
A Process and Implementation Protocol to the UNFCCC

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Introduction

The challenge posed by climate change is historically unique in both nature and scale. Legitimate concerns about climate change from diverse disciplines—economics and trade, human rights, ecology, energy, and international security, to name a few—demonstrate the wide stakeholder-interest and complexity of the problem. From melting ice packs and warmer sea temperatures to changing precipitation patterns and loss of fresh water sources, the planet is facing degradation of ecosystems and biodiversity at levels that will likely prove disastrous to humans if left unabated. With the support of strong scientific evidence, the international community has been successful in identifying climate change as a problem requiring the world's attention. However, the United Nations Framework Convention on Climate Change (UNFCCC), which went into effect in 1994, stands as the high-water mark for global consensus on action.

Each of the separate drivers and consequences of climate change are substantial enough to warrant independent discussions on mitigating and adaptive approaches, as the thousands of pages of Intergovernmental Panel on Climate Change (IPCC) publications attest. However, in the need to come to comprehensive solutions that would provide the inertia for wide implementation across states of tremendous regional, income, and sectoral diversity, the Kyoto Protocol was seen as the best option a decade ago.

But too much is wrapped up in a single international environmental treaty on climate. If some components of the climate change mitigation conversation could be taken out of Kyoto and discussed and negotiated in isolation from more contentious issues, it might be possible to raise the overall effectiveness of the international process and consequentially enhance the environmental integrity of future agreements. Previous international conventions have found the need to establish multiple protocols covering differing aspects and time periods relevant to the problem being addressed. As yet, the UNFCCC has but a single protocol that more specifically articulates the path towards reaching its stated goals. This protocol is vague in many important areas and is set to expire in 2012.

This paper poses the idea of a new Process and Implementation Protocol (PIP) to the UNFCCC that would specifically address the issues surrounding *how* the international community will reach the objective of the UNFCCC. By defining and standardizing a long-term, process-intensive framework for addressing climate change, the global effort to mitigate greenhouse gas (GHG) emissions would draw increased international participation in both the near- and long-term. Process-related agreements made in Kyoto would be standardized into a non-expiring treaty while unsettled implementation issues—whether a result of unfinished negotiations or incomplete scientific data—would have a permanent place for discussion.

Getting Beyond Kyoto: A Forum for New Agreement on Old Problems

The Kyoto Protocol was an all-or-nothing treaty that has frequently been criticized as being too stringent on developed countries in the near-term without doing enough to address climate

change over the long-term. The Protocol's controversial targets and timetables meant there would be zero participation from both developing countries and developed countries that disagreed with the stringency or the methodology of establishing targets. Even if Kyoto or its subsequent meetings of the parties (MOPs) had been successful in reaching agreement on implementation issues such as base years, offsets, and emissions trading, the benefit would have been limited due to the lack of participation in the treaty in general, stemming mostly from the more controversial targets and timetables sections.

More importantly, leadership in negotiating these implementation issues has been absent because the U.S., Australia, and the developing world are peering in from the outside at a treaty that requires nothing of them. Many of these governments agree that climate change is a problem requiring their action before the completion of the Kyoto compliance period in 2012 but are only left to pursue national-level programs that may or may not pave the way to effective, economically efficient, and internationally accepted regulator regimes. A PIP would allow them to meaningfully participate in the international context; effectively reducing global emissions while facilitating engagement and regulatory learning that might settle some of the tougher unresolved issues in the future.

Many of these countries need the political victory of agreeing to *something* addressing climate change internationally. The overwhelming attention the issue has recently enjoyed has put tremendous pressure on laggard governments to begin and/or accelerate efforts to reduce GHG emissions. It would seem unlikely that a country would be able to claim enough political points from a PIP ratification to avoid target commitments in post-2012 periods. On the contrary, the objectively undemanding nature of the PIP might actually stir greater public discontent and demand for stricter international action post-Kyoto.

The PIP would be a steppingstone to deeper engagement, wider participation, and greater impetus for taking on tougher targets in the next compliance period. It would not only standardize process and implementation guidelines for the long term, but also provide a better environment for getting to meaningful reductions beyond Kyoto. The commitment of all UNFCCC parties to the guidelines outlined in PIP would contribute significant additional value to the global effort to reduce GHG concentrations.

