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**Joint Implementation Under the Climate Convention:  
Promises and Problems**

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**Prepared for the White House Conference on Global Climate Change  
June 10-11, 1993**

Donald M. Goldberg

The term joint implementation was coined during the negotiation of the Framework Convention on Climate Change (FCCC) to refer to a strategy for meeting GHG emissions reduction commitments undertaken by one country through actions in another. Since only developed countries and countries with economies in transition have specific obligations to reduce GHG emissions under the FCCC, it is these countries, and particularly the 24 OECD countries, that can be expected to initiate joint implementation projects.

In theory, joint implementation might reduce the costs of meeting specific GHG emissions reduction targets by enabling developed countries to take advantage of cost-effective emissions-reduction or sink-enhancement strategies in less developed countries. In practice, however, joint implementation raises serious issues of fairness, practicality, and efficiency that well might outweigh any benefits that would be achieved. This paper discusses a number of these issues in terms of the commitment made by President Clinton during his Earth Day speech.

1. **Joint implementation could prevent the U.S. from meeting its commitment to return its emissions to 1990 levels.** President Clinton has committed to "reducing *our* emissions of greenhouse gases to their 1990 levels by the year 2000" (emphasis added), with further reductions after 2000. However, if the U.S. relies on joint implementation to meet this commitment, U.S. emissions will not return to 1990 levels and may continue to increase. This will send a message to other parties, especially developing countries, without whose participation long-term abatement strategies will not succeed, that the U.S. is not serious about controlling its greenhouse gases (GHGs).

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Dear Sir,

I have the honor to acknowledge the receipt of your letter of the 10th inst. in relation to the above mentioned matter.

The same has been referred to the proper authorities for their consideration and they will be glad to advise you of the result of their deliberations.

I am, Sir, very respectfully,  
Yours truly,  
[Signature]

Very truly yours,  
[Signature]

Returning U.S. emissions of GHGs to 1990 levels is a modest goal, which many studies have shown can be achieved at little or no cost and perhaps even at a net gain. The U.S. has many options for reducing its emissions, including industrial efficiency programs, improved standards for buildings, improved public transportation, and programs to increase vehicle fuel economy and reduce vehicle miles travelled. In addition to safeguarding the environment, many of these strategies would protect public health and reduce our dependence on foreign oil.

Joint implementation may have a place in a comprehensive long-term strategy to substantially reduce emissions. *But as long as countries limit themselves to the modest goal of stabilizing emissions at or near present levels, joint implementation has no legitimate role to play.*

**2. Joint implementation will not necessarily promote cost-effectiveness.** The principle justification for joint implementation is that it would provide a more cost-effective means to attain specific emissions reduction goals. Even assuming, however, that lower cost projects can be identified and implemented outside national borders, overall cost-effectiveness is not guaranteed. In the first place, costs incurred early on will probably be "inframarginal," meaning that more expensive strategies will eventually have to be employed to achieve the objective of the FCCC. This is likely to be true even if all emissions abatement takes place within the developed countries. As noted above, these countries have many cost-effective options available to them within their own borders.

Reliance on joint implementation to meet the U.S. commitment could actually make future abatement strategies more expensive. To the extent the U.S. meets its commitment through actions in other countries, its emissions will not return to 1990 levels and may continue to increase, locking the U.S. into additional investments in inefficient technologies that would make it more difficult and costly to meet future emissions reduction targets.

Joint implementation does not account for many of the costs associated with high energy consumption. To ensure real cost-effectiveness, it would be necessary to factor in such externalities as health problems and loss of amenities resulting from air pollution and costs associated with reliance on foreign oil, including, for example, the costs of defending the Persian Gulf. Parties to a joint implementation project should be required to demonstrate that the project will be cost effective with all external costs taken into consideration. To this end, *parties should be required to conduct an environmental impact assessment to identify all external costs associated with joint implementation projects. Parties should also be required to show that joint implementation projects are more cost-effective than opportunities available at home.*

**3. Criteria for joint implementation projects have yet to be developed.** Many questions about joint implementation — what types of projects are eligible?, who will approve projects?, how will they be monitored? — remain to be settled. The FCCC calls for the Conference of the Parties (CoP) to "take decisions regarding criteria for joint implementation" at its first session, not expected to occur until 1995. For FCCC



purposes, joint implementation projects undertaken prior to development of criteria by the CoP can only be regarded as demonstration projects, intended to help determine the feasibility of joint implementation. If the commitment articulated by President Clinton is intended to fulfill the U.S.'s obligations under the FCCC, *it would be inconsistent to include joint implementation in the U.S. mitigation plan until a full set of criteria has been developed and adopted by the FCCC CoP.*

**4. Emissions reductions in the "host" country must be demonstrable.** Among the criteria that must be developed by the CoP are methods for demonstrating that projects will achieve real emissions reductions. This will probably require monitoring of projects to ensure that anticipated emissions reductions are actually achieved, not only at the start of the project, but in later years as well. In some cases, the amount of reductions may be difficult to determine, even with monitoring. *In such cases, the donor country might receive only partial credit for the project.*

An emissions baseline and an emissions target must be established for the "host" country, as well as for the "donor" country. Without these, there is no way to measure net abatement. It would be very difficult to demonstrate, for example, that a particular project in a developing country would not have been undertaken without joint implementation. In short, it would be impossible to prove that emissions reductions credited to the "donor" country would not be negated by future emissions in the "host" country.

**5. Joint implementation could serve as a negative incentive to developing countries.** Joint implementation projects undertaken before developing countries adopt their own targets could serve as a disincentive to their adopting such targets in the future. Projects for which a donor country receives credit could not also be counted toward meeting the host country's future target, since that would entail "double counting." Thus, such projects would make it more difficult for the host country to adopt and meet its own future target. Conversely, the more stringent the host country's target, the fewer emissions reduction credits it will have available to "sell."

Not only will there be fewer abatement opportunities remaining to the host country when it seeks to adopt its own targets, but those that remain will be the most expensive. The whole point of joint implementation is to identify and utilize the most cost-effective abatement strategies. The perverse result may be that the richest countries get credit for the cheapest strategies, while the poorer countries are left with the most expensive.

Even more perverse is the incentive joint implementation would provide to have lax environmental standards in developing countries. Lax standards could make it cheaper for industries to operate and attract more joint implementation projects. Lax energy policies would also ensure that there are more emissions available for sale. *As part of its criteria, the FCCC CoP should set minimum standards for environmental policies in host countries.*



6. **Joint implementation could create a disincentive for developed countries' to contribute to the GEF.** Under the FCCC, developed countries are required to provide new and additional financial resources, through the Global Environmental Facility (GEF), to help developing countries undertake measures to mitigate climate change. Under this arrangement, the donor country would not receive any credit towards meeting its own FCCC emissions abatement obligation, whereas it could undertake the very same project and receive credit under joint implementation. Since the FCCC does not specify how much, or in what proportion, developed countries will contribute to the GEF, there is an incentive to undertake joint implementation instead of contributing to the GEF. *One way to address this problem would be to make the amount of money a developed country may spend on joint implementation proportional to the amount it must contribute to the GEF.*

7. **Sinks and offsets.** It has often been suggested that the most cost-effective approach to dealing with GHG emissions is to offset them by enhancing sinks and reservoirs, notably forests and oceans. Options that have been discussed range from the sublime to the bizarre — from reforesting much of the earth's surface to fertilizing the oceans with iron filings to promote algae growth. Even more conservative approaches to sequestering carbon and other GHGs by enhancing sinks pose difficult problems, however.

The most widely discussed approach to sequestering GHGs is to increase forest cover and, in particular, to slow or reverse the rate of tropical deforestation. Utilities in the U.S. have already utilized tropical forest protection to offset new sources of emissions. While there are obvious benefits to protecting tropical forests, there are clear pitfalls. First, of course, is the problem of determining whether protection is actually taking place. A host country might agree, for example, to protect one tract of forest only to shift logging operations to another. This type of "shell game" would make monitoring and enforcement very difficult.

