



Assisting Households with the Costs of a Cap-and-Trade Program: Options and Considerations for Congress

-name redacted-

Analyst in Environmental Policy

-name redacted-

Specialist in Housing Policy

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Summary

By limiting the amount of greenhouse gas (GHG) emissions that can be generated in a given year, a cap-and-trade program would attach a new cost to activities that generate emissions, primarily fossil fuel combustion. To the extent they are able, the capped entities (e.g., power plants, petroleum producers/importers, large industrial facilities) would likely pass on the costs of complying with a cap-and-trade program to household and business consumers. Thus, a cap-and-trade system is intended (and expected) to increase the price of coal, oil, natural gas, and the products they help create, including electricity.

Congress can affect the distribution of the costs imposed by an emissions cap through emission allowance allocation. In a cap-and-trade system, one emission allowance typically represents the authority to emit one metric ton of GHG emissions. Emission allowances would become a valuable new commodity, potentially accounting, in aggregate, for tens or hundreds of billions of dollars. Therefore, when designing a cap-and-trade program, one of the more controversial and challenging questions for policymakers is how, to whom, and for what purpose to distribute the emission allowance value—the actual revenue or potential revenue (i.e., the value of the allowance as an asset) represented by the allowances.

Without redistribution of allowance value, cap-imposed costs would ultimately be borne by energy consumers, both businesses and households. In particular, lower-income households would likely bear a disproportionate share of the costs related to an emissions cap, because those households generally spend a higher percentage of their income on energy-related goods and services than do higher-income households. Moreover, lower-income households *already* pay (on average) a larger share of their income toward the costs of their residential energy and for gasoline. These households are also less likely to have the financial resources to improve the energy efficiency of their dwelling units or to purchase energy efficient appliances or cars, which could help reduce high energy costs. For these and other reasons (including federal precedents), some have argued that allowance value should be used to alleviate the burden households, especially lower-income households, would likely face.

Congress would face several questions when seeking to implement this objective. A primary consideration would be which households or persons should receive allowance value: should value be distributed evenly to all households, or should particular household groups receive a higher proportion? Moreover, should policymakers seek to account for different costs that households in different regions may experience?

Policymakers have a variety of mechanisms they could use to distribute emission allowance value to provide assistance to households. In evaluating these options, there are a number of considerations that might be relevant to policymakers in choosing and implementing a distribution system. Among considerations are the ability of a system to reach large numbers of households, the existence of an administrative infrastructure and the costs of distributing funds, and the ease of tailoring benefits to different consumer incomes and regions of the country. This report examines and compares several mechanisms with these considerations in mind.

In addition, this report outlines how GHG emission reduction legislation in the 111th Congress, including H.R. 2454, the American Clean Energy and Security Act of 2009, and S. 1733, the Clean Energy Jobs and American Power Act, would address the potential cap-imposed impacts to households.

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Introduction

Over the past century, particularly in recent decades, scientists have documented increases in global temperature and sea levels, decreases of sea ice in the Arctic, and melting of continental ice sheets and mountain glaciers. There is increasing evidence that human activities are at least partially responsible for some of these effects.¹ This is based upon the combination of two conclusions. First, global temperature increases are linked in some manner to the measurable increases of greenhouse gas (GHG)² concentrations in the atmosphere.³ Second, human activities (e.g., fossil fuel combustion, industrial processes, and deforestation) have contributed to the increased concentration of GHG emissions in the earth's atmosphere.

A variety of efforts that seek to reduce GHG emissions are currently underway or being developed on the international, national, and sub-national level (e.g., individual state actions or regional partnerships). One way in which GHG emissions may be reduced is through market-based approaches,⁴ such as a cap-and-trade or emission fees ("carbon tax") system.⁵ Recent legislative proposals⁶ have generally focused on using these market-based approaches to reduce GHG emissions, with cap-and-trade approaches generating far more congressional activity in terms of introduced bills and committee action than carbon taxes.⁷ As a result, this report uses both the general term "GHG control program" and the more specific "cap-and-trade program" to describe proposals to reduce GHG emissions.⁸

¹ According to the Intergovernmental Panel on Climate Change, greenhouse gas (GHG) emissions caused by human activity have "very likely" contributed to climate change. This report does not address the debates associated with the climate change science nor the role of human activity. For more information, see CRS Report RL34266, *Climate Change: Science Highlights*, by (name redacted).

² Under the United Nations Framework Convention on Climate Change (UNFCCC), greenhouse gases are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). Some greenhouse gases are controlled under the Montreal Protocol on Substances that Deplete the Ozone Layer, and are not covered under UNFCCC.

³ For example, carbon dioxide, the primary GHG, has risen worldwide from 280 parts per million (ppm) to over 380 ppm over the past 150 years.

⁴ For a more comprehensive discussion of policy options, see CRS Report RL34513, *Climate Change: Current Issues and Policy Tools*, by (name redacted).

⁵ Preference for a cap-and-trade versus a carbon tax approach ultimately depends on which variable one wants to control—emissions or costs. Although there are several design mechanisms that could blur the distinction, the gap between price control and quantity control can never be completely overcome. See CRS Report R40242, *Carbon Tax and Greenhouse Gas Control: Options and Considerations for Congress*, by (name redacted) and (name redacted).

⁶ CRS Report R40556, *Market-Based Greenhouse Gas Control: Selected Proposals in the 111th Congress*, by (name redacted), (name redacted), and (name redacted).

⁷ In the 111th Congress, a cap-and-trade proposal—H.R. 2454 (Waxman/Markey), which also includes numerous energy-related provisions—passed the House on June 26, 2009. See CRS Report R40643, *Greenhouse Gas Legislation: Summary and Analysis of H.R. 2454 as Passed by the House of Representatives*, coordinated by (name redacted) and (name redacted).

⁸ The ability to limit GHG emissions already exists under various Clean Air Act authorities that Congress has enacted, a point underlined by the Supreme Court in an April 2007 decision, *Massachusetts v. EPA*. Although the current EPA Administrator has stated a preference for controlling GHG emissions through new legislation, the agency has begun to take actions that could lead to emission performance standards from particular sources. For more information on these developments, see CRS Report R40585, *Climate Change: Potential Regulation of Stationary Greenhouse Gas Sources Under the Clean Air Act*, by (name redacted) and (name redacted).

What Is a Cap-and-Trade System?

A cap-and-trade system would create an overall limit (i.e., a cap) on GHG emissions from the emission sources covered by the program. Cap-and-trade programs can vary by the sources covered. The covered sources, also referred to as covered entities, are likely to include major emitting sectors (e.g., power plants and carbon-intensive industries), fuel producers/processors (e.g., coal mines or petroleum refineries), or some combination of both.

The emissions cap is partitioned into emission allowances. Typically, one emission allowance represents the authority to emit one (metric) ton of carbon dioxide-equivalent (tCO₂-e). This term of measure is used because GHGs vary by global warming potential (GWP). GWP is an index of how much a GHG may contribute to global warming over a period of time, typically 100 years. GWPs are used to compare gases to carbon dioxide, which has a GWP of 1. For example, methane's GWP is 25, and thus a ton of methane is 25 times more potent a GHG than a ton of carbon dioxide.

In general, policymakers may decide to distribute the emission allowances to covered entities at no cost (based on, for example, previous years' emissions), sell the allowances through an auction, or use some combination of these strategies. These decisions are typically a source of intense debate.

Covered entities that face relatively low emission-reduction costs would have an incentive to make reductions beyond what is required, because these further reductions could be sold (i.e., traded) as emission credits to entities that face higher emission-reduction costs. Likewise, entities who face higher reduction costs could purchase allowances on the market. At the end of each established compliance period (e.g., a calendar year), covered sources would be required to surrender emission allowances to cover the number of tons emitted. If a source did not have enough allowances to cover its emissions, the source would be subject to penalties.

Other mechanisms, such as banking or offsets, may be included to increase the flexibility of the program.

For more information, see U.S. Environmental Protection Agency (EPA), Office of Air and Radiation, *Tools of the Trade: A Guide To Designing and Operating a Cap and Trade Program For Pollution Control* (2003); CRS Report RL33799, *Climate Change: Design Approaches for a Greenhouse Gas Reduction Program*, by (name redacted); CRS Report RL34502, *Emission Allowance Allocation in a Cap-and-Trade Program: Options and Considerations*, by (name redacted).

This report discusses the potential impacts that a cap-and-trade program would have on U.S. households and options for how Congress might mitigate those effects. The first section of the report explains in greater detail why these impacts are expected and discusses the arguments for providing financial assistance to households under a cap-and-trade program, particularly lower-income households, to help them cope with expected cost increases. The second section examines various issues and considerations involved in providing assistance to households. The third section examines and compares different ways in which policymakers could alleviate some of the costs imposed on household consumers by a GHG emission control program. The fourth section outlines how active GHG emission reduction legislation in the 111th Congress would address these concerns.

Cap-and-Trade and Household Impacts

A cap-and-trade approach to reducing GHG emissions would have economic consequences.⁹ By limiting the number of GHG emissions that can be generated in a given year, a cap-and-trade system would attach a new cost to activities that generate emissions, primarily fossil fuel combustion.¹⁰ In general, entities subject to the emissions cap may either (1) make their own emission reductions (e.g., install more efficient equipment or use energy sources that emit fewer GHGs)¹¹ and embed the additional costs into their products (e.g., electricity, gasoline, cement, paper, steel) or (2) increase the price of their products with the expectation that the higher prices would decrease demand from their customers, thus lowering the emissions associated with the product's creation or use. In either case, households are expected to ultimately bear the brunt of the costs of the cap-and-trade program.

This section outlines the process by which these costs would filter down to households, and in particular, why lower-income households may face disproportionately high costs as a result of cap-and-trade legislation.

⁹ The level of costs would be largely dependent on the stringency (e.g., quantity and timing of required reductions), scope (e.g., which entities are subject), and design of the cap-and-trade program (e.g., whether and to what degree offsets could be used for compliance). See CRS Report RL33799, *Climate Change: Design Approaches for a Greenhouse Gas Reduction Program*, by (name redacted).

¹⁰ The combustion of fossil fuels—coal, natural gas, oil—accounted for approximately 80% of total U.S. GHG emissions in 2006. EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2006* (April 2008).

¹¹ If allowed by the program, entities could also support emission reduction activities from sources outside of the cap. These efforts could create emission credits or offsets that could be submitted for compliance purposes in lieu of emission allowance. See CRS Report RL34436, *The Role of Offsets in a Greenhouse Gas Emissions Cap-and-Trade Program: Potential Benefits and Concerns*, by (name redacted).

Emission Allowance Value Distribution

An emissions cap would be partitioned into emission allowances. The emission allowances would become a valuable new commodity, potentially accounting, in aggregate, for tens or hundreds of billions of dollars. The value of the allowances would be derived from their scarcity (i.e., the quantity limit imposed by the cap).

In designing a cap-and-trade program, policymakers must decide *how and to whom* to distribute the emission allowance value. Although the allowance distribution strategy *would not* affect the environmental integrity of the emissions cap, the allocation of allowances would have considerable economic consequences, because it would represent a wealth transfer of potentially substantial proportions.

Regarding the *method* of distribution, allowances could be (1) sold through an auction process, (2) allocated at no cost to covered sources, (3) provided to non-covered sources, which would, in turn, sell them to covered sources via the emissions trading market, or (4) some combination of these methods.

Arguably, the more important issue for policymakers is not how, but to whom and for what purpose the allowance value would be allotted. The value would be realized either as auction proceeds or from the revenue that entities (both covered under the cap and non-covered) could receive by selling the allowances. Policymakers could distribute the allowance value (e.g., no-cost allowances or auction revenues) to a wide range of parties to support various policy objectives. These include (1) minimizing the overall program costs imposed on society;¹² (2) alleviating the costs borne by subgroups in society and economic sectors; and (3) providing funding to support other policy objectives, which may or may not relate to climate change mitigation. For example, the government could distribute allowances at no cost to certain entities—states or electricity local distribution companies (discussed below)—and charge those entities with using the emission allowance value to accomplish specified policy objectives, such as energy efficiency improvements or technological development, or assistance to energy consumers.

What Is Emission Allowance Value?

In a cap-and-trade program, a covered entity would need to submit one emission allowance (or permit) for each ton of GHG emissions generated in the previous year. Because the emissions cap would limit the annual number of allowances available for compliance, the allowances would have value. In effect, emission allowances would be the currency of a cap-and-trade program. As such, the distribution of emission allowances is akin to the distribution of money.

Throughout this report, the term *emission allowance value* is used to describe either the actual revenue or potential revenue (i.e., the value of allowances as assets) represented by the allowances. Allowance value could be distributed to any number of entities, including those that are subject to emissions caps (“covered entities”) and those that are not (“non-covered entities”).

Allowance value could be derived through the auction of allowances—for example, the government could auction allowances to covered entities and redistribute the revenue for any number of purposes (including assistance to households). Alternatively, government could give the allowances away at no charge to either covered or non-covered entities (or both). A covered entity recipient could use the allowances for compliance purposes, sell the allowances in the marketplace, or bank the allowances for future use. To realize the value of allowances received, a non-covered entity recipient would need to sell the allowances in the marketplace, either through a broker or directly to a covered entity. Policymakers could impose parameters on how non-covered entities may use this allowance value. (See the section of this report entitled “Allowances to Energy Distributors.”)

¹² This could be accomplished by using auction revenues to offset reductions in other taxes, such as payroll or income taxes. For a further discussion of this and other allocation strategies, see CRS Report RL34502, *Emission Allowance Allocation in a Cap-and-Trade Program: Options and Considerations*, by (name redacted).

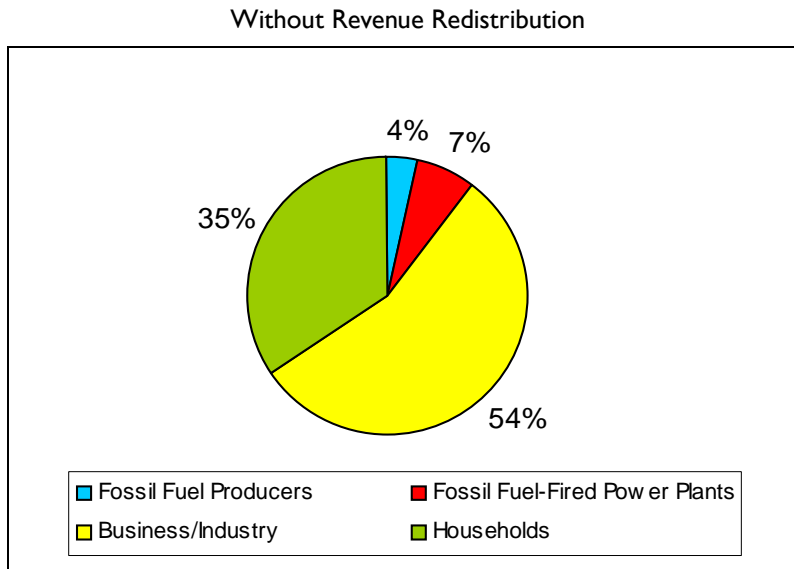
Cost Pass-Through in a GHG Control Regime

Absent the redistribution of allowance value (such as auction revenue) to help offset increased energy costs, households would likely bear a substantial portion of the costs imposed by a cap-and-trade program. This would be due to the ability of covered entities (e.g., power plants, petroleum producers/importers, large industrial facilities) to pass on the costs incurred from complying with the program.

Illustration of Relative Distribution of Costs

Figure 1 provides an estimate of the *relative* distribution of costs to different groups in a cap-and-trade program.¹³ The figure illustrates the *relative* distributions that would occur if all of the allowances were auctioned to fossil fuel producers, without redistributing the revenues to households or other entities (a scenario that is unrealistic because most proposals assume some form of redistribution). Households and businesses would experience the vast majority (89%) of the costs if allowance value is not redistributed by the government. Moreover, the household percentage is potentially understated, because many businesses would likely pass through to consumers some of their increased energy/electricity costs in the form of higher prices for their goods and services.¹⁴

Figure 1. Relative Distribution of Costs Using Emission Allowance Auction



Source: Prepared by CRS based on the data from the National Commission on Energy Policy, *Allocating Allowances in a Greenhouse Gas Trading System* (2007).

