Dan Studies

JUL 1 1998

cc: Todd Stuilley Linda Dirk David

To Katie McGinty
From Greg Kats

June 26, 1998

FR: Katie

Greg Kats (DoE) working on some very valuable pieces. Let's please help him in our corp & pub fin to work for us!

Thanks
Katie

Katie,
I hope this note finds you well.

Am enclosing two things that may be of interest.

The first document describes the case for joint federal-state funding of a renewables financing insurance product. This is intended to address the single biggest barrier to financing new renewables. Since renewables are capital-intensive, they require ten year financing, but residential and commercial green power customers will only sign up for a year or two. This term gap prevents green power marketers from securing financing for new green power. The proposed insurance product provides a way to cover half the green premium through the creation of a green premium insurance product. Extensive modeling by a contractor and by substantial insurance firms show that every dollar of federal money could leverage about $50 of private sector installation of new renewables. This program would allow us to roughly double the low level of projected renewables installations between 2000 to 2005. After that, the national renewable portfolio standard will (hopefully) kick in. Obviously, we have along way to go to get this appropriated, but the green power industry, insurance and finance firms are extremely positive about this as a cost-effective way to allow the financing of new renewables.

The second document is the notes of a meeting I put together to review and provide direction for continued development of the international efficiency Protocol to allow it to better serve as a basis for climate change trading programs. The World Bank hosted the meeting, which involved the MDBs, the IPCC and some UN Agencies. Very useful - I think it is the first time these institutions together addressed the technical issues of how to measure and verify emissions reductions achieved through energy efficiency. The group directed the IPMVP to broaden its coverage, make clearer the relationship between specific investments and related emissions reductions, and provide case studies. All these pieces are now being addressed. Two new subcommittees of 30 or so international experts are extending the Protocol to industrial efficiency and to renewables. So, by year's end, the IPMVP will provide an international consensus approach for how to measure and verify about half of anthropogenic emissions, as well as GHG warming reductions from renewables. It is being translated into about a dozen languages and is beginning to be used in key counties like China, India, and Brazil.

One of the nice kickers is that some of the EPA folks responsible for encouraging states to use efficiency investments as a way to meet SIP clean air requirements are on the IPMVP industrial subcommittee, helping to ensure a common approach for demonstrating both clean air and greenhouse gas emissions reductions. This will make it easier for efficiency and renewables investments to secure the financial returns resulting from the full range of associated emissions reductions.

Best,
Greg

GREEN POWER FINANCE INITIATIVE

A MARKET APPROACH

Greg Kats
USDOE

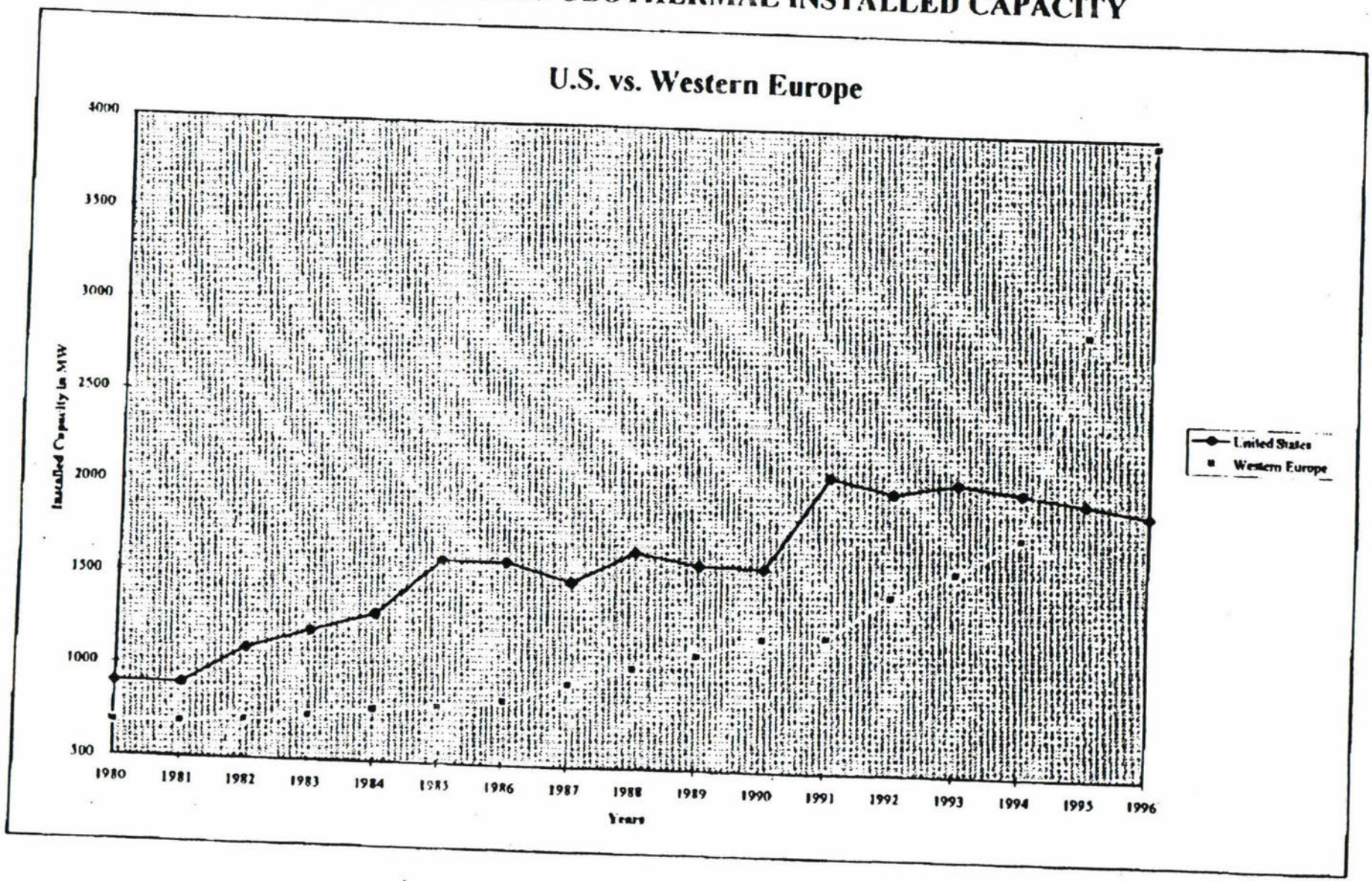
Ken Langer
CRC (Contractor)

