Hearing on

Climate Change Legislation: Allowance and Revenue Distribution

Written Testimony of Dallas Burtraw

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Prepared for the U.S. Senate Committee on Finance

August 4, 2009

Summary of Testimony

This testimony focuses on the allocation of emissions allowances to consumers through their local distribution companies. This provision and some other features of the proposal are designed to protect consumers from the adverse impacts of price increases and reduce regional inequities. However, this approach also raises the overall cost of achieving emissions reductions. The degree to which it raises the costs will depend on how public utility commissions at the state level incorporate the allowance value into their rate design. The outcome at this juncture is uncertain and beyond the reach of legislative language included in H.R. 2454.

I consider incremental changes to the allocation formula. A simple per-household rebate of allowance revenue raised by the government through auction, coupled with a more moderate allocation to local distribution companies, can achieve distributional and regional goals at less cost and with greater administrative simplicity and predictability. In this framework, there may still be a role for limited allocation to local distribution companies on behalf of residential-class consumers to correct for regional differences in the cost burden of the program.

However, any implementation of free allocation to local distribution companies needs some amendment to the way it is described in H.R. 2454. In addition, the allocation to local distribution companies should phase out a decade earlier than it does currently.

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Climate Change Legislation: Allowance and Revenue Distribution

WRITTEN TESTIMONY OF DALLAS BURTRAW

Mr. Chairman, thank you for the opportunity to testify before the Senate Committee on Finance. My name is **Dallas Burtraw,** and I am a senior fellow at Resources for the Future (RFF), a 57-year-old research institution based in Washington, DC, that focuses on energy, environmental, and natural resource issues. RFF is independent and nonpartisan, and shares the results of its economic and policy analyses with environmental and business advocates, academics, government agencies and legislative staff, members of the press, and interested citizens. RFF neither lobbies nor takes positions on specific legislative or regulatory proposals. I emphasize that the views I present today are my own.

I have studied the performance of emissions cap-and-trade programs from both scholarly and practical perspectives, including evaluation of the sulfur dioxide (SO_2) emissions allowance trading program created by the 1990 Clean Air Act Amendments, the nitrogen oxides (NO_X) trading program in the northeastern United States, and the European Union Emission Trading Scheme (EU ETS). I have conducted analysis and modeling to support the state and regional efforts to design trading programs, and I served on California's Market Advisory Board that developed an outline for a statewide cap-and-trade program under its 2006 greenhouse gas law.

Currently I serve on California's Economic and Allocation Advisory Committee, advising on implementation of the state law and focusing specifically on allocation under a potential cap-and-trade program in the state. I also currently serve on the EPA Advisory Council on Clean Air Compliance Analysis and the National Academies of Science Board on Environmental Studies and Toxicology. Recently, with colleagues at RFF, I have conducted economic analysis of mechanisms to contain the costs and the variability of costs of implementing climate policy.

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I want to focus on one aspect of the allocation of emissions allowances under a cap-and-trade program that emerged as part of H.R. 2454, "The American Clean Energy and Security Act of 2009," which the House passed on June 26, 2009—the allocation of allowances to consumers through their local distribution companies. This provision and some other features of the proposal are designed to protect consumers from the adverse impacts of price increases and reduce regional inequities.

The main point I want to leave you with is that there is another approach that can achieve these goals at less cost and with greater administrative ease: a simple per-household rebate of allowance revenue raised by the government through auction, otherwise known as a cap and dividend. In this framework, there may still be a role for limited allocation to local distribution companies on behalf of residential-class consumers to correct for regional differences in the cost burden of the program.

However, any implementation of free allocation to local distribution companies needs some amendment to the way it is currently described in H.R. 2454. In addition, the approach should phase out a decade earlier than it does.

I evaluate the allocation formulas in H.R. 2454 with three criteria in mind.

First, focus on administrative simplicity and consistency: The allocation approach in H.R. 2454 is complex, but nonetheless leaves the distributional outcome largely undetermined. State public utility commissions will play the determining role in how households are affected, not Congress, and this will be done in 50 different ways. In fact, there is great uncertainty about how the allowance value directed to local distribution companies will flow back to consumers.

Second, protect consumers from adverse impacts: It is broadly accepted that the free allocation to local distribution companies raises the overall cost of the program.[1] This occurs because by reducing energy costs for consumers, the policy would also reduce the price incentive for households and businesses to change the way they use energy. Detailed modeling results show that on average, households are made worse off by the effort to protect them from electricity price changes because it will lead to greater electricity consumption. Consequently, greater emissions reductions will be necessary, at higher cost, in other parts of the economy. Nonetheless, free allocation to local distribution companies may have a justification in reducing regional disparities.

Third, avoid disparate regional and distributional impacts: A more limited approach of allocation to local distribution companies than appears in H.R. 2454 is sufficient to level the playing field across geographic regions and protect low income households. The more limited allocation would be on behalf of just residential consumers.

In H.R. 2454, over the first couple decades of the program, about 56 percent of emissions allowances are directed back to consumers and business to address equity concerns, including allocation to electricity and natural gas local distribution companies, home heating and low income families. This does not include allocations for trade-exposed industries (15 percent) or the merchant plant allocation (totaling about 5 percent). The question is how well the goal of achieving equity across income groups and regions is

[1] See: Paul, Anthony, Dallas Burtraw and Karen Palmer, 2008. "Compensation for Electricity Consumers under a U.S. CO_2 Emissions Cap," RFF Discussion Paper 08-25 (July). An updated description of this is reported in a technical memo: "The Effects on Households of Allocation to Electricity Distribution Companies," Rich Sweeney, Josh Blonz, and Dallas Burtraw, Resources for the Future, June 5, 2009. http://www.rff.org/wv/Documents/LDC_Allocation_090605.pdf

achieved under the current design? We evaluate this by holding the 56 percent constant, but changing the way some of this compensation is delivered. Each change is then compared to a simple metric of direct allocation to households on a per-capita basis.