Notes: The percentages above do not account for any offsetting income from allowance allocation. The figure illustrates the relative cost distributions that would occur if allowances were auctioned to fossil fuel producers, without recycling the revenues—a scenario that is unrealistic.

¹³ This figure is based on a National Commission on Energy Policy (NCEP) proposal that would lead to a relatively modest reduction in GHG emissions compared to those required under current proposals in the 111th Congress. Thus, this figure is illustrative and only useful for comparing relative differences.

¹⁴ National Commission on Energy Policy, *Allocating Allowances in a Greenhouse Gas Trading System* (2007).

“Free” Allowances to Covered Entities and Cost Pass-Through

Although it may seem counterintuitive, covered entities are expected to raise the price of their products, even if the entities receive allowances at no cost. Economists point out that “free allowances”¹⁵ have value, and when covered entities submit an allowance to the government for compliance purposes, the entities forgo the opportunity (known as an “opportunity cost” in economics parlance) to sell the unused allowance in the emissions trading market.¹⁶ Therefore, economic principles predict that these entities (to the extent that they are able)¹⁷ would pass along their opportunity costs¹⁸ or purchase costs, respectively, in the same manner as an actual expense, such as installing more efficient technology or switching to more expensive (but less carbon-intensive) fuels. Thus, covered sources would receive *both* the financial benefit of the allowances and the gains associated with higher prices.¹⁹ These benefits are often described as “windfall profits.”²⁰ Covered sources have demonstrated this behavior in two cap-and-trade programs, in which the vast majority of allowances was provided at no cost: the European Union’s Emission Trading System (EU-ETS) and the U.S. sulfur dioxide emissions trading program.²¹

Potentially Regressive Effects of Cap-and-Trade

Without some form of allowance value redistribution, lower-income households would likely bear a disproportionate share of the costs related to an emissions cap, because those households generally spend a higher percentage of their income on energy-related goods and services than do higher-income households. In public policy terms, this outcome is described as regressive. This section assesses the regressive nature of these costs on households and discusses other policies in the United States that ameliorate costs faced by low-income households.

¹⁵ Like there is no free lunch, free allowances are not really free.

¹⁶ See National Commission on Energy Policy, *Allocating Allowances in a Greenhouse Gas Trading System* (2007); Congressional Budget Office, *Trade-Offs in Allocating Allowances for CO₂ Emissions* (2007), Economic and Budget Issue Brief; Dallas Burtraw, *Cap, Auction, and Trade: Auctions Revenue Recycling under Carbon Cap and Trade* (2008), Testimony Prepared for the House Select Committee on Energy Independence and Global Warming.

¹⁷ Some industries may have more flexibility to pass through costs than other industries. For example, certain U.S. industries may be more vulnerable to foreign competition, especially if their competitors are located in nations without GHG emissions caps. For these industries, increasing the price of their materials (to reflect the cost of emissions abatement) may entail a comparative disadvantage. See CRS Report R40100, “Carbon Leakage” and Trade: *Issues and Approaches*, by (name redacted) and (name redacted).

¹⁸ See e.g., National Commission on Energy Policy, *Allocating Allowances in a Greenhouse Gas Trading System* (2007); Congressional Budget Office, *Trade-Offs in Allocating Allowances for CO₂ Emissions* (2007), Economic and Budget Issue Brief; Dallas Burtraw, *Cap, Auction, and Trade: Auctions Revenue Recycling under Carbon Cap and Trade* (2008), Testimony Prepared for the House Select Committee on Energy Independence and Global Warming.

¹⁹ However, higher prices could reduce consumer demand and potentially lower profits.

²⁰ U.S. Congress, Senate Committee on Energy and Natural Resources, *Design Elements of a Mandatory Market-Based Greenhouse Gas Regulatory System*, Chairman and Ranking Member Statement: Climate Change Conference (2006), 109th Congress.

²¹ Congressional Budget Office, *Trade-Offs in Allocating Allowances for CO₂ Emissions* (2007), Economic and Budget Issue Brief.

Price Burdens Faced by Low-Income Households

Lower-income households may be more economically vulnerable to the potential price increases that could come with a GHG control program. On average, lower-income households already pay a larger share of their income toward the costs of their residential energy and for gasoline. These households are also less likely to have the financial resources to improve the energy efficiency of their dwelling units or to purchase energy efficient appliances or cars, which could help reduce high energy costs. And while it is possible to reduce the quantity or quality of consumption in order to reduce expenses, reducing reliance on residential energy and gasoline beyond a certain point may be unrealistic.

- **Residential Energy Burdens**—The amount of funds spent by a household on residential energy relative to its income is sometimes referred to as an “energy burden.” Data collected through the Department of Energy’s Residential Energy Consumption Survey (RECS) show the differences in energy burdens faced by low-income households—defined as those who are eligible for the federal Low Income Home Energy Assistance Program (LIHEAP) but do not necessarily receive benefits²²—compared to non low-income households. In 2006, low-income households had a median individual energy burden of 9.5%,²³ meaning that half of low-income households spent more than 9.5% of their income on residential energy and half spent less than 9.5%.²⁴ This compared to 3.1% for non-low income households. The poorest households—those that actually receive LIHEAP benefits—had a median individual energy burden of 15.3%.²⁵ (See **Figure 2.**) These effects varied by region, with households in the Northeast of all income levels facing higher energy burdens than those in the Midwest, South, or West.

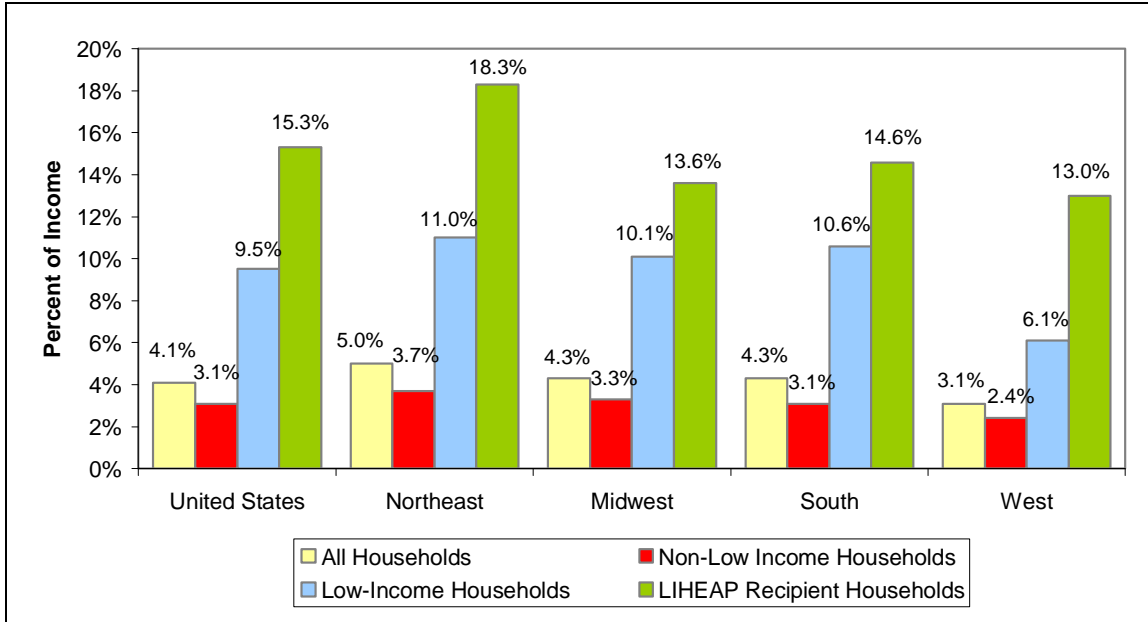
²² That is, those with incomes at or below 150% of poverty or 60% of state median income, whichever is higher.

²³ Median individual energy burden represents the energy burden of the household in the middle of a range of households. For example, if five households have energy burdens of 0.8%, 1.5%, 2.5%, 5%, and 10%, the median energy burden is 2.5%. Unlike the mean individual burden, the median does not capture extremes in the range.

²⁴ The RECS also collects data on mean individual energy burden and mean group energy burden.

²⁵ The energy burden for LIHEAP-recipient households may be higher than that for LIHEAP eligible households because the LIHEAP statute requires that states provide the most assistance to those families with the lowest incomes and highest energy needs in relation to their income. 42 U.S.C. § 8624(b)(5). As a result, LIHEAP households may be more needy than the low-income households that meet eligibility requirements for the program but do not necessarily receive benefits.

Figure 2. 2006 Median Individual Energy Burden
Households by Income and Region of the Country



Source: FY2006 LIHEAP Home Energy Notebook, p. 54, Table A-2c.

Note: Low-income households are those with incomes at or below 150% of poverty or 60% of state median income, whichever is higher. LIHEAP-recipient households typically have lower incomes and higher energy burdens than low-income households as a whole.

- Consumer Spending on Utilities**—Another measure of the cost burdens faced by low-income households comes from the Consumer Expenditure Survey (CES), which measures consumer out-of-pocket spending on a variety of goods and services, including utilities and gasoline.²⁶ According to data from 2007, spending on utilities²⁷ (as a percentage of all expenditures) declined from lower to higher income groups with few exceptions.²⁸ For families with incomes between \$5,000 and \$10,000 per month, spending on utilities represented more than 10% of their total expenditures. (See **Table 1.**) As income increased, the share of spending on utilities decreased incrementally for each income group above \$20,000 to less than 5% for those with incomes at or above \$150,000.
- Consumer Spending on Gasoline**—The CES also surveys respondents about their spending on gasoline and motor oil. Families with incomes between \$30,000 and \$40,000 had the greatest share of expenditures on gasoline—5.75%.

²⁶ The CES does not measure spending as a percentage of income as the RECS does, but measures spending on different items as a percentage of total spending. Note that total spending as reported by those participating in the CES is not always consistent with income, with lower-income groups (those with incomes below \$20,000) in particular reporting expenditures greater than annual income on average. According to the Bureau of Labor Statistics, which conducts the CES, this could be due to reliance on savings, borrowing, or retirement income, or due to the underreporting of income.

²⁷ Under the CES, utilities include natural gas, electricity, fuel oil, telephone service, water, and other public services.

²⁸ Spending for families with incomes below \$15,000 grew incrementally from 8.81% for those with incomes below \$5,000 to 10.59% for those with incomes between \$5,000 and \$10,000, and to 10.82% for those with incomes between \$10,000 and \$15,000.

From there, the share of spending on gasoline by income group gradually declined, dipping below 5% for families with income above \$80,000. The share of spending for lower-income families on gasoline—those with income below \$20,000—was smaller than those with middle incomes, ranging between 4.74% for those with incomes below \$5,000 to 5.47% for those with incomes between \$15,000 and \$20,000.

Table I. Consumer Spending on Utilities and Gasoline, 2007

Income	Percentage of Spending Toward Utilities	Percentage of Spending Toward Gasoline
Less than \$5,000	8.81%	4.74%
\$5,000-\$9,999	10.59%	5.33%
\$10,000-\$14,999	10.82%	4.78%
\$15,000-\$19,999	10.13%	5.47%
\$20,000-\$29,999	9.25%	5.71%
\$30,000-\$39,999	8.84%	5.75%
\$40,000-\$49,999	7.99%	5.68%
\$50,000-\$69,999	7.33%	5.53%
\$70,000-\$79,999	7.12%	5.24%
\$80,000-\$99,999	6.29%	4.79%
\$100,000-\$119,999	5.98%	4.62%
\$120,000-\$149,999	5.53%	4.11%
\$150,000 and more	4.59%	3.05%

Source: U.S. Department of Labor, Bureau of Labor Statistics, 2007 Consumer Expenditure Survey.

Estimates of Regressive Impacts from Cap-and-Trade Models

In recent years, multiple economic analyses have provided estimates of impacts that a GHG emission control program (cap-and-trade or carbon tax) would impose on households of varying income levels.²⁹ As might be expected based on baseline energy spending per income group (discussed earlier), economic models have indicated that a GHG emission control program—without emission allowance value (or tax revenue) redistribution to households—would yield regressive effects. For example, a 2009 study from Resources for the Future found that—as a percentage of household income—the lowest income group would bear a cost almost five times the cost of the highest income group (**Table 2**).

²⁹ See e.g., Gilbert Metcalf, *A Proposal for a U.S. Carbon Tax Swap: An Equitable Tax Reform to Address Global Climate Change* (2007), The Hamilton Project, Brookings Institution; Gilbert Metcalf *et al.*, *Analysis of U.S. Greenhouse Gas Tax Proposals* (2008), MIT Joint Program on the Science and Policy of Climate Change, Report No. 160; CBO, *Who Gains and Who Pays Under Carbon-Allowance Trading? The Distributional Effects of Alternative Policy Designs* (2000); CBO, *Trade-Offs in Allocating Allowances for CO₂ Emissions* (2007), Economic and Budget Issue Brief; CBO, *The Estimated Costs to Households From the Cap-and-Trade Provisions of H.R. 2454* (2009).

Table 2. Model Estimates of a Cap-and-Trade Program’s Impacts on Households as a Percentage of Household Income

Before Redistribution of Emission Allowance Value (Gross Impacts)

Income Decile	Costs to Households as a Percentage of Their Income
1	4.4%
2	2.8%
3	2.3%
4	2.1%
5	1.8%
6	1.6%
7	1.5%
8	1.4%
9	1.2%
10	0.9%
Average	1.4%

Source: Prepared by CRS with data from Dallas Burtraw et al., *The Incidence of U.S. Climate Policy: Alternative Uses of Revenues from a Cap-and-Trade Auction* (June 2009), Resources for the Future Discussion Paper.

Notes: The model assumed a CO₂ emission control program was enacted in 2009; the above impacts correspond to 2015 with an assumed emission allowance price of \$20.91/metric ton of CO₂ (in 2006 dollars). The impacts illustrate relative differences between income groups that would occur if a price were imposed on CO₂ emissions.

Arguments for Alleviating Regressive Impacts

Given the disproportionate impacts that a cap-and-trade system could have on lower-income households, some have argued that allowance value should be used to alleviate the burden those households would likely face. There are a number of policy rationales behind such an intervention. (Note that there are also rationales against alleviating regressive effects; for example, see the section of this report entitled “Potential Concerns Regarding Direct Assistance Options.”) An economic rationale behind distributing income and in-kind assistance to lower-income individuals is based on the concept of marginal utility of income and the decreasing satisfaction that consumers receive from each additional dollar of income they gain. The theory is that the value of a dollar is greater for a person who has fewer of them. Under economic theory, then, if income is redistributed from a higher-income person to a lower-income person, societal well being (or utility) is maximized.

Economic theory presumably does not fully explain why society adopts policies to redistribute benefits to lower-income groups, however. Decisions to assist lower-income individuals and families may be driven by societal values—policymakers may consider it important to provide benefits so that some people will have a standard of living that they would not otherwise.

Precedents for Alleviating Regressive Impacts

The federal government targets assistance to lower-income individuals and families in numerous ways. The federal income tax system is progressive, with lower-income families paying lower marginal tax rates and, in some cases, paying no taxes at all or receiving refundable credits. The social welfare system in the United States, including such programs as Temporary Assistance for Needy Families, the Supplemental Nutrition Assistance Program (SNAP, formerly known as Food Stamps), and Medicaid, subsidizes families below certain income levels. Even social insurance programs such as Social Security, Unemployment Insurance, and Medicare are redistributive to some degree.

