Allowance Distribution to States and Energy Consumers under the American Clean Energy and Security Act (H.R. 2454, Waxman-Markey)

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July 28, 2009

The authors would like to thank Holly Elwell at WRI for her substantial contributions to this analysis.

Introduction

This analysis seeks to answer two important questions about allowance distribution under H.R. 2454, the American Clean Energy and Security Act (ACESA)

- What does ACESA do for states and energy consumers with regards to allowance distribution?
- How are the benefits of these allowances distributed among states?

This analysis was developed jointly by the World Resources Institute (WRI) and the Georgetown State-Federal Climate Resource Center (GCC).

Overview of ACESA Allowance Distribution

- ACESA limits total greenhouse gas (GHG) emissions. It requires regulated entities that emit such gases to hold allowances (permits). Each allowance permits the holder to emit one ton of GHGs. Allowances have value and can be sold.

- ACESA distributes some allowances for free and auctions others.
  - The majority are distributed for free to state and federal agencies and other entities with conditions on their use; a smaller, declining portion of allowances is distributed without restrictions to emitters and energy-intensive businesses.
  - The amount of allowances distributed to various purposes changes over time as the cap is reduced and as distribution formulas change.

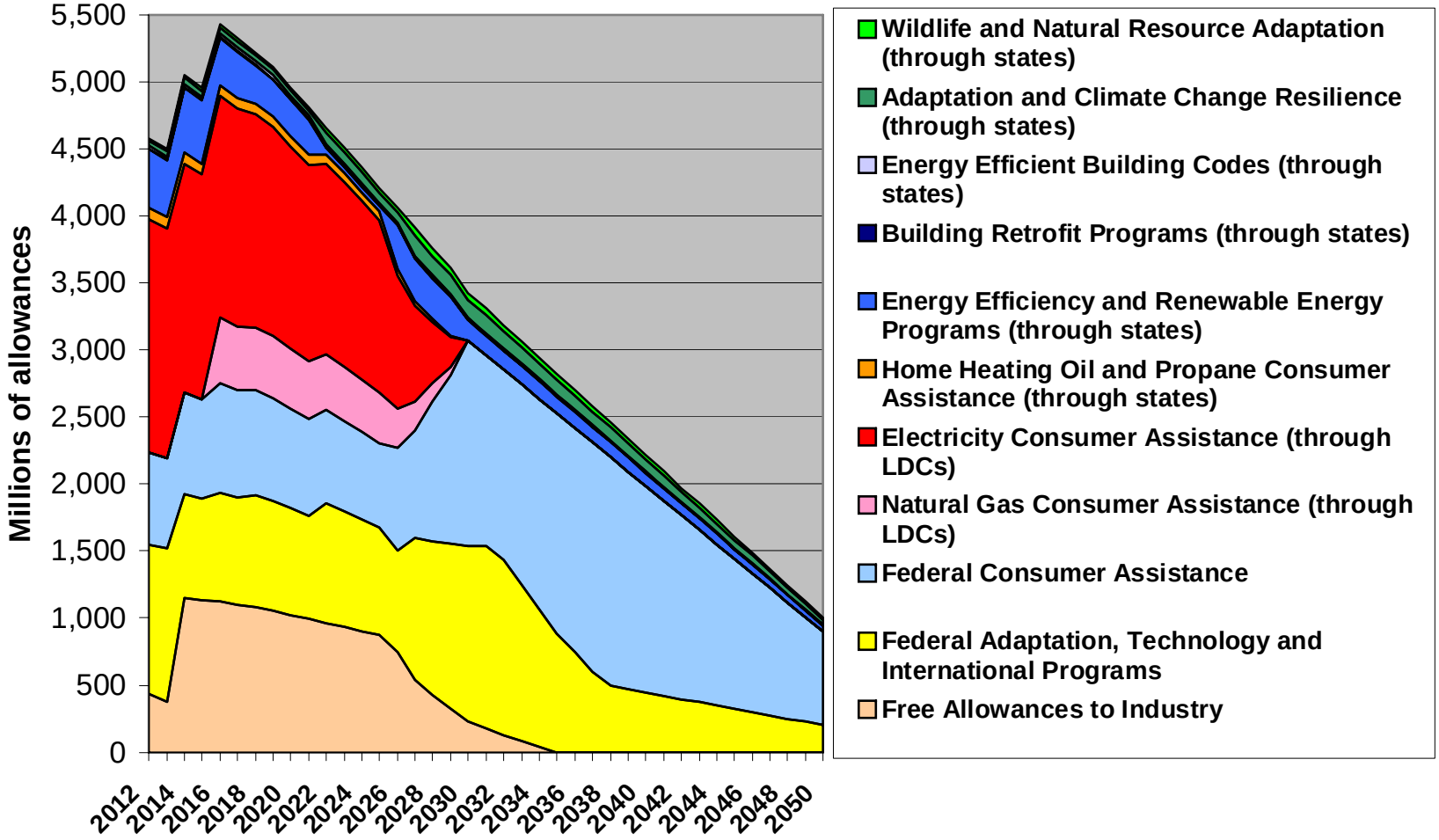
- This analysis focuses on allocations to states and local distribution companies (LDCs) for public benefit purposes such as assistance to energy consumers, investments in energy efficiency and renewable energy, and adaptation to climate change.

Key Findings

- In 2016, the first year in which all programs are active, ACESA distributes 2.7 billion allowances (49 percent of the total allowance pool) to states and energy consumers:
  - 453 million allowances to states for energy efficiency and renewable energy programs, and to adapt to a changing climate
  - 2.2 billion allowances to residential, commercial, and industrial energy consumers through states and LDCs for cost relief and energy efficiency
- All states receive allowances for all programs under ACESA. High-population states receive more allowances due to bigger population and energy consumption profiles; however, carbon intensive and low-population states receive more allowances per capita.
- Between 301 million and 532 million allowances are directed towards new funding for cost-effective energy efficiency program to reduce energy demand and consumer cost impacts, and to lower overall costs of the cap-and-trade program.

Allowances are directed to states and LDCs for clean technology, adaptation, and energy consumer assistance.

