CO_2 allowance prices in 2015 of $12 to $22 per metric ton.[3] All of the analyses also showed that if the international allowances are not at all available, for whatever reason, then the allowance prices in 2015 would instead be between $33 and $60 per metric ton. The higher CO_2 allowance prices would also translate to higher energy prices (electricity rate increases would be approximately double those with international offsets) and larger losses in household purchasing power (losses double without international offsets).

These findings highlight that the availability of international offsets is likely the most important uncertainty with respect to the cost of complying with ACES. The uncertainty is driven by the fact that while the international offsets are allowed, they are not mandated. As such, they may not actually materialize (particularly at the relatively low prices that we and EPA have assumed); or, many of them may simply not be approved for use.

[3] EPA's analysis is available at:
http://www.epa.gov/climatechange/economics/economicanalyses.html#wax, and Congressional Budget Office's (CBO's) analysis is available at:
http://www.cbo.gov/ftpdocs/102xx/doc10262/hr2454.pdf .

ACES specifies that regulations for the issuance of international offsets must be developed within two years of passage. Until there is clear regulatory guidance, offsets projects are unlikely to be initiated. Given that there is also a lag between project initiation and a supply of verified offsets from the project, this could severely limit the quantity of international offsets in the early years of the cap. Further, the requirements for international offsets specify that international offsets can only be issued if:

1. The U.S. is a party to a bi-lateral or multi-lateral arrangement with the country in which the offset project exists;
2. The country is a developing country; and
3. All other requirements of the regulations are met.[4]

The requirements for international avoided deforestation offsets are even more restrictive and require the capability to effectively monitor, measure, report and verify the reductions in emissions associated with avoided deforestation. To be eligible, a country must also not account for more than 1% of global greenhouse gas emissions and not more than 3% of global forest-sector and land use change greenhouse gas emissions.[5]

These steps may sound relatively simple, but they are not. On this topic, the CBO wrote,

> *"Based on information from the Department of State, EPA, and outside experts, CBO expects that the agreements necessary to generate offsets with certain countries would take significant time to negotiate. Over the period covered by this bill, the number of agreements and the scope of their coverage is assumed to increase. CBO also assumed that other developed countries (for example, those in the European Union) would seek offsets for their own emissions reduction programs, thereby reducing the supply available to U.S. entities."*[6]

Also, the International Institute for Environment and Development just released a study on systems of compensation for maintaining forest ecosystems. One of their primary findings is there is a definite need for effective and fair governance of forests (similar to that specified in ACES). However, the study found that in many of the countries with the highest rates of deforestation and forest degradation, governance is weak and is actually an underlying source of the deforestation and forest degradation.[7]

Even if these hurdles can be overcome, the recent push for international agreements makes the availability of these international offsets questionable. If the U.S. expects developing countries to commit to emission reduction in the near future then these countries would likely need to count the emission reductions from their forest activities

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[4] Sec. 743(b)(2).
[5] Sec. 743(e)(6)(A)(i).
[6] "H.R. 2454, American Clean Energy and Security Act of 2009," Congressional Budget Office, June 5, 2009, p. 16.
[7] "Incentives to sustain forest ecosystem services," International Institute for Environment and Development, June 2009.

toward meeting their own reduction requirements. Since a key hallmark of any offset is that it can only count once, then either it would count in the U.S. or in the country of the reduction, but not both. Further, with the pressures building across the world to adopt emission reductions there could be significant competition for purchasing these offsets, if they are made available outside of their country of origin.

Having fewer international offsets available will increase the emission reductions required domestically to get below the emission caps. In a free carbon market, international offsets will be purchased when they cost less than additional domestic emission reductions. Thus fewer international offsets will increase the cost of getting down to the cap, and in total this cost cannot be reduced by free allocations of allowances. Thus the higher carbon prices attributable to limited availability of international offsets will make it even more difficult to hold costs down for one group – such as utility ratepayers – without increasing costs even more for other groups and the general consumer.

