



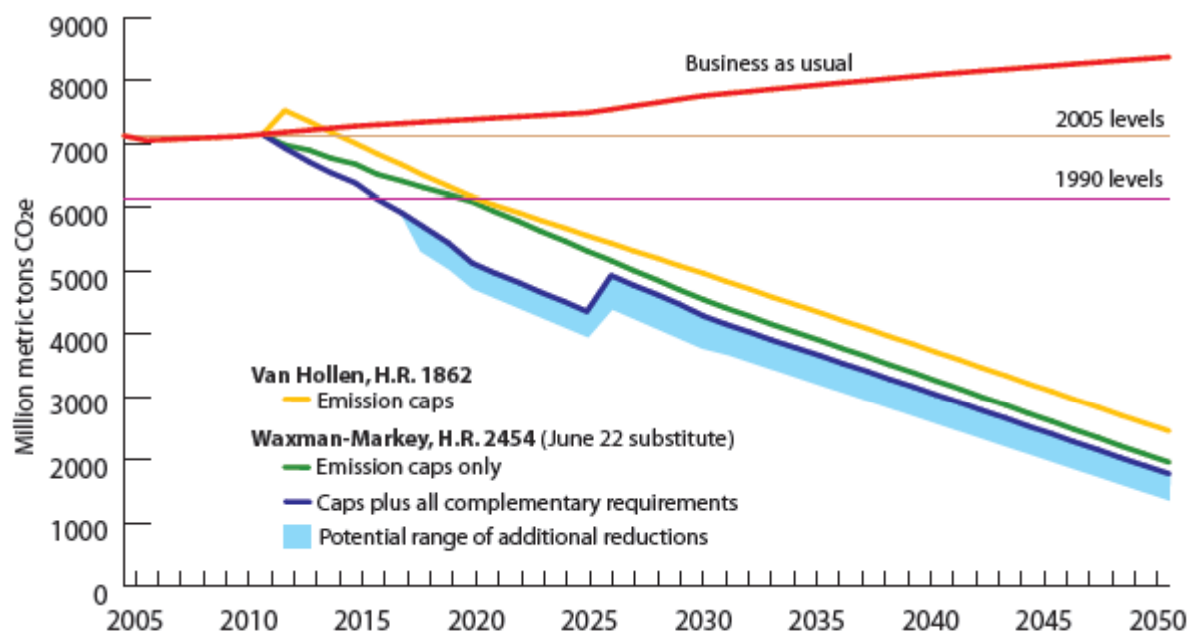
Pulp and Paper Industry and Federal Climate Change Legislation

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Cap-and-Trade Overview

Emission Reductions Under Cap-and-Trade Proposals in the 111th Congress, 2005-2050

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WORLD RESOURCES INSTITUTE

For a full discussion of underlying methodology, assumptions and references, please see <http://www.wri.org/usclimatetargets>.

The world is currently at a concentration of 380 parts per million (ppm). At this level of CO₂, the IPCC has concluded that this is a tolerable level of emissions. However, if emissions continue to grow until 2030, which is widely viewed as more likely, CO₂ levels in the atmosphere is expected to climb to about 535 to 590 parts per million (ppm) of carbon dioxide, according to the IPCC report. This would produce “catastrophic” results.

Structure of a Cap-and-Trade Bill

Who has the right to emit carbon?

Effectively, by creating a cap-and-trade system the government will create a value of the right to emit greenhouse gas emissions and develops a new commodity. There are a number of methods by which this can be implemented:

1) Auction: The government can hold an auction where the right to emit greenhouse gas emissions is sold to the highest bidder. This has occurred regularly with the sale of treasury bills since 1929. The Regional Greenhouse Gas Initiative (RGGI) includes a 100 percent auction for the right to emit greenhouse gases.

2) Free Allowance: The government provides “free allowances” to various emitters and parties, that allows the recipients to emit greenhouse gas emissions. The recipients effectively have received a commodity, just like oil, natural gas, or potatoes. The recipient can then retain the commodity, or sell the right to emit carbon in the market.