Draft Presentation
June 16, 1998

Office of Energy Efficiency and Renewable Energy, USDOE

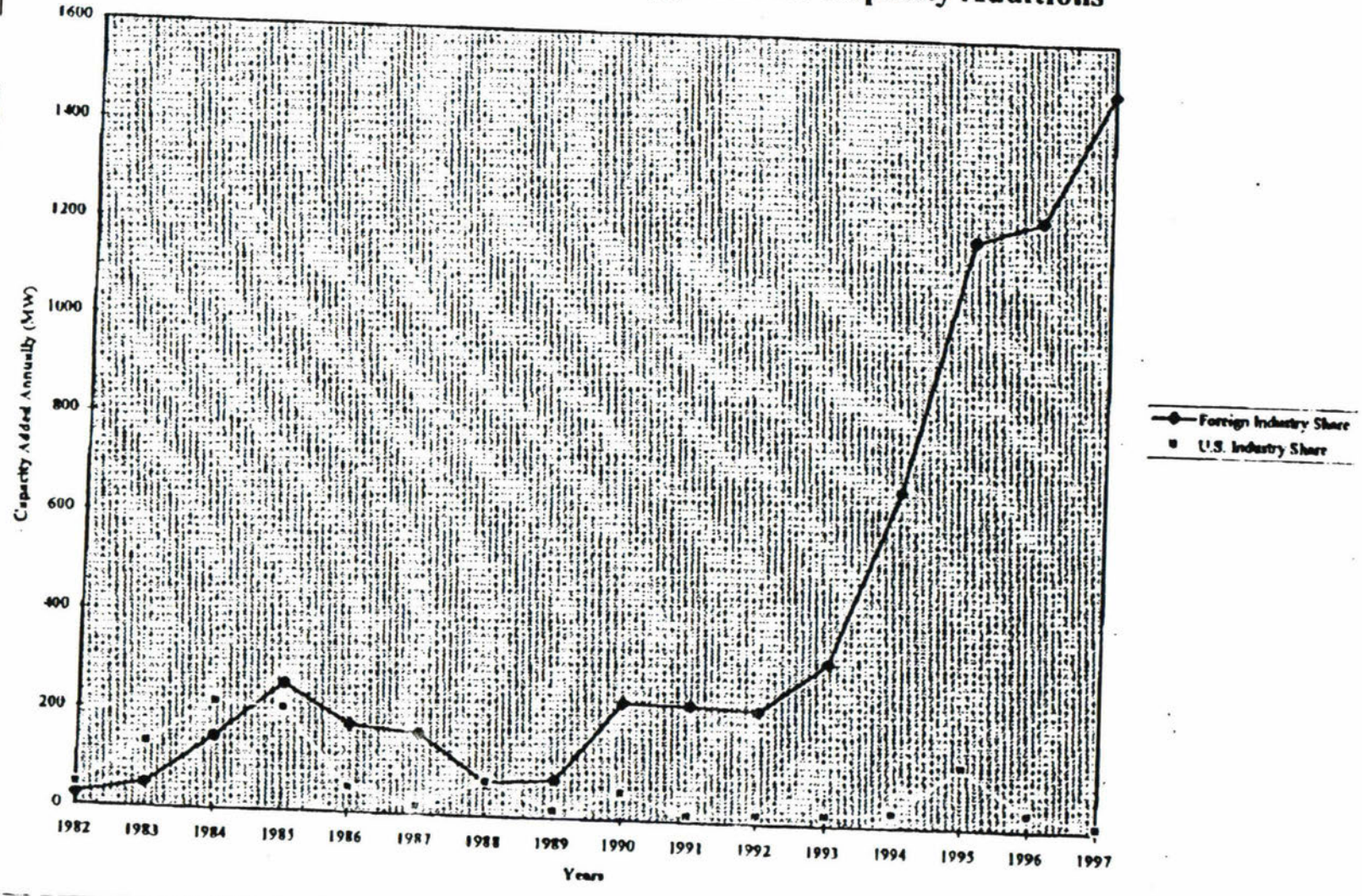
THE PROBLEM

U.S. - LOSING GROUND
WIND, SOLAR and GEOTHERMAL INSTALLED CAPACITY



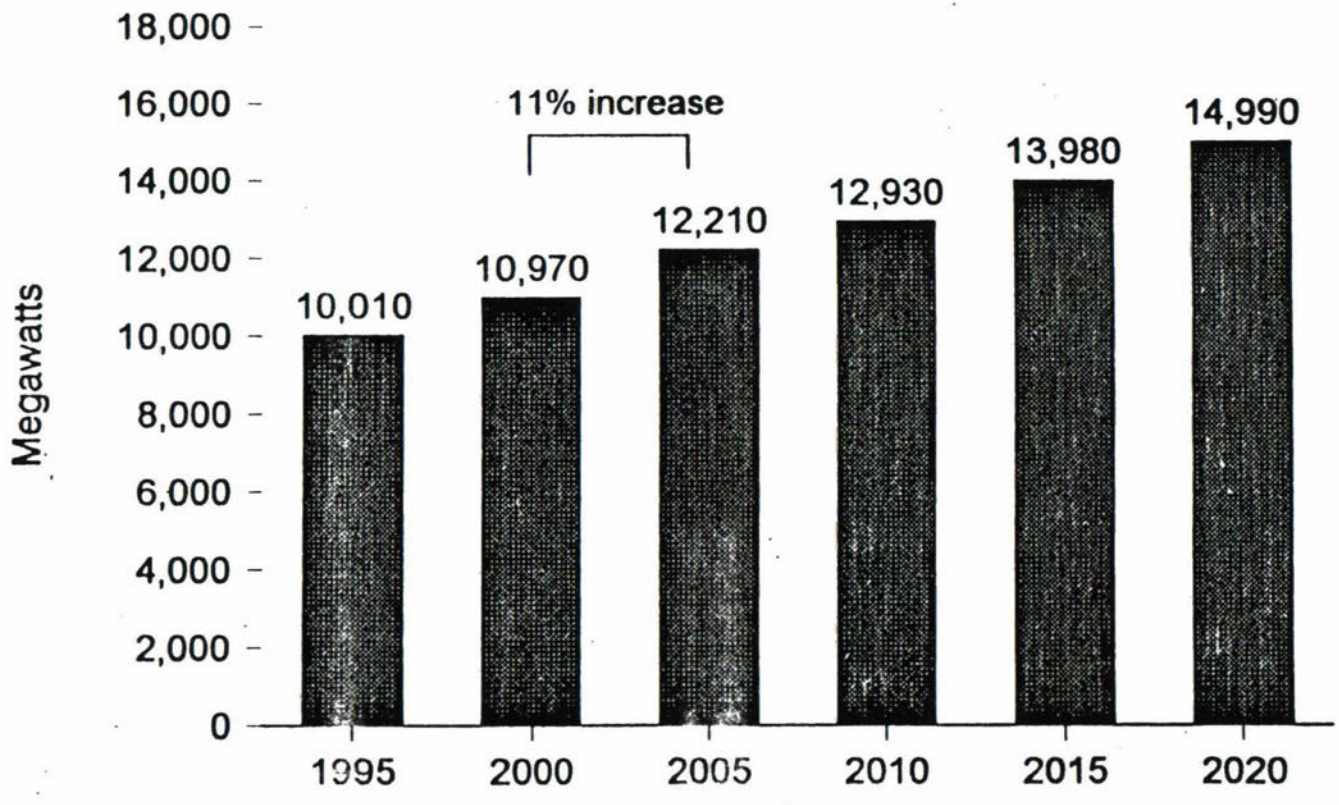
Source: EIA

World Wide Wind Energy: Annual Capacity Additions



Source: DOE - OUT baseline

U.S. Renewable Energy Capacity, 1995-2020



Source: EIA, Annual Energy Outlook 1998

THE BREAKDOWN: 1998-2008

Technology	*State Mandated*	*Unmandated*
Geothermal	35 MW	34 MW
Biomass	125 MW	0 MW
MSW	0 MW	12 MW
Solar Thermal	35 MW	0 MW
PV	35 MW	20 MW
Wind	611 MW	243 MW
Total	806 MW	275 MW

☞ No Financing Problem

☞ Financial Intervention Required

Source: EIA (unpublished)