While Congress could choose to allow households to realize the full consequences of increased energy prices rather than to mitigate those effects in some way, there is precedent for mitigating adverse distributional consequences that occur as the result of government policies. In trade policy, for example, those workers who lose their jobs for trade-related reasons may receive a type of unemployment benefit called Trade Adjustment Assistance (TAA) for Workers;³⁰ there is also TAA for farmers.³¹

In addition, the U.S. government has a history of helping low-income families with some of those very costs that are projected to increase as the result of a GHG emission control program—in particular, the costs of residential energy. Since the energy spikes of the 1970s, the Low Income Home Energy Assistance Program (LIHEAP) and Weatherization Assistance Program (WAP) have helped families weatherize (e.g., insulate or update heating and cooling systems) and pay home energy bills. And while no program exists to help consumers buy gasoline, legislative proposals have been made in previous Congresses to assist with the purchase of gasoline.³² Further, states participating in the Regional Greenhouse Gas Initiative (a cap-and-trade program comprised of 10 northeast and mid-Atlantic states) are targeting some revenues to assist low-income families.³³ These existing programs help ease the cost burden faced by low-income families.

³⁰ For more information, see CRS Report RS22718, *Trade Adjustment Assistance for Workers (TAA) and Reemployment Trade Adjustment Assistance (RTAA)*, by (name redacted).

³¹ For more information, see CRS Report R40206, *Trade Adjustment Assistance for Farmers*, by (name redacted).

³² See, for example, H.R. 3712, the Gas Stamps Act of 2005, and the Low-Income Gasoline Assistance Program Act in the 109th (H.R. 4010) and 110th (S. 2968) Congresses.

³³ Environment Northeast tracks allowance value distribution by RGGI state, at http://www.env-ne.org/public/resources/pdf/ENE_Auction_Tracker_040209.pdf.

Direct Assistance to Households: Considerations

If Congress enacts a cap-and-trade program and determines to use some portion of emission allowance value to *directly* assist households, policymakers would face several questions when seeking to implement this objective. A primary consideration is which households or persons should receive allowance value: should value be distributed evenly to all households, or should particular household groups receive a higher proportion? Moreover, should policymakers seek to account for different costs that households in different regions may experience? In addition to these issues, this section examines potential concerns and unintended consequences that may occur by providing direct assistance to households.

Indirect Assistance to Households

In general, this report discusses policy options for providing direct (or nearly direct)³⁴ assistance to households through the distribution of emission allowance value. However, Congress could distribute allowance value to other entities for other purposes, which may ultimately provide benefits to households. Such approaches might be described as indirect assistance to households.

Energy Efficiency. Policymakers may choose to fund energy efficiency projects, which may lead to lower overall costs of energy use. Assuming cost savings come to fruition, a portion of them would likely reach households.

Low-carbon Technology Development. In a similar vein, Congress may distribute allowance value to stimulate the development and market penetration of low-carbon technologies. If new, low-carbon technologies are discovered, or if existing technologies (e.g., carbon capture and sequestration) are made more economical,³⁵ the overall costs of a GHG control program may be reduced and households would likely benefit.

Indirect Income Supplements. If Congress were to allocate allowances at no cost to business and industry (and with no conditions on their use), the financial benefit from the allowances would eventually accrue to shareholders in the companies.³⁶ Therefore, households that own stock in certain companies or those who invest in retirement plans may benefit by increased share prices. Households receiving Social Security benefits may also benefit indirectly.³⁷ Each year the Social Security Administration adjusts benefits based on cost of living as measured by the consumer price index. If energy prices and the costs of energy-intensive goods and services were to increase, Social Security benefits would reflect these changes.

Climate Change Adaptation. Some level of global warming (and associated effects) will occur regardless of emission reduction efforts taken today because previous and current GHG emissions will have long term climate impacts. Therefore, some contend that investment (e.g., allowance value) should focus on preparing communities to adapt to the effects of a changing climate. Households, particularly in the most impacted regions, would benefit from such investments.

³⁴ Emission allowance allocation to electricity local distribution companies (discussed later in this report) for the exclusive benefit of electricity consumers would fall into this category.

³⁵ See CRS Report RL33801, *Carbon Capture and Sequestration (CCS)*, by (name redacted).

³⁶ Written Statement of Douglas W. Elmendorf, Director, Congressional Budget Office, Before the Senate Finance Committee, May 7, 2009, pp. 16-17, http://www.cbo.gov/ftpdocs/101xx/doc10115/05-07-Cap_and_Trade_Testimony.pdf.

³⁷ *Ibid.*, p. 24.

Equal Assistance to All Households

One option for policymakers is to distribute an equal portion of allowance value to all households across the country without regard to income or other potential differences (e.g., regional energy price increases due to carbon constraint, discussed below). Some have referred to this method as a “lump-sum distribution” or a “cap and dividend” approach.

This approach could appeal to policymakers for a variety of reasons. This option is relatively easy to explain and would likely be easier to implement compared to alternatives that must consider income or other differences among households.

In addition, this approach would address the regressive impacts of a cap-and-trade program to some degree. Economic studies⁴² have found that distributing lump sum rebates to all households would yield progressive results.⁴³ However, these economic models assumed that the majority of allowance value (through auction proceeds) would go to households. If Congress were to distribute value for other uses, such as investments in technology or assistance to workers in affected industries, there would be fewer dollars with which to compensate households and the distributional effects (i.e., progressivity) would be less clear. If that were the case, providing more substantial rebates to lower-income households may be necessary to ensure progressivity.

A question that may arise under this approach is whether Congress should consider different household sizes when allotting allowance value. Equal payments, if not scaled to household size, may benefit some consumers disproportionately, with payments not necessarily commensurate

What Is a Household?

An initial question in designing a system to redistribute cap-and-trade revenue would be to determine the recipient to whom benefits might be distributed. In general, when economists have discussed the possibility of implementing a cap-and-trade program, the assumption has been made that funds would be allocated to household units.³⁸ However, funds could also be allocated to family units or to individuals.³⁹ While the terms “household” and “family” are sometimes used interchangeably, they are defined by the Census Bureau and have different meanings. A household is broader than a family and encompasses any living arrangements that might occur in a housing unit, including “a single family, one person living alone, two or more families living together, or any other group of related or unrelated people who share living quarters.”⁴⁰ A family is defined as a householder and those related to him or her by birth, marriage, or adoption.⁴¹

³⁸ See, for example, Terry Dinan, *Trade-Offs in Allocating Allowances for CO2 Emissions*, Congressional Budget Office, April 25, 2007, http://www.cbo.gov/ftpdocs/89xx/doc8946/04-25-Cap_Trade.pdf (hereinafter *Trade-Offs in Allocating Allowances for CO2 Emissions*) and Dallas Burtraw, Rich Sweeney, and Margaret Walls, *The Incidence of U.S. Climate Policy: Where You Stand Depends on Where You Sit*, Resources for the Future, September 2008, <http://www.rff.org/RFF/Documents/RFF-DP-08-28.pdf>.

³⁹ For example, the Cap and Dividend Act of 2009 (H.R. 1862) would provide a consumer dividend for any individual with a valid Social Security number who is lawfully present in the United States.

⁴⁰ U.S. Census Bureau, *Summary Social, Economic, and Housing Characteristics, 2000 Census of Population and Housing*, June 2003, p. B-14, <http://www.census.gov/population/cen2000/phc-2-a-B.pdf>.

⁴¹ *Ibid.*, p. B-16.

⁴² See e.g., CBO, *Trade-Offs in Allocating Allowances for CO2 Emissions*, p. 6; Dallas Burtraw, Rich Sweeney, and Margaret Walls, *The Incidence of U.S. Climate Policy: Where You Stand Depends on Where You Sit*, Resources for the Future, September 2008.

⁴³ The term “progressive” is generally used to refer to tax systems where tax rates grow as income increases. In the case of a GHG emission reduction program, it refers to the burden of increased prices accruing to those with higher incomes.

with increased energy costs faced by a consumer unit.⁴⁴ However, distributing assistance by household size may present more implementation challenges.

Targeted Assistance to Specific Income Groups

Another approach would be to target assistance to households whose incomes make them more economically vulnerable to the increased costs of energy and the goods and services produced with regulated energy sources. Policymakers could choose to target funds to “low-income,” “moderate-income,” and/or “middle-income” individuals or groups, depending on their priorities or perceptions of need. As discussed earlier, the argument for providing more targeted assistance, in terms of income levels, relates to the disproportionate impacts that lower income level households would be expected to bear under a cap-and-trade program. However, a targeted approach based on income would likely require further debate among policymakers. For example, how should the emission allowance value be divided among different income groups and which groups should be targeted?

The terms “low-income household” or “low-income family” are sometimes used in the laws governing federal programs to describe those persons who qualify for a given benefit, but the meaning may vary depending on the program at issue. Some programs may use the federal poverty guidelines to determine benefits.⁴⁵ For example, families qualify for SNAP if their incomes are at or below 130% of poverty.⁴⁶ Other programs may use median income—the middle of the income range in a given area such as a state, a county, or a metropolitan area.⁴⁷ For example, many HUD rental assistance programs consider low-income families to be those whose income is at or below 80% of area median income.⁴⁸

Unlike the term “low-income,” the terms “moderate-income” and “middle-income” are rarely used to describe program eligibility in federal law. Some HUD multifamily housing programs target moderate-income families, defined as those with incomes between 80% and 95% of area median income,⁴⁹ while some homeownership programs through HUD and the Department of Agriculture use 100% of area median income and 115% of area median income respectively.⁵⁰

⁴⁴ For example, payments based on the number of individuals in a household may not account for such factors as the economies of scale present in larger households. Conversely, equal payments to all households may not account for large family size. For a discussion of how federal benefits are scaled based on family size, see *Measuring Poverty: A New Approach*, ed. Constance F. Citro & Robert T. Michaels (Washington, DC: National Academy Press, 1995), p. 159.

⁴⁵ The Department of Health and Human Services (HHS) calculates and releases the poverty guidelines, which are updated each year for changes in consumer prices. The poverty guidelines are the same for all states in the country except Alaska and Hawaii. In 2009, the annual poverty rate for a family of four is \$22,050 in the continental United States, \$27,570 in Alaska, and \$25,360 in Hawaii. For the 2009 poverty guidelines, see U.S. Department of Health and Human Services, “Annual Update of the HHS Poverty Guidelines,” 74 *Federal Register* 4199-4201, January 23, 2009.

⁴⁶ 7 U.S.C. § 2014(c).

⁴⁷ Median income data are collected as part of the American Community Survey. Unlike the poverty rate, programs that use median income take into account the relative wealth of an area in determining eligibility. For example, in 2007, the state of Maryland had the highest median income for a family of four at \$99,884, while the lowest state median family income was Mississippi at \$44,752.

⁴⁸ 42 U.S.C. § 1437a(b)(2).

⁴⁹ U.S. Department of Housing and Urban Development, Office of Policy Development and Research, *FY2009 HUD Income Limits Briefing Materials*, March 11, 2009, p. 13, http://www.huduser.org/datasets/il/il09/IncomeLimitsBriefingMaterial_FY09.pdf.

⁵⁰ See Fannie Mae and Freddie Mac low- and moderate-income housing goals for homeownership, 24 C.F.R. § 81.17, (continued...)

The term “middle income” is not defined in federal law, and may mean different things depending on how one chooses to use it.⁵¹ For example, the term is sometimes used to refer to those households in the middle income quintile as measured by the Census. According to the 2007 American Community Survey, household incomes in the middle quintile ranged from \$40,254 to \$62,601.⁵²

Targeted Assistance Based on Geographical Differences

Many expect geography to play a key role in determining household impacts, largely due to different energy uses across regions. Energy sources have varying levels of carbon content: coal has almost twice the carbon content (per unit of energy) of natural gas; the carbon content of electricity from nuclear, hydropower, and renewable energy sources is effectively zero.⁵³ Thus, households in areas that rely on more carbon-intensive energy sources are generally expected to face disproportionate impacts from a cap-and-trade program (which establishes a price based on carbon content), compared to households that rely on less-carbon intensive energy. Many have argued that assistance to households should reflect these regional differences. Under this reasoning, instead of providing lump-sum household payments, policymakers may consider distributing allowance value in some proportion to the different cost increases that are projected across different regions. Although such a distribution strategy has received considerable attention, implementing such an approach would pose substantial challenges. Moreover, the underlying assumption upon which the strategy is based may be questioned to some degree. These issues are discussed below.

Evidence of Different Costs Across Regions

Two recent economic studies⁵⁴ provide estimates of cost impacts to households by income group and geographic region.⁵⁵ **Table 3** includes the results from one of these studies (Resources for the Future), which examined the impacts of an emission allowance price of \$20.91 (per metric ton of CO₂)⁵⁶ on household spending patterns and income levels (in 2006 dollars). It is critical to note that these percentages do not account for any offsetting income from emission allowance (or auction revenue) distribution. The percentages illustrate the relative *gross* impacts to households

(...continued)

and the Rural Housing Service loan program, 42 U.S.C. § 1472(h).

⁵¹ For more information, see CRS Report RS22627, *Who Are the “Middle Class”?*, by (name redacted).

⁵² 2007 American Community Survey One-Year Estimates, Table B19080, “Household Income Quintile Upper Limits.”

⁵³ Many consider carbon dioxide emissions from biomass sources as practically neutral, because biomass sources take in carbon dioxide during their growing cycle and release it when burned. See CRS Report RL34059, *The Carbon Cycle: Implications for Climate Change and Congress*, by (name redacted).

⁵⁴ Dallas Burtraw, et al., *The Incidence of U.S. Climate Policy: Alternative Uses of the Revenue from a Cap-and-Trade Program* (June 2009), Resources for the Future Discussion Paper 09-17-Rev; and Kevin Hassett, et al., *The Incidence of a U.S. Carbon Tax: A Lifetime and Regional Analysis* (January 2008), Working Paper 14023, National Bureau of Economic Research.

⁵⁵ CBO assessed these two studies as part of a response regarding regional impacts to Senator Inhofe: CBO, *Two Recent Studies of Regional Differences in the Effects of Policies That Would Price Carbon Dioxide Emissions* (July 9, 2009).

⁵⁶ The model in this study only included CO₂ emissions.

under a cap-and-trade program without redistribution of allowance value—a scenario that is unrealistic, as was noted earlier.

Table 3 shows that the *average* household costs of a hypothetical cap-and-trade program as a percentage of income ranged from 1.3% in California to 1.6% in the Ohio Valley—a 23% difference. The regional difference is more pronounced for lower-income households: the lowest-income household in California would (on average) experience costs of 4.0% of its income; the corresponding household in the Ohio Valley region would bear costs of 5.5% of its income—a 38% difference.

The perception of these percentage differences may depend on the magnitude of the cost impacts. The RFF study estimated, for example, that the average lowest-income household in the Ohio Valley region would bear \$100 more in annual costs than a corresponding household in California. Considering the potential implementation challenges (discussed below) involved, a question for policymakers is whether this disparity is worth addressing through an emission allowance distribution strategy that accounts for regional differences.

Table 3. Estimates of a Hypothetical Cap-and-Trade Program's Average Costs Per Household as a Percentage of Income
By Region and Income Decile Before Redistribution of Emission Allowance Value (Gross Impacts)

U.S. Region	Income Deciles (1 = Lowest Income Decile; 10 = Highest)										Average
	1	2	3	4	5	6	7	8	9	10	
Ohio Valley	5.5%	3.2%	2.6%	2.3%	2.0%	1.8%	1.7%	1.5%	1.3%	1.0%	1.6%
Texas	5.0%	3.0%	2.5%	2.2%	2.0%	1.8%	1.6%	1.4%	1.4%	1.0%	1.5%
Mountains	5.3%	3.1%	2.4%	2.1%	1.8%	1.7%	1.6%	1.4%	1.3%	0.9%	1.5%
Plains	4.7%	2.6%	2.3%	1.9%	1.9%	1.7%	1.6%	1.4%	1.2%	1.1%	1.5%
Florida	4.7%	2.8%	2.3%	2.0%	1.7%	1.6%	1.4%	1.3%	1.2%	0.8%	1.4%
Southeast	4.8%	3.0%	2.4%	2.0%	1.8%	1.6%	1.5%	1.3%	1.2%	0.8%	1.4%
Northeast	5.4%	3.3%	2.4%	2.1%	1.8%	1.5%	1.5%	1.4%	1.2%	0.9%	1.3%
Mid-Atlantic	5.2%	2.9%	2.4%	2.1%	1.8%	1.6%	1.5%	1.3%	1.1%	0.9%	1.3%
Northwest	4.5%	2.6%	2.1%	1.8%	1.8%	1.5%	1.4%	1.3%	1.1%	0.9%	1.3%
New York	4.9%	2.9%	2.0%	2.0%	1.9%	1.6%	1.5%	1.3%	1.2%	0.8%	1.3%
California	4.0%	2.6%	2.1%	2.0%	1.6%	1.5%	1.4%	1.3%	1.2%	0.9%	1.3%
National Average	4.4%	2.8%	2.3%	2.1%	1.8%	1.6%	1.5%	1.4%	1.2%	0.9%	1.4%

Source: Prepared by CRS, based on data from Dallas Burtraw, et al., *The Incidence of U.S. Climate Policy: Alternative Uses of the Revenue from a Cap-and-Trade Program* (June 2009), Resources for the Future (RFF) Discussion Paper 09-17-Rev.

