

Four Proposals for the Next Climate Agreement

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Four proposals will increase the chance of success of current climate negotiations, and the likelihood that the resulting treaty will be effective. The treaty should: (i) include an escape clause that puts a ceiling on membership costs, (ii) constitute a Carbon Bank that has the tools to maintain carbon prices above a floor and below a ceiling (iii) include modest trade provisions, and (iv) promote the participation of developing countries, while recognizing that they are entitled to special status at least during the next decade.

The design of the next international climate agreement can increase countries' incentive to join the treaty and increase the likelihood that the treaty will be effective. Four proposals contribute to these goals. The first of these involves an "escape clause" that permits a country to discharge its treaty obligations by paying a "fine" as an alternative to reducing emissions. The second creates a mechanism that defends an internationally agreed carbon price ceiling and a price floor. The third proposal accepts a limited role for trade policy, and the fourth recognizes that developed and developing countries have different types of responsibilities.

The next climate agreement should require that developed country signatories agree to a succession of two-year emissions quotas. Under the escape clause proposal, a signatory that decides not to meet its agreed quota remains in compliance by paying a fine. All signatories in compliance, including any nation that exercises the escape clause, receive a share of

revenue from fines. The proposal caps the total economic cost to a signatory, and thus eliminates one reason that the US remained outside the Kyoto Protocol. There is considerable uncertainty about the actual cost of reducing emissions; the concern that compliance costs could be excessive might keep some nations from joining the next agreement. The escape clause puts a ceiling on the compliance cost.

The escape clause also eases the enforcement problem. It transforms the esoteric obligation of reducing emissions, for which there is currently no international enforcement authority, into the familiar obligation of paying sovereign debt. The agreement can make the fine almost automatic, by requiring signatories to issue options to the international authority overseeing the treaty. If the signatory exceeds its emissions quota, the option entitles the holder to acquire at zero price a number of the signatory's national bonds equal to the value of the fine.

The escape clause also has a more subtle benefit, because it increases a potential signatory's incentive to join the agreement. The treaty sets the nominal fine, but the effective fine equals the nominal fine minus the reimbursement that the escaper receives. Since all compliant signatories share the fine revenue, an increase in the number of signatories reduces the reimbursement and thereby increases the effective fine. In other words, by joining the agreement, the new signatory increases the effective fine facing all signatories. The resulting increase in the effective fine lowers each signatory's incentive to "escape", i.e. it increases their incentive to make the agreed emissions reductions. In this manner, the escape clause provides a direct link between a potential signatory's decision to join and the

actions of all other signatories. This added channel of influence increases the incentive to sign the treaty.

This proposal does create the risk of undermining the environmental objective, if for example several small or one large signatory exercises the escape clause. The agreement must set the level of the fine at a high enough level to keep this risk small. The benefits of the proposal outlined above more than offset this risk.

The encouragement of international trade in permits leads to an international price of carbon. The agreement should allow signatories to bank emissions permits across the two-year sub-periods of the treaty, but not to borrow against their quota in future periods. If nations and individuals expect that the price of carbon will increase sufficiently fast, they will want to bank the permits in order to use them when they become more valuable. The prohibition against borrowing prevents signatories from borrowing permits in order to remain in nominal compliance until the last sub-period, thus receiving the benefit of membership without actually reducing emissions. Absent the prohibition against borrowing, a nation could withdraw from the agreement in the last period, leaving with a negative balance.

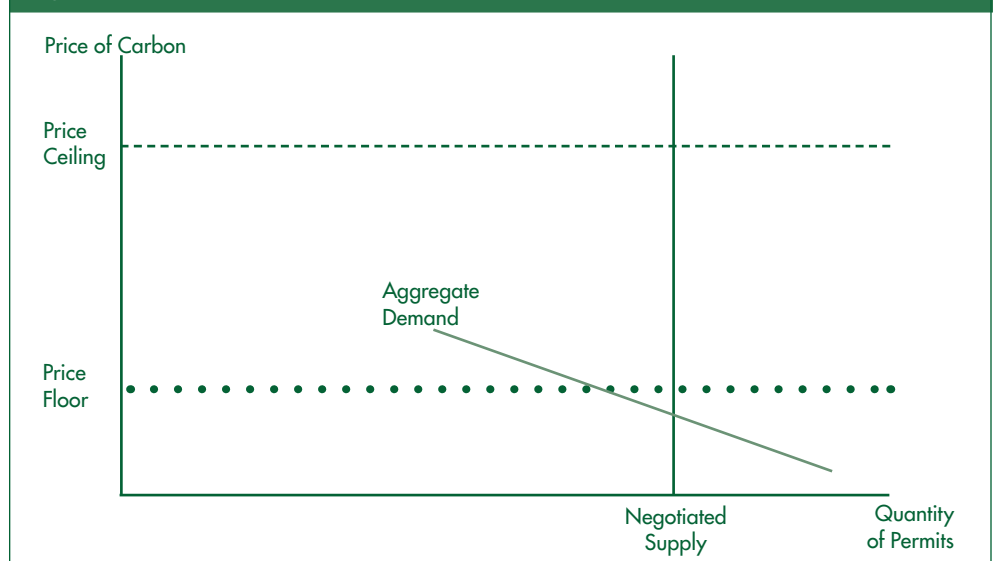
The second proposal is that the treaty creates a Carbon Bank, whose sole objective is to maintain the international carbon price between a ceiling and a floor set by the treaty. Signatories capitalize the Bank by giving it "American style put options" with a "strike price" equal to the price floor. These options entitle the owner (the Carbon Bank) to sell to the contracting party (the signatory), at a price equal to the strike price, a permit to emit a tonne of carbon. The owner of the option can exercise it at any point