Problems of a Single Protocol

The UNFCCC set no mandatory limits on GHG emissions for individual nations and contained no enforcement provisions. It is considered legally non-binding. The document put countries in agreement on the problem and the need to stabilize “greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.” (UNFCCC 1992: 4) To add teeth to the agreement, however, the UNFCCC included a provision for protocols that would facilitate implementation of the principles of the Convention. The Conference of the Parties (COPs) act as the “supreme body of this Convention and keep under regular review the implementation of the Convention and any related legal instruments that the Conference of the Parties may adopt, and shall make, within its mandate, the decisions necessary to promote the effective implementation of the Convention.” (UNFCCC 1992: 7)

The Kyoto Protocol remains the only protocol to the UNFCCC and so provides the only explicit guidelines for what countries must do to reach the UNFCCC objective, how they must do it, and when they must do it by. Such questions are ambitious on their own, but taken together present a complicated conglomeration of issues. And they have proved to be. By almost any account, the level of participation and the level of GHG reductions of those participating have not been commensurate with the threat of climate change. Of the 166 Kyoto-ratifying countries, all but 39 are free to continue increasing GHG emissions to any level. Only 33 nations are actually required to make reductions from 1990 levels. The world's two largest emitters—the U.S. and China—are still federally unregulated and not currently required to reduce or stop the growth of emissions.

Bemoaning the shortfalls in participation and overall effectiveness of Kyoto is not the purpose of this paper, but it is useful in diagnosing the problem this paper attempts to address. In the spirit of the UNFCCC, much common ground existed among negotiators in 1997, but the weak outcome of Kyoto indicates how truly difficult these negotiations were. Not only was there too little consensus on overall philosophy in determining commitments and what was fair, but simply too much was on the table. In this case, issue linkage—lumping methodology and short-term country-specific targets together with process and implementation—was not needed to get reluctant parties to the table. The linkage, however, did serve to make it more difficult to reach an outcome everyone could agree on. (Susskind 1994) The consequences are many, but of relevance here are the lack of participation of key countries and the deficiency of any guidance whatsoever beyond 2012 when Kyoto expires.

With a single protocol like Kyoto, Annex B countries (developed countries given quantified emission limits or reduction commitments in the Kyoto Protocol) have an all-or-nothing decision in addressing climate change through the international process while developing countries are essentially left out all together. There is no middle ground, no alternative path, no method for preparing a country for future reductions or greater international participation. Scientific understanding and public consciousness of climate change have increased markedly since the mid 1990s, but it is far from a foregone conclusion that the U.S., other non-ratifying countries, non-complying countries, or even Kyoto-ratifying and complying countries will agree to make the tough commitments for the post-2012 period. A PIP would not be a replacement for a treaty detailing country- and time-specific commitments, but it would standardize the processes, mechanisms, and rules that form a foundation for the long-term commitment climate change requires.

Unlocking Value: a Process and Implementation Protocol

Beyond country-specific targets and reduction commitments, there are the basic nuts and bolts of establishing exactly how countries are going to stabilize GHG concentrations at safe levels. These mechanisms operate independently of a country's involvement in a target-setting treaty such as Kyoto. To the extent that a country believes climate change to be a serious problem, they would be able to voluntarily take measures to mitigate GHG emissions. These voluntary measures should not be overlooked in the effect they have on national policy (see *Establishing a Baseline*). While countries, of course, need not follow international protocol to enact domestic programs, effective national governments will recognize the benefits of compatibility with international standards and always keep an eye on this environment. Further, in dealing with a tragedy of the commons issue, a lack of international context promotes additional inaction.

All parties want flexibility in determining how they will reach their targets, but the challenge is defining the available options and establishing standards so that states can choose the options most conducive to their condition. If participation and effectiveness are to be maximized then reductions should be real, verifiable, and occur at the lowest marginal cost.

A PIP would provide more options, greater certainty, increased opportunity for participation, and greater economic efficiency in GHG reductions. The treaty would inter alia establish:

- ***An International Emissions Trading Regime***—States, countries, and regions are increasingly adopting cap-and-trade systems as a way of achieving economical GHG reductions. Maximizing efficiency will require future linkage of these systems to facilitate reductions at the lowest marginal cost. The new international regime will define trading units, conditions for linking, and standards of reporting, verification, and monitoring.
- ***Acceptable Offsets***—If GHGs are removed from the atmosphere in a real, permanent, and verifiable way, states should be given credit for this sequestration in the same way they are for an emissions reduction. Critical differences are emerging between nations and regions with regard to what constitutes a legitimate offset. Comprehensive rules from a credible international institution are needed to standardize and legitimate emissions offsetting.
- ***Regulatory Certainty***—Without an expiration date, the protocol gives certainty for continued investment and research in clean technologies. Industry will only pursue substitutes if it believes a market will exist for them. Also, the long-term price signals created by Kyoto’s flexible mechanisms—the Clean Development Mechanism (CDM) and Joint Implementation (JI) —increase the efficiency of abatement by allowing firms to make more informed capital investment decisions.
- ***A Base Year***—An appropriate year is needed from which to establish benchmarks and future reduction targets. Since many countries did not ratify or participate in reductions under Kyoto, a valid base year has not yet been established for all countries.
- ***Enforcement***—The key to getting countries to comply with targets and timetables is enhancing the self-enforceability of the agreement. Increasing the participation of countries in the global effort to minimize human-induced climate change will raise the benefits of a single country taking action and therefore induce more countries to comply.
- ***Avoiding Leakage***—Emissions accounting standards must be reinforced to verify reductions and avoid leakage. Emissions reductions that occur in one place are useless if they are simply “leaked,” or transferred to another location where they would not have otherwise occurred. One way to do this is to require emission-intensive products exported to developed countries to purchase allowances from one of the national or international emission trading systems. This would make the private sector practice of geographically relocating operations for the purpose of circumventing GHG emission regulation less attractive.