Another important consideration is that a stand of trees does not a forest make. Industries and governments have already shown a propensity for replacing primary forest with mono-culture tree farms. It is imperative that this not be done in the name of carbon sequestration. *If forest protection or enhancement is to play a role in joint implementation, it must cover large enough tracts to discourage "shell games," and must only apply to preservation or enhancement of biologically diverse natural forest.*

## **Conclusion**

Joint implementation may have a place in a comprehensive long-term strategy to substantially reduce emissions of GHGs. But many problems would have to be resolved and a number of safeguards enacted before any joint implementation projects are undertaken. In this regard, this paper recommends the following:

1. Joint implementation should only be used to achieve emissions reduction goals that go well beyond mere stabilization. As long as countries limit themselves to the





modest goal of stabilizing emissions at or near present levels, joint implementation has no legitimate role to play in preventing global warming.

2. Criteria must be developed and adopted by the FCCC CoP before any joint implementation projects are undertaken.
3. Parties should be required to conduct an environmental impact assessment to identify all external costs associated with joint implementation projects.
4. Parties should be required to show that joint implementation projects are more cost-effective than opportunities available at home.
5. In cases where the achievement of emissions reductions in the host country is speculative, the donor country should receive only partial credit for the project.
6. Host countries must meet minimum standards for environmental protection. The FCCC CoP could set such standards as part of its joint implementation criteria.
7. The amount of money a developed country may spend on joint implementation should be proportional to the amount it must contribute to the GEF.
8. If forest protection or enhancement is to play a role in joint implementation, it must cover large enough tracts to discourage "shell games," and must only apply to preservation or enhancement of biologically diverse natural forest.



# Energy, Economics and Climate Change®

UPDATE ON ENERGY POLICIES & ECONOMIC STUDIES, FROM CUTTER INFORMATION CORP.

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## Feature Report

**page 2 ... US Considers "Joint Implementation" Options for August Plan.**  
With an upcoming major international meeting and release of its plan to reduce greenhouse gas emissions, the Clinton administration must decide whether to permit the use of foreign offsets for domestic emissions and allow domestic emissions to remain above 1990 levels.

## Joint Implementation: Pro and Con

**page 8... Goldberg: US Should Meet Its Year-2000 Goal Without Joint Implementation.** Donald M. Goldberg, of the Center for International Environmental Law, argues that the US commitment to reduce greenhouse gas emissions to 1990 levels by the year 2000 should be met solely by limiting emissions within US borders. He believes the US should not use joint implementation projects to meet the commitment.

**page 9... Trexler and Kosloff: US Should Encourage Foreign Offsets to Meet Year-2000 Emissions Goal.** Mark C. Trexler and Laura H. Kosloff, of Trexler and Associates, argue that projects in other countries can and should be used to help offset US emissions and meet its year-2000 goal.

**page 11... Rebuttals.** Goldberg and Trexler/Kosloff rebut each others' arguments.

## Externalities Watch

**page 12... Consumer Energy Council Issues Report on Externalities.**

The Environmental Externalities Project of the Consumer Energy Council of America Research Foundation has issued a report on the incorporation of environmental externalities in utility planning. The report reflects "serious attempts to reach a consensus on as many issues as possible" among a diverse 50-member advisory committee.

## Taxes and Subsidies

**page 13... Report Estimates Federal Energy Subsidies of \$36 Billion in 1989.** While the attention of politicians in Washington has been focused on energy taxes, the Alliance to Save Energy released a report on federal energy subsidies. It claims that 1989 energy subsidies were around \$36 billion, which far exceeds the annual revenues that might have been expected with even the highest of the energy taxes considered by legislators.

## New Reports

**page 14... IPSEP Publishes "Consumer's Guide to Greenhouse Costing Studies."** Frustrated supporters of energy taxes to discourage fossil fuel use will find solace in a report issued by the International Project for Sustainable Energy Paths. In *Cutting Carbon Emissions: Burden or Benefit*, Florentin Krause et al examine 12 major studies on carbon emissions.

## News Briefs

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## Feature Report

### US Considers "Joint Implementation" Options for August Plan

"We have an image of the world carbon police — 100,000 people in black uniforms operating out of Geneva — rushing about, doing audits and imposing fines. This is not a very attractive image, not very attractive politically in this country, even less attractive in the Chinas, Indias and Brazils of this world. But absent something like that — absent a huge international enforcement bureaucracy — what do we do?"

The words were spoken by Bill Nitze of the Alliance to Save Energy (Washington, DC). The question dramatizes one of a set of issues Nitze believes must be adequately addressed before what he termed "a world system, a world strategy" can be established to successfully reduce greenhouse-gas emissions. The specific issue his question addressed was enforcement: How will obligations to reduce emissions be policed?

There is only one palatable alternative to an intimidating, centralized, global authority, Nitze said. It is a system of "self-policing" with authority broadly distributed at all levels, from international to local. Such a system is not easily established, Nitze said. It will require "some real thought beforehand" and a "very substantial front end investment." Nitze expressed similar thoughts about ten other key issues that he said must be addressed before an efficient international system to curtail emissions can be established. The problems will "take some time, and we are going to have to have some intermediate stages."

The context for Nitze's comments was a Workshop on Joint Implementation (JI), one of nearly a dozen workshops conducted during the recent White House Conference on Global Climate Change, held in Washington, DC, on 10-11 June. "Joint implementation" is a term derived from the Framework Convention on Climate Change (see box on page 7). The expression refers to arrangements allowed by the Convention in which one country partly meets its commitment to reduce its own net greenhouse-gas emissions by instead reducing net emissions in some other country.

Joint implementation has become a controversial and divisive issue, but despite its importance there has been little press coverage of the workshop devoted to it, and the White House has not made transcripts of the discussions available. We are therefore devoting much of this issue of *EECC* to the questions raised during the workshop, and the views of key participants.

The White House invited Nitze and more than 30 other participants to contribute to the JI

workshop. None disputed the long-term importance of JI under the Climate Change Convention. As Nitze initially said at the workshop, "It is obvious that a lot of the most cost-effective mitigation programs that can be instituted lie outside the US, particularly in Eastern Europe and the developing world." But as his above comments on enforcement and other issues suggest, he believes a lot of time and effort will be required before JI projects can be heavily relied upon to offset emissions from the US or any other country.

At the same time, Nitze believes that the US commitment for the year 2000 is achievable without joint implementation. He said that "removing 100 or even 200 million [metric] tons [of carbon] from our domestic inventory between now and 2000 is a very achievable task at reasonable cost." Nitze emphasized that "there is no substitute for US leadership," and that this required that the US "put some flesh on those bones with respect to a viable domestic program." He warned of serious political fallout if the US relied much on JI projects to meet the year-2000 goal. International problems could develop right about the time the plan is released, when US officials attend the 8th Session of the Intergovernmental Negotiating Committee (INC) for the Convention, which will occur on 16-27 August in Geneva, Switzerland.

"If you go to Geneva in August and suggest to China and India and Brazil that 'well, yes, we sort of like joint implementation and we have this political plan, but you see we have this clever way of achieving part of our goal in your country,' I think you are going to stir up a hornets' nest," Nitze said. "I think your political credibility is going to be questioned, and I think the whole concept of joint implementation is going to be at a risk of being discredited."

The stand taken by Nitze, which was shared by several other workshop participants, strongly differed with the positions taken by others who asserted that the US cannot easily meet the year-2000 goal with cuts only in domestic net emissions, and that JI will be essential if the goal is to be met at an acceptable cost. Roger F. Naill

of Applied Energy Services, Inc. (Arlington, Virginia) warned against confining options to those which constrain domestic US emissions. "If we do that," he said, "it's a regulatory solution and we're guaranteed then to come up with the most expensive way to solving the carbon problem."

