# Addressing the Impact of Climate Change Legislation on Low-Income Households

by Chad Stone

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Climate change legislation restricting greenhouse gas (GHG) emissions is necessary to avoid the costly and potentially catastrophic environmental and economic consequences likely to result from an unabated buildup of heat-trapping gases in the atmosphere.[1] However, such legislation also imposes compliance costs on electricity generators and other emissions sources. These costs will largely be passed on to consumers. Low-income households will feel the resulting squeeze on their budgets most acutely. On top of the challenges they face making ends meet, low-income households typically spend a larger share of their budgets than do affluent consumers on the energy and energy-intensive goods and services that will be most affected. Poorly designed climate legislation could push more families into poverty and make many of those who are already poor still poorer. Fortunately, it is possible to design policies that mitigate the impact of climate legislation on vulnerable households without compromising the energy and environmental goals of that legislation.

This Article discusses the financial impact of cap-and-trade programs upon low-income households, the ideal qualities of low-income consumer protection measures under a cap-and-trade approach to restricting GHG emissions, and how recent legislation has measured up. The U.S. Congress took a cap-and-trade approach in the major energy and climate bills it considered in 2008 and 2009, and this approach or something similar is likely to be the one that policymakers continue to pursue through the legislative process.[2] Cap and trade, like its close cousin the carbon tax, is a market-based approach to reducing carbon emissions. Many economists believe market-based approaches can more cost effectively reduce emissions than can a traditional "command-and-control" approach of the sort the U.S. Environmental Protection Agency (EPA) would be likely to pursue under its 2009 finding allowing it to regulate GHGs under the Clean Air Act.[3]

Unlike a command-and-control approach, which dictates who should reduce their emissions and how they should do it, a market-based approach like cap and trade works by "putting a price on carbon." The resulting "price signal" then becomes an incentive for businesses and households to pursue greater energy conservation, and investments in energy efficiency and alternative clean energy technologies, in effect reducing total emissions to the amount allowed under the cap. The cap is enforced by requiring electricity generators and other emissions sources to hold permits, or allowances, for their emissions. The cost of an allowance can be analyzed in the same way as a tax added to the price of energy and energy-intensive products in proportion to their carbon content. Similarly, the total value of emissions allowances can be treated as government revenue.[4]

Putting a price on carbon under cap and trade makes the gross hit to the budgets of low-income consumers (and consumers generally) larger than it would be under a command-and-control approach.[5] Higher prices for energy and energy-intensive goods and services under a cap-and-trade system have the potential to significantly decrease the purchasing power of low-income households if they are not mitigated. This Article describes how to avoid that outcome by using a portion of the revenue that can be generated under cap and trade (which is not available under a command-and-

1. Carbon dioxide ($CO_2$) is the primary GHG released into the atmosphere by the burning of fossil fuels to produce energy. Burning fossil fuels containing one ton of carbon will release 3.67 tons of $CO_2$ into the atmosphere [1 part carbon (wt 12) plus 2parts oxygen (wt 16) = 44 divided by 1 part carbon (wt 12) = 44/12=3.67]; *see, e.g.*, http://www.grist.org/article/the-biggest-source-of-mistakes-carbon-vs-carbon-dioxide/. In this Article, "carbon" or "$CO_2$" is shorthand for GHGs generally (it is common to measure the contribution of other gases in terms of $CO_2$ equivalents). "Energy use" is shorthand for economic activities responsible for producing GHGs.
2. *See generally* Clean Energy Jobs and American Power Act, S. 1733, 111th Cong. (2009) (Kerry-Boxer); American Clean Energy and Security Act, H.R. 2454, 111th Cong. (2009) (Waxman-Markey); America's Climate Security Act of 2007, S. 2191, 110th Cong. (2007) (Lieberman-Warner).
3. *See* Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66496 (Dec. 15, 2009) (to be codified at 40 C.F.R. ch. 1).
4. For the purposes of estimating the budgetary cost of climate change legislation, the Congressional Budget Office (CBO) treats the allowance value under cap and trade as federal government revenue and the allocation of that allowance value as federal government expenditures. *See* CBO, Cost Estimate: H.R. 2454, at 22 (2009), *available at* http://www.cbo.gov/ftpdocs/102xx/doc10262/hr2454.pdf.
5. *See infra* notes 9-10 and accompanying text.