MAJOR UNMANDATED PROJECTS: 1996-2002

STATE	TYPE	NAME	MW	START DATE	OWNER	POWER PURCHASER	DEVELOPER/ SUPPLIER	CONTRACT
CA	Geo	Salton Sea	34	'96	Cal Energy	So Cal Ed	Cal Energy	PPA
CA	Geo	Northern	40	'02	Cal Energy	23 MW to Boneville 17 MW- None	Cal Energy	PPA/ Green Mkt
WY	Wind	Foot Creek Rim	41.4	'98	Pacificorp (32.6 MW) Eugene Water & Electric (8.78 MW)	BPA (15.68 MW) Balance own use	SeaWest/ Mitsubishi	PPA
OR	Wind	Vansycle Ridge	24.9	'99	FPL (ESI)	Portland Gen Electric	FPL/Vestas	PPA
TX	Wind		65	'99	C&SW	Same	FPL/FORAS/ Vestas	PPA
TX	Wind	Big Springs	35	'99	York Research	T.U. Electric	? /Vestas	PPA
CA	Wind	So. CA	23.0	'99	Enron Wind	None	Enron Wind/ Zond	Green Power Market
CA	Wind	Riverside County	16	'99	Enron Wind	None	Enron Wind/ Zond	Green Power Market
CA	PV	Various	6	2000-2002	SMUD	None	SMUD	Green Power Market

WHAT'S GOING ON?

DEREGULATION

- **Continued Downward Pressure on Price**
- **Low Marginal Cost of Electric Power**
- **Higher Renewable Energy Cost Can No Longer Be Passed onto Customer on "Like it or Not" Basis**
- **Few Utilities Commissioning Renewable Energy Projects**

WHICH LEADS TO...

Public Sector Response: ***1) Renewable Portfolio Standards***
2) Public Benefit Funds

Private Sector (Market) Response: ***"Green Power" Market***

- **Green Mountain Power**
- **Edison Source**
- **SMUD**
- **PG&E**
- **Automated Power Exchange**
- **Foresight Energy Company**
- **Enron Corporation**
- **Pacificorp**

WITH NATIONAL *RPS*, WHY *GREEN POWER*?

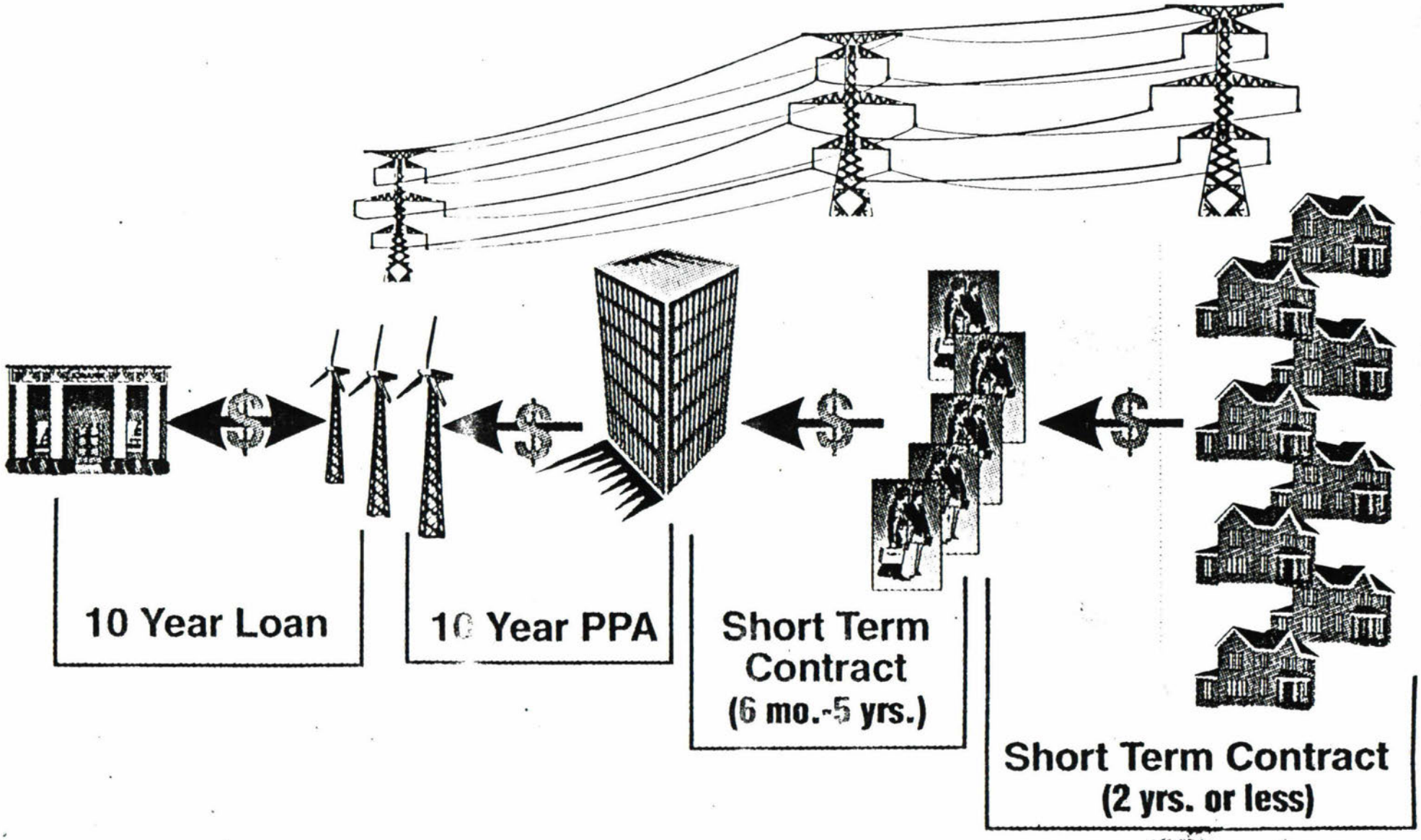
- **In Short- to Medium Term, Program Helps Ensure Functioning Market with Diversity of Products**
- **Boosting Renewable Energy Industry Through Insurance Program Is Hedge Against RPS Not Passing, Being Diluted, or Being Rescinded**
- **Program Helps Build A Robust Green Power Market with Technology Diversification for Post-RPS Years**
- **Accelerating Renewable Energy Capacity Will Help Close Gap Reference Case and RPS, Thus Making Legislated Targets Easier to Achieve and More Politically Acceptable**

SO WHERE'S THE PROBLEM?

- **RE Projects are Capital Intensive — Require 10+ Year Financing**
- **Bankers Don't Bank on Market Surveys *OR* on Short-term Contracts**
- **Bankers Require Minimum 10 Year Power Purchase Agreements**
- **Wholesalers/Retailers Want Long-Term Supply But Unwilling to Enter into Long-Term PPA Because. . .**

  — ***They*** **Get only Short-Term Commitments from Retailers**
  — **Price Risk Too High**
  — **Weak Balance Sheets**

GREEN POWER TRANSACTION CHAIN



WITHOUT *SHORT-TERM* INTERVENTION...