"I only ask you, plead with you, not to do that," Nail told administration officials at the workshop. He urged them to develop a system that keeps "an open door" to joint implementation and that encourages people to "go crazy about being creative about the solution." If that is done, he said, "I'd just be willing to bet you'll be pleasantly surprised at the outcome."

### **Joint Implementation, the August Plan, and the Climate Convention**

The rapid rise in the prominence of JI issues in the US is fueled by activities related to two events in August. One is the INC meeting. At this and subsequent meetings, the INC will discuss JI issues in order to set the stage for the first session of the Climate Change Convention's "Conference of the Parties" in late 1994 or in 1995. According to the Convention, the parties at their first session must "take decisions regarding criteria for joint implementation."

A second important August event will be the release of the Clinton administration's so-called "August Plan." President Clinton on 21 April announced a US commitment to "reducing our emission of greenhouse gases to their 1990 levels by the year 2000" and to producing "a cost-effective plan by August" — a deadline set to coincide with the INC meeting.

The coincidence underlines the connections between the Clinton commitment and the obligations that the US accepted when it ratified the Climate Change Convention. But from the time Clinton first made his commitment, the administration has sought to distinguish between its year-2000 goal and US treaty obligations. As one senior administration official told *EECC*, "this is really going to be a domestic policy initiative ... there is no official connection with our obligations under the treaty." Secretary of Energy Hazel O'Leary said in a 29 June Senate hearing that "targets and timetables were not linked in Rio, and the 1990 goal was the President's. It represents a big leap from the US commitment to Rio."

Nowhere in the President's 21 April commitment to reduce emissions and produce the August Plan did he establish a link to the Climate Change Convention. His April commitment can-

not therefore be construed in itself as a shift from the US interpretation of the Convention articulated by the Bush administration. When President Bush submitted the Convention to the Senate for ratification, he included an article-by-article analysis prepared by the State Department that said that the Convention's reference to "the aim of returning" emissions to 1990 levels "does not create a legally binding target." While Clinton's April speech clearly committed the US to reducing its emissions to 1990 levels by 2000, he left intact the interpretation that the Convention does not require the US to do so. In contrast, some parties to the convention (including members of the European Community) maintain that the convention requires developed countries to reduce emissions to 1990 levels by 2000.

The distinction between Clinton's April commitment and US obligations under the Convention is further reinforced by the way the administration officials have defined the August Plan. The Convention (Articles 4 and 12) requires that each of its parties provide to the Convention's "Conference of the Parties" general descriptions "of steps taken or envisaged by the Party to implement the Convention." This "national action plan" is not required until six months after the Convention has entered into force, so the US probably will not have to produce it any earlier than late 1994. US officials have said that the August Plan constitutes an important early step in the development of the US national action plan, but they have repeatedly emphasized that the two plans are not one and the same.

These distinctions are important insofar as joint implementation is concerned. They allow the Clinton administration considerable latitude in its policies regarding the use of foreign offsets in meeting its year-2000 goal. Since both the year-2000 commitment and the August Plan fall outside the Convention, the US in theory may independently decide whether and under what conditions foreign offsets can be applied toward its national year-2000 goal.

Some people do not recognize or accept the administration's distinction between its domestic commitment and the US treaty obligations. Even if the US, nevertheless, maintains that distinction and independently allows JI projects to contribute to the year-2000 goal, it may later encounter problems in using those same offsets to meet its obligations under the Convention. This could occur if the JI criteria eventually developed under the Convention differ markedly from those

developed by the US and applied to projects that help meet its year-2000 goal. It is therefore in the interest of the US to coordinate as closely as possible the development of JI criteria for its year-2000 commitment with the development of JI criteria under the Convention. Given the importance of such coordination, the administration will undoubtedly push hard for progress on JI criteria in the August INC meeting.

With both the release of the August Plan and the next INC meeting in mind — and with many issues needing to be addressed prior to those milestones — the White House convened its June Conference on Global Climate Change. The White House told participants that the conference was “to consider options that reduce emissions in the year 2000 and beyond, not to revisit the commitment set by the President, projected baselines, or concerns related to the Climate treaty itself.” On the first day, after a brief afternoon plenary session, participants broke up into workshops. According to a written statement welcoming participants to the conference, the workshops were “designed to provide an opportunity for the exchange of ideas between the [administration’s] Working Groups and interested stakeholders from industry, state and local governments, workers, environmental organizations, academics and Congress.”

In a two-page “focus paper” on JI that the administration distributed to the JI workshop participants, officials said “it would be premature to speculate on exactly what role JI will play in the August Plan. No decisions have been made regarding to what extent, when, or how joint implementation efforts could or should be taken into account in the context of a domestic greenhouse gas reduction commitment.” In addition to noting that the workshop would contribute information directly to the administration’s efforts to develop the August Plan, the paper emphasized that it would help the administration prepare for the INC meeting.

### **Workshop Starts with Review of Existing Offset Projects**

During the first afternoon’s workshop session, participants focused on the actual experiences people already have had with foreign offset projects. Several of the participants presented overviews of projects they are involved with. Dan C. Delurey of New England Electric discussed a three-year forestry pilot project that his utility is sponsoring in Malaysia. He said the project, now

one year old, will offset 300,000-600,000 metric tons of carbon at a cost of roughly \$1/metric ton.

While such inexpensive projects are limited in number, Delurey said that “there are a lot of offsets out there in the \$2/metric ton range.” He estimated that New England Electric’s commitment to reduce emissions 20% by 2000 would lead to an increase in rates of only 3% if it could be done entirely through offset projects at \$2/metric ton of carbon. In closing, he argued that “international offsets should be available, should be part of the process, and that programs should be put in place to facilitate that.”

Roger Nail of Applied Energy Services (AES) followed with a discussion of AES’s offset program. His company, an independent power producer with 1,822 Mwe of total capacity, has three forest offset projects. Nail explained that AES “couldn’t pass on the costs of these programs to [their] customers” and therefore the costs “had to be in the noise.” AES defined that level as 1% of its capital costs for each of the plants for which it wanted offsets. For one of its plants, a 180 Mwe coal-fired unit, this worked out to be \$0.10/metric ton of carbon. Nail claimed that “if you rule out joint implementation, if you don’t allow us to operate abroad, you roughly increase the costs of offsets by a factor of seven.”

AES was assisted in its offset program by the World Resources Institute (WRI) of Washington, DC. Paul Faeth of WRI described the methods it used to solicit and evaluate offset proposals, and summarized the lessons it has learned from the experience. Among these, an issue raised by Nail and by others at the conference, is that “it is difficult to quantify the project benefits with confidence.” Another lesson Faeth cited was that many of the most difficult obstacles to offset projects are institutional, and will require time-consuming educational, training, and administrative improvements to remove.

Dale Heydlauff of the American Electric Power (AEP) Services discussed projects AEP is involved with. With 24,000 Mwe of capacity, AEP is one of the largest electric utilities in the US. Heydlauff mentioned that AEP is pursuing several generation, transmission, and distribution projects in Pacific Rim countries. “In each instance,” he said, “the generation plants that we would build would be moderately more efficient than those that would otherwise be built by the host nation.” Heydlauff argued that the higher efficiencies of such projects “is a key means of constraining the growth of GHG [greenhouse gases].”

Richard H. Chastain of Southern Company Services (Birmingham, Alabama) mentioned similar opportunities to reduce emissions in Eastern Europe and Russia. Heydlauff warned the administration that the challenges of JI "should not be underestimated" and that "certifying actual emission reductions or sequestration ... will be an immense task." He nevertheless said the "issues can be resolved with will and determination" and that JI "should be embraced as a national policy."

Mark Trexler of Trexler and Associates (Oak Grove, Oregon) described the offset projects he is involved with and offered some general observations. He mentioned several projects he is working on with the Global Environment Facility in Africa and with a foundation in the Netherlands called FACE (Forests Absorbing CO<sub>2</sub> Emissions). In work for an independent power producer in the US Pacific Northwest, Trexler is developing three forestry offset projects: one in Russia, one in Costa Rica, and one in the Pacific Northwest. Trexler estimates that the Russian project will cost \$1/metric ton of carbon, the Costa Rican project around \$4/metric ton, and the Pacific Northwest project around \$2/metric ton.

