

FOIA MARKER

This is not a textual record. This is used as an administrative marker by the William J. Clinton Presidential Library Staff.

Collection/Record Group: Clinton Presidential Records
Subgroup/Office of Origin: Council of Economic Advisers
Series/Staff Member: Judson Jaffe
Subseries:

OA/ID Number: 20747
FolderID:

Folder Title:
CC [Climate Change]: Liability & Limits

Stack:	Row:	Section:	Shelf:	Position:
S	20	6	1	3

DRAFT

To: Todd Stern

From: Jeff Frankel

Re: (Un)workability and (In)efficiency of Limits on Trading

The Administration has been united and consistent in emphasizing the critical importance of international trading to bring down the costs of meeting the Kyoto targets. We have argued strongly against European proposals to put a limit on trading -- pointing out the loss in efficiency that would result -- and we must continue to do so. But one should not get carried away. Limits on trading are not literally unworkable.

Two memos are attached. The first explains how limits on trading could be implemented if necessary, albeit with an extra layer of complexity -- just so that we understand the issue in our own minds. The second memo explains, in terms suitable for use with other countries, why limits on trading would be highly distortionary (even if we no longer feel able to assert that they would be literally unworkable).

2

comments/corrections of end.

1. Limits to Trade Can be Workable, Even Though Undesirable

Some proposals on international trading would limit the use of flexible mechanisms (international trading of Annex B 'assigned amount units,' Joint Implementation, and the Clean Development Mechanism) in meeting obligations under the convention. Such restrictions would add an additional layer of complexity, but are not necessarily fatal to the market.

Regardless of limits to trade, an institutional framework is required for trading.

We have consistently emphasized the central role of the private sector in doing the work of Kyoto. Nevertheless, to ensure the proper functioning of the permit market and that we meet our emissions commitments, we recognize the need for monitoring, recordkeeping, and enforcement by governments, at least at the domestic level.

At the international level, it is not realistic to have the private market undertake trades freely across national borders without government oversight. Nations will need to demonstrate their compliance at the end of the budget period and will be concerned about counterfeiting, balance of payment statistics, and so on. Therefore, at a minimum, there will need to be a national registry of all international permit trades.

The added burden of implementing limits to trade would not be insurmountable.

Essentially, domestic permits would need to be traded for foreign permits at an "exchange rate" which reflected the added constraint of only being able to import or export a set quantity of permits. There are a number of ways to implement a limit, but the simplest might be for the government to issue "right-to-import" or "right-to-export" certificates up to the limit. If, for example, international purchases were recorded at the national trading registry, then the buyer would have to present one right-to-import certificate along with a foreign permit for it to be officially accepted. (They would be "net import" certificates: ~~An American who sold a permit~~ ^{from his stock} net-import certificate, which he would be free either to use or sell.) Similarly, anyone wanting to sell a permit internationally would have to acquire one right-to-export certificate and combine it with one domestic permit in order to export. Arbitrage would equate the price of domestic permits to the international price of permits plus the certificate price. The price of the certificates would fluctuate on the market, depending on how binding the limit is. Their price would be zero -- i.e., the domestic price and foreign price would be the same -- if the constraint were not binding. Similar

mechanisms are currently used to implement import and export quotas throughout the world.

2. Limits to Trade are Highly Distortionary

~~Restrictions~~
~~Restrictions on the~~ use of flexible instruments would be highly distortionary, raising the global costs of addressing climate change while not providing any additional environmental protection.

Difficulty in determining a baseline

Certain proposals would limit the reductions achieved abroad to a given percentage of total reductions, which requires defining total reductions from some business-as-usual (BAU) baseline. However, there is no internationally agreed methodology for forecasting emissions, and therefore international negotiations to determine such baselines are likely to be quite complicated. Of course, trading restrictions based on tons, instead of a percentage of BAU, would avoid this problem. In this case, the tonnage restriction for each country would have to be set, creating its own challenge for international negotiations.

Interference with the Clean Development Mechanism

According to the Kyoto Protocol, credits from CDM projects undertaken between 2000 and 2008 can be applied during the commitment period -- providing strong incentive for such investment. Restrictions on the share of reductions from flexible mechanisms could easily interfere with this incentive. Without knowing how reductions in 2008-2012 will be achieved, firms receiving credits now will not know whether those credits will ultimately be applicable to Annex I commitments or not. In other words, they will not know the potential value of their credits, increasing the uncertainty of their investments.

Increased administrative complexity

Restrictions will lead to requirements that both sellers and buyers have to report transactions, and to the development of mechanisms to ensure that parties stay within their limits. This will add an additional layer of transaction costs and administrative burden on the system. This creates an artificial market barrier that the new market will have to overcome, decreasing its

efficiency.

Increased costs of meeting commitments.

Limits are distortionary. They would create differences in permit prices across countries (a foreign permit would trade at a premium to domestic permits), leading to a situation where countries pay a needlessly high price to achieve the same level of global emissions. Modelers have estimated the efficiency cost of placing limits on global trading:

Permit Prices for a Competitive Market of Annex I and Key Developing Countries

Country/Region	Domestic Permit Price, No Trading Constraint	Domestic Permit Price, 50% of Reductions Must Occur at Home
United States	\$23/ton	\$59/ton ¹
European Union	\$23/ton	\$79/ton
Australia	\$23/ton	\$44/ton
Japan	\$23/ton	\$158/ton
Canada	\$23/ton	\$132/ton

Source: SGM

¹ We suppose that this price is higher than the domestic political process is likely to accept.

Impaired compliance

In a world without effective international trading, a country that is substantially over its target in 2007 might figure that compliance is hopeless, because it is physically impossible to reduce emissions in so short a span of time. But in a world with effective international trading, a country has no defense against the charge that it can always buy its way out of a shortfall. Because compliance is physically possible in such a world, countries will take the agreement more seriously, and will take correspondingly serious actions.

always

not physically!

because

13

Addressing the risk of overselling in international emissions trading

Issue for Decision: How to address the risk that a party may oversell emissions permits, and fail to retain enough to cover its emissions?

I. Background

In proposing trading rules, the US has attempted to strike a balance between economic efficiency and incentives for compliance. An efficient market in emissions permits will help keep costs down. Incentives for compliance are needed to achieve our environmental objectives. The agencies have come to agreement on most aspects of trading rules, but have not yet agreed on the proper allocation of the risk of overselling.

The US has several objectives in crafting rules for emission trading. Trading rules should create an economically efficient market. In addition, they should help achieve the Kyoto targets, should create an incentive for compliance, and should encourage participation by the FSU and prospective new entrants from the developing world.

The EU and environmental groups are concerned about overselling, especially by Russia and Ukraine. They fear that these countries will oversell their allotments early in the 5-year compliance period (2008-2012), and cite weak compliance and regulatory regimes in these countries. They believe that trading rules should contain additional incentives for compliance.

Others, including potential market participants, are concerned that some compliance incentives could hobble the nascent market in tradable permits. They believe that trading rules should focus, above all else, on facilitating development of the new market.

Recognizing that there are limited levers in traditional international law to compel Party compliance, the US has supported including positive incentives for compliance within the trading rules, where that can be done without significantly burdening efficient market function. Specifically, before Kyoto the US proposed including two compliance provisions in trading rules:

- A Party not complying with its measurement and reporting obligations would lose its eligibility to engage in further emissions trading.
- A Party that has run out of assigned amount during the 5-year commitment period would lose its eligibility to make further sales (although it would still be able to buy), so long as it remains in deficit.

II. Options

1) Seller bears the risk. If the selling party does not possess enough assigned amount to cover its emissions at the end of the period, the excess, with a penalty, would be deducted from its assigned amount for the next budget period. The party might also be subject to restrictions of sales in the second period. Buyers are responsible for ensuring that they obtain clear title to any units purchased, but are not subject to the risk that permits will be recalled or devalued. Tradeable units

already sold remain the property of the buyer.

Benefits: Simplest and most efficient, because transaction costs are lowest. Buyers would be certain of the face value of any tonnes bought, and tonnes would be interchangeable. Buyers need not assess the risk of the selling Party's ultimate compliance. Loss of trading eligibility and repayment requirements provide incentive for compliance.

Downsides: Significant risk of overselling and unremedied excess emissions. Compliance incentives depend on Parties' commitment to participate in the global climate change treaty over the long haul. Loss of trading eligibility and repayment requirements alone may not be sufficient to prevent overselling by a government that seeks a short-term financial bonus.

2) Buyer bears the risk. If the selling Party does not possess enough assigned amount to cover its emissions at the end of the period, emissions permits that it had previously sold would be taken back from buyers and applied to cover the shortfall. The last permits sold would be the first ones returned (LIFO); alternatively, all permits sold could be devalued by the same proportion. Buyers, who would be on notice of these rules from the start, would have to assess the risks of a Party's non-compliance. They might manage risks in several ways: by discounting prices paid, creating a portfolio of permits from different Parties and of different vintages; by making contracts contingent on compliance of the selling Party; or by buying options or taking other offsetting positions.

Benefits: Creates strongest protection against overselling. Uses market mechanisms to promote environmental objectives. A Party at risk of having excess emissions will receive lower prices for its permits; this creates a financial incentive to comply. Excess emissions are automatically covered, up to the extent of prior sales.

"kill market" → **Downsides:** Likely to increase costs. Likely to impede development of trading, as allowances would differ in risk (and price) according to the original seller. Would require private sector buyers to assess and manage the likelihood of selling Parties' eventual non-compliance. Market tools for doing so efficiently could develop over time, but are not likely to exist at first; this could impose a significant burden on the nascent emissions trading market.

Some have raised the possibility of a "domino effect," in which noncompliance of a seller leads to noncompliance not only of the first buyer but of all subsequent buyers as well, implying de facto joint-and-several liability. A cumbersome iterative international process would be necessary if one party's compliance were linked to another's. Others have argued that this domino problem could be limited either by a LIFO rule, or by a rule limiting liability to the first buyer only.

Options (3), (4), and (4a) are intended to offer more protection against overselling than "seller bears the risk," and less burden on the trading market than "buyer bears the risk."

(3) Seller bears the risk, percentage cap on sales. In the first year, if a country had net sales greater than, for example, one-fifth of its 5-year allocation, then it could not sell any more, until

emissions data came in showing that the country had repaid its deficit through some combination of emission reductions and permit purchases. In the second year, if the country had cumulative net sales greater than two-fifths of its 5-year allocation, the same conditions would apply; and so on for later years. Naturally, shares other than one-fifth, two-fifths, etc. could be used. The first-year share should be well below 100 percent of the five-year allocation, and yet well above any reasonable level of sustainable legitimate emissions sales, including "hot air."

So by end
of 1st year
oversell of!
1: 1/5 period.

Benefits: Trading takes place with low transaction costs because buyers do not bear the risks of sellers' non-compliance. Cap limits potential overselling, compared to option 1).

Downsides: Although caps limit overselling, they do not prevent it. Unclear how these options would work where parties to the Convention devolve emissions permits to firms, as an individual firm's right to sell would depend on whether prior sales by other firms had reached the cap. This option requires detailed data on both spot and forward trades, as well as emissions, data that the central government may not have. Sellers may find ways to game the system.

(4) Seller bears the risk, with reserve account. Sellers would be required to set aside a specified percentage (perhaps 10 percent or 20 percent) of the total sold. These permits could be sold at or near the end of the five-year period, if they were not needed to cover the selling Party's emissions. Until then, they would serve as a compliance reserve against possible excess emissions.

Benefits: Low transaction costs, as in option (3). Compliance reserve grows with volume of permit sales. Reserve margin offers more protection against overselling than option (1). Whether protection against overselling is more or less than provided by option (3) is difficult to analyze, depending in part on the percentages chosen.

Downsides: Protection against overselling is still incomplete for any percentage set aside less than 50%. Interim permit prices (prices during the five-year period) may rise because fewer permits would be available for sale, until they are released at the end. The higher the percentage set aside, the greater this effect.

rise to
no. expectation
of non compliance

(4a) Seller bears the risk, buyer liability applies to reserve account. Variations on options (3) and (4) could allow sale of permits above the cap or sale of permits in the compliance reserve, under the condition of buyer liability. In other words, most permits would trade without any contingencies, but sales of the permits above the cap or in the compliance reserve would be subject to the risk of being recalled and returned to the seller Party to cover a shortfall at the end of the period.

same
Benefits: Provides more protection against overselling than options (3) and (4), because sales above the cap are subject to recall against seller's excess emissions. All permits are allowed to go to market; most trade on basis of seller liability without contingencies, while buyer liability is focused where most pertinent to compliance risk. May provide selling parties with more incentives for compliance, since a price signal reflecting the party's

compliance risk will be created for the permits in the compliance reserve.

Downsides: Same as option 2); potential burdens on the market are limited to only those permits trading under buyer liability.

III. Positions of US interest groups and other parties

The following picture emerges from a series of stakeholder meetings coordinated by the White House Climate Change Task Force:

- Most private sector potential buyers and brokers expressed a strong preference for avoiding buyer liability, although they recognized that seller liability alone does not address the risk of overselling.
- A minority of potential buyers and brokers said buyer liability would be workable.
- Environmental organizations prefer buyer liability.

Among the Parties:

- Other buyer members of the Umbrella Group generally favor “seller bears the risk.”
- Russia and the Ukraine have endorsed Umbrella Group proposals to date. They are eager to get trading underway in order to begin realizing revenue. They have acknowledged the need to build up their monitoring and regulatory capacity and are looking to trading revenue as a source of funds for such efforts. They have not yet been engaged in detailed consideration on liability or the risk of overselling.
- The EU currently favors buyer liability but has recognized problems such as the potential domino effect on compliance. The EU also supports the additional compliance features listed above under “seller bears the risk.” Option 4a) may also appeal to the EU as a means for both sides to get some of what they want.

IV. Strategy and timing

(a) Strategy and timing considerations. The overselling issue will be on the agenda of back-to-back meetings of the Umbrella Group and the Annex I Experts Group beginning on Labor Day. This argues for coming to agreement on a US position by September 4.

In G-8 workgroup discussions in July, the Umbrella and EU sides agreed that even though they have deep differences on the highly-charged political issues of (supplementarity, “hot air”), both sides have a stake in showing some progress on trading and the other flexibility mechanisms at Buenos Aires. The G-8 workgroup agreed that a realistic goal for COP-4 at Buenos Aires is to

reach Annex I-wide agreement on a number of mostly technical trading issues (e.g., emissions monitoring and reporting methods, systems for tracking transfers, procedures for participation by legal entities) and to obtain a COP decision on a work plan and schedule for resolving the remaining issues by COP-5.

In this context, it is worth trying to resolve the overselling issue this fall. While the issue is not simply technical (involving potential trade-offs between compliance and efficiency objectives), it is not as highly charged as complementarity or "hot air." If held over after Buenos Aires, it is likely to become more politicized and harder to solve. Addressing it now could also facilitate a solution to broader compliance concerns the EU has raised (concerning Article 18), which will also tend to become more politicized and harder to resolve if not addressed by Buenos Aires.¹ Of course, if an acceptable solution to the overselling issue is not reached by then, we always have the option of keeping it open for COP-5.