Notes: The model assumed a CO₂ emission control program was enacted in 2009; the above impacts correspond to 2015 with an assumed emission allowance price of \$20.91/metric ton of CO₂ (in 2006 dollars). The impacts illustrate relative differences between income groups that would occur if a price were imposed on CO₂ emissions. These percentages do not account for any offsetting income from emission allowance (or auction revenue) distribution. The percentages illustrate the relative gross impacts to households under a cap-and-trade program without redistribution of allowance value—a scenario that is unrealistic.

The RFF study's multi-state regions include the following states: (1) Ohio Valley: Illinois, Indiana, Kentucky, Michigan, Missouri, Ohio, West Virginia, Wisconsin; (2) Mountains: Arizona, Colorado, Nevada; (3) Plains: Kansas, Minnesota, Nebraska, Oklahoma, South Dakota; (4) Southeast: Alabama, Arkansas, District of Columbia, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia; (5) Northeast: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island; (6) Mid-Atlantic: Delaware, Maryland, New Jersey, Pennsylvania; and (7) Northwest: Idaho, Montana, Oregon, Utah, Washington.

Implementation Challenges

In a cap-and-trade program, the electricity sector, which accounts for 34% of total U.S. GHG emissions,⁵⁷ would contribute a large portion of the emissions cap-related costs imposed on households. The more carbon intensive the electricity, the more allowances (and expense) would be required to produce it. Thus, if policymakers are concerned about cost disparities across different regions of the country, policymakers would need to account for the different carbon intensities of electricity (i.e., fuel mix used to generate electricity). The carbon intensity of electricity varies based on the energy source used to generate the electricity—for example, electricity produced with coal has a higher carbon content than that produced with natural gas, and so on. As the geographic area in question becomes more refined—moving from a region to a state, or a state to a local distribution company (LDC)⁵⁸—a carbon intensity of electricity determination becomes more difficult.⁵⁹

The difficulty relates to data availability. Data exist to determine the carbon intensity of electricity at the level of the individual power plant.⁶⁰ However, in many cases, an electricity LDC does not have a complete picture of the energy sources used to produce its power supply. Depending on the distribution utility's circumstances, it may have almost no relevant information.⁶¹ Neither state governments nor the federal government collect data needed to accurately and routinely tie electricity deliveries to the generating source. Because of the complexity of power market transactions, in which a block of power can change hands several times before final delivery and the mix of fuels is constantly changing over time, it is unlikely that such a data collection process could be designed and implemented. H.R. 2454 would require such a data collection process.⁶²

Some groups have suggested using existing regional estimates in lieu of LDC-specific data.⁶³ For example, EPA has developed output emission rates for subregions in the agency's Emissions and Generation Resource Integrated Database (eGRID).⁶⁴ However, these estimates are not the same as carbon content of electricity *consumed*, because electricity may be generated in one region and exported for consumption to another region. Therefore, if policymakers use data that measures

⁵⁷ EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2007* (April 2009).

⁵⁸ Local distribution companies are the entities that provide electricity to residential and commercial consumers.

⁵⁹ To put this challenge in the context of recent legislation, H.R. 2454 (Waxman-Markey) would distribute emission allowances to electricity local distribution companies (LDC), partly based on the carbon content of electricity delivered by the LDC.

⁶⁰ The Energy Information Administration (EIA) collects data by fuel type for all generating units with a capacity of one megawatt or greater. Power plant operators are legally obligated to timely and accurately file the data with EIA.

⁶¹ This is particularly the case for so-called deregulated states. In the United States, the price consumers pay for electricity may be determined by a state regulatory body—often described as cost-of-service regulation—or the price may be subject to market forces—often described as deregulated or competitive. In general, the regulatory structure varies by the type of facility and/or the state in which the electricity is generated. In 2007, the more traditional, price-regulated electric utilities generated approximately 60% of the total net electricity generated in the United States (calculated by CRS with data from the Energy Information Administration's 906/920 database, available at http://www.eia.doe.gov/cneaf/electricity/page/eia906_920.html.)

⁶² The text of H.R. 2454 suggests that the drafters recognize this challenge, stating “where it is not practical to determine the precise fuel mix for the electricity delivered at retail by an individual electricity local distribution company, the Administrator may use the best available data, including average data on a regional basis ...” (Sec. 783(b)(2)(C)(iii)(II)).

⁶³ H.R. 2454 has such a provision (Section 783(b)(2)(C)(iii)(II)).

⁶⁴ EPA, Emissions & Generation Resource Integrated Database, at <http://www.epa.gov/cleanenergy>.

carbon content of electricity generated to distribute allowance value, regions that are net exporters of high-carbon electricity may be overcompensated at the expense of regions that are net importers of high-carbon electricity. The customers in net importing regions would be the group that would bear the emission cap carbon price.

Moreover, distributing allowance value to LDCs based on regional data may overcompensate some LDCs at the expense of others. The regions that would likely be considered comprise multiple states in many cases. Within a particular region (or state), the LDCs' carbon intensities of electricity likely span a wide range. For example, if one LDC were to purchase power solely from a nuclear power plant, while an LDC in a neighboring area purchased solely from a coal-fired generator, the two LDCs' carbon intensities would vary dramatically.

Potential Concerns Regarding Direct Assistance Options

Some approaches to providing assistance to households may raise concerns and perhaps yield unintended consequences—specifically, the failure to encourage energy efficiency improvements among households. A primary concern shared by some observers regards the impact of certain assistance mechanisms on the carbon price signal. By design, a GHG emissions control program, such as cap-and-trade, places a price on carbon. This price is expected to affect behavior—for example by encouraging or promoting activities that are less carbon-intensive. The carbon price will be reflected in higher energy prices (electricity and gasoline) as well as other materials that are produced through energy use. As stated by the Director of the Congressional Budget Office (CBO):

The price increases would be essential to the success of a cap-and-trade program because they would be the most important mechanism through which businesses and households would be encouraged to make economically motivated changes in investment and consumption that reduced CO₂ emissions.⁶⁵

If the price signal is channeled to economic sectors that have higher marginal costs of abatement, the overall cost of the cap-and-trade program would increase. For example, the Director of the CBO recently described the effects of using emission allowance value to hold electricity bills steady:

Muting the increase in electricity prices would increase the overall cost of the policy because it would reduce households' incentives to undertake measures to reduce their electricity consumption, such as choosing more efficient appliances or turning down their thermostats.⁶⁶

Demonstrating this concept, a 2008 study from Resources for the Future modeled emission allowance prices under different emission allocation strategies. Compared to a 100% auction approach, a free distribution of allowances to LDCs based on electricity emissions (for the purpose of alleviating electricity price increases on consumers) would raise the allowance price by approximately 13%,⁶⁷ thus increasing the overall cost of the program.

⁶⁵ Testimony by Douglas W. Elmendorf (Director of the Congressional Budget Office) before the Senate Committee on Finance (May 7, 2009).

⁶⁶ Ibid.

⁶⁷ Anthony Paul *et al.*, *Compensation for Electricity Consumers under a U.S. CO₂ Emissions Cap* (July 2008), Resources for the Future Discussion Paper.

Moreover, if the price signal is dampened in one sector of the economy or for a particular subgroup of society, the signal will move to other sectors or other groups. During the same testimony, the CBO Director described this possibility:

As a result [of muting the increase in electricity prices], the burden of meeting the cap would fall more heavily on other sectors, and that additional burden would be reflected in higher prices for other goods and services that households purchase. (For example, the price of gasoline would probably increase more than would otherwise be the case.)⁶⁸

Mechanisms for Returning Funds to Households

Policymakers have a variety of options available for distributing allowance value to households.⁶⁹ Proposed delivery mechanisms in both the 110th and 111th Congress have included:⁷⁰

- distributing equal dividends to all households,⁷¹ or to all individuals;⁷²
- providing energy tax credits for low- and/or middle-income households with earned income or qualifying retirement income,⁷³ or expanding the Earned Income Tax Credit;⁷⁴
- reducing Social Security payroll taxes;⁷⁵
- distributing allowances to electricity and natural gas local distribution companies (LDCs) to be used to “mitigate economic impacts on low- and middle-income consumers,”⁷⁶ or to assist all consumers;⁷⁷
- allocating auction proceeds to the Low Income Home Energy Assistance Program and the Weatherization Assistance Program;⁷⁸ and
- creating rebates for low-income households.⁷⁹

⁶⁸ Testimony by Douglas W. Elmendorf (Director of the Congressional Budget Office) before the Senate Committee on Finance (May 7, 2009).

⁶⁹ This section of the report uses the term “household” generally. Funds could be distributed to individuals, families, or households.

⁷⁰ The legislative examples listed here are meant to be illustrative. While additional bills may be introduced in the 111th Congress, this report will not necessarily be updated to reflect new legislation.

⁷¹ The American Clean Energy and Security Act of 2009, H.R. 2454.

⁷² The Cap and Dividend Act of 2009, H.R. 1862.

⁷³ In the 110th Congress, H.R. 6186, the Investing in Climate Action and Protection Act and H.R. 7194, the Climate Change Rebate Act of 2008. In the 111th Congress, H.R. 2454, the American Clean Energy and Security Act of 2009 *as introduced*. (The tax credit was not included in the version passed by the House.)

⁷⁴ The American Clean Energy and Security Act of 2009, H.R. 2454.

⁷⁵ H.R. 2380, the Raise Wages, Cut Carbon Act of 2009.

⁷⁶ In the 110th Congress, S. 3036, the Lieberman-Warner Climate Security Act of 2008.

⁷⁷ H.R. 2454, the American Clean Energy and Security Act of 2009.

⁷⁸ In the 110th Congress, S. 1766, the Low Carbon Economy Act of 2007, S. 3036, the Lieberman-Warner Climate Security Act of 2008, H.R. 6186, the Investing in Climate Action and Protection Act, and H.R. 6316, the Climate Market, Auction, Trust & Trade Emissions Reduction System Act of 2008. S. 1766 and S. 3036 would also have funded a program for rural energy assistance that would have been created as part of the legislation.

⁷⁹ In the 110th Congress, H.R. 6186, the Investing in Climate Action and Protection Act, H.R. 6316, the Climate Market, Auction, Trust & Trade Emissions Reduction System Act of 2008, and H.R. 7194, the Climate Change Rebate (continued...)

In addition, President Obama's FY2010 budget proposed to implement a cap-and-trade program and devote a majority of the proceeds to the "Making Work Pay" tax credit, a reduction in payroll taxes for those workers below a certain income threshold.⁸⁰ (The tax credit was created as part of the American Recovery and Reinvestment Act (P.L. 111-5).)⁸¹

This section of the report describes some of the delivery options that have been proposed for returning allowance value to households. In evaluating these options, there are a number of considerations that might be relevant to policymakers in choosing and implementing a distribution system. Among considerations are the ability of a system to reach large numbers of households, the existence of an administrative infrastructure and the costs of distributing funds, and the ease of tailoring benefits to different consumer incomes and regions of the country. For each of the potential delivery options, this section of the report discusses some of the considerations that could make the options more or less appealing. This is not an exhaustive discussion and is meant only to raise potential considerations. A table summarizing these options is available in the **Appendix**. The considerations discussed in this section are:

- **Ability to Reach Households**—A distribution system would have to reach millions of potential beneficiaries (this would be true even in a system targeted only to low-income households). For already-existing delivery mechanisms such as the income tax system, we have some knowledge about their ability to deliver funds. For untried mechanisms, such as universal rebates through an electronic transfer or check, their effectiveness may be more speculative.
- **Administration**—Implementing a delivery system would have administrative costs. Some proposed delivery systems may have an administrative infrastructure already in place, others may need to have an existing administrative system adapted to distribute funds, while still others may need to create a new system. The way in which funds are targeted would also have an effect on the administrative costs. In general, the more targeted benefits are, the higher the administrative costs of the system.⁸² For example, a program with complicated income eligibility rules and verification processes or a program that delivers multi-tiered benefits is likely to be more expensive to administer than one with simple eligibility rules and standard benefits for all recipients.
- **Consumer Flexibility**—A system could deliver cash or in-kind benefits to consumers. For example, funds that are targeted for energy assistance such as LIHEAP and the Weatherization Assistance Program (WAP) can only be used for specific purposes. However, if revenues were to be distributed as cash, consumers would decide how best to use the benefit. According to economic

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Act of 2008. In the 111th Congress, H.R. 2454, the American Clean Energy and Security Act of 2009.

⁸⁰ Office of Management and Budget, *FY2010 Budget, A New Era of Responsibility: Renewing America's Promise*, Washington, DC, 2009, Table S-6, p. 123, http://www.whitehouse.gov/omb/assets/fy2010_new_era/A_New_Era_of_Responsibility2.pdf.

⁸¹ The Making Work Pay tax credit gives a tax credit of up to \$400 to individuals with adjusted gross income at or below \$75,000 and up to \$800 for married couples filing jointly with adjusted gross income at or below \$150,000 through a reduction in income taxes withheld from their paychecks.

⁸² See, for example, Julia Isaacs, *The Costs of Benefit Delivery in the Food Stamp Program*, U.S. Department of Agriculture, Economic Research Service, March 2008, pp. 20-31, <http://www.ers.usda.gov/Publications/CCR39/CCR39.pdf>.

theory, beneficiaries may be better off with a cash transfer than with an in-kind benefit of the same amount because they are not constrained in the way they use the benefit.⁸³ However, there is a tension in public policy between consumer flexibility and limiting flexibility to ensure that policy priorities are achieved. As discussed earlier, a flexible cash benefit may mean that consumers would not reduce energy consumption as much as they might otherwise, potentially reducing the effectiveness of a cap-and-trade program.

- **Tailoring Benefits for Household Size and Income**—Allowance value may be distributed to all households or to those that meet certain income eligibility requirements. They may be the same for everyone or may vary based on household size. Some existing federal benefit systems tailor their benefits by income and number of family members, with benefits phased out at certain income levels. An example is the Earned Income Tax Credit. In the case of other delivery systems, a formula or eligibility determination process might need to be created to take account of factors such as income and household size.
- **Accounting for Regional Differences**—Congress may want to account for regional differences when distributing allowance value. Some existing programs such as LIHEAP and WAP take account of energy sources in determining how funds are distributed. In the case of other delivery systems, a formula may need to be created to incorporate energy price data. This approach may require new data collection. Although it would be possible to tailor rebates based on expected regional differences, doing so may decrease the transparency of particular mechanisms. As discussed above, applying a regional calculation to individual households would be imprecise and would likely (1) overcompensate regions at the expense of others and (2) create winners and losers within a particular region.
- **Promoting Energy Efficiency**—It may be desirable to use proceeds in a way that promotes energy efficiency. Some options, such as funding for weatherization, may increase energy efficiency, while lump sum payments may not necessarily encourage increased efficiency beyond any conservation that might take place due to increased prices. As a result, consumers might not reduce consumption to the same degree they would if there were no reimbursement to households. Policymakers could complement the rebate mechanism with an educational/outreach program. The program could offer suggestions of ways households could spend the rebates in terms of energy efficiency activities and explain the long-term (financial) benefits of improving a home's energy efficiency.

On their own, individual options such as those described in this section may have limitations that do not allow them to reach all the households that Congress may wish to target. However, the options could be used in combination to assist everyone from those living in poverty to those considered middle-class, to all consumers, whether working, unable to work, or retired.