Overall, he said, "there are probably a lot [of offset opportunities] out there for under \$5/metric ton of carbon." Trexler termed the inexpensive Pacific Northwest offset project "cream-skimming" and said it reflected a transitory situation. "It is going to get harder and harder to skim cream in the US," he said, and added that the evidence suggests "you pretty rapidly can get up to \$15, \$20, \$30 per metric ton for US forestry as an offset mechanism."

Trexler cautioned the administration against relying too heavily on existing projects as reliable indicators of what might be expected in the future. At present, he said, people "are getting some very, very odd numbers that I don't think have anything to do with the long-term costs." He said that "as we move forward and as the value of carbon appreciates a little bit, you will also see a real shift in the kinds of projects being pursued for joint implementation, even in the forestry sector." He added that there may be "a complete shift" in the economics of JI projects.

Naill interjected that this does not necessarily mean that costs will rapidly escalate as demand for JI projects increases. "If you did create a market for them," Naill said, "and really sort of stood back and let people creatively attack the problem of how to create carbon offsets cheaply, I

think we might be pleasantly surprised at the creativity of the people out there that do this in a cost-effective manner."

### Broad Issues and Some Sharp Differences

On the second day of the JI workshop, several participants presented overviews of the broad issues that must be addressed if JI projects are to contribute to US emissions goals. "In particular," administration officials explained in their focus paper, "we are interested in learning how joint implementation efforts might be organized."

Dan Dudek of the Environmental Defense Fund (New York City), opened with a summary of issues. He argued that a plan that allowed and encouraged JI could draw on experiences with other policies, such as the emissions allowances program under the Clean Air Act amendments of 1990. He said a JI program could be cost-effective, dynamic, and responsive, and he encouraged the US to participate. While there were certainly problems and difficulties associated with implementing such a program, Dudek argued that these were tractable.

"The point is that there are issues here, but the stakes on the table are worth the investment to resolve them," Dudek said. "That is what I think the US should do." Dudek recommended that JI projects should be encouraged as part of the August Plan, and listed several specific ways in which the US could do that. He recommended that the government sponsor JI demonstration projects, including public-private partnerships. He called for speedy implementation of Section 1605 of the National Energy Policy Act of 1992, which calls on the Department of Energy to establish a voluntary system under which people report emissions and emissions reductions.

Dudek also suggested that the government foster the creation of mutual funds and insurance pools for emissions-reduction efforts. "We can have a pool of greenhouse gas reductions that people can have drawing rights on, against things like forest fires, bark beetles, methane pipelines blowing up, whatever — just as we have insurance against other contingencies," said Dudek.

John S. Palmisano, a consultant with AER-X (Washington, DC), started his presentation by discussing some of the necessary attributes of any emissions-reduction system. It would have to be equitable and efficient, and it should give people confidence that emissions reduction goals would be reached. It also must include pro-



visions for periodic evaluation of its performance, and it should be enforceable.

Palmisano raised several key implementation issues. All the countries involved in a JI system would have to possess the institutions necessary to support "a sophisticated permitting and monitoring system." Liability rules would have to be established. An appropriate quantity and quality of "human capital" (such as experienced engineers, foresters, and administrators) would have to be generated. This, he warned, could require a large investment of time and money.

Palmisano also offered some provocative thoughts for discussion. He warned the administration against focusing too much on "success stories" and said important lessons could be learned by looking at the many failures as well. He identified the public relations (PR) benefits as an important motivation behind existing foreign offset projects. Future projects will get less and less of the spotlight, he said, and the PR benefits will diminish over time. "A few avant-garde companies" would lead the way by developing JI projects, but many more years would be required before most others would follow.

William Nitze of the Alliance to Save Energy then discussed nearly a dozen difficult issues. Among these were practical problems of establishing the baselines against which offsets are claimed, questions about the methodologies used to calculate offsets, and issues related to enforcement and the allocation of offset credits. Nitze discussed the relationships between JI and various policy reforms, multilateral and bilateral development assistance, market-driven investment flows, and tradable entitlements. He also alerted the administration to the "domestic jobs issue." If pursued on a large scale, Nitze said, JI projects could be viewed as exporting jobs and "that is going to be a very difficult issue politically in this country."

Nitze recommended that JI "start small" and that the US "learn by experimentation." But he told the administration not to allow or encourage JI projects as an alternative to reducing domestic emissions by minimal amounts in the near term. "The US," Nitze said, "has to show it is prepared to undergo some pain at home, to take this issue seriously." Another reason for delaying a heavy reliance on JI projects, he said, was that "it is not going to be easy to get in place a verifiable system which people trust. That's going to take some years."

The issues raised by the speakers were debated among the participants, and other important

points were discussed. The participants generally agreed that the idea of joint implementation is important and worth developing further, but that some important issues must be satisfactorily addressed before JI projects could be widely used to offset US emissions. However, there were substantial and sometimes sharp differences between participants over the rate at which a JI system could and should be integrated into US efforts to limit greenhouse-gas emissions. One of the most difficult issues concerned the degree to which JI projects should be used to meet near-term US emissions commitments.

The concern among the most avid supporters of JI was that the administration (and other levels of government) not only would fail to create conditions favorable to the burgeoning of a JI system but could enforce policies which actually discourage the private sector from fully exploiting the potential of such schemes. This not only could limit the near-term contribution of JI projects, but more importantly could seriously damage its long-term prospects. As Palmisano said, "If CO<sub>2</sub> offsets get arrested at this stage of development, I believe it will not be a useful regulatory tool."

A few others, such as Nitze, were more concerned about the negative consequences of a rapid expansion of JI projects before the necessary groundwork was laid. At worst, a rapid expansion of JI projects could undermine efforts in the US and elsewhere to quickly limit greenhouse-gas emissions. Donald M. Goldberg of the Center for International Law (Washington, DC) expressed some of the strongest views in this regard. In a paper he prepared for the workshop, Goldberg said that if the US relies on JI to meet its year-2000 commitment, "US emissions will not return to 1990 levels and may continue to increase." He also asserted that JI projects "undertaken before developing countries adopt their own targets could serve as a disincentive to their adopting such targets in the future."

Faced with such contrasting views and recommendations, the administration was left at the conclusion of the meeting with the difficult task of developing policies which could take full advantage of the promise of JI without undermining the fundamental goal of constraining global greenhouse-gas emissions.

### **Key Issues Still Undecided**

After the workshop, the administration sought further outside input for its plan and the INC meeting. On 25 June, the State Department sent



### Article 4.2 (a) and (b) of the Framework Convention on Climate Change

"The developed country Parties and other Parties included in annex I commit themselves specifically as provided for in the following:

(a) Each of these Parties shall adopt national policies and take corresponding measures on the mitigation of climate change, by limiting its anthropogenic emissions of greenhouse gases and protecting and enhancing its greenhouse gas sinks and reservoirs. These policies and measures will demonstrate that developed countries are taking the lead in modifying longer-term trends in anthropogenic emissions consistent with the objective of the Convention, recognizing that the return by the end of the present decade to earlier levels of anthropogenic emissions of carbon dioxide and other greenhouse gases not controlled by the Montreal Protocol would contribute to such modification, and taking into account the differences in these Parties' starting points and approaches, economic structures and resource bases, the need to maintain strong and sustainable economic growth, available technologies and other individual circumstances, as well as the need for equitable and appropriate contribu-

tions by each of these Parties to the global effort regarding that objective. These Parties may implement such policies and measures jointly with other Parties and may assist other Parties in contributing to the achievement of the objective of the Convention and, in particular, that of this subparagraph;

(b) In order to promote progress to this end, each of these Parties shall communicate, within six months of the entry into force of the Convention for it and periodically thereafter, and in accordance with Article 12, detailed information on its policies and measures referred to in subparagraph (a) above, as well as on its resulting projected anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol for the period referred to in subparagraph (a), with the aim of returning individually or jointly to their 1990 levels these anthropogenic emissions of carbon dioxide and other greenhouse gases not controlled by the Montreal Protocol. This information will be reviewed by the Conference of the Parties, at its first session and periodically thereafter, in accordance with Article 7."

workshop participants and others a letter requesting detailed information on "greenhouse gas reducing projects that have taken place, or are now underway, between US and foreign partners."