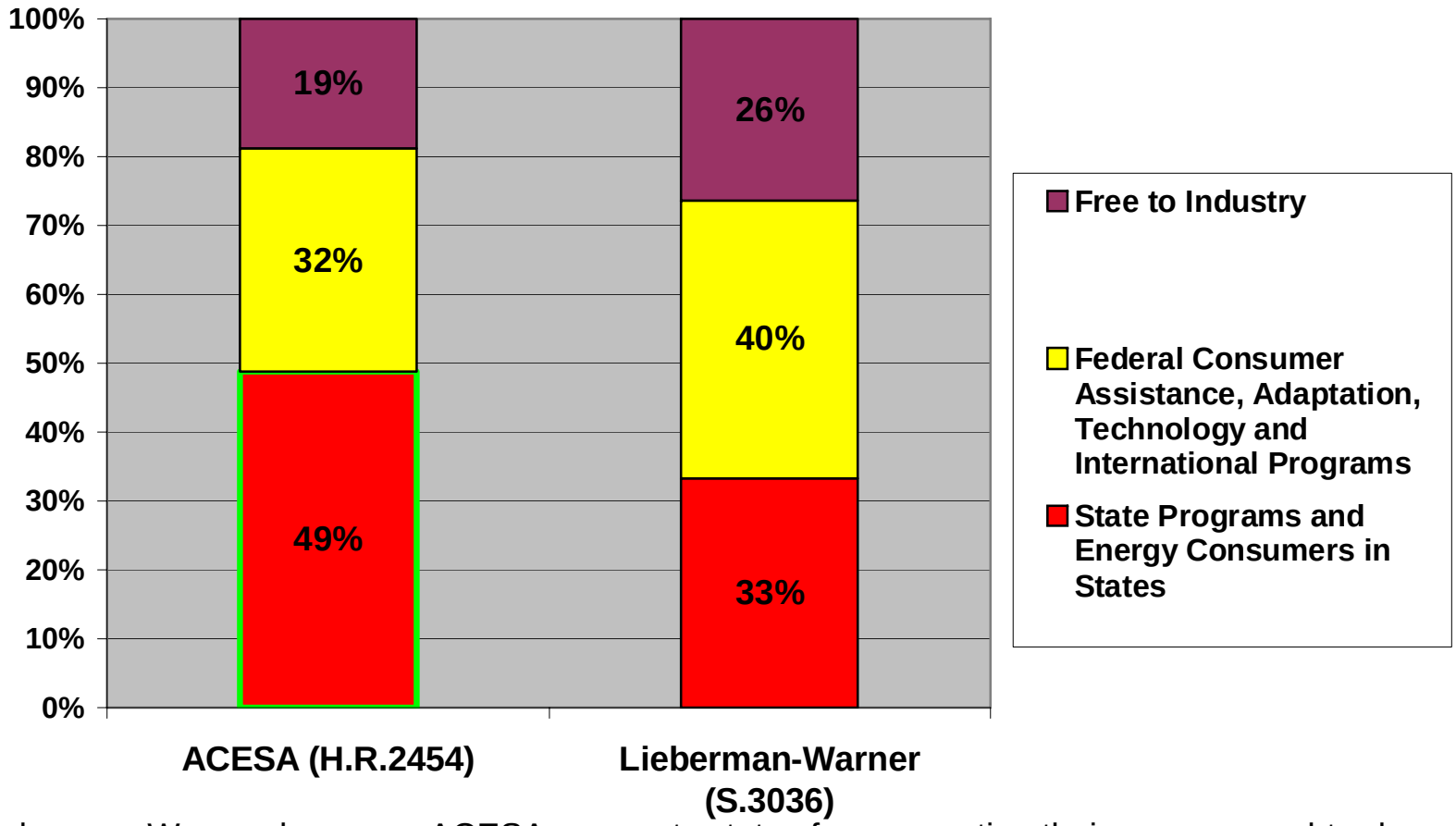
ACESA Allowance Distribution, 2012-2050



As assistance through LDCs phases out, additional federal consumer assistance programs phase in.

ACESA directs more allowances to states and energy consumers than the previously proposed Lieberman-Warner Climate Security Act.

Share of Cumulative Allowance Pool Allocated to Emitters, States and Consumers in States and the Federal Government, 2012-2020



Unlike Lieberman-Warner, however, ACESA preempts states from operating their own cap-and-trade programs from 2012-2017.

Note: This analysis focuses on allowances directed to states and energy consumers (green outlined area)

Details of Allocations to States and Energy Consumers

- **State Energy and Environment Development (SEED) Fund:** Funds energy efficiency programs and investments in renewable energy technologies (Sec. 132).
- Additional allowances are distributed to states on certain conditions:
  - **Energy efficient building codes:** Allocation to states that adopt, implement and enforce high efficiency building codes (Sec. 201).
  - **Energy efficient building retrofits:** Allocation to states and local governments that adopt standards for energy efficient building retrofits (Sec. 132).
  - **Domestic adaptation:** Allocation to states to be used for programs that build resilience against anticipated climate change impacts; must develop adaptation plans and report on progress (Sec. 453).
  - **Wildlife and natural resources adaptation:** Allocation to state agencies to be used for programs that protect wildlife and natural resources from climate change impacts; must develop adaptation plans and report on progress (Sec. 480).

Details of Allocations to States and Energy Consumers (cont.)