Auction Under House Legislation

Auction under House Bill. The Waxman-Markey bill includes a combination approach between free allowances and auction. The levels are altered through the lifetime of the bill, which is from 2012 through 2050. For example, in 2016, 17.5% of the allowances are sold through an auction; in 2030, 71.7% are auctioned.

Does Auction or Free Allowance Matter? As Congressional Research Service (CRS) Report points out though, an even more paramount question is who receives the value of the commodity regardless of whether it is raised through auction or given away for free.

Value of this Commodity. EPA has concluded the total allowance value of greenhouse gas emissions is roughly \$62 billion in 2016, \$79 billion in 2020, \$94 billion in 2030, \$99 billion in 2040, and \$73 billion in 2050.

Obama Administration Budget Proposal

OBAMA BUDGET PROPOSAL

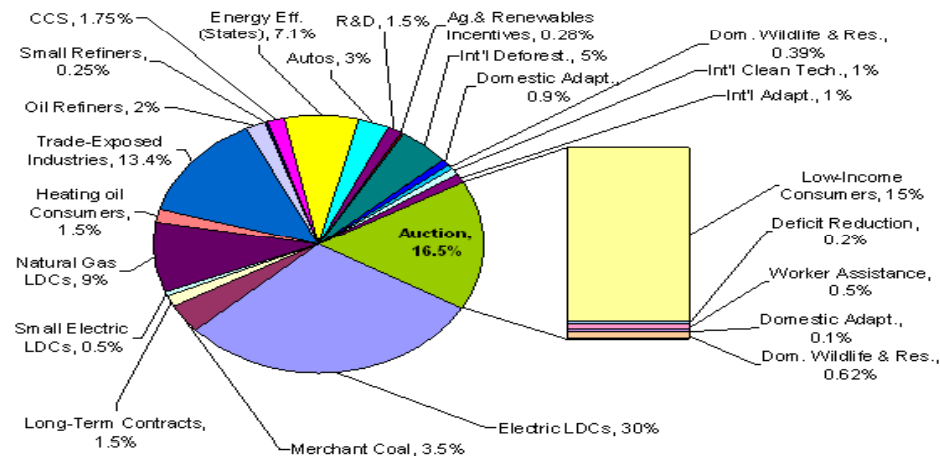
ASSUMES \$646 BILLION IN REVNUUE WITH 80 PERCENT DEDICATED TO THE MAKING WORK PAY CREDIT AND 20 PERCENT TO "CLEAN ENERGY TECHNOLOGIES"

"The Administration is developing a comprehensive energy and climate change plan to invest in clean energy, end our addiction to oil, address the global climate crisis, and create new American jobs that cannot be outsourced. After enactment of the Budget, the Administration will work expeditiously with key stakeholders and the Congress to develop an economy-wide emissions reduction program to reduce greenhouse gas emissions approximately 14 percent below 2005 levels by 2020, and approximately 83 percent below 2005 levels by 2050. This program will be implemented through a cap-and-trade system, a policy approach that dramatically reduced acid rain at much lower costs than the traditional government regulations and mandates of the past. Through a 100 percent auction to ensure that the biggest polluters do not enjoy windfall profits, this program will fund vital investments in a clean energy future totaling \$150 billion over 10 years, starting in FY 2012. The balance of the auction revenues will be returned to the people, especially vulnerable families, communities, and businesses to help the transition."

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Totals 2010-2014	Totals 2010-2019
Climate Revenues:													
Dedicated to climate policy (clean energy technologies)				-15,000	-15,000	-15,000	-15,000	-15,000	-15,000	-15,000	-15,000	-45,000	-120,000
Dedicated to Making Work Pay				-63,682	-64,119	-64,661	-65,291	-66,001	-66,671	-67,307	-67,979	-192,462	-525,711
Total, climate revenues⁵				-78,682	-79,119	-79,661	-80,291	-81,001	-81,671	-82,307	-82,979	-237,462	-645,711

Distribution of Revenue

Distribution of Revenues under House Bill in 2016



In 2016 the House passed bill provides the following allocations of revenue under the legislation: 31.5% to electricity (LDCs); 9% to natural gas local distribution companies; 1.5% to states for home heating oil consumers; 15% directly to low-income consumers; **13.4% to energy-intensive, trade-exposed industries**; 3.5% to merchant coal-fired generators; 2% to petroleum refineries; an unspecified share of electricity sector allowances for certain long-term power contract operators; 7.5% to states to support renewable energy and energy efficiency efforts; 6% to promote technological advances and 10.5% to further other objectives.