The Context for a Process and Implementation Protocol

Before going into detail on each of the aforementioned aspects of the PIP, an examination of the treaty's methodology and how such a strategy fits with previously negotiated international environmental frameworks is needed. Kyoto was consciously styled after the Montreal Protocol. Climate change became a high-profile environmental problem in the mid-90's, in the wake of the relatively successful effort to mitigate chlorofluorocarbons (CFCs) emissions that destroyed the ozone layer. However, while these problems deal with global public goods, they have been revealed to be very different substantively, calling into question whether Montreal was the right model. (Barret 1999)

The fact that substitutes for fossil fuels are not cheap and readily available makes the case for a Montreal-type treaty questionable. International commitment is much more difficult to achieve when the costs associated with abatement are high or unknown. For a treaty emphasizing targets and time-tables to be widely committed to and implemented, ala the Montreal Protocol, a clear vision of what it will take to achieve success, as well as an understanding of the costs associated with it are needed. Without these things, the commitment to making the treaty enforceable—one of the chief complaints of Kyoto—is lacking. The consequent low participation and probable non-compliance follows logically from that lack of commitment.

So what can be done in such a situation? One argument is to follow the precedent of the 1973 International Convention for the Prevention of Pollution From Ships, as modified by the Protocol of 1978 (MARPOL). This treaty imposed technology standards rather than trying to set quantitative emission limits that lacked monitoring and enforcement capabilities. The basis of this argument is that the kind of market “pull” incentive created through Kyoto—in which higher compliance costs drive investment in new technologies to substitute fossil fuels—is “not always sufficient to effect a change in technology” and cannot be achieved without strong enforcement. (Barret 2003: 393-394)

The problem is that the solution tends to either be command-and-control regulation or driven almost exclusively through government investment in research and development. Letting policy makers rather than the market make decisions on best deployable technologies, most promising research, and optimal timing of “clean” capital investment inevitably leads to inefficiency. It is impossible to accurately forecast advances in technology in order to “pick winners.” “Pushing” technological innovations may be more clean-cut from a regulatory standpoint, but the accompanying environmental goals can only be achieved by more politically difficult command-and-control regulations that single out specific industries.

While public investment in research is useful for advancing technologies that are far from commercially viable, a healthy functioning private capital market has proven successful in driving innovation and pushing the implementation of new technologies. U.S.-based venture capital investments in energy technologies nearly tripled from \$917 million in 2005 to \$2.4 billion in 2006. Markets recognized the necessary move to clean energy by increasing venture capital funding in the area from less than 1 percent of total investments to nearly 10 percent in just seven years. All this occurred in a country where the “pull” incentive was based on either state-level regulation or the perception of a future carbon-constrained regulatory environment.

The “pull” incentive of Kyoto is the correct path. Ultimately, that is the treaty that must be strived for: a self-enforcing agreement that commits countries to targets, timetables, and consequences for non-compliance. But the problem that remains is international commitment and the subsequent lack of enforceability. The timing was certainly not right in 1997 and it remains in question whether the costs of inaction are such that countries would be willing to commit to a similar treaty a decade later. A PIP approach supplementing a treaty with future targets and timeframes would be unique in that it would facilitate grass-roots action to abate while allowing countries a template around which to build regulatory structure and institutions. Countries, firms, and individuals would participate to the extent they believed climate change to be a problem. To the extent that private enterprise understood the climate change threat to be real and perceived mandatory regulation to be inevitable, they would respond voluntarily in ways that would position their firms for comparative advantage in the future.

An agreement that leaves open-ended the timeline for mandatory compliance is superior to one that carries a sizeable enforcement stick but is not credible. California’s threat to ban automakers from selling any cars in the state if they failed to sell a minimum number of zero-emission vehicles (ZEVs) is one such example. In 1990, the California Air Resources Board adopted a regulation requiring that 2% of new car sales by 1998, 5% by 2001, and 10% of all large automobiles sold from 2003 onward be zero-emission vehicles (ZEV's). The idea was to push a paradigm shift: force automakers to incubate new technology rather than simply trying to make internal combustion engines cleaner. It used the Montreal approach without knowing the costs and availability of the needed substitutes.

If the threat to automakers was open-ended as far as compliance deadline, it would have made sense for manufacturers to invest in developing these vehicles even if the demand was not present from the market. However, with cars powered by electricity or alternative fuels like hydrogen being many years away from wide-scale, low-cost commercial implementation, California automakers perceived the mandate to be more a statement of hope than actual enforceable policy. The result, of course, was little investment in new technology and practically no ZEVs on the road.