- **Bankers Will Continue to *Not* Lend**
- **Few Unmandated RE Projects Will Be Built**
- **Only A Few Big Companies Will Be Able to Finance — Less Competition**
- **Renewable Energy Market Will Continue to Rely on Mandated Purchases**
- **Green Power Market Will Be Short on *New* Renewable Energy Power**
- **Market for Green Power Will Be Limited in Size, Diversity of Products, and Competitiveness: Setback for Deregulation**

THE SOLUTION

GREEN POWER FINANCE INITIATIVE

GOAL:

To Provide Short-Term Revenue Risk Coverage to Green Power Marketers (Wholesalers and Retailers) To Enable Them to Enter into 10 Year Power Purchase Agreements with Renewable Energy Project Developers for *New* Renewable Energy Supply

STRATEGY:

- **To Co-Finance a Private Insurance Product To Protect Green Power Wholesalers and Retailers Against the Risk of Dropping/Eroding Green Premiums**

- **Insurance will Pay Portion of Any Revenue Shortfall to Green Power Marketers**

GREEN POWER FINANCE INITIATIVE

ELIGIBLE TECHNOLOGIES: **Follow "Green E," Standards, Which Generally Include:**

- **Solar Thermal**
- **PV**
- **Wind**
- **Geothermal**
- **Biomass Cogen**
- **Land Fill Gas**
- **Small Hydro (<30 MW) ?**
- **Refurbished Plants**

EXPECTED OUTCOME: **500-1000 MW of *New* Renewable Energy in Five Years (2000-2005)**

WHO HAVE WE TALKED OR WORKED WITH?

POWER EXCHANGE
Automated Power Exch.

WHOLESALERS
Forsight Energy Company
Electric Clearinghouse
Pacificorp

WHOLESALERS & RETAILERS
Enron Energy Services
SMUD

RETAILERS
ReGen Technologies
Edison Source
Green Mountain Energy Resources

PROJECT DEVELOPERS
Brown Ferris Gas Services
California Energy Company
Calpine Corp
Cannon Energy Corp
Davonport Resources
NRG Energy
SeaWest
Zond

FINANCIAL INSTITUTIONS
Wordlink Insurance
Hedge Financial Products
CNA Financial Corp
Energy Insurance Brokers
Swiss Re
Heller Financial
HSBI
Advent Systems
Arcadia Windpower
Gerald Lukton Company/Toman

ASSOC'S/CENTERS
AWEA
SEIA
GEA
NBIA
Renewable Energy Alliance
Center for Resource Solutions
Land & Water Fund of the Rockies

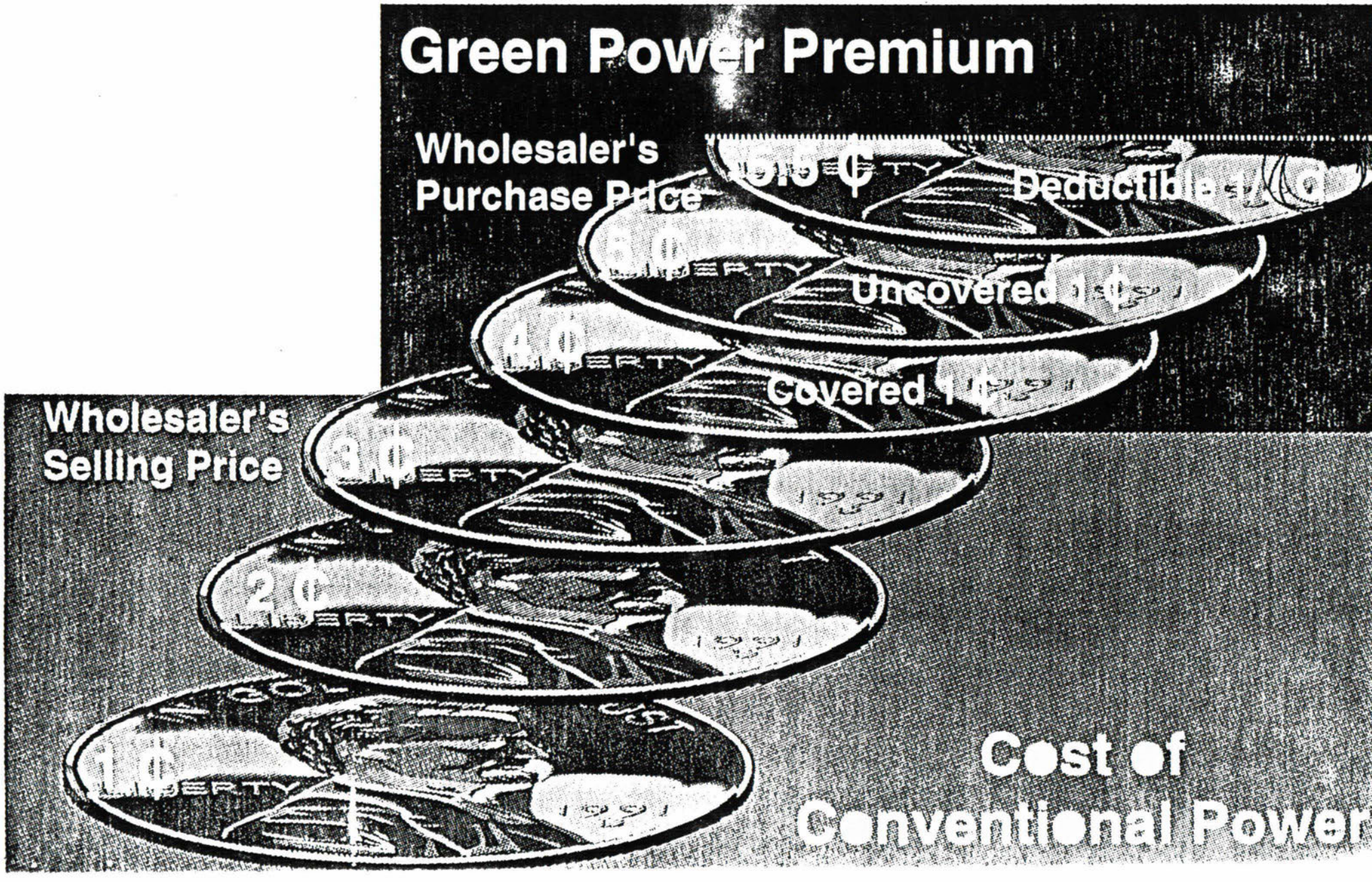
USG/STATE GOV'T
DOE
EPA
EIA
LBNL
NREL
Various State Gov'ts

CONSULTANTS
Coleman Research Corp
Princeton Economic Research Inc.
Ed Holt & Assoc.
Ed Ing
S4 Consulting
Reed Consulting

TERMS & CONDITIONS

- **5 Year Entry Period for Green Power Marketers (Policy-holders)**
- **10 Year Coverage Coinciding with Term of PPA**
- **Annual Insurance Premium**
- **Deductible**
- **Coverage Capped at 50% of Revenue Shortfall After Deductible**
- **Caps on Coverage of 1-2¢/kWh Under Review Depending on Technology**

EXAMPLE OF COVERAGE



FINANCIAL MODELING

- **Worked with PERI to Develop Financial Model to Determine How Many MW of Renewable Energy Would Be Supported Under Various Customer Drop Out Rates**

- **Main Assumptions**

  - **DOE/USG/States Grant $50 Million over 5 Years**

  - **$50 Million Is Drawn Down As Needed Over 10 Year Program Period**

  - **Technology Mix, Capacity Factors, Underlying Cost of Power Based on Inputs from EIA's NEMS Model**

  - **Green Premium Based on NEMS *and* Technology Characterization Study (EPRI/DOE)**

TECHNOLOGY AND COST ASSUMPTIONS (1999)

Technology	*Portfolio Share* (%)	*Busbar Cost (EIA)* (¢)	*Busbar Cost (T.C.)* (¢)
Solar Thermal	4	13.91	13.63
Wind	28	4.32	3.93
Geothermal	10	6.80	3.10
Biomass	23	6.63	7.53
Landfill Gas Methane	35	2.70	2.70
PV	1-2	23.73	35.56

Source: EIA, DOE, EPRI; All costs are for 1999 except PV, which presents the NEMS range from 1999-2012. Note that portfolio share column does not add to 100% because of rounding.