The first incremental change we consider is the free allocation of allowances to electricity local distribution companies on behalf of industrial- and commercial-class customers. This allocation raises the cost of the program because it is likely to result in one way or another in increased electricity consumption. Moreover, the allocation to local distribution companies on behalf of industrial- and commercial-class customers is especially complicated and Congress cannot anticipate or effectively determine how this program will work. How well customers actually will be compensated depends on arcane issues about the fixed and variable components of an electricity bill. Ambiguity of this nature is a concern because legislation would create a new commodity with a market value of over $100 billion per year. Complexity and lack of transparency is likely to undermine public confidence and the long-run political will to address climate change. I discuss the nature of this ambiguity in detail below.

One way to reduce the cost of the program is to move away from free allocation on behalf of commercial and industrial class electricity customers. Substituting a direct dividend to households in place of free allocation to industrial- and commercial-class electricity customers would reduce the cost of the program by $99 per year for the average household.[2] The middle class would also experience cost savings. The fifth, sixth, and seventh income deciles would all face costs at least $112 lower than in H.R. 2454. Shifting the allocation away from industrial- and commercial-class electricity consumers and towards dividends to households would be the simplest and easiest way to modify H.R. 2454 to reduce costs, while still achieving regional and distributional goals. Industrial and commercial customers would still be protected to a large extent by the other portions of the allocation formula, including the 15 percent allocation for trade-exposed industries.

Another important, unanticipated and unappreciated outcome of free allocation to local distribution companies on behalf of energy consumers is the benefit that accrues to energy producers. The reduction in electricity price and the associated expansion of electricity generation would lead to greater utilization of incumbent assets and greater revenue. In the period 2015–2020, in competitive regions of the country, electricity producers would see their annual profits increase, as a result of free allocation on behalf of consumers, by a total of about $2.5 billion per year. Let me note, this benefit to the

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[2] A full description of the model is provided in Burtraw, Dallas, Richard Sweeney and Margaret Walls, 2009. "The Incidence of U.S. Climate Policy," Resources for the Future Discussion Paper 09-17-Rev. Our calculations differ from EPA's analysis of H.R. 2454 for a number of reasons. We model a limited role for offsets and hold that level constant across various scenarios examining alternative approaches to allocation. In H.R. 2454, expanded use of offsets early in the program shifts the costs associated with domestic abatement to later years. This combined with the five percent annual discounting of costs results in lower cost estimates for households in the EPA's analysis. In contrast, our estimates correspond to the EIA estimates of domestic compliance activities in their analysis of S. 2191 (Lieberman-Warner). We evaluate the effects without discounting on households in eleven regions and ten income deciles in the first decade of the program. All reported values are in 2006 dollars.

industry is distinct entirely from the 5 percent allocation (about 5 percent of total allowances or $5 billion per year) to merchant generating plants that appears in a separate part of H.R.2454. In previous testimony, I and others have reported on research that indicates that the change in the value of existing assets of incumbent firms is likely to be less than this amount.[3]

In the rest of the country, where the electricity industry operates under cost-of-service regulation, it is usually suggested that the profitability of firms would not be affected because regulators there establish a revenue requirement and set rates to achieve a fair rate of return on invested capital. However, once these rates are set, additional sales due to lower electricity prices constitute revenue beyond the level calculated to recover capital investments, and that translates into profits for shareholders. So in these regions, industry also can benefit from free allocation to consumers. Electricity generation in these regions would expand by 8 percent or 200 million MWh in 2020 as a result of free allocation to local distribution companies.

On Behalf of Households

Thus far I have only addressed free allocation to local distribution companies on behalf of industrial- and commercial- class customers. One might view the free allocation on behalf of residential customers in a different light. While it also raises the overall cost of the program, free allocation on behalf of residential customers may more directly help to reduce the cost of the program in regions that are relatively hard hit due to the greater use of coal for electricity generation, like the states surrounding the Ohio Valley. We find that households in all income deciles in an eight-state region benefit more from free allocation to local distribution companies directed to residential-class customers, compared to direct allocation to households. Again, free allocation has an efficiency cost and the program is more expensive for the national average household, but the tradeoff between equity and efficiency is relatively straight-forward. Congress can be confident what it is buying in this tradeoff.

The status quo allocation of the 56 percent of allowances in H.R. 2454 leads to an inverted 'U' with respect the distribution of costs across household income groups. It would do a good job of protecting the bottom 20 percent of households and the top 10 percent. The increase in costs associated with the inefficient allocation to local distribution companies falls hardest on the middle range of household incomes. In contrast, direct dividends to households allocate the value of allowances in a way that does not disadvantage the middle class, is less costly and administratively simpler. Furthermore, in a profound way, direct dividends avoid the appearance of favoritism, by distributing to households an equal share of the value of a new property right that is created under a cap-and-trade program.

Let us consider broadly the consequence of changes in the portion of the allocation formula intended to achieve distributional and regional goals, holding constant the 56

[3] Burtraw, Dallas and Karen Palmer, 2008. "Compensation Rules for Climate Policy in the Electricity Sector," 2008. *Journal of Policy Analysis and Management*, 27 (4):819-847.

percent of allowance value, but consider the alternative of direct taxable dividends of 41 percent of the value, with the remaining 15 percent directed to residential customers of electricity and natural gas, to be delivered through their local distribution companies. This approach would lower the cost of the program for the average household by $106 per year compared to the approach used in H.R. 2454. Further, it would fully protect households below the poverty line, including approximately the bottom two deciles of the population.[4] The middle class, who bears a large portion of the burden under H.R. 2454, would also receive relief with this approach. The fifth, sixth and seventh income deciles would face cost savings of $177, $231 and $263 respectively compared to H.R. 2454.