International climate policy needs to do more than make commitments to long-term projections of declining emissions curves. Without ready substitutes to come online to replace fossil fuels, something in addition to a Montreal approach is in order. It should not “push” like MARPOL, but facilitate a greater “pull.” The right policy will expand participation, have high credibility, allow flexibility, and build the markets and regulatory frameworks that future clean technologies will successfully grow into. A PIP does this by filling many of the gaps left by a targets and timetables treaty.

Emissions Trading and System Linkage

Ultimately, a global cap-and-trade system in which all countries—regardless of population or development status—are allocated permits based on some agreed upon methodology (historical emissions, equal per-capita emissions, etc) is preferable to many national systems being linked together. Such a system would minimize complexity and administrative overhead while reducing the marginal cost of abatement. Unfortunately, major hindrances to such a system currently exist: lack of international agreement on an equitable allocation strategy, inadequate capacity of poor

countries to administer an effective system for trading verifiable assigned amount units (AAUs), and lack of international agreement on cap-and-trade stemming from concerns about the transparency and environmental integrity of such a system. In the meantime, linking together compatible systems seems to be the next best option.

The Kyoto Protocol explicitly mentions three “flexibility mechanisms” which aim to improve efficiency in meeting environmental goals. Annex B country allowance trading is one of these that holds significant promise for reducing compliance costs. The likely entrance of more nations into mandatory reduction commitments in the future gives additional urgency to establishing an international standard.

Presently, no rules formally exist for establishing or maintaining an international trading system. During the 2008-12 Kyoto compliance period, Annex B nations may use emissions trading with other Annex B countries to minimize the cost of reductions. Countries must be at or below their assigned cap or have sufficient AAUs from other countries to cover their emissions, which means the AAU-selling countries must be under their cap. While the sale or purchase of units from Annex B countries is permitted, the rules are still somewhat unclear. A Kyoto-ratifying country like Canada is technically allowed to sell AAUs even though they are projected to miss their target by up to 50% (Point Carbon 2/28/2007: 4). Countries not participating in Kyoto but still using allowance trading to meet targets are permitted to buy AAUs, although the sale of their domestic units into Kyoto-ratifying markets do not count towards a nation’s Kyoto compliance.

Economic performance is needlessly hampered when emissions markets are fragmented. The emerging EU trading system acknowledged this in Directive 2003/87/EC by explicitly opening the door to trading with other Kyoto Parties and with nations and even sub-national entities like U.S. states that have adopted caps on total emissions (European Parliament 10/25/2003). This has created market pressure on other actors, including the U.S., to follow suit (Oppenheimer and Petsonk 2004). Many EU Emissions Trading System (ETS) participants have expressed interest in linking with U.S.-based programs, but U.S.-based credits could flow into the ETS only if a number of legal modifications are made to the ETS Directive. Linking with U.S. programs or companies would demand changes in the Kyoto Protocol so that credits from the U.S. could be legitimately counted against an EU Member State’s overall Kyoto burden (Thomson 2006).

Participation in international GHG emissions trading should not be limited to Kyoto-ratifying Annex B countries. Surely for the sake of economic efficiency, wider participation is preferable. From an environmental integrity standpoint, there is zero impact by substituting geographic points of emission. Nations in a trading network having the common denominator of Kyoto ratification is very relevant, however, because the assignment of country-specific targets in the treaty symbolizes understanding on the issues of equity, competitiveness, and the verifiability of reductions. But if there was a way in which these questions could be answered outside the Kyoto context, then complete linkage of trading regimes would be possible.

A PIP would achieve exactly that. It would answer the tough questions that many nations are presently grappling with in designing domestic GHG regulatory policies that allow for emissions trading. Countries recognize the benefit that wider participation would provide, but are unclear about certain elements of their domestic program that would potentially establish roadblocks to

linkage. The role of the PIP then would be to lay out basic guidelines and standard requirements that regional programs could follow in order to build regimes compatible with an international system.

The U.S. case is an example of how a linkage definition would be extremely useful in a new protocol. The U.S. Senate has debated GHG regulatory policy with increasing regularity since 2000. Different policy instruments have gained strong constituencies, including various cap-and-trade systems providing for safety-valves on allowance prices, increased use of offsets, voluntary opt in/out participation, relative targets, and other key design elements which would very likely render the system incompatible for linking. This is of concern to U.S. policy makers, as evidenced by the Senate Committee on Energy and Natural Resources' white paper from February 2006, in which one of the questions specifically addresses whether future linking should be considered in the design of a U.S. system. Guidelines articulated through a PIP would give officials a blueprint for building an emissions trading regime that is compatible with other systems.