The State Department also scheduled a second workshop for 26 July. In a list of issues it hoped to address in the workshop, the State Department included specific questions regarding JI objectives, eligibility criteria, institutional issues, incentives and motivations, monitoring, verification, and accounting.

The scheduled date of the second workshop is significant. At the conclusion of the first workshop, Dan Reifsnyder, director of the Office of Global Change at the Department of State, said that the administration planned a follow-up workshop at the end of June or the beginning of July. The fact that the meeting ultimately was scheduled to take place about four weeks later — and only three weeks before the INC meeting —

suggests that the administration is seriously behind schedule in some areas, and will have a hard time producing its plan on time. Release of the plan therefore may be delayed, and/or its contents may not be as specific and detailed as originally anticipated.

Meanwhile, different groups continue to pressure the administration on the JI issue. John Schlaes, executive director of the Global Climate Coalition — a US industry lobbying group — sent a letter to Thomas F. McLarty, chief of staff to the President, urging him and the administration not to foreclose the JI option. In the 19 July letter, Schlaes told McLarty that JI could be "the most cost effective and best option available" if it were "properly defined without overly restrictive parameters." Schlaes warned that a "national action plan focused solely on domestic programs could threaten the continued economic growth and competitiveness of the US economy."

## Joint Implementation: Pro and Con

*EECC invited two of the participants in the White House Workshop on Joint Implementation to contribute the following articles. The first piece is by Donald M. Goldberg, Center for International Environmental Law (Washington, DC). Goldberg argues that the US commitment to reduce green-*

*house-gas emissions to 1990 levels by the year 2000 should be met solely by limiting emissions within US borders. He believes the US should not use JI projects to meet the commitment. Mark C. Trexler and Laura H. Kosloff, of Trexler and Associates (Oak Grove, Oregon, USA) take the op-*

posite view. They argue that projects in other countries can and should be used to help offset US emissions and meet its year-2000 commit-

ment. Following the two initial arguments, each side briefly rebuts the other.

## Goldberg: US Should Meet Its Year-2000 Goal Without Joint Implementation

Emissions trading in its various forms — marketable permits, “bubbling,” joint implementation (JI) — has been shown to provide significant cost savings in certain applications. So why all the fuss about including JI projects in the US national action plan? The answer could be summarized as follows: (1) unlike previous emissions trading programs, JI projects would not be under an emissions “cap,” so overall emissions reductions are not guaranteed; (2) including JI projects in the US national action plan would not be compatible with our international obligations under the Framework Convention on Climate Change; and (3) rather than producing cost benefits, early utilization of JI projects could ultimately result in higher net costs.

### JI Projects Lack a Cap or Target

The first point is that JI lacks a cap or target. Emissions trading operates on the principle that, once an emissions target has been established, polluters should be free to make reductions where they can be made at the lowest cost. As long as the target is not exceeded, the environment does not care where, or by whom, those reductions are made (presuming, of course, that pollution “hot spots” do not occur). Carbon dioxide (CO<sub>2</sub>) is an ideal gas to control by use of emissions trading, since, once it is released to the atmosphere, the location of its source is unimportant.

But if not all traders are subject to a target, emissions trading cannot work, for there is no way to ensure that emissions will remain within acceptable bounds. In the case of the national action plan, the US has a target: to return emission to 1990 levels by 2000. But developing countries, our likely partners in JI projects, have no quantified obligations under the Climate Change Convention. Hence, apparent emissions reductions could easily dissipate through increases elsewhere or at a later date.

Proponents contend that without JI projects, emissions would increase to even higher levels in developing countries. They argue it is not necessary to have all parties under a cap, provided it can be demonstrated that the project producing the reductions would not have occurred without JI.

While logicians warn against trying to prove a contrapositive, even demonstrating with reasonable certainty that a project would not have occurred without JI will be difficult. It is possible, for instance, that developing countries will undertake such projects themselves, to meet their future, or even present, obligations under the Convention. It is generally accepted that abatement in industrialized countries will not be sufficient to control global warming. Thus, it is probable that under the Convention, developing countries will one day be asked to adopt quantified obligations. They may well respond that they are unable to adopt sufficiently stringent targets because all their affordable options have already been used in JI projects.

The “wouldn’t have occurred otherwise” argument runs into another difficulty when the full range of current obligations under the Convention is considered. Under Article 4.1, developing countries already have obligations to reduce their emissions and protect their sinks (e.g., forests and grasslands). The industrialized countries are committed under Article 4.3 to paying the incremental costs of meeting those obligations. Thus, prospective JI projects could as well be done, and probably should be done, under Articles 4.1 and 4.3.

### JI Projects Are Not Compatible with Convention Obligations

This points to the second reason not to include JI projects in the US national action plan: To do so would not be compatible with our obligations under the Climate Change Convention. The most important of these are the industrialized countries’ commitments to return their emissions to 1990 levels by 2000. If the US relies on JI to meet this commitment, it will send a message to other parties, especially developing countries, that the US does not take its commitments under the Convention seriously.

If the US and other industrialized countries lose credibility with developing countries, the problem of climate change becomes much more difficult. India, China, Brazil, and other developing countries with the potential to be very large emitters have long insisted that they will not act to slow the growth of their emissions unless in-

dustrialized countries show leadership by lowering their own energy-based emissions first. A minimum benchmark of this "leadership" is a return to 1990 levels by 2000 *without JI projects*.

Including JI projects to meet our target of returning to 1990 levels by 2000 would appear to contradict specific provisions of the Convention. A careful reading of Article 4.2(b) raises serious doubts that the Convention permits JI with parties that have not adopted quantified obligations. The same provision appears to prohibit the use of forest protection or enhancement for purposes of returning emissions to 1990 levels.

These issues will be clarified by the Conference of the Parties after the FCCC enters into force. Article 4.2(d) assigns the Conference the task of developing criteria for JI at its first meeting, probably in 1995. Including JI projects in the national action plan before the Conference sorts out these issues would be inconsistent with our obligations under the Climate Change Convention.

#### **Early Reliance on JI Projects Could Cost More**

A third argument for not including JI projects in the national action plan is that, while the primary justification for JI has always been cost effectiveness, early reliance on JI could ultimately result in higher net costs. In the first place, costs incurred early on will probably be "inframarginal," meaning that more expensive strategies will eventually have to be employed to achieve the objective of the Convention. Achieving this objective will inevitably mean that all low-cost opportunities existing in the US will have to be fully utilized.

### **Trexler and Kosloff: US Should Encourage Foreign Offsets to Meet Year-2000 Emissions Goal**

President Clinton recently announced that the United States would return to 1990 levels of greenhouse-gas emissions by the year 2000. Meeting this objective probably will require reducing projected year-2000 greenhouse-gas emissions in the US by 100-200 million metric tons of carbon or its equivalent. Mapping a strategy for overcoming this gap is the job of the National Action Plan on Climate Change (NAP), a draft of which is due during August. Since announcement of the US target, a debate has swirled around whether offshore greenhouse-gas reduction and sink enhancement projects — in effect international offsets — should form part of the NAP.

But many opportunities that exist today may not be around when we're ready to make use of them. To the extent the US implements the national action plan through actions in other countries, our emissions will not return to 1990 levels and may continue to increase, locking us into additional investments in inefficient technologies that will make future emissions reduction more difficult and costly.

