

# **Creating a Market for Carbon Emissions in Russia and Ukraine**

*DRAFT — FOR REVIEW ONLY*

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**CREATING A MARKET FOR CARBON  
EMISSIONS IN RUSSIA AND UKRAINE**

*DRAFT*

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## EXECUTIVE SUMMARY

The creation of a market for carbon emissions in Russia and Ukraine would have several benefits for signatories of the U.N. Framework Convention on Climate Change and the Kyoto Protocol. A carbon emissions market would lower the overall cost of compliance for the signatories of the treaty, and it would provide valuable investment capital and technology to cash-strapped Russia and Ukraine.

There are several mechanisms in the Kyoto Protocol that would allow for the transfer of emissions between parties. Three of the mechanisms could theoretically be applied to emissions trading between the United States and Russia or Ukraine. They are bubbling (Articles 3 and 4), project-based crediting (Article 6), and emissions trading (Article 17, formerly Article 16 bis).

The United States has a strong vested interest in creating an emissions market in Russia and Ukraine because those countries would be major sellers on a world emissions market. The strong market position of Russia and Ukraine is due to three factors: 1) their baselines and commitments under the Kyoto Protocol; 2) the drop in their emissions following economic crises in the 1990s; and 3) the relative cost-effectiveness of mitigation measures.

In order for the United States to transfer assigned amount units (AAUs) or permits from Russia and Ukraine under the Kyoto Protocol, four criteria must be met. The protocol must enter into force, participating nations must ratify the protocol, there must be an international system in place to oversee the modalities of trading, and parties must decide how their emissions are allocated.

While these criteria for an official system of trading under the Kyoto Protocol have not been met, the absence of a sanctioned trading regime does not preclude the development of a viable carbon emissions market. There are several trends that indicate the feasibility of an interim market for emissions. First, several large energy companies are in the process of instituting internal emissions trading systems for greenhouse gases. Second, there is a market for carbon futures. Third, Joint Implementation (JI) pilot projects have been developed and approved in Russia.

Several scenarios exist that could foster the infrastructure for an interim carbon market in the near future, either individually or in groups. The United States could support **creating an international carbon and carbon futures market**, while acknowledging that this market may develop elsewhere first. The United States could also foster domestic markets for emissions allowances in Russia and Ukraine by **building internal trading networks among in-country emitters** in both countries. This could be done by a cap-and-trade system, and the United States could work with upstream carbon producers in the coal, oil, and gas sectors. The United States could also choose to support **promoting a system of**

**crediting for early reductions.** On a related note, policy-makers will have to examine approaches to **making current project-based crediting more attractive to investors.** Initiatives to lower transaction costs and provide specific financial incentives to project partners could be critical to broadening the development of JI in Russia and Ukraine. Other approaches could involve **working with municipalities on project crediting and trading.** This focus would allow the United States to work with cities facing strong pressure to provide acceptable public services while keeping expenditures low. City participation could occur in a special Russian or Ukrainian federal initiative or directly with carbon customers on futures markets.

Another approach to market conditioning is less direct but could be equally important. An initiative focused on **identifying, measuring, and monitoring “no-regrets” programs** in Russia and Ukraine would demonstrate projects that were already mitigating carbon. No-regrets inventories would also enhance understanding of sectoral emissions and enable Russia and Ukraine to prepare for a future monitoring and measurement regime.

As a short-term measure, the United States could jump-start the market for emissions trading by **using debt-for-carbon swaps.** In a debt-for-carbon swap, a buyer in the United States would purchase and retire Russian or Ukrainian debt in exchange for carbon or carbon mitigation projects. This type of mechanism could assist Russia and Ukraine during their current financial crises, and a swap would constitute an international transfer of carbon ownership.

Two types of barriers in Russia and Ukraine threaten the growth of a market. Micro-level barriers include ambiguities in the Kyoto Protocol, Russian and Ukrainian legal issues, Russian and Ukrainian political issues, and market intervention. Macro-level issues include compliance, transparency and credibility, and macroeconomic difficulties.

Policy-makers in the United States can take concrete steps to encourage carbon market development in Russia, Ukraine, and other umbrella countries before and during the upcoming Fourth Meeting of the Conference of the Parties (COP 4), which will be held in November, 1998. Specifically, policy-makers could undertake 10 measures:

1. Continue to press for international trading
2. Ratify the Kyoto Protocol
3. Lobby for early reduction credits for Annex I JI/AIJ
4. Determine a feasible definition of additionality
5. Establish a position on trading restrictions
6. Test Umbrella Group trading — in Russia, Ukraine, and elsewhere
7. Piggy-back on existing Russian and Ukrainian infrastructure
8. Continue to press for fundamental economic changes in Russia and Ukraine
9. Temper U.S. hopes for trading in Russia and Ukraine
10. Don't overlook no-regrets investments

In conclusion, it is possible to create a viable carbon market with Russia and Ukraine without the necessary preconditions for an international emissions trading regime in place. However, investors should be realistic about costs; pre-trade infrastructure assistance and post-trade compliance assistance will raise costs, even under full and free trading. Nonetheless, it is critical to begin building an interim market for trading. Programs undertaken today will influence future international regimes and provide spillover benefits to Russia and Ukraine. The costs of inactivity to both countries--and to the global climate--are prohibitive.

## INTRODUCTION

The concept of geographic flexibility — “where” flexibility — is a very attractive option for the United States under the Kyoto Protocol of the United Nations Framework Convention on Climate Change (FCCC). The United States could reduce its costs of compliance with the convention substantially by reducing greenhouse gas emissions in countries where it is cheaper to do so and using the mitigated carbon to meet its emissions targets. Under a full and free trading system, the United States is likely to be the largest buyer of emissions allowances or credits.<sup>1</sup> The largest sellers are likely to be countries in the New Independent States, particularly Russia and Ukraine. For this reason, the United States has strong strategic interests in promoting a greenhouse gas emissions trading system that would involve both of those countries. In fact, the United States, Russia, and Ukraine are all members of the “Umbrella Group on Emissions Trading,” a group of six parties to the FCCC that are discussing the possibility of an emissions trading system among industrialized nations (Annex B countries under the protocol).<sup>2</sup>

The Kyoto Protocol contains four different mechanisms that would allow for geographic flexibility in fulfilling obligations. Three of these mechanisms would pertain to a trading relationship between the United States and Russia or Ukraine. The first mechanism mentioned in the protocol is the formation of an emissions bubble (Articles 3 and 4), whereby two or more parties to the treaty could meet their overall obligations in any way, regardless of the country in which reductions took place.

The second mechanism that could be used would be project-based crediting (Article 6). This would allow the United States to undertake projects in other Annex 1 countries, such as Russia and Ukraine, and then use any additional emissions mitigated by the project to fulfill U.S. obligations.

The third mechanism is that of emissions trading (Article 17, formerly Article 16 bis). The Kyoto Protocol calls upon parties to define “the relevant principles, modalities, rules, and guidelines” for emissions trading. Under a trading regime, the United States, Russia, and Ukraine could buy and sell emissions units on an international market.

Article 3 of the protocol provides additional guidance on using trading and crediting to fulfill national obligations. Section 11 states that emissions reduction units or assigned amounts transferred to another party would be subtracted from a country’s assigned

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<sup>1</sup>A credit represents emissions units over a fixed baseline, while an allowance is a fixed amount that is allocated from emissions in a “cap-and-trade” system.

<sup>2</sup>The other six countries are Australia, Canada, Iceland, Japan, New Zealand, and Norway. For a complete list of Annex B countries, consult the protocol.

amount, while Section 12 states that the amounts acquired could be added to the assigned amount for the acquiring party. In other words, emissions reductions transferred from Russia and Ukraine to the United States would be subtracted from Russian and Ukrainian emissions budgets and added to the budget of the United States.

### **Why create a market for carbon emissions in Russia and Ukraine?**

Russia and Ukraine would be major sellers in an international trading market. One recent modeling estimate determined that in a world with full and free trading, the former Soviet Union would sell 432 million tonnes of carbon equivalent, making it the leading seller in the global market with 48 percent of global market share. If China did not participate, the former Soviet Union could supply 70 percent of permits on the market (Edmonds et al., 1998: 23).

The importance of Russia and Ukraine in future international credit and allowance markets is due to several factors. First, under the current agreements pertaining to the FCCC, Russia and Ukraine are not required to reduce emissions below their 1990 baseline levels. These are relatively lenient provisions for an industrialized nation because of the two countries' shared status as economies in transition.

Second, the economic crisis and financial difficulties associated with the two countries' transition to a market economy resulted in a drop in gross domestic product and in energy use that caused a dramatic reduction in greenhouse gas emissions. By 1994, Russian CO<sub>2</sub> emissions had fallen by at least 20 percent, making the volume of the emissions reduced almost twice as large as the amount of industrial emissions actually produced by Lithuania, Latvia, and Estonia, its Baltic neighbors. In-country experts developing anthropogenic CO<sub>2</sub> emissions projections for the Russian Country Study and National Communication to the FCCC constructed a "probable" scenario where emissions in 2010 would be only 97 percent of emissions at the 1990 baseline. This scenario would leave Russia with 72 million tonnes of CO<sub>2</sub> in the year 2010 that it could trade without having to undertake any domestic mitigation measures (CSPR 5, 1998: 7). If other gases such as methane are counted, Russia is projected to be 4 percent below its 1990 baseline.