¹ The EU has argued for adopting binding compliance consequences under Article 18 before trading may commence under Article 17. Since Article 18 requires an amendment of the Protocol, this approach would introduce a major delay. The US and its Umbrella partners have sought instead to include important compliance provisions in the Article 17 trading rules themselves. Some progress in moving the EU towards our view was made at the G-8 discussion group in July. Since the EU is especially fearful of over-selling by Russia and the Ukraine, an effective response to that risk now could help get the EU off the Article 18 soap box.

Buyer versus Seller Liability and Transactions Costs

An argument for seller liability and against buyer liability is that buyer liability imposes higher market transaction costs than does seller liability. While virtually everyone will concede some level of increased transactions cost of buyer liability over seller liability, there is disagreement over how large this increase in cost is likely to be.

Transactions Costs with Buyer Liability

The logic for expecting increased transactions cost with buyer liability is as follows. Introducing seller liability adds no complications to a permit market transaction. Traded permits are always valid. The permit market functions just like a commodity market. With buyer liability, however, traded permits are not always valid and the buyer must assess default risk, i.e., the risk that a permit will turn out to be invalid. The buyer will either invest directly in obtaining information about the default risk, or purchase insurance covering the default risk. Either way, a buyer liability rule imposes a cost on the buyer for carrying out a market transaction.

Indirect Empirical Evidence

It would be very useful to know the magnitude of transactions costs imposed under buyer liability. There does not, however, appear to be any direct empirical evidence on this point. The best that once can do is to make inferences about the importance of these transactions costs by looking at the choice of market institutions and the absence or limited extent of certain markets in which buyers face risks.

1) *Choice of Market Institutions*: In domestic permit markets, seller liability is the rule of choice. The SO₂ permit market is perhaps the most notable example of a permit market with a seller liability rule. In meetings with industry groups and regulators, there was almost universal agreement that domestically, where there exists adequate compliance mechanisms, seller liability is preferred to buyer liability. One example where there was an expressed preference for buyer liability in domestic trading, was EPA's proposed open market trading rule for ozone smog precursors (Federal Register 8/3/95). The buyer liability scheme was preferred to the alternative of pre-certification of projects to reduce emissions by the government. A pure seller liability scheme was not considered.

2) *Limited Markets with Risk to Buyers*: In some situations there may be no way to avoid placing some risk on buyers. Buyers of bonds, for example, face default risk. There are several examples of bond markets that have either failed to develop or developed only to a limited extent. The nonexistence of private inflation indexed bonds is an example of the former problem (Fischer 1977). Similarly, it was only after government intervention and the introduction of Brady bonds that the market for developing country debt became highly liquid. A third example involves the lack of full insurance coverage for losses from a catastrophic event such as a hurricane or earthquake. Recent innovations such as "cat bonds," which pay the bond holder principle plus interest except in the event of a catastrophe, in theory bring the size of the capital market to bear in spreading the risk of these low probability large loss events. These bonds, and other similar

financial instruments, have not, as yet, grown to the point of providing substantial insurance coverage for catastrophic risk. Froot (1997) points out that certain preconditions must be met for these markets to fully develop, including investor education about risks and some degree of standardizing risks across different investments.

A point stressed by many in this literature is the difficulty of starting these markets when buyers lack information about risks and there is not a track-record upon which to estimate risks. This last argument holds with full force for international trading of GHG permits with buyer liability. Again, though, there is a lack of direct empirical evidence to predict with confidence for how long, or to what degree, adopting a buyer liability regime would impede the establishment of an international market in GHG permits.

Allocation of risk under international emissions trading

Issue for Decision: Should the buyer or the seller bear the risk that a selling Party may “oversell” and fail to retain enough assigned amount to cover its emissions at the end of the 5-year period?

General Background: A key U.S. objectives in proposing trading rules has been to create an efficient market in emissions permits. Another objective has been to allow for effective compliance incentives. Our proposals have consistently recognized the two goals of efficient markets and compliance with the Annex B Parties’ key obligations (accurate measurement and reporting of emissions and staying within assigned amounts).

Our proposals have further recognized that there are only limited levers for promoting effective Party-level compliance in the context of international agreements. Rather than advocate negative sanctions (such as financial penalties or trade sanctions), the U.S. has sought to develop clear accounting rules under the provisions for emissions measurement and reporting (Articles 5 & 7), and positive incentives to observe those accounting rules through the rules for international trading (Article 17) and the other flexibility mechanisms. At the same time, we recognize that we create problems when if we conflate the goals of efficiency and compliance: if the trading system is burdened with provisions aimed at improving compliance, the market for permits is likely to be inefficient, and may fail.

There is broad agreement among agencies on the following points relating to emissions trading and compliance.

Loss of Eligibility and Repayment with Penalty Provisions (“Seller Plus” Features)

- ① • A Party that is not complying with its measurement and reporting obligations should be suspended from further emissions trading.
- ② • A Party that has run out of assigned amount during the 5-year commitment period should lose its eligibility to make further sales (although it should still be able to buy), so long as it remains in deficit.
- ③ • If a Party has over-emitted at the end of the 5-year period, the Party should be required to deduct the excess, with a penalty from its assigned amount for the second period. The Party might also be subject to restrictions on sales in the second period. (Note: This provision could be defined as a general accounting rule, rather than a trading rule, because it would apply to any Party which over-emitted, regardless of its emissions trading activities)

The question still needing resolution is whether there should also be any linkages that would affect the status of the tonnes that a Party previously sold.

- This is the issue of seller or buyer liability. Specifically, if a selling Party has over-emitted at the end of the period, should the tradeable units it previously sold remain the property of

the buyer (seller bears the risk)? Or should they be returned to cure the seller's deficit (buyer bears the risk)?

In analyzing this question, we have looked at a range of options and attempted to assess their consequences for compliance and for market function. (We are currently consulting with stakeholders on these issues.)

Options:

1) **"Seller plus"**-- seller liability plus penalties for sellers in deficit. Buyers are responsible for ensuring that they obtain clear title to any units purchased, but the selling Party would be solely responsible for its excess emissions. Buyers would not be subject to the risk of retroactive devaluation. Possible penalties for sellers in deficit include suspension from trading, and repayment with penalties. Tradeable units already sold would remain the property of the buyer.

Benefits:

- Simplest and most efficient.
- Buyers would be certain of the face value of any tonnes bought, and tonnes would be interchangeable.
- Buyers need not assess the risk of the selling Party's ultimate compliance.

Downsides:

- Unless other rules create consequences for a Party that oversells, this approach may provide insufficient incentives for compliance, as parties could be encouraged to deliberately or carelessly over-sell and not retain enough assigned amount to cover their own emissions.
- Additional penalties might be insufficient to prevent careless or deliberate over-selling by a government with only a short-term focus or no interest in complying.

2) **"Seller plus plus."** If a country had net sales in the first year greater than some proportion **X** of its 5-year allocation, then it could not sell any more, until emissions data came in showing that the country had, through some combination of emission reductions and permit purchases, repaid the excess sales. If in year 2 a country had net sales greater than **2X** (or, if in year *n* a country had net sales greater than **nX**) of its 5-year allocation, the same conditions would apply.

Benefits:

- Retains most of the simplicity and efficiency of option 1.
- Potentially adds incentives to comply.

Downsides:

- May provide insufficient incentives to comply; careless or deliberate over-selling still possible.
- Sellers may find ways to game the system.

3) Buyer bears the risk. If the seller does not possess enough tonnes to cover its emissions at the end of the period, tonnes that the Party had previously sold would be applied to cover the shortfall. This could occur under a LIFO rule (the last units sold would be the first ones returned), or by a proportional devaluation of all previously sold tonnes. Buyers would have to assess the risks of a Party's non-compliance. Buyers might manage risks in several ways: by creating a portfolio of tonnes from different parties and of different vintages; by using contracts contingent on compliance of the selling Party; or by buying options or taking other offsetting positions.

Benefits:

- Creates strongest incentives and guarantees against over-selling.
- A Party at risk of default will receive lower prices for its units; this gives a financial incentive to comply.
- Excess emissions are automatically covered, up to the extent of prior sales.

Downsides:

- Likely to impede development of trading, as tonnes would no longer be a single commodity, but would differ in risk (and price) according to the original seller, and (under LIFO) according to the date originally sold.
- Would require private sector buyers to assess and manage the likelihood of various selling Parties' eventual non-compliance.
- Non-compliance of a selling Party could lead to the noncompliance of buying Parties, possibly creating a "domino effect."
- Cumbersome, iterative international process would be necessary if one Party's compliance were linked to another Party's compliance. For example, if the US were holding Russian tonnes, Russia's compliance would have to be assessed in order to judge US compliance. Then US compliance would have to be assessed, taking into account any devaluation of Russian tonnes held by US domestic entities; then compliance of other Parties holding US tonnes would need to be assessed in light of the US assessment, and so on.
- This raises timing problems for US holders of, for example, Russian tons if

they could not know whether they had complied with US law until the compliance of other parties had been assessed.

While markets are likely to develop for risk management tools, the buyer-bears-the-risk approach may impose a significant burden as emissions trading starts up.

- While the likely validity of purchased emission permits would become increasingly clear as the end of the commitment period approaches, it could take a year or two after the end of the 5-year period to definitively sort out the validity of all permits.
- Could force buyers to buy extra tonnes to guard against seller shortfalls.
- Would not eliminate the incentive to oversell, but only reduce the price to the Party overselling.

4) Potential Hybrids. Other approaches could also be considered that lie between these options. For example:

- **Seller/Buyer.** Sales above the unsustainable rate would be permitted, but only under buyer liability. In other words, trading would start on the basis of seller liability, but would switch to buyer liability if the Party were selling at an unsustainable rate. Only sales under the condition of buyer liability would be subject to retrospective recall if the selling Party is out of compliance at the end of the period.

This and other hybrid approaches would add more incentives for compliance than “seller plus,” but place less burden on the marketplace than when the buyer bears the risk. The example here would protect most past trades; it would also allow the selling Party to sell the “unsustainable” increment of its assigned amount, but only under the condition of buyer liability.

Positions of US interest groups and other parties

Most firms that are potential buyers have a preference for “seller plus” or “seller plus plus” over buyer liability. A minority of potential buyers, as well as U.S. environmental organizations, prefer buyer liability.

Among the Parties, the EU has staked out a position in favor of buyer liability, although they also agree with the limitations (on page 1) we have offered. The Umbrella Group countries are generally in the “seller plus” or “seller plus plus” camps.

JF

JA

QF

August 7, 1998

MEMORANDUM FOR DISTRIBUTION

FROM: JIM RUBIN, WHCCTF - 395-2343

SUBJECT: EMISSIONS TRADING MEETINGS

We have scheduled two meetings to discuss liability, registration, and other emissions trading issues.

The first meeting is with market regulators (e.g. SEC, CFTC, Chicago Board of Trade) and will be on **Tuesday, August 11 from 11 a.m. to 1 p.m. in the Truman Room** of the White House Conference Center, 726 Jackson Place.

The second meeting is with commodity traders and insurance experts (Edison Electric, Texaco, Natsource, and tentatively BP, AIG, and Environmental Advantage) and is also on **Tuesday, August 11 from 2-4 p.m. in the Eisenhower Room** of the White House Conference Center. *Red. 726 Jackson Place*

If you have further questions, please contact Miles Mercer at 395-2313.

PLEASE DISTRIBUTE TO:

NAME	DEPT.	FAX NUMBER
David Wilcox	Treasury	622-2633
Bob Cumby	Treasury	622-2633
David Doniger	EPA	260-5155
David Gardiner	EPA	260-0275
Mark Mazur	DOE	586-9626
Dirk Forrister	WHCCTF	395-2310
Victoria Greenfield	State	647-5713
Jonathan Pershing	State	647-4069
Susan Biniarz	State	736-7115
Steve Polaski	CEA	395-6870
David Sandalow	CEQ	456-2710
Scott Siff	DOJ	514-0557

Cm
LB

-EXECUTIVE OFFICE OF THE PRESIDENT-
**COUNCIL ON ENVIRONMENTAL
QUALITY**

722 JACKSON PLACE, N.W.
WASHINGTON, D.C. 20503

PHONE: (202) 395-5750
FAX: (202) 456-6546

TO: SEE DISTRIBUTION, page 2

FROM: DAVID SANDALOW

DATE: 8/5/98 PAGES: 16

(INCLUDING COVER SHEET)

COMMENTS:

FYI

The document(s) accompanying this FAX transmission may contain information which is confidential and/or sensitive. The information is intended only for use by the individual or entity named on this transmission sheet. If you are not the intended recipient, you are hereby notified that any disclosure, copying, distribution, or the taking of any action in reliance on the contents of this faxed information is strictly prohibited, and that the documents should be returned to this office immediately. In this regard, if you have received this FAX in error, please notify us by telephone immediately so that we can arrange for the return of the original document(s) to us.

DISTRIBUTION

Name	Agency	Fax
Robert Cumby	Treasury	622-2633
David Doniger	EPA	260-5155
David Gardiner	EPA	260-0275
Paul Stoltman	EPA	565-2149
Mark Mazur	DOE	586-9626
David Hales	AID	216-3174
Jeff Frankel	CEA	395-6947
Jonathan Pershing	State	647-0191



CENTER FOR INTERNATIONAL ENVIRONMENTAL LAW

Post-it* Fax Note 7671		Date 8/04	# of pages 5
To David Sondalov		From Don Goldberg	
Co/Dapl CEQ		Co. CIEL	
Phone # 7		Phone # 785 8700	
Fax # 456-2710		Fax # 785 8701	

Options for Responsibility for Non-Compliance Under Kyoto Protocol Emissions Trading

The Kyoto Protocol permits Annex B countries to transfer parts of their assigned amounts to other Annex B countries (Art. 17). An important question is who has ultimate responsibility, the buyer (transferee) or seller (transferor) if the seller has exceeded its assigned amount at the end of the commitment period. This paper identifies several options for assigning responsibility and discusses their pros and cons. It should be noted that the options are not all mutually exclusive, and an optimum responsibility rule might blend several of the approaches discussed below.

PURE SELLER RESPONSIBILITY

Countries can sell an unlimited amount of emission reduction units. The compliance of the seller country is only subject to evaluation at the end of the commitment period. Even if it is found that the seller is out of compliance, the buyer country can use the emission units it has purchased to meet its obligations. Pure seller responsibility relies solely on the relationship between the selling country and the treaty regime to ensure compliance.

Pro

- Simple to administer, since it requires straightforward compliance determination at end of commitment period.
- Stimulates market by eliminating risk to buyer.
- Seller is in best position to determine its own level of implementation and ability to sell.
- All allowances are equal in secondary market.

Con

- The financial benefits received by the seller country for fraudulent emission reduction units may outweigh the consequences of non-compliance.
- The buyer has no incentive to investigate whether or not the seller is experiencing implementation problems because their emission reduction units are guaranteed.
- May place responsibility on Parties with weak economies or limited administrative and enforcement capacity.