Another problem that JI fails to address is how to account for external costs related to high energy consumption, deforestation, and other activities, leading to greenhouse-gas emissions. To ensure true cost-effectiveness, it would be necessary to factor in such externalities as health problems and loss of amenities resulting from air pollution and costs associated with reliance on foreign oil, including, for example, the enormous costs to the US of defending the Persian Gulf.

Emissions trading, perhaps in the form of marketable permits, may have an important role to play in future implementation of the Convention. But much work remains to be done in designing a system, developing criteria, building administrative, monitoring, and enforcement mechanisms, and, most important, adopting strong targets that apply to all parties. Until then, countries should focus on the many cost-effective options they have for reducing their emissions at home.

—Donald M. Goldberg, Center for International Environmental Law (CIEL)

The battle lines are being drawn around what is being termed the "joint implementation" (JI) question, but this is somewhat of a misnomer. JI is an innovative aspect of the United Nations Framework Convention on Climate Change, and should help countries satisfy their treaty obligations through transnational pursuit of greenhouse-gas emissions reduction or sink enhancement projects. The premise of JI is that such project opportunities are not equally distributed among parties to the Convention, and that their cost-effectiveness is likely to differ dramatically. JI, however, is still only a concept created by the Convention. It will be several years before JI is fully defined and structured. It is therefore

premature to talk about whether JI projects as such should be counted towards the US target. Instead, the question is whether offshore projects should be counted towards the US target, using whatever criteria the US deems appropriate.

### **Projects Should Be Given Every Opportunity to Contribute**

We believe that international projects, carefully designed to meet criteria of credibility, reliability, verifiability, and measurability, should be given every opportunity to contribute to meeting the US target. The target is aggressive, and no one really knows how this target can be met in only seven years without draconian policy or tax measures. Yet both are distinctly unlikely right now. To the extent the private sector is being asked to act voluntarily to reduce greenhouse-gas emissions, as in the 1992 Energy Policy Act, it is unrealistic to take the most cost-effective mitigation options off the table. Even with the inclusion of appropriate offshore projects, achieving the year-2000 target will be far from easy.

Beyond these practical points, several variables argue for incorporating offshore projects into the NAP. First, flexibility to pursue offshore mitigation opportunities will dramatically reduce national and global costs associated with Convention implementation.

Second, such opportunities can advance not only climate change mitigation objectives, but other economic, environmental, and social goals as well. There are many "win-win" emissions reduction opportunities that could have benefits for both funding and host countries. These include more efficient power generation and distribution systems, use of biomass energy, improved forest management, and degraded land rehabilitation. Everyone can benefit, and billions of dollars of much-needed environmental and economic development projects potentially could be financed.

The transfer of advanced energy supply and distribution technologies is perhaps the most obvious of the win-win options. Several countries that do not yet have obligations under the Climate Change Convention, for example, will prove important to long-term global greenhouse-gas emissions. It is imperative that as these countries expand their energy systems in coming years, those systems be made as efficient as possible. Right now the money to cover the incremental costs of putting highly efficient systems into place is often simply not there; encouraging privately funded off-shore mitigation projects can help.

Just as significant is the importance of moving up the climate change mitigation learning curve as soon as possible. Although greenhouse-gas policy options have been studied extensively, very few mitigation projects have actually been pursued. From the standpoint of long-term Convention implementation, there is much to learn regarding what will work and what different mitigation alternatives really cost. Advancing up the learning curve now will make it possible to undertake large-scale action when and if the international community decides it is ready to do so.

Offshore projects thus should form a legitimate and cost-effective part of a US climate change mitigation portfolio. The US needs now to define the criteria by which it will credit projects and to let good projects be put forward for consideration. Both on- and offshore projects can be held to standards that assure real and verifiable greenhouse-gas benefits. Currently it is up to individual companies to set standards for offset project development; it should not be surprising that not everyone agrees with all the standards being used. Arguing over these first-generation standards is self-defeating; Let's instead develop a set of standards that builds toward the future.

Some critics of offshore mitigation projects have argued that offshore projects will be "sham" projects that will fail to lead to clear and verifiable greenhouse-gas benefits and will "take advantage" of developing countries that are presumably incapable of representing their own interests. Neither of these views stands up to careful scrutiny. First, legitimate offshore mitigation projects can be and are being developed. Second, there are massive win-win opportunities for cooperative pursuit of climate change mitigation projects.

### **Do Not Defer Progress for Regulatory Purity**

It does not make sense to defer worldwide climate change mitigation progress, delay development and implementation of valuable initiatives, or postpone bringing developing countries into the Climate Change Convention fold by showing that they can benefit from cooperative mitigation projects, all in the name of regulatory purity. If climate change mitigation is the objective, we should all be most concerned with getting started; the fine tuning can be worried about later. The experience gained will more than make up for problems associated with the absence of firm baselines or some possible double-counting of international offsets.

In arguing for counting offshore projects against the US target, we do not intend that mitigation efforts should be exclusively or even primarily offshore in nature. We are actively involved with the development of mitigation projects within the US and within other Annex 1 countries. We would welcome a National Action Plan that provides suitable guidance and incentives for companies to pursue domestic as well as offshore mitigation projects.

We simply maintain that it makes no sense whatsoever to take offshore projects off the board as long as the administration doesn't know how to

## Rebuttals

### Trexler and Kosloff Respond to Goldberg

The legalistic and politicized arguments of opponents to offshore climate change mitigation efforts are substantively faulty and will impede efforts to deal with this global problem. We would suggest four points.

First, the use of offshore projects to meet the US target should not be confused with the implementation of JI projects under the Climate Change Convention. The US has the right to determine the accounting rules governing achievement of its voluntary target. Indeed, use of offshore projects now to help meet the US target would prove invaluable in sorting out JI complexities that will face parties to the Convention over the next several years.

Second, the history of international environmental treaties proves conclusively that reliance on overly legalistic interpretations of treaty obligations is counterproductive. Rhetorical Convention language calling for sustainable resource use by all signatories means little in a context of inadequate governmental resources and influence in many countries. The funding of offshore mitigation projects under these circumstances makes perfect sense. We must stop expecting the world to magically change in a cost-free way just because of legal dicta in a treaty.

Third, a US failure to meet its year-2000 target will damage US credibility and the cause of climate change mitigation. A view that the domestic energy system can be significantly changed quickly, cheaply, and voluntarily by the year 2000 will lead to such a failure. Using offshore projects to help meet the target, if premised on criteria of credibility, reliability, verifiability, and measurability, can enhance rather than damage US credibility.

Finally, going offshore will not increase domestic long-term mitigation costs. The most cost-effective

mitigation options will occur when equipment or energy-consuming processes are updated or replaced. A crash program to achieve the same ends will face a steeper supply curve than a more gradual program.

comply with its self-imposed target, as long as revolutionary policy measures at the domestic level appear unlikely, as long as US companies are being asked to undertake voluntary measures that contribute to meeting the year-2000 target, and as long as offshore projects rank among the most cost-effective of mitigation opportunities. International projects are a legitimate part of the US portfolio, both now and as the concept of JI is better defined.

—Mark C. Trexler and Laura H. Kosloff, Trexler and Associates

Ultimately, no one will benefit from several years of procedural delay in this area. Some reliance on offshore projects now can reduce domestic reluctance to mitigation activities. Such projects can benefit the environment and economies of developing countries. Additionally, they can get us started on the JI learning curve. Precluding responsible offshore mitigation opportunities from being counted against the US target is more a matter of political expediency than environmental wisdom.

—Mark C. Trexler and Laura H. Kosloff, Trexler and Associates

—Mark C. Trexler and Laura H. Kosloff, Trexler and Associates

### Goldberg Responds to Trexler and Kosloff

Trexler and Kosloff acknowledge that it would be premature to utilize JI projects to meet our commitments under the Climate Change Convention until a complete design and structure are in place, a process which will take several years. They argue, rather, that the US should use offshore projects to meet its own target, irrespective of its obligations under the Convention. This is a distinction without a difference, however, for the US target is clearly meant to fulfill our Convention obligations. Thus, including offshore projects in the national action plan is equivalent to utilizing JI to meet these obligations.