A similar analysis carried out by in-country experts for Ukraine showed that under a baseline scenario, Ukraine would emit 41 million fewer tonnes of carbon equivalent than it emitted in 1990 (Rapsoun, 1998: 191). In this case, Ukraine could sell 16 tonnes of allowances on an international market and still meet its targets under the protocol without undertaking any special measures (see Figure 1).

### Figure 1: Hot Air

Hot air is an informal term that has been used by certain groups to refer to emissions reductions that have not occurred through any deliberate action. The term is usually used in conjunction with economies in transition that may find themselves slightly below 1990 baseline emissions levels in the year 2010 and may wish to trade their extra emissions. A formal definition of hot air is not provided in the protocol, and several different interpretations of the term have been proposed (Kokorin, 1998: 2; Metalnikov, 1998: 3).

Estimates of the actual amount of hot air vary. One recent article estimates that the former Soviet Union may have 247 million tonnes of carbon equivalent (MMTCe) of “hot air,” or more than half of the anticipated emissions that those countries might trade (Edmonds et al., 1998: 16). Country-based communications to the FCCC are more conservative in their estimates.

Certain parties to the convention, particularly member states of the European Union, have called for limits on trading hot air allowances. This is a particularly sore point with Russian and Ukrainian officials, who feel that their ability to trade emissions should not be restricted in any way as long as they are meeting their targets under the protocol. Russian delegates have objected to the hot air distinction because it lacks a solid legal definition, it seems to be a subjective limitation, and as one climate policy official wrote, “...the Russian people have paid for these ‘paper tons’ with an actual reduction in their standard of living.” (Metalnikov, 1998: 2).

Russian negotiators have also objected the soft phrasing of the discussion of hot air. As one Russian official stated, “Article 17 does not quantify term ‘supplemental’ and does not authorise the Conference of the Parties to quantify it. *It is essential to insist on qualitative approach. We principally against use of term ‘hot air.’* [sic; author’s emphasis]” (Kokorin, 1998:2).

Restrictions on hot air trading could also reduce incentives for the two transition economies to undertake major energy efficiency and clean air measures with large incidental climate benefits unilaterally because these measures would not have the appropriate certification to count against country baseline emissions. For example, it would be extraordinarily difficult for Russia to draw a quantifiable causal link between a reduction in industrial energy subsidies or end-user tariffs, an improvement in energy efficiency, and a corresponding reduction in greenhouse gas emissions. This process would be even more difficult if confounding factors emerge, such as the development of a private energy services company market, unrelated improvements in municipal financing, the emergence of a long-term loan market, and international development assistance targeted at export promotion. It is difficult to imagine a workable system in

A third factor contributing to the attractiveness of a permit or allowance regime involving Russia and Ukraine is the relative cost-effectiveness of carbon mitigation. Gross inefficiencies and politically-motivated market distortions resulted in a situation where Ukraine and Russia were the first and second most energy intensive economies in the world, respectively, in their baseline year of 1990. They used more energy per unit of output than any other countries. As a result, basic measures to improve the efficiency of energy use (which is the single largest contributor to greenhouse gas emissions) are relatively inexpensive.

If carbon is considered a tradable commodity, the United States, Russia, and Ukraine would all benefit from efficiencies of trading. Even under a project-based crediting system, Russia and Ukraine's high energy intensity would make it cheaper for the United States to reduce a ton of carbon there than at home. However, the United States would not be the sole beneficiary from a bilateral transfer of allowances or credits. Russia and Ukraine also have compelling reasons to participate in a trading regime.

Under a project crediting regime, the two transition economies would receive increased foreign direct investment and technology transfer in many sectors in need of urgent assistance, ranging from forestry to residential heating. In addition, a project crediting regime could allow Russia and Ukraine to implement projects with substantial economic and environmental benefits in addition to greenhouse gas mitigation. For example, industrial projects could improve local air quality, and municipal alternative energy projects could reduce local governments' dependence on fossil fuel purchases. Given the current shortage of investment capital in Russia and Ukraine, these projects would be unlikely to happen without the incentive of credits.

Under a tradable allowance regime, the financial benefits to Russia and Ukraine would be more direct. Even if one assumes a conservative price of \$5 per tonne of carbon equivalent and approximately 400 million tonnes of carbon to trade on a world market, the economic implications for both countries are clear. An allowance system would allow Russia and Ukraine to raise capital on international markets by selling a natural resource, a concept that is not new to either country. Economic benefits would be accrued at the national level and then allocated by the federal government.

A future global market could also incorporate both types of mechanisms. In any of these scenarios, economic rewards for Russia and Ukraine would be significant. As the most recent analytical paper from the White House concludes, trading "benefits all parties involved" (*Kyoto*, 1998: 38).

## **A PRIORI CONSIDERATIONS FOR TRADING UNDER THE KYOTO PROTOCOL**

The Kyoto Protocol refers to the transfer of emission reduction units and assigned amounts (also referred to as assigned amount units, or AAUs). However, several conditions have to be met in order to carry out transfer under the mechanisms such as emissions trading or project crediting.

First, the protocol must enter into force. This condition cannot be met until “the ninetieth day after the date on which not less than 55 parties to the Convention, incorporating Parties included in Annex I which accounted in total for at least 55 percent of the total carbon dioxide emissions for 1990 of the Parties included in Annex I, have deposited their instruments of ratification, acceptance, approval or accession” (Article 25, Section 1). This condition has not yet been met.

Second, any nation involved in a transfer of AAUs must have ratified the protocol. Russia, Ukraine, and the United States have yet to ratify. In the United States, the ratification will be contingent upon a 2/3 majority vote in the Senate. In Russia, the protocol must be ratified by the Duma after consideration from the Council of the Federation, but there is no indication that this will occur in the near future. Ukrainian discussions on the protocol are more preliminary in nature than those taking place in Russia.

Third, there must be an international system in place that can oversee the modalities of trading, particularly measurement, monitoring, recordation, and verification. These modalities will be decided by the Conference of the Parties (COP). This system would address the daily realities of AAU transfers, such as the mandated reporting of transfers to the COP on an annual basis that is specified in Article 7 of the protocol. This system would also require international consensus on certain measurement issues in the protocol, such as the methodology of setting baselines, a clear working definition of additionality, and determinations on how to control leakage in a project-based transfer. These issues have yet to be resolved, and an overall system is still very much in the preliminary stages of design. While Russia, Ukraine, and the United States are involved in discussions and planning, an officially sanctioned system of AAU transfers will be the result of negotiations on a much broader scale.

Finally, parties to the protocol will have to decide how their emissions will be allocated. Ultimately, the federal governments of the United States, Russia, and Ukraine are named as the parties to the protocol for their respective countries. They may decide to allocate allowances or credits to the private sector or to sub-sovereign entities such as local governments. None of these three countries has made a decision about allocation and implementation, although the official United States position indicates support for private sector involvement in trading (see *Kyoto*, 1998). It is important to note that private sector

involvement presupposes financial incentives for its participation in a trading system. Without a carbon tax or a cap on carbon emissions, U.S. companies will have no incentive to purchase AAUs in any country.

## AN INTERIM MARKET FOR CARBON EMISSIONS

It is clear that none of the four pre-conditions for AAU transfers has been met. However, several trends indicate that a nascent market for carbon emissions is developing on an international level. A sufficient number of international actors—both governments and private companies—have taken the position that early experience with carbon trading will be beneficial to them. Three types of programs provide evidence that initial experiences with transfers has been varied in scope, and they lend credence to the position that an interim market in Russia and Ukraine could be viable.

### **Private Sector “Internal” Trading Systems**

Several large energy companies have taken steps to put internal emissions trading into place. For example, British Petroleum has a trial trading program in place among its facilities around the world, and Canada’s TransAlta has also run internal trading programs in international sites, such as a co-generation plant in Western Australia. (*On the Horizon*, 1998). Shell Oil has also familiarized itself with internal emissions trading systems, and it is considering implementing a system of its own. All of the companies hope to improve efficiency at their project level while boosting public relations with an environmentally friendly approach to business. While none of these companies is based in the United States, British Petroleum and Shell have negotiated strategic partnerships with Russian oil companies, and TransAlta is seeking mitigation projects from Russia and Ukraine for its investment portfolio.

### **Emissions Futures Trading**

Other companies are moving outside of their operations to acquire carbon options. Language describing these transactions is frequently confusing, because the absence of sanctioned AAUs leaves companies buying and selling what they describe as “mitigated emissions” or “emissions reductions.” For example, an “international trade” involving an American and a Canadian company was described as an agreement to purchase “100,000 metric tonnes of GHG emissions reductions.” (ERT, 1998). This confusion in buying and selling a commodity that is eliminated as part of the deal is understandable. However, it can be explained by the fact that “...’permits’ allegedly being traded today are more accurately considered as options on the real thing, to be defined later...” (Dunbar, 1998).