during the life of the contract, which equals the length of the climate agreement. Each signatory contributes put options to capitalize the Carbon Bank; these contributions are proportional to the signatories' emissions quota over the life of the treaty. The Bank has two types of policy instruments, the ability to raise or lower emissions ceilings in future sub-periods, and the ability to intervene in the spot market.

Aggregate demand for permits is the sum of demand for permits in the spot market and demand for permits to bank ("banked permits"). The spot demand allows permit holders to emit carbon in the current period, and the banked permits allow future emissions. If aggregate demand intersects the vertical supply (previously chosen by the negotiation) at a price between the floor and the ceiling, the Bank does not enter the market.

Figure 1 shows a situation where the aggregate demand intersects the supply below the price floor, requiring Bank intervention. The Bank's first line of defense of the price floor is to reduce emissions quotas ("negotiated supply") in future sub-periods. This reduction in the future supply increases the expected future price of permits, and increases nations' and individuals' incentive to save permits for future use. This increase in the demand for banked permits shifts out the aggregate demand in the current period, until the new price equals the price floor. However, there is a point beyond which the Bank cannot credibly reduce future emissions quotas. Once the Bank has reduced future quotas to a threshold, specified in the agreement, the Bank begins to defend the price floor by purchasing permits in the spot market, thereby increasing spot (and aggregate) demand in the current period. It finances these purchases by exercising the put options it acquired from signatories at the beginning of the agreement. That is, the Bank supports the spot price by buying

Figure 1. The Bank Needs to Defend the Price Floor

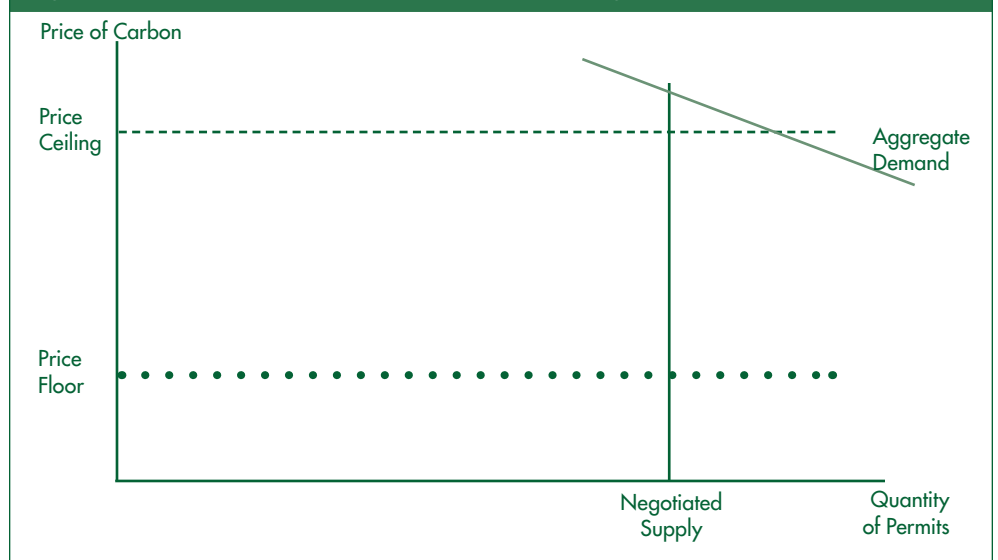


permits; it pays for these by exercising its put options. As long as the treaty maintains credibility, the market price never falls below the floor, the Bank never needs to exercise the put options, and the cost to signatories of capitalizing the Bank is approximately zero.