How allowances are allocated or revenues from auctions are spent can have economic effects, but it depends on exactly how the allowance value is used

Many analysts have concluded that allowance allocations do not have any impact on economic costs, and they are *mostly* correct.[8] However, the exceptions to the rule can, and do, create economic distortions that can make these provisions costly additions to any bill. I will focus on three such exceptions, all of which are included in ACES:

1. Allowance allocations that reduce the cost of energy may diminish incentives for energy efficiency;
2. Output-based allowance allocations to industrials lead to uneconomical choices of the level of output; and
3. Technology subsidies lead to uneconomical choices of technologies.

Our cost analysis did not account for any of these distortions and their heightened project costs.

ACES includes allowance allocations to electricity local distribution companies. There is specific language on how these allowance allocations are to be used. The emission allowances may not be used "to provide any ratepayer a rebate that is based solely on the quantity of electricity delivered to such ratepayer."[9] The bill continues, "To the extent an electricity local distribution company uses the value … to provide rebates, it shall, to the maximum extent practicable, provide such rebates with regard to the fixed portion of ratepayers' bills."[10] This language reflects an understanding that if ratepayers do not see the higher costs in their bills associated with ACES compliance then they will not have

[8] I have made this point myself, in my original article on the theory of emission trading, "Markets in Licenses and Efficient Pollution Control Programs," Journal of Economic Theory Volume 5, Issue 3, December 1972, Pages 395-418.
[9] H.R. 2454, Part H, Sec. 783(b)(3)(C), page 559, May 15, 2009.
[10] *Ibid.*

an economic incentive to reduce their electricity consumption. While returning the value of allowances to consumers via fixed rebates would not lower their rates, it would lower ratepayer bills. For example, if an average consumer today consumes 700 kWh per month at a rate of $0.10 per kWh and then has other charges (taxes and surcharges) of another $20 then their monthly bill would be $90. Now assume that ACES is implemented and rates increase to $0.11 per kWh, other charges remain at $20, and there is a rebate associated with the allowance allocation of $5, resulting in a monthly bill of $92 assuming the same level of electricity demand. If consumers do not look at the increase in their electricity rates and their attention is drawn only if they observe a noticeable change in their monthly electricity bill, they may not understand that the policy has created increased returns to energy conservation, and, if so, the cost of complying with ACES will increase. (Our cost analysis did not account for this distortion and its heightened project costs.)[11]

The allocation to trade-exposed industries is based on a combination of direct and indirect carbon factors. The direct carbon factor is the product of the average output for the two preceding years and the average greenhouse gas emissions per unit of output for the industry. The indirect carbon factor also includes the average output for the two preceding years, but this figure is multiplied by an electricity emissions intensity factor and an electricity efficiency factor. Since industrial users control their level of output, by increasing their output they can gain more allowances in future years, even if the preferred level of output would be lower absent any allowance allocations. This distortion caused by the allowance allocation leads to higher output from the impacted industrials and therefore higher emissions, which puts more pressure on the rest of the economy to make emission reductions. This combination of factors increases the cost of complying with ACES. (Our cost analysis did not account for any of these distortions and their heightened project costs.)

ACES includes allowance allocations to assist in the deployment of carbon capture and sequestration (CCS) technology. The bill also allocates allowances to invest in renewable energy. The allowance allocation is targeted to specific technologies, CCS and renewables; other technologies (such as nuclear or not yet thought of technologies that also produce low or zero-carbon generation) do not receive any allowance allocations. This "picking of winners" can lead to an uneconomical choice of technology. For example, assume that, absent any allowance allocations to generation technologies, new nuclear generation would be a lower cost generating option than CCS and would therefore be selected by utilities to meet their demand requirements. With the allowance allocations, ACES is subsidizing a higher cost technology, CCS, which leads to the selection of CCS in place of the lower cost nuclear plant. The difference in the costs of these two plants (without any consideration of allowance allocations) represents an increase in the total costs of complying with ACES. (Our cost analysis did not account for any of these distortions and their heightened project costs.)

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[11] The reductions from energy conservation and energy efficiency are a significant contributor to emissions abatement in our analysis of the bill and in EPA's preliminary analysis of the bill. Both analyses assume that consumers see the higher costs of energy and have an incentive to use less energy and use it more efficiently.