THE BOTTOM LINE

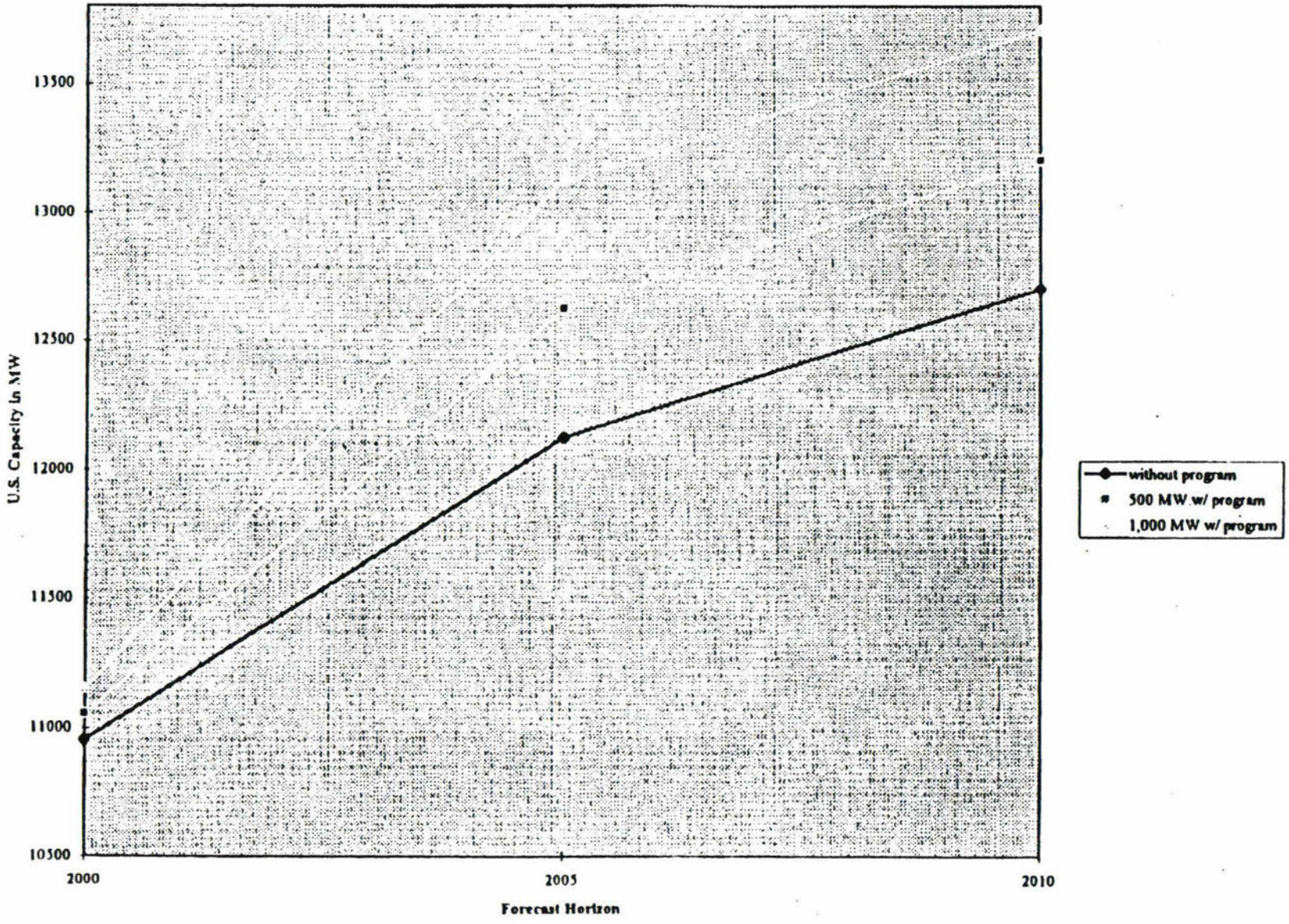
INSURANCE PREMIUM CAP	*DEDUCTIBLE*	*EROSION RATE*		*ADDED CAPACITY*
		EIA	*TC*	
2.5¢ for all tech	0.5¢ for each kWh	14.0%	24.1%	500 MW
2.5¢ for all tech	0.5¢ for each kWh	6.3%	9.5%	1000 MW
4.5¢ for PV/ST 2.5¢ other tech	0.5¢ for each kWh	13.4%	22.5%	500 MW
4.5¢ for PV/ST 2.5¢ other tech	0.5¢ for each kWh	6.1%	—	1000 MW
4.5¢ for PV/ST 2.5¢ other tech PV = 2% of Mix	0.5¢ for each kWh	13.5%	—	500 MW
4.5¢ for PV/ST 2.5¢ other tech PV = 2% of Mix	0.5¢ for each kWh	6.0%	—	1000 MW

WHAT DOES $50 MILLION BUY?

Approximately . . .

- **500-1000 MW Additional RE Capacity**
- **$150-$350 Million in Private Insurance Exposure**
- **$676 Million -$1.4 Billion in Private Project Financing**
- **$556 Million - $1.1 Billion in Green Premiums Paid by Private Customers During First 10 Years of Project**

Program's Impact on Renewable Energy Capacity



Source: DOE - OUT baseline

WHAT DOES INDUSTRY SAY?

Extensive Discussions with Industry to Shape Proposal, Provide Critical Inputs to Financial Model, and Review Drafts.

- **Primary Risk Seen As Price Erosion Due to Introduction of Lower Cost Technologies**
- **All Major Wholesalers, Retailers, and Developers Indicate that Proposed Initiative Would Result in More Financings of New Renewable Energy Projects**
- **6 Wholesalers and Some Retailers Expressed Strong Interest in Purchasing Proposed Insurance**
- **2 Industry Coalitions Interested in Bidding on RFP and Expressed Willingness to Add "Excess Insurance"**

NEXT STEPS

1. **Work With Green Power Markets, Insurance Firms, and Project Developers to Better Quantify:**

   - **Cost of "Excess" Insurance**
   - **Green Power Premium Erosion Rates**
   - **Effect of National RPS and "Green E" Requirement for New Renewable Energy on Project Financing**

2. **Secure Co-Financing From States and EPA (?)**

3. **Develop Multi-State Pilot Program**

4. **Draft Request For Proposals**

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The financial model was developed with John Felmy and Ali Güngor of Princeton Economic Research Inc. under contract with DOE's Office of Utility Technologies.