SELLER RESPONSIBILITY WITH ESCROW

Seller could be required to escrow some or all of the purchase money until compliance has been determined at the end of the commitment period.

Pro

- Provides ready cash to purchase needed allowances at end of commitment period.

Con

- Seller may need to use purchase money to achieve implementation.
- Does not guarantee allowances will be available for purchase at end of commitment period (note: if allowances are borrowed from subsequent commitment period, Parties may compensate by adopting less stringent targets for that subsequent period).

BUYER RESPONSIBILITY - UNIFORM DISCOUNTING

If at the end of the commitment period, the seller country is found to be out of compliance, all of the emission reduction units that it has sold will be equally discounted to make up overage.

Pro

- Encourages buyer due diligence (investigation of seller).
- The buyer pressures the seller country to implement policies and measure in order to avoid compliance questions.
- Probably places responsibility on stronger Party.
- Unlike LIFO and traffic light approaches (see below), does not encourage early buying rather than reducing domestically.
- All reduction units sold can be discounted to cover seller's "overage."

Con

- With respect to Protocol compliance mechanism, seller is off the hook.
- Does not discriminate between a buyer who exercised due diligence when investigating the seller country and another buyer who purchased emission reduction units when implementation problems were apparent.
- Could reward buyers of bad units by spreading discount across all buyers.
- May inhibit the development of a robust and efficient market if buyers are wary of trusting the seller countries.
- Unnecessary transaction costs may accrue because each buyer country duplicates the evaluation of the seller country.
- Allowances are rated, hence not equal in secondary market.

BUYER RESPONSIBILITY - "LAST-IN, FIRST-OUT"

Under "last-in, first-out" (LIFO) buyer responsibility, the emission reduction units that were sold last are the first to be returned until the amount of units sold reflects the reductions achieved by the seller country. Vintaging of the emission units is necessary to ascertain the order in which they were purchased.

Pro

- Again, the seller must prove that the emission units sold will be equal to the reductions achieved, in order for the buyer to pay the premium price.
- Rewards due diligence of buyer.
- All reduction units sold can be returned to seller to cover "overage."

Con

- Creates incentive to buy emission reduction units early, which may encourage unnecessary buying and discourage domestic action.
- Due diligence does not protect buyer against subsequent excess domestic emissions by seller.
- All allowances not equal in secondary market.

BUYER RESPONSIBILITY WITH INSURANCE

Buyer could be required to purchase insurance to cover possible non-compliance by seller. Insurer would provide required number of allowances or cash equivalent.

Pro

- Could create a reserve of allowances held by insurers to protect against possible seller non-compliance.
- Compliance "true-up" would be automatic.

Con

- Adds transaction cost for buyer (cost of insurance).
- Insurance reserve would soak up some allowances that would otherwise be available to Parties, thereby further increasing difficulty or cost of compliance. However, these may be one-time costs since reserve need be replenished only if used.
- Reliance on private entity insurers may be risky.
- If insurers pay off in cash, there is no guarantee excess allowances will be available to cover overage at end of commitment period.

JOINT BUYER-SELLER RESPONSIBILITY - UNDIFFERENTIATED

After the seller country is found to be in non-compliance, the seller and the buyer must participate in negotiation to assign who should take responsibility. Each Party would be uncertain as to how much risk is associated with the transaction.

Pro

- Can seek remedy from either party or both parties to transaction.

Con

- Ultimate responsibility may be unclear and require negotiation.
- May lead to finger-pointing and delayed resolution of problem.
- No guarantee excess allowances will be available to cover overage at end of commitment period.

JOINT BUYER-SELLER RESPONSIBILITY - DIFFERENTIATED

At end of commitment period, initially, seller is responsible for overage. If seller does not remedy within a certain period of time, responsibility shifts to buyer.

Pro

- Seller may be more likely to comply if it retains some responsibility to COP.

Con

- May make buyers less wary.
- Could delay remedy, since buyer must wait to see if seller remedies.
- No guarantee excess allowances will be available to cover overage at end of commitment period.

BUYER-SELLER HYBRID (TRAFFIC LIGHT)

At the beginning of the commitment period, all countries have a green light to trade emission reduction units. Units traded under the green light are guaranteed to the buyer (seller responsibility). However, if

implementation problems occur, the country must sell under a yellow light (buyer responsibility). The yellow light units will be subject to discounting or LIFO if the seller is in non-compliance at the end of the commitment period. If the implementation problems are not resolved, the red light is switched on and the seller is prohibited from further selling. If, however, the problems are fixed, seller can return to the green light status.

Pro

- Stimulates market by offering buyers "solid gold" (green) reduction units.
- Provides strong incentive to avoid "yellow" reduction units.
- Quick and thorough examination of the sellers by review teams to provide accurate information to the market.
- Highly transparent, since all information developed by review teams would be public.
- Measuring performance against milestones or "burn rates" would provide strong incentive for mid-course corrections.

Con

- Triggering of yellow light by review teams could be politically difficult, and lag time could be excessive. These problems might be avoided by having yellow light be triggered by annual inventories, measured against agreed milestones or burn rates.
- Could provide disincentive to achieve early domestic reductions.

EMISSION REDUCTION RESERVE - NATIONAL

Strictly speaking, not a responsibility option, but a mechanism for ensuring that non-compliance can be remedied. Could work under either buyer or seller responsibility. For each unit traded, one unit must be held in reserve by the selling country. This reserve would be used to cover the selling Party's overage. Any units not needed for this purpose could be sold to other Parties or banked.

Pro

- This mechanism would help ensure that reduction units are available to cover excess emissions, without having to "borrow" from the subsequent budget period.

Con

- Some Parties might regard this as an excessive constraint on trading.
- This approach will not eliminate hot air (see below).

EMISSION REDUCTION RESERVE - INTERNATIONAL

A percentage of each trade would be put into an international reserve. Presumably, this percentage would be smaller than 1 for 1 (e.g. 5-25% of trade). At end of commitment period, reserve would sell units to Parties that are out of compliance. Proceeds could be given to the GEF to finance additional reductions in non-Annex I countries.

Pro

- Would help ensure that reduction units are available to cover excess emissions without having to "borrow" from the subsequent budget period.
- Would offset hot air by obtaining additional reductions through GEF.
- Increase level of domestic reductions by raising cost of international trades.

Con

- Some countries may object to creation of a new international fund.
- May raise WTO issues (but other responsibility mechanisms may also).
- May inhibit development of international trading market.

-- DRAFT --

For Comment Only

Please contact the author with comments and suggestions

**International Emissions Trading and Compliance with
Greenhouse Gas Emissions Limitation Commitments**

Erik Haites
Margaree Consultants Inc.
Toronto, Canada
telephone: 416-369-0900 fax: 416-369-0922

May 1998

SUMMARY

The Kyoto Protocol provides for transfers of "assigned amount" (international emissions trading) among Annex I Parties. The rules for international emissions trading are expected to be adopted by the Conference of the Parties in November 1998.

Purchasers will want to buy "assigned amount" prior to the end of 2012 so that it can be used to help meet their commitments for the 2008-2012 period.

Although Annex I Parties report their emissions annually, actual emissions for the period 2008-2012 will not be known until some time after the end of the period, probably 2014. Thus neither the buyer nor the seller can be certain that the "assigned amount" purchased will be surplus to the seller's compliance requirements at the time of the transaction.

Making sellers responsible for the validity of the "assigned amount" sold simplifies the administration but possibly at the price of increased non-compliance. Holding the proceeds in escrow until compliance is established provides an incentive to comply although with some increase in complexity.

Making buyers responsible for the validity of the "assigned amounts" purchased provides an incentive to comply and hence increases the integrity of emissions trading. If necessary, proposed sales would be disallowed working back in time from the most recent sale until the seller achieves compliance. All earlier transactions are completed.

Buyers will want insurance coverage or a performance bond to ensure that disallowed transactions do not cause them to violate their commitments. The insurance coverage or performance bond must replace the "assigned amount" from a disallowed sale with valid "assigned amount" or equivalent instruments.

A central estimate of the value of "assigned amount" transferred is \$8 billion per year. Coverage would be required for up to seven years, so total exposure for the industry could be up to \$56 billion.

The requirement for insurance or performance bonds exists only if the rules for international emissions trading specify that the buyer is liable for the validity of the "assigned amount" purchased and this is likely to be decided in November 1998.

BACKGROUND

Kyoto Protocol sets out emissions limitation commitments for developed countries (Annex I Parties) for a basket of six greenhouse gases for the period 2008-2012. To help them meet their commitments, the Kyoto Protocol allows transfers of "assigned amount" among Annex I Parties. This is called international emissions trading.

The rules for international emissions trading will be adopted by the Conference of the Parties, probably at COP 4 in November 1998.

Purchasers will want to buy "assigned amount" prior to the end of 2012 so they can use this additional "assigned amount" to help them meet their commitments for the 2008-2012 period.

All Annex I Parties report their emissions annually. But actual emissions for the period 2008-2012 will not be known until after the end of the period, probably 2014. This means that neither the buyer nor the seller can be certain that the "assigned amount" purchased will be surplus to the seller's compliance requirements at the time of the transaction.

Thus the rules for international emissions trading must deal with situations where a buyer has purchased "assigned amount" from a seller that does not meet its emissions limitation commitments. There are two basic options: the seller or the buyer is responsible for the validity of the assigned amount.

SELLER RESPONSIBILITY

If the seller is responsible, the buyer can use the "assigned amount" to help meet its commitments regardless of whether the seller achieves compliance. If the seller meets its commitments, the trade does not create any problems. If the seller does not meet its commitments, the seller incurs the penalties for non-compliance. Administratively making the seller accountable is simple because transactions are final.

A system of seller responsibility relies on the penalties for non-compliance to ensure that they do not sell more than their surplus "assigned amounts". Emissions trading gives "assigned amount" a market value and so creates an incentive that does not exist otherwise to sell "assigned amount". Since the penalties for non-compliance in international agreements are typically quite weak and/or difficult to enforce, the financial incentive to sell may exceed the expected penalty for non-compliance.

A financial incentive to comply can be created by requiring that the proceeds from sales of "assigned amounts" be held in escrow until compliance is established. If all of the "assigned amount" sold is found to be surplus when compliance for the commitment period is established, the funds are disbursed to the country. If some of the "assigned amount" sold is needed to achieve compliance, the quantities not owned by the national government are reduced proportionally and the owners receive a share of the funds in the escrow account.

Holding the proceeds in escrow creates a financial incentive for sellers to meet their commitments. However, buyers planning to use purchased "assigned amount" to achieve compliance might find themselves in non-compliance because the amounts they purchased had been reduced. However, the rules could allow buyers a few extra months to purchase additional "assigned amount" or equivalent instruments to come into compliance.

Operation of the escrow accounts is discussed in the next section.

Escrow Accounts

An escrow account is established for each Annex I Party at a suitable financial institution; for example, the International Monetary Fund, the Bank of England or a commercial bank.¹ A condition of registration of the transfer of "assigned amount" by the Climate Change Secretariat would be documentation that the proceeds had been deposited into the escrow account. Interest would be paid on account balances. Funds would be disbursed once compliance for the commitment period is established.

In principle sellers receive no money from the sale of "assigned amount" until after the end of the commitment period when compliance is established. In practice sellers could borrow from other financial institutions using the escrow account balance as security.² Lenders would probably be willing to advance only a small share of the balance initially because future emissions and sales could cause non-compliance.³ But the share could rise over the course of the commitment period as actual emissions are reported and the prospects for compliance become clearer.

"Assigned amount" could be resold. The proceeds from a resale go to the seller (which is not the original Annex I Party seller), not into the escrow account. Only the proceeds from the original sale go into the escrow account.

Annual reports of actual emissions and information on sales and purchases of "assigned amount" provide potential buyers and lenders with information on the prospects for compliance. Since the prospects differ from country to country and over time, the market price of "assigned amount" would differ by country of origin and fluctuate over time. Annual reports submitted on time and well received by the expert review teams will strengthen the market price for a country's "assigned amount".

A country will want to keep the market price for its "assigned amount" as high as possible because this will affect the revenue it receives from future sales. Since compliance with reporting and other commitments strengthens the market price for a Party's "assigned amount" sellers have an incentive to comply with their Protocol commitments.

When compliance is established after the end of the commitment period the funds in the escrow account are disbursed. If all of the "assigned amount" sold is found to be surplus to the Party's needs, the funds are disbursed to the secured lenders and the national government.

If some of the "assigned amount" sold is needed to achieve compliance, the quantities not owned by the national government are reduced proportionally. For example, if when establishing compliance it is determined that a Party has a surplus of 800,000 tonnes of "assigned amount" and it has sold 1,000,000 tonnes, each of the units sold is reduced to 0.8 tonne of "assigned amount".⁴ This brings the seller Party into compliance.

As compensation for the reduction in their holdings of "assigned amount" the owners of record on the specified date receive a share of the funds in the escrow account.⁵ The compensation could be the greater of: (1) a proportional share of the funds in the escrow account, and (2) the cost of purchasing an equivalent quantity of valid "assigned amount" on the market. In the case of the above example, it would be the greater of 20% of the balance of the escrow account and the cost of purchasing 200,000 tonnes of valid "assigned amount".

Owners of devalued "assigned amount" would have first call on the funds in the escrow account. Secured lenders would rank second. The balance would be paid to the national government.

Buyers planning to use purchased "assigned amount" to achieve compliance might find themselves in non-compliance because the amounts they purchased had been reduced. The rules could be drafted to allow buyers a few extra months to purchase additional "assigned amount" or equivalent instruments to come into compliance.

BUYER RESPONSIBILITY

If the buyer is responsible, it must decide whether the seller is likely to comply with its commitments before purchasing the "assigned amount". If the buyer agrees to purchase "assigned amount" and the seller later needs this "assigned amount" to achieve compliance, the sale will not be consummated.⁶ If the buyer was relying on the purchased "assigned amount" to achieve compliance, failure to consummate the transaction means the buyer will not comply with its commitments.

Buyers can protect themselves by insisting on insurance or performance bonds to replace the "assigned amount" from a transaction that is subsequently disallowed with valid

"assigned amount" or equivalent instruments. The cost of the insurance or performance bond will rise with the risk of non-compliance and, at some point, coverage will not be available and the seller will be unable to export any more "assigned amount".

Since Parties report their actual emissions annually, companies can update their assessment of the probability of compliance with the cumulative budget each year.⁷ Parties will also have an incentive to register transactions quickly. Thus companies will be able to adjust the premium for each Party to reflect the risk of non-compliance at the time of the transaction.

The market price will set a price for one tonne of CO₂ equivalent of valid "assigned amount" or "certified emissions reductions" from the Clean Development Mechanism. Since the price covers a tonne of valid "assigned amount" the cost of the insurance or performance bond lowers the revenue from the sale of the "assigned amount". Thus, the cost of the insurance or performance bond creates an economic incentive for sellers to comply with their international commitments.