However, there is an important element to consider outside of technical compatibility of systems. Less well articulated, but no less important than the maximization of administrative and private sector feasibility, are concerns about fairness. The U.S.—originally anticipated as a net buyer of international permits during the drafting of Kyoto—is now anticipated to be a net seller if it goes forward with the weak emissions targets it has discussed. Given differing stringency of national regulatory systems, it seems likely that widely differing prices of carbon would emerge in markets. This is purely a reflection of marginal abatement costs. In the EU, for example, striving to achieve 7% reductions below 1990 levels would translate into a higher price of carbon than in the U.S., where they might be trying to cap 2010 emissions at 15% *above* 1990 levels. Companies would likely be able to achieve this simply through efficiency improvements and other “low hanging fruit” projects that benefit the bottom line. The result would be a relatively low carbon price on the domestic trading market. At some point, if systems with differing stringencies are linked, there will be a merging of different costs of carbon leading to an equilibrium price somewhere in between the two market prices. There would be a flow of allowances in one direction and a flow of capital in the other. This is a highly contentious scenario politically, but a reality that must be acknowledged, discussed, and hopefully minimized through negotiation of tougher stringency targets for laggard nations. PIP negotiations would be responsible for deciding the stringency thresholds that determine when systems are “close enough” to be linked. Possible scenarios might include bilateral veto power in linkage negotiation or relevant equivalence in system abatement costs (for example, a difference in marginal costs of abatement of 20% or less).

Offsets

Within Article 3, the Kyoto Protocol specifies that “net changes in greenhouse gas emissions by sources and removals by sinks resulting from direct human-induced land-use change and forestry activities, limited to afforestation, reforestation, and deforestation since 1990, measured as verifiable changes in carbon stocks in each commitment period, shall be used to meet the commitments under this Article of each Party included in Annex I.” (Kyoto Protocol 1997: 3) It went on to add subsequent COPs could “decide upon modalities, rules, and guidelines as to how, and which, additional human-induced activities related to changes in greenhouse gas emissions

by sources and removals by sinks in the agricultural soils and the land-use change and forestry categories shall be added to, or subtracted from, the assigned amounts for Parties included in Annex I.”

This idea of offsetting emissions has gained much popularity since Kyoto went into effect, but the lack of further clarity from an international authority as to what constitutes a valid offset has kept the concept somewhat controversial. The importance of offsets in addressing climate change, however, is enormous due to the opportunity they offer economic-concerned governments for reducing the costs of any GHG program. To the extent that an offset is quantifiable, verifiable, additional, and enforceable, it should be allowed to be included in a GHG mitigation program without limit.

Methods of sequestration beyond forestation have not been certified as acceptable for counting towards reduction commitments. It seems this may be an area in which increased flexibility may lead to both greater participation and a higher environmental impact. In this area where regional differences are emerging in domestic policy, a comprehensive set of rules from a credible international environmental treaty are needed for standardization to emerge. It is not clear what the range of activities are that can be included. Some offsets may prove to be more environmentally harmful than CO₂ emissions. Nuclear energy, hydropower, renewable energy only are some of the energy-related offset options that represent huge uncertainty as far as environmental favorability.

An internationally accepted offset or authorization system for offsets would facilitate individual and private business participation within all countries, regardless of development or Kyoto-ratification status. About \$2.7 billion-worth of offsets were sold last year, representing 374 million tonnes of CO₂ emissions (World Bank). The vast majority of these were used to meet Kyoto-ratifying countries’ obligations, but voluntary offsets are growing rapidly. Buyers have tended to be firms with relatively low emissions, such as banks, hoping to generate good publicity and draw in environmentally minded customers (The Economist 2006). However, over 210 firms are now part of the Chicago Climate Exchange (CCX), which requires members such as Motorola, Dupont, and Ford to eliminate or offset 6% of their emissions by 2010.

While CCX and other exchanges have acquired a certain level of credibility in defining a valid offset, a myriad of less-than-legitimate private firms are emerging that cater to offsetting GHG emissions. Many offsetting firms develop and even police their own regulations, which is essentially a license to print money if abused. The price ranges these firms offer, from cents to over \$27 per ton of carbon (World Bank), is a clear indication that offsets are being abused. In this regulatory black hole, both governments and non-governmental organizations (NGOs) are drawing up carbon-offset standards as well. These requirements often mandate emissions to be cut in particular ways, for example only after due consultation with local people or using particularly favored technologies. Such considerations are irrelevant: if an offset is quantifiable, verifiable, additional, and enforceable it should be counted as an offset. These definitions may be difficult to establish through international negotiations, but the benefits of having an internationally accepted standard for offsets are too great to leave out of an authoritative international environmental agreement (IEA). Politicizing offsets risks discrediting an approach that deserves to be taken seriously. The PIP offers the ideal forum to address offsets.

Regulatory Certainty

A Process and Implementation Protocol would never expire. It would be open to amendments through subsequent UNFCCC COPs, but, since it would not include timelines and country-specific targets, it would never have to undergo major renegotiations. Focused on processes, it would stand as an implementation guidebook for the objectives laid down in the UNFCCC.