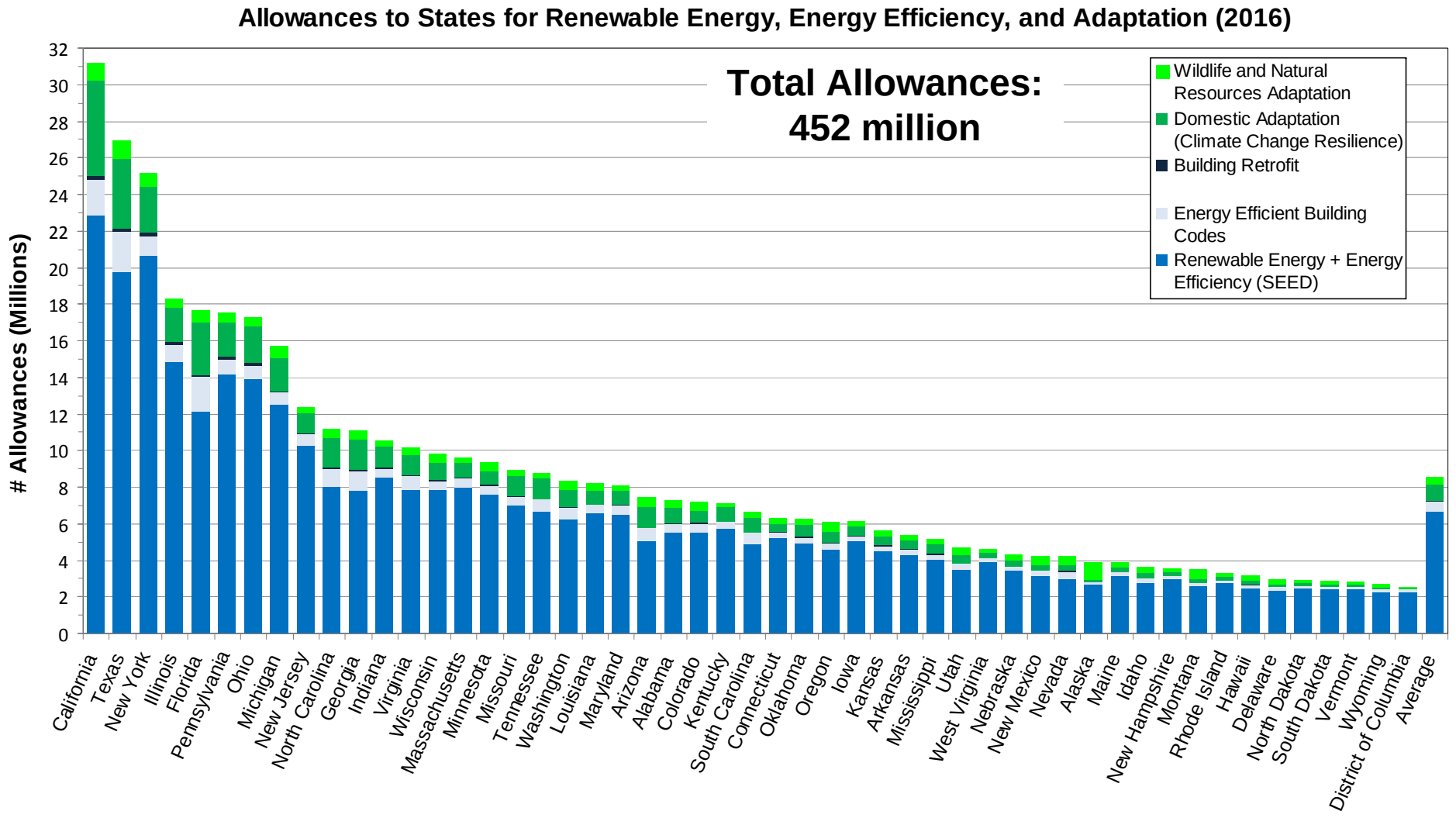
Allocations for the benefit of consumers:

- Allowances are allocated to LDCs with oversight by state and/or local regulatory agencies or boards:
  - **Natural gas:** Allocation to LDCs to be used solely for the benefit of ratepayers, equitably distributed across all rate classes; one third of allowances must be used to fund cost-effective energy efficiency projects. Allowance value to industrial ratepayers may be distributed based on deliveries (Sec. 784).
  - **Electricity:** Allocation to LDCs to be used solely for the benefit of ratepayers distributed equitably across all rate classes (Sec. 783). Allowance value is generally based on deliveries and emissions that result from deliveries. Additionally, small LDCs (annual deliveries of less than 4 million MWH) are eligible for allowances to fund cost-effective energy efficiency programs, renewable energy deployment programs and to assist low-income residential ratepayers (Sec. 783).
- Allowances are also allocated to states to assist consumers of heating oil and propane
  - **Heating Oil and Propane:** Allocation to states to be used solely for the benefit of heating oil and propane consumers. At least one half of proceeds to be used for cost-effective energy efficiency programs; remaining revenues may only be used for energy efficiency or direct financial assistance to customers (Sec. 785).