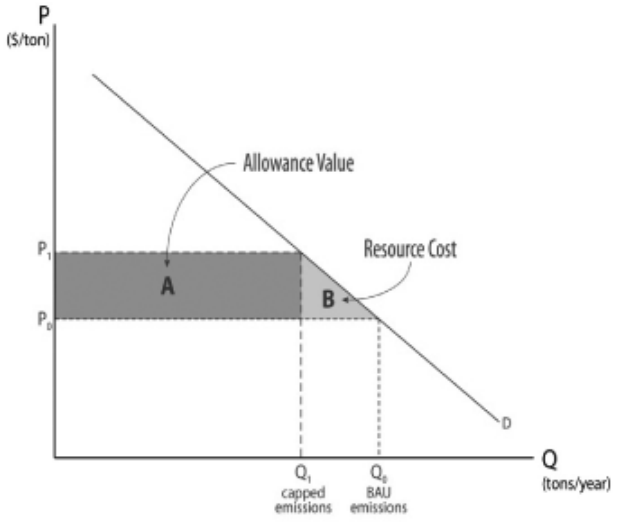
control approach) for a well-designed, low-income energy refund that can restore lost purchasing power to low-income households, while maintaining the price signal that encourages cost-effective reductions in GHG emissions.

## I. The Financial Impact of Cap and Trade on Households

The analysis of the economic impact of cap and trade on households is similar to the analysis of the impact of a tax. The distinction between whom the tax is collected from and who bears the burden of the tax (its incidence) carries over to the case of emissions allowances. For example, the price increase consumers face for their electricity will be the same whether the producers of the coal, oil, and gas used to generate the electricity are required to hold the allowances or the electricity generators themselves are required to do so. With a tax, consumers lose purchasing power[6] through two channels. The first is the cost of emissions allowances (analogous to the revenue from a tax). The second is the cost of abating emissions from business-as-usual (BAU) levels to the amount allowed under the cap, analogous to the "excess burden" or "deadweight loss" from a tax.[7]

Figure 1 illustrates the simple economics of cap and trade.

### Figure 1: The Simple Economics of Cap-and-Trade




The line labeled D in Figure 1 is the implicit underlying demand for carbon, which arises from the demand for fossil fuel-based energy. The shape of D indicates that there is an inverse relationship between the price of carbon and the quantity of emissions. This inverse relationship in turn reflects how responsive the economy is to changes in the underlying price of carbon. At a higher price, businesses and households cut back on their consumption of fossil-based energy, leading to an abatement of emissions. With no restrictions on emissions, there will be a BAU implicit price of carbon $P_0$ and a BAU level of emissions $Q_0$. If policymakers impose a cap of $Q_1$ on emissions and issue only enough allowances to meet that cap, competition to acquire allowances—allowed by the trading part of cap and trade—will cause the implicit price of carbon to rise to $P_1$. The increase in the price of carbon that will result from cap and trade is shown by the difference between $P_1$ and $P_0$. Rectangle A is the total market value of emissions allowances. The same result could be achieved by putting a tax on carbon equal to the difference between $P_1$ and $P_0$, in which case rectangle A would be the revenue from the tax.

The market value of emissions allowances represents a loss of purchasing power by consumers, but it is not a loss to the economy as a whole. In the case of auctioned emissions allowances, for example, it is an indirect transfer from consumers to the government. Or, in the case of allowances that are allocated freely to competitive electricity generators or other businesses with no restrictions on their use, it is a transfer from consumers to the owners and shareholders of those businesses. One person's loss is another's gain. While consumers may lose purchasing power, the beneficiaries of a government program will gain the value created by auctioning carbon credits. In sum, the gross benefits conferred on households by the uses to which the government puts the revenue it generates by creating emissions allowances are equal to the gross costs imposed on households by the use of emissions allowances to put a price on carbon.[8]

Triangle B, in contrast, represents the loss of economic welfare associated with the actions necessary to abate emissions from their BAU amount $Q_0$ to the capped amount $Q_1$. These abatement costs include the value of goods and services consumers sacrifice to free up resources to make energy efficiency investments, the costs passed on to consumers by electricity generators and other businesses that switch from cheaper but dirtier energy to cleaner but more expensive energy, and the inconvenience to households from driving less or keeping the temperature of their houses less comfortable.