A PIP would be a positive step in increasing the credibility of a future market for clean energy technology. If private industry is going to be relied upon to find the technological answers to the climate change problem, they must understand that the government's commitment to restricting GHG emissions is credible. (Barrett 2003: 258) Commitment to a long-term process and implementation protocol would do just that.

The Clean Development Mechanism (CDM) has proven to be an expensive and administratively unwieldy tool for achieving low-cost emission reductions in developing countries. Compounding this, there is risk for countries and businesses in exploring deeper use of CDM because, one, it remains in doubt what limits will be placed on the amounts of CDM offsets an Annex B country can use to meet its targets and, two, it expires with the rest of the Protocol in 2012. Market-based mechanisms like CDM are favored by businesses, as is regulatory certainty. There is little regulatory certainty under an agreement that expires in the near-term and leaves open the possibility of use limitations.

Establishing a Base Year

In order to avoid dangerous anthropogenic interference with the climate system, most scientific estimates focus on the goal of reducing warming to 2.5 degrees Celsius which is broadly viewed as about a doubling of pre-industrial CO₂ levels to 550 parts per million (ppm). Having a long-term goal such as this is indispensable. But it has been overemphasized and has allowed for a lack of focus on the near-term and the immediate reduction of the easiest emissions reductions. With an average residence time of about 100 years, allowing these easy CO₂ reductions to slip away has been a major failure of the international process thus far.

“Credit for early action” has been a buzz phrase around Washington for a number of years. Companies are putting off making easy emissions reductions—reductions that would likely even save them money in energy costs—until they can be assured they will “get credit” for it. Establishing a base year for the U.S. through the PIP would provide the incentive for implementing immediate efficiency improvement legislation at the national level and other projects aimed at harvesting “low hanging fruit.”

Even with the U.S. excluded from Kyoto, there likely would have been a much different emissions trajectory since the mid-90s if the U.S. had simply agreed to use 1990 as the base year for all future reductions. Though Washington policy makers likely would have still spurned Kyoto, they surely would not have ignored the issue to the extent of allowing a percentage point average annual increase in emissions. There would have been the understanding that at some point in the future these gratuitous increases would have to be reversed. Establishing a baseline year for the U.S. and other countries would send the signal that the free ride was over and that sooner or later the bill would have to be paid.

The experience of the EU ETS and the apparent over-allocation of allowances in 2005, has shown that initial abatement costs can often be achieved at a low marginal cost. This lesson could apply to developing countries even if they are not under Kyoto commitments. Simply having them on record with a base emissions number will give them incentive to limit emissions growth to at least a limited extent. As a global market for carbon materializes in the future and more developing countries are saddled with emissions targets, these targets will have to be based on something, either historical emissions, per capita emissions, or—more likely—some combination thereof. In the same way it would affect the U.S., a PIP would incentivize early action on the part of developing countries. Knowing they are “on the record” at a specific emissions level and that future targets will be based on that level sends the signal that rampant emissions growth is undesirable.

Emissions levels are frequently perceived—especially by the developing world—as a barometer of development. Given the choice of implementing two projects that will have identical economic impacts, many developing countries might actually favor the one with the higher emission level simply because it will enhance their perceived level of “industrial might” and, more importantly, raise the level of GHG emissions from which future international reduction commitments will likely be based. Putting a base number into place now will influence that decision making process and may provide real emission reductions over business as usual.

Enforcement

The obvious objections to the effectiveness of this baseline year argument is the example of nations that not only have a baseline year established but also a target under Kyoto, and yet still have allowed emissions to go unchecked. This behavior reflects a problem in the self-enforcement mechanism built into Kyoto during subsequent COPs that specifies countries will face an escalating series of target reductions in the future if they fail to comply in the current stage.

Why does this occur given the context of agreement on the general problem? The actions of individual countries in an environmental commons problem are dependent upon the actions of others. Intense gaming is occurring in which nations are constantly gauging the costs and benefits of free riding and treaty compliance. We do not see a race to the bottom because countries are allowed to collude in this gaming environment and ultimately defeat the logic of the prisoner’s dilemma. However, this depends on a common understanding of the seriousness of the threat and the costs needed to mitigate it, which relate to concepts to be addressed shortly: learning and uncertainty.

Ideally, a GHG mitigation treaty would tie itself to more stringent sanctions to encourage compliance. This represents a number of problems, however, not the least of which is the current overburdening of the WTO with indirect trade-related issues like labor standards, intellectual property enforcement, and the environment. Is it possible to increase the self-enforcing capacity of GHG emission reducing treaties without simply creating a bigger stick? The literature would say yes. Participation in an international environmental agreement is done on the understanding that only through collaborative action can environmental gains be achieved. At some point the gains of collaborative action outweigh the gains of free riding within the system. The challenge

within a GHG mitigation treaty is finding that point within the context of a high number of participating countries.