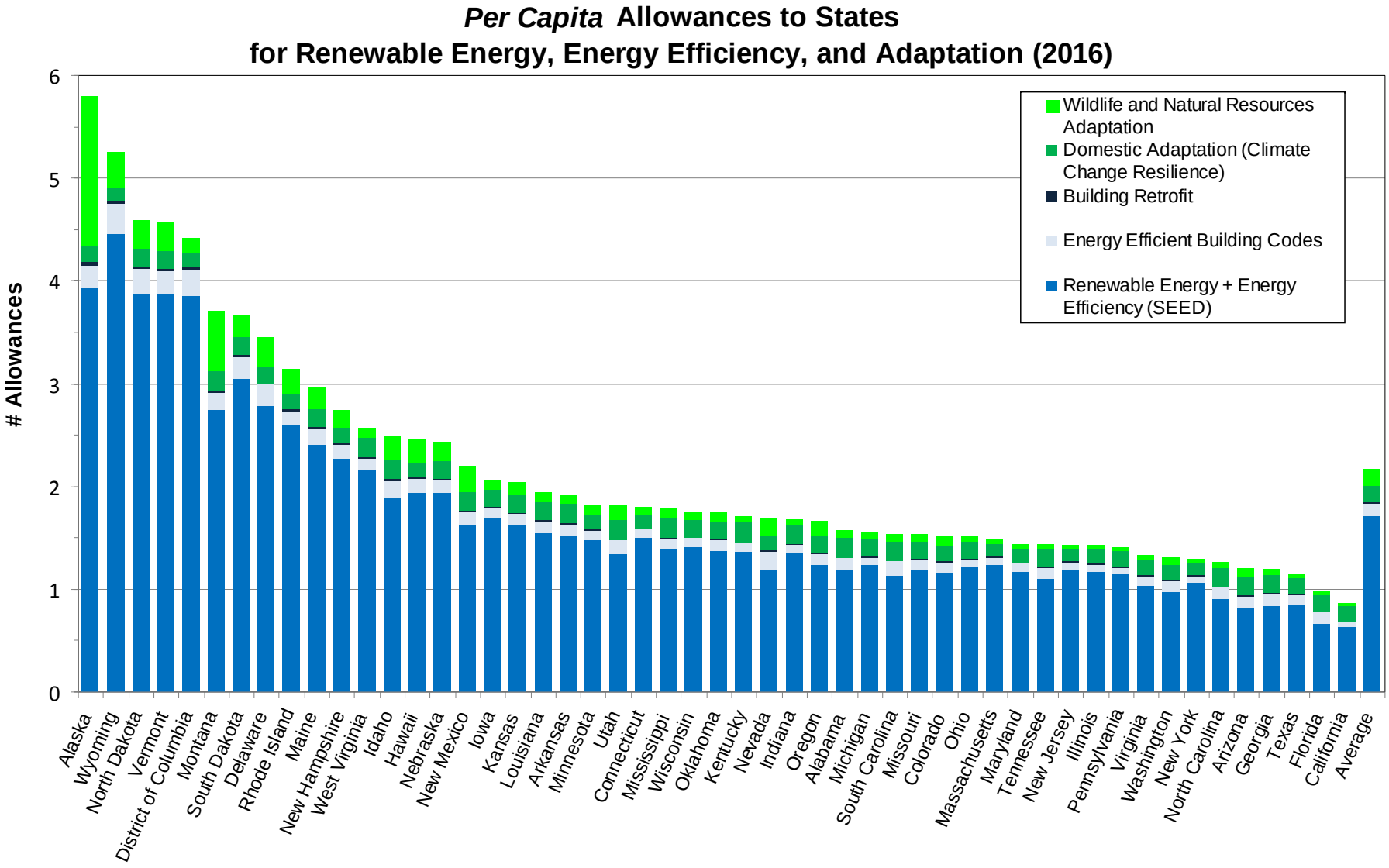
Analysis Methodology

- Values are presented for year 2016 only, when all relevant programs are active. Analysis focuses on allowances that go directly to states or to LDCs, which are overseen by states and/or local regulatory bodies.
- Analysis does not include important allowance-funded programs operated by the federal government for technology R&D, low-income consumer assistance, adaptation, international programs and worker benefits. Nor does it take into account direct assistance to covered industrial emitters through free allowances (e.g., trade-vulnerable industries).
- Charts show the number of allowances to each state for specific purposes in a given year, not dollar amounts, which will change depending on the price of allowances (e.g., minimum value of $10/metric ton; EPA projects $13.60 in 2016).
- Values reflect an interpretation of the legislative language that establishes allowance distribution formulas. The most recent data from relevant federal agencies is used to determine allowance amounts to states.
- Values are representative estimates based on historic data; apportionment among states will change as data change over time.
- Full methodology and data sources can be found in Appendix A.

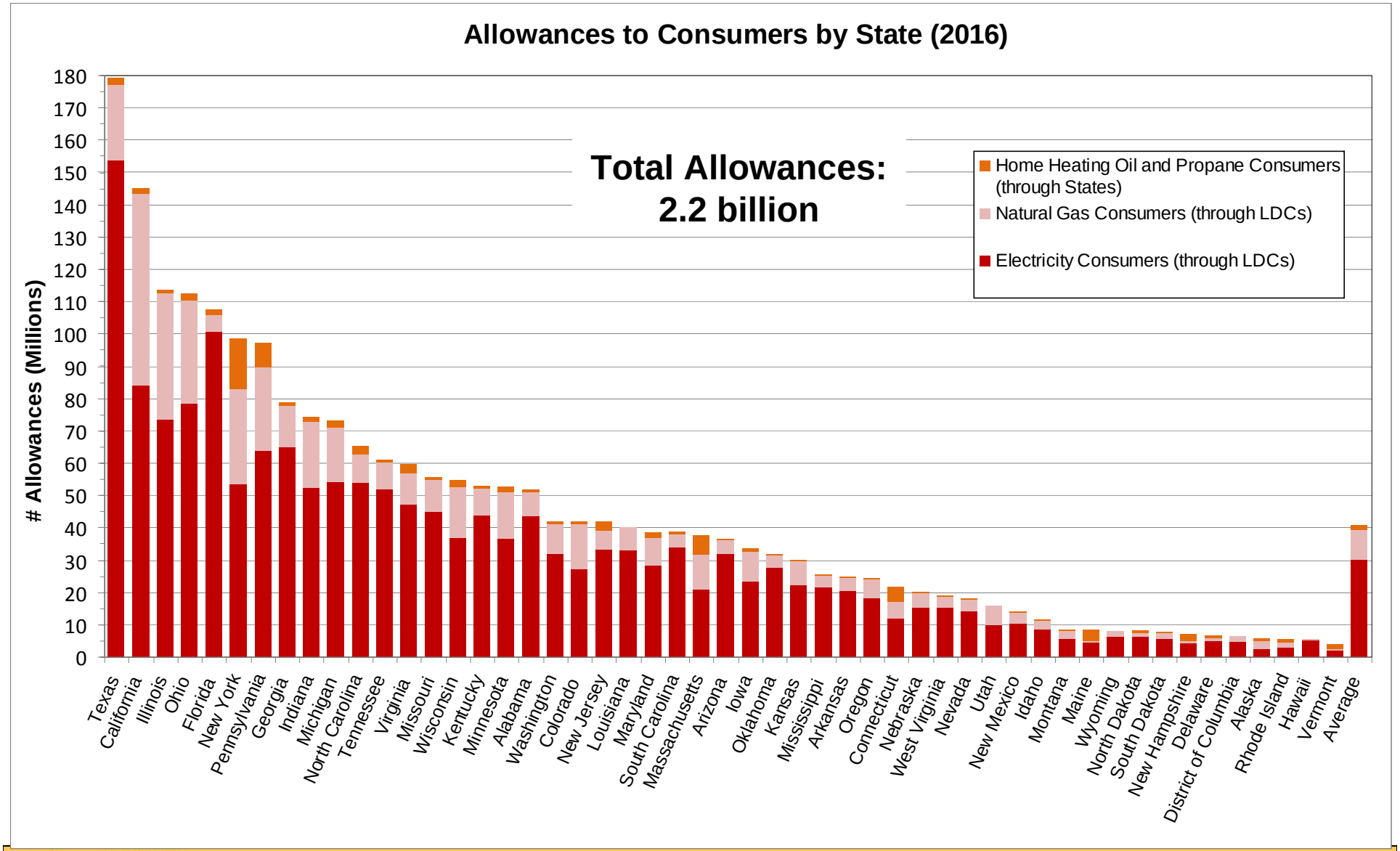
Allowances are directed to states to reduce energy demand, deploy clean technologies, and fund climate change adaptation projects.