While Trexler and Kosloff are no doubt correct that draconian policy measures are not likely to be adopted in the US in the near future, they are wrong to assert that no one knows how to meet the US target without either adopting such measures or relying on offshore projects. Numerous studies have shown there are many available



measures that could reduce domestic greenhouse-gas emissions to a level far below the target at little or no cost, or even a net benefit.

The economic, environmental, and social benefits that Trexler and Kosloff claim would result from mitigation projects overseas — efficient power systems, use of biomass, improved forest management, and rehabilitation of degraded land — make the argument for pursuing these strategies at home only more compelling. These and other benefits they foresee from offshore projects — moving up the learning curve and developing criteria for sound projects — would result equally as well from projects undertaken in the US.

I completely agree that mitigation projects should be aggressively pursued in developing countries.

The proper approach is through Article 4.1, which requires developing countries to reduce emissions and enhance sinks. These activities are to be paid for by developed countries through the Global Environment Facility, the Convention's interim financial mechanism. In contrast to the JI approach, the net result would be significant mitigation both at home and abroad.

"Win-win" opportunities exist both onshore and offshore. It is vital to the success of the Convention that cost-effective opportunities at home not be ignored or deferred in the pursuit of marginally cheaper opportunities elsewhere.

—Donald M. Goldberg, Center for International Environmental Law (CIEL)

## Externalities Watch

### Consumer Energy Council Issues Report on Externalities

The Environmental Externalities Project of the Consumer Energy Council of America Research Foundation has just issued a major report, *Incorporating Environmental Externalities into Utility Planning: Seeking a Cost-Effective Means of Assuring Environmental Quality*. The council, which claims to be the oldest public interest policy organization in the US, has since April 1992 sponsored an effort to produce the report by hammering out a consensus among the diverse members of a 50-member advisory committee. The committee included representatives of the major categories of stakeholders, including people from regulatory agencies, utilities, environmental groups, utility equipment vendors, and others.

The report provides a very basic overview of the issue, and is accompanied by useful background material — most notably an annotated bibliography that occupies a quarter of the report. The report's 27 "principles, conclusions and recommendations" reflect "serious attempts to reach a consensus on as many issues as possible" among members of the committee. The report, however, warns readers that committee members did not "necessarily approve, disapprove or endorse it."

This consensus approach helps legitimize and strengthen the key findings. But it appears that the desire to reach a consensus also constrained the council in writing the report. The findings tend to be extremely general, sometimes bordering on the obvious. One recommendation, for example, states that "policy decisions should be justified in

specific and explicit terms, quantitative if possible, qualitative if need be." The next recommendation is that "policies should be evaluated over the long term." Given such generalities, the report is of limited value to those already familiar with the externalities debate.

Nevertheless, the report does make some important points. In a good overview of actions US states have taken, the report says that the "vast majority of decisions taken by PUCs [public utility commissions] have had virtually no impact on rates or resource decisions to date." This reflects the fact that most PUC-imposed externality requirements apply only to the choice of new resources acquired by utilities. "Since externalities are being applied in a gradual manner — to marginal decisions only — the initial impact from the environmental and ratepayer view will be relatively minor," the report says, "building gradually over time as old resources are replaced."

The report closes by applying its analytical approach to the issue of climate change. It carefully recommends "policies that attempt to internalize the carbon dioxide externality." But in language typical of the report, it recommends that "the action taken be gradual, flexible and reversible, with policymakers keeping a firm eye on the emerging science." The text closes with the statement that US action in this area "at whatever level of government is feasible, is prudent and wise, if carried out in an attempt to provide the most efficient approach to a solution."

**SOURCE**

Consumer Energy Council of America Research Foundation, Environmental Externalities Project, *Incorporating Environmental Externalities into Utility Planning: Seeking a Cost-Effective Means of Assuring Environmental Quality* (Washington, DC:

Consumer Energy Council of America Research Foundation, 1993). Available for \$195 each from the Consumer Energy Council of America, 2000 L Street NW, Suite 802, Washington, DC 20036, USA. Tel: +1 202 659 0404; Fax: +1 202 659 0407.

**Taxes and Subsidies****Report Estimates Federal Energy Subsidies of \$36 Billion in 1989**

While the attention of politicians in Washington has been focused on energy taxes, the Alliance to Save Energy released a report on federal energy subsidies. The report claims that energy subsidies in 1989 were around \$36 billion, an amount that far exceeds the annual revenues that might have been expected with even the highest of the energy taxes considered by legislators this year. Under the original Btu tax proposed by President Clinton, tax revenues when fully implemented in Fiscal Year 1997 would have been only \$22 billion.

The Alliance report estimates that \$21.1 billion of the subsidies goes to fossil fuels. For every dollar of subsidy to fossil fuels, only 5.5–6 cents went to energy efficiency and only 4.3 cents to emerging renewable energy sources. "These subsidies suggest that we are already using more fossil energy than a free market would have purchased," the report says, "and more fossil fuel than is best for the economy overall."

For carbon itself, the study estimates a subsidy in 1989 of \$3.75 per metric ton of CO<sub>2</sub> emitted that year (or \$13.74/ton of carbon). The report says that subsidies for the high-carbon fossil fuels — coal and oil — outweighed those for low-carbon natural gas by 3.7 to 1. As a percentage of price, the subsidy for coal was the highest among the fossil fuels. "While tax code changes continue to phase out a number of significant subsidies to fossil fuels," the report adds, "the power plants, waterways, and mines these subsidies helped create will continue to encourage carbon emissions for at least another 20 to 35 years."

As the Clinton administration looks back at the failure of its energy tax proposal, and as it considers its options for fulfilling its commitment to reduce greenhouse-gas emissions to 1990 levels by 2000, the subsidies may present a tempting target. "Just from an economic perspective, it doesn't make much sense to start taxing something on the one hand while on the other hand you are also subsidizing its production and consumption," author

Douglas N. Koplow told *EECC*. "If you have a lot of opposition to a carbon tax, it seems to me a logical first step would be to eliminate the subsidies to the fuels that are emitting carbon ... Certainly removing subsidies is a logical first step."

The subsidies, as categorized by the Alliance report, fall into three categories: tax benefits, federal agency programs, and "other market interventions." The latter includes the assumption of legal risk such as the limitation on liability for nuclear accidents afforded by the Price-Anderson Act. Using these categories, the Alliance comes up with an overall range of subsidies considerably higher than that presented by the US Energy Information Administration (EIA) in its report, *Federal Energy Subsidies: Direct and Indirect Interventions in Energy Markets*, published last November.

While the Alliance report estimates that overall subsidies were \$21–36 billion, the EIA estimate was only \$5–13 billion. The Alliance has issued a comparison of the two estimates that briefly accounts for the differences. It says that most of the difference (\$23 billion of the difference on the high end, and \$10.7 billion of the difference between the low estimates) reflects the different scopes of the studies. "EIA restricted its analysis to programs deemed to primarily and clearly benefit the energy sector," the Alliance explains, "while the Alliance included subsidies with any benefit to the energy sector, prorated where possible."

The report concludes that "energy, environmental, fiscal, economic and national security goals can be better achieved through a subsidy pattern that is dramatically different than the one currently in place." But reform will require a much better understanding of what the subsidies are. While the Alliance and EIA studies are important pathbreaking works, their differences underline the great uncertainty which exists. "I was surprised in certain areas about how really uncertain the data were, even though you were dealing with huge volumes of money," Koplow told *EECC*.

He added that better estimates of tax expenditures in particular are "critically important."

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Koplow, Douglas N., *Federal Energy Subsidies. Energy, Environmental, and Fiscal Impacts* (Washington, DC: Alliance to Save Energy, 1993). Available for \$20 from Alliance to Save Energy, 1725 K Street NW, Suite 914, Washington, DC 20006-1401, USA. Tel: +1 202 857 0666. Fax: +1 202 331 9588. The main volume, which itself contains a detailed Appendix A, is supplemented by a two volume Appendix B that presents in detail the data and methodology supporting the analysis. Appendix B is available separately.