⁸³ See, for example, Janet Currie and Firouz Gahvari, *Transfers In Cash and In Kind: Theory Meets the Data*, National Bureau of Economic Research, October 2007, <http://www.nber.org/papers/w13557>.

Direct Payments

One method of allocating proceeds from a cap-and-trade program would be to provide direct payments, or rebates, to consumers via check or electronic transfer in order to compensate for increased energy costs. This option is sometimes referred to as “cap-and-dividend,” and is usually proposed as an equal payment for all consumers.⁸⁴ Proposals have been made that would deliver funds to individuals or to households.

Considerations that could be relevant in setting up a direct rebate system include the following:

- **Ability to Reach Households**—Currently, there is no existing benefit distribution system that reaches every individual who is lawfully present in the United States; nor is there a single repository of information that contains relevant data such as name, address, Social Security number, and residency status for every person. Creating one would likely require the involvement and coordination of more than one federal agency. Between them, the Social Security Administration (SSA) and Internal Revenue Service (IRS) may be able to reach a large percentage of Americans.
 - The Social Security Administration (SSA) has name, address, and Social Security number records for millions of Americans due to its role in distributing benefits to retirees and persons unable to work due to disability.⁸⁵ In addition, SSA tracks the covered earnings of workers who pay Federal Insurance Contributions Act (FICA) taxes in order to fund Social Security and Medicare.⁸⁶
 - The Internal Revenue Service has information about taxpayers and their dependents.⁸⁷ The IRS would not have records for those people who do not file taxes, generally those whose income does not reach the threshold required to file.⁸⁸

⁸⁴ In the 111th Congress, the Cap and Dividend Act of 2009 (H.R. 1862) would distribute dividends to “any individual with a valid social security number (other than a nonresident alien individual) who is lawfully present in the United States ...,” while the American Clean Energy and Security Act of 2009 (H.R. 2454) would “distribute funds ... on a per capita basis to each household in the United States” (excluding those not lawfully present).

⁸⁵ In FY2008, SSA distributed monthly Old Age, Survivors, and Disability Insurance (OASDI) benefits to approximately 50 million individuals. SSA also pays monthly benefits to Supplemental Security Income (SSI) beneficiaries—including those who do not have a sufficient work record to receive OASDI benefits. In FY2008, 7.5 million individuals received monthly SSI benefits. For information about SSA’s distribution of benefits, see CRS Report R40207, *Social Security Administration: Workloads, Resources, and Service Delivery*, by (name redacted).

⁸⁶ In FY2008, SSA tracked the FICA taxes paid by 165 million workers.

⁸⁷ Through the end of 2008, the IRS received 2007 tax returns from more than 156 million filers. Internal Revenue Service, *Statistics of Income—Reports for Filing Year 2008—Tax Year 2007*, End of Year Report, <http://www.irs.gov/taxstats/article/0,,id=184855,00.html>. Tax returns contain information not only for the individual filing taxes, but also his or her dependents. A dependent can be a spouse, children (up to age 19 or, if a student, age 24), or other relatives if they have income less than \$3,500 for tax year 2008 and are supported by the tax filer. U.S. Department of the Treasury, Internal Revenue Service, *Tax Rules for Children and Dependents*, Publication 929, January 6, 2009, p. 25, <http://www.irs.gov/pub/irs-pdf/p929.pdf>.

⁸⁸ Whether an individual or household must file federal income taxes depends on filing status (single, head of household, married filing jointly, married filing separately, or qualifying widow(er) with dependent child) and gross income. For information on 2008 filing requirements, see U.S. Department of the Treasury, Internal Revenue Service, *Publication 501, Exemptions, Standard Deductions, and Filing Information*, December 11, 2008, p. 2, <http://www.irs.gov/pub/irs-pdf/p501.pdf>.

- A source of information for picking up those individuals who may not be captured by either the Social Security system or the federal income tax system may be state public benefit programs. Individuals who do not have earned income, retirement income, or disability income may qualify for public benefits such as SNAP and Temporary Assistance for Needy Families (TANF). State systems would, in most cases, have contact information for those individuals and their family members who qualify for benefits.⁸⁹
- **Administration**—There is not currently a unified administrative infrastructure in place that would reach all Americans. The costs of a system would depend in part on the frequency with which funds would be delivered as well as whether payments would be tailored for income, family size, energy prices, or for other reasons. In addition, the manner of delivery—paper versus electronic—would make a difference; according to the Treasury Department, it costs the government \$1.03 to send a paper check and 10.5 cents to deliver benefits electronically.⁹⁰ The way in which benefits under recent economic stimulus bills were distributed may be instructive. When the federal government distributed rebate checks pursuant to the Economic Stimulus Act of 2008 (P.L. 110-185), the administrative costs of extending rebates to around 119 million tax filers were approximately \$215 million.⁹¹ In 2009, the American Recovery and Reinvestment Act (P.L. 111-5) provided funds so that each Social Security recipient (approximately 50 million individuals in 2008) and SSI recipient (approximately 7.5 million individuals) would receive a payment of \$250. Congress appropriated \$90 million to SSA for administering these payments.⁹²
- **Consumer Flexibility**—Households would have flexibility in how they chose to use a direct rebate. Funds could be used for utility bills, gasoline expenses, or any other good or service.
- **Tailoring Benefits for Household Size and Income**—Rebates could be increased to account for lower income levels or greater numbers of household or family members. As discussed above, however, this flexibility could affect administrative costs of the rebates by requiring the periodic collection of income and other financial data as well as the calculation of benefit levels.
- **Accounting for Regional Differences**—Although it would be possible to tailor rebates based on expected regional differences, doing so would decrease the transparency of the mechanism. As with income and family size it would likely add to the administrative expense, particularly if new data were to be incorporated frequently.

⁸⁹ In FY2007, more than 11 million households representing more than 26 million people received SNAP benefits. U.S. Department of Agriculture, Food and Nutrition Service, *Supplemental Nutrition Assistance Program Average Monthly Participation*, March 26, 2009, <http://www.fns.usda.gov/pd/15SNAPpartPP.htm>. The TANF caseload as of September 2008 was 1.6 million families consisting of 3.8 million recipients. U.S. Department of Health and Human Services, Administration for Children and Families, *TANF Quarterly Caseload Report*, January 14, 2009, http://www.acf.hhs.gov/programs/ofa/data-reports/caseload/caseload_current.htm.

⁹⁰ U.S. Department of Treasury, Financial Management Service, *Electronic Funds Transfer Overview Webpage*, Accessed May 1, 2009, <http://www.fms.treas.gov/eft/index.html>.

⁹¹ Telephone conversation with Matt Pickford, analyst, Congressional Budget Office, April 27, 2009.

⁹² CRS Report RS22677, *Social Security Administration: Administrative Budget Issues*, by (name redacted).

- **Promoting Energy Efficiency**—A direct rebate would not necessarily promote energy efficiency beyond any conservation that might take place as the result of increased prices. This could potentially reduce the effectiveness of a cap-and-trade program.

Fund Disbursal Through the Tax System

Funds from a GHG emission control program could also be delivered to households through the tax system, specifically through either the FICA (Federal Insurance Contributions Act) Social Security and Medicare contributions system or the federal income tax system. One option would be to reduce the amount of income taxes or FICA taxes that are withheld from earned income in workers' paychecks.⁹³ (These taxes, together with income taxes withheld at the state and local levels, are sometimes referred to collectively as payroll taxes.) Another option would be to deliver a refundable tax credit to households through the federal income tax system.⁹⁴

Considerations that could be relevant in using the tax system to distribute benefits include the following:

- **Ability to Reach Households**—
 - **Payroll Taxes**—Delivery of funds by reducing payroll taxes would reach those individuals who work and have taxes withheld from their pay. According to CBO, about 80% of households would be eligible for a payroll tax rebate, with about 54% of those in the lowest income quintile qualifying.⁹⁵ In the case of FICA taxes, employers and employees each pay half of the total tax withheld, so one consideration could be whether to calculate a reduction based on just the employee's contribution or both the employer's and employee's contributions.⁹⁶
 - **Income Tax Credit**—A tax credit would reach those individuals who file income taxes. There is a portion of the population that does not file taxes at all, in general because they do not reach the income thresholds required to file. However, those individuals could be encouraged to file in order to receive a tax credit.⁹⁷ In addition, a portion of those who file taxes do not

⁹³ For example, the "Making Work Pay" tax credit reduces income taxes withheld from workers with income below certain thresholds. President Obama has proposed to use the tax credit as a means of delivering benefits under a cap-and-trade proposal. Another proposal, H.R. 2380, the Raise Wages, Cut Carbon Act of 2009, would use proceeds from a carbon tax to reimburse the Social Security Trust Fund, which would allow FICA taxes for both employers and employees to be reduced.

⁹⁴ For example, in the 111th Congress, H.R. 2454, the American Clean Energy and Security Act of 2009 *as introduced*, would have created a tax credit for low-income consumers.

⁹⁵ CBO, Letter to Senator Bingaman (June 17, 2008), Options for Offsetting the Economic Impact on Low- and Moderate-Income Households of a Cap-and-Trade Program for Carbon Dioxide Emissions, p. 5, <http://www.cbo.gov/ftpdocs/93xx/doc9319/06-17-ClimateChangeCosts.pdf>.

⁹⁶ For example, a proposal by economist Gilbert Metcalf would calculate an income tax credit based on both employer and employee contributions to payroll taxes. See Gilbert E. Metcalf, *A Proposal for a U.S. Carbon Tax Swap: An Equitable Tax Reform to Address Global Climate Change*, The Hamilton Project, Brookings Institution, Discussion Paper 2007-12, October 2007, p. 14, http://www.brookings.edu/~media/Files/rc/papers/2007/10carbontax_metcalf/10_carbontax_metcalf.pdf.

⁹⁷ For example, when the federal government distributed rebate checks pursuant to the Economic Stimulus Act of 2008 (P.L. 110-185), the IRS encouraged individuals who would not ordinarily be required to file income taxes to file a (continued...)

owe federal income taxes. Some tax credits can only be used to offset income tax liability and do not extend beyond the amount of taxes that someone owes; a refundable tax credit would be necessary to reach those who do not owe taxes.

- **Administration**—Using the tax system to deliver funds would not require creation of a new administrative infrastructure to reach households because existing tax collection systems could be used for this purpose. However, there would likely be increased administrative costs depending on the elements of the program. There could be increased numbers of individuals filing taxes in order to take advantage of a new tax credit or costs involved in adjusting withholding for payroll tax reductions.
- **Consumer Flexibility**—Households would have flexibility in how they chose to use funds delivered through the tax system. Funds could be used for utility bills, gasoline expenses, or any other good or service.
- **Tailoring Benefits for Household Size and Income**—The IRS already gathers taxpayer information regarding number of dependents and income, so this information would not have to be collected separately in order to tailor benefits through the income tax system to household size and income. However, information regarding those who pay FICA taxes may not include information regarding total household size, nor does it necessarily represent total household income. Information about household members and income would have to be collected if funds were to be tailored under FICA reductions.
- **Accounting for Regional Differences**—The tax system does not currently have a deduction or credit that takes account of energy prices. To do so would add a layer of complexity to the process of determining funds to which a household would be entitled.
- **Promoting Energy Efficiency**—A rebate through the tax system would not necessarily promote energy efficiency beyond any conservation that might take place as the result of increased prices. This could potentially reduce the effectiveness of a cap-and-trade program.

Allowances to Energy Distributors

Another mechanism of providing assistance to household consumers is through the distribution of allowance value to local energy distributors, called local distribution companies (LDCs). LDCs are the entities that deliver electricity or natural gas to consumers, local businesses, and industry within a geographic area; typically they receive the energy supply from generators (in the case of electricity) and producers (in the case of natural gas). Under this approach, the energy distributors would be required to pass along the value of the allowances for the benefit of energy consumers. This could occur in several ways, and Congress could stipulate certain provisions in the legislation. For example, policymakers could require the LDC to sell the allowance and use the

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return so that they could receive a rebate check. See IRS website, “Do You Need to File a Federal Income Tax Return?” <http://www.irs.gov/individuals/article/0,,id=96623,00.html>. The number of individuals who filed taxes for the 2007 tax year grew to over 155 million, up from 136 million in 2006. Some of this is likely due to the rebate checks.

proceeds to support energy efficiency efforts, which would ultimately benefit consumers. In addition, policymakers could authorize LDCs to use the proceeds to provide rebates for portions of consumers' energy bills.

This mechanism could be used to alleviate price burdens on all energy consumers or certain subgroups.⁹⁸

Considerations that could be relevant in relying on energy suppliers to compensate households for increased costs of energy include the following:

- **Ability to Reach Households**—Those households that use natural gas, electricity, heating oil, and propane to heat their homes represent more than 96% of all occupied housing units in the country.⁹⁹ Therefore, if a GHG emission control program directed natural gas and electricity LDCs to sell allowances for the benefit of their customers, and if states were given the responsibility for compensating heating oil and propane customers, then nearly all households in the United States could be reached. It is possible, though, that renters whose utilities are included in rent may not see a benefit delivered through LDCs and states. In addition, the household benefits would largely depend on how the LDCs chose to return the allowance value to customers. Policymakers may consider including detailed instructions to avoid inconsistent applications across the country that may otherwise occur.¹⁰⁰
- **Administration**—Presumably LDCs would be able to pass on benefits to households through their billing systems without the need for additional administrative infrastructure. If a system were to target household customers based on their income or household size, administrative costs could increase. There may also be a need for an additional layer of administration, with state and/or federal governments overseeing a program in which LDCs are given discretion to help consumers. If states were to oversee a program to channel funds to heating oil and propane users, an application system may have to be established. This could occur through existing low-income energy assistance programs (described in the next section of this report).
- **Consumer Flexibility**—The way in which households could use funds under a system administered by LDCs would depend on whether fund transfers took the form of cash rebates or credits toward energy bills. A direct cash rebate could be used for any purpose, while a credit would only help households with their home

⁹⁸ For example, H.R. 2454, the American Clean Energy and Security Act of 2009, would allocate emission allowances to electricity companies, natural gas suppliers, and states (on behalf of heating oil, propane, and kerosene consumers) to be used for the benefit of residential and commercial (industrial) energy consumers. In the 110th Congress, the Lieberman-Warner Climate Security Act of 2008 (S. 3036) similarly would have given some of the responsibility for mitigating the price increases faced by low- and middle-income consumers to electric and natural gas distribution companies (but would not have included heating oil or propane suppliers).

⁹⁹ The percentages for each source were 50% natural gas for heat, 34% electricity, 7.4% heating oil, and 5.5% liquefied petroleum gas. U.S. Census Bureau, 2007 American Community Survey, Table B25040, House Heating Fuel. Remaining heating sources were coal (0.12% of occupied housing units), wood (1.8% of occupied housing units), solar energy (0.03% of occupied units), and other source or no source (0.41% and 0.88% respectively).

¹⁰⁰ See Testimony of Dallas Burtraw (Resources for the Future) for a hearing before the Senate Committee on Finance (August 4, 2009).

energy expenses. However, reducing utility bills could free up funds for other uses.

- **Tailoring Benefits for Household Size and Income**—LDCs such as natural gas and electricity suppliers presumably do not have readily available information about the households they serve, such as number of people living in the household and household income.¹⁰¹ Although it would be possible to tailor benefits based on these factors, as discussed above, it would require additional administrative responsibility to gather the necessary information and to implement a tiered benefit system.
- **Accounting for Regional Differences**—Proponents of this mechanism maintain that one of its strengths is its ability to account for regional differences, and thus distribute allowance value in a more equitable fashion (so they argue).¹⁰² For instance, Congress could distribute allowances to LDCs based on measures that vary by local energy provider: energy delivered, carbon-content of energy delivered, or some combination of both (see discussion of H.R. 2454 below). However, this potential ability to account for regional differences is not unique to this mechanism. Indeed, this approach may not have a particular advantage over other approaches in this regard. As discussed earlier, local electricity providers (i.e., LDCs) do not collect data regarding the carbon content of the electricity they deliver, a critical measurement in the debate over regional differences. Federal agencies (e.g., EPA and EIA) have prepared approximations of this data at the regional (or subregional) level, but this data could be used in other mechanisms to tailor allowance value distributions to regional differences.
- **Promoting Energy Efficiency**—Depending on the way in which a program were to be implemented, it would be possible to improve energy efficiency. For example, benefits could be tied to reductions in energy use. Moreover, policymakers could stipulate (as is done in H.R. 2454, discussed below) that certain percentages of the allowance value be used to support this objective. Conversely, if funds were used to reduce rates, a system might discourage energy conservation.