The benefits of international action on climate change are contingent upon a critical mass of emitters committing to emissions reductions. The temptation to free ride on the system is always present, but it can be overcome through a country's active forecast of the expected impact of that decision in terms on other countries. If a state moves from compliance to free riding, this is based on a calculation that it can enjoy the benefits of the IEA without paying the costs. But also included in this calculation must be the predicted reactions of other countries to this action. If other countries follow suit in free riding there may eventually be a critical mass of free riders that reduces the aggregate benefit, in which case even the complying nations would free ride and complete the collapse of the system. Presumably, none of the players desire this outcome, so nations will tend to participate in the system if either the benefits outweigh the costs for their country or if they judge their participation will ultimately coax the requisite number of participants into the game and this will lead to greater benefits than costs.

IEAs are particularly tough when there are substantial differences from one country to another in costs and benefits from the agreement (Barrett 2003). No matter how altruistic a country may be, it is often difficult to enter into agreements that are not in the country's self-interest. Of course, if the environmental problem is real—which at this point few national governments would deny—it should be possible to fashion an agreement in which all countries are better off with the agreement than without.

Influencing that crucial point is uncertainty and learning. A major reason cited by President Bush in pulling the U.S. out of the Kyoto Protocol was exactly this (Bush 2001). He suggested that more information was needed before he could support committing the U.S. to the agreement. Thus, not only did uncertainty play into his decision but also entering the decision was the fact that he anticipated that more would be known in the future; uncertainty and learning were both significant. Uncertainty also played a role in one of the biggest Kyoto supporters, the EU, though they reached the opposite conclusion: that something must be done before it is too late (Kolstad 2004).

Given the current state of scientific understanding of the climate change issue, the threats it poses, and the political will behind addressing the problem, a PIP would be an increase in self-enforcement capacity over the current system. High learning, diminished uncertainty, and increased pressure from international and domestic constituencies has pushed the U.S. closer to engagement. With U.S. participation—representing a quarter of global GHG emissions—the critical mass needed to tip the scales in favor of engagement towards emissions reductions over free-riding might be present.

Skeptics might argue that U.S. ratification of Kyoto—widely regarded as an impossibility at present—is the only signal that would represent significant enough engagement on the climate problem to increase self-enforceability of Kyoto. U.S. non-ratification of Kyoto means that it has not violated the treaty and thus has not actually damaged the treaty's credibility or legitimacy. U.S. inaction, if nothing else, acknowledges the treaty's legitimacy in international law and the binding nature of the commitments that ratifying countries must uphold. U.S. ratification of PIP would symbolize disagreement with the targets and timetable of Kyoto, but also demonstrate

renewed commitment to addressing climate change through PIP guidelines and possibly post-Kyoto targets. Kyoto-ratifying countries, however, do not have the luxury of disagreeing with the targets and timetables of Kyoto. Individual country shortfalls in Kyoto targets that would carry over into the next compliance period would have a greater likelihood of being honored—and thus signify greater self-enforcement—were the U.S. to engage with PIP.

Avoiding Leakage

Tough global competition means large companies will continue to maintain status quo operating and technology standards to save money, even if it means moving the point of emission to an unregulated country. This is currently a highly contentious issue due to the freedom of private enterprise to circumvent regulation by “leaking” emissions to unregulated non-Annex B countries. As exemplified by the U.S., sovereign governments are loath to regulate their domestic firms if it means there is a chance the emissions—and the jobs producing the emissions—will simply move overseas. The question still has not been answered adequately enough.

A PIP would provide these ground rules. Companies—from developed countries or not—would have to hold allowances covering the proportion of their emissions that were generated through the production of goods exported to developed countries. It would not put extreme financial burden on the developing world because a large proportion of the emissions produced in developing world export industries is done by large multinational corporations in which little equity is actually held in the developing country itself. Further, other firms competing in this export market will have to abide by this regulation so the overall competitiveness of firms would in theory remain unchanged.

Beyond enforcement and the administrative difficulties associated with a regulation such as this, simply addressing this issue of leakage in the PIP would go a long way in ameliorating the fears of developed country governments. With an assurance that their firms have no GHG regulatory incentive to move manufacturing jobs offshore, countries would be more comfortable in taking on tougher commitments. From the firm perspective, this is additional regulatory certainty. Companies weighing future investment decisions will know that the cost savings for relocating operations to non-GHG regulated countries will not continue in the future. This certainty is preferable to making important decisions based on projections of the future regulatory environment.

An agreement on avoiding leakage would bring up trade-related issues that would infringe on traditional World Trade Organization (WTO) jurisdiction. The WTO’s attitude towards climate change and other environmental issues has long been one of avoidance due to its questionable trade relevance and an already full plate of issues. But member states have shown willingness to engage in environmental issues in the past, especially when they are relevant to enforcing norms relating to production process methods that do not have implications for the characteristics of traded products (Hoekman and Kostecki 2001). An international treaty that would put signatory nations (who are also WTO member states) on the line for enforcing a discriminatory tariff would force the WTO to confront this issue. Under current rules, measures that have been outlined in this document for addressing leakage would put countries in violation of WTO rules. In the long run, however, getting climate-change issues on the agenda of the WTO could prove

to be one of the most important effects of PIP. The added “stick” of trade retaliation is something that would drastically increase the self-enforceability of future target and timetable protocols.