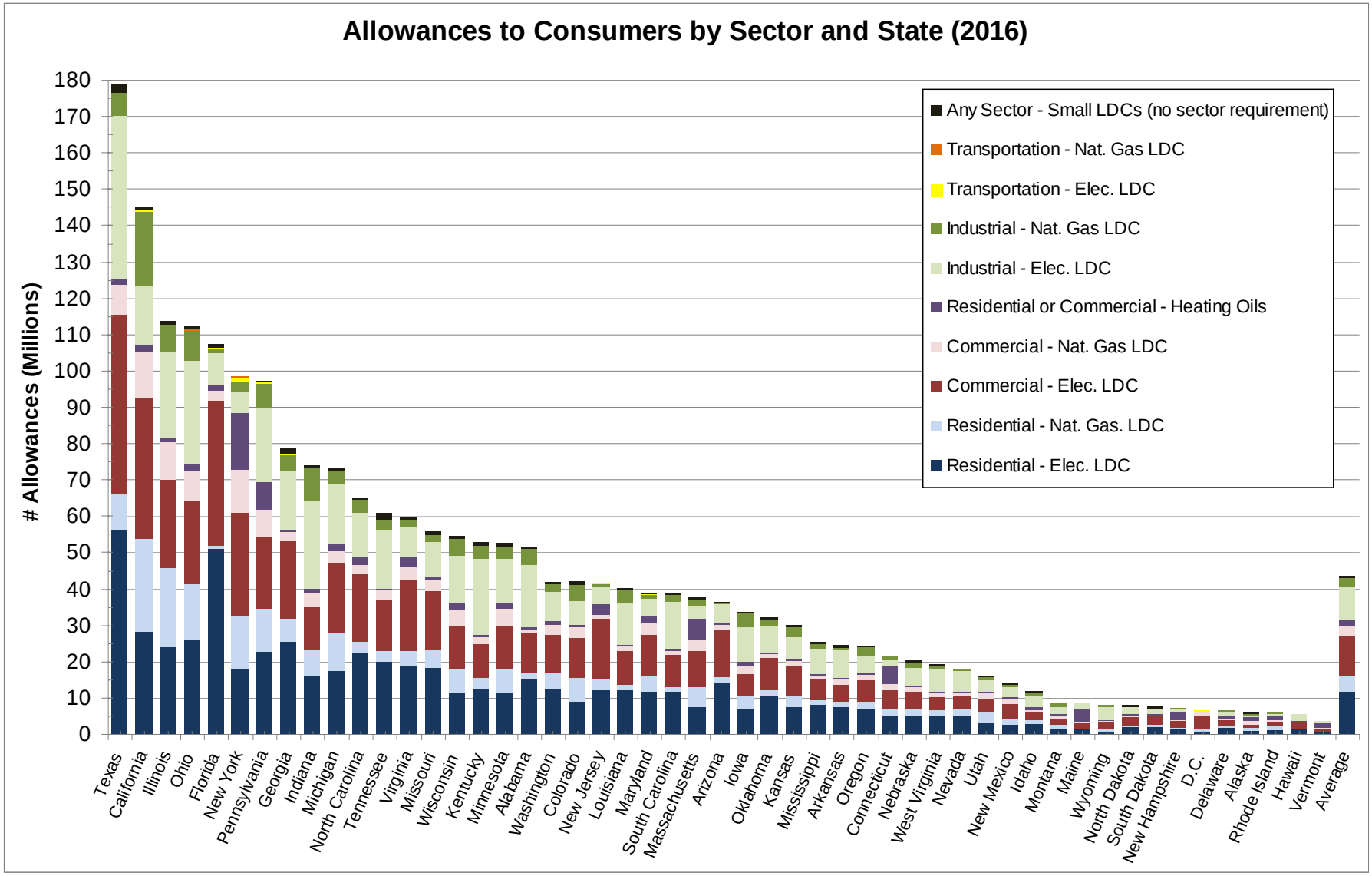
On a per capita basis, carbon intensive and low-population states generally receive more allowances for renewable energy and energy efficiency.



Allowances are directed to benefit energy consumers through states (for heating oil) and LDCs. Distribution is based on consumption and emissions.

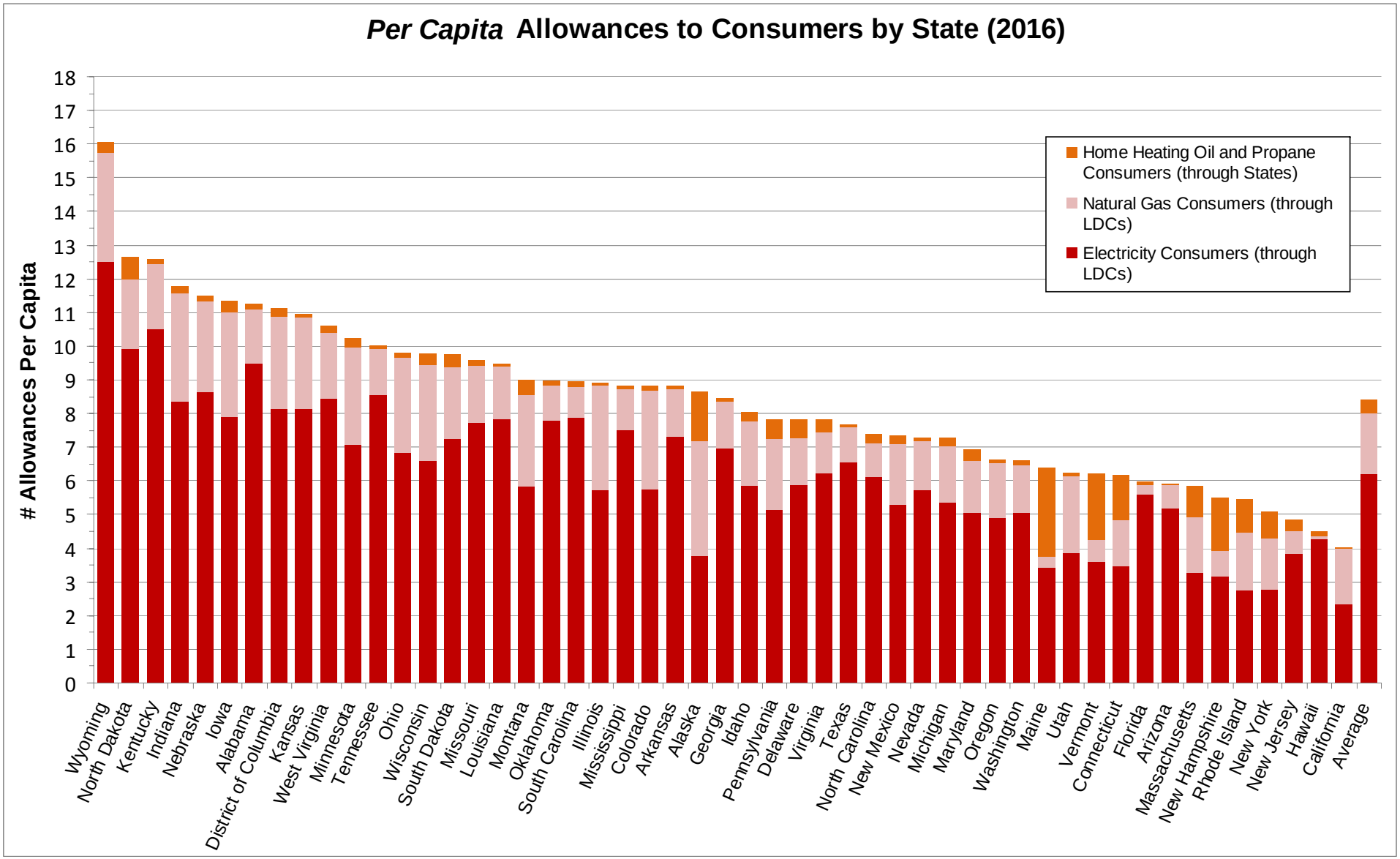


Energy consumer assistance is targeted to sectors based on energy consumption.