Although it is an inexact science, each percentage of allowance is estimated to have a value of roughly \$800 million.

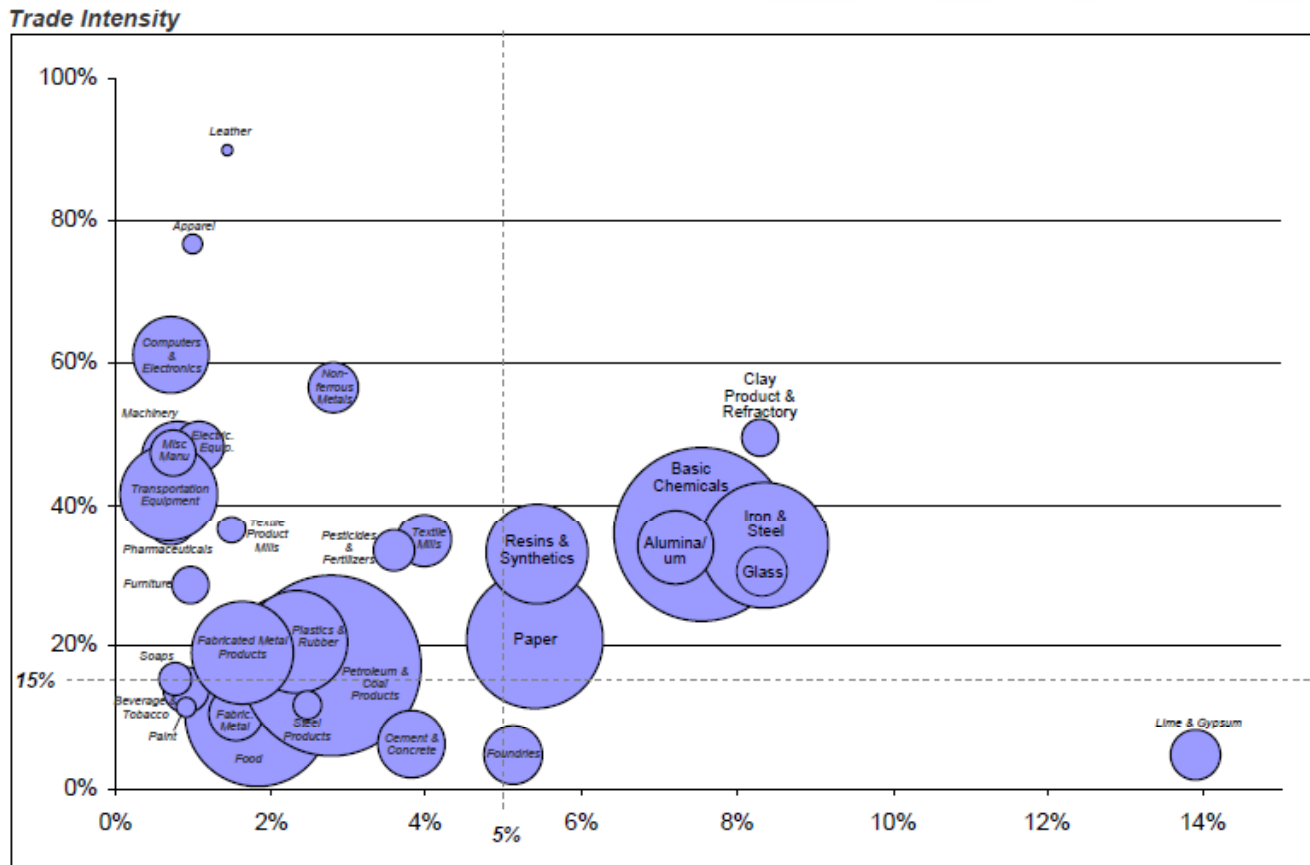
Trade Exposed Industries

1. What is a Trade Exposed Industry? Under the legislation 13.4 percent of the allocations are provided to trade exposed industries and it stipulates that an industries should be evaluated on two metrics to determine if it is trade exposed: **trade intensity and energy intensity.**

a) How do you determine trade intensity? Trade intensity is defined as the ratio of the sum of the value of imports and exports within an industry to the sum of the value of shipments (output) and imports within the industry.