Existing Energy Assistance Programs

Policymakers may consider using allowance value to increase support for existing energy assistance programs. Two of these programs are discussed below.

The Low Income Home Energy Assistance Program

The Low Income Home Energy Assistance Program (LIHEAP) is a block grant program under which the federal government gives states, tribes, and territories annual grants to operate home

¹⁰¹ Many utilities participate in programs through which low-income households receive assistance with energy bills. Typically utilities partner with social services organizations, which administer benefits. It is possible that some energy suppliers may have access to household information through these networks.

¹⁰² See e.g., Testimony from Jeffrey E. Sterba (on behalf of the Edison Electric Institute) Before the United States House of Representatives Committee on Energy and Commerce Subcommittee on Energy and Environment, Hearing on Allocation of Emissions Allowances (April 23, 2009).

energy assistance programs for low-income households (defined as those with incomes at or below 60% of state median income or 150% of poverty, whichever is greater¹⁰³). States may use funds to help eligible households pay heating or cooling bills; pay for low-cost weatherization projects; provide services to reduce need for energy assistance; and help with energy-related emergencies such as preventing utility disconnection or repairing a furnace.¹⁰⁴

A number of GHG emission control proposals introduced in the 110th Congress would have allocated a portion of allowance auction proceeds to LIHEAP to mitigate higher energy prices.¹⁰⁵ Considerations that could be relevant in using LIHEAP to help low-income consumers face the increased costs of energy include the following:

- **Ability to Reach Households**—LIHEAP benefits are targeted to assist low-income households, federally defined as those with incomes at or below 150% of poverty or 60% of state median income. However, LIHEAP does not reach all households defined as “low income.” First, states have some flexibility within the federal income eligibility guidelines, and they may set income eligibility as low as 110% of poverty. In addition, unlike some other means-tested programs such as SNAP or Medicaid, where meeting eligibility standards entitles one to benefits, LIHEAP has not reached everyone who is eligible due, in large part, to funding limitations. According to the most recent data available from the Department of Health and Human Services (HHS), less than 20% of federally eligible LIHEAP households received benefits in FY2006.¹⁰⁶ However, it is possible that supplements to the program through a GHG emission control program would provide funding to serve a greater number of eligible households.
- **Administration**—As an existing program, no administrative infrastructure would have to be developed to deliver funds through LIHEAP. The program allows grantee states, tribes, and territories to use up to 10% of their grants for administrative purposes. In FY2006, approximately 7.7% of total LIHEAP funds were used for administration.¹⁰⁷ If funding for the program were increased or the number of beneficiaries served grew as part of a greenhouse gas reduction program, it is possible that the amount of funds necessary to administer LIHEAP benefits would also increase.
- **Consumer Flexibility**—LIHEAP funds would address higher residential energy costs and would not directly address potential price increases in gasoline or other energy-intensive goods and services. It is possible, however, that a LIHEAP payment toward utility bills may free up funds for other expenses.¹⁰⁸

¹⁰³ As part of the FY2009 LIHEAP appropriations, Congress gave states the discretion to serve households with incomes at or below 75% of state median income.

¹⁰⁴ 42 U.S.C. § 8624(b).

¹⁰⁵ These included the Low Carbon Economy Act of 2007 (S. 1766), the Lieberman-Warner Climate Security Act of 2008 (S. 3036), the Investing in Climate Action and Protection Act (H.R. 6186), and the Climate MATTERS Act of 2008 (H.R. 6316).

¹⁰⁶ U.S. Department of Health and Human Services, Administration for Children and Families, *Low Income Home Energy Assistance Program Report to Congress for Fiscal Year 2006*, April 22, 2009, pp. 20-21.

¹⁰⁷ *Ibid.*, p. 16.

¹⁰⁸ For example, there is some evidence that low-income households reduce spending on food during those months when heating and cooling costs are high. See, for example, Mark Nord and Linda S. Kantor, “Seasonal Variation in Food Insecurity Is Associated with Heating and Cooling Costs among Low-Income Elderly Americans,” *The Journal of* (continued...)

- **Tailoring Benefits for Household Size and Income**—States have the discretion to adjust LIHEAP benefits based on household size and income. In fact, the LIHEAP statute requires states to target households with “the lowest incomes and the highest energy costs or needs in relation to income.”¹⁰⁹ As a result, LIHEAP-recipient households are typically more needy than the population that is eligible to receive LIHEAP benefits.
- **Accounting for Regional Differences**—LIHEAP has a statutory formula that allocates funds to states based on both the type of fuel used by low-income households as well as the price by fuel type. However, there is a lag in data used in the formula that might not make it immediately responsive to the effects of a GHG emission control program.¹¹⁰ The availability of recent data may be more important in distributing allowance auction proceeds, where price fluctuations could be an important part of determining need.
- **Promoting Energy Efficiency**—Although the LIHEAP statute allows states to use 15% of funds for weatherization (up to 25% with a waiver from HHS), the majority of LIHEAP expenditures currently go toward direct subsidies for heating and cooling. In fact, some states choose not to weatherize at all.

The Weatherization Assistance Program

The Weatherization Assistance Program (WAP) provides low-cost home weatherization services to low-income families, defined as those with incomes at or below 200% of poverty, although states may choose to use LIHEAP eligibility guidelines (which go up to 60% of state median income).¹¹¹ Through WAP, funds are distributed to states, the District of Columbia, Puerto Rico, tribes, and territories¹¹² via formula; they, in turn, distribute funds to public or private nonprofit organizations to administer the program and undertake the weatherization activities in specific geographic areas around the state.

As with LIHEAP, a number of the GHG emission control proposals introduced in the 110th Congress would have allocated a portion of allowance value to the WAP.¹¹³ Considerations that could be relevant in using WAP to help low-income consumers face the increased costs of energy include the following:

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Nutrition, vol. 136, no. 11 (November 2006), pp. 2939-2944, and Jayanta Bhattacharya, Thomas DeLeire, and Steven Haider, et al., “Heat or Eat? Cold-Weather Shocks and Nutrition in Poor American Families,” *American Journal of Public Health*, vol. 93, no. 7 (July 2003), pp. 1149-1154.

¹⁰⁹ 42 U.S.C. § 8624(b)(5).

¹¹⁰ For example, when HHS most recently updated the LIHEAP formula, in 2009, the formula factors were calculated using 2006 energy consumption data, temperature data, price data, and low-income fuel source data.

¹¹¹ The American Recovery and Reinvestment Act (P.L. 111-5) increased income eligibility to 200% of poverty. Prior to that, it had been 150% of poverty. 42 U.S.C. § 6862(7).

¹¹² The territories and Puerto Rico became eligible WAP recipients as part of the Energy Independence and Security Act of 2007 (P.L. 110-140).

¹¹³ These included the Low Carbon Economy Act of 2007 (S. 1766), the Lieberman-Warner Climate Security Act of 2008 (S. 3036), the Investing in Climate Action and Protection Act (H.R. 6186), and the Climate MATTERS Act of 2008 (H.R. 6316).

- **Ability to Reach Households**—Like LIHEAP, WAP does not reach all low-income households that are eligible for services. In 2006, the most recent year for which data are available, 104,382 dwellings were weatherized.¹¹⁴ (Note, however, that the American Recovery and Reinvestment Act (ARRA, P.L. 111-5) provided \$5 billion for WAP over three years compared to previous appropriations levels between \$200 and \$300 million.) A possible limitation in the ability of WAP to serve eligible households is its historic focus on weatherizing single-family homes rather than multifamily structures.¹¹⁵ States may choose to prioritize single-family homes, and program rules may also present barriers to weatherizing multifamily developments.¹¹⁶ These limitations may become more flexible, at least in regard to multifamily housing funded through the Department of Housing and Urban Development (HUD). In response to ARRA, the Department of Energy and HUD entered into a memorandum of understanding so that WAP funds could be used in HUD-subsidized multifamily dwelling units with streamlined income verification of residents.¹¹⁷ HUD spends an estimated \$4 billion per year (more than 10% of its budget) to pay energy costs in subsidized multifamily housing.¹¹⁸
- **Administration**—Grantees may use up to 10% of WAP funds for administrative expenses.¹¹⁹ In addition, a portion of WAP funds are allocated to training and technical assistance for the Community Action Agencies that administer WAP funds in local communities. In FY2008, \$4.5 million, approximately 2% of the total WAP allocation, was used for this purpose.¹²⁰
- **Consumer Flexibility**—WAP funds are used for the purpose of reducing the costs of home energy, so the program would not directly address potential price increases in gasoline or other energy-intensive goods and services. However, as with LIHEAP, reducing home energy bills may free up funds for other expenses.
- **Tailoring Benefits for Household Size and Income**—States are required to target needy populations for WAP services. WAP gives priority to elderly residents, those with a disability, families with children, high residential energy

¹¹⁴ *WAP Briefing Book*, p. VII-1. Weatherization services may have been performed using a combination of WAP funds and funds from other sources.

¹¹⁵ In 2006, approximately 19% of weatherized housing units were in multifamily structures; the remainder were single-family homes or mobile homes. *Ibid.*

¹¹⁶ In order for a multifamily development to qualify for weatherization services, at least 66% of residents must be income eligible for services. 10 C.F.R. § 440.22(b). For duplexes and buildings with four or fewer units, 50% of residents must qualify. The benefits of weatherization must accrue to the residents, owners may not raise rent based on the improvements, and states may require owners to make a contribution to the weatherization services. 42 U.S.C. § 6863.

¹¹⁷ Memorandum of Understanding Between Department of Energy and Department of Housing and Urban Development, *Coordinating Recovery Act Funds for Home Energy Retrofits*, released May 6, 2009, <http://www.hud.gov/recovery/doemoucombined.pdf>.

¹¹⁸ U.S. Department of Housing and Urban Development, Office of Policy Development and Research, *Promoting Energy Efficiency at HUD in a Time of Change*, August 8, 2006, p. 2, <http://www.huduser.org/Publications/pdf/EnergyEfficiency.pdf>.

¹¹⁹ 42 U.S.C. § 6865.

¹²⁰ U.S. Department of Energy, *FY2010 Congressional Budget Request*, p. 413, <http://www.cfo.doe.gov/budget/10budget/Content/Volumes/Volume3.pdf>.

users, and households with high energy burdens.¹²¹ In terms of adjusting benefits for household size and income, once program eligibility is determined, the amount of WAP funds used per household is based on the condition of the dwelling unit and the need for weatherization services.

- **Accounting for Regional Differences**—WAP uses a formula that takes account of energy consumption and expenditures in determining how funds are allocated to the states, though with similar time lags encountered with the LIHEAP formula.
- **Promoting Energy Efficiency**—Weatherization activities may prevent future energy usage, thereby reducing overall household energy costs. An analysis of statewide weatherization programs in 19 states found that after weatherization, the average household using natural gas for heating saw a 22.9% reduction in British thermal units (Btus) consumed for all home energy uses and a 32.3% reduction in Btus used for home heating.¹²²

Subsidies Through Other Income-Based Programs

Congress may consider using other, non-energy-related programs to provide assistance to households. Two possible options are discussed below.

Earned Income Tax Credit

The Earned Income Tax Credit (EITC) could be another method of delivering funds from a GHG emission control program to low-income households.¹²³ The EITC is a refundable tax credit for low-income workers based on their income, age, and number of qualifying children.¹²⁴ Under current law, workers earn a credit for every dollar of earned income up to a certain income level based on their tax filing status and the number of children claimed on their tax return.¹²⁵ The credit is refundable so that even those individuals who have no tax liability can benefit from the EITC. For the 2008 tax year, the maximum credits ranged from \$438 for filers with no children to \$4,824 for those with two or more children.

Considerations that could be relevant in using the EITC to help low-income consumers face the increased costs of energy include the following:

¹²¹ 10 C.F.R. § 440.16.

¹²² Martin Schweitzer, Estimating the National Effects of the U.S. Department of Energy's Weatherization Assistance Program with State-Level Data: A Metaevaluation Using Studies from 1993 to 2005, Oak Ridge National Laboratory, September 2005, p. 11, <http://weatherization.ornl.gov/pdf/CON-493FINAL10-10-05.pdf>.

¹²³ For example, in the 111th Congress, H.R. 2454, the American Clean Energy and Security Act, would expand the EITC for certain individuals without qualifying children.

¹²⁴ For more information about the EITC, see CRS Report RL31768, *The Earned Income Tax Credit (EITC): An Overview*, by (name redacted).

¹²⁵ For the 2008 tax year, single individuals with adjusted gross income (AGI) below \$12,880 (\$15,880 for married filing jointly) qualified for the EITC. Single individuals with one child and AGI below \$33,995 (\$36,995 for married couples filing jointly) qualified for the EITC. And single individuals with two or more children and AGI below \$38,646 (\$41,646 for married couples filing jointly) qualified for the EITC.

- **Ability to Reach Households**—Currently the EITC is designed to reach workers with earnings that do not exceed a certain level. Unlike LIHEAP or Weatherization, those who are eligible for the tax credit can receive it as long as they file their taxes appropriately. For the 2006 tax year, the number of EITC recipients was approximately 23 million.¹²⁶ However, the EITC does not reach those individuals and families who do not have earned income, which would leave out some low-income households, including retired persons. The credit may also leave out families with incomes too high to qualify for the EITC, but who face burdensome energy price increases nonetheless. If Congress wanted to expand the reach of the program to higher-income families, it could increase the credit rate or the phase out level, increase income eligibility, or both.
- **Administration**—Any expansion of the EITC to distribute funds to households would be administered through the federal income tax system. The EITC has been found to have administrative costs that range between 1% and 3% of benefits claimed.¹²⁷
- **Consumer Flexibility**—Households would have flexibility in how they chose to use funds delivered through the tax system. Although many individuals claim the EITC in one lump sum when they file their taxes, they also have the option of spreading payments over the course of the year by including them in their paychecks. This could help recipients deal with higher prices as they occurred.
- **Tailoring Benefits for Household Size and Income**—The EITC is somewhat responsive to household size, although for those families with more than four members (two adults and two children) the credit does not grow with additional children. The EITC is responsive to household income. The credit grows as earned income grows, reaches a plateau, and is then phased out as income continues to grow.¹²⁸
- **Accounting for Regional Differences**—The EITC as it is currently administered would not take account of energy prices faced by households in determining benefits. Although it would be possible to incorporate regional differences when determining benefits, this would add a layer to the administrative process.
- **Promoting Energy Efficiency**—A benefit delivered through the EITC would not necessarily promote energy efficiency beyond any conservation that might take place as the result of increased prices. This could potentially reduce the effectiveness of a cap-and-trade program.

Electronic Benefit Transfer Systems

Another option for reaching low-income households specifically would be to deliver funds through the Electronic Benefit Transfer (EBT) systems that are used by state and local health and human services agencies to deliver SNAP and other benefits. Since 2004, all 50 states, the District of Columbia, Puerto Rico, Guam, and the Virgin Islands have implemented EBT systems

¹²⁶ Internal Revenue Service, *Statistics of Income—2006 Individual Income Tax Returns*, p. 93, Table 2.5, <http://www.irs.gov/pub/irs-soi/06inalcr.pdf>.

¹²⁷ See footnote 82, *The Costs of Benefit Delivery in the Food Stamp Program*, p. A-2.