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## New Reports

### IPSEP Publishes "Consumer's Guide to Greenhouse Costing Studies"

Frustrated supporters of the use of energy taxes to discourage fossil fuel consumption will find solace in a new report issued by the International Project for Sustainable Energy Paths (El Cerrito, California). In *Cutting Carbon Emissions: Burden or Benefit? The Economics of Energy-Tax and Non-Price Policies*, Florentin Krause and his colleagues conclude that emissions are best curtailed "by heavily relying on instruments other than carbon taxes."

The authors reach that conclusion via an interesting analytical route. They first examine 12 major studies of the costs of reducing carbon emissions. They then draw what they view as the strongest elements from those earlier studies to construct their own "integrated policy approach." It is their hybrid approach which yields the conclusion about carbon taxes, along with several other interesting and important findings.

#### Top-Down vs. Bottom-Up Analyses

To those who have long been perplexed by widely differing claims about the impacts of energy or carbon taxes, this report will come as a welcome relief. Intended by the authors as a "consumer's guide to greenhouse costing studies," the report classifies a dozen such studies into two basic categories and systematically analyzes them. First are the top-down studies, which the report classifies as "conventional wisdom." These macroeconomic studies rest on assumptions that usually lead to the conclusion that high taxes are required to curb fossil fuel use, and that such taxes yield significant economic losses. The report asserts that people tend to amplify the calculated losses, and to use the fear of great impacts to counter efforts to curtail CO<sub>2</sub> emissions.

In contrast to the top-down approaches are bottom-up analyses — what the report calls the "insurgent view." These analyses are based on "detailed engineering-economic analyses of a large number of energy efficiency technologies and energy supply technologies," and upon detailed microeconomic data. The studies typically find opportunities for large reductions in carbon emissions below base-case levels, at relatively low costs or even at a net savings. The bottom-up analyses, the authors say, "imply that it is the business-as-usual energy policies that may have macroeconomic opportunity costs." The analyses therefore favor "targeted incentives or regulatory interventions to improve the functioning of the competition between energy supplies and energy efficiency in specific end-use markets."

The sharply defined contrast between top-down and bottom-up analyses has recently been softened by new top-down macroeconomic studies in which analysts toy around with alternative means of disposing of the revenues generated by carbon/energy taxes. These studies find that the revenues can be "recycled" to replace other taxes that are themselves more costly to the economy. The net result is a more efficient tax system. The net costs of the energy tax when recycled in this manner may even be reduced to the point where net benefits accrue to the economy.

#### The "Integrated Approach"

This opens the door to a new "integrated approach" to reducing emissions. A "powerful carbon strategy could be fashioned by reducing market and regulatory failures in the energy sector and also reducing tax distortions in the economy at large," the authors say. The IPSEP study identifies four key elements under its integrated approach.



The first consists of targets and timetables to limit emissions, perhaps accompanied by an emissions-trading system. Second is a series of measures to reduce "market and regulatory failures." These measures would include higher efficiency standards, incentive programs, etc. The third consists of energy or carbon taxes, but set at a much lower level than the several-hundred-dollar level suggested by the conventional top-down studies. The fourth element is to "recycle" the revenues from any such tax in ways designed to sweeten the tax pill — partly to improve its political palatability. In this regard, the report recommends that some funds be used to assist those hit hardest by the tax, to fund the other programs in the integrated strategy, or to contribute to politically popular goals such as deficit reduction.

The overall strategy favored by IPSEP would be less dominated by taxes than under policies based on conventional top-down analyses. To the extent that taxes were imposed, they could be much lower. To get the biggest impact from a carbon tax, the authors recommend that it be fully applied toward financing other measures to reduce emissions. The report says that if that is done, the required tax rate could be "an order of magnitude lower than the carbon taxes derived from macroeconomic assessments. The relatively lower carbon tax level would have an added ad-

vantage in that it would have less of an adverse impact on the international competitiveness of energy-intensive industries."

#### For More Information

International Project for Sustainable Energy Paths (IPSEP), 7627 Leviston Avenue, El Cerrito, CA 94530, USA. Tel: +1 510 525 7530; Fax: +1 510 525 4446.

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ments for Local Governments in the United States (Washington, DC: Center for Clean Air Policy and German Marshall Fund of the United States, 1993).

Global Change Division, Office of Air and Radiation, US Environmental Protection Agency, Proceedings. *Workshop on Atmospheric Effects, Origins, and Options for Control of Two Potent Greenhouse Gases: CF<sub>4</sub> and C<sub>2</sub>F<sub>6</sub>* (Washington, DC: US EPA, 1993). From workshop held on 21-22 April 1993, Washington, DC.

## Upcoming Events

20-22 September. Manchester, UK. *Partnerships for Change: Implementing the Rio Agenda*. Sponsors: United Kingdom Department of the Environment. Contact: Craig Jones, Department of the Environment, Room A305, Romney House, 43 Marsham Street, London SW1P 3PY, UK. Tel: +44 71 276 8843. Fax: +44 71 276 8861.

26-30 September. Bari, Italy. *International Conference on Carbon Dioxide Utilization*. Contact: The Secretariat ICCDU Conference, c/o Centro Internazionale Congressi, Viale Papa Pio XII, 18, I-70125 Bari, Italy. Tel: +39 80 517 299. Fax: +39 80 514 533.

11-13 October. Seattle, Washington, USA. *Energy and the Environment. 15th Annual North American Conference of the International Association for Energy Economics*. Contact: International Association for Energy Economics, 1011 14th Street NW, Suite 1100, Washington, DC 20005, USA. Tel: +1 202 371 1191; Fax: +1 202 371 1090.

21-23 October. San Rafael, California, USA. *Green Plans for the 21st Century: The Pacific Rim*. Contact: The Resource Renewal Institute, Fort Mason Center, Bldg. A, San Francisco, CA 94123, USA. Tel: +1 415 454 3963.

Organization for Economic Cooperation and Development, *The Costs of Cutting Carbon Emissions: Results from Global Models* (Paris, France: OECD, 1993).

Organization of Economic Cooperation and Development, *Taxation and the Environment: Complementary Policies* (Paris, France: Organization of Economic Cooperation and Development, 1993 [forthcoming]).

Pearce, Fred, "Carbon Dioxide's Taxing Questions," *New Scientist*, 138 (1879): 12-13 (26 June 1993).

23-28 October. Montreal, Quebec, Canada. *Growth and Environment: Challenging Extreme Frontiers*. Contact: IDEEA Two, Center for Northern Studies and Research, Burnside Hall, Suite 720, McGill University, 805 Sherbrooke Street W., Montreal, PQ H3A 2K6, Canada. Tel: +1 514 398 6052; Fax: +1 514 398 8364.

27-28 October. Washington, DC, USA. *Global Change: A New Direction for Decision Making*. ERIM/Global Change Conference, P.O. Box 134001, Ann Arbor, MI 48113-4001, USA. Tel: +1 313 994 1200 ext 3234; Fax: +1 313 994 5123. Internet: wallman@vaxb.erim.org.

31 October - 3 November. Kyoto, Japan. *IEA International Conference on Natural Gas Technologies: Energy Security, Environment and Economic Development*. Cosponsored and organized by MITI and the Japan National Organizing Committee, an ad-hoc committee established by the natural gas industry of Japan. Contact: Roger Stuart/Toshiro Kudama, IEA Secretariat, 2 rue Andre Pascal, 75775 Cedex 16, France. Tel: +33 1 4524 9973; Fax: +33 1 4524 9475; or Shigeo Nakano, Manager, International Relations, The Japanese Gas Association, 1-15-12 Toranamon Minato-ku, Tokyo 105, Japan. Tel: +81 3 3502 0116; Fax: +81 3 3502 3576.

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