This final major agenda item for the PIP is surely the most contentious due not only to its call for international duty coordination but also for the roadblock it represents for multinational companies expanding operations into less developed emerging markets. They might argue this eliminates significant incentive for utilizing the comparative advantages of developing countries, which up until now has included lack of regulation in GHG emissions. Additionally, developing countries might claim the classic response to any demand for enhanced emissions reductions from the developing world: this puts undue stress on the developing world to fix a problem that the developed world created.

The Politics: Driving Support for a Process and Implementation Protocol

It would be important for the U.S. to be an engaged leader in this proposed international treaty. Sustained inaction and obstructive negotiating behavior over the past several years has left the U.S. isolated on the climate issue internationally. With other major actors content with Kyoto, the volition to bring a PIP on to the international climate agenda is unlikely to come from the current leaders in GHG mitigation. For a PIP to be successful, it would most likely have to be supported and driven by the U.S.

Since the 95-0 passage of the Byrd-Hagel Resolution in 1997—which expressed the sense of the Senate that the U.S. would not take on new commitments to limit or reduce GHG emissions “unless the protocol or other agreement also mandates new specific scheduled commitments to limit or reduce greenhouse gas emissions for Developing Country Parties within the same compliance period”—much has changed in both the politics and scientific understanding of climate change in the U.S. Prolonged media focus and grass-roots support for participation in GHG emission reductions has brought the U.S. Senate to once again contemplate engagement towards an international agreement on climate. The Lugar-Biden Climate Change Resolution, S. Res. 312, was reported out of the Foreign Relations Committee in May 2006 and signals this change, expressing the sense of the Senate regarding the need for the U.S. to address global climate change through the negotiation of fair and effective international commitments. Today, with a Democratic-majority Senate that views climate as one its top priorities, the political will to pressure the executive back to the international negotiating table is present. A PIP would likely be a step innocuous enough for the Bush Administration to support and engage on internationally.

So the question remains what organizations and constituencies would lead the drive domestically to get a PIP on to the agenda. The community of environmental NGOs would be an easy candidate. However, the wide constituency of powerful stakeholders means strong leadership can be found outside of the traditional environmental NGO community as well. A coalition of groups representing these diverse stakeholders would be the optimal force driving the PIP within the U.S.:

- Corporate and NGO interests—The U.S. Climate Action Partnership¹ or a similar association of powerful private and non-profit entities would be an ideal leadership source for pushing the PIP. This organization’s past efforts in supporting mandatory,

flexible, and nationwide programs have received wide attention from media and policy makers. Supporting a PIP would be congruent with their mission of advocating the federal government to quickly enact strong national legislation to achieve significant reductions of GHG emissions (USCAP 2007).

- Consumer and civic-oriented groups—The grass-roots nature of the climate change movement supplies a useful network to tap into for PIP support. Citizens wanting to do their part—regardless of intergovernmental coordination of effort—are allowed greater freedom to do so through the PIP.
- Legitimate offset firms—In the unregulated world of offsets, a struggle over environmental integrity definitions is being waged between firms with competing conceptions of what makes an offset legitimate. Including offset standardizations within the PIP would provide an advantage to the firms utilizing practices that ensure offsets are quantifiable, verifiable, and additional. These firms would rigorously support a PIP, as driving out their illegitimate competitors would widen their share of the market.

These groups have the resources, incentives, and institutional capacity to focus the necessary political will towards getting players to engage in an international environmental negotiation on the PIP.

The Bottom Line

At the end of the Kyoto compliance period in 2012, the world will be able to look back at the effort to mitigate climate change after 20 years of agreement on the nature of the problem. That will likely be a disappointing moment if no wider action is taken up between now and then. A Process and Implementation Protocol to the UNFCCC offers an alternative. It would bring wider participation in the global effort to reduce atmospheric GHG concentrations. It would provide the framework for unifying a fragmented emissions trading market and subsequently reducing abatement costs. Increased accountability would bring real reductions in short-term emissions over business as usual while enhanced self-enforceability would mean greater future compliance in target and timetable treaties. The PIP would increase flexibility for meeting commitments while empowering individuals, firms, and nations outside of the 33 reduction-committing Kyoto countries to reduce GHG concentrations. This treaty would provide a long-term framework for meeting the objective of the UNFCCC as well as the standardization, certainty, and sense of urgency needed to bring mitigation efforts more in line with the threat of climate change.

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¹ Members are Alcoa, BP America, Caterpillar, Duke Energy, DuPont, Environmental Defense, Florida Power & Light, General Electric, Lehman Brothers, Natural Resources Defense Council, Pew Center on Global Climate Change, PG&E Corporation, PNM Resources, World Resources Institute