Russia has also been involved in discussions about possible pilot trades. Russian government officials met in January and April of 1998 with their Japanese counterparts to discuss “carbon swaps.” However, these discussions seem to have moved from emissions trading to project-based crediting (JIQ, 1998: 3).

### **Project-Based Crediting**

Project-based crediting has probably attracted the most activity of the three current transfer areas. This activity has taken the form of programs to experiment with Joint Implementation (JI) or Activities Implemented Jointly (AIJ). JI was designed so that an Annex 1 country could carry out a project to reduce or offset emissions in another country. The government of the investor would sign an agreement with the host government, and any credits resulting from emissions reductions beyond the project baseline would accrue to the investor. Current JI/AIJ activities are taking place in a pilot phase where participants and projects are not guaranteed credits for quantified reductions.

Russia has nine JI/AIJ projects to date. Four are being implemented (1 U.S., 1 German, 2 Dutch), 3 other projects (all U.S.) are currently in an extended length of inactivity, and 2 projects are new. In addition, the Russian Country Studies team has identified 10 projects that have been developed and are seeking partners (CSPR 5, 1998: 13-19). The World Bank has also worked with Russia on a country strategy for JI/AIJ, and they have compiled an 11-project portfolio and an additional 15 projects in a pre-portfolio state. (CSPR 6, 1998: 6). Project development for that portfolio was funded largely by the government of Switzerland.

In Ukraine, two JI/AIJ projects have been accepted, approved, and endorsed by the designated Ukrainian authorities and the investing countries — one involves a sugar beet plant and the other involves a glassworks. However, these projects have not been reported to the FCCC Secretariat, and further information on them is not widely available (*JIQ*, 1998: 14).

## PRE-PROTOCOL MARKET MECHANISMS

Given the variety of activity that is already taking place and the international interest in greenhouse gases as both commodities and futures, certain pilot programs might be able to encourage the development of a carbon market in Russia and Ukraine before the development of an internationally approved system for transferring AAUs. The following approaches include a brief description of the approach and a discussion of both potential benefits and unresolved problems. These strategies do not have to be used in isolation. The actual development of a viable interim carbon market will probably be due to several different forces.

Emissions bubbling requires announcement at ratification, and it is considered to be outside of the scope of this paper.

### Creating International Carbon and Carbon Futures Markets

This strategy would develop a widespread system whereby countries could purchase the right to acquire a ton of carbon, or the right to purchase an allowance for a ton of carbon, at some future date. While this may sound futuristic, the Chicago Board of Exchange has said that it is willing to run both an auction and an eventual a futures market with the proper legislation (Tait, 1998).

Seven or eight over-the-counter contracts have been traded on the exchange recently, “including monetarisation of a tract of Costa Rican rainforest and an options transaction arranged by a Canadian firm” (Tait, 1998).

Contract trading is promising because it allows sellers to raise debt for mitigation projects. Futures contracts are permitted by the documents under the FCCC, “subject to private contract provision and normal commercial protections” (*Primer*: 1). This trading is possible because: “Contract trading in AAU futures requires no regulation or oversight by the FCCC Secretariat because it generates no current transfer of rights that would require official recordation nor does it affect current compliance obligations of Parties” (*Primer*: 1).

However, a large trading market for carbon and carbon futures may not start in the United States. London’s international petroleum exchange (IPE) is also interested in launching a primary CO<sub>2</sub> trading market and a secondary market for CO<sub>2</sub> futures contracts (Dunbar, 1998). IPO believes that there is a market, and the Chief Executive Officer of the IPO has stated that “On the basis of research we’ve done, there are in the region of 150 entities in the UK alone that would participate” (Dunbar, 1998). Richard Sandor, Vice-Chairman of the Chicago Board of Trade, has commented favorably on the IPE proposal, saying, “Those exchanges located in countries supporting domestic carbon trading are likeliest to launch the first contracts. I think that progress won’t depend upon the US, and I expect to

see trading beginning in other parts of the world first” (Dunbar, 1998).

The single most powerful step that the United States could take to support this market would be to announce a domestic carbon market or provide other financial incentives for companies to establish the practice of trading carbon allowances.

### **Building Internal Trading Networks among In-Country Emitters in Russia and Ukraine**

A domestic market for emissions allowances would provide Russian and Ukrainian governments with valuable experience in allocation and enforcement. Domestic markets would also increase efficiency in the event of an international regime, and they would give some indication of compliance patterns by participants to in-country and foreign observers.

A **cap-and-trade system** would also have another distinct advantage over a project-based system: the former would probably have significantly lower transaction costs than the latter (Joshua et al., 1998: 4). However, several important issues would have to be addressed before establishing a cap-and-trade system. The federal government would have to define a cap and identify enterprises or sectors that would fall within the jurisdiction of the system. Setting an emissions cap could be especially tricky because knowledge of baseline emissions in certain sectors is fuzzy. For example, findings from the Russian Country Study indicate that the greatest uncertainty in technogenic greenhouse gas emissions is fugitive emissions of methane in the natural gas sector. They are estimated to be between 12 and 33 million tonnes, a large degree of uncertainty (USCSP, 1997:3). Similar baseline-setting issues would also be present in a Ukrainian system. The governments would then have to decide how to allocate emissions. Allocation on the basis of historical trends might be more politically palatable, because it would favor the financially-troubled coal industry. Alternatively, the governments could sell the allowance at auction resembling recent sales of GKOs, or short-term domestic bonds.

One way to establish an initial market for trading would be to work with upstream carbon producers in the coal, oil, and gas sectors in Russia. In Ukraine the system would focus more on coal producers and gas and oil importers. Upstream carbon producers or importers would receive or purchase allocations and then be allowed to trade them internally. Transfers of allowances would be registered with the respective state commission for securities. This system would also be a strong market pressure to rationalize energy production in both countries. For example, Russia and Ukraine have coal mining sectors that are among the most cost-intensive in the world. In Russia, requests for subsidies to the coal sector have reached billions of dollars (IEA, 1995). Under an allowance trading program, financially powerful oil and gas companies could theoretically buy them out of business and shift production towards more cost-effective fuels.

An **upstream program** would lower the number of players in the system substantially, improving efficiency and lowering transaction costs. Russia's energy sector is characterized by a high degree of vertical integration in the oil and gas sector and the domination of the market by a few large companies with substantial state ownership. In this setting, an upstream system focusing on the largest companies could capture the entire technogenic market for carbon and methane emissions. In Ukraine, an internal trading system would include more coal companies and would focus more on transmission and distribution companies handling oil and gas imports. The system would also involve more players, because the Ukrainian oil market is less vertically integrated.

Russia in particular represents an interesting location for an internal trading system because of the large number of international joint ventures and production sharing agreements with other countries that are already in place. Over 100 joint venture agreements between Annex I countries and Russia are in various stages of implementation. These agreements include American producers such as Amoco, Arco, Conoco, Exxon, Marathon, and Mobil. In addition, British Petroleum and Royal Dutch Shell — two companies that are beginning to implement internal emissions trading — have strategic partnerships with major oil producers. For example, it might be possible in the future to offer incentives or investment credits to U.S. oil and gas companies partnering with trading system participants.

Alternatively, the Russian and Ukrainian governments could introduce a carbon tax while offering producers the chance to receive transferrable credits for offsets (see Hargrave, 1998: 2).

Focusing on oil and gas companies would have two advantages in implementing a trading system. First, unlike many Russian and Ukrainian enterprises, oil and gas companies are largely solvent. Second, large companies may already be providing baseline data for monitoring. For example, Goskomstat collects an "11-TER" form from all large and mid-size enterprises in Russia, including fuel mixture data that are consistent with IPCC methodology (Kokorin et al, 1998: 3). Nearly the entire market for stationary energy and heat production falls within this designation.

However, three problems might arise. First, an internal trading system might not be politically feasible in two countries where the coal industry is cost-inefficient, and miners are frequently on strike. Energy taxes on the coal industry could conceivably contribute to political instability. Second, the government may have difficulty collecting revenues from a tax system even from profitable participants. The governments' records on tax collection are poor in Russia and Ukraine, even when large, solvent companies such as Gazprom are involved. For example, in late 1996, Gazprom owed the Russian government almost \$1 billion. The company was using its profits to purchase government bonds rather than paying taxes (RBN, 1996). While tax arrears problems are not as extreme in Ukraine, they are a continuing source of irritation to the government. Ukrainian Prime Minister Pustovoytenko has, on a regular basis, publicly criticized entrepreneurs who are behind in

their tax payments.

Third, a carbon tax or allowance expenditure might be passed along to end users and the municipal governments that subsidize energy end-use. More study is needed to determine how the economic burdens of a cap or tax system might be distributed.

### **Promoting a System of Crediting for Early Reductions**

Early reduction credits will be available to Annex B parties to the Kyoto Protocol undertaking projects in developing countries under the clean development mechanism that is described in Article 12. Early credits will be available for transfer beginning in the year 2000. Language that describes project crediting between Annex B parties (JI/AIJ), does not include this provision. Early reduction credits would heighten U.S. interest in projects implemented in Russia and Ukraine. It would also lower the risk of the credits generated by making it more likely that project investors would realize gains from emissions reductions. This decrease in risk would, in turn, increase the chances of monetizing emissions contracts that resulted from JI projects in the two transition economies.

