

Cap-and-trade and Renewable Portfolio Standards: An Analysis of Current US Energy and Environmental Policy Proposals

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The American Clean Energy and Security act of 2009 (H.R. 2454) a.k.a Waxman-Markey bill, Discussion Draft March 2009

- The proposed legislation has four titles:
 - ***Clean energy***: Promotes renewable sources of energy and carbon capture and sequestration technologies, low-carbon transportation fuels, clean electric vehicles, and the smart grid and electricity transmission
 - ***Energy efficiency***: promotes energy efficiency across all sectors of the economy
 - ***Global warming***: title that places limits on the emissions of Greenhouse Gases
 - ***Transitioning***: is intended to protect U.S. consumers and producers and promote green jobs during the transition to a clean energy economy.

Renewable Electricity Standard

- **Requires retail electricity suppliers to meet a certain percentage of their load with electricity generated from renewable resources, like wind, biomass, solar, and geothermal. The requirement begins at 6% in 2012 and gradually rises to 25% in 2025.**
 - **Up to 20% of the requirement (5% of total) may be met with efficiency.**
 - **Small utilities (less than 100,000 MWh annually) are exempt**
 - **Renewable Electricity Credits (RECs) are tradable**

Note: Waxman-Markey bill as outlined in March discussion draft

Cap-and-trade program

- **A market-based program for reducing GHG emissions**
 - **Covered entities must obtain tradable permits (allowances) for each ton of GHGs emitted. Allowances are auctioned by the federal government.**
 - **The program reduces the number of available allowances issued each year so that emissions are 3% below 2005 levels in 2012, 20% below in 2020, 42% below in 2030, and 83% below in 2050.**
 - **Entities that emit less than 25,000 tons per year of CO2 equivalent are not covered by this program.**
 - **Covered entities may increase their emissions above their allowances if they can obtain “offsetting” reductions from other sources.**