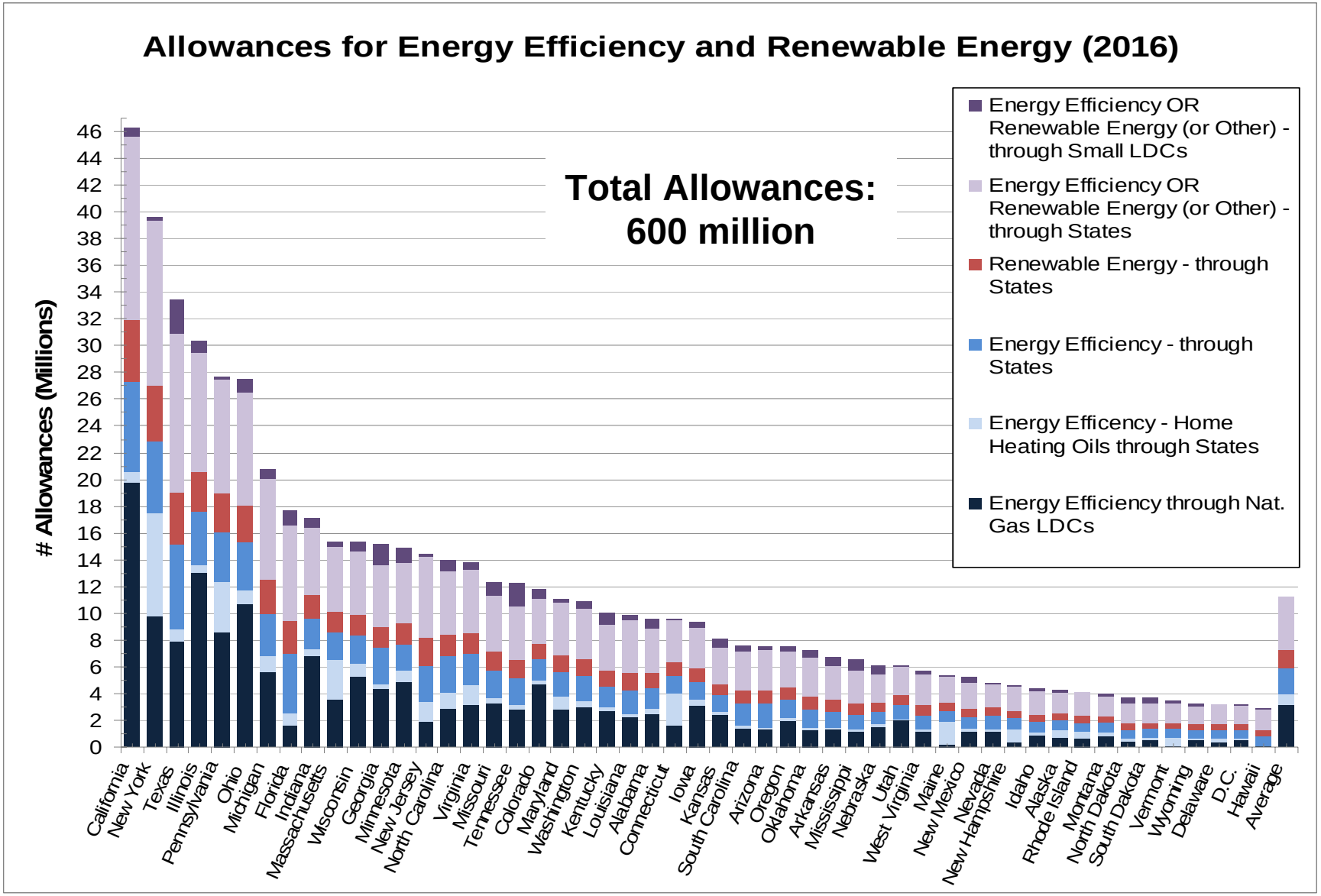


Assistance to industry is complementary to allowances received for free though other allowance allocations. Low-income consumers also receive federal tax relief funded through additional allowances.

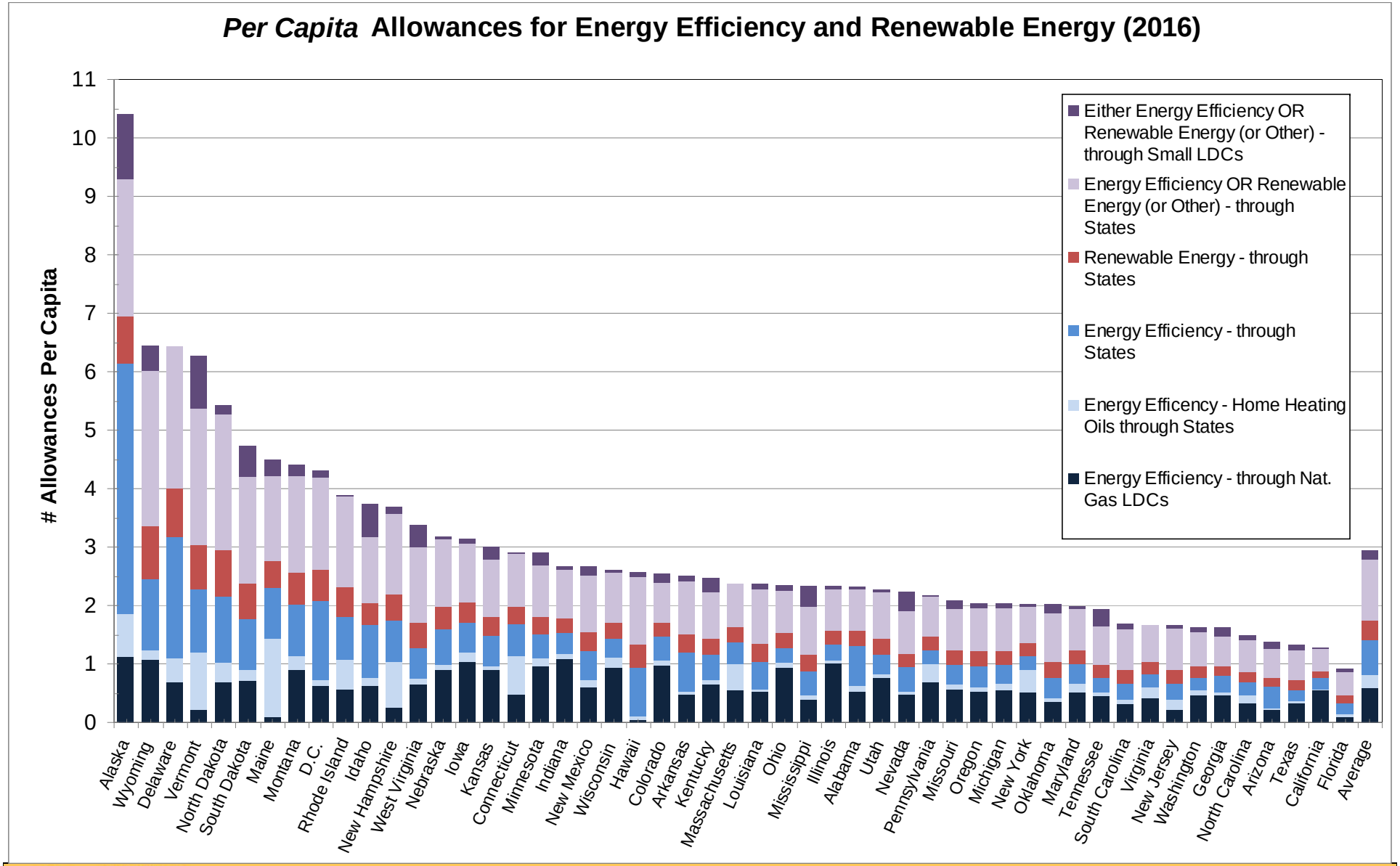
On a per capita basis, allowances for energy consumer assistance programs benefit carbon intensive states.