b) How do you determine energy intensity? Energy intensity is defined as the industry's cost of purchased electricity and fuel costs, or energy expenditures, divided by the value of shipments (output) of the industry.

Trade Exposed US Industries



Trade-Intensity = (Imports+Exports) / (Value of Shipments+Imports)

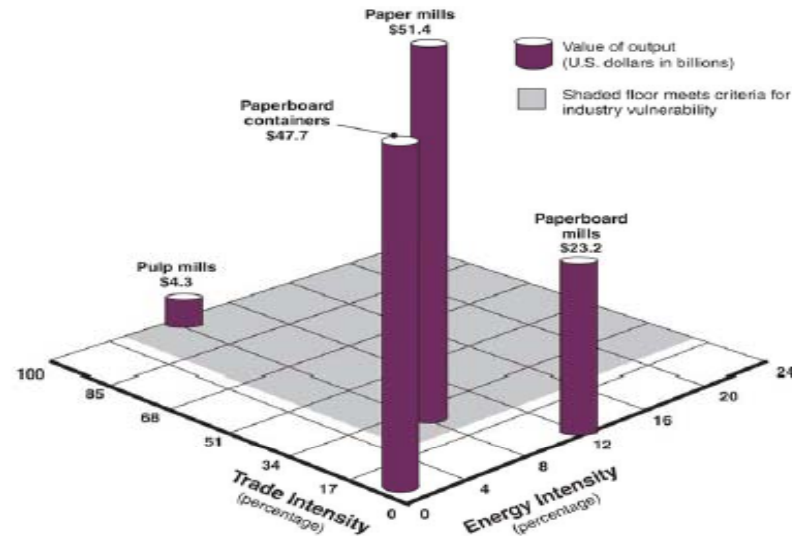
Energy-Intensity = (Energy & Fuel Costs + Generation) / Value of Shipments

Size of Bubble = Amount of energy and fuel consumed as proxy for emissions

Sources: US Census 2006 Annual Survey of Manufacturers, EIA 2002 MECS, US International Trade Commission Tariff & Trade DataWeb

Diversity within the Paper Industry

Figure 11: Energy and Trade Intensity Indicators Vary by Sub-Industry



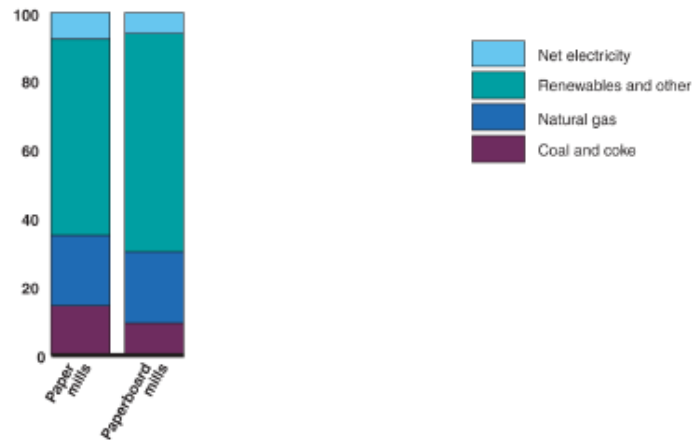
Source: GAO analysis of Department of Commerce energy data for 2006, output data for 2006 and 2007, and trade data for 2007.