Project-based crediting has the support of many government officials in Russia and Ukraine who would like to direct investment into federal priority projects. For example, a Russian study noted that emission trading structures were still an open question. While the Russian Action Plan focuses on government projects in energy and environment, there is no mention of trading (CSPR, 1998: 12). Officials from both countries have expressed strong interest in an early crediting program. However, this has yet to be clarified in the protocol. In addition, the transaction costs of project-based systems are much higher than allowance systems.

### **Making Current Project-Based Crediting More Attractive to Investors**

Without early reductions crediting, the short-term market for investing in JI/AIJ projects in Annex B countries is less attractive than the market for investment in countries covered by the clean development mechanism. Currently, U.S. investors have no direct financial incentives to initiate projects, yet they face considerable project risks and high initial transaction costs. In order to stimulate interest and investment related to project-based crediting, the host and home governments might have to consider steps to make pilot projects more attractive to investors.

One such step would be to lower the transaction costs of JI/AIJ projects. For example, the host country government could offer to lower the investment costs by providing tax holidays for enterprises participating in JI projects. The possibility still exists that pilot phase JI projects in Russia and Ukraine, as elsewhere, might not receive credits when a system approved by the Conference of Parties is put into place. However, the participating country governments could look into selling allowances for emissions in the final years of a

multi-year project that would fall after 2008. For example, a U.S. utility could invest in 1999 in an energy efficiency project in Vladivostok with a 10-year project lifetime. The Russian government or the Russian project partner could sign a futures contract with the U.S. partners allowing the Russians to buy the emissions in years 9 and 10 for a fixed price per ton. Russian participants in trading could use this strategy to hedge against the risk that they will have to produce documented reductions in order to acquire emissions credits. They could also sell the futures for to raise cash if an international carbon market were to develop.

The U.S. government could also provide financial incentives for involvement in JI projects in Russia and Ukraine. For example, the U.S. government could offer to pay for third-party baseline measurement and monitoring. Alternatively, the government could offer some type of tax break or tax holiday to companies investing in JI projects in Russia and Ukraine. It could also lower transaction costs by playing a more aggressive role in financing projects through institutions such as the Overseas Private Investment Corporation (OPIC) and the U.S. Export-Import Bank (Ex-Im). OPIC and Ex-Im have expressed a desire to make loans to projects with environmental benefits, but their portfolios are dominated by large manufacturing and energy sector loans and guarantees for projects which may actually increase greenhouse gas emissions in Russia and

Ukraine. Unfortunately, most measures that could be taken to make JI more attractive to investors would also jeopardize the additionality of the projects.<sup>3</sup>

### **Working with Municipalities on Project Crediting and Trading**

Russian and Ukrainian municipalities can serve as good units for project implementation. Cities face the strongest pressure to keep expenditures low, and they also face direct pressure from their residents to provide acceptable public services. Cities could participate in pilot emissions markets on several levels.

First, federal officials in Russia and Ukraine could opt to allow cities with demonstrated reductions from no-regrets programs to hold carbon credits backed by the federal government. These credits could raise revenue for the cities through sales to U.S. or domestic companies anticipating a need for credits to cover future activities in the host country. In a similar scenario, Russian and Ukrainian cities would receive title to credits from JI/AIJ projects in their “host” municipality. In both of these cases, cities might be able to sell their allowances and futures on Russian exchanges through over the counter contracts, although regional exchanges would be less liquid.

Municipalities might eventually also become directly involved in carbon markets or with internal greenhouse gas trading. Work in Canada under a pilot municipal trading system with the City of Toronto suggests that primary design concerns under this type of project include ownership, historical crediting, additionality. Public concerns include caps on emissions, tradability of historical emissions, and consistency between buyer and seller caps (ICLEI, 1998). All of these issues would be important to resolve in local trading system.

Others have advocated “backdoor” municipal cap-and-trade systems, referring to systems that would initially address local air pollution with an intent to expand to cover greenhouse gases (Palmisano, 1998). Russian law allows for innovative programs that can achieve emissions limits on criteria pollutants. There have already been innovative air pollution management programs in several Russian cities. However, local cap-and-trade systems face two serious problems: 1) not all players in a given system will be solvent, and 2) many players will have no strong financial incentives to be in compliance. Almaty, Kazakhstan instituted a local cap-and-trade system, but only one trade took place, and that transaction occurred when one of the participating companies went out of business (IRG, 1998).

### **Identifying, Measuring, and Monitoring “No-Regrets” Programs**

No-regrets programs are described as “Measures whose benefits--such as improved

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<sup>3</sup> Additionality is the requirement by the U.S. Initiative on Joint Implementation that projects must prove that they would not be undertaken for reasons other than climate change mitigation.

performance or reduced emissions of local/regional pollutants, but excluding the benefits of climate change mitigation--equal or exceed their costs” (Watson, 1996). Examples of no-regrets programs in transition economies are plentiful. Russian and Ukrainian cities have already undertaken projects to save energy and money that have reduced greenhouse gas emissions (Avdiushin et al., 1998). For example, Russian energy efficiency measures in municipal district heating systems and efficient lighting projects in Ukraine have saved money for local governments, and they have also reduced greenhouse gas emissions.

Local and regional inventories of no-regrets measures could promote a market for carbon emissions in Russia and Ukraine in several ways:

- 1) Inventories would demonstrate that both countries were implementing domestic measures with mitigation benefits. These data would provide Russia and Ukraine with an argument against limiting their tradable allowances, because they would be generating reductions above and beyond a “business as usual” scenario.
- 2) Inventories would build an understanding of sectoral emissions and provide data on the cost-effectiveness and impact of various measures with mitigation benefits. The Russian and Ukrainian government would then have the necessary information to hedge their risks in emissions trading; they would know how to cover an emissions shortfall while achieving other governmental objectives, such as environmental protection or energy efficiency.
- 3) Inventories would enable Russia and Ukraine to prepare for an international monitoring and measurement regime and eventually calculate emissions at the end of the first budgeting period.

### **Using Debt-for-Carbon Swaps as a Short-Term Measure**

While a debt-for-carbon swap is not a mechanism that would be used on a large scale, it is a compelling measure that could assist Russia and Ukraine during their current financial crises. A swap would also constitute an international transfer of carbon ownership. For the sake of simplicity, the following scenario assumes that the participant in this measure will be Russia.

In this scenario, a buyer in the United States would purchase and retire Russian debt in exchange for Russian carbon. A debt-for-carbon swap is simply a new twist on the traditional debt-for-equity swap. It is similar to a debt-for-environment swap, in which a creditor forgives a portion of the foreign currency it is owed and the debtor nation agrees to spend domestic funds on environmental programs. Bolivia and a U.S. non-governmental organization conducted the first debt-for-environment swap in 1987. Since that time, there have been more than 15 such swaps involving nearly one billion dollars (World Bank data).

Debt-for-environment swaps are not new to transition economies. In 1991, the 17 creditor nations of the Club of Paris agreed to forgive 10 percent of Poland’s debt if the funds

generated were used for environmental purposes. Poland established an independent foundation, the Ecofund, to administer the funds. In 1995, Switzerland forgave 20 percent of Bulgaria’s debt to in exchange for a Bulgarian commitment to spend the equivalent in local currency on environmental programs. This program will also involve payments to an independent trust.

Recent economic and financial difficulties have exacerbated Russia’s debt problems. In recent weeks the ruble has been devalued; the Russian Central Bank set the exchange rate for September 5th at 13.46 rubles to the dollar, down from 6.28 on August 1. The Russian government has several kinds of bad debt, including outstanding treasury bills, loans, and internal arrears and wage payments. Figure 2 summarizes the types of debt and equity that could be joined in a debt-for-carbon swap.

**Figure 2: Potential Debt-for-Carbon Swap Elements**



A swap would potentially involve five basic elements:

1. Donors: An initial party or parties will have to put up the money to buy or retire debt.
2. Partners: A government, multi-lateral development bank, NGO, utility, or other entity would have to be willing to undertake the swap.
3. A Government Accord: The Russian government would sign an agreement with the donors and any other partners containing legal language on a limit to the amount of debt to be exchanged, the exchange rate for the debt (i.e., how many points above purchase price), and the type of equity to be provided.
4. A Feasibility Study: A study would provide an estimate of foreign exchange risk, other risks, and promising strategies for debt acquisition.
5. A Broker: Brokers would ensure the professional handling of a debt purchase on world markets. Their commission fee could be included in the purchase price of the debt.

Carbon swap mechanisms could take two basic forms: 1) A debt-for-equity swap involving carbon; and 2) A debt-for-environment swap involving carbon emissions mitigation benefits. A given swap could be a hybrid, involving both forms.

The simplest and least expensive swap, a **debt-for-equity swap involving carbon**, would look more like a traditional debt-for-equity swap than its environmental intercessors. The United States could either retire the debt or sell it on secondary markets. The equity would be provided in the form of an over-the-counter contract for carbon allowances. For example, the U.S. government could purchase a fixed amount of Russia's new short-term bonds and agree that all coupon payments would be placed into a fund to purchase carbon allowances on a future specified

date. The Russian government would sign a contract agreeing to sell these allowances to the U.S. government.