As a result of the economic incentive for sellers to remain in compliance, the number of transactions invalidated is likely to be relatively small.⁸

Two conditions must be met to enable this approach to work effectively:

- Transactions must be invalidated in reverse chronological order until the seller achieves compliance;⁹ and
- The insurance or performance bond must be transferable and remain in effect until the seller's compliance (or non-compliance) is established.

These conditions are discussed in the next section.

Characteristics of the Insurance Coverage/Performance Bond

Transactions must be invalidated in reverse chronological order until the seller achieves compliance. This is important for three reasons. First, disallowing transactions in reverse order minimizes the number of transactions affected. Second, it creates an incentive to register transactions quickly because earlier sales have a lower probability of disallowance than later deals. Since transactions are registered quickly companies will have accurate current information about the seller's commitments when calculating the premium for a proposed sale.

Third, it does not change the risk of default from what it was at the time of the transaction. If all transactions were reduced proportionally to bring the seller into compliance, the risk associated with an early transaction would be affected by subsequent sales. It would be very difficult to establish premiums because later sales would increase

the risk of disallowance. Invalidating transactions in reverse chronological order means that the risk associated with a proposed sale is not affected by subsequent sales.

The insurance or performance bond must be transferable and remain in effect until the seller's compliance (or non-compliance) is established. Assuming non-government entities can engage in emissions trading, once a quantity of "assigned amount" enters the market it could be resold many times. The insurance coverage or performance bond for the initial transaction should remain in effect, regardless of the number of times the "assigned amount" is resold, until the seller achieves compliance after the end of the commitment period. Since transactions are invalidated in reverse chronological order and depend only on the performance of the seller, the risk does not change with resale.

The insurance coverage or performance bond may need to remain in effect for up to seven years. The commitment period runs from 2008 through 2012 and it will likely be two years later before actual emissions are reported and compliance can be established. Thus a transaction initiated early in 2008 could require coverage for about seven years.¹⁰ But a transaction initiated in 2012 would only require coverage for two years. On average coverage might be required for about five years.

Buyers will want to use the "assigned amount" purchased to achieve compliance. Ideally, the insurance or a performance bond should provide valid "assigned amounts" to replace those from a purchase that is subsequently disallowed. Financial compensation for the value of the disallowed sale will not bring the buyer into compliance. However, financial compensation would be acceptable if the rules allowed buyers whose transactions had been invalidated extra time to comply, as would be the case with escrow accounts.

Valid "assigned amount" can be acquired in any of the following ways: purchasing valid "assigned amount" from Parties in compliance with their commitments, purchasing "certified emission reductions" through the Clean Development Mechanism, or purchasing valid domestic allowances or credits of the importing country to replace the imported "assigned amount". In future commitment periods, companies could purchase "assigned amount" banked from a previous period.

Magnitude of the Exposure

The amount of "assigned amount" transferred and the market price can not be accurately predicted at this time. However, rough estimates suggest that the value of "assigned amount" transferred could range between \$1 and \$16 billion per year; say \$8 billion per year as a central estimate.¹¹ Over the five years from 2008 through 2012 the total amount of "assigned amount" transferred would be five times as large, for a central estimate of \$40 billion.

This is an estimate of the value of transfers for which insurance or performance bonds is required. The total value of trades could be much higher, but the insurance or performance bond is assumed to remain in effect and to be transferred when "assigned amount" is resold.

Although the commitment period is five years, it will probably be two years after the end of the period before it is possible to establish compliance for all sellers. Transactions for the second commitment period would take place during this period. Thus the total exposure for the companies providing insurance coverage and performance bonds is more likely to be the equivalent of seven years of sales -- \$56 billion.

Financial institutions providing insurance or performance bonds could reduce their exposure by purchasing futures or options for "assigned amount". The International Petroleum Exchange has announced that it proposes to launch a CO₂ emissions futures contract as soon as a primary market has been established.¹² The Clean Development Mechanism can begin to certify emissions reductions created by projects in developing countries beginning in 2000. Certified emissions reductions can be used by Annex I Parties in exactly the same way as assigned amount, so a primary market and futures trading could be established before 2008.

Further Research

Further research is needed to confirm that insurance coverage or performance bonds with the required features would be considered an attractive product by a number of firms. A number of firms would need to offer these products to ensure that premiums are competitive.

Further research is also needed to confirm that the total exposure is manageable for the firms involved, or to identify ways to reduce the total exposure.

Unfortunately, this work needs to be completed before November 1998 otherwise the Conference of the Parties may adopt rules for international emissions trading that reflect seller liability. That option is administratively simpler and does not involve insurance or performance bonds.

Notes

¹ For convenience, each Party would have a single account for each commitment period. Ideally, all accounts would be held by the same institution.

² The financial institution holding the escrow accounts should not be eligible to lend funds to Parties using those accounts as security.

³ A seller might be tempted to negotiate sales that lead to immediate payment. For example, if the market price for "assigned amount" is \$5 per tonne, the seller might suggest that \$1 per tonne be deposited in the escrow account and that the buyer pay the seller \$3 per tonne directly to get immediate payment. The total price would need to be less than the market price since the risk to the buyer is higher because there is less money in the escrow account to compensate for any reduction in the quantity of "assigned amount" held. A buyer might be more willing to do this later in the period if there is already a large balance in the escrow account, but then the immediate payment is less attractive for the seller since it could probably borrow more against the balance in the escrow account. In any case, a sale at an unusually low price would probably be

interpreted as a signal that compliance was unlikely. That would reduce the market price, limit additional sales, and limit the ability to borrow against the escrow account. Thus, circumvention of the escrow account is unlikely to be a major problem.

⁴ Conceptually it is possible to invalidate transactions in reverse chronological order or to adjust the holdings in proportion to the price paid, rather than to adjust the quantity held proportionally. Those approaches would create a different market price for the "assigned amount" sold in each transaction. A proportional reduction of the quantity creates a single market price for the "assigned amount" of a given country. Although prices will differ by country, this is a much simpler situation than one where market prices differ by country and transaction.

⁵ The registered owners of "assigned amount" as of a specified date would be the ones to have their holdings adjusted and receive compensation. This date should be known well in advance. This is equivalent to the payment of dividends on common shares to owners of record as of a specified date.

⁶ This could be implemented as follows. The Climate Change Secretariat would not make the transfer of "assigned amount" associated with any trade until after the end of the commitment period. Then it would implement the transactions in chronological order and invalidate transactions in reverse chronological order if necessary to bring the seller into compliance.

⁷ Since companies will rely on annual reports, which include emissions inventories, to establish their premiums, Parties have an incentive to submit high quality reports on time.

⁸ If the companies do their job well relatively few transactions will be affected because sales become financially unattractive as the risk of non-compliance, and eventual disallowance, rises.

⁹ If all transactions are disallowed and the Party is still not in compliance, then it would be subject to the penalties for non-compliance. But emissions trading has not contributed to the non-compliance.

¹⁰ Although the rules for international emissions trading remain to be agreed, they may well allow provisional transactions prior to 2008. In that case, the period for which insurance coverage would be required is correspondingly extended. But the costs of obtaining coverage for such a long period of time may discourage early transactions.

¹¹ International Energy Agency, *World Energy Prospects to 2020*, G8 Energy ministers' Meeting, Moscow, 31 March 1998, Table 3, p. 24, shows energy-related CO₂ emissions for groups of Annex I countries for 1990 and for "business as usual" in 2010. The reduction from BAU emissions required to meet the Kyoto commitment in Annex I countries other than transition economies is shown as 3,803 million tonnes of CO₂. Assume that the supplementarity provision limits the amount of "assigned amount" these countries can purchase to half of the total reduction, say 1,900 million tonnes of CO₂. The projected BAU emissions for transitional economies in 2010 are 3,769 million tonnes of CO₂, which is 657 million tonnes below 1990 levels. Thus, these countries should be able to sell at least 650 million tonnes of "assigned amount". Implementing energy efficiency measures to reduce demand by 25% in 2010 would make another 950 million tonnes of "assigned amount" available. Thus, the supply of "assigned amount" is probably between 650 and 1,600 million tonnes of CO₂ while the demand could be as high as 1,900 million tonnes of CO₂. Prices currently range from less than \$1 to about \$3 per tonne of CO₂. The U.S. Council of Economic Advisors has estimated the price to be between \$18 and \$23 per tonne of carbon – about \$5 per tonne of CO₂ – assuming international emissions trading. Using a range of \$1 to \$10 per tonne of CO₂, the value of "assigned amount" transferred could range from \$0.65 to \$19 billion per year. Consider a "central" price estimate of \$5 per tonne, if the quantity traded ranged between 650 and 1,900 million tonnes the value would be between \$3.25 and \$9.50 billion. Consider a "central" estimate of 1,600 million tonnes traded, if

the price ranged between \$1 and \$10 per tonne the value would be between \$1.6 and \$16.0 billion. A central value for these ranges is approximately \$8 billion per year.

¹² International Petroleum Exchange, *A Proposal to reduce CO2 Emissions in the European Union through the Introduction of an Emissions Trading Programme*, May 1998, p. 9.

International Emissions Trading: Risk Allocation and Allowance Tracking Issues
NOTES on July 24 Meeting with Outside Experts

Attended by:

Carlton Bartels, Cantor Fitzgerald	Dirk Forrister, WHCCTF
John Palmisano, Enron	Bob Cumby, Treasury
Dan Chartier, WEPCO, EMA	Victoria Greenfield, State
John McManus, AEP	Steve Polasky, CEA
Marty Smith, Niagara Mohawk	Mark Friedrichs, DOE
	Sharon Saile, EPA

Risk Allocation (Buyer/Seller Beware) -

*Sust. liability rather than
beware.*

While one person had a position in favor of buyer beware, and another person had a position in favor of seller beware, the conclusion seemed to be:

1. A preference that the best system would be a clear compliance regime based on a seller beware scenario and thus a completely fungible commodity

2. A recognition that the international environment does not favor a clear compliance regime that would enforce strong penalties on nations, and thus a recognition that the market could operate under some buyer beware provisions - but the rules should be clear and enforced "fairly", based on a set of assumptions about how the U.S. government would implement such a regime, such as:

- U.S. will have an "ironclad" domestic compliance regime
- the U.S. government would distinguish between risky or bad faith buyers and good faith buyers, and punish only the bad faith actors - one suggestion was for the U.S. government to create a reserve of "assigned amount" as needed "insurance" - so that the government could be a source of last resort to ensure companies can avoid non-compliance
- the international reporting rules established by governments (for emissions and allowances) would be clear, and thus the main source of information for the market to assess risk
- there would be a grace period after end of reporting and any invalidation which would allow companies time to purchase valid allowances in order to remain in compliance

3. About any buyer beware scenario, some concerns were raised:

- 5-year compliance period being too long a time for the risk of validity of the transaction to be left uncertain (preference for any option which would reduce the outstanding time to determine the validity of transaction, i.e. suggestion for 1 year compliance period domestically, for "safe" recording along the way to minimize risk)

- although one person felt that at the beginning of such a new market, it might not be very likely that there would be so much "depth" to the initial transactions, concern was expressed by all that buyer beware provisions could cause a cascading or domino effect where non-compliance spreads from the seller country to several buyer countries down the line would be quite problematic

4. It was mentioned that private contracts are used to reallocate the risk of a transaction among private parties, and that most transactions involve elements of both buyer and seller beware. Thus, it was acknowledged that if some buyer beware provisions were instituted, various market instruments for mitigating risk (such as insurance) would likely emerge.

Allowance Tracking System

1. Tracking system must be computerized to meet goal of "low" transaction costs

2. "Assigned amount" has to be tracked by country of origin, and also should distinguish any "assigned amount" created through sink enhancement and by CDM

3. Some sort of serialization is appropriate, even though serial numbers have been administratively burdensome, they are critical for tracking transactions and thus would be required to implement any "buyer beware" provisions.

4. Although a couple of people expressed a preference for a denomination where one allowance might be worth 100 tons, one of those people thought that the domestic market might require an ability to track fractions in order to meet demand for small trades. Another person recommended one allowance should be worth 1 ton of emissions.

5. Strong preference for recording transactions as they occur (as close to continuous reporting of transactions as practicable); suggestion that only the seller need "authorize" the transaction to avoid delay involved in getting buyer "authorization"

6. One person suggested that a workable system would be an international system where the Parties maintained accounts, and individual domestic systems to track the accounts for private companies. Thus, any international transaction among 2 private companies would require the companies to notify their respective Parties, and for the Parties to exchange the actual "assigned amount" before the private transaction could be concluded.

Another person expressed concern that this sounded like the market could be very bogged down by the involvement of the governments - there was concern that the time lag involved in recording the transaction internationally could cause a time lag with the exchange of money between the private companies.

This person recommended that it would be important to at least design the international system to eventually handle direct company-company transactions which would not necessitate the involvement of their governments in the recordation of the trade.

50% Limit

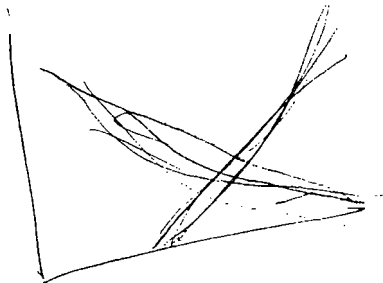
50% limit on purchases/monopolistic

Annex I + Key LDC									
	50% Limit on Trading, Simple Mono	1.1305							
Country	Domestic Permit Price	Intl. Permit Price	Domestic Reductions	Permits Purchased Abroad	Dom Abatement Cost	Dom Capital Outflow	TC TC (millions 97\$)	Relative to No Limits	
U.S.	59	44	300	300	8835	13200	22035	1.82	
E.U.	79	44	138.5	138.5	5480	6094	11574	1.98	
Australia	44	44	10.5	10.5	233	462	695	1.73	
Japan	158	44	56.5	56.5	4468	2486	6954	2.81	
Canada	132	44	31	31	2043	1364	3407	2.55	
FSU	3	44	14	-332	21	-14608	-14587	1.71	
EE	3	44	2	-110	3	-4840	-4837	1.83	
						Annex I	25.24021		
						Buyers	44.6647		

BSV monopoly

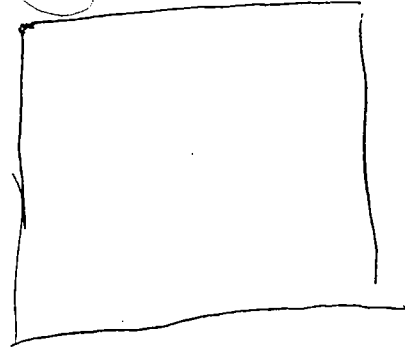
Sales
Purchases
Collusion

Monopoly
Comp.