¹²⁸ See footnote 124, CRS Report RL31768, *The Earned Income Tax Credit (EITC): An Overview*.

through which they put money for federal and state benefits on cards similar to debit cards. All states and territories deliver SNAP benefits through their EBT systems, and some deliver other benefits as well.¹²⁹ In FY2007, more than 11 million households representing more than 26 million people received SNAP benefits.¹³⁰

This option has been proposed in both the 110th and 111th Congresses.¹³¹ Considerations that could be relevant in using EBT transfers to help low-income consumers face the increased costs of energy include the following:

- **Ability to Reach Households**—A system such as those in proposed legislation would specifically target low-income households and, on their own, would not reach middle- or high-income households.¹³² If EBT rebates were distributed to SNAP-eligible individuals (those at or below 130% of poverty) an estimated 39 million individuals representing 18.5 million households would receive the rebate.¹³³
- **Administration**—Because all states use EBT systems to deliver SNAP benefits, the administrative infrastructure for delivering funds through a GHG emission control program would be in place. The specific administrative costs involved with delivery of EBT benefits are not known; however, the costs of SNAP administration could be instructive. The federal government shares administrative costs of SNAP with the states. In FY2007, the total administrative costs for both the federal and state governments was \$5.7 billion;¹³⁴ varying sources estimate that approximately 16% or 17% of SNAP dollars go toward administrative costs.¹³⁵ Of the federal share of funds in FY2007 (nearly \$2.8 billion), approximately \$162 million went to issue benefits while \$1.5 billion was used to

¹²⁹ For example, over half of states use EBT cards to deliver Temporary Assistance for Needy Families (TANF) benefits—the program sometimes referred to as welfare—while some also choose to deliver employment benefits, child care assistance, General Assistance (a program for needy adults without children), and refugee assistance, among others. The Department of Agriculture lists the status of each state's EBT program at http://www.fns.usda.gov/fsp/EBT/ebt_status_report.htm.

¹³⁰ U.S. Department of Agriculture, Food and Nutrition Service, *Supplemental Nutrition Assistance Program Average Monthly Participation*, March 26, 2009, <http://www.fns.usda.gov/pd/15SNAPpartPP.htm>.

¹³¹ At least two bills in the 110th Congress would have used EBT systems to provide rebates to low-income households. These were the Climate Change Rebate Act of 2008 (H.R. 7194) and the Investing in Climate Action and Protection Act (H.R. 6186). Both bills would have provided rebates to households meeting eligibility standards for SNAP benefits (those with incomes at or below 130% of poverty) and would have delivered benefits on a monthly basis, with the amount of benefits based on income, household size, and energy price increases. In the 111th Congress, H.R. 2454 would similarly deliver rebates to families who meet income eligibility guidelines. The bill would consider eligible those who are eligible for SNAP, those who have income at or below 150% of poverty, and those households consisting of single adults or married couples that receive the Medicare Part D subsidy, Medicaid, or Supplemental Security Income.

¹³² H.R. 2454, the American Clean Energy and Security Act would make low-income households eligible for a rebate. In the 110th Congress, both H.R. 7194 and H.R. 6186 would have created a climate rebate for low-income households.

¹³³ Joshua Leftin and Kari Wolkwitz, *Trends in Supplemental Nutrition Assistance Program Participation Rates: 2000 to 2007*, U.S. Department of Agriculture, Food and Nutrition Service, June 2009, p. 10, <http://www.fns.usda.gov/ora/menu/Published/SNAP/FILES/Participation/Trends2000-2007.pdf> (hereinafter *Trends in Supplemental Nutrition Assistance Program Participation Rates: 2000 to 2007*).

¹³⁴ United States Department of Agriculture, Food and Nutrition Service, *Supplemental Nutrition Assistance Program (SNAP) State Activity Report for FY2007*, January 2009, p. 17, http://www.fns.usda.gov/snap/qc/pdfs/2007_state_activity.pdf (hereinafter *(SNAP) State Activity Report for FY2007*).

¹³⁵ See footnote 82, *The Costs of Benefit Delivery in the Food Stamp Program*, p. A-1.

certify eligibility.¹³⁶ A majority of those who would qualify for EBT payments would already have been determined to be eligible for SNAP (approximately 62% of eligible households received benefits in 2007¹³⁷). Thus, an initial intake and eligibility determination would not necessarily have to be performed for all those who would be eligible.

- **Consumer Flexibility**—An EBT rebate could give consumers flexibility similar to the EITC. Households could prioritize their needs rather than being restricted to a single use, such as utility payments. SNAP benefits, TANF benefits, and others, are delivered monthly through EBT systems. If rebates were likewise issued monthly, recipients might be better able to confront higher prices as they occurred.
- **Tailoring Benefits for Household Size and Income**—If an EBT rebate were to have income guidelines like SNAP, then benefits could be tailored based on family size and income. For example, maximum SNAP benefits vary with family size, increasing incrementally for each additional family member.¹³⁸ Benefits are also reduced as family income increases.
- **Accounting for Regional Differences**—It would be possible to create a system of EBT rebates that included regional differences when determining benefit levels. This added complexity could increase administrative costs, however.
- **Promoting Energy Efficiency**—A rebate through the state EBT systems would not necessarily promote energy efficiency beyond any conservation that might take place as the result of increased prices. This could potentially reduce the effectiveness of a cap-and-trade program.

Legislation in the 111th Congress

This section of the report discusses legislation in the 111th Congress that proposes to use one or more of the options to assist households that were discussed in the previous section. This section is not meant to track all GHG emissions bills that have been introduced in the current Congress.

H.R. 2454, the American Clean Energy and Security Act of 2009

The American Clean Energy and Security Act (H.R. 2454, introduced by Representatives Waxman and Markey), which the House passed on June 26, 2009, has several provisions that would attempt to reimburse households for increased costs associated with a cap-and-trade program established by the bill. The bill would accomplish this by (1) distributing allowances at no cost to various entities, including local distribution companies (LDCs) and states, which would then use the value of the allowances to assist households, and (2) distributing emission allowance auction proceeds directly to households.

¹³⁶ See footnote 134, *(SNAP) State Activity Report for FY2007*, p. 19.

¹³⁷ See footnote 133, *Trends in Supplemental Nutrition Assistance Program Participation Rates: 2000 to 2007*, p. 10.

¹³⁸ 7 C.F.R. § 273.10. The most recent table of maximum benefits is available on the Food and Nutrition Service website, http://www.fns.usda.gov/fsp/applicant_recipients/fs_Res_Ben_Elig.htm.

Assistance to All Households Through Energy Distributors

H.R. 2454 would allocate allowances to electricity local distribution companies (electricity LDCs) and natural gas local distribution companies (natural gas LDCs) to be used for the benefit of residential and commercial consumers. The bill would also allocate allowances to states to be used for the benefit of heating oil, propane, and kerosene consumers.

A substantial portion of the emission allowances would be used to support energy consumers in the early years of the program. Between 2012 and 2029, electricity LDCs would receive a gradually diminishing portion of allowances, starting with approximately 38% in 2012 and decreasing to 6% by 2029; natural gas LDCs would receive 9% of emission allowances in 2016, decreasing to 2% in 2029; and states would receive 1.9% of allowances in 2012, decreasing to 0.3% by 2029. In 2030, the allocations to support energy consumers would cease.

In the case of electricity LDCs, allowances would be allocated through a two-part formula: 50% based on each LDC's carbon content of electricity and 50% based on the amount of electricity delivered. Benefits from the allowances would be distributed ratably to each ratepayer class (residential versus commercial), and then "equitably" to each ratepayer within the class.

H.R. 2454 would require certain processes to ensure that electricity LDCs comply with the bill's requirements regarding consumers. State regulatory authorities would be required to either publish regulations or conduct proceedings regarding how electricity LDCs will fulfill the requirements of H.R. 2454. Electricity LDCs would be required to submit periodic plans (approved by state regulators) to the EPA Administrator describing how they will use the value of the allowances to benefit consumers and to report annually on their use of allowances. The EPA Administrator would audit a sample of electricity suppliers every year to ensure that emission allowances are used "exclusively for the benefit of retail ratepayers."

In the case of natural gas LDCs, beginning in 2016, allowances would initially be distributed based on each company's average annual retail natural gas deliveries. In later years, the distribution formula would also take into account the number of customers for each company. As with electricity LDCs, H.R. 2454 would require natural gas LDCs to deliver benefits to ratepayers based on the amount of natural gas used by each class and then equitably to each consumer within the ratepayer class with the same limitation that any rebate not be based on the amount of natural gas delivered to each ratepayer. Unlike electricity LDCs, natural gas LDCs would be required to use one-third of allowances for energy efficiency programs that benefit natural gas consumers. Similar requirements regarding submission of plans and reports would apply to natural gas LDCs, and the EPA Administrator would audit a sample of companies every year.

In order to reach heating oil, propane, and kerosene consumers, H.R. 2454 would distribute allowances to states based on their share of the carbon content of heating oil, propane, and kerosene sold to consumers within the state. States would be required to use at least half of the allowances for energy efficiency programs targeted to heating oil, propane, and kerosene consumers; the remainder would be used to provide rebates or other direct financial assistance to consumers (to the extent practicable, through existing energy efficiency and consumer energy assistance programs). States would be required to submit reports to the EPA Administrator about the use of allowances and cost effectiveness of energy efficiency measures; the reports would also include independent third-party evaluations of the energy efficiency and consumer assistance programs.

Small Electricity LDCs

Small electricity LDCs—defined as those that deliver less than four million megawatt hours of electricity to retail consumers—would receive a declining percentage (0.5% in 2012) of emission allowances (in addition to the allotment to LDCs generally) at no cost. H.R. 2454 would require small LDCs to use the allowance value, in part, for assistance programs for their low-income customers (those with incomes at or below 200% of poverty). The EPA Administrator would be required to establish eligibility criteria and guidelines for this consumer assistance program and small LDCs would be required to report on the assistance provided.

Rebates to All Households

H.R. 2454 would also establish a Climate Change Consumer Refund Account in the United States Treasury. The account would be funded through the sale of allowances beginning in 2021, with additional allowances auctioned beginning in 2026. Proceeds from the account would be distributed as tax refunds “on a per capita basis to each household in the United States.”¹³⁹ Citizens and lawful permanent residents would be eligible for the tax refunds.

Low-Income Energy Refund Program

H.R. 2454 would establish a new low-income benefit program, the Energy Refund Program, that would reimburse eligible households for the estimated loss in purchasing power to families caused by increases in energy prices resulting from the bill. The proposed new program (the proposed Title XXII of the Social Security Act) would be administered at the federal level by the Department of Health and Human Services (HHS) and at the state level by agencies that administer other assistance programs, such as cash welfare and SNAP.

Eligibility

The Energy Refund Program would make households with gross incomes at or below 150% of poverty eligible for the maximum benefit (see below for a description of the benefit). The benefit would be phased out for households with incomes over 150% of poverty. The CBO estimates that program would serve 34.4 million households in 2012, rising to 35.5 million in 2019. This is about double the number of households CBO estimates would be served in the SNAP program (16.5 million estimated SNAP households in FY2012).

Households¹⁴⁰ that already receive certain need-tested benefits would be automatically eligible for the benefit. These households include those that already receive:

- nutrition assistance through SNAP, the Food Distribution program on Indian Reservations, or the programs of nutrition assistance that operate in lieu of SNAP in Puerto Rico and American Samoa;

¹³⁹ Section 789 (of the newly established Title VII of the Clean Air Act).

¹⁴⁰ In general, the definition of household used for the Energy Refund Program is the same as that used for SNAP. See 7 U.S.C. § 2012. In addition to using the SNAP definition of household, the bill would make singles or couples who receive either SSI or Medicare Part D premium subsidies their own household. The Secretary of HHS would be required to establish rules for households that include persons described above who live with other members.

- a benefit or service from TANF that also receive a SNAP benefit;¹⁴¹
- a subsidy based on income for prescription drugs under the Medicare Part D program; or
- Supplemental Security Income (SSI).

Additionally, the Secretary of Health and Human Services (HHS) would be charged to promulgate regulations to determine whether information used for determining eligibility under state Medicaid or Children’s Health Insurance Program (CHIP) can be used to automatically determine eligibility for the Energy Refund Program.

The bill would make eligible for benefits all those in the United States lawfully, whether citizens or noncitizens. (Many need-tested programs restrict benefits for noncitizens. See CRS Report RL31114, *Noncitizen Eligibility for Major Federal Public Assistance Programs: Policies and Legislation*, by (name redacted).)

Benefits

The maximum benefit for the Energy Refund Program would be the estimated loss in purchasing power caused by the American Clean Energy and Security Act of 2009 for families with gross incomes of 150% of the poverty threshold. The benefit would vary by household size. Separate benefit amounts would be computed for households of sizes one through four, with households of five or more receiving a benefit based on the average loss of purchasing power for all households of five or more persons. The loss in purchasing power for the next fiscal year would be estimated by the Energy Information Administration and published annually (by August 31) in the *Federal Register* and the benefit adjusted annually. The benefit would be paid monthly, with the monthly benefit being 1/12th of the estimated annual loss in purchasing power. However, the bill provides that if the monthly benefit would be too small to pay efficiently on a monthly basis, the benefit would be paid quarterly.

Table 4 shows the CBO’s estimate of the maximum benefit amount for the Energy Refund Program for selected years, 2012 to 2019. The annual benefit amount is relatively small. For example, in 2012 a household of four would receive a little less than \$400 *per year* from the program. This contrasts with SNAP, where the benefit for a family of four is expected to exceed \$400 *per month*. However, the years in the budget window 2012-2019 would be very early in the implementation of the cap-and-trade system. In these years, most allowances would be given away rather than auctioned and the reduction requirements are relatively less stringent compared to other years: thus, the costs of the system are relatively low. Costs—and the compensating benefits—may be higher in real terms later in the program.

¹⁴¹ All families receiving TANF are “categorically eligible” for SNAP. Since all SNAP households would receive the Energy Refund Program benefit, TANF families would as well.

Table 4. Congressional Budget Office (CBO) Estimates of the Annual Maximum Benefit Under the Energy Refund Program of H.R. 2454 as It Passed the House, Selected Years 2012 to 2019

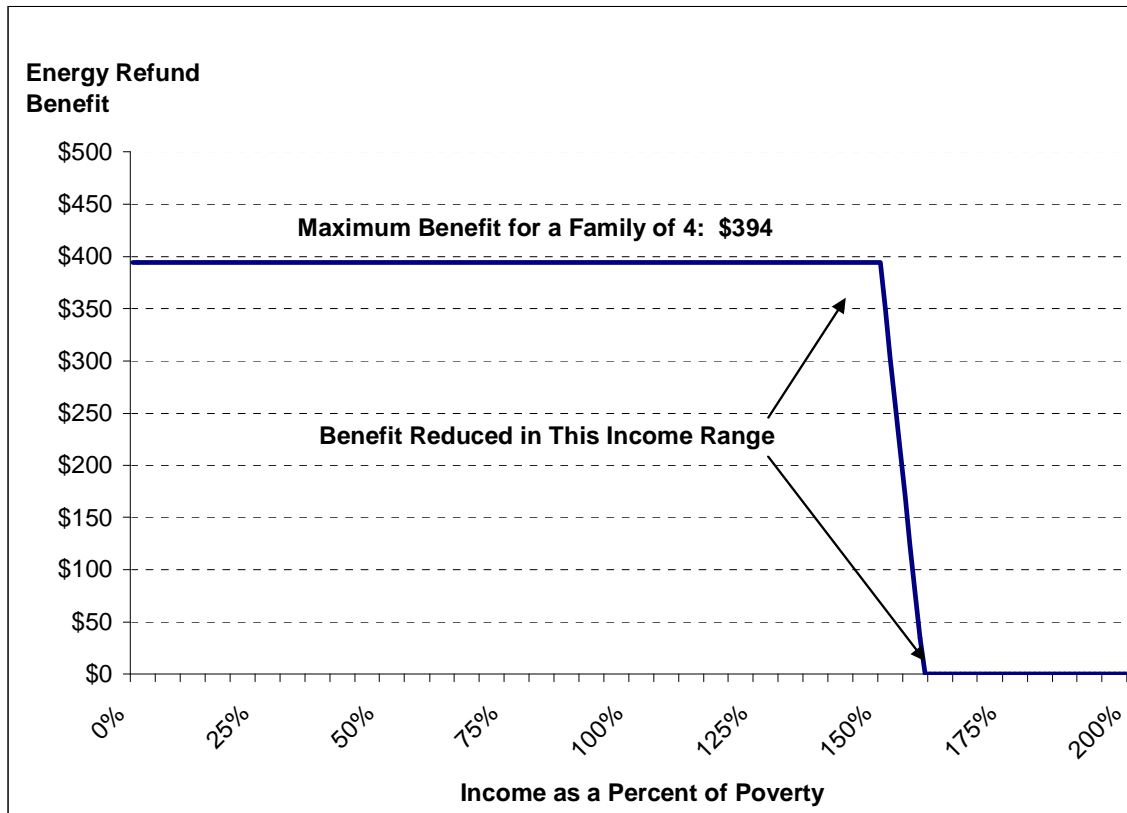
	2012	2016	2019
Maximum Credit Amount Per Household			
One Person	\$201	\$312	\$373
Two People	285	437	520
Three People	308	473	562
Four People	394	600	711
Five or More People	465	705	834
Average Per Household			
	285	435	515

Source: Unpublished data from the Congressional Budget Office (CBO).