This type of swap would have relatively low transaction costs, because it would not involve project-based expenditures such as monitoring, reporting, and verification. It could also involve players other than the federal government. For example, a U.S. company holding commercial debts or trying to collect from debtor enterprises in Russia could agree to retire those debts in exchange for a carbon or carbon futures contract. In this case, the U.S. government could play a role by asking the Russian government to back the contract with a “guarantee fund” of emissions that it would provide in the event that the Russian company or bank were unable to fulfill the contract when it came due. Retiring or reselling debt from bad loans would be less unwieldy than a bond purchase scenario.

The other variation of this arrangement would be a different partner on the Russian side: a local or regional government. For example, a U.S. entity could retire a local government’s debt to a commercial bank or purchase and retire regional bonds in exchange for contracts with these sub-sovereign entities. This scenario could also be strengthened by including a sovereign backing for the futures contract with reserve carbon.

In a variation of this scenario, a government agency or non-governmental organization could buy Russian debt, obtain a contract for carbon allowances, and then retire the carbon by agreeing not to use the carbon or carbon futures obtained through a transaction. This might be more palatable to non-governmental environmental organizations concerned about “hot air” (emissions that transition economies will be able to sell without undertaking mitigation measures) since the purchaser would effectively reduce the amount of hot air that Russia could emit. There is a precedent for this type of transaction in emissions trading: U.S. non-governmental organizations have purchased SO<sub>2</sub> allowances at auction and have then retired the allowances.

In short, straight swaps could be the easiest and least expensive way of kick-starting a market for tradable carbon permits involving the world’s largest potential seller of carbon. Any of the above scenarios would be a precedent-setting pilot trade.

**A debt-for-environment swap involving carbon** would differ from the straight debt-for-equity swap in that it would require the Russian government to make expenditures for domestic environmental projects. Under this arrangement, the U.S. government (or a private or non-governmental entity) would retire Russian debt, and the Russian government would agree to set aside the value of the debt in rubles for a carbon mitigation or sequestration project. The parties could establish a single project under the agreement, or they could agree to set up an independent fund like the Polish and Bulgarian Ecofunds to make grants for several projects. For example, the U.S. government would agree to purchase a fixed amount of Russian debt, and the Russian government would agree to set aside an unprotected tract of old-growth forest as a restricted nature preserve (*zakaznik*).

Transaction costs under this type of arrangement would be higher, because they would involve establishing an independent entity and monitoring and verifying projects that would take place. However, a project component would make the agreement more palatable to Russians and Americans. Furthermore, a debt-for-environment swap would result in tangible local and global benefits even if an international carbon market never materialized. Finally, the Russian government could undertake certain types of projects that would not be particularly costly to them.

The U.S. entity could reduce project costs by asking Russia to forego its claim on the carbon offset by the projects in question. For example, Russia would create a *zakaznik* but not claim the amount sequestered in its inventory of sinks and emissions. This arrangement would have many legal complexities, but it would shift the monitoring and reporting costs away from an independent foundation or the U.S. partner. However, it could garner international support by reducing the Russian baseline for allowances.

Another scenario could involve retiring Russia's internal government debt. While there are obviously a number of political sensitivities with this scenario, it could be a unique way to send money where it is most needed. A U.S. government agency could pay a portion of the federal government's debt to an executive agency such as the Federal Forestry Service in exchange for a forestry-related project or projects. An internal debt swap could also involve debt to Russian regions.

While Russia has a central bank, it does not have a treasury that fulfills all of the functions of the corresponding Treasury Department in the United States. For example, the Russian federal government relies upon several approved commercial banks to disburse payment for wages and procurements. Therefore, an internal debt swap would probably involve a multilateral arrangement with the commercial banking system in addition to the Ministry of Finance.

There is no reason why a bilateral agreement could not be reached on a **hybrid swap** involving both allowances and projects. While costs would be higher than in a straight swap, the U.S. could encourage trading while also generating project-based benefits.

## POTENTIAL OBSTACLES IN RUSSIA AND UKRAINE

Obstacles that could hinder trading between the United States and Russia and/or Ukraine can be divided into two types (see Figure 3). First, there are micro-level obstacles, which arise from the uniqueness of national and international emissions trading systems. These could be addressed both in host countries and through the Conference of the Parties. Second, there are macro-level obstacles. These barriers are not specific to climate policies and programs; instead, they affect international trade and property rights in a general way. They focus on the larger climate for trade and investment, they will have to be addressed by changes in the way business is conducted in Russia and Ukraine. Of the two types of obstacles, the macro-level obstacles are probably the greatest impediment to establishing an interim carbon market in Russia and Ukraine.

**Figure 3: Potential Obstacles to a Viable Carbon Market**

Micro-Level Issues	Macro-Level Issues
Ambiguities in the Protocol	Compliance
Russian and Ukrainian Legal Issues	Transparency and Credibility
Russian and Ukrainian Political Issues	Macroeconomic Difficulties
Market Intervention	

### **Ambiguities in the Protocol**

One area of the protocol that will affect project-based investment is the definition of additionality. Under the pilot phase of the U.S. Initiative on Joint Implementation (USIJI), “Project applicants will need to demonstrate to the satisfaction of the Panel that the measures undertaken or to be undertaken are above and beyond what would reasonably have been or be likely to occur otherwise....reduction or sequestration must be below that established by a credible base or reference case” (USIJI, 1998).

Additionality can present a problem because potential projects in Russia and Ukraine do not look like their counterparts in the U.S. and in developing countries for an important reason: they offer fairly high rates of return. While proposal guidelines state that “The additionality requirement does not exclude projects which are profitable or cost-effective,” (USIJI, 1998), approval may be very difficult to obtain in practice. Specifically, review panels may have a difficult time believing that profitable projects would not otherwise take place. A clarification by the Conference of Parties on the definition of additionality could eliminate much of the debate.

Another ambiguity in the treaty is the statement in the Protocol that “trading shall be supplemental to domestic actions” (Article 6, Section 1 (d)). However, there is no clear quantitative limit on tradable amounts, even though the language implies a ceiling on trading. Russian and Ukrainian officials will not be able to determine the size of their national cap without an idea of how many allowances could be traded. This will increase risk and lower seller returns in a market for Russian and Ukrainian carbon and carbon futures markets.

### **Russian and Ukrainian Legal Issues**

The Russian legal community has already begun to discuss the legal status of carbon allowances. One legal researcher writes that “such transactions are foreign trade transactions, because the parties thereto will be of various nationalities, the subject of the transactions will be export and import operations, and the payments will be made in currency which will be foreign at least for one party to the transaction.” (Orlova, 1998: 4). Russian civil code covers this, but not transactions of purchase and sales of rights. However, international law may not yet apply, because “The right to emit greenhouse gas is a new type of goods for the international trade practice and the respective market is still in the process of establishment” (Orlova, 1998:4). More study is needed on laws governing carbon futures contracts in Russia and Ukraine, and on the legal basis for international allowance trading in Ukraine as a whole.

### **Russian and Ukrainian Political Issues**

Ironically, certain political issues concerning the concept of trading are actually not as serious in Russia and Ukraine as elsewhere. Unlike a number of developing countries, both countries support the idea of full and free trading per se. However, there are some serious internal political issues that could hinder the efficient implementation of a trading or crediting system.

In Russia, territorialism among government agencies could prove to be a serious problem. Russia has both large sinks and significant emissions, and any national program designed to comply with the Kyoto Protocol will require input from a number of federal agencies. Currently, Russian experts envision that those agencies would include the State Committee for Environmental Protection, the State Committee on Statistics, the Ministry of Finance, the Ministry of Economy, the Ministry of Fuels and Energy, the Ministry of Transportation, and the Federal Forestry Service (Kuraev, 1998: 4). However, nine other agencies, research institutes, and non-governmental organizations participated in the Russian Country Study, and those groups are also seeking involvement. Furthermore, the Ministry of Economy has been involved in a World Bank Global Carbon Initiative short-term project to develop a national mitigation strategy through its Bureau of Economic Analysis.

The administrative issues in Russia have been complicated by recent reorganization at the

federal agency level. The Russian Federal Hydrometeorology and Environmental Monitoring Service (Hydromet), served for several years as the lead agency on climate issues and bi-lateral and multi-lateral climate negotiations. On April 30, 1998, Hydromet was folded into the State Committee for Environmental Protection by the presidential decree "On the Structure of Federal Executive Agencies" (Press, 1998) and the agency head (and lead climate contact) was made redundant. This will constitute a break in continuity in climate change leadership.

In Ukraine, several government agencies participated in drafting the National Communication to the FCCC, and the Country Study team involved members from the State Committee for Environmental Protection and Nuclear Safety, the Ministry of Forestry, and the State Committee for Energy Conservation. Research institutes and non-governmental organizations also participated in the country study, but to a lesser degree than in Russia.