Buyer

Seller



Who Pays
(2)

50% Limit

50% limit on purchases/country

Annex I + Key LDC											
	50% Limit on Trading, Competitive	1.1305									
Country	Domestic Permit Price	Intl. Permit Price	Domestic Reductions	Permits Purchased Abroad	Dom Abatement Cost	Dom Capital Outflow	TC TC (millions 97\$)	Relative to No. Limits			
U.S.	59	3	300	300	8835	882	9717	0.80			
E.U.	79	3	138.5	138.5	5480	407	5887	1.01			
Australia	44	3	10.5	10.5	233	31	264	0.65			
Japan	158	3	56.5	56.5	4468	166	4634	1.87			
Canada	132	3	31	31	2043	91	2134	1.60			
FSU	3	3	14	-332	21	-976	-955	0.11			
EE	3	3	2	-110	3	-323	-320	0.12			
						Annex I	21.35998				
						Buyers	22.63563				

Results

Sample Calculations for Seller-Plus Options

Limits:	0% Discounting				10% Discounting			
	Break		Abide		Break		Abide	
	PV Sales	Overage	PV Sales	Overage	PV Sales	Overage	PV Sales	Overage
Jeff's Seller Plus	\$6,000	50	\$4,500	0	\$5,049	50	\$4,025	0
Steve's Limit	\$6,600	70	\$4,500	0	\$5,853	70	\$4,314	0
Demonstrated Surplus	\$3,600	-30	\$3,600	-30	\$2,853	-30	\$2,853	-30

Assumptions:

Permit Price: \$30/ton

Initial Allocation: 500 tons

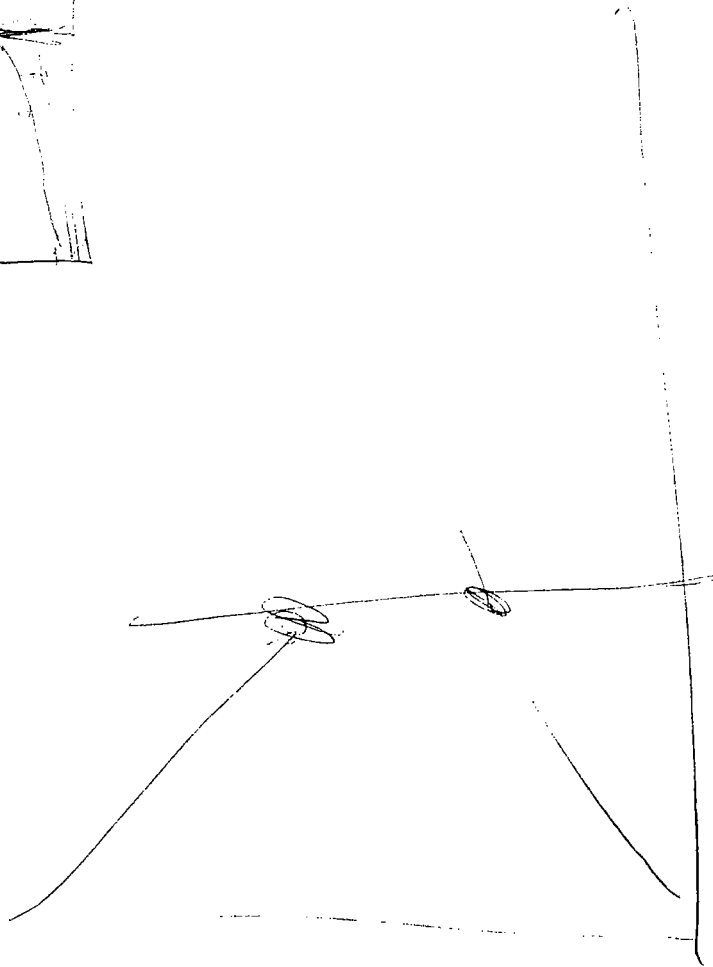
Annual Emissions: 70 tons (30 surplus credits generated each year, or 150 total surplus credits)

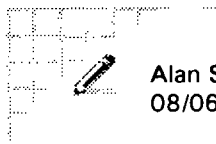
Emissions data available at end of year

No Limit
50% Limit

No Limit / Competitive / Global Trade

Annex I + Key LDC									
		No Limit on Trading							
Country	Cut	Permit Price	Domestic Reductions	Permits Purchased Abroad	Dom Abatement Cost	Dom Capital Outflow	TC TC (millions 97\$)		
U.S.	600	23	150	450	1725	10350	12075		
E.U.	277	23	46	231	529	5313	5842		
Australia	21	23	7	14	80.5	322	402.5		
Japan	113	23	11	102	126.5	2346	2472.5		
Canada	62	23	8	54	92	1242	1334		
FSU	-318	23	105	-423	1207.5	-9729	-8521.5		
EE	-108	23	14	-122	161	-2806	-2645		
						Annex I	10.9595		
						Buyers	22.126		





Alan S. Polasky
08/06/98 02:45:03 PM

Record Type: Record

To: Jeffrey A. Frankel/CEA/EOP

cc: Janet L. Yellen/CEA/EOP, Joseph E. Aldy/CEA/EOP, Quindi C. Franco/CEA/EOP

Subject: Re: feasibility of limits on trading

Jeff: I have several comments on the limits on trading memo. A tactical question is how we get from here to the task that CEA has been given of writing why market won't work (or won't work well) with limits placed on trading. It might be helpful to get together soon.

A key concern with limits on trading at the national level is how this can be implemented when agents with permits are subnational (e.g., firms). On the selling side, would there be "domestic only" and unlimited permits? On the buying side, how would the right to purchase from abroad be allocated among potential buyers? How does the system work when there is both international buying and selling within one country?

If it is only national governments doing the trading the issue seems more straightforward. There are examples of export or import quotas and though distortionary, not fatal to market operation.

are these gov-gov?

I am not sure that I follow the logic of the first part of the memo. A registry that tracks international sales seems to be a necessary element of a trading system even without limits to trading. At the very least it is necessary for knowing whether a country has complied with its cap during a five year budget period. Each country would also need some system that ensures domestic monitoring and compliance. I do not see that there is a necessary role for government involvement in trading other than those just mentioned.

*registry, not
approval.*

Context - Capital Markets

JF 8/5/98

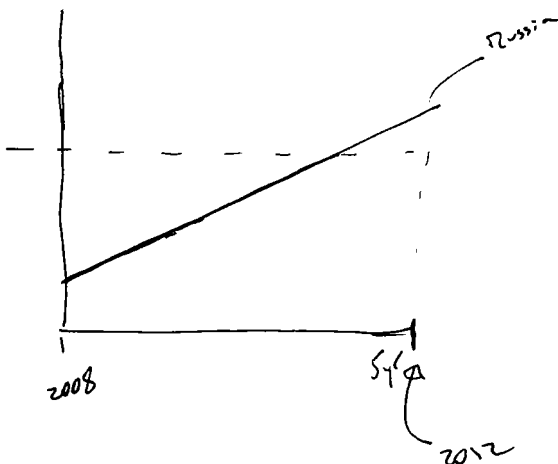
CEA "Seller Plus" Proposal

any just first year?

- If a country had net sales in the first year greater than a proportion X of its allocation,¹ then it could not sell any more, until emissions data came in and showed that the country had cumulatively paid back this amount of proportionate overage (through any combination of emission reductions and permit purchases).

I would propose that "X" be 1/5 of the 5-year allocation.

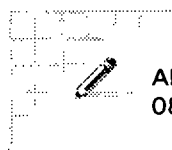
- In alternate versions of the proposal, X could be lower than 1/5 or higher. But it should be a number well below 100% of the 5-year allocation, and yet well above any reasonable level of sustainable legitimate emission sales (including hot air).
- The suggested level of 1/5 could be described as an "empty tank" provision (though it admittedly re-introduces a bit of "annualization" into the multi-year budget format). It is generous in the sense that it assumes zero emissions, aside from smoothing.
- For example, it is estimated that Russia in 2008 will have hot air equal to __ % of its one-year allocation, and that it might pay for Russia to reduce emissions by another __ % of its allocation. Thus 1/5 of its five-year allocation is __ times the estimated sustainable rate of selling -- or even more, if one allows for any resumption of Russian economic growth -- a factor large enough to accommodate a lot of inter-year smoothing.



Problems: > how can you set X so that it is meaningful to Russia and so others report all the hot air?

> why based on first year and not all periods?

? - Be on track to demonstrate this? or actually do it i.e. be one year under (cumulative)



Alan S. Polasky
08/10/98 02:34:06 PM

Record Type: Record

To: Quindi C. Franco/CEA/EOP

cc:

Subject: from Jeff Frankel



LIABCALC.XLS

----- Forwarded by Alan S. Polasky/CEA/EOP on 08/10/98 02:33 PM -----



Jessica Stern <"j..stern" @ worldnet.att.net>
08/08/98 05:34:47 PM

Please respond to "j..stern"@worldnet.att.net

Record Type: Record

To: Alan S. Polasky/CEA/EOP

cc: jeffrey_a._frankel @ cea.eo.gov

Subject: from Jeff Frankel

(Σ emissions + sales) <

Steve,

Here is the current version of my proposed rule.

Assume that a country's allocation is 500, or an average of 100/year. The proposed rule is that it can sell (on net) a maximum of 100 in the first year, and 100 cumulatively in the first N years, until data become available on emissions in the first year, or first N years. If those data show that cumulative emissions plus net sales to date are less than 100N, then the country can again sell up to 100 in any given year. (If and when it hits the cumulative limit of 200 in sales, it must again suspend unless or until data are available showing that cumulative emissions plus net sales to date are less than 100N.) If the country never reaches 100 in cumulative sales, it is never restricted, except in the regular end-of-budget-period accounting.

It would be good if you could try out the rule's performance (as compared, e.g., to restrictions of $X=500$ on the one hand, or $X=50$ on the other) under the following sequence of alternative assumptions -- that the seller in question (FSU for concreteness):

- * seeks maximum abuse of the ability to sell

- * has a high discount rate but intends to pay back
- * is midway between maximum abuse and predicted sustainability
- * predicted sustainability
- * claims to be cutting back, but actually emits BAU
- * predicted sustainable, but with early positive shocks to emissions of 1 or 2 standard deviations
- * predicted sustainable, but with early negative shocks to emissions of 1 or 2 standard deviations
- * exploitation of monopsony power (perhaps in the early years, and then goes for broke in later years?).

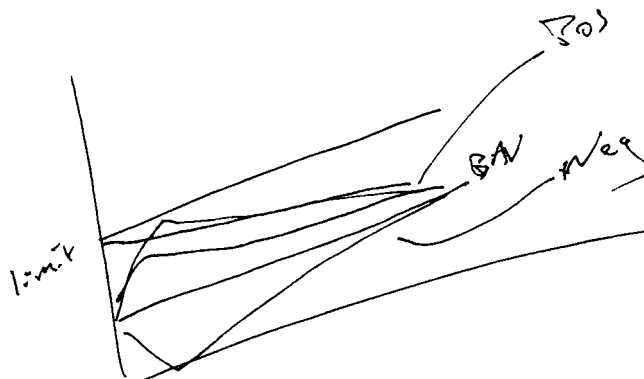
3100 R Street, NW
 Washington, DC 20007
 Tel: 202 965 5678
 Fax: 202 965 6422
 email: jessicas@alum.mit.edu

Scenarios

1. Maximum Abuse
2. Front Load but pay back
3. "Sustainable" Sell

Country A [large] ~~production of~~ ^{4.} ~~emissions~~

4. Positive Shock
5. Negative Shock
6. Monopsony Power



JF 8/10/98

“Seller Plus” Proposal (Revised)

The CEA is not proposing that this rule be offered by the U.S. delegation at the beginning of CoP4. Rather, we are proposing that the interagency group should think about it among ourselves as an intermediate option, and consider the possibility of using it as a compromise ending-point in negotiations at Buenos Aires -- to be preferred to efficiency-impairing proposals for buyer-liability or binding limitations on trading.

- **If a country had net sales in the first year (or cumulatively in the first N years) greater than a proportion X of its allocation (or XN),¹ then it could not sell any more, unless and until emissions data came in and showed that the country had cumulatively paid back this amount of proportionate overage (through any combination of emission reductions and permit purchases).**
- If those data show that cumulative emissions plus net sales to date are less than XN, then the country can again sell up to another X.
- We would propose that “X” be 1/5 of the 5-year allocation.
- If and when it hits the cumulative limit of 2X in sales, it must again suspend unless and until data are available showing that cumulative emissions plus net sales to date are less than XN.
- If the country never reaches X in cumulative sales, it is never restricted, except in the regular end-of-budget-period accounting.
- In alternate versions of the proposal, X could be lower than 1/5 or higher. But it should be a number well below 100% of the 5-year allocation, and yet well above any reasonable level of sustainable legitimate emission sales (including hot air).
- The suggested level of 1/5 could be described as an “empty tank” provision (though it admittedly re-introduces a bit of “annualization” into the multi-year budget format). It is generous in the sense that it assumes zero emissions, aside from smoothing.
- For example, it is estimated that Russia and Ukraine [more accurately, FSU] will have hot air equal to 23 % of their one-year allocation in 2010, and that it might pay for them to reduce emissions by another 8 % of their allocation, for a total estimated sales of 31 %. Thus a limit of 1/5 of their five-year allocation would be

3.3 times as large as the estimated sustainable rate of selling. This is a multiple large enough to accommodate a lot of legitimate inter-year smoothing.

- Share Report*
- An alternative version, which is a bit more permissive, follows:
 - 1) a country can sell up to 1/5 of its total allotment in the first year
 - 2) after the first year, the country can sell up to the difference between its cumulative emissions through whatever prior year emissions data are available for at that time (e.g., year 3 would include emissions in year 1 under the presumption that data would be available by the end of year 2) plus net sales and the percentage of total allotment that would accrue at the end of that prior year (e.g., 20% in year two, 40% in year three, ...).

1) Selling $\times \rightarrow$ would we be concerned @
how applicable $\times$ is to rest of world?

Seller Plus Performance:

Maximum Abuse of Rule: Will sell maximum amount in year 1 and again when regain ability to sell.

High Discount Rate, Will Pay Back: Same as above; on last eligible period, will only sell up to ability to pay back.

Predicted Sustainability: Sell yearly difference between predicted emissions and annual limit (if the limit is set too low, it will bind and may not be able to sell all excess permits).

Positive Shock: If the seller is looking to simply sell all possible and limit is binding; will over-sell.

Negative Shock: The limit may be overly binding and will not be able to sell all of generated permits.

Monopoly Power:

GM

Maximum Abuse

Sample Calculations for Limits on Sales Maximum Abuse Assumes a one year lag on emissions data

"Deal"

Year	Emissions (BAU)	Emissions (25\$/ton)	Allocation
1	70	70	500
2	70	70	
3	70	70	
4	70	70	Per Yr. Allocation
5	70	70	100
Total	350	350	

Jeff's Seller Plus: Cap on Sales Until Reductions are Proven

Limit	100				
Year	Sales	Emissions	Permits Produced	Cum Permits Created	
1	100	70	30	30	
2	0	70	30	60	
3	0	70	30	90	
4	0	70	30	120	
5	0	70	30	150	
Total	100	350			
Overage [sales+emissions-allocation]					-50

Steve's Limit: Cap on yr 1 sales; current known reductions thereafter

Yr 1 Limit	100				
	Sales	Emissions	Total Known Emissions	Cum Limit	
1	100	70	100	100	
2	0	70	170	200	
3	30	70	270	300	
4	30	70	370	400	
5	30	70	470	500	
Total	190	350			
Overage [sales+emissions-allocation]					40

Estimate how much they make:
 (1) Abide by Kyoto
 (2) Not
 (3) Sell all easy

#3 Sell all

20-30% Penalty

Draft Questions: Emissions Trading and Risk Allocation (Seller/Buyer Beware)

Background: The rules for the international emissions trading system should indicate clearly from the outset what will happen if a Party which transferred some assigned amount exceeds its assigned amount at the end of the commitment period, i.e., who should bear the risk of restitution of enough assigned amount to cover the shortfall?