INTERNATIONAL EMISSIONS MEASUREMENT AND VERIFICATION WORKSHOP

Hosted by The World Bank

April 21, 1998

Sponsoring and Participating Organizations:

Cantor Fitzgerald, Inc.
European Bank for Reconstruction and Development
Global Environment Facility
Inter-American Development Bank
Intergovernmental Panel on Climate Change
United Nations Development Program
United Nations Industrial Development Organization
U.S. Department of Energy
U.S. Environmental Protection Agency

INTERNATIONAL EMISSIONS MEASUREMENT AND VERIFICATION WORKSHOP

MEETING OBJECTIVE: Provide guidance to the continuing development of the International Performance Measurement and Verification Protocol (IPMVP) as a measurement and verification tool for climate change trading programs.

Meeting Summary and Next Steps[1]

Summary:

- Measurement and verification (M&V) is a critical element of any energy efficiency project.
- Standard M&V approaches applied internationally maximize benefits, such as allowing for emissions trading, project performance benchmarking and improved access to capital.
- Quality of M&V is expected to be a primary determinant of what portion of the projected emissions reductions are recognized and can be used as allowances.
- In large part because it is a consensus and living document, the IPMVP is being adopted by multilateral development banks, industries and countries as a standard M&V approach for energy efficiency retrofits and as a basis for demonstrating emissions reductions.
- Emissions reductions must be verified using internationally recognized methodologies.
- Entities (e.g., regulated companies, brokerage houses) need to know that an emissions allowance purchased can be used to meet a reduction obligation regardless of its origin (one allowance = one ton).
- Third-party verifiers will need to be certified by an international organization.

Mr. Moss provided a **summary perspective of what the IPCC would recommend** for continued IPMVP development:

- Conduct case studies of projects in key industrial sectors
- Expand the number of countries participating in the IPMVP process
- Address issues of uncertainties by identifying shortcomings in the methodologies and proposing adequate solutions that can be adopted in the IPMVP
- Develop scientifically sound methodologies for developing baselines

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[1]The term emissions allowances or allowances is used throughout these minutes to refer to rights to emit greenhouse gases traded in either between 1) countries with targets and timetables (which pre-allocation among regulated entities and verification), 2) countries with targets and timetables at the project level (joint implementation, which requires pre-project national certification and post-project verification), and 3) countries without targets and timetables at the project level (CDM, which requires pre-project national certification and post-project verification, most probably by international entities).

INTERNATIONAL EMISSIONS MEASUREMENT AND VERIFICATION WORKSHOP

Hosted by the World Bank

April 21, 1998

Following is a summary of the workshop presentation and the discussion

Session I: Presentations — 1:30 am -2:15 pm

Karl Jehoutek, Sector Manager for the Energy Unit at the World Bank, introduced the workshop and emphasized the growing importance of measurement and verification (M&V) as we move toward tradable greenhouse gas (GHG) emissions allowances and cross-border investments in energy efficiency projects in return for emissions allowances. Mr. Jehoutek praised the efforts of DOE and its partners in creating the International Performance Measurement and Verification Protocol (IPMVP) as the first and only comprehensive consensus document that lays out multiple options to follow in establishing an M&V program that will be acceptable to the international community and upon which a tradable emissions allowance regime can develop in the marketplace. He said that such a M&V approach must become an integral part of World Bank projects, which too often ignore the need for post-implementation follow up to measure results.

Greg Kats, Director of Financing for Energy Efficiency and Renewable Energy at the U.S. DOE presented slides that made the following points:

- A typical energy savings project having a strong M&V program realizes energy savings of approximately 20% higher than projects with poor M&V, and benefit from lowered operation and maintenance (O&M) costs. Because of higher savings and lower O&M costs, the payback for strong M&V, which adds about 5% to cost of retrofit, is typically on the order of months.
- The IPMVP outlines several M&V options, each one having different costs and payback periods (one size does not fit all).
- Mr. Kats stressed the fact that the IPMVP is a consensus, living document involving national participating organizations from 16 countries. The document is posted on the Web (www.ipmvp.org) and is being translated into eleven languages.

Josh Margolis, Senior Vice President at Cantor Fitzgerald, the largest environmental brokerage firm in the U.S., discussed the criteria needed to establish a credible emissions trading regime. He observed that to be successful, a trading regime must be designed to be simple and minimize buyer risk. His main points were:

- Investors need to know that allowance is convertible between countries, like a US dollar.
- Once created, allowances will be not be discounted or confiscated.

- M&V Protocols are critical to project-based trading programs, i.e., greenhouse gas offset projects under JI or CDM.
- Methodologies should be simple and have minimal transaction costs. Perfection is the enemy of the good.
- Imposing an additionality requirement i.e., proof that reductions would not have occurred otherwise, may increase the quality of emissions reductions but may sharply increase transactions costs, invite gaming and discourage efficiency investments.
- Use of the IPMVP by the World Bank and other MDB projects will help lead to the use of standard methodologies that have proven to result in projected savings. This, in turn, will give investors confidence needed to create a true market.

Nikolai Raptsoun, former Deputy Minister and now Director of Arena Eco (Ukraine) indicated that the use of the IPMVP in a project in Kiev gave the World Bank confidence to proceed with a $30 million efficiency loan to Ukraine, and helped Ukraine structure and implement its performance contract. Mr. Raptsoun ran the Ukraine program to evaluate national greenhouse gas reduction potential. Mr. Raptsoun underlined the importance of the IPMVP as a technical basis for climate change trading programs.

Richard Moss, Head of the Intergovernmental Panel on Climate Change Working Group II Technical Support Unit, indicated that a paper entitled *Technology Policies and Measures*, presented before Kyoto, made it clear that a standard M&V protocol is needed and that there as yet no consensus on how to measure emissions reductions for trading purposes. A standard M&V approach will make the task of analysis much easier. Eric Martinot and John Millhone are chapter heads in writing a book for the IPCC that will address technical issues related to emissions reductions opportunities and trading. Both spoke of the importance of standard protocols in both measuring and verifying savings, as well as in working with regulators to ensure that they have a sense of ownership.

Joe Gilling, Senior Energy Economist at the World Bank, discussed the World Bank environmental strategy for the Energy sector and reviewed four policy papers of the World Bank on energy efficiency, beginning in 1992. He emphasized that monitoring and verification will play an important role in helping to operationalize the World Bank energy strategy, especially for energy efficiency. Mr Gilling concluded that the use of market based instruments such as performance contracting for efficiency and emissions management will require a robust M&V methodology that is widely accepted and easily applied.

Charles Feinstein, Chief of the Global Climate change Unit of the World Bank, discussed the two Bank mechanisms to address global climate change: the GEF and the new Prototype Carbon Fund. Under one description, carbon fund emissions reductions would be spun off as dividends to investors. The Fund is intended as a niche player and will require high quality M&V. He said the World Bank M&V guidelines published five years ago were engineering oriented, and a more recent document in 1994 emphasized long-term operation programs and producer/consumer behavior. The Prototype Carbon Fund intends to increase investor confidence

that the allowances (offsets) are real. He said that the World Bank President, James Wolfenson, is deeply concerned that there is no standard protocol by which stakeholders determine the value of allowances.

Session II: Discussion — 2:15 pm -4:30 pm
(select points organized by theme)

Several participants discussed the ***merits of M&V*** and the relationship to the IPMVP. Mr. Kats described the IPMVP is a tool that allows performance contracting to work successfully. Ms. Lockhart of NAESCO pointed out that the IPMVP facilitates financing and performance contracting.