This approach retains the attribute of H.R. 2454 in promoting regional equity by compensating residential electricity consumers in regions which previously might have had larger cost increases. For example, the Ohio Valley faces a burden $52 lower than if there was no allocation to residential electricity and natural gas consumers.

Another important element of the allocation formula is the "apportionment" of allowances among local distribution companies, or more generally among states and regions of the country. H.R. 2454 considers two metrics for apportionment in the electricity sector, consumption and emissions in different regions, and weights these metrics equally. If a different formula were applied it would have significant regional effects. For example, if the policy were to apportion on the basis of the emissions-intensity of electricity consumed, our modeling indicates it would increase the allocation going to the Ohio Valley region by more than 20 percent.

Exhibit 1 illustrates the share of allowances going to each of 21 regions of the continental United States under the formula in H.R. 2454, compared to two alternatives. One is based on the emissions-intensity of consumption, which is calculated using a detailed simulation model, and the other is the emissions-intensity of production. In many regions there is not much difference between the emissions-intensity of consumption (which is hard to measure) and the emissions-intensity of production (which is easy to measure), but it does make a big difference in regions that are net importers or net exporters of power. The conceptually preferred approach is the emissions-intensity of consumption, because it reflects the impact on prices that will be felt by consumers. Even small adjustments to the formula, giving greater weight to the emissions-intensity of consumption, could direct greater compensation to households in the Ohio Valley yet not affect the overall cost of the program and leave a large per capita dividend in place.[5]

A second type of incremental reform to H.R. 2454 would be to reconsider its timing. A justification for free allocation on behalf of consumers is that households will enter the

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[4] We assume the tax collected on the dividends is returned to the program in a revenue neutral manner, leading to greater effective benefits for lower income households with lower tax rates. If the dividends were nontaxable, the average cost per household would be the same but it would result in a shift of net dividend value to higher income households.

[5] If an emissions-based approach were used, and limited only to residential class customers, the emissions intensity of production might be a straight-forward solution that was acceptable to regions that have relatively low emissions-intensity of their own generation but import emission-intensive electricity because it would leave a large share of allowances to be distributed through direct dividends.

program with an existing stock of household capital in appliances and building shell efficiency. There would be relatively less opportunity to respond to a sudden price change, with existing household capital in place, than there would be to a gradual change in prices that emerges over time because households would have the opportunity to change their appliance purchase decisions and make other changes. A sudden change in prices would not be especially effective and would be politically unpopular. However, to provide households with an incentive to purchase more efficient appliances, etc., it is essential that they anticipate they will see increasing prices in the near future. The current duration of the free allocation to local distribution companies through 2026, with a phase out of the allocation beginning only then, is too long to provide incentives for changes in consumer behavior over the next ten years. From the vantage point in 2009, I think the simplest and most effective change to H.R. 2454 would be to begin the phase out of free allocation to local distribution companies at the outset of the program and to have the phase out completed before the end of the next decade.

A third type of incremental reform to H.R. 2454 would be to clarify the language that provides direction to local distribution companies and their public utility commissions about how allowance value should be returned to customers. The current language is problematic. Directing allowance value to reduce the fixed part of the electricity bill "to the maximum extent possible" is conceptually advantageous but it is impractical and unlikely to have the desired result. Conceptually, reducing the fixed part of the bill would preserve the incentive for consumers to reduce consumption because consumers would be compensated by reducing their overall bill, but prices for incremental consumption would remain at full value.

In practice this approach is nearly unworkable. One reason is because bills do not separate the fixed and variable portions of the charge in this way, especially for residential class customers. A survey of sample residential bills from around the country indicates that rarely is there a fixed part that is greater than just a few dollars. Four examples of sample bills are included in **Exhibit 2.** What might be considered a fixed cost (that is, not a variable cost) such as transmission and distribution charges are broken out only sometimes, but they almost always are recovered on a volumetric (per KWh) basis. To change that practice would require widespread bill reform, and there is no legislative language to achieve that outcome. Further elaboration of this is provided below.

However, even if bills did separate fixed and variable charges, and the allocation was used to reduce the fixed part of the bill but leave the price of incremental changes in consumption untouched, it remains implausible that customers would respond to the marginal price signal in the desired way. I consider myself an energy expert, but few people I know pay attention to the difference between their electricity price and their electricity bill. I venture that in 99 percent of households, customers just sit down at the computer to pay the bill, and if the bill is less, they figure electricity just got cheaper and their consumption is likely to increase.

One might expect more sophisticated behavior from commercial- and industrial-class customers, who might recognize their true marginal production costs. However, the implementation of the rebates to consumers will require oversight of state-level public utility commissions to determine, for example, how much of a rebate to the fixed portion of a bill a large customer should receive compared to a small customer. If they were receive the same size rebate it would seem unfair, or even potentially absurd if they were of very different size. But, if they receive different size rebates, then their rebates would actually hinge on the volume of electricity they consume, so we are right back at the beginning. H.R. 2454 acknowledges this complication for industrial customers, and the final version of the proposed legislation allows for rebates to industrial customers to be placed in the variable portion of the bill. In any case, the final outcome actually will be decided in 50 different ways in the different states, where PUCs interpret their missions to protect the public in different ways. The outcome is beyond the reach and determination of the legislation currently.