Figure 3 shows the estimated structure of the benefit, using the 2012 estimate of the benefit for a family of four. It shows that eligibility for the benefit ends relatively quickly above 150% of poverty—reaching \$0 at about 159% of poverty. The very rapid reduction in the benefit is, in part, because of its small size in the early years. A larger benefit would produce a more graduated phase-out. If, for example, the real value of the benefit would triple to \$1,182 per year, eligibility for the benefit would end at 176% of the poverty threshold.

Figure 3. Estimated Energy Refund Program Benefit for a Household of Four in 2012 Under H.R. 2454 As It Passed the House

Based on Congressional Budget Office Estimates



Source: Congressional Research Service based on estimates from the Congressional Budget Office (CBO).

Disregard of Energy Refund Benefit for Other Low-Income Assistance Programs

H.R. 2454 would require that all federal and federal-state income-based assistance programs disregard energy refund benefits for the purpose of determining either eligibility or benefit amounts. That is, the energy refund benefit would not result in loss of eligibility or reduced benefits in programs such as Medicaid, the Children’s Health Insurance Program (CHIP), SNAP, school lunch, or benefits and services funded under the Temporary Assistance for Needy Families (TANF) block grant.

Delivery of Benefits

The bill would require the Secretary of HHS to promulgate regulations to allow states to co-administer the Energy Refund Program with the SNAP program. SNAP benefits are provided through Electronic Benefit Transfers (EBT) cards. EBT is an electronic system used to make purchases, much like a bank automated teller machine (ATM) card. The EBT card authorizes the transfer of funds representing a recipient’s benefit from a federal account to a retailer account to pay for purchases. In the SNAP program, EBT is used in all 50 States, the District of Columbia, Puerto Rico, and the Virgin Islands.

The bill also would allow for alternative delivery of the benefit through direct deposit to an eligible household's bank account or other mechanisms approved by the Secretary of HHS.

Administration

Though Energy Refund Program benefits would be determined by federal law and funded by the federal government, the program would be administered by the states. Theoretically, states would have the ability to opt-in or opt-out of the program. This is largely patterned after the SNAP program. Unlike SNAP, however, the program as passed by the House does not provide funding for state administrative costs.

States would have to meet certain requirements in their administration of the Energy Refund Program. They would be required to use public employees for all tentative and final eligibility determinations and use bilingual personnel in those portions of the state where a substantial number of people in low-income households speak a language other than English. States would also be required to screen Energy Refund Program applicants to determine whether they are eligible for three other low-income assistance programs: SNAP, the Children's Health Insurance Program (CHIP), and TANF.

Expansion of the EITC

The EITC is a refundable tax credit that supplements the earnings of low-income workers. The credit is considered refundable because it benefits even those filers who have no federal income tax liability; these filers receive a check from the federal Treasury.

The EITC began as a temporary program in 1975, and was made permanent in 1978 and expanded several times since then.¹⁴² In 2006, the total value of the EITC was \$44.4 billion, making it the largest low-income program providing cash, greater than SSI (FY2006 outlays of \$36.2 billion) and far greater than TANF cash welfare (FY2006 expenditures of \$9.9 billion).

The EITC was first restricted only to tax filers with children. It was not until 1993 when Congress amended the tax code to provide an EITC to childless tax filers. The EITC for tax filers without qualifying children is far smaller than the credit for those with children. It is also available only to those age 25 to 64. Under current law for 2012, the credit for childless filers is 7.65% of earnings up to the maximum amount. In contrast, the credit rate for filers with one child is 36% and the rate for filers with two or more children is 40%.¹⁴³ The estimated maximum credit under current law for childless filers in 2012 is \$466. All estimates of the credit amount are based on inflation assumptions from the Congressional Budget Office (CBO) as published in March of 2009.

H.R. 2454 would expand the Earned Income Tax Credit (EITC) for certain tax filers without qualifying children whom the Secretary of the Treasury determines have "experienced a reduction in purchasing power" as a result of the American Clean Energy and Security Act (benefits for tax filers with children would not change). Loss of purchasing power would be calculated in the same

¹⁴² CRS Report RL31768, *The Earned Income Tax Credit (EITC): An Overview*, by (name redacted).

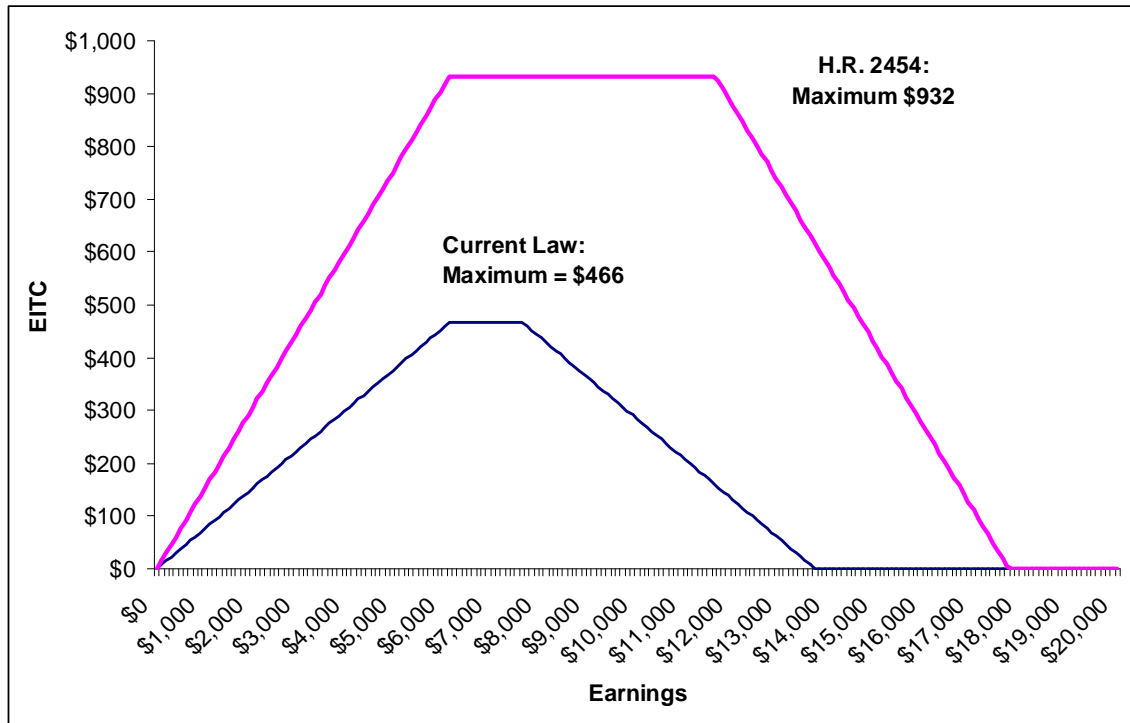
¹⁴³ The American Recovery and Reinvestment Act of 2009 (P.L. 111-5) temporarily increased the EITC for filers with three or more children to 45% for 2009 and 2010 only.

way as under the Energy Refund Program. The expansion of the EITC proposed in H.R. 2454 would be effective in 2012.

H.R. 2454 would increase the maximum amount of the credit that filers without qualifying children would receive. It would raise the EITC credit rate for childless filers to 15.3%, increasing the estimated maximum credit to \$932 for 2012. The EITC is phased out for income over a certain threshold. Under current law, the EITC for childless filers begins to phase out at an estimated income level of \$7,620. H.R. 2454 would raise the income threshold at which the EITC is estimated to begin to phase out to \$11,640. After 2012, this phase-out threshold would be indexed to inflation.

Figure 4 graphically shows the impact of the proposed EITC changes for childless tax filers who would lose purchasing power due to H.R. 2454. The bill would increase the maximum credit rate and the income at which the credit begins to phase out. The effect of these two changes would result in expanded eligibility, so that such filers with income below an estimated \$17,700 would qualify.

Figure 4. Expansion of the EITC Proposed in H.R. 2454 for Tax Filers Without Qualifying Children Who Have Experienced a Reduction in Purchasing Power
Estimated for 2012



Source: Congressional Research Service (CRS).

Notes: Estimates are for 2012 based on projected inflation published by the Congressional Budget Office, March 2009.

The EITC for tax filers without qualifying children is available only as an end-of-year refund. H.R. 2454 would not alter this provision. (The EITC for tax filers with qualifying children is available on an advance-payable basis, added to paychecks. However, advance payment of the EITC is rarely used.)

The refundable portion of the EITC is considered an outlay from the federal government. (For filers where the EITC reduces, but does not eliminate, federal tax liability, that portion of the EITC is considered a revenue loss.) The CBO estimates that the EITC expansion in H.R. 2454 would increase outlays by \$4.4 billion over the five-year period FY2010-FY2014 and by \$15.7 billion over the ten-year period FY2010-FY2019.

S. 1733, the Clean Energy Jobs and American Power Act

The Clean Energy Jobs and American Power Act (S. 1733), sponsored by Senators Kerry and Boxer, was introduced on September 30, 2009. The bill is similar to H.R. 2454 in that it would distribute allowances to electricity LDCs and natural gas LDCs to assist consumers. However, unlike H.R. 2454, the bill as introduced in the Senate does not yet specify the amount of allowances that would be available to LDCs. Also like H.R. 2454, the Clean Energy Jobs and American Power Act would allocate allowances to states to be used to assist consumers who use heating oil and propane (unlike the House-passed bill, S. 1733 does not mention kerosene users). The percentage of allowances that would be allocated to the states to assist heating oil and propane consumers is not specified in the bill.

S. 1733 would also create a Consumer Rebate Fund in the Treasury to be funded through the auction of allowances, though the bill does not specify the amount of auction proceeds that would be used to fund the account. Beginning in 2026, the bill provides that the President use the funds in the Consumer Rebate account “in accordance with Federal statutory authority to provide relief to consumers and others affected by” the bill’s enactment. Similarly, S. 1733 would establish an Energy Refund Program, funded through the auction of allowances, with the proceeds used to “offset energy cost impacts on low- and moderate-income households.”

Appendix. Table of Considerations

Table A-I. Considerations in Distributing Funds to Households Through Various Methods

Considerations	Direct Payments to All Households	Disbursal Through Tax Systems	Allowances to Energy Distributors	Low Income Home Energy Assistance Program	Weatherization Assistance Program	Earned Income Tax Credit	Electronic Benefit Transfers to Low-Income Households
Ability to Reach Households	Could be designed to reach most households through existing systems such as Social Security, the federal income tax system, and state public benefits systems.	Could use the payroll tax system to reach those in Social Security-covered employment, or could use the federal income tax system to reach those who file taxes.	Households that use natural gas, electricity, heating oil, and propane to heat their homes represent more than 96% of all occupied housing units. But the household benefits would depend on how the distributors chose to return the allowance value to customers.	LIHEAP benefits are targeted to assist low-income households, defined as those with incomes at or below 150% of poverty or 75% of state median income in FY2009. However, not all who are eligible have received benefits.	WAP benefits are available to those with incomes at or below 200% of poverty or up to LIHEAP income limits. Not all eligible households have received weatherization assistance.	Eligibility for the EITC depends on both earned income and number of qualifying children. In 2006, 23 million tax filers received the EITC.	If eligibility were based on SNAP levels—at or below 130% of poverty—then approximately 18.5 million households, representing almost 39 million individuals, would qualify.
Administration	Would likely require the coordination of existing systems. Cost would depend on how benefits were tailored.	Would use existing payroll and/or income tax systems.	Distributors have basic information (e.g., address) about their consumers and could deliver benefits using billing systems. Possibility of additional state and/or federal government oversight could increase administrative costs.	Program currently allows states to use up to 10% of funds for administration.	The WAP statute allows up to 10% of funds to be used for administration with additional funds for training and technical assistance.	The EITC has been found to have administrative costs that range between 1% and 3% of benefits claimed.	In the case of SNAP, which uses the EBT system, varying sources estimate that approximately 16% or 17% of SNAP dollars go toward administrative costs. However, most of the costs go toward determining eligibility. A majority of those who would qualify for EBT payments would already have been determined to be eligible for SNAP.

Considerations	Direct Payments to All Households	Disbursal Through Tax Systems	Allowances to Energy Distributors	Low Income Home Energy Assistance Program	Weatherization Assistance Program	Earned Income Tax Credit	Electronic Benefit Transfers to Low-Income Households
Consumer Flexibility	Households would have flexibility in how they use funds.	Households would have flexibility in how they use funds.	Would depend on how the distributors applied the allowance value; consumer flexibility may vary by location.	Funds must be used for utility payments, weatherization or energy emergencies.	Funds must be used to weatherize dwelling units.	Households would have flexibility in how they use funds.	Households would have flexibility in how they use funds.
Tailoring for Household Size and Income	Payments could be adjusted for household size and/or income, but this would likely increase the administrative burden.	Additional information would likely have to be collected to tailor funds for household size or income through the payroll tax system.	Some distributors partner with social services organizations to assist low-income consumers. However, additional information may have to be collected to tailor benefits for household size and income, increasing the administrative burden.	States have the discretion to adjust LIHEAP benefits based on household size and income.	Once program eligibility is determined, the amount of WAP funds used per household is based on the condition of the dwelling unit and the need for weatherization services.	The EITC varies based on income and number of qualifying children, but does not increase for more than two children.	If an EBT rebate were to have income guidelines like SNAP, then benefits could be tailored based on family size and income. Maximum SNAP benefits vary with family size, and are reduced as family income increases.
Accounting for Regional Differences	Payments could be adjusted for regional differences, but this would increase the administrative burden.	Payments could be adjusted for regional differences, but this would increase the administrative burden.	Policymakers could distribute allowance value to energy suppliers based on regional differences.	LIHEAP has a statutory formula that allocates funds to states based on both the type of fuel used by low-income households as well as the price by fuel type.	WAP uses a formula that takes account of energy consumption and expenditures in determining how funds are allocated to the states.	Payments could be adjusted for regional differences, but this would increase the administrative burden.	Payments could be adjusted for regional differences, but this would increase the administrative burden.
Promoting Energy Efficiency	Not directly promoted.	Not directly promoted.	Depends on implementation and use of allowance value. Policymakers could require some value be applied for this purpose; it would also be possible to encourage energy efficiency by tying benefits to reductions in energy usage.	Subsidizing energy payments may reduce incentives to conserve energy, although the LIHEAP statute allows states to use up to 15% of funds for weatherization (up to 25% with a waiver from HHS).	Weatherization activities may prevent future energy usage, thereby reducing overall household energy costs.	Not directly promoted.	Not directly promoted.

Source: Prepared by CRS.

Author Contact Information

(name redacted)
Analyst in Environmental Policy
[redacted]@crs.loc.gov, 7-....

(name redacted)
Specialist in Housing Policy
[redacted]@crs.loc.gov, 7-....

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(name redacted), Specialist in Social Legislation, wrote the sections of this report on the Low Income Energy Refund Program and the expansion of the Earned Income Tax Credit.

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