Workshop participants discussed their interest in ***applying the IPMVP in international projects***. Mr. Arnaldo Biera of the Inter-American Development Bank indicated that developing countries are beginning to ask for technical assistance to establish M&V programs, and that the IDB will begin to use the Protocol in its technical assistance and lending program, especially in joint implementation projects.

Mr. Langer of Coleman Research Corporation (DOE Contractor) suggested that ***the IPMVP*** be accepted ***as the standard international protocol***, since it is not a commercial product (does not itself gain from its use) and can incorporate different options from various sources, i.e., is inclusive and a consensus document. Options that are accepted into the IPMVP should be certified as an acceptable methodology for verifying emissions reductions under the Kyoto Protocol; thus the use of any option in the document would be accepted by various stakeholders negotiating a transaction. Moreover, individual options should be evaluated as to levels of accuracy in order to assess the environmental integrity of the claimed emissions reductions. Mr. Kats indicated that certain options *within* the Protocol can be certified, such as the case of New Jersey, where Option A ("stipulated savings") is the one option in the IPMVP that will probably not be accepted by the State for meeting state air emissions reductions targets. Mr. Lefranc of the EPA said that, in the end, allowances must be certified through international, and not Country or State, institutions.

On the subject of ***third-party monitoring***, Ms. Lockhart indicated that most ESCO's are currently not using third parties to monitor results. Mr. Kats added that ESCO's are moving in that direction, and he cited New Jersey M&V protocol a case where third-party monitoring is the norm. Mr. Zwally indicated that JI programs around the world require third-party monitoring. Mr. Margolis pointed out that the verification companies, not individual projects, need to be scrutinized through "spot checks," thus helping to keep transaction costs low. Mr. Zwally echoed this point by saying that environmental groups propose the same model for use under the Protocol.

On the question of ***acceptance of emissions allowances***, Mr. Margolis argued that approaches

should be adopted such that emissions allowances cannot be disqualified by a governmental agency (e.g., US EPA) after a transaction is completed. The Environmental Defense Fund (EDF) is developing a proposal whereby the UN would certify verifiers, who would audit the user's (host project's) "environmental balance sheet" according to accepted auditing standards, much like accounting firms audit the financials of public companies.

A discussion on the ***monetary value of allowances*** then followed. Mr. Margolis indicated that the value of a single allowance should always be the same in terms of carbon, i.e., that one allowance equals one ton of carbon reduced, and that third party M&V is important. However, the price of the allowance will fluctuate based on the supply and demand in the market. If allowances are not standardized through verification, then the monetary value of allowances from different countries would differ, impose unnecessary and large transactions costs. Mr. Zwally added that in this case, allowance diversity could be achieved by mixing allowances originating from different countries. Mr. Heister pointed out that allowances should be purchased *after* the reductions have been achieved and verified, and the methodology for verifying savings should be approved by the Conference of Parties.

Mr. Langer said that this sequence of events will lead to a ***futures/forwards market***, since managers making investments in their industries, commercial buildings, etc. so that they will be confident that they can sell future allowances at a fixed price.

Mr. Kats asked the participants what steps they would recommend for future activities of the IPMVP committees. Mr. Millhone kicked off this discussion off by saying that ***field trial tests of the Protocol*** need to be made to ascertain what problems arise in implementation and to determine if the various options lead to desired results. These trials should assess the results in the face of economic, political, institutional, and transition country issues around a given project. Mr. Kats pointed out that the potential for doing field tests on large-scale building and efficiency projects exists, since application of the IPMVP is already required in all US federal projects and some large World Bank projects. Mr Margolis stated that a standardized step by step approach should be laid out in the IPMVP to make the allowance creation process transparent and standardized.

Another possibility, suggested by Mr. Norell, was for the Protocol to begin to examine new sectors or address ***carbon trading and additionality issues***. (Mr. Kats pointed out that policy issues would be flagged but are outside the scope of the IPMVP.) Participants discussed some of the complex issues that could be addressed by the IPMVP. Mr. Gilling spoke of the potential problem of ***double counting.***

Mr. Heister alluded to ***indirect effects***, such as price changes, system effects, and supply effects. Mr. Chronowski pointed out that new methodologies will need to be adopted for large agro-industry projects, such as biomass cogeneration, in developing countries like India, China, and Brazil. In these cases, approaches will have to include off-site M&V and/or two-party negotiations. For example, the parties will have to jointly examine the utility's dispatch model to

determine what fuel is being displaced and at what time of day/season, etc.

Mr. Martinot asked about the ***level of accuracy*** that should be aimed at in a M&V program, indicating that different levels would be appropriate for trading allowances, monitoring distribution losses or losses (especially of heat) during different times of day. He indicated that in cases where there is no commercial transaction, such as GEF grants, accuracy may be less important. Mr. Zwally suggested that the Joint Implementation Office could conduct select case studies that would assess the need for different levels of accuracy and inputs for each type of project. Mr. Martinot suggested that governments could approach the World Bank to assess issues that would help shape ***national action plans***, such as options for policy T&D systems, fuel choices, and dispatching power. Such a plan would have to include a region and site component that explores site specific approaches to measuring real plants.

Mr. Kats asked if the Protocol should be applied to a few key industry sectors. Mr Millhone suggested that another approach would be to identify and ***focus trials on a key energy efficiency equipment***, such as variable speed drives. The issue of ***benchmarking*** was also raised, since this process can inform managers energy efficient their industry is performing, as well as help managers monitor and achieve higher levels of efficiency. Mr. Gilling said that the allowances, like the dollar bill, must, in the end, have investors' confidence. This will be build up through ***institutional acceptance*** of certain standard and acceptable practices, including M&V.

Mr. Margolis emphasized again the importance of having a simple, workable system with ***low transactions cost*** (e.g. no substantial new requirement for demonstrating what allowances are eligible).

Mr Kats introduced comments provided by several additional groups that were unable to attend the conference:

Carlos Sersale di Cerisano, Assistant Director General at UNIDO, commented that climate change related financial transactions and technologies need to be linked to "**development transactions**" in the coming few years, and the IPMVP role should be viewed in this context. The key question is how to link the IPMVP with an international mechanism capable of implementing and enforcing agreed on international rules governing emissions reducing investments. So far, the international community has approached the many elements - including technology transfer and financing in an isolated manner. The IPMVP can play a useful role in bridging these elements, and the timing for revising the IPMVP to make a more useful tool for climate change trading is perfect.

Bernard Jamet, Director of the Energy Efficiency Unit at the European Bank for Reconstruction and Development (EBRD) observed that securing the **value of emissions reductions allowances is a potentially important new source of funds for energy efficiency investments** in FSU and Central and Eastern European countries and that the IPMVP is a useful tool in this effort. Mr. James pointed out that although efficiency investments are theoretically cost effective, in reality

they are not being done. Mr. James stressed that the idea of **disqualifying most efficiency investments as "additional" because these investments are theoretically cost-effective would be very counter-productive**. He observed that if most efficiency savings are disqualified from receiving allowances because they are theoretically "additional" then efficiency investment would be substantially less than they should be. The EBRD intends to use the IPMVP more widely in its investments and believes that it should more thoroughly address industrial applications.