In the remainder of this testimony, I provide background for the committee on institutional issues associated with the free allocation to local distribution companies, and the influence the various approaches I discuss are likely to have on the cost of the policy to households in different regions and income groups.

Institutional Issues Associated with Electric Local Distribution Companies

Local distribution companies, or LDCs, are regulated entities responsible for providing physical distribution of electricity to end-use loads as well as customer billing for electricity consumption. The effects of free allocation to LDCs will largely depend on how LDCs return allowance value to consumers. State-level public utility commissions, which regulate retail prices, will need to determine how to treat the income received by LDCs for the sale of allowances. Distributing the value to consumers through lower rates could offset much of the increase in electricity prices imposed by a cap-and-trade program, yet may encourage increased consumption. State commissions will have discretion over how to balance lower rates with sufficient conservation incentives in their ratemaking and design process.[6]

Currently, there are no widely accepted standards that state commissions use to determine rate design and cost recovery, nor guidelines on how LDCs are to convey the rate structure to consumers through electricity bills. Some state commissions may apply common principles to the rate structures of utilities under their jurisdiction, yet there is a wide range of approaches among the state commissions, and the rate design itself (how costs are recovered through the rate structure) may still vary by utility. For example, the California Public Utility Commission employs a five-tier inclining block rate as the default pricing scheme for residential consumers.[7] Although the overall structure for each utility may be similar with each tier of electricity usage corresponding to a higher

[6] For an overview, see: National Regulatory Research Institute, 2008. *State Commission Electricity Regulation Under a Federal Greenhouse Gas Cap-and-Trade Policy*
[7] http://www.dra.ca.gov/DRA/energy/Electric+Rate+Design.htm#DRA_Advocacy

per-kilowatt-hour charge, each utility may recover costs differently since the rate structure does not differentiate between cost components.

In providing electricity to consumers, utilities generally face a fixed cost component and a variable cost component. The fixed portion covers costs that do not change with changes in electricity output. This is generally predictable and includes elements such as operations (i.e. transmission and distribution), maintenance, customer service, capital costs and taxes. The variable cost component is a volumetric expenditure associated with generation. This mainly includes the cost of fuel or purchased power.

The goal of a state regulatory commission is to provide an LDC with the opportunity to recover its costs plus earn a competitive return on investment. The regulatory process through which LDCs receive an approved rate structure is called a rate case and consists of two phases. The first phase is ratemaking during which the state commission determines a reasonable revenue requirement for the utility. The second phase is rate design where the state commission determines how the revenue requirement shall be recovered through various charges for each customer class.

This process results in unique rate structures for each LDC. Some examples of sample bills from various parts of the country are included as **Exhibit 2**. The rate structure, through which LDCs collect revenue, may consist of a number of separate components, including energy charges, demand charges, consumer service charges, environmental surcharges, fuel and purchased power adjustments, and other miscellaneous charges.[8] In general, most of the fixed costs incurred by the utility are recovered through variable charges on the customer bill. Often, customers will have one fixed customer charge on their bill representing the minimum payment allowed (if no electricity is consumed) along with one or more volumetric charges. These may be structured as a single rate for all consumption, an inclining block rate (such as the California example above), or the volumetric charges may be divided categorically (i.e., transmission charge, distribution charge). Large end-users, such as industrial customers, often have a demand charge which is based on kilowatts (not kWh) and reflects their contribution to peak-load. There is considerable heterogeneity in rate structures by state as well as by utility and customer class.

Allowance Value to Consumers

State commissions can treat the allowance value in rate design in myriad ways. Since allowance value is essentially additional fixed income to the LDC, state commissions could logically view the allowance as an offset of the LDC's fixed costs. The variable cost, which would remain an indicator of the true price of electricity generation, would increase to reflect the added costs of the cap-and-trade program. However, as stated previously, LDCs recover most of their fixed costs through a variable charge on consumer electric bills. Furthermore, practice is heterogeneous across states, utility and customer classes. So it is unclear how the allowance value applied to an LDC's fixed costs would appear in customer bills.

[8] See EIA: http://www.eia.doe.gov/cneaf/electricity/page/prim2/toc2.html

One straightforward treatment of allowance revenue would be to simply reduce the revenue requirement by the allowance value and then apply the same function in allocating the revenue requirement to the rate structure components. This would likely result in lower rates and/or fees for each line item on a bill. Alternatively, the state commission could allocate the allowance value to reductions in just one or more rate components. Depending on the structure of the bill, customers may see increases in some of the non-targeted rate components, but these would be offset to an extent by reductions in the targeted component. The state commission could also reduce each customer's bill by a fixed amount. Since each state commission approaches rate design in a different manner, the return of allowance value to consumers will also likely vary among state commissions and among utilities within each jurisdiction.

Additional Considerations by State Commissions

In deciding how to treat the income from the sale of free allowances, state commissions must consider how their decisions affect household consumption. This largely relies on three things: (1) the pricing signals in electricity retail rates, (2) consumers' capacity to respond to changes in electricity rates or the different components of their bills, and (3) conservation incentives for LDCs.

First, state commissions must consider how the return of allowance value will affect the pricing signals conveyed to consumers. Since state commissions act in the interest of the public, they often have multiple competing goals that complicate the regulatory process. They must balance energy efficiency with consumer protection while ensuring competitive returns to LDCs. Because of the complexity of rate design, retail prices often fail to accurately reflect the underlying cost of electricity.[9] The return of allowance value to consumers through changes in retail rates has the potential to further distort this pricing signal. Without appropriate signals, households will not consume socially efficient levels of electricity.