Regulatory provisions in the bill could make the cost to households much higher, and there is nothing either allocations or offsets can do about that

Important provisions in ACES (some of which neither our study nor any other have been able to model fully) are regulatory measures that go beyond the cap-and-trade program to require a certain percentage of electricity generation to come from renewable sources (included in CRA's analysis) and to mandate specific improvements in a number of standards for building energy efficiency, lighting and appliances. In our study, we concluded that in response to higher energy prices (including higher electricity rates), energy consumers would make extensive improvements in energy efficiency. As a result, our analysis finds about the same level efficiency improvement is achieved that is implicit in these mandates. However, much of that efficiency improvement would likely come from a different mix of actions than the specific mandated actions in ACES. ACES's mandates provisions will constrain the options of households and businesses as to how best to reduce their carbon footprints in light of the incentive provided by the cap-and-trade system.

Therefore, due to the renewable electricity standard and other efficiency mandates, the energy user (and electricity generator) may not be able to choose the most cost-effective technology or method to reduce their emissions. To the extent that the consumer and business person are the best judges of how to manage their own affairs and choose ways of dealing with higher energy prices, the regulatory measures in ACES will increase costs to the U.S. economy beyond what we have estimated.

No model can capture all these costs, because to do so would require as much information as the individual household or business has about its own affairs. Thus any attempt to quantify the costs of command-and-control regulations of this type is likely to significantly underestimate their costs, though even these regulations can be designed in ways that do more or less harm. Indeed, if it were possible to model all the costs of regulatory measures, there would be enough information centrally available that government regulators might actually have sufficient information to tell households and businesses how to do better jobs of managing their affairs. But government agencies do not, in fact, have any better information than analysts trying to assess costs of new legislation, so that neither is likely to understand the impacts of the kinds of mandates included in ACES. In contrast, a program that puts a uniform and predictable price on GHG emissions provides the incentive for households and businesses to use their own information and judgment to choose the most cost-effective ways to reduce emissions, and thereby to achieve the lowest possible cost for the economy as a whole.

The rationale of cap-and-trade is that it allows the market to select the lowest cost means, whatever they may be, for reaching a given GHG reduction target. By superimposing regulatory mandates on that system, Congress substitutes its own judgment for that of the market. When efficiency or other standards are binding, they would affect the allocation of abatement resources. They would compel industry to buy more renewable energy, say, or to invest more in CCS than it would otherwise do to comply with the total GHG cap. However, while the pattern of emission reductions would change, the total amount reduced would not. The cap sets the total GHG cutback. If the regulations mandate more change in one area, less will take place somewhere else. Standards, therefore, can add costs but they will not add to the program's environmental benefits. They can only substitute more costly GHG cuts for those that could have been made at lower cost.

For the detailed standards mandated in Title II, it is impossible to tell by examining aggregate levels of energy efficiency whether or not the standards are binding. Even if the cap-and-trade program would be sufficient on its own to lead to similar or larger reductions in energy use in the specified sectors, the standards are very likely to mandate a different set of changes in energy use than consumers and businesses would choose on their own. This can only increase costs of complying with the overall cap, unless businesses and consumers are consistently making wrong decisions and the government agencies put in charge of the regulations can consistently make better decisions by substituting their regulatory authority for the decisions of those who know their own situations and alternatives.

The higher the costs of meeting the cap, the larger will be the costs imposed on those not protected by free allowance allocations

Allowance allocations cannot make costs disappear, but only move them around. In this statement, I have shown why I conclude that the particular mix of allocations in ACES does not appear to produce impacts of a comparable size across regions of the country. Further, my last three points addressed ways in which institutional barriers to the creation of valid international offsets, distortions caused by free allocations, and mandates programs can increase the unavoidable costs of a cap and trade program. These designed-in costs would be additional to the also irreducible uncertainty of costs that arises when uncertain future technology and consumer responses run into rigid caps on emissions. If costs of meeting the caps turn out higher than expected, for any of these reasons, the decision to insulate some groups from the impacts of the bill through free allocations will force the remainder of the economy – including in particular the general consumer – to face even higher costs.