Note: Waxman-Markey bill as outlined in March discussion draft

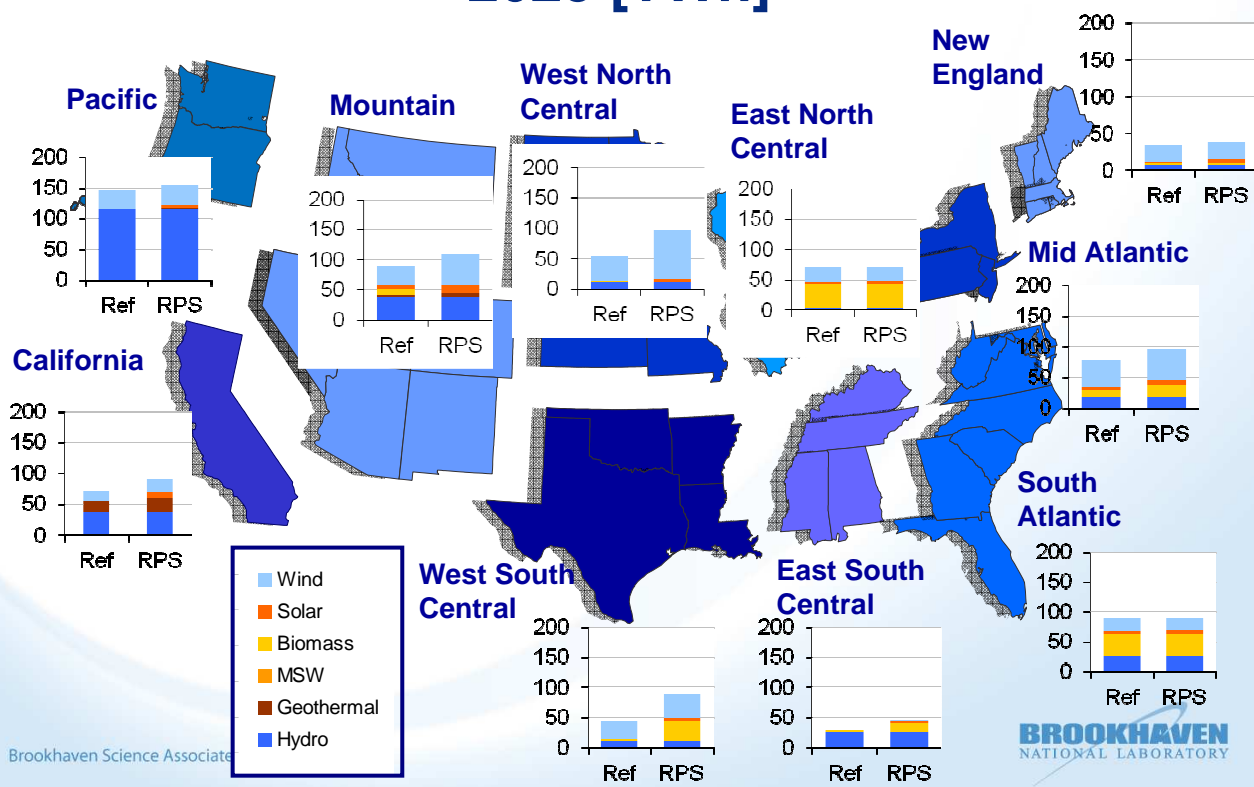
Waxman-Markey bill

- **Hotly debated in political circles, analytical community and blogosphere.**
- **Concerns:**
 - **May have adverse impact on economic growth**
 - **May hurt competitiveness of US industries**
 - **May lead to higher energy prices for consumers**
 - **May hit some regions harder than others (“coal states”)**
 - **What should be done with the money raised from an auction of emission allowances?**

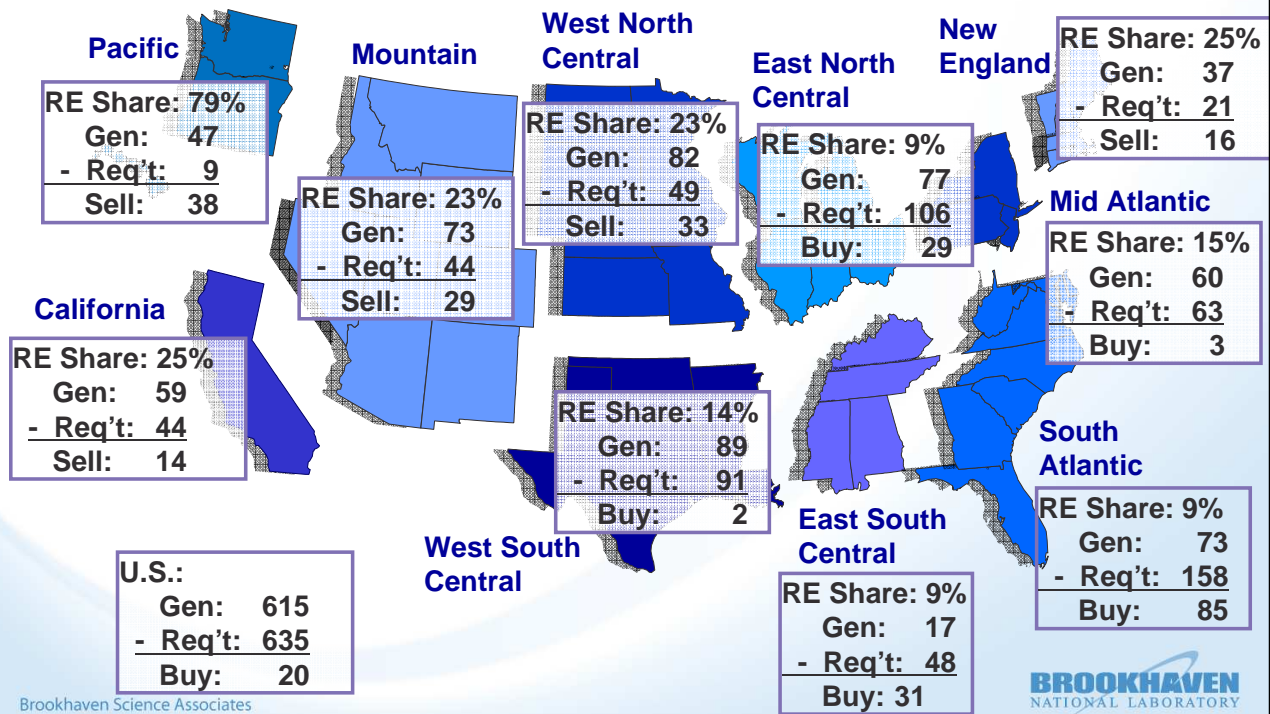
Analysis

- **Used BNL's 10-region US MARKAL model**
 - Covers all sectors of the economy
- **Reference case is calibrated to AEO 2009.**
 - AEO09 technology performance and cost data
 - AEO09 economic growth and demand projections
 - AEO09 energy prices
- **Scenario based analysis of policy options**