Figure 2 shows a situation where the aggregate demand is so high that the free market price exceeds the price ceiling. The Bank's first line of defense is to increase future emissions quotas, thereby lowering the expected future price and reducing nations' and individuals' incentive to save permits for future use. The lower demand for banked permits shifts in the aggregate

demand curve until the market price equals the ceiling. This defense works only if initially the demand for banked permits is substantial. If, instead, the stock of banked permits is small, the Bank intervenes in the spot market by selling permits at the price ceiling, i.e. it increases the current emissions quota, the level labeled "Negotiated supply" in the figure. The Bank's primary use of revenue is to replenish put options in the event that it previously had to exercise its initial endowment of these options. The Bank disburses any remaining revenue to a distinct international authority, possibly one that finances climate-related expenditures.

Figure 2. The Bank Needs to Defend the Price Ceiling



The price ceiling appeals to business interests and the floor appeals to environmental interests. The former protects businesses and consumers against unexpectedly high costs of reducing emissions. The latter maintains the incentive to invest in green technology, and insures that society does not ignore low-cost abatement activities. Signatories have an incentive to set a reasonably high price ceiling, because any revenue that the Bank obtains from defense of this ceiling goes to the international community. In contrast, if individual nations rather than the Carbon Bank were responsible for defending the ceiling, revenues from the sale of additional permits would flow into national treasuries. This addition to national treasuries would create the incentive to set a low price ceiling. That is, investing authority to defend the price ceiling in an international rather than in a national agency, causes signatories to be more willing to accept a high price ceiling. The higher price ceiling promotes environmental objectives.

The price ceiling and the escape clause provide different kinds of insurance against unexpectedly high costs. The price ceiling operates automatically, while the escape clause requires a political decision. The price ceiling protects against high marginal costs of reducing emissions, while the escape clause protects against high aggregate costs.

There are superficial similarities between the Carbon Bank and the largely unsuccessful “commodity price stabilization agreements” that were common in the 1960s and 1970s. The latter were vulnerable to speculative attack, and the higher prices that they generated induced increases in supply that undermined the agreement. The Carbon Bank does not have these weaknesses.

The third proposal is to adopt modest trade disciplines and the fourth proposal is to continue to treat

developed and developing countries differently. In particular, the next agreement should not require developing countries to accept mandatory emissions quotas. This group of developing countries likely includes Brazil, China and India, the major developing country emitters.

Trade disciplines under the agreement should serve as an umbrella that provides shelter from a light rain, not a stick to bludgeon recalcitrant countries. There is concern that signatories’ reduced emissions will “leak”, as carbon-intensive production shifts to countries that do not adopt strict climate policies. This “carbon leakage” would undermine the environmental objective of the treaty, and would endanger political support for the agreement if it causes the loss of domestic jobs and profits. The empirical support for the importance of carbon leakage is not strong, but leakage sounds plausible to both politicians and the public, and it might in fact be significant.

Multilateral trade measures that promote environmental objectives have a better chance of being consistent with World Trade Organization (WTO) law and are more likely to be effective, compared to unilateral measures. The next agreement should require developing country signatories – those without mandatory emissions quotas – and any developed country signatory not in compliance, to purchase carbon permits when they export any of a small number of carbon-intensive commodities to a signatory that has accepted an emissions quota and is in compliance. The number of permits equals the estimated amount of carbon used in production of the commodity. Only the basic carbon-intensive commodities, not the products that embody them, are subject to this discipline. The treaty cannot apply this discipline to non-signatories. This proposal defuses a common objection to a climate agreement, and it does so

in a manner that enhances rather than undermines the world trade order.

Developing countries should accept the principle that they will face emissions quotas in the future, perhaps after a decade. Future, not current, negotiations will determine the level of quotas after the next decade – for both developing and developed signatories. By that time, we will have more experience with the institutions that support the treaty, and we will have better information about abatement costs and climate science. It is essential that developing countries achieve substantial emissions reductions before that time, however. These reductions should be on a voluntary basis, financed by the sale of offsets on the international carbon market. This method of financing means that we do not need to rely on developed country contributions to a climate fund. It would be politically difficult to obtain the level of contributions needed to support the reductions required from developing countries.

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For additional information, the author recommends:

This article is based on “Suggestions for the Road to Copenhagen” by Larry Karp and Jinhua Zhao, Report to the Expert Group on Environmental Studies, Ministry of Finance, Sweden, June 2009, available at <http://are.berkeley.edu/~karp/SuggestionsCopenhagen-June09.html>.