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The Allocation of Permits in U.S. Climate Change Legislation

DON FULLERTON AND DANIEL KARNEY

After a decade or more of talk, a cap-and-trade policy to limit greenhouse gas (GHG) emissions may at last come to the United States. Last summer, the House of Representatives passed a sweeping climate change bill known as Waxman-Markey, officially the American Clean Energy and Security Act of 2009 (ACES). As the Senate considers its own version, now is a good time to ask how the House did.

The ‘cap’ part of the policy sets a hard limit on total U.S. CO₂ pollution, giving certainty to emission reduction over the years

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2012-2050. The cap gets tighter and tighter over time, reducing emissions gradually. Meanwhile, the ‘trade’ part of the policy allows firms to trade permits that allow the holder to emit CO₂.

Trade means that the initial allocation of permits does not affect the total cost of reducing pollution. But, the initial allocation of permits does create winners and losers, so this allocation is a key policy choice.

One option is for the government to auction the permits, so that the revenue can be used to implement tax cuts or to compensate those who lose. The other option is to give away permits to companies. Free allocation to past polluters is called ‘grandfathering.’

What are appropriate goals for the initial permit allocation, and how well does Waxman-Markey do?

GRANDFATHERING AND TWO OTHER POPULAR BUT BAD USES OF PERMIT ALLOCATION

Some argue that any cap-and-trade policy must grandfather all permits in order to prevent losses to firms, who would otherwise need to buy permits. Yet, once emissions are capped, output prices will increase in energy-intensive sectors to reflect the higher marginal cost of production. These price increases will occur with or without grandfathering.

Firms that claim they will lose money if they have to purchase permits are ignoring the fact that the equilibrium price of their output will rise to cover the cost of permits. If those prices rise rapidly (and some firms exit costlessly), then such grandfathering is unnecessary. With slow adjustments, Lans Bovenberg, Lawrence Goulder, and Derek

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Gurney estimate that handing out 15 to 20 percent of the permits would cover adjustment costs. Regardless, giving away all the permits hands extra profits to firms, with the greatest share going to the largest emitters.

What, though, about trade-vulnerable industries? Should permits be given to firms who would lose if they have to compete with foreign firms not subject to cap-and-trade costs? No. Handing these industries free money does not solve the basic problem, since it does not change their marginal cost of production. To level the competitive playing field, we need border tax adjustments for imported goods, and we need other nations to cut emissions.

What about another popular idea: giving permits (or permit revenue) to those who develop solar, wind, and geothermal technology? Certainly those technologies will play a major role in reducing our dependence on fossil fuels, but the whole point of charging a price for CO₂ permits is to induce firms to invest in those alternative technologies—with no need for subsidies.

So what *should* be the goals of permit allocation?

GOAL 1 - CUT OTHER DISTORTING TAXES

As shown by Ian Parry and others, permit revenue can be used to reduce other distorting taxes, and thus increase economic efficiency. For instance, both payroll taxes and commodity taxes reduce the incentive to work, and thus they encourage leisure. If auction revenue is used to lower the marginal payroll tax rate, then more economically efficient and productive labor resources can enter production.

GOAL 2 - COMPENSATE LOW-INCOME CONSUMERS

All energy-intensive goods and services. These price increases particularly hurt low-income households who spend a higher fraction of their income on energy-intensive goods than do high-income households. Auctioning permits and returning at least some of that revenue to low-income households can offset some of the worst losses to those least able to afford it.

GOAL 3 – COVER TRANSITION COST OF RETRAINING LABOR

The labor force also has to be retrained, both to install and subsequently to utilize

the new capital stock. Unfortunately, human capital often is not diversified, so that job dislocation may render a person's entire professional skill set obsolete. Permit auction revenue can be used for retraining and relocation of those who become unemployed.