The aggregate gross costs to consumers under a cap-and-trade regime are thus the trapezoid comprising rectangle A and triangle B; the gross benefits are rectangle A, and the net costs are triangle B. Under a rulemaking approach, there is no allowance value and hence no rectangle A. As a result, both the costs passed on to consumers and the price signal

6. Technically, the term "loss in purchasing power" is what economists would call the loss of consumer surplus, which is the difference between the maximum amount consumers would be willing to pay to consume a given quantity of a good or service (the area under the demand curve) and the amount they actually have to pay at market prices. The consumer loss from cap and trade (or a tax) is the trapezoid comprising the rectangle A and the triangle B in Figure 1. Consumers would have to receive compensation equal to this amount to consider themselves as well off at the capped emissions level as they are at the business-as-usual (BAU) emissions level.

7. Economists use the term "excess burden" or "deadweight loss" to describe the costs to society arising from the distortions to people's choices of what to buy or how much to work or save caused by the tax. The tax distorts these choices away from the ones that would maximize welfare given available resources.

8. Households receive these benefits in their various roles as consumers, wage earners, property and business owners, and beneficiaries of government spending, including spending on public goods like national defense, deficit reduction, and foreign aid where individual beneficiaries are not readily distinguishable.

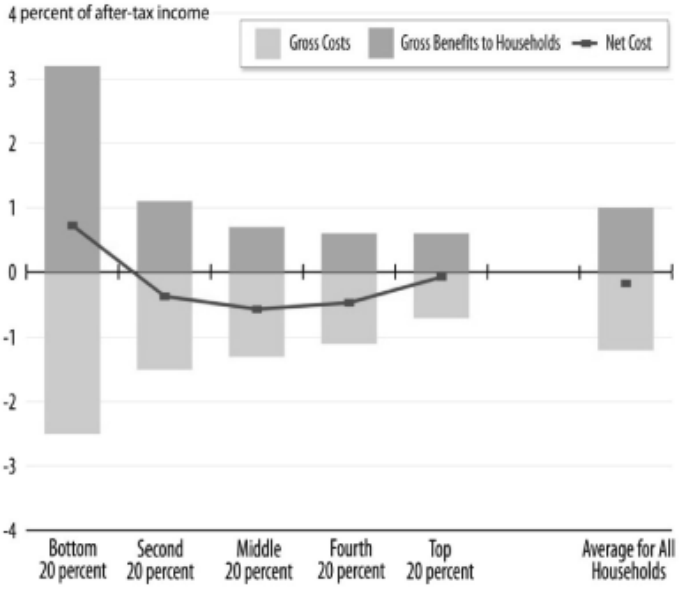
are likely to be smaller than under cap and trade. A command-and-control approach, however, is likely to be less cost effective than a market-based approach like cap and trade, and hence the abatement costs or real resource costs that do get passed on are likely to be larger for a command-and-control program.[9]

In sum, the economywide benefits arising from the cost-effectiveness of cap and trade, as compared to a command-and-control approach, are accompanied by larger gross consumer costs but potential gross consumer benefits that are nearly as large. The gross costs facing individual households will be determined by the size of their carbon footprints. Several studies have found that higher income households have larger, but not proportionally larger, carbon footprints than lower income households.[10] Under a cap-and-trade approach, higher income households will incur larger dollar costs than lower income households, but the costs incurred by lower income households will be larger as a proportion of their income.

What ultimately matters for assessing the distributional impact of cap and trade is both the net costs of a cap-and-trade approach and the financial benefits that flow to households from the government's use of emissions allowance value. Depending on government policies, the outcome could range anywhere from one in which income disparities are reduced and low-income households come out ahead on average, to one in which existing income disparities are aggravated and the extent and depth of poverty are aggravated.