State renewable energy and energy efficiency programs receive allowances through multiple mechanisms with varying restrictions.



On a per capita basis, carbon intensive and low population states generally receive more allowances for renewable energy and energy efficiency programs.



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Appendix A: *Methodology and Data Sources*

This analysis is based on a consistent interpretation of the relevant legislative language on the distribution of allowances to states contained in H.R. 2454 as passed by the House of Representatives on June 26, 2009. Below is a concise summary of the provisions contained in the bill as well as key data sources and caveats. In addition to these details the following overarching caveats should be taken into account when reading this analysis:

- The analysis relies on historical data to estimate future allowance amounts. Thus the data should be considered best estimates and not predictions of future outcomes. Any future changes in and of the formula variables will alter these estimates.
- The analysis relies on the most recent available data from the appropriate federal agencies. In some cases data from different years are incorporated into the same formula due to lack of data availability.
- U.S. territories are eligible for allowances under all programs analyzed in this study but are not included in all cases due to a lack of data.

• **Natural Gas Consumers (Sec. 784)**

- Distribution of allowances to natural gas local distribution companies are distributed ratably based on average retail deliveries to entities not covered by the cap-and-trade program for years 2006-2008, or any three consecutive years between 1999-2008 as the LDC chooses.
- Allowances must be used solely for the benefit of ratepayers with the value distributed ratably based on deliveries across all rate classes (e.g. fixed amount rebates). One third of the allowances must be used to fund cost-effective energy efficiency projects. Allowance value to industrial rate payers may be distributed based on deliveries. State regulators must submit plans and reports on use of allowances
- Data Source: Energy Information Administration, Form 176 Query System (2005, 2006, 2007)
- Methods: Total delivery volume to entities not covered by the cap-and-trade program by sector for investor owned, municipal, private, cooperatively owned utilities is compiled for each state for years 2005-2007. An adjustment is made to industrial deliveries to subtract deliveries to covered entities. Each state's allowances is then broken down by sector based on deliveries. One third of the total distributed to each state is assumed to be directed to efficiency.

Appendix A: *Methodology and Data Sources (cont.)*

- **All Electricity Consumers (Sec. 783(b))**
  - Allowance distribution is based on total emissions resulting from retail deliveries and total retail deliveries weighted equally. No LDC may receive an allowance value that exceeds the costs incurred by the cap-and-trade program. Average emissions are calculated using a base period of 2006-2008 or any three consecutive years between 1999-2008 as the LDC chooses.
  - Allowances must be used solely for the benefit of ratepayers distributed equitably across all rate classes (e.g. fixed amount rebates) based on deliveries. State regulators must submit plans and reports on use of allowances. Allowance value to industrial rate payers may be distributed based on deliveries.
  - Data Source: Energy Information Administration Form 861 data (2005, 2006, 2007); Environmental Protection Agency eGrid 2007 database.
  - Method: Retail delivery data was compiled for investor-, municipal-, private-, cooperatively owned utilities in each state. Utility data was matched with the appropriate eGrid sub-region emissions rate and then multiplied by deliveries and aggregated to generate state totals for GHG emissions from electric consumption for year 2005. Total state deliveries were averaged across years 2005, 2006 and 2007. Allowances are distributed to states based on the legislative language referenced above. Total state emissions from electric consumption are used as a proxy for state costs and adjustments are made to prevent any one state from receiving allowances greater than 100 percent of their costs. Allowances are distributed by sector based on sales.

- **Small LDCs (Sec. 783(e))**
  - LDCs that deliver less than 4 million MWH of electricity annually are also eligible for additional allowances. These must fund cost-effective energy efficiency programs, renewable energy deployment programs and assist low-income residential ratepayers.
  - Allowance distribution is based on emissions resulting from retail deliveries.
  - Data Source: Energy Information Administration Form 861 data, 2005, 2006, 2007; Environmental Protection Agency eGrid 2007 database.
  - The same approach used to calculate emissions from deliveries for Sec. 783(b) is used here to generate state emission estimates from small LDCs.

Appendix A: *Methodology and Data Sources (cont.)*

- **Home Heating Oil and Propane (Sec. 785)**
  - Allowances are provided directly to the states, solely for the benefit of heating fuel customers. Proceeds may only be used for cost-effective energy efficiency programs and direct financial assistance to customers. At least 50 percent must be used for energy efficiency, with an emphasis on supporting existing programs. Annual reporting is required.
  - Allowance distribution is based on the ratio of the carbon content of heating oil, propane and kerosene sold to consumers in each state the preceding year for residential or commercial uses as compared to the carbon content of U.S. sales for those fuels as a whole. Heating oil is defined to include #1 and #2 distillates and any heating fuel liquids including those distillates.
  - Data Source: Energy Information Administration State Energy Data System, Consumption, British Thermal Units (1970-2006); Energy Information Administration, Fuel and Energy Source Codes and Emission Coefficients.
  - Method: Consumption data for each state was compiled for distillate fuel oil, kerosene, liquefied petroleum gases, and residual fuel oil in the commercial and residential sectors (commercial sector only for residual fuel oil). Consumption figures in each category were multiplied by EIA emissions coefficients to achieve total heating fuel emissions.