Mr Richard Hosier, the UNIDO/GEF Principal Advisor of Climate Change, believes that IPMVP is already very useful and has asked that project managers fold the IPMVP into energy efficiency projects being submitted for GEF funding. Mr Hosier urged three areas of development for IPMVP:

1) That it become more international in content, participation and in appearance
2) That renewable energy applications need to be developed, tested and revised
3) There is a need for a simple to use template to move from energy savings to GHG reductions using IPCC methodology.

Mr. Moss provided a **summary perspective of what the IPCC would recommend** for continued IPMVP development:

- Conduct case studies of projects in key industrial sectors
- Expand the number of countries participating in the IPMVP process
- Address issues of uncertainties by identifying shortcomings in the methodologies and proposing adequate solutions that can be adopted in the IPMVP
- Develop scientifically sound methodologies for developing baselines

Dam C
Studies

1997-98 El NIÑO
CLIMATE AND WEATHER SUMMARY

JUNE 8, 1998

NOAA/National Weather Service
National Centers for Environmental Prediction
Climate Prediction Center
NOAA/National Climatic Data Center

EL NIÑO AND CLIMATE CHANGE: Record Temperature and Precipitation

SUMMARY

The 1997/98 El Niño, one of the most significant climatic events of the century, produced extreme weather worldwide. El Niños have become more frequent and progressively warmer over the past century, and new data and analysis suggest that global warming is exacerbating the effects of El Niño. Global temperatures for January-May 1998 substantially exceed previous records.

During this latest El Niño, temperature and precipitation records were broken across the United States. Many areas suffered heavy flooding, and a series of severe tornadoes has killed 122 people so far this year, already matching the annual record set in 1984. Elsewhere around the world, El Niño contributed to major droughts and wildfire in Mexico, Indonesia and Brazil; devastating floods in South America; and massive coral bleaching from Panama to Africa to Australia's Great Barrier Reef.

Globally, 1997 was the warmest year on record. Average temperatures for January-May 1998 have since set new all-time highs. Combined land and ocean temperatures for the five-month period exceed the previous record by 0.25 C (0.45 F).

Analysis of data from the ten strongest El Niños of the past century shows that they are occurring more frequently, and that they are becoming progressively warmer. These higher temperatures tend to produce more extreme weather events. Although El Niños occur cyclically, independent of any long-term warming trend, there is observational evidence to suggest that rising global temperatures may be linked to stronger, more frequent El Niños.

THE EL NIÑO PHENOMENON

El Niño, meaning "Little Boy" or "Christ Child" in Spanish, was the name given by fishermen to unusually warm water off the West Coast of South America. El Niños occur every few years and disrupt the ocean-atmosphere system in the tropical Pacific, which subsequently affects weather around the globe. Its far-reaching consequences include increased rainfall across the southern US and Peru, which has caused destructive flooding, and drought in the west Pacific, sometimes associated with devastating fires. During El Niño, the trade winds which normally blow west towards Indonesia, relax in the central and western Pacific, allowing normally cool, nutrient-rich waters off of South America to warm significantly, leading to a decline in these fisheries. As the Pacific's warmest water spreads eastward, the hot humid air which fuels thunderstorms moves with it. El Niño changes the position of the jet stream, winds which affect the weather not only in North and South America, but as far away as Africa and Antarctica.

THE 1997/98 EL NIÑO

The 1997-98 El Niño was first noted by numerical models and scientists at NOAA's Climate Prediction Center in early spring 1997 when sea surface temperatures (SST) in the equatorial Pacific ocean began to increase. By March 1997, the SSTs were approximately 1°C (1.8°F) above normal in the extreme eastern equatorial Pacific and the vicinity of the international dateline. By May 1997, the evolution of the atmospheric and oceanic conditions in the tropical Pacific were consistent with the beginning stages of warm episode, or El Niño, conditions. Along with the increased SSTs, tropical convection began to gradually shift eastward toward the date line. Numerical models indicated that a continued warming trend in the tropical Pacific would persist through the end of the year, and that the warm episode conditions would intensify during the summer. In May 1997, SSTs greater than 29°C (84° F) were observed from Indonesia to 160°W. Equatorial SST anomalies (departures from normal) exceeded +1°C from 175°W eastward to the South American Coast, with values greater than +4°C (7.2°F) observed in the extreme eastern Pacific. These strong conditions have persisted in the tropical Pacific Ocean since June 1997. As of May 1998, strong El Niño conditions continued as SSTs remained above 28°C throughout most of the region. The latest NOAA forecasts indicate a return to near normal conditions in the tropical Pacific during the next 3-6 months. Thereafter, the NCEP coupled model indicates that near normal conditions will persist through the end of 1998.

RISING GLOBAL TEMPERATURES

The most recent near-surface land and sea-surface ocean temperatures, based on weather stations, ocean ships and buoys, and satellites indicate that global temperatures for both land and ocean during 1998 (through May) far exceed all previous record high temperatures (FIGURE 1). Land temperatures are 0.32 C (0.58° F) warmer than any previous January-through-May period. Ocean temperatures are 0.20 C (0.36 F) warmer than any previous January-through-May period. Combined land and ocean temperatures exceed the old record by 0.25 C (0.45° F).

The warmth has clearly been reflected in the US. as temperatures have averaged 4 to 6 deg F above normal throughout the Great Lakes States and the Northeast. A number of new one-day record high temperatures were set during March of this year. They include: 92 F in Connecticut, 95 F in Maryland, 92 F in Massachusetts, 88 F in Vermont, 89 F in Maine, 92 F in New Jersey, and 89 F in New Hampshire.

The record warmth is continuing through May as initial data reports show near-surface land temperatures during May exceeding the previous record set in 1994 by 0.15 C (0.27 F). Ocean temperatures also continue to remain at record high levels in May, exceeding the previous record, set just last year, by 0.15 C (0.27 F). These record high ocean temperatures are persisting despite some cooling of ocean temperatures in the Equatorial Pacific related to the beginning of the demise of the recent El Niño event.

During the past few decades, global temperatures have persistently broken previous record highs every few years, but never to the extent observed in 1998. Each month this year has set a new all-time record high global temperature (FIGURE 2). This is unprecedented and is not likely to occur in a stationary climate. New analyses of tree-rings, historical records, and other proxy measurements indicate that these temperatures are warmer than the planet has experienced for at least the last 600 years.

EL NINO AND GLOBAL WARMING

Examination of data from the ten strongest El Niño events of the Century reveals two general trends: increasing frequency of El Niño events in the past few decades, compared to what was observed earlier this Century; and rising global temperatures during these events (FIGURE 3). It can not be determined from current evidence whether El Niños are becoming more frequent or more intense as a direct result of global warming. It appears evident, however, that the effects of El Niño could be compounded by rising global temperatures. In other words, the extreme weather and climate conditions related to naturally occurring El Niño events could be exacerbated by an ongoing global warming trend. The additional heat near the Earth's surface powers the energy required to evaporate enormous amounts of water. This affects the entire atmospheric water and energy balance.

El Niño events also strongly impact regional precipitation patterns. In the United States, for example, wet conditions ordinarily occur with El Niño events in the west, south, and southeast. This year, however, conditions have been wetter than average throughout virtually the entire country. This continues the Century-long trend toward wetter conditions in the USA, and more extreme rainfall and snowfall events.

Based on records dating back to 1895, many states have broken all-time records for mean temperatures and total precipitation during the period January-May 1998 (Figure Map). During the first five months of 1998, records for total precipitation were broken in California, Maryland, North Carolina, South Carolina and Virginia. For the