### **Market Intervention**

A common element of implementation could threaten the efficiency of trading in both countries: interference in allowance or permits markets by the federal government. Theoretically, this is a possibility in any trading system. As one climate policy analyst writes, "Government might pursue such strategies to favor domestic interests against foreign rivals, to redistribute wealth within a country, or for other purposes that in practice conflict with the operation of the international climate treaty regime" (Wiener, 1997: 7).

Previous experience in energy, environmental, and land-use programs in Russia and Ukraine imply that the federal governments of both countries might attempt to mandate how and when trading takes place, or how allowances were distributed and used. Both countries have a strong tradition of command-and-control management, and the federal governments are still involved in private sector and market activities to a relatively high degree. It remains to be seen whether federal governments, who are the parties to the treaty and protocol, would be willing to relinquish their authority over allowances. Current federal spending programs in Russia and Ukraine indicate that federal governments would be unlikely to grant a great deal of autonomy to regional and local governments for high-priority projects.

### **Compliance**

Perhaps the most serious long-term obstacle is the threat of non-compliance by Russia or Ukraine, either in an interim trading system, or under a sanctioned international regime. Even a study that found high international compliance with legally binding commitments noted that "In Russia, the benefits of these commitments are not yet evident because many factors have impeded implementation" (Victor, 1997:2).

One example of how a non-compliance scenario might unfold would be a “Montreal Protocol” scenario. Although Russia ratified the Montreal Protocol, it was criticized last year for “operating entirely out of compliance with the Protocol's provisions,” (Ozone, 1997) and it was continuing to produce chlorofluorocarbons (CFCs) long after it was supposed to shut down production.

This non-compliance is not trivial on an international level; Russia currently produces approximately half of all CFCs (OVP, 1997). At a colloquium sponsored by the United Nations Environment Program, scientists cited this lack of compliance as a reason for their concerns that time frames for peak ozone layer depletion would have to be pushed back (Ozone, 1997).

Non-compliance problems have had an additional effect on the parties to the Montreal Protocol: they have required money to attempt to bring Russia into compliance. The United States in particular has worked with Russia for several years on compliance issues, and the U.S. government has contributed funds to a World Bank technical assistance program to help the Russians achieve their targets (OVP, 1998).

This is a potential threat to the Kyoto Protocol because strong incentives to comply are missing at two levels. First, there is no environmental law enforcement mechanism in either Russia or Ukraine that would allow their governments to keep private credit and allowance holders in compliance. While there are numerous strict environmental laws in both countries, countries lack the funds and the infrastructure to effectively enforce them. Even when courts are supportive of enforcement measures, they may never be enforced. For example, Ecojuris, a Russian environmental public interest law firm, won a court decision in 1993 declaring construction on a combined heat and power plant illegal. However, the regional government simply ignored the court decision and continued construction (SEU, 1995: 1). Under the current wording of the Kyoto Protocol, companies out of compliance will not incur any international penalties, because the only parties to the treaty are national governments.

The other enforcement lapse is at the international level. There are currently no provisions in the protocol that would force countries to be in compliance, and penalties for non-compliance have yet to be determined. Without strong international language that is enforced, there will be a strong temptation to sell allowances, but little incentive to actually reduce emissions.

### **System Transparency and Credibility**

Transparency would be a necessary condition for a carbon market, because international investors will seek assurance that their credits and transactions are real and above-board. This criterion is of particular concern in two countries where industries feel that their

financial status is confidential information. However, industries seeking to raise capital on foreign markets now realize that a full audit and financial reporting according to international accounting practices are necessary prerequisites for attracting investors.

Credibility is a closely related issue. Investors or allowance buyers want to know that the commodities and financial instruments that they purchase from a Russian or Ukrainian buyer are valid. Without this assurance, purchases become highly risky, and the market would lose liquidity. Bluntly put, corruption is a serious problem in both Russia and Ukraine. Even with third-party monitoring, there would be numerous opportunities for corruption in a carbon market. Serious changes to support the rule of law will have to take place in order to ensure that carbon products will represent legitimate holdings. Recent reviews have cited difficulties with recourse and dispute mechanisms, protection of shareholder rights, and other investor protections under the current legal systems in Russia and Ukraine (see Appendices).

The credibility of carbon allowances or credit might be enhanced by a guarantee fund managed by federal governments in Russia and Ukraine. The governments could establish a carbon reserve

fund that would be used to back transactions on an international market or set minimum reserve requirements for projects and interim trades.

### **Macroeconomic Difficulties**

Problems facing carbon trading and project investment for credits will not be markedly different from the problems facing any other types of trade and investment involving Russia and Ukraine. Currently, high interest rates and the low value of the ruble and the hryvnia are the biggest barriers to domestic investment. Other deterrents to investment include a lack of liquidity, non-payments, and high taxes. Domestic investors cannot afford to borrow capital at current market rates, and the low value of domestic currencies make foreign equipment and services prohibitively expensive. Foreign investors are deterred by the difficulty of obtaining loan guarantees and the expense of hedging project risk, political risk, and foreign exchange risk. Russia's recent de facto default on government bonds has only exacerbated this situation.

## RECOMMENDATIONS

Policy-makers can take concrete steps now to promote a system of trading that will provide spillover benefits to Russia and Ukraine, generate substantive reductions in emissions, and lower global costs of compliance with the Kyoto Protocol. They should consider the following strategies:

**1. Continue to press for international trading.** The United States should continue to work towards an international trading regime, both bilaterally with Russia and Ukraine and multilaterally through the G-8. Discussion of emissions trading was included in the Final Communiqué of the Birmingham Summit in May, 1998, and a number of preliminary discussions have been held through bilateral meetings.

The U.S.-Russian and U.S.-Ukrainian Climate Policy Working Groups might also be appropriate venues for discussing bilateral trade issues. Certain aspects of the market can be discussed now. For example, the United States could encourage Russia and Ukraine to appoint market administrators (similar to security and exchange commissions) that would eventually set allowances, govern trading, and coordinate enforcement.

**2. Ratify the Kyoto Protocol.** Ratification will be the strongest signal that the United States can send to potential allowance purchasers and investors. It would also boost the move towards a system of sanctioned trading that could supplant current “shadow trading” of carbon futures. Most importantly, ratification would generate domestic incentives for trading, creating buyers for Russian and Ukrainian emissions.

**3. Lobby for Early Reduction Credits for Annex I JI/AIJ.** The United States should push to resolve the inconsistency in the protocol between JI and the Clean Development Mechanism (CDM), which allows for early crediting of mitigation activities implemented in conjunction with developing countries. Article 6 does not allow early counting of reductions against the protocol commitments, although there have been suggestions from other umbrella group countries that this discrepancy be resolved (Lunde, 1998: 2). Early crediting for JI/AIJ could be achieved by including language used to describe this process for the CDM in Article 12, Section 10: “Certified emissions reductions obtained during the period from the year 2000 up to the beginning of the first commitment period can be used to assist in achieving compliance in the first commitment period.”

**4. Determine a Feasible Definition of Additionality.** The United States should work through the Conference of Parties to determine a solid definition of additionality as soon as possible, so that investors will have sufficient confidence that their projects will survive the scrutiny of the international monitoring body that is formed to monitor and verify project-based trading.

**5. Establish a Position on Trading Restrictions.** The United States should establish a position on trading restrictions that considers the political sensitivities of Russia and Ukraine on the issue of “hot air.” Steps toward this end might include the design of a debt for hot air swap (retiring debt for retiring carbon allowances) or the establishment of a reserve carbon fund for hot air used to back project-based credits.

**6. Test Umbrella Group Trading — in Russia, Ukraine, and Elsewhere.** Short-term crises in Russia and Ukraine suggest that other countries might be more promising markets for investment-related credits in the near term. Modeling exercises indicate that trading between developed countries can increase efficiency and lower permit prices, and the United States should explore trading possibilities with other umbrella countries where trade and investment regimes are more stable.

**7. Piggy-back on Existing Russian and Ukrainian Infrastructure.** One purpose of this paper is to give an overview of the wide variety of projects and infrastructure already in place in Russia and Ukraine that could potentially contribute to the development of a interim market for carbon. Pilot phase JI/AIJ projects, environmental monitoring systems, and no-regrets measures are only a few. Another area that has not been fully explored by climate policy researchers is the banking and investment infrastructure of the two countries. While current economic problems are overwhelming, the in-country finance community should be brought into a discussion of markets development. Both countries have debt and equity markets involving international participation in local and foreign exchanges, and this infrastructure should not be discounted. Piggy-backing on existing programs and infrastructure should also allow all parties involved to reduce the transaction costs involved in setting up a system.

**8. Continue to Press for Fundamental Economic Changes in Russia and Ukraine.** Recent U.S. assistance to Russia and Ukraine has focused on leveraging support for rule of law. Progress in this area may be the single largest catalyst for the development of a viable carbon market in these countries, because improvements would address first-order trading issues such as credibility and enforcement. A project-based system would also benefit by improved overall climate for foreign direct investment in both countries.

In the environmental arena, the United States should continue to foster systems promoting environmental law enforcement in Russia and Ukraine. Other federal governments in transition economies (notably the Czech and Polish governments) have instituted revolving funds and other programs that have markedly improved enforcement and overall environmental quality, and they can provide important lessons for Russia and Ukraine.