Figure 2 illustrates the distributional impact under the particular use of allowance value embodied in the Waxman-Markey Bill that passed the U.S. House of Representatives in 2009. The data in the figure come from the Congressional Budget Office's (CBO's) analysis of the 2020 provisions in the Waxman-Markey Bill as though they were in place in the 2010 economy,[11] but the main points the data illustrate are more general.

**Figure 2: Costs, Benefits, and Net Financial Impact of the House Climate Bill by Income Group**




Note: Chart shows impact of 2020 policies measured in terms of the 2010 economy.

Source: *The Economic Effects of Legislation to Reduce GHG Emissions: Hearing Before the S. Comm. on Energy and Natural Resources* (*supra* note 11).

The negative bars show the loss in purchasing power, as a percentage of household income, to the average household in different income brackets that results from putting a price on carbon. The positive bars show the CBO's estimate of the financial benefits flowing to the average household in different income brackets as a result of how the Waxman-Markey Bill allocates emissions allowances and uses the revenue from auctioned allowances. The markers on the line identify the net costs or benefits in different parts of the income distribution, which are the proper measure of the distributional impact of the complete policy. It is important to remember that these estimates do not include the benefits that are the raison d'etre of the whole policy—the economic, environmental, and security benefits that derive from encouraging the transition to a clean energy economy.

The bars at the extreme right of the chart show that, on average, across all households, the costs associated with capping emissions are somewhat larger than the financial benefits that are available to be distributed through the use of emissions allowance value.[12] Thus, there is a modest net cost to the economy (before accounting for the economic and environmental benefits of capping emissions) over and above what can be recycled back to households in one form or another through the use of allowance value. The net cost of the whole policy, rather than the gross cost due to the cap, is the correct measure of the economywide average cost per household of the policy, because it takes into account the

9. The price of carbon under cap and trade (the cost of an emissions allowance) is equal to the marginal cost of emissions abatement. Covered emissions sources balance the marginal cost of abatement by another ton against the cost of an allowance to keep emitting, and the equalization of marginal abatement costs across all covered sources minimizes the cost of the abatement necessary to meet the cap. No such equalization of marginal abatement costs is guaranteed under a rulemaking approach, and the price signal will be muted, because the price increases passed on to consumers are more likely to reflect the average cost of abatement rather than the higher marginal cost of abatement.

10. *See* CBO, The Estimated Costs to Households From the Cap-and-Trade Provisions of H.R. 2454, at 15 (2009), *available at* http://www.cbo.gov/ftpdocs/103xx/doc10327/06-19-CapAndTradeCosts.pdf; Dallas Burtraw et al., *The Incidence of U.S. Climate Policy: Where You Stand Depends on Where You Sit* (Res. for the Future, Discussion Paper No. 08-28, 2008), *available at* http://www.rff.org/RFF/Documents/RFF-DP-08-28.pdf; Kevin A. Hassett et al., *The Consumer Burden of a Cap-and-Trade System With Freely Allocated Permits* (Am. Enter. Inst., Working Paper No. 144, 2008), *available at* http://www.aei.org/docLib/20081223_ConsumerBurden.pdf.

11. *The Economic Effects of Legislation to Reduce GHG Emissions: Hearing Before the S. Comm. on Energy and Natural Resources*, 111th Cong. 25-26 (2009) (statement of Douglas W. Elmendorf, Dir., CBO), *available at* http://www.cbo.gov/ftpdocs/105xx/doc10561/10-14-Greenhouse-GasEmissions.pdf.

12. The average net cost per household estimated by the CBO is an approximation to the resource costs (Triangle B) in Figure 1 expressed as an average cost per household.

financial benefits from the use of allowance value to offset much of the costs due to higher energy prices.

As discussed, cap and trade provides greater incentives for cost-effective emissions reductions and more flexibility to achieve those reductions and therefore is likely to have a *lower* net economywide cost than a command-and-control approach that achieves the same emissions reduction. However, the fact that the net costs per household are modest on an economywide basis is not sufficient to conclude that the costs to vulnerable populations would be small without explicit policies to protect them; the distribution of the gross costs can be very different from the distribution of the gross benefits.