Second, the effect of free allocation to LDCs depends on how customers respond to changes in their electricity bills. Likely, the state commission decisions will lead to at least one or more line-item reductions in a consumer bill. If the price reductions lead to increases in consumption, the emission reductions achieved by the cap-and-trade program could be partially eroded by increases in consumption. State commissions need to balance price reductions with the need to encourage consumers to conserve and invest in energy efficiency measures. Currently, it is unclear how customers would react to different changes in electricity rate structures. For example, I argued above that customers may react to variable charges different than fixed charges or they may only pay attention only to the overall total bill.

Lastly, state commissions must consider how rate designs affect conservation incentives for the utility. Since cost recovery is largely achieved through variable charges on a

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[9] Faruqui, Ahmad, and Stephen George, March 2006: Pushing the Envelope on Rate Design. *The Electricity Journal*, Vol 19, Issue 2, pp 33 – 42.

customer bill, the LDC's revenue increases as sales increase. This provides a disincentive for the LDC to encourage conservation or invest in efficiency measures. Decoupling is a rate mechanism alternative to correct this disincentive. Under a decoupled rate design, fixed cost recovery is independent from the sale of electricity. Basically, the allowed revenue is fixed instead of the allowed rate. Although there are many nuances to the specific design, this trend is becoming more popular and state commissions will need to understand how it can complement the return of allowance value to customers since the fixed-cost portion of the bill is specifically targeted. Currently, 15 utilities in 7 states have some form of decoupling policy for electricity and two states have approved future initiates.[10]

An alternative to decoupling is the straight-fixed variable rate design which assigns all fixed costs to a fixed charge on the customer bill and all variable costs to a variable charge. This would be a straightforward way to ensure that the LDC allowance value is returned to customers without affecting the variable cost of electricity, yet there are two issues with this design.[11] First, this mechanism reduces the variable component of customer bills by moving fixed costs from the variable to fixed components. This reduces consumer incentives to conserve electricity. Of course, under a cap-and-trade program, the variable charge of electricity would likely increase so the potential net effect on the variable charge is unclear. The other problem with a straight-fixed variable design is that moving fixed costs from the variable charge may adversely affect small and low-income users.

Although some utilities have considered this approach to rate design, no utilities currently invoke this approach, owing to these issues. Nonetheless, this alternative highlights the complexity of decisions and considerations that state commissions face during a rate case. Free allocation of permits to LDCs has the potential to cushion the price effects of a cap-and-trade program but it will add to the complexity faced by state commissions.

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[10] Lesh, Pamela (NRDC), June 2009: *Rate Impacts and Key Design Elements of Gas and Electric Utility Decoupling: A Comprehensive Review*.

[11] Boonin, David M., May 2009: A Rate Design to Increase Efficiency and Reduce Revenue Requirements. *The Electricity Journal*, Vol. 22, Issue 4, pp 68-78

Exhibit 1: Regional Distribution of Emissions Allowances in 2020

The following chart compares the distribution of allowances to local distribution companies in H.R.2454 with allocation based strictly on the emissions-intensity of consumption or the emissions-intensity of production. The 21 regions are identified below.

Region	States
OHMI	Ohio and parts of Michigan
KVWV	West Virginia and parts of Kentucky and Virginia
IN	Indiana
ERCOT	Parts of Texas
NJD	Delaware and New Jersey
MD	Maryland
PA	Pennsylvania
MAIN	Parts of Illinois, Iowa, Michigan, Minnesota, Missouri, and Wisconsin
MAPP	Nebraska, North Dakota, South Dakota, and parts of Illinois, Iowa, Minnesota, Montana, and Wisconsin
NY	New York
NEN	Maine, New Hampshire, and Vermont
NES	Connecticut, Massachusetts, and Rhode Island
FRCC	Parts of Florida
AMGF	Alabama, Georgia, Mississippi, and parts of Florida
ENTN	Tennessee and parts of Arkansas, Kentucky, Louisiana, Missouri, and Texas
VACAR	North Carolina, South Carolina, and parts of Virginia
SPP	Kansas, Oklahoma, and parts of Arkansas, Louisiana, Missouri, New Mexico, and Texas
NWP	Idaho, Oregon, Utah, Washington, Wyoming, and parts of Montana and Nevada
RA	Arizona, Colorado, and parts of Nevada and New Mexico
CALN	Parts of California
CALS	Parts of California