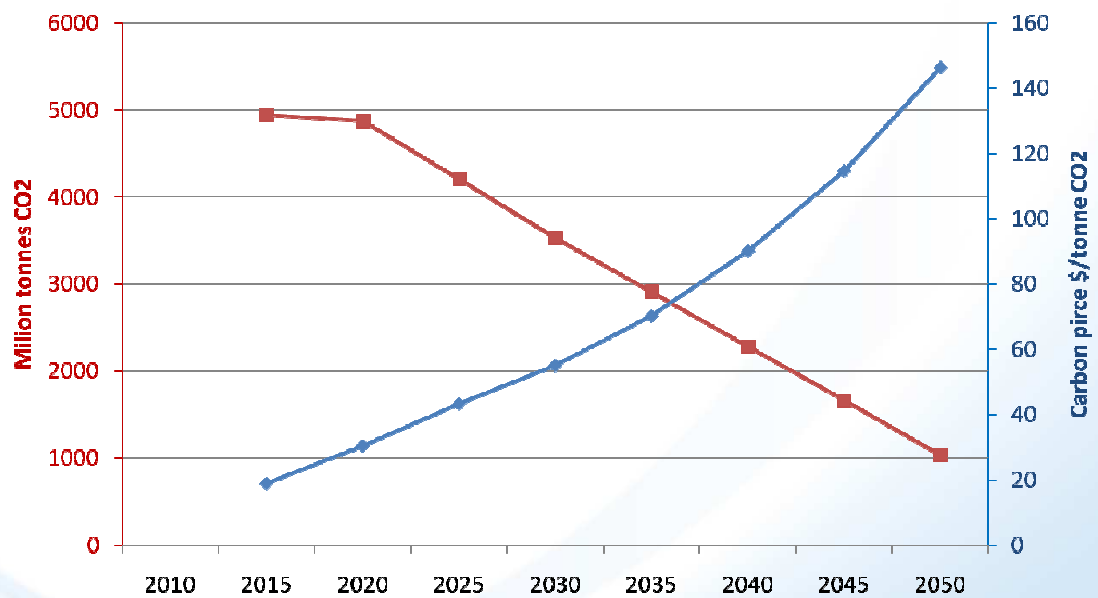
Regional renewable electricity generation 2025 [TWh]



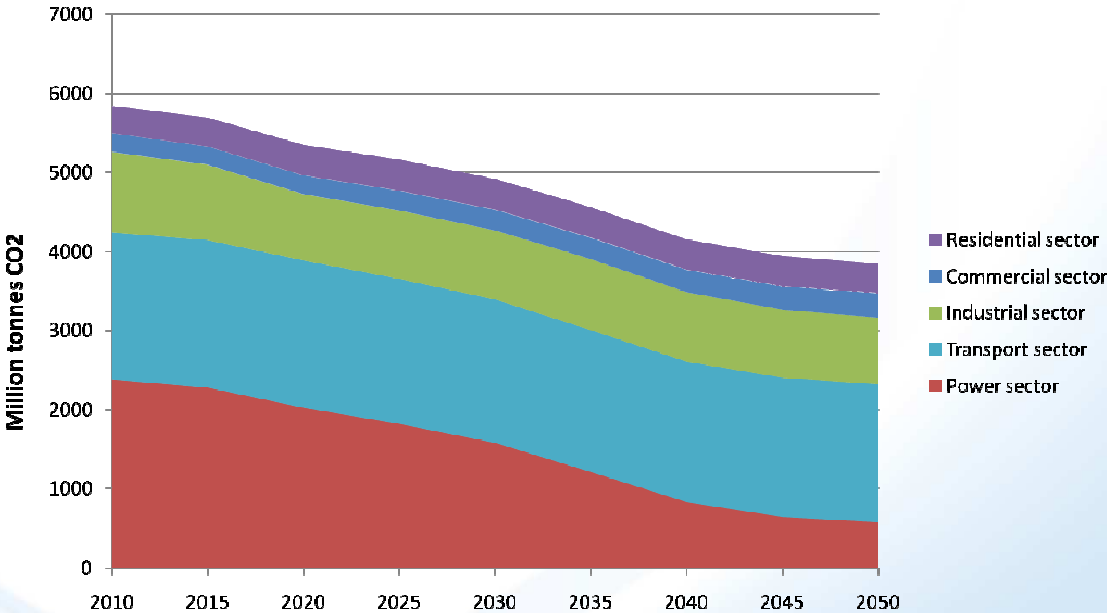
Renewable electricity credit balances 2025 [TWh]



Carbon cap and prices



Emissions under cap and trade scenario



A few findings

- **National RES will have minor impact on electricity prices, but still leads to significant wealth transfer between regions.**
 - Electricity price increases are a fraction of a cent per kWh
 - Summed over trillions of kWh this still adds to significant numbers. We estimate wealth transfer from renewable resource poor regions and to other regions and the federal government to be in the neighborhood of \$7.5 billion in 2025
- **The national cap and trade program will lead to a significant departure from current trends, but the provisions for offsets means that the cut in energy sector emissions are much lower than the 83% target stated in the bill.**
 - The power sector is the only sector that achieves major reductions from 2005 levels.

Thank you

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