Figure 2 shows that low-income households experience the gross costs of the policies necessary to reduce GHG emissions more acutely than higher income households do. The impact of higher prices for energy and energy-intensive products is smaller in dollar terms for these households than it is for higher income households, because low-income households don't spend as much to begin with. As a share of their income, however, the impact on low-income households is substantially greater. Low-income households are vulnerable, not only because they spend a larger share of their budgets on necessities like energy than do better off consumers, but also because they already face challenges making ends meet, and are least able to afford purchases of new, more energy-efficient automobiles, heating systems, and appliances.

Without any compensating financial relief to low-income households, the burden of these costs would increase poverty and hardship. Fortunately, the Waxman-Markey Bill delivers sufficient financial benefits to the poorest 20% of the population so that, on average, these households receive a small net financial gain. However, even with a positive average net benefit for the bottom quintile, there still will be many low-income households that experience a net loss. The net distributional impacts shown in Figure 2 rely on the specific emissions allocation decisions made in the Waxman-Markey Bill. As discussed below, under that bill, 15% of emissions allowance value is set aside explicitly for low-income energy refunds. In addition, low-income households receive relief through the bill's main broad-based consumer relief provision, which provides utilities with free allocations for the benefit of ratepayers. The low-income refunds are the principal reason the average low-income household will not suffer a net financial loss. If, for example, this allowance value had been used instead for additional utility-based relief spread uniformly across the population, low-income households would have been net losers, on average. Similarly, if a smaller percentage of allowance value was devoted to low-income relief and the average low-income refund were smaller, more low-income households would incur larger net losses.

Decisions about how to use allowance value involve trade offs. For example, analysis indicates that the net economywide costs of limiting emissions under cap and trade can be lowered even more by using allowance value to reduce marginal income tax rates.[13] However, the benefits from reducing tax rates are skewed toward high-income taxpayers. Low-income households will be worse off than shown in Figure 2 (and very likely net losers) because any benefits they receive from the lower net costs to the economy are likely to be much smaller than the benefits they lose when they receive a smaller direct refund. Conversely, if most of the allowance value is used for per capita rebates or direct tax credits and refunds based on household size rather than income, the benefits to upper income households would be smaller, and the benefits to moderate- and middle-income households would be larger.

## II. Designing Appropriate Low-Income Consumer Relief

What is the best way to protect low-income households? The following discussion is based on the Center on Budget and Policy Priorities' work to develop and recommend concrete proposals to policymakers to protect the budgets of low- and moderate-income consumers in a way that is effective in reaching these households, efficient (with low administrative costs), and consistent with energy conservation goals. That work has been guided by the following six principles[14]:

- *Protect the most vulnerable households*. Climate change legislation should not make poor families poorer or push more people into poverty. To avoid that outcome, energy refunds should be designed to offset higher energy-related costs for economically vulnerable segments of the population.
- *Use mechanisms that reach all or nearly all eligible households*. Eligible working households could receive an energy refund through the tax code, via a refundable tax credit. But many other households are elderly, unemployed (especially during recessions), or have serious disabilities, and so are not part of the tax system. Energy refunds need to reach these households as well. Hence, the primary mechanism for reaching low-income households should be a broad mechanism that does not rely on the tax code.
- *Minimize red tape*. Funds set aside for consumer relief should go to intended beneficiaries, and excessive administrative costs or profits should be avoided. Accordingly, policymakers should provide assistance to the greatest degree possible through existing, proven delivery mechanisms, rather than new public or private bureaucracies.
- *Adjust for family size*. Larger households should receive more help than smaller households, because they have

13. Terry Dinan, CBO, Trade-Offs in Allocating Allowances for $Co_2$ Emissions 4 (2007), *available at* http://www.cbo.gov/ftpdocs/89xx/doc8946/04-25-Cap_Trade.pdf.
14. Sharon Parrott et al., Ctr. on Budget & Policy Priorities, How to Use Existing Tax and Benefit Systems to Offset Consumers' Higher Energy Costs Under an Emissions Cap 2-3 (2009), *available at* http://www.cbpp.org/files/4-20-09climate.pdf.

higher expenses. Families with several children will generally consume more energy, and consequently face larger burdens from increased energy costs, than individuals living alone. Various other tax benefits and means-tested assistance vary by household size; this one should as well.