1. How would risk allocation (seller beware, buyer beware, or hybrid) affect the development of the market? In particular, how would it affect:
 - a. your interest in participation?
 - b. volume and cost of transactions?
 - c. other aspects of market development?
2. For each form of risk allocation, what are the key features which would facilitate the function of the market (e.g. data needs, mechanisms for mitigating risk, public or private institutions, transaction costs, etc)
 - a. Under a seller beware scenario, could threat of a future penalty prevent Parties from "overselling" their assigned amount? What kind of future penalty (e.g., a requirement for repayment of shortfalls with interest) would actually restore the excess assigned amounts to the system? How would this approach affect buyers? Key features of this approach?
 - b. Under a buyer beware scenario, could the threat of future devaluation of all allowances or the threat of retroactive cancellation of transactions prevent Parties from "overselling" their assigned amount? How would this approach affect buyers? Key features of this approach?
 - c. Could the allocation of risk be shared between buyers and sellers? What would be the key features of this approach, and how would it affect buyers and sellers?

Draft Questions: Emissions Trading and Allowance Tracking:

Background: The international trading system will require that Parties report their national emissions and national "assigned amount" balances. Assuming that Parties will devolve at least some tradeable units of "assigned amount" to private legal entities, how would the tracking system be designed to ensure accuracy and prevent fraud?

1. How would design of the tracking system affect the development of the market?
2. What features of a recording system will achieve low transaction costs while ensuring accuracy and preventing fraud? Which features would facilitate your participation in the emissions trading system?
 - a. Parties must track their emissions in "tonnes of CO₂-equivalent emissions." What should be the denomination of tradeable units of assigned amount (1, 10, 100 tons)?
 - b. What type of information must be tracked for each transaction (e.g. size, location, serialization of each "allowance" or transaction numbers, etc)?
 - c. What frequency of reporting: continuous, end-of-week, end-of-month, end-of-year, end-of-commitment period?
 - d. What format: computerized tracking or paper certificates? Where should individual international transactions be tracked? To what extent would consistency among formats be needed?
 - e. How would any of the features above be likely to result in differences in transaction costs?
 - f. Are there any other important features of a tracking system?
3. How would such a system compare to the kinds of systems currently in place in other markets? Can existing institutions (e.g. commodity exchanges, government agencies) be adapted/modified to meet the needs of this market?
4. Would public dissemination of account balance and transactions information affect your participation in the market? What information, if any, should/could be kept confidential?

Scott S. F.

514-3426

Emissions Trading Panel
Market Regulators
August 11, 1998, 11:00 a.m.

John Harding
Chicago Board of Trade
312-435-3716
fax: 312-341-3118

Steve Manaster
CFTC
418-5265
fax: 418-5527
smanaster@cftc.gov

Eric Sirri
SEC
942-8020
fax: 942-9657

Nancy Wentzler
OCC
874-4445 (secretary: Helen Burdette)
fax: 874-5394
email: nancy.wentzler@occ.treas.gov

Mike Edleson
NASD
974-2922
fax: 728-8906
Edlesonm@NASD.com

Private Sector Discussions on Emission Trading
August 11, 1998

Attendees:

Jack Cogan, Andy Ertel
Natural Resource Group (Natsource)
(212)748-5330
fax (212) 232-5353

Ad @ Cogan's office to Corp Markets Dept

Bill Fang, John Novak
Edison Electric Institute
(202)508-5617

Clem Malin
Texaco
(914) 253-4000 xt 4724

Mary McClelland
International Institute for Energy Conservation
(202) 842-3388
fax 842-1565



Markets / Stocks / Exchanges

Trading Meeting 8/11/98

See Jonathan Reisinger - State (Negotiator)

"Buyer" beware vs. seller beware

look at literature

* SO2 -> 3,500 Accounts for 2,000 mg. source ads.

Seller Plus Escrow

! -> were worried that we wouldn't have enough levers over seller conduct

CFTC : Commodity Futures Trading Commission

Limit : premise is that we don't have a good enforcement

Liability Issues / Questions

1. Liab. for CA?
2. How many these

Seller beware - reduce "thickness" of market from supply side

Issues

- compliance

- delay in reporting [when A buys from B in 2008, won't know until 2012]
La

Buyer Beware -> how buyer got made to x

stock market analogies are inaccurate - stock markets are investors not consumers.

Penalty structure -> Grace period.

- Cash out [particular]

Accounting systems - whenever they have to report

Monopoly Power

diff. in buyer v. seller beware? - why

Is there a need for prior to last news compliance/fore-up?

Staples

Radio-FM w/ input/output plug

Risk/Catastrophes

~~Star~~

A

B

Annual Review $\rightarrow$ is not about trading

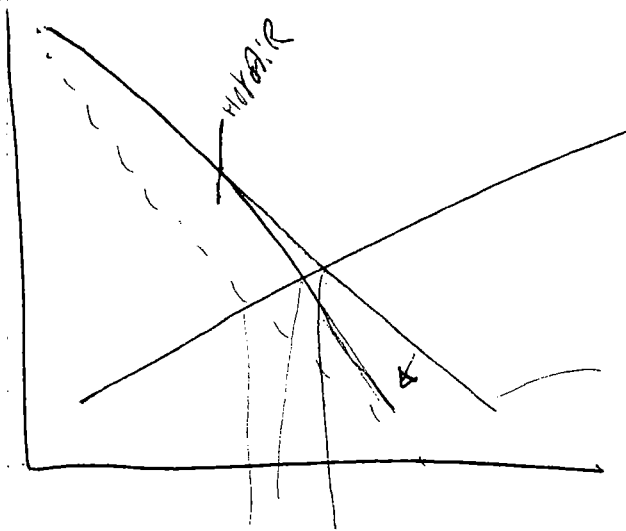
Main point $\rightarrow$ whatever you make, the ~~gov~~ market will create mechanisms to work around it.

Penalty for noncompliance needs to be on non-complier

ISSUE - if there is incentive to move to compliance, then this ^{pressure} needs to be placed on the gov, not primary holders

HyperBeware $\rightarrow$ can still

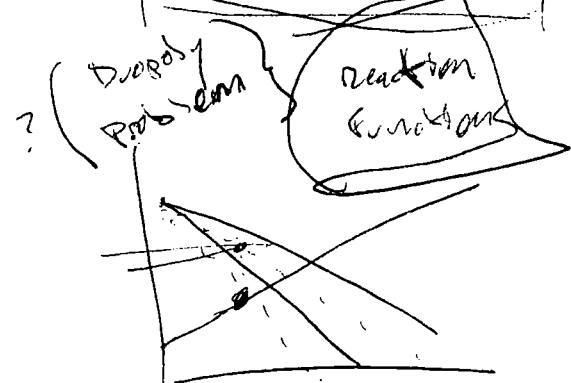
USO Impact



Any entity can have port. w/ 1 yr notice. - 5 yr compliance period may be too long!

* Web Article
 $\rightarrow$ Pricing / Risk
Catastrophes

* Monopoly
do we have Ukraine
Russia individually?



8/11 Round II

NotSource (SO₂ trading, ?)

Compliance [complications]

1. Information Between

\$2 Billion / yr SO₂
Market
Main (Texaco)
NotSource

"follow the trades"

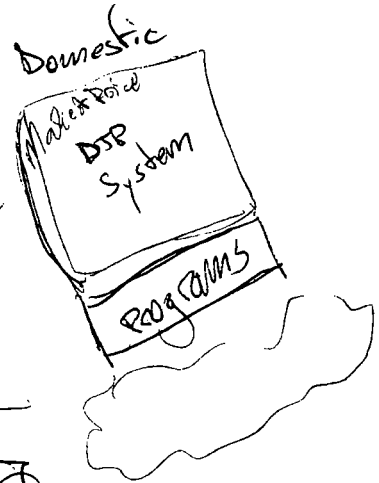
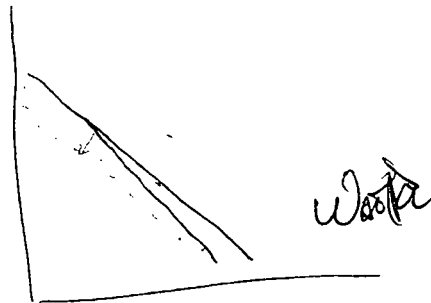
1. com
2. SI
3. ITA

certification via intermediary

firm-firm w/ certification via gov. intermediary.

* E-mail

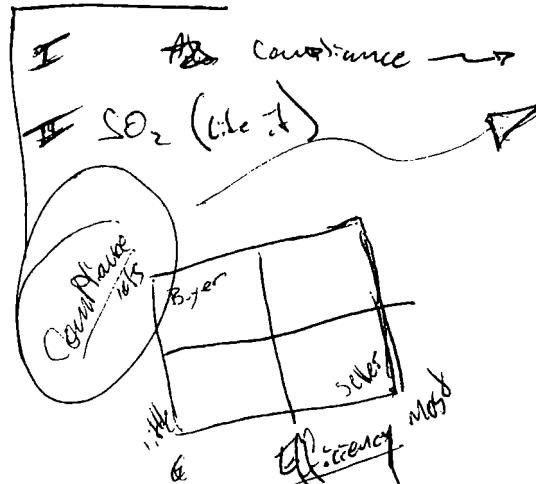
- 1) Sinks memo
- 2) Trade EPA's other marketing e-mails



1. Seller liability is always shifting round. (prepayment + fine)
2. Cap on sales for 1st Budget Period
3. Buyer liability can be added for tough situations (repay + devolve?)

1) Lit Search -> Text Articles on Catastrophes

Texaco
big gas vs. firms
1. Sell too much
2.



Being Box!
to wait

GPX, others

Wash Times

Russian ex-ante demonstration of compliance?

- monitoring

Insurance is not diversifiable (ie. Russia, Ukraine are only sellers!)

exp Reason for confidentiality → market participants will expend \$
to ~~maintain~~ confidentiality (brokers) and making it
public will not get you much.

reasonable → would like

price
oil production
security



Draft. Close hold. JF 8/6/98

Are limitations on trading institutionally workable?

1. What minimal institutional framework is needed for monitoring of the Kyoto Agreement, even without limitations on trading?

We have consistently emphasized the central role of the private market in doing the work of Kyoto, and properly so. For example, it is important that trades be undertaken voluntarily by U.S. private firms and citizens, not by the US government with taxpayer money. Nevertheless, it is also recognized that there is some need for monitoring by a government agency, at the domestic level if not international. The minimum is probably a national registry of all international permit trades, probably to be kept by the same agency that monitors domestic emissions. (One assumes that an international UN body would "monitor the national monitors," but that it would not be acceptable to have a UN body keep the original registry.)

One possibility is that the government acts as a central broker/auctioneer/clearinghouse/ market-maker for international trading. This would probably facilitate the growth of the market and make it more efficient. The government posts the going market price in \$/metric ton of carbon, and stands ready to buy and sell at that amount, adjusting the price frequently to clear the market. If that "market-maker" role is thought to be too active, the government could instead act as a simple broker, matching every would-be seller with a would-be buyer.

It is probably not feasible to have the private market undertake trades freely across national borders, without any government involvement whatsoever. (1) Imagine that every country planned on implementing its Kyoto commitments through a comprehensive system of tradeable permits. Even in this case, problems of counterfeiting, balance of payments statistics reporting, and so on would suggest a role for some government registry. (2) It is in fact clear that not every country plans on implementing its Kyoto commitments through a comprehensive system of tradeable permits, i.e., a system in which all emitters must have permits and the government issues the number of permits corresponding to its Kyoto target. In a country that implements in any other way (including even any hybrid involving tradeable permits on some subset of sectors in its economy), the government will have to carry out its international trading directly. Thus we are necessarily not in a world where "a permit is a permit" regardless of country of issuance. Rather, there are French permits, Russian permits, US permits, etc.1

? I don't see it. A permit in France may be held by diff parties; be on a diff substrate, etc... but it is still a permit (i.e. not ~~an~~ emissions) and everyone is going to have to do this as you can't have a complete permit system.

2. What greater institutional framework would be needed to make workable a limitation on international trading (leaving aside the high economic cost of such limitations)?

Certainly some amount of government involvement would be necessary to make a limitation on trading workable, but not necessarily an insurmountably large increment relative to the level of involvement that would be necessary for regular monitoring as described above. Essentially, Japanese permits would have to trade for American permits at a market-determined "exchange rate" that was not one-to-one.

There are a number of ways to implement the limit institutionally. Here we consider one that may be the simplest. Let us say that (heaven forbid) the US agrees to purchase no more than 500 MMTs. The US government could simply issue 500 M "right to import" certificates. Anyone who wants to buy a permit internationally would have to acquire one right-to-import certificate and combine it with one foreign permit, to make up the equivalent of one domestic emissions permit. If, for example, international purchases are to be recorded at the national trading registry to be valid, then the rule would be that the buyer would have to turn in one import certificate to get his purchase of one foreign emission permit officially accepted. It would operate as a sort of stamp tax. (They would be "*net* import" certificates: An American who sold a permit abroad would receive a net-import certificate, which he would be free either to use or sell.) Arbitrage would equate the price of domestic permits to the price of foreign permits plus the price of the import certificates. The price of import certificates would fluctuate on the market, depending on how binding the quantitative constraint is. If the 500 MMT constraint were not binding, then the going price for the net-import certificates would be zero. 2

If there were a limit on selling, then countries could issue the appropriate number of "right-to-sell" permits. Again, the transactors would have to possess and surrender a "right-to-sell" permit to have their sale legally accepted.

3. Does this argument undermine the case against limitations on trading?

Not necessarily. Limitations are not inherently "infeasible," but they *are* distortionary. One could make an analogy with a "parallel market" in foreign exchange (a black market that is not entirely illegal). If the US import constraint were binding, foreign permits would circulate at a premium to domestic permits. The premium would be a tangible illustration that companies are being forced to make expensive reductions when the costs are cheaper abroad, and that the system would be more efficient without the trading restriction. One could bemoan an extra degree of complication/awkwardness/inefficiency/distortion/government

intrusion.

But the main point of this memo is that it would be going too far to say that a restriction on trading would be institutionally unworkable.