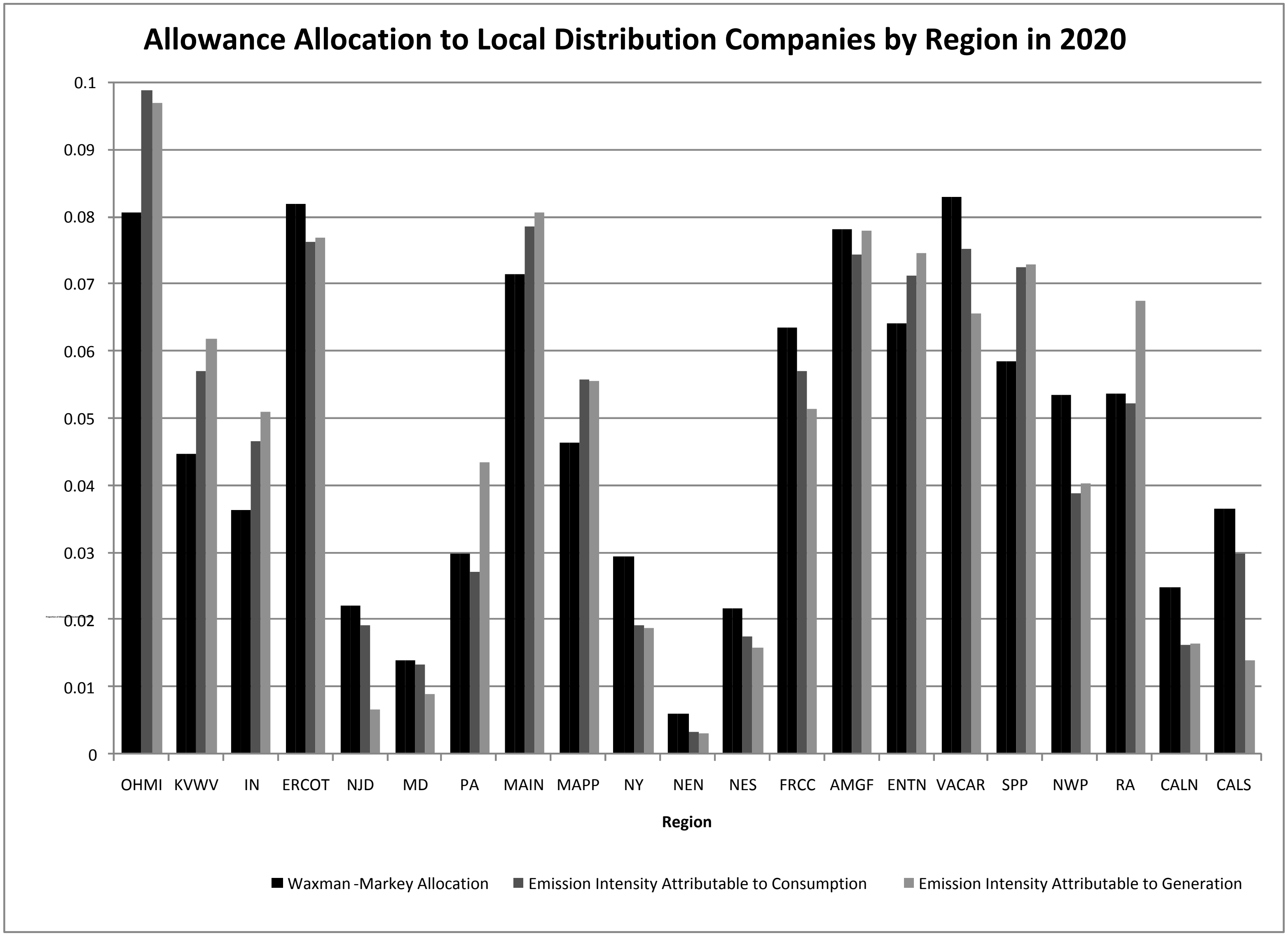

Allowance Allocation to Local Distribution Companies by Region in 2020
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
OHMI
KVWV
IN
ERCOT
NJD
MD
PA
MAIN
MAPP
NY
NEN
NES
FRCC
AMGF
ENTN
VACAR
SPP
NWP
RA
CALN
CALS
Region
Waxman -Markey Allocation
Emission Intensity Attributable to Consumption
Emission Intensity Attributable to Generation

Exhibit 2: Sample Electricity Bills

These four sample bills represent demonstrate the diversity in bills delivered to electricity customers. Note the following characteristics:

(1) Baltimore Gas and Electric (Maryland)

- Competitive region
- BGE uses a decoupling mechanism to recover lost revenue from energy efficiency programs
- Gas and Electric services are on the same bill
- Supply and delivery charges separated on the bill. "Delivery" is further broken down into a fixed charge plus several volumetric charges

(2) Pacific Gas & Electric (California)

- Regulated region
- PG&E uses a decoupling mechanism (revenue is independent of sales)
- Gas and electric services are the same bill
- PG&E uses a volumetric inclining block rate
- The total amount is then separated into different components (generation, transmission, distribution…)

(3) Pacific Power (Oregon)

- Regulated region
- No decoupling mechanism
- Small basic charge (98 cents, non-volumetric). The rest of the bill is a single volumetric charge (plus taxes)

(4) Florida Power & Light (Florida)

- Regulated region
- No decoupling mechanism
- Electric service amount consists of a customer charge (fixed), fuel charge (volumetric) and non-fuel charge (volumetric)

(BILL FRONT SAMPLE)

BGE
We're on it.

Name	John Q. Customer
Service Address	4065 Anywhere Street Baltimore MD 21201
Account Number	123345-67890

Next Scheduled Reading **June 1, 2009**

1 **Summary**

Billing Date: May 1, 2009

Payments Received

April 16, 2009	$374.94
BGE Outstanding Balance	$0.00

Charges this Period

BGE Electric	69.22
BGE Gas Delivery Service	29.46
BGE Gas Commodity	39.76
Total Charges This Period	$138.44
Total Amount Due by May 26, 2009	**$138.44**
Late charge after May 26, 2009, add $2.07	$140.51

A late payment charge is applied to the balance of your BGE charges. The charge is 1.5% for the first month; additional charges will be assessed on unpaid balances past the first month, not to exceed 5%.

3 **Electric Usage Profile**

Month/ Year	Type of Reading	Days	kWh	Avg. Daily Use	Avg. Temp
Apr 09	Actual	31	403	12.6	36
Mar 09	Actual	28	352	12.6	39
Apr 08	Actual	32	585	18.3	51

Gas Usage Profile 4

Month/ Year	Type of Reading	Days	Therms	Avg. Daily Use	Avg. Temp
Apr 09	Actual	31	47	1.5	36
Mar 09	Actual	28	75	2.7	39
Apr 08	Actual	32	47	1.5	51

2 **Important Information About Your Bill**

Effective November 14, 2008, your Price to Compare is 11.82 cents ($.1182) per kWh. When shopping for electric suppliers, compare this price to those proposed by other companies. This price reflects the average annual amount a customer on this schedule pays per kilowatt-hour for BGE Electric Supply.