**9. Temper U.S. Hopes for Trading in Russia and Ukraine.** Unfortunately, the United States should assume that the costs of “doing carbon business” with Russia and Ukraine are higher than market-clearing models estimate. The United States is likely to incur high costs not just in establishing a program, but also in running it effectively and making sure that it

is in compliance. Non-market barriers are formidable, and addressing them will not be inexpensive.

There are two ways in which the U.S. government could reduce these costs in addition to recommendations made elsewhere in this paper. First, the current administration should bring U.S. export promotion resources into the discussion. The U.S. Export-Import Bank and the Overseas Private Investment Corporation (OPIC) have both professed a strong interest in making environmentally friendly portfolio investments, but they have yet to grant “climate friendly” loans or investment guarantees. Second, the U.S. government should consider using its bilateral agreements with Russia and Ukraine to promote climate-friendly trade and investment. For example, the U.S. Department of Energy signed a Joint Statement on Cooperation in the Development of Clean Energy Industries with the Russian Ministry of Fuels and Energy in July, 1996. Agreements like this could provide a framework for investment initiatives with climate benefits.

**10. Don’t Overlook No-Regrets Investments.** The United States should not neglect no-regrets investments in its attempts to promote trading. Strategic investments can have substantial benefits. For example, the Russian government has repeatedly mentioned district heating upgrades as a national priority. There are nearly 1,000 large systems with nearly identical layouts, and upgrading each system would reduce carbon emissions by an estimated 6 to 8 million tons annually, or 10 to 20 percent of Russia’s total anthropogenic greenhouse emissions (Avdiushin et al., 1998: 10). While Ukraine has fewer district heating systems, they serve a larger percentage of the population, and retrofits could provide proportionally larger emissions mitigation benefits. The Russian country study estimates that projects involving energy efficiency in all sectors could capture 460-540 million tonnes of carbon equivalent (CSPR 4, 1998: 16). Similar projects in Ukraine could capture 230 million tonnes of CO<sub>2</sub> and 5,000 tonnes of CH<sub>4</sub> (Rapsoun, 1998: 184).

Win-win projects do not require certification or a host country partner, but they could increase the number of allowances that Russia will have available to trade by lowering its emissions relative to the country’s 1990 baseline.

## CONCLUSION

It is possible to create a viable carbon market with Russia and Ukraine without the necessary preconditions for an international emissions trading regime in place. The most promising scenarios for creating this market include work with municipalities and upstream internal trading with carbon producers. The biggest obstacles include macroeconomic constraints and rule of law issues.

In any trading arrangement involving Russia and Ukraine, investors should be realistic about costs, even under full and free trading. While parties to the FCCC shouldn't write off Russia and Ukraine as partners in large-scale emissions trading, they should be aware that this type of trading may be more costly than estimates may imply. Pre-trade infrastructure assistance and post-trade compliance assistance will raise the true cost of trades. Furthermore, the costs of developing an infrastructure for the carbon market are not likely to be borne by Russia and Ukraine.

Despite serious economic and logistical challenges, it is critical to begin building an interim market as soon as possible. Programs now will influence future regimes for better or for worse. Referring to certification and monitoring, one review suggested that "Viable and legitimate systems created today, even if they are small, will become the de facto standard" (Joshua et al., 1998: 7). This might well be said of all parts of the process.

Furthermore, current activities will have another key benefit: they will build infrastructure and bring investment into the cash-strapped economies in Russia and Ukraine. The recent devaluation of the ruble means that projects with climate benefits will be more expensive and less profitable for domestic host country investors to undertake alone, and that domestic capital will be more scarce and less valuable. At the same time, the cost of mitigating carbon for U.S. participants in trading has just become less expensive.

Finally, a cautionary note: just as the United States stands to benefit from early action and cooperation with Russian and Ukraine, delays in substantive cooperation will be costly in more ways than one. Russia and Ukraine are in desperate need of assistance in the process of marketization and transition to a global economy. The costs of failure or inactivity in these areas are prohibitive.

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**APPENDIX 1:  
SUMMARY OF RELEVANT RUSSIAN  
COMMERCIAL AND LEGAL ISSUES**

*Excerpted from: FY 1998 Country Commercial Guide: Russia* (Report prepared by U.S. Embassy Moscow, released August 1997)

Russia has a body of conflicting, overlapping and rapidly changing laws, decrees and regulations which has resulted in an ad hoc and unpredictable approach to doing business. Independent dispute resolution in Russia is difficult to obtain; the judicial system is poorly developed. Regional and local courts are not accustomed to adjudicating either commercial or international matters, and they (as well as courts in Moscow) are often subject to political pressure.

Most Western attorneys still refer their western clients who have investment or trade disputes in Russia to international arbitration in Stockholm or to courts abroad. However, a foreign arbitration award can only be enforced in Russia if there is a reciprocal treaty between Russia and the country where the order was made, or, if no such treaty exists, if a Russian court reviews the procedures which led to the granting of the award and agrees that it was properly made and can be enforced. Enforcement in Russia of decisions reached by the Stockholm (or other) Arbitration Court continues to be contingent on support by Russian political authorities.

It is therefore worth considering the alternatives available in Russia. One choice is the Arbitration Court of the Russian Federation, which is part of the court system. It has special procedures for seizure of property before trial, so property cannot be disposed of before the court has heard the claim, as well as for the enforcement of financial awards through the banks.

Additionally, the International Commercial Arbitration Court at the Russian Chamber of Commerce and Industry will hear claims if both parties agree to refer disputes there. Applications can be made by parties to foreign trade agreements and by companies with foreign investments.

The weakness in the system is in enforcement of decisions. In one case, for example, after two years of successful Russian litigation with repeated favorable decisions and court orders for financial restitution, a foreign investor continues to await compensation from its former joint venture partner. All awards and orders are enforced by the officials of the district court

whose procedures have not been modernized to take account of changes in business. There is hope that a draft law on enforcement will result in more effective litigation. Russia is a member of the International Center for the Settlement of Investment Disputes and accepts binding international arbitration.

## **Protection of Property Rights**

The constitution and a presidential decree issued in 1993 give Russian citizens general rights to own, inherit, lease, mortgage, and sell real property (usually not including the land on which it stands); however, legislative gaps and ambiguities impede the general exercise of these rights. Russia does not yet have a land code to regulate land use and ownership. Thus far, Russian law and practice appear to restrict or prohibit foreigners from owning real estate. The presidential decree of 1993 gave joint ventures with foreign participants the right to own real property, and a privatization decree issued in the summer of 1994 permitted foreign owners of privatized companies to receive title to enterprise land; however, such rights have not been codified and legislation regulating land use currently being considered by the Duma would likely prohibit foreigners from owning land. The rights of Russian citizens to own and sell residential, recreational, and garden plots is clearly established with over 40 million properties of this type under private ownership. Although a presidential decree in the spring of 1996 permits the ownership and sale of land, including agricultural land, the Duma maintains that the decree is not constitutional. Uncertainty about more general rights to land title and mineral rights will persist until the Duma adopts clear and comprehensive legislation to regulate land use and ownership.

## **Capital Markets and Portfolio Investment**

Russia has moved a long way very quickly to establish an operational capital market. In 1996 securities legislation was adopted to create a legal infrastructure for the securities activities overseen by the Federal Commission for Securities Market (FCSM). The FCSM has been active in overseeing the development of the market, issuing regulations for the licensing of professional securities activities, establishing regional offices, and educating the public about securities activities. The Joint Stock Companies law, which took effect in 1996, introduces a number of requirements in the areas of shareholders' rights, corporate governance, and shareholders' registries. With the legal framework in place, increased attention is turning to the enforcement of these new regulations and laws.

Securities trading activities have substantially increased in 1996-1997. The introduction of the "S-accounts" and reduction in restrictions in non-resident purchases of Government short-term securities has resulted in a significant recorded foreign investment in these instruments. Total market value of T-bills and bonds (GKOs and OFZs) rose from R96 trillion at the end of March 1996 to R252 trillion at the end of March 1997.

Market capitalization and the trading volume of equities also has increased during 1996-97. Over the last year, market capitalization of stocks in the Moscow Times index has more

than doubled to reach nearly \$50 billion. Weekly trading volumes on the Russian Trading System have about tripled from December 1996 to May 1997. However, the continued absence of a "delivery versus payment" settlement system and tax issues have resulted in much of the trades being settled off-shore. In March 1997 MICEX initiated a new exchange-based trading system in a few, select equities that provides a delivery-versus-payment system.

**APPENDIX 2:  
SUMMARY OF RELEVANT UKRAINIAN  
COMMERCIAL AND LEGAL ISSUES**

**Excerpt from *Ukraine Country Commercial Guide, Chapter VII: Investment Climate*** (June 1997) published by the International Trade Administration, U.S. Department of Commerce.

**D. Dispute Settlement**

As the number of foreign investments has grown over the past two years, so too has the incidence of disputes. The Embassy has been involved in numerous advocacy cases on behalf of American investors who have been the victims of a variety of abuses, including overzealous tax collection, sudden and drastic tariff hikes, abrogation of valid contracts and licenses, and outright corruption.