- *Do not focus solely on utility bills*. For low- and middle-income households, higher home energy prices will account for less than one-half of the total impact on their budgets that will result from a cap-and-trade system. This is because goods and services across the economy use energy as an input or for transportation to market. Furthermore, utility costs are reflected in the rent, rather than direct utility bills, of about one fifth of the households in the bottom 20% of the income spectrum. Policymakers should structure energy refunds so they can help such families with the rent increases they will face as a result of climate policies, as well as with the higher prices that households will incur for gasoline and other products and services that are sensitive to energy costs.
- *Preserve economic incentives to reduce energy use efficiently*. Broad-based consumer relief should provide benefits to consumers to offset higher costs while still ensuring that consumers face the right price incentives in the marketplace and reduce fossil-fuel energy consumption accordingly. A consumer relief policy that suppresses price increases in one sector, such as electricity, would be inefficient, because it would blunt incentives to reduce fossil fuel use in that sector. This would keep electricity demand elevated relative to what it would have been if consumers saw electricity prices rise, and it would increase the burden on other sectors and energy sources to reduce emissions pursuant to the cap requirements. The ultimate result would be that emissions reductions would be overall more costly to achieve and allowance prices would be higher. Consumers might pay less for electricity, but prices would rise for other items.

With these goals in mind, the Center designed an "energy refund" that would efficiently offset the impact of higher energy-related prices on low- and moderate-income households.[15] This refund would be delivered each month to very low-income households through state Electronic Benefit Transfer (EBT) systems. EBT systems are essentially debit card systems that are already used to provide food stamps, Temporary Assistance for Needy Families (TANF), and other forms of assistance to low-income families, the elderly, and others. The EBT mechanism is the centerpiece of an energy refund proposal because of its unique ability to reach large numbers of low-income households, including those that are outside the tax system. Proposals to reach low-income working households and others farther up the income scale must rely on additional mechanisms, specifically refundable tax credits.

The amount of the benefit would vary by family size to reflect the greater loss of purchasing power of larger households compared to that of smaller households, because larger householder typically have larger carbon footprints. However, there are economies of scale associated with family size—a family of four does not need twice the income of a family of two to enjoy the same standard of living, and the carbon footprint of a family of four is not twice as large as the carbon footprint of a family of two with the same standard of living. Thus, the recommended family-size adjustment rate would produce a different distribution of benefits by family size than would a simple per capita dividend. For a given amount of refunds for a given population, smaller families would get a proportionally larger dividend, and larger families would get a proportionally smaller dividend than they would with a per capita refund.

Within this framework, policymakers would decide how generous the refund should be and how far up the income scale eligibility for a full refund should extend. To avoid cutting off benefits abruptly at a given income threshold, the refund would be phased out and households over the phase-out range would receive a partial refund. All eligible households should be entitled to receive the refund, and all eligible households of the same size would receive the same size refund. For a given budget, policymakers would face a trade off between the generosity of the household benefit level and the generosity of the household income level used to determine eligibility to receive the benefit.

Refunds are an effective way to deliver consumer relief. They can be provided easily through the federal tax system and state EBT systems, with no need for new agencies or bureaucracy at the state or federal level. Further, refunds protect households against the loss of purchasing power resulting from higher energy-related costs without blunting consumers' incentives to respond to those higher costs by conserving energy and investing in energy-efficiency improvements. Because energy-related products will cost more, households with the flexibility to conserve energy or invest in energy efficiency will get more value for their budget dollar by doing so rather than by using their rebate to maintain their old ways of consumption. At the same time, refunds help households that cannot easily reduce their energy consumption avoid a reduction in their standard of living. Other proposals for consumer relief generally lack one or more of these advantages, pose other serious problems, or lack the details necessary for evaluating how they would operate in practice.[16]

15. The approach laid out here is adaptable to a wide variety of decisions about how generous the refund should be and how far up the income scale eligibility for a full refund should extend. For a discussion on how to extend consumer relief farther up the income scale to include moderate- and middle-income households, see *id.* at 8.