- **State Renewable Energy and Efficiency Programs (SEED) (Sec. 132)**
  - Allowances are provided to states into State Energy and Environment Development accounts (SEED). Allowances may be used for specified renewable energy and energy efficiency purposes (with limited allowances available for smart grid and transportation project funding). At least 20 percent of allowances must be used for renewable energy, and separately, for energy efficiency. At least 12.5 percent of allowances must be passed-through to local jurisdictions.
  - 0.5 percent of the annual allocation for Renewable Energy and Efficiency Programs is set-aside for Indian Tribes (Sec. 133). The remaining 95.5 percent of the allocation is divided among states based on the following: one third equally among all states; one third ratably among states based on most recent reliable census population data; one third ratably on the basis of energy consumption, determined from most recent EIA SEDS report.

Appendix A: *Methodology and Data Sources (cont.)*

- **State Renewable Energy and Efficiency Programs (SEED) (Sec. 132) (cont.)**
  - Data Source: State Energy Program, Fiscal Year 2008 Formula Grant Distribution.
  - Method: State apportionment percentages were computed from the State Energy Program's FY08 formula grant apportionment, which is distributed according to the same formula (*see* CFR420.11 in Appendix B of the SEP Operations Manual).

- **Energy Efficient Building Codes (Sec. 201)**
  - Allowances are provided to states that have demonstrated compliance, or significant progress towards compliance, with energy efficient building codes. If states are not in compliance, local jurisdictions may demonstrate compliance and receive a portion of the allowances that would have gone to the state. Allowances must be used for the purpose of adopting, implementing and enforcing building codes, and some portion must be passed through to local jurisdictions based on the extent to which they are responsible for building code enforcement.
  - Allowances are distributed among eligible states according to the following: one fifth equally among states, two fifths based on relative energy use in all buildings in each state for the most recent year for which data is available, two fifths based on relative building activity (e.g. housing starts or building permits issued) for the year prior to distribution. If a state is ineligible, an eligible local jurisdiction will receive a proportional amount of the allowances that would have gone to that state based on population.
  - Data Source: Energy Information Administration State Energy Data System, Residential and Commercial Consumption, 2006; U.S. Census, 2006, New Privately Owned Housing Units Authorized.
  - Method: Relative energy use was estimated based on state residential and commercial sector energy consumption data; industrial data was omitted to exclude energy consumption from industrial processes. Relative state building activity was estimated based on housing permits authorized for new residential construction.

Appendix A: *Methodology and Data Sources (cont.)*

- **Building Retrofit Program (Sec. 202)**
  - Allocation to states' SEED accounts for implementation of the Retrofit for Energy and Environmental Performance (REEP) program, which funds retrofits of existing residential and non-residential buildings. Receipt of allowances is conditioned on states (or local municipalities) adopting retrofitting standards, fiscal controls and accounting procedures, and designating 10 percent of allowance value for retrofitting public- and assisted-housing.
  - Allowances are distributed among states according to the same formula used in the distribution of funds for renewable energy and energy efficiency (SEED) in Sec. 132(b): one third equally among states; one third based on population; one third based on energy consumption.
  - Data: State Energy Program, Fiscal Year 2008 Formula Grant Distribution.
  - Method: State apportionment percentages were computed from the State Energy Program's FY08 formula grant apportionment, which is distributed according to the same formula (*see* CFR420.11 in Appendix B of the SEP Operations Manual).

- **Domestic Adaptation – State Programs to Build Resilience to Climate Change Impacts (Sec. 453)**
  - Allocation to states exclusively for projects, programs or measures to build resilience to the impacts of climate change, with priority designated to projects to reduce flood events. Beginning in year 2015, receipt of allowances is contingent on the submission of state climate change adaptation plans.
  - 1 percent of the allocation is reserved for Indian Tribes. The remaining allowances are distributed among the states on the basis of the state's population multiplied by an allocation factor equal to the per-capita income of the state divided by U.S. per-capita income. The legislation limits the allocation factor a range of 0.8 to 1.2.
  - Data Source: U.S. Census, 2006 Estimate of State Population; Bureau of Economic Analysis, 2006, 2007, 2008 Personal Income Summary.
  - Method: Allocation factors were computed by averaging the most recent state per-capita income statistics from the BEA (the legislation calls for an average of the three most recent years). Where the result was outside the range of 0.8-1.2, a factor of 0.8 or 1.2 was assigned to the state. The allocation factor was multiplied by the state's 2006 population figures. The resulting product was used to compute an apportionment percentage for each state.

Appendix A: *Methodology and Data Sources (cont.)*

- **Wildlife and Natural Resources Adaptation, Allocation to States (Sec. 480)**
  - Allocation to state wildlife agencies and state coastal management agencies to carry out natural resources adaptation activities in accordance with state natural resources adaptation plans approved by the Secretary of Interior. Beginning three years after ACESA enactment, allowances are contingent on the Secretary's approval (or pending approval) of a state adaptation plan.
  - 84.4 percent of the allocation to states is available to state wildlife agencies according to the apportionment formula established under the second subsection (c) of section 4 of the Pittman-Robertson Wildlife Restoration Act (16 U.S.C. 669c). The legislation reserves 2 percent of funding for the District of Columbia and U.S. territories, and apportions the rest through a formula: one third on the basis of a state's land area; two thirds on the basis of a state's population. The remaining 15.6 percent is available to the coastal management agencies of the coastal states and is apportioned according to the formula established by the Secretary of Commerce pursuant to Sec. 306 of the Coastal Management Act.
  - Data Source: U.S. Fish and Wildlife Service, FY 2009 State Wildlife Grants Apportionment; National Oceanic and Atmospheric Administration, FY 2009 Federal Coastal Management Program Apportionment.
  - Method: State apportionment formulas were computed separately for wildlife and coastal management pools according to FY 2009 grant awards made pursuant to funding formulas specified in ACESA; i.e. the State Wildlife Grants formula grants and the Coastal Zone Management Act Sec. 306 grants. After each state's 2016 apportionment was computed for wildlife and coastal pools, the totals were combined.