Limits to Trade: Workable but Distortionary

Some proposals on international trading would limit the use of flexible mechanisms (international trading of Annex B 'assigned amount units,' Joint Implementation, and the Clean Development Mechanism) in meeting obligations under the convention. Such restrictions, while not fatal to the market, would be severely distortionary. They would raise the global costs of addressing climate change while not providing any additional environmental protection.

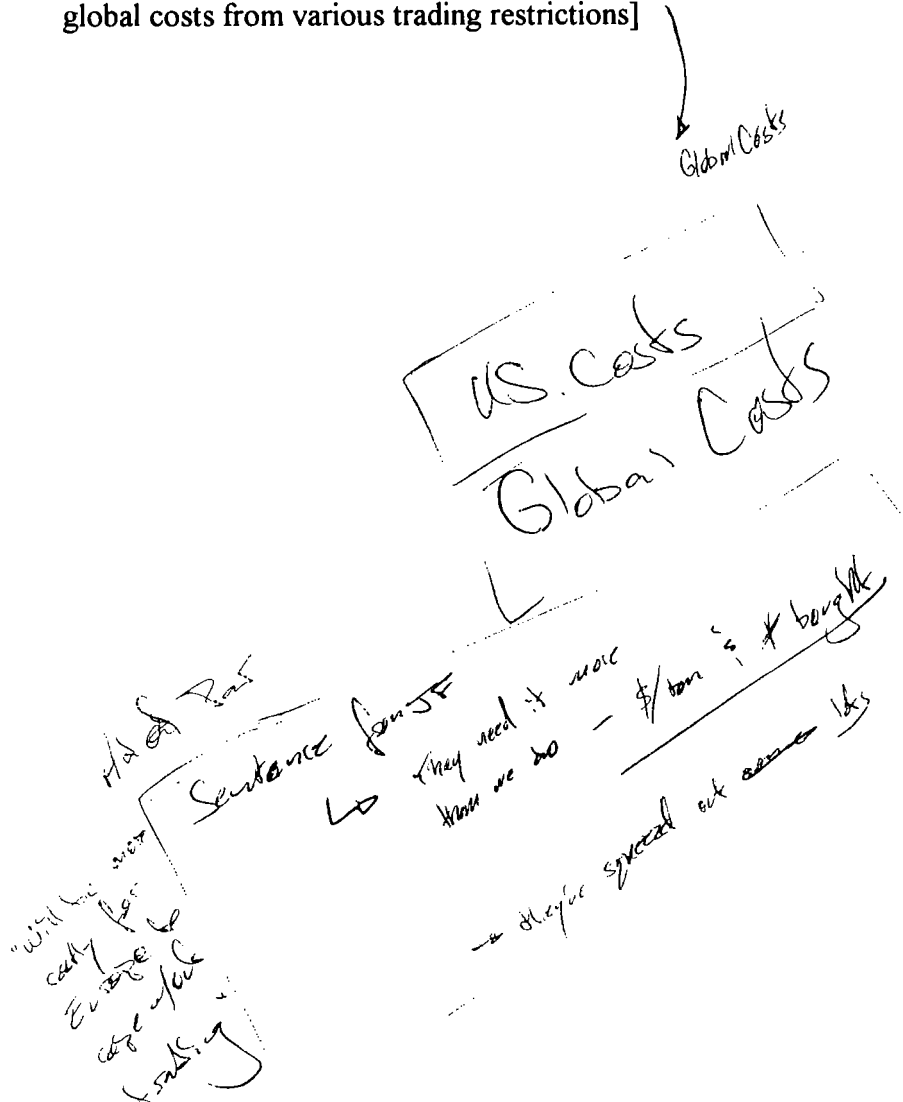
Limits need not completely destroy the market. In any international trading system, there is a role for the government registering and overseeing market transactions. The added burden of implementing limits to trade would not be insurmountable. Essentially, domestic permits would need to be traded for foreign permits at an "exchange rate" which reflected the added constraint of only being able to import or export a set quantity of permits.

There are a number of ways to do this, the simplest would be for the government to issue "right-to-import" or "right-to-export" certificates for the tradable amounts. Anyone wanting to buy a permit internationally would have to acquire one right-to-import certificate and combine it with one foreign permit, to make up the equivalent of one domestic emissions permit. Similarly, anyone wanting to sell a permit internationally would have to acquire one right-to-export certificate and combine it with one domestic permit in order to export. Arbitrage would equate the price of domestic permits to the international price of permits plus the certificate price. Similar mechanisms are used to implement import and export quotas throughout the world.

Limits would increase the administrative complexity and raise costs.

- Difficult to determine a baseline. Certain proposals would limit the reductions achieved abroad to a given percentage of total reductions, which requires defining total reductions from some business-as-usual (BAU) baseline. However, there is no internationally agreed methodology for forecasting emissions, and therefore international negotiations to determine such baselines are likely to be quite complicated. Of course, trading restrictions based on tons, instead of a percentage of BAU, would avoid this problem. The tonnage restriction for each country would have to be set, which involves its own international negotiations challenge.
- Increase administrative complexity. Restrictions will lead to requirements that both sellers and buyers have to report transactions, and to the development of mechanisms (such as the one described above) to ensure that parties stay within their limits. This will add an additional layer of transaction costs and administrative burden on the system.

- Would raise the costs of meeting commitments. Limits are distortionary. They would create differences in permit prices across countries (a foreign permit would trade at a premium to domestic permits), creating a situation where the same level of global emissions could be achieved at a lower cost. Modelers have estimated the efficiency cost of placing limits on global trading: [working on getting estimates on increase in global costs from various trading restrictions]



→ FBI/Russia

1/6

① Memo Draft

Trading Meeting @ 2:00 Tues.

② Limits Paper Draft



As Quality

- Benefits Meeting Thurs

ORAB

- Allocation - input vs. output /

& Fisher Paper 25 credit

Early credit

allocation

- Reliability

- Trading Rules [not 1:1]

120 partitions

downloaded sub requirements on vpanel - "significant contribution"

limits - letter send.

① - imp. of task -

② - correct Fed

③

2 1/2 pages on

(1) why ~~is~~ not possible

② Extraordinary

divide into 2 separate Memo's

- int. required anyway

- additional

Restrictions on International Trading Would Be Potentially Unworkable, Inefficient, and Counterproductive

Some proposals on international trading would limit the share of emissions reductions undertaken abroad -- through purchases of permits from other Annex B nations, Joint Implementation projects, Clean Development Mechanism projects, or some combination thereof. Any such restrictions would:

- Vastly complicate the international effort to reduce greenhouse gas emissions;
- Unnecessarily interfere with international trading, JI, and the CDM; and
- Could prove counterproductive by unnecessarily raising the global cost of addressing climate change.

Complexity of constructing a baseline from which to measure the share of reductions

To limit the reductions done abroad to a given percentage of total reductions, we would need to know precisely what the baseline is. For example, the limit would presumably apply to reductions relative to the business-as-usual baseline for 2008-2012. But in order to measure reductions from that baseline, we need to know *precisely* what the baseline is. And we would need to measure the baseline projection from a specific point in time -- our 1998 forecast of the business-as-usual baseline in 2008-2012, for example, will likely be different from our 2005 forecast of the business-as-usual baseline in 2008-2012. There is no internationally agreed methodology for forecasting emissions, and therefore international negotiations over the business-as-usual baseline are likely to be quite complicated.

Of course trading restrictions based on the agreed to caps, instead of the business as usual baseline, would avoid this problem. In this sense, existing proposals to limit trading are more unworkable (but not less costly) than alternative proposals.

Interference with effective operation of trading, JI, and CDM

Even if it would be possible to agree on a specific baseline, it would be very difficult to implement the restriction -- which could easily interfere with firm-to-firm transactions. For example, how would a firm know whether its purchase of a permit from another firm in a different country was legitimate or not?

Furthermore, according to the Kyoto Protocol, JI and CDM projects undertaken between 2000 and 2008 could add to the total emissions budget for the home country of the investing firm -- providing a strong incentive for such investments. Restrictions on the shares of reductions achieved through JI and CDM could easily interfere with this incentive. In particular, without knowing precisely how the reductions in 2008-2012 will be achieved, firms receiving credits now

for JI and CDM projects will not know whether those credits will ultimately prove legitimate. For example, the JI and CDM projects undertaken before 2008 could absorb the entire share -- or even more than the entire share -- allowed for non-domestic reductions, raising questions about whether the credits will be recognized.

Moreover, restrictions on permit trading will lead to differences in permit prices among countries and pressures for black markets as private firms endeavor to capitalize on international differences in permit prices. In addition, to forestall the development of such black markets, regulatory authorities will need to spend additional resources on monitoring and verification.

Finally, restrictions on purchases will lead to requirements that both buyers and sellers have to report transactions, and will serve to prevent the development of contingent trades, or futures contracts that might otherwise allow entrepreneurs to spread the risk associated with changes in the price of permits.

Counterproductive

Even if we could agree on a baseline, somehow implement the system, and address any JI and CDM concerns, placing restrictions on international activities would significantly reduce the efficiency with which the world as a whole could reduce its carbon emissions. A ton of carbon emitted anywhere in the world has the same impact on the global climate -- and our objective should be to reduce those emissions at the least *global* cost. An unrestricted system of international trading, JI, and CDM ensures that we protect the planet at the lowest total cost. If we restrict those activities, we will be unnecessarily raising the cost of purchasing planet insurance -- without achieving any additional environmental benefit. And if those higher costs dissuade some participants from reducing emissions, the result would be higher costs and less environmental protection.

Limits to Trade can be Workable

Some proposals on international trading would limit the use of flexible mechanisms (international trading of Annex B 'assigned amount units,' Joint Implementation, and the Clean Development Mechanism) in meeting obligations under the convention. Such restrictions would add an additional layer of complexity, but are not necessarily fatal to the market.

Regardless of limits to trade, an institutional framework is required for trading. We have consistently emphasized the central role of the private sector in doing the work of Kyoto. Nevertheless, to ensure the proper functioning of the permit market and that we meet our emissions commitments, we recognize the need for monitoring, recordkeeping, and enforcement by governments, at least at the domestic level.

At the international level, it is not realistic to have the private market undertake trades freely across national borders without government oversight. Nations will need to demonstrate their compliance at the end of the budget period and will be concerned about counterfeiting, balance of payment statistics, and so on. Therefore, at a minimum, there will need to be a national registry of all international permit trades.

The added burden of implementing limits to trade would not be insurmountable. Essentially, domestic permits would need to be traded for foreign permits at an "exchange rate" which reflected the added constraint of only being able to import or export a set quantity of permits. There are a number of ways to implement a limit, but the simplest would be for the government to issue "right-to-import" or "right-to-export" certificates up to the limit. If, for example, international purchases were recorded at the national trading registry, then the buyer would have to present one right-to-import certificate along with a foreign permit for it to be officially accepted. Similarly, anyone wanting to sell a permit internationally would have to acquire one right-to-export certificate and combine it with one domestic permit in order to export. Arbitrage would equate the price of domestic permits to the international price of permits plus the certificate price. The price of the certificates would fluctuate on the market, depending on how bidding the limit is. Similar mechanisms are currently used to implement import and export quotas throughout the world.

Limits to Trade are Highly Distortionary

Restrictions on the use of flexible instruments would be highly distortionary, raising the global costs of addressing climate change while not providing any additional environmental protection.

Difficult to determine a baseline

Certain proposals would limit the reductions achieved abroad to a given percentage of total reductions, which requires defining total reductions from some business-as-usual (BAU) baseline. However, there is no internationally agreed methodology for forecasting emissions, and therefore international negotiations to determine such baselines are likely to be quite complicated. Of course, trading restrictions based on tons, instead of a percentage of BAU, would avoid this problem. In this case, the tonnage restriction for each country would have to be set, creating its own international negotiations challenge.

Interfere with the Clean Development Mechanism

According to the Kyoto Protocol, credits from CDM projects undertaken between 2000 and 2008 can be applied during the commitment period -- providing strong incentive for such investment. Restrictions on the share of reductions from flexible mechanisms could easily interfere with this incentive. Without knowing how reductions in 2008-2012 will be achieved, firms receiving credits now will not know whether those credits will ultimately be applicable to Annex I commitments or not. In other words, they will not know the potential value of their credits, increasing the uncertainty of their investments.

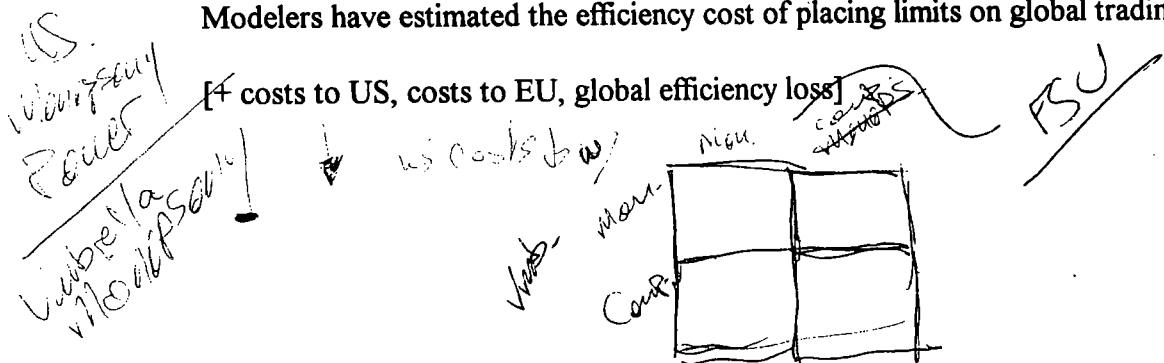
Increase administrative complexity

Restrictions will lead to requirements that both sellers and buyers have to report transactions, and to the development of mechanisms to ensure that parties stay within their limits. This will add an additional layer of transaction costs and administrative burden on the system. This creates an artificial market barrier that the new market will have to overcome, decreasing its efficiency.

Would raise the costs of meeting commitments.

Limits are distortionary. They would create differences in permit prices across countries (a foreign permit would trade at a premium to domestic permits), leading to a situation where the same level of global emissions could be achieved at lower cost. Modelers have estimated the efficiency cost of placing limits on global trading:

[+ costs to US, costs to EU, global efficiency loss]



Limits to Trade can be Workable

Some proposals on international trading would limit the use of flexible mechanisms (international trading of Annex B 'assigned amount units,' Joint Implementation, and the Clean Development Mechanism) in meeting obligations under the convention. Such restrictions would add an additional layer of complexity, but are not necessarily fatal to the market.

Regardless of limits to trade, an institutional framework is required for trading. We have consistently emphasized the central role of the private sector in doing the work of Kyoto. Nevertheless, to ensure the proper functioning of the permit market and that we meet our emissions commitments, we recognize the need for monitoring, recordkeeping, and enforcement by governments, at least at the domestic level.

At the international level, it is not realistic to have the private market undertake trades freely across national borders without government oversight. Nations will need to demonstrate their compliance at the end of the budget period and will be concerned about counterfeiting, balance of payment statistics, and so on. Therefore, at a minimum, there will need to be a national registry of all international permit trades.