GOAL 4 – REDUCE OUTSTANDING DEBT

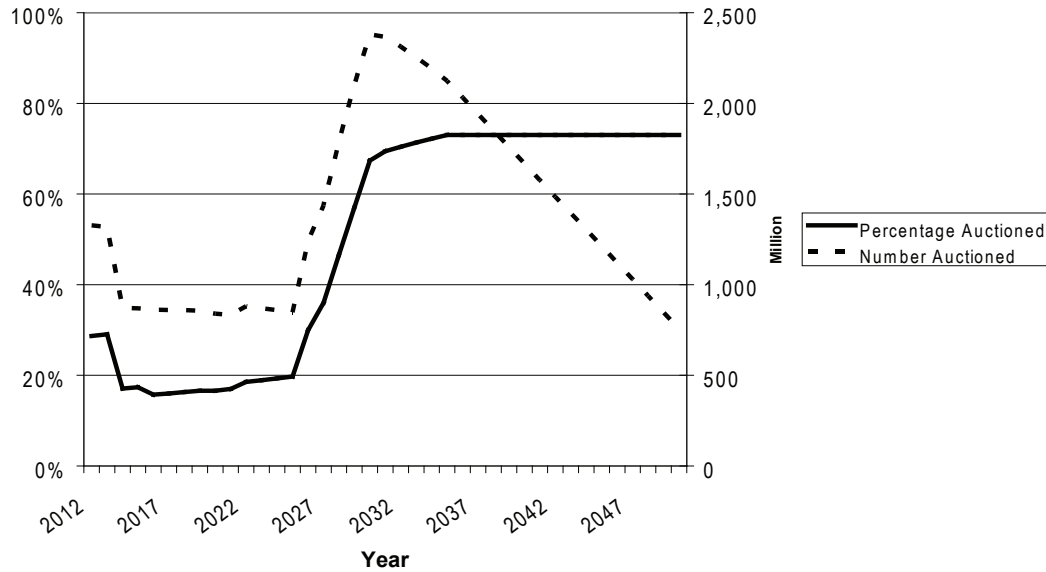
Deficit reduction is a prudent use of additional revenue, given the huge federal debt. Reducing the deficit would reduce the full efficiency costs of higher future tax rates.

WAXMAN-MARKEY ANALYSIS

The primary (left) axis and the solid line in Figure 1 show the percentage of permits that are auctioned in each year. In 2012, 30 percent of permits will be auctioned under Waxman-Markey, but the percentage falls during 2015-2025 to an average of only 17.5 percent. The remaining 82.5 percent of permits are freely allocated over the 2015-2025 period.

The secondary (right) axis and the dotted line show the number of permits auctioned. For 2015-2025, approximately 860 million

Figure 1: The Percentage and Number of Auctioned Permits in Waxman-Markey [HR 2454, 111th Congress]



permits are scheduled for auction each year, with each permit allowing the emission of a ton of CO₂. If each auctioned permit sells for \$10 to \$20, then Waxman-Markey generates 8.6 to 17.2 billion dollars of Federal revenue per year. In the same price range, the rest of the permits are worth 40.5 to 81 billion dollars per year.

Some of the allocated permits must be used for specific purposes, however (such as help to electricity ratepayers, see below). So, not all of the allocated permits are left as pure profits.

From 2025 to 2030, auctioned permits rise from 20 percent to 70 percent of the total. Then from 2030 onward, the number of auctioned

permits falls—even though the percentage of permits auctioned is increasing or constant. The reason is that the total capped number of permits falls over time. However, the implication for revenue generation is unclear, because the scarcer supply of permits may increase their price.

How well does Waxman-Markey (WM) address the goals above? To start, we find essentially no provision in WM to use permit auction revenue to reduce marginal tax rates in any sector of the economy, failing the first goal.

On the other hand, WM does address the compensation goal at least to some extent, by auctioning 15 percent of the permits each year and returning that revenue to low-income households. Also, in the early years, 46 percent of permits are given to electricity, natural gas, and heating oil local distribution companies (LDC's) for the express purpose of reducing the fixed cost portion of consumer utility bills. If the WM bill can make LDC's reduce overall energy bills while maintaining a high marginal price, then it might be a clever way to bring the energy sector politically onboard, discourage energy use, and yet mitigate the increase

in energy costs for low-income households. Thus, we hope that WM adequately addresses the second goal.

WM might better achieve both of these two goals, however, if permit revenue were used to cut payroll tax rates for low-income households as proposed by economist Gilbert Metcalf.

Waxman-Markey mostly fails to achieve the third goal; to mitigate harm to displaced workers and cover retraining and relocation costs. In 2012-2013, for example, less than 1 percent of the permits are auctioned with proceeds used to retrain workers. From 2012 to 2050, only 0.5 percent to 1.0 percent of the permits are auctioned for the revenue to be used to reduce career adjustment costs associated with the structural shift in the economy to the cap-and-trade policy. These amounts seem inadequate to the likely hardship.

Finally, WM superficially addresses the fourth goal of reducing the federal debt. For the years 2012-2025, Waxman-Markey states that all leftover permits are auctioned, but from 2015 to 2025, less than 1 percent of permits on average are leftover to be auctioned, with revenue dedicated for debt reduction.

Overall, Waxman-Markey's permit allocation does an adequate job on some of our goals, including some help to low-income families who will face higher electricity bills. But due perhaps to political considerations, the legislation would hand out a lot of permits to past polluters who don't need them, as we have argued. If those permits were auctioned instead of grandfathered, the revenue could be used for any of our other good uses of the funds: cutting other distortionary taxes, deficit reduction, or help with retraining and relocation of displaced workers. We hope the Senate pays attention to the economics of permit allocation that we outline here as it considers its own bill.

Letters commenting on this piece or others may be submitted at <http://www.bepress.com/cgi/submit.cgi?context=ev>.

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