16. For further discussion regarding the potential difficulties with other approaches, see *The Costs and Benefits for Energy Consumers and Energy Prices Associated With the Allocation of Greenhouse Gas Emission Allowances: Hearing Before the S. Comm. on Energy & Natural Resources*, 111th Cong. 7-14 (2009) (testimony of Chad Stone, Chief Economist, Ctr. on Budget & Policy Priorities), *available at* http://www.cbpp.org/files/10-21-09climate-testimony.pdf.

## III. Low-Income Consumer Protection in Recent Legislation

Consistent with these principles, the climate bill passed by the House, Waxman-Markey, provides robust protection to low-income households. The Waxman-Markey Bill uses proceeds from the sale of 15% of the emissions allowances to reimburse low-income households for the higher costs they will face for energy and energy-intensive goods and services as a result of the bill. Additionally, relief would be provided to all consumers, regardless of income, under provisions of the bill that provide free emissions allowances to retail electric and gas companies for the purpose of providing utility customers relief on their utility bills.

Under the Waxman-Markey Bill, seniors, people with disabilities, low-income families with children, and other low-income individuals would be eligible for a monthly federal benefit administered through their state's human services agency to offset the loss in purchasing power caused by the climate-policy provisions of the bill. This benefit would be delivered electronically onto the same debit cards that states currently use to deliver food stamps and other benefits. The bill also uses a portion of the proceeds from auctioning 15% of the allowances to finance an expansion of the now-very-small component of the Earned Income Tax Credit (EITC) for the low-income group most likely to be missed by the benefit provided through state human services agencies: low-income workers who do not live with children. This expansion of EITC would help offset the rising costs those workers would face as a result of the climate change legislation. It would also reduce taxes for the one group of Americans who owes federal taxes despite living below the poverty line.

Under the bill, households with incomes under roughly 160% of the poverty line—about $35,000 a year for a family of four in 2009—would qualify for a monthly energy refund delivered through the EBT system that state human service agencies operate. Households with incomes below 150% of the poverty line would qualify for a full benefit, and the benefit would phase down for households with incomes above this income level, phasing out at roughly 160% of the poverty line. Based on the CBO cost estimates and estimated average refund amounts, approximately 70 million individuals would be eligible to participate in the refund program.

The statistical agency of the U.S. Department of Energy, the Energy Information Administration (EIA), would calculate the average reduction of purchasing power households with incomes at 150% of the poverty line would incur as a consequence of the higher energy prices resulting from the climate change policy provisions of the legislation. The EIA would make this calculation for households of different sizes, because energy consumption—and, accordingly, the loss of purchasing power resulting from higher energy costs—varies by household size. The EIA would base these calculations on the market value of emissions allowances, other economic costs of capping carbon emissions, and the carbon footprint of low-income households in this income range, which can be derived from government data on consumer expenditures. A household's benefit would equal the loss in purchasing power for a household of its size, after taking into account the relief the household would receive through the free allocation of allowances to local utility companies. The benefit would be delivered on a monthly basis.

The legislation directs state human service agencies to automatically enroll certain groups of individuals into the refund program. This includes food stamp households and low-income seniors and people with disabilities who participate in the Supplemental Security Income (SSI) program or receive the low-income subsidy for the Medicare prescription drug program. All low-income seniors and people with disabilities who participate in both the Medicare and Medicaid programs are automatically enrolled in the low-income subsidy for the prescription drug program and, thus, would automatically receive the energy refund benefit.

While the Food Stamp Program (now called the Supplemental Nutrition Assistance Program) reaches most very poor families with children, some people have incomes below 150% of the poverty line but do not participate in the Food Stamp Program, the SSI, or the low-income subsidy program for the Medicare prescription drug benefit. These households would be permitted to apply for the refund. Recognizing the importance of ensuring that those who are eligible know about and can easily enroll in the program, the bill includes several additional provisions to facilitate participation by eligible low-income households.

While the Energy Refund Program delivered through state human service agencies' EBT systems is likely to reach a large share of eligible seniors, people with disabilities, and families with children, one group is unlikely to have high participation in the program—non-elderly adult workers who do not live with children. Only about one in four eligible working adults without children in the home participates in the Food Stamp Program. The bill provides consumer relief to these individuals by expanding the EITC for workers without children.