The added burden of implementing limits to trade would not be insurmountable. Essentially, domestic permits would need to be traded for foreign permits at an "exchange rate" which reflected the added constraint of only being able to import or export a set quantity of permits. There are a number of ways to implement a limit, but the simplest would be for the government to issue "right-to-import" or "right-to-export" certificates up to the limit. If, for example, international purchases were recorded at the national trading registry, then the buyer would have to present one right-to-import certificate along with a foreign permit for it to be officially accepted. Similarly, anyone wanting to sell a permit internationally would have to acquire one right-to-export certificate and combine it with one domestic permit in order to export. Arbitrage would equate the price of domestic permits to the international price of permits plus the certificate price. The price of the certificates would fluctuate on the market, depending on how binding the limit is. Similar mechanisms are currently used to implement import and export quotas throughout the world.

Limits to Trade are Highly Distortionary

Restrictions on the use of flexible instruments would be highly distortionary, raising the global costs of addressing climate change while not providing any additional environmental protection.

Difficult to determine a baseline

Certain proposals would limit the reductions achieved abroad to a given percentage of total reductions, which requires defining total reductions from some business-as-usual (BAU) baseline. However, there is no internationally agreed methodology for forecasting emissions, and therefore international negotiations to determine such baselines are likely to be quite complicated. Of course, trading restrictions based on tons, instead of a percentage of BAU, would avoid this problem. In this case, the tonnage restriction for each country would have to be set, creating its own international negotiations challenge.

Interfere with the Clean Development Mechanism

According to the Kyoto Protocol, credits from CDM projects undertaken between 2000 and 2008 can be applied during the commitment period -- providing strong incentive for such investment. Restrictions on the share of reductions from flexible mechanisms could easily interfere with this incentive. Without knowing how reductions in 2008-2012 will be achieved, firms receiving credits now will not know whether those credits will ultimately be applicable to Annex I commitments or not. In other words, they will not know the potential value of their credits, increasing the uncertainty of their investments.

Increase administrative complexity

Restrictions will lead to requirements that both sellers and buyers have to report transactions, and to the development of mechanisms to ensure that parties stay within their limits. This will add an additional layer of transaction costs and administrative burden on the system. This creates an artificial market barrier that the new market will have to overcome, decreasing its efficiency.

Would raise the costs of meeting commitments.

Limits are distortionary. They would create differences in permit prices across countries (a foreign permit would trade at a premium to domestic permits), leading to a situation where the same level of global emissions could be achieved at lower cost. Modelers have estimated the efficiency cost of placing limits on global trading:

[+ costs to US, costs to EU, global efficiency loss]

Limits to Trade can be Workable

Some proposals on international trading would limit the use of flexible mechanisms (international trading of Annex B 'assigned amount units,' Joint Implementation, and the Clean Development Mechanism) in meeting obligations under the convention. Such restrictions would add an additional layer of complexity, but are not necessarily fatal to the market.

Regardless of limits to trade, an institutional framework is required for trading. We have consistently emphasized the central role of the private sector in doing the work of Kyoto. Nevertheless, to ensure the proper functioning of the permit market and that we meet our emissions commitments, we recognize the need for monitoring, recordkeeping, and enforcement by governments, at least at the domestic level.

At the international level, it is not realistic to have the private market undertake trades freely across national borders without government oversight. Nations will need to demonstrate their compliance at the end of the budget period and will be concerned about counterfeiting, balance of payment statistics, and so on. Therefore, at a minimum, there will need to be a national registry of all international permit trades.

The added burden of implementing limits to trade would not be insurmountable. Essentially, domestic permits would need to be traded for foreign permits at an "exchange rate" which reflected the added constraint of only being able to import or export a set quantity of permits. There are a number of ways to implement a limit, but the simplest would be for the government to issue "right-to-import" or "right-to-export" certificates up to the limit. If, for example, international purchases were recorded at the national trading registry, then the buyer would have to present one right-to-import certificate along with a foreign permit for it to be officially accepted. Similarly, anyone wanting to sell a permit internationally would have to acquire one right-to-export certificate and combine it with one domestic permit in order to export. Arbitrage would equate the price of domestic permits to the international price of permits plus the certificate price. The price of the certificates would fluctuate on the market, depending on how binding the limit is. Similar mechanisms are currently used to implement import and export quotas throughout the world.

Limits to Trade are Highly Distortionary

Restrictions on the use of flexible instruments would be highly distortionary, raising the global costs of addressing climate change while not providing any additional environmental protection.

Difficult to determine a baseline

Certain proposals would limit the reductions achieved abroad to a given percentage of total reductions, which requires defining total reductions from some business-as-usual (BAU) baseline. However, there is no internationally agreed methodology for forecasting emissions, and therefore international negotiations to determine such baselines are likely to be quite complicated. Of course, trading restrictions based on tons, instead of a percentage of BAU, would avoid this problem. In this case, the tonnage restriction for each country would have to be set, creating its own international negotiations challenge.

Interfere with the Clean Development Mechanism

According to the Kyoto Protocol, credits from CDM projects undertaken between 2000 and 2008 can be applied during the commitment period -- providing strong incentive for such investment. Restrictions on the share of reductions from flexible mechanisms could easily interfere with this incentive. Without knowing how reductions in 2008-2012 will be achieved, firms receiving credits now will not know whether those credits will ultimately be applicable to Annex I commitments or not. In other words, they will not know the potential value of their credits, increasing the uncertainty of their investments.

Increase administrative complexity

Restrictions will lead to requirements that both sellers and buyers have to report transactions, and to the development of mechanisms to ensure that parties stay within their limits. This will add an additional layer of transaction costs and administrative burden on the system. This creates an artificial market barrier that the new market will have to overcome, decreasing its efficiency.

Would raise the costs of meeting commitments.

Limits are distortionary. They would create differences in permit prices across countries (a foreign permit would trade at a premium to domestic permits), leading to a situation where the same level of global emissions could be achieved at lower cost. Modelers have estimated the efficiency cost of placing limits on global trading:

[+ costs to US, costs to EU, global efficiency loss]

1. Limits to Trade Can be Workable, Even Though Undesirable

Some proposals on international trading would limit the use of flexible mechanisms (particularly international trading of Annex B 'assigned amount units,' but also Joint Implementation, and the Clean Development Mechanism) in meeting obligations under the convention. Such restrictions would add an additional layer of complexity, but are not necessarily fatal to the market.

Regardless of limits to trade, an institutional framework is required for trading.

We have consistently emphasized the central role of the private sector in doing the work of Kyoto. Nevertheless, to ensure the proper functioning of the permit market and that we meet our emissions commitments, we recognize the need for monitoring, record keeping, and enforcement by governments, at least at the domestic level.

At the international level, it is not realistic to have the private market undertake trades freely across national borders without government oversight. Nations will need to demonstrate their compliance at the end of the budget period and will be concerned about counterfeiting, balance of payment statistics, and so on. Therefore, at a minimum, there will need to be a national registry of all international permit trades.

The added burden of implementing limits to trade would not be insurmountable.

Essentially, domestic permits would need to be traded for foreign permits at an "exchange rate" which reflected the added constraint of only being able to import or export a set quantity of permits. There are a number of ways to implement a limit, but the simplest might be for the government to issue "right-to-import" or "right-to-export" certificates up to the limit. If, for example, international purchases were recorded at the national trading registry, then the buyer would have to present one right-to-import certificate along with a foreign permit for it to be officially accepted. (They would be "*net* import" certificates: An American who sold a permit net-import certificate, which he would be free either to use or sell.) Similarly, anyone wanting to sell a permit internationally would have to acquire one right-to-export certificate and combine it with one domestic permit in order to export. Arbitrage would equate the price of domestic permits to the international price of permits plus the certificate price. The price of the certificates would fluctuate on the market, depending on how binding the limit is. Their price would be zero -- i.e., the domestic price and foreign price would be the same -- if the constraint were not binding. Similar mechanisms are currently used to implement import and export quotas throughout the world.

2. Limits to Trade are Highly Distortionary

Restrictions on the use of flexible instruments would be highly distortionary, raising the global costs of addressing climate change while not providing any additional environmental protection.

Difficulty in Determining a Baseline

Certain proposals would limit the reductions achieved abroad to a given percentage of total reductions, which requires defining total reductions from some business-as-usual (BAU) baseline. However, there is no internationally agreed methodology for forecasting emissions, and therefore international negotiations to determine such baselines are likely to be quite complicated. Of course, trading restrictions based on tons, instead of a percentage of BAU, would avoid this problem. In this case, the tonnage restriction for each country would have to be set, creating its own challenge for international negotiations.

Interference with the Clean Development Mechanism

According to the Kyoto Protocol, credits from CDM projects undertaken between 2000 and 2008 can be applied during the commitment period -- providing strong incentive for such investment. Restrictions on the share of reductions from flexible mechanisms could easily interfere with this incentive. Without knowing how reductions in 2008-2012 will be achieved, firms receiving credits now will not know whether those credits will ultimately be applicable to Annex I commitments or not. In other words, they will not know the potential value of their credits, increasing the uncertainty of their investments.

Increased Administrative Complexity

Restrictions will lead to requirements that both sellers and buyers have to report transactions, and to the development of mechanisms to ensure that parties stay within their limits. This will add an additional layer of transaction costs and administrative burden on the system. This creates an artificial market barrier that the new market will have to overcome, decreasing its efficiency.

Increased Costs of Meeting Commitments

Limits are distortionary. They would create differences in permit prices across countries (a foreign permit would trade at a premium to domestic permits), leading to a situation where countries pay a needlessly high price to achieve the same level of global emissions. Modelers have estimated the efficiency cost of placing limits on global trading:

Permit Prices for a Competitive Market of Annex I and Key Developing Countries

Country/Region	Domestic Permit Price When There Is No Trading Constraint	Domestic Permit Price When 50% of Reductions Must Occur at Home
United States	\$23/ton	\$59/ton ¹
European Union	\$23/ton	\$79/ton
Australia	\$23/ton	\$44/ton
Japan	\$23/ton	\$158/ton
Canada	\$23/ton	\$132/ton

Source: SGM

¹ We suppose that this price is higher than the domestic political process is likely to accept.

Impaired Compliance

In a world without effective international trading, a country that is substantially over its target in 2007 might figure that compliance is hopeless, because it is physically impossible to reduce emissions in so short a span of time. But in a world with effective international trading, a country has no defense against the charge that it can always buy its way out of a shortfall. Because compliance is physically possible in such a world, countries will take the agreement more seriously, and will take correspondingly serious actions.



MEMBER

EXECUTIVE OFFICE OF THE PRESIDENT
COUNCIL OF ECONOMIC ADVISERS
WASHINGTON, D.C. 20500

August 25, 1998

cc: JY
JA
SF
QF

MEMORANDUM FOR TODD STERN

FROM: JEFF FRANKEL JF

SUBJECT: (Un)workability and (In)efficiency of Limits on Trading

The Administration has been united and consistent in emphasizing the critical importance of international trading to bring down the costs of meeting the Kyoto targets. We have argued strongly against European proposals to put a limit on trading -- pointing out the loss in efficiency that would result -- and we must continue to do so. But one should not get carried away. Limits on trading are not literally unworkable.

Two memos are attached. The first explains how limits on trading could be implemented if necessary, albeit with an extra layer of complexity -- just so that we understand the issue in our own minds.

The second memo explains, in terms suitable for use with other countries, why limits on trading would be highly distortionary (even if we no longer feel able to assert that they would be literally unworkable).

Attachments

cc: Dave Sandalow, CEQ
Dave Wilcox, Treas
Victoria Greenfield, State
Bob Cumby, Treas

Limits to Trade are Highly Distortionary

Restrictions on the use of flexible instruments would be highly distortionary, raising the global costs of addressing climate change while not providing any additional environmental protection.

Difficult to determine a baseline

Certain proposals would limit the reductions achieved abroad to a given percentage of total reductions, which requires defining total reductions from some business-as-usual (BAU) baseline. However, there is no internationally agreed methodology for forecasting emissions, and therefore international negotiations to determine such baselines are likely to be quite complicated. Of course, trading restrictions based on tons, instead of a percentage of BAU, would avoid this problem. In this case, the tonnage restriction for each country would have to be set, creating its own international negotiations challenge.

Interfere with the Clean Development Mechanism

According to the Kyoto Protocol, credits from CDM projects undertaken between 2000 and 2008 can be applied during the commitment period -- providing strong incentive for such investment. Restrictions on the share of reductions from flexible mechanisms could easily interfere with this incentive. Without knowing how reductions in 2008-2012 will be achieved, firms receiving credits now will not know whether those credits will ultimately be applicable to Annex I commitments or not. In other words, they will not know the potential value of their credits, increasing the uncertainty of their investments.

Increase administrative complexity

Restrictions will lead to requirements that both sellers and buyers have to report transactions, and to the development of mechanisms to ensure that parties stay within their limits. This will add an additional layer of transaction costs and administrative burden on the system. This creates an artificial market barrier that the new market will have to overcome, decreasing its efficiency.

Would raise the costs of meeting commitments.

Limits are distortionary. They would create differences in permit prices across countries (a foreign permit would trade at a premium to domestic permits), leading to a situation where the same level of global emissions could be achieved at lower cost. Modelers have estimated the efficiency cost of placing limits on global trading:

[+ costs to US, costs to EU, global efficiency loss]

US

off - with 51?
not having
issue

Limits to Trade can be Workable

Some proposals on international trading would limit the use of flexible mechanisms (international trading of Annex B 'assigned amount units,' Joint Implementation, and the Clean Development Mechanism) in meeting obligations under the convention. Such restrictions would add an additional layer of complexity, but are not necessarily fatal to the market.

Regardless of limits to trade, an institutional framework is required for trading. We have consistently emphasized the central role of the private sector in doing the work of Kyoto. Nevertheless, to ensure the proper functioning of the permit market and that we meet our emissions commitments, we recognize the need for monitoring, recordkeeping, and enforcement by governments, at least at the domestic level.

At the international level, it is not realistic to have the private market undertake trades freely across national borders without government oversight. Nations will need to demonstrate their compliance at the end of the budget period and will be concerned about counterfeiting, balance of payment statistics, and so on. Therefore, at a minimum, there will need to be a national registry of all international permit trades.

The added burden of implementing limits to trade would not be insurmountable. Essentially, domestic permits would need to be traded for foreign permits at an "exchange rate" which reflected the added constraint of only being able to import or export a set quantity of permits. There are a number of ways to implement a limit, but the simplest would be for the government to issue "right-to-import" or "right-to-export" certificates up to the limit. If, for example, international purchases were recorded at the national trading registry, then the buyer would have to present one right-to-import certificate along with a foreign permit for it to be officially accepted. Similarly, anyone wanting to sell a permit internationally would have to acquire one right-to-export certificate and combine it with one domestic permit in order to export. Arbitrage would equate the price of domestic permits to the international price of permits plus the certificate price. The price of the certificates would fluctuate on the market, depending on how bidding the limit is. Similar mechanisms are currently used to implement import and export quotas throughout the world.