GAO Assessment of the Industry: Pulp mills is the most trade intensive, at 98 percent. Paper mills is the largest sub-industry, with a 2007 value of output of over \$51 billion and its trade intensity is 30 percent. Pulp mills and paper mills each has an energy intensity of 8 percent and, thus, meet both vulnerability criteria. While paperboard mills has an energy intensity of 12 percent, it does not meet the trade intensity criteria. Paperboard containers fails to meet both criteria but was the second largest sub-industry in 2007, with a value of output of over \$47 billion.

Diversity of Fuel Use in the Paper Industry

Figure 12: Type of Energy Used Is Important for Carbon Intensity

Share of 2002 total energy consumed (percentage of BTUs)

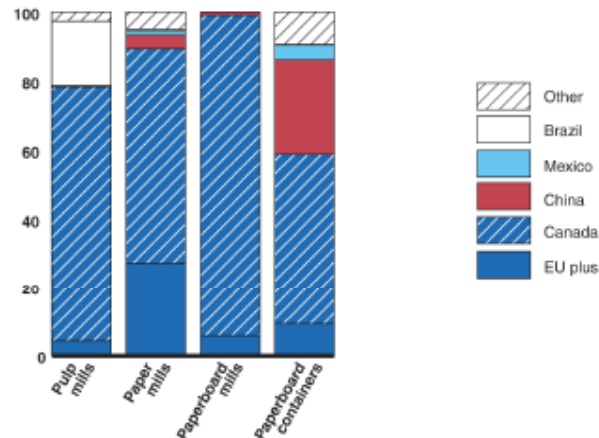


Source: GAO analysis of data from the Department of Energy.

GAO Assessment: In paper mills and paperboard mills, the largest share of energy consumed is from the relatively less carbon-intensive renewable and other (such as fuel oil and steam) energy sources. An additional 20 percent of energy consumed is from natural gas, while coal and coke sources provide 14 percent of energy for paper mills and 9 percent of energy for paperboard mills. While energy use data for pulp mills is reported by the Department of Energy, consumption of coal and coke, specifically, is not publicly available, so percentage shares could not be computed. Data on energy use by paperboard containers are not currently reported.

Figure 13: Source of Imports Is Important for Trade Intensity

Share of 2007 total U.S. imports



Source: GAO analysis of data from the Department of Commerce.

GAO Assessment: For the paper products sub-industry examples, total imports exceed total exports. For each, the largest share of imports is from Canada, an Annex I country with agreed emission reduction targets. However, for the most trade-intensive example of pulp mills, 19 percent of imports are from Brazil. While paperboard containers has a trade intensity of only 6 percent, 27 percent of imports are from China.

Other Significant Considerations

Additional Key Issues under a Climate Change Bill

- **Cost Containment:** Should the climate change bill include a price collar, safety valve, or other mechanism to reduce the volatility and potential economic impact?
- **2020 Targets:** Should the bill include targets established under the House passed bill (17 percent) or should this figure be altered?
- **Border Tax:** Should the legislation include a mechanism to raise a tax on products from countries that do not include similar climate policies?
- **CAA/Preemption:** Should the legislation preempt the Clean Air Act and prevent States from further reductions in carbon beyond federal requirements?
- **Tax Policies/RES/OCS/Nuclear:** Should tax policies be included in this legislation that include modifications of tax policies, a Renewable Energy Standard, expansion of Outer Continental Shelf oil and gas development, or nuclear energy incentives.

Prospects for Passage



- **Kerry-Graham-Lieberman effort** : Outlined foundation for an Energy Bill that includes cap-and trade as a key component and raised the prospect for nuclear and OCS provisions.
- **Finance Committee**: The Finance Committee worked for the vast majority of this year in crafting an equally complex healthcare bill. It remains unclear if the Senate could craft this type of legislation in the short timeframe before election season.
- **EPA Regulation**: The EPA has proposed regulations to regulate entities that produce more than 25,000 metric tons of CO2 annually. Very few Members of Congress would like to see final regulations issued.
- **US in Copenhagen/Mexico**: Obama initiative to build a more comprehensive Copenhagen Accord requires some good faith effort on the part of the United States. How strongly will the Administration push for domestic legislation?