At the heart of the current disputes is the lack of transparency in Ukraine's business environment, the problem of authority (or lack thereof), and non-implementation of decisions. Ukrainian laws and regulations are vague and open to considerable leeway in interpretation, providing ample corruption opportunities for officials at every bureaucratic layer. Xenophobic attitudes, especially at the regional level, also play a role as foreign investors are all too often seen as competitors of local firms and their government "sponsors." There is widespread recognition in both the diplomatic and business communities that key policy makers in Kyiv (President Kuchma, Reconstruction and Development Agency Chairman Shpek, and Minister of Foreign Economic Relations Osyka are usually mentioned) are aware of the problems and are sensitive to the needs of foreign companies. The difficulty lies in the relative independence of action of the middle levels of the bureaucracy. There are simply too many officials, both in the various layers of government and at the enterprise level, who have a strong, vested interest in the status quo and see foreign firms as a threat to their current positions.

A common thread that has emerged in several investment disputes involving U.S. companies is worth noting. In these cases, American firms, which have operated for several years in joint ventures with a Ukrainian firm, experience difficulties once the JV starts showing a profit. Once it becomes clear that the firm has established itself on the Ukrainian market, the Ukrainian partner attempts, through various illegal or semi-legal means, to force the American partner out of the deal. The Ukrainian partner continues operations using the JV company name, product brand names, logo, and other intellectual property, sometimes resorting to threats of physical violence toward the former partner if the partner does not "go away."

**Commercial Arbitration** In February 1994, Ukraine enacted an international commercial

arbitration law. The law parallels commercial arbitration laws set forth by the United Nations Commission on International Trade Law and is therefore in accordance with international standards. The law covers a wide range of international commercial transactions, reflects the principles of equality and fair treatment of parties, provides for a supportive relationship between the courts and arbitration tribunals, and includes basic provisions for the functioning of arbitration proceedings where the parties themselves have not made necessary provisions.

- according to Ukraine's law on foreign investment, disputes between U.S. investors and the state are to be considered by Ukrainian courts of arbitration.
- Ukraine is a member of the New York Convention of 1958 on the recognition and enforcement of foreign arbitral awards.

Dispute settlement remains weak in Ukraine. Local and national courts provide for a burdensome and highly unpredictable arbitration system. Even when U.S. firms have received favorable rulings from Ukrainian courts, there is rarely any effective mechanism in place to enforce the decision. The only proven method to date for the settlement of investment disputes has been Embassy appeal for intervention at the highest levels of government-- clearly not a viable long-term solution.

- the government is in the process of writing a modern Commercial Code and the Parliament recently passed a revised Bankruptcy Law, but much work still needs to be done in both areas.

## **F. Right to Private Ownership and Establishment**

The recently adopted Constitution of Ukraine (June 28, 1996) guarantees the right to private ownership, including the right to own land. In addition, Ukraine's law on ownership, which was one of the country's first major parliamentary measures, specifically recognizes private ownership and includes Ukrainian residents, foreign individuals, and foreign legal entities among those entities able to own property in Ukraine. Moreover, the law permits owners of property (including foreign investors and joint ventures) to use such property for commercial purposes, to lease property, and to keep the revenues, profits, and production derived from its use. The law on ownership does not, however, establish a comprehensive regime regulating the rights of ownership and the mechanisms for their transfer. Some difficulties have also arisen over foreign acquisition of majority control of enterprises, with the government or the current management continuing to exercise effective control or veto power over company decisions.

## **G. Protection of Property Rights**

Issues relating to the ownership, use, and disposal of rights and interests in land are regulated by the Land Code of Ukraine, adopted in 1992. The Land Code recognizes three forms of ownership of land: state, collective, and private; it provides that all three forms are

equal in force and effect before the law. Under the Land Code, the right to private ownership of land may be granted only to citizens of Ukraine and for the limited purposes of the construction of private residences and for agricultural subsistence. Under the Land Code, legal entities (resident and non-resident) cannot own land in Ukraine, but may possess land on the basis of either lease rights or rights to the use of land (the latter is related to foreigners).

Like the Law on Ownership, the Land Code is primarily concerned with proprietary relationships between various levels of state administration and collectives, especially with respect to agricultural and industrial land. The disposal of land is carried out by state bodies, either at the municipal or oblast (regional) level, which grant land use primarily to other levels of government administration, state-owned enterprises, or to collective associations or enterprises.

Ukraine has already established a comprehensive legislative system for the protection of intellectual property rights. Since 1993, Ukraine has enacted five intellectual property rights (IPR) laws covering inventions, industrial designs, trademarks, plant varieties, and copyrights. Ukraine is a member of several major international organizations, including the World Intellectual Property Organization (WIPO), the Uniform Commercial Code (UCC), the Berne Convention on Protection of Literal and Artistic Production, the Plant Variety Protection Agreement and, most recently, the Trademark Law Treaty. Ukraine also has bilateral agreements that cover IPR with the European Union, Switzerland, and several countries in the former Soviet Union.

Ukraine is a successor state to many of the conventions and agreements signed by the former Soviet Union. Ukraine is a member of the International Copyright Convention (Geneva, 1952). In August 1995, the Ukrainian government adopted the Paris Convention for the Legal Protection of Industrial Property (March 2, 1883; amended in 1967 and in 1979); the Madrid Agreement on the International Registration of Marks (April 14, 1891; amended in 1967 and 1979); and the Agreement on Patent Cooperation (June 1970; amended in 1979 and 1984).

- although Ukraine is committed legislatively to the protection of intellectual property, enforcement remains severely inadequate.
- Ukraine is not on the Special 301 Watch List or Priority Watch List, nor is it identified as a priority foreign country.

Ukrainian legislation does not provide for any criminal sanctions, except for violations of trade secrets. Administrative liability, in the form of fines and/or confiscation of products, equipment, and raw materials, may be sought in the event that an infringement of intellectual property rights is accompanied by unfair competition on the part of the infringer.

## **I. Efficient Capital Markets and Portfolio Investment**

Ukrainian capital markets are poorly developed and lag some of the government's other economic reforms. Development of efficient capital markets has been a primary area of emphasis of international assistance, including from the U.S. As of April 1996, the banking system consisted of 218 banks with 2,361 regional and local branches. According to the Association of Ukrainian Banks, as of October 1, 1996, Ukrainian commercial banks had a total cash balance of hryvnia (HRV) 19.9 billion (\$11.2 billion), with working assets amounting to 38.5% of the total cash balance. The banks with the largest working assets were Ukrayina Bank (HRV 1.48 billion), Ukrsotsbank (HRV 1 billion), Savings Bank (HRV 0.93 billion), Privatbank (HRV 0.69 billion), and Aval Bank (HRV 0.46 billion).

Foreign banks have been slow to enter Ukraine. Credit Lyonnais (France) began full banking operations in 1994. Seven other foreign banks have opened representative offices: Deutsche Bank, Dresdener Bank, Commerzbank, Westdeutsche, Banque de France, Magyar Kulkereskedelmi Bank, and Banque de Caire. There are currently no U.S. banks in Ukraine.

Banking laws enacted in 1996 required banks to have a capital base of ECU 500,000 (\$700,000) by January 1, 1997. According to a Parliament (Rada) expert, only 14 of the nation's commercial banks had an adequate capital base to meet this requirement as of Spring 1996. A major consolidation of the banking system during 1997-98 may therefore occur. Ukraine's commercial banks are not a major source of investment funds, either for domestic or international investors; most loans are for a term of 90 days or less.

In June 1991, the Parliament of the then Ukrainian Soviet Socialist Republic approved a Law on Securities and the Stock Market, which marked the birth of a Ukrainian capital market. The Law outlined the existence of the following types of securities: stocks (registered, bearer, preferred, and common), government securities, general obligations/bonds, corporate bonds, savings certificates, and promissory notes. Later decrees and amendments adopted from 1991 to 1995 added bond coupons, loan certificates, bank orders, savings books, and privatization certificates.

The development of capital markets will be crucial once the first wave of mass privatization, begun in 1995, is completed.

Former State Property Fund (SPF) Chairman and current Economics Minister, Yuri Yekhanurov, publicly stated that given the implementation of mass privatization, a depository, clearing, and settlement system urgently needs to be created. U.S. assistance is helping in this effort.

The Ukrainian Stock Exchange (USE) was founded by the Ukrainian Ministry of Finance and ten commercial banks in March 1992. Trading began with the sale of shares in commercial banks, as well as seats on the exchange itself. Due to the slow pace of

privatization, however, trading remains very weak, with total 1994 securities turnover estimated at about 50 billion Ukrainian karbovantsi (about \$333,000). The exchange trades shares of less than ten banks, with emphasis on Ukrichflot (Ukrainian River Fleet Company) and Bank Ukraina (formerly a state agro-industrial bank). In addition to the few Ukrainian shares, several Russian shares are also offered on the USE.

The Ukrainian government initially considered having a centralized stock exchange system centered around the exchange. However, other smaller regional exchanges have been set up in the Republic of Crimea, Kharkiv, Donetsk, and other cities.

Although these exchanges ensure that the USE will not monopolize the market, they are engaged in even less trade than the Kyiv-based exchange. An unregulated over-the-counter market also has been created.