Currently, the EITC for this group is very small—the maximum benefit in 2009 was $457, far below the maximum benefit of $3,043 for a family with one child. Moreover, the EITC for adults who do not live with children is too small to ensure even that single workers living below the poverty line are not taxed deeper into poverty. In addition, the current EITC for workers without children has such a low eligibility limit that a full-time minimum wage worker is wholly ineligible for the credit.

The Waxman-Markey Bill provides consumer relief to these workers through an expansion of the childless workers' EITC. The maximum benefit would remain very modest compared with the EITC benefit for families with children; in 2012, the maximum EITC for a single worker without children would be $932, or less than one-third the benefit for a parent with one child. The bill would also raise the income level at which the credit begins to phase out, from $7,620 in 2012 dollars (69% of the poverty line) to $11,640 in 2012 dollars (about 105% of the poverty line; the end of the phase-out range would be raised to about 160% of the poverty line).

Much of the increased EITC would offset the loss of purchasing power these workers will face as a result of the climate legislation. The remainder of the EITC increase would help reduce the tax bills of these poor and near-poor workers.

As shown in Figure 2 above, the CBO's analysis of the bill confirms that the legislation would succeed in preventing increased hardship among low-income households overall. The CBO examined how the costs and financial benefits of the legislation would be distributed among households in each fifth (or quintile) of the income distribution. The analysis concluded that the Waxman-Markey Bill provided sufficient financial benefits to the poorest 20% of the population, so that, on average, these households will receive a net financial gain. However, even with this positive average net benefit for the bottom quintile, there still will be many low-income households who experience a net financial loss.

The Kerry-Boxer Bill reported out of the U.S. Senate Environment and Public Works (EPW) Committee also makes the protection of low-income households a basic goal. Unfortunately, the Kerry-Boxer Bill provides less funding for low-income assistance than does the Waxman-Markey Bill. As of February 2010, however, the fate of climate legislation in this session of Congress rested with the efforts of Sens. John Kerry (D-Mass.), Joseph Lieberman (I-Conn.), and Lindsay Graham (R-S.C.) to craft a bipartisan climate bill that could pass the Senate. The bill released by Senators Kerry and Lieberman on May 12, 2010, contains an energy refund very similar to what is in the House bill. Instead of the EITC provision, it provides a modest tax credit to households between about 150% and 250% of poverty.

## IV. How the Legislation Could Be Improved

The funding and program design in the Waxman-Markey Bill provide a good basis for low-income protection consistent with the principles laid out above. While that bill would provide enough consumer relief to fully offset most low-income families' increased energy costs, some households—such as those that rent poorly insulated apartments or have inefficient appliances—will face increased costs that exceed the amount of relief they receive. These households could have difficulty making ends meet, even with the consumer assistance provided in the bill. For that reason, as the legislation moves forward, it could be strengthened by providing additional funds for the Low-Income Home Energy Assistance Program (LIHEAP), a program that provides energy assistance to low-income consumers and often targets aid to those who face utility shutoffs or other hardships. The consumer protection provisions also could be strengthened by extending eligibility for relief, either through the EBT mechanism or through a refundable income tax credit, to families with incomes somewhat above the eligibility cutoff for the Waxman-Markey Bill's relief provisions.

It is critical, however, that the relief provided to low-income households not be diluted. Any direct relief for moderate-income households, to supplement relief they receive through their utility company, should be in addition to the 15% allocation for direct low-income relief the House provides, rather than taken out of that allocation. Reducing the size of the low-income refund in order to provide direct relief farther up the income scale would mean that a greater portion of low-income households ended up with relief that failed to offset the full increase in energy costs they faced. Moreover, diluting the refunds would put an even bigger squeeze on the budgets of those households experiencing well-above-average cost increases that exceed the amount of relief that would currently be provided in the Waxman-Markey Bill.

## V. Conclusion

Low-income households have much to gain from legislation that would effectively combat global warming and reduce the health risks and other environmental and economic damage they would experience from unchecked climate change. But poor households also face risks of financial harm if the legislation designed to fight global warming does not contain adequate low-income protection provisions. Supplemented by several modest additions, the low-income protections in the Waxman-Markey Bill passed in June provide a good model for such protection.