Moving? To stop or transfer service, contact BGE at least 3 business days prior to your move date. You are responsible for all service at your present address until you notify us.

(BILL BACK SAMPLE)

5 **Electric Details** Non-Summer Rates in Effect

Residential - Schedule R

Billing Period: Mar 31, 2009 - Apr 30, 2009 Days Billed: 31

Meter Read on April 30 Meter #S049438624

Current Reading		Previous Reading		kWh Used
83846	-	83443	=	403

6 **BGE Electric Supply** 403 kWh x 0.12001000 48.36

7 **BGE Electric Delivery Service**

Customer Charge		7.50
EmPower MD Chg	403 kWh x .00115000	.46
RGGI Rate Credit		–.85
Distribution Charge	403 kWh x .02097000	8.45
RSP Chg/Misc Credit	403 kWh x .00416000	1.68

State/Local Taxes & Surcharges

MD Universal Svc Prog		.37
State Surcharge	403 kWh x .00015000	.06
Franchise Tax	403 kWh x .00062000	.25
Local Tax	403 kWh x .00728600	2.94
Total BGE Electric Amount		**$69.22**

The RSP Charge on this bill includes a qualified rate stabilization charge of $0.00633 per kWh approved by the Maryland PSC that BGE is collecting as servicer on behalf of RSB BondCo LLC, which owns the qualified rate stabilization charge.

Gas Details

Residential - Schedule D

Billing Period: Mar 31, 2009 - Apr 30, 2009 Days Billed: 31

Meter Read on April 30 Meter #000949339

Current Reading		Previous Reading		Units		Therm Factor	Therms Used
676	-	632	=	44	x	1.077	47

8 **BGE Gas Delivery Service**

Customer Charge		13.00
EmPower MD Chg	47 therms x .00500000	.24
Distribution Chg	47 therms x .26190000	12.31
Franchise Tax	47 therms x .00402000	.19
Local Surcharge	47 therms x .07905800	3.72
Total BGE Gas Delivery Service Amount		**$29.46**

9 **BGE Gas Commodity**

Gas Commodity	47 therms x .84600000	39.76
Total BGE Gas Commodity Amount		**$39.76**

BGE Contact Information	Baltimore	Outside Area
Report Power Outages		1-877-778-2222
Emergency Service	420-685-0123	1-800-685-0123
Customer Service	410-685-0123	1-800-685-0123
Collection/Turn-Off Notices	410-685-2200	1-800-685-2210
Hearing/Speech Impaired (TTY-TTD)		1-800-735-2258
WeatherLine®	410-662-9225	
Additional BGE Services		www.bge.com
Send Correspondence Only to:	P.O. Box 1475, Baltimore, MD 21203	

Other BGE Bill Payment Options		
BG*Easy* Automatic Payment Plan	410-685-0123	1-800-685-0123
Payments Only to:		P.O. Box 13070, Philadelphia, PA 19101-3070
Hand Deliver to Dropbox (No Cash)		2 Center Plaza
America's Cash Express (Pay-in-Person)*		1-800-698-1779
Global Express (Pay-in-Person)*		1-800-989-6669
Pay-by-Phone*		1-888-232-0088

* *(These are third-party services and processing fees may apply.)*

Pacific Gas and Electric Company WE DELIVER ENERGY.™

JANE SAMPLE

ELECTRIC ACCOUNT DETAIL

Service ID# : 1357913579
Rate Schedule: E1 TB Residential Service
Billing Days: 30 days

Serial	Rotating Outage Blk (29)	Meter #	Prior Meter Read (30)	Current Meter Read	Difference (31)	Meter Constant (32)	Usage (33)
Z	10	63L788	61,553	62,093	540	1	540 Kwh

Charges

01/01/2008 – 01/30/2008

Electric Charges		$90.95	
(34) Baseline Quantity	246.00000 Kwh		
Baseline Usage	246.00000 Kwh @ $0.11560		
101-130% of Baseline	73.80000 Kwh @ $0.13142		
131-200% of Baseline	172.20000 Kwh @ $0.22166		
201-300% of Baseline	48.00000 Kwh @ $0.30507		
Over 300% of Baseline	0.00000 Kwh @ $0.34878		
(35) Net Charges			$90.95

The net charge shown above include the following component(s). Please see definitions on Page 2 of the bill.

(36)	
Generation	$41.82
Transmission	4.29
Distribution	31.91
Public Purpose Programs	6.15
Nuclear Decommissioning	0.15
DWR Bond Charge	2.57
Ongoing CTC	2.35
Energy Cost Recovery Amount	1.71

Taxes

Energy Commission Tax	$ 0.12
Utility Users' Tax (5.0000%)	4.55 (9)

TOTAL CHARGES **$95.62**

Usage Comparison	Days Billed	Kwh Billed	Kwh per Day
This Year	32	540	16.9
Last Year	30	950	31.7

Rotating outage blocks are subject to change without advance notice due to operational conditions.

Generation includes charges for the portion of your energy usage provided by the Department of Water Resources (DWR) and is being collected by PG&E as an agent for DWR. DWR is collecting 6.932 cents per kWh from bundled customers for each kWh it provides plus the Cost Responsibility Surcharge from direct access and transitional bundled service customers.

The rates shown above are applicable to bundled service customers. Direct Access and Community Choice Aggregation customers pay only a portion of these rates. Please see the appropriate rate schedule for the applicable charges.

PACIFIC POWER

JOHN & JOAN Q CUSTOMER
1234 E MAIN ST
ANYWHERE USA 98765

1 *Questions about your bill:* ***1-888-221-7070***
24 hours a day, 7 days a week
www.pacificpower.net

6

BILLING DATE:	May 26, 2006
ACCOUNT NUMBER:	55560490-001 2
DATE DUE:	**Jun 16, 2006**
AMOUNT DUE:	**$51.78**

Your Balance With Us

2

Previous Account Balance	69.34
Payments/Credits	– 69.34
New Charges	+ 51.78
Current Account Balance	$ 51.78

Payments Received

DATE	DESCRIPTION	AMOUNT
May 12, 2006	Payment received - Thank You	69.34
Total Payments		**$ 69.34**

Detailed Account Activity

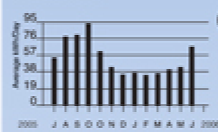
ELECTRIC SERVICE 3 1234 E. Main St Anywhere USA
Residential Service Schedule 1 8

METER NUMBER	SERVICE FROM From	To	ELAPSED DAYS	METER READINGS Previous	Current	METER MULTIPLIER	AMOUNT USED THIS MONTH
64210547	Apr 22, 2006	May 25, 2006	33	36,456	37,178	1.0	722 kWh

4

NEW CHARGE	UNITS	COST PER UNIT	CHARGE
Basic Charge			0.98
Energy Charge	722 kWh	.0612730	44.24
Franchise Tax			5.64
Municipal Energy Sales/Use Tax			3.95
Sales Tax			3.87
Total New Charges			**51.78**

Historical Data 7



Your Average Daily kWh Usage by Month

PERIOD ENDING	MAY 2006	MAY 2005
Avg. Daily Temp.	68	73
Total kWh	722	722
Avg. kWh per Day	22	22
Cost per Day	$1.34	$1.34

Want to help the environment? 9

Check out the new, lower price for Blue Sky energy in the enclosed insert. Now it is easier than ever to help the environment by encouraging development of more wind power resources. Visit www.pacificpower.net for more information.

Write account number on check and mail to: Pacific Power, 1033 NE 6th Ave., Portland, OR 97256-0001

RETAIN THIS PORTION FOR YOUR RECORDS.
RETURN THIS PORTION WITH YOUR PAYMENT.

5

PACIFIC POWER

☐ **Change of Mailing Address or Phone?**
Check here and provide information on back.

Account Number:	55560490-001 2
Date Due:	Jun 16, 2006

WRITE ACCOUNT NUMBER ON CHECK AND MAIL TO:

PACIFIC POWER
1033 NE 6TH AVE.
PORTLAND OR
97256-0001

AMOUNT DUE: $51.78

$ ___ , ___ . ___

Please enter the amount enclosed.

Questions about your bill?
1-888-221-7070

00010 1 000 0 253 0001-00

JOHN & JOAN Q CUSTOMER
1234 E MAIN ST
ANYWHERE USA 98765

H 55560490 001 241 000020454

FPL

Florida Power & Light Company
PO Box 025576
Miami, FL 33102 **1**

2 Please request changes on the back. Notes on the front will not be detected.

The amount enclosed includes the following donation:

4 FPL Care To Share $ ____________

3 JANE CUSTOMER
123 ANY ST
ANYTOWN FL 33000

Make check payable to FPL in U.S. funds and mail along with this coupon to:

5 FPL
GENERAL MAIL FACILITY
MIAMI FL 33188-0001

6 Account number	**7** Total amount you owe	**8** New charges due by	**9** Amount enclosed
12345-67890	$112.48	Jan 29 2007	$

Your electric statement

Account number: 12345-67890

For: Dec 05 2006 to Jan 08 2007 (34 days)
Customer name: JANE CUSTOMER
Service address: 456 SERVICE AVE

10 Statement date: Jan 08 2007
Next meter reading: Feb 07 2007

Amount of your last bill	Payments (-)	Additional activity (+ or -)	Balance before new charges (=)	New charges (+)	Total amount you owe (=)	New charges due by
0.00	0.00	0.00	0.00	112.48	$112.48	Jan 29 2007
11	**12**	**13**	**14**	**15**		

16

Meter reading - Meter 5C54015

Current reading	62280
Previous reading	- 61280
kWh used	1000

Energy usage **17**

	Last Year	This Year
kWh this month	1029	1000
Service days	32	34
kWh per day	32	29

18

****The electric service amount includes the following charges:**

Customer charge:	$5.17
Fuel:	$54.20
(First 1000 kWh at $0.054200)	
(Over 1000 kWh at $0.064200)	
Non-fuel:	$41.55
(First 1000 kWh at $0.041550)	
(Over 1000 kWh at $0.051550)	

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Balance before new charges		$0.00
New charges (Rate: RS-1 RESIDENTIAL SERVICE)		
Electric service amount	100.92**	
Gross receipts tax	2.59	
Franchise charge	3.11	
Utility tax	5.86	
Total new charges		$112.48
Total amount you owe		**$112.48**

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\- A late payment charge of 1.50% will apply if not paid by January 29, 2007, and your account may be subject to being billed an additional deposit.

FPL

Florida Power & Light Company
PO Box 025576
Miami, FL 33102

21 Please have your account number ready when contacting FPL.

Customer service:	(305) 442-8770
Outside Florida:	1-800-226-3545
To report power outages:	1-800-4OUTAGE (468-8243)
Hearing/speech impaired:	1-800-432-6554 (TTY/TDD)
Online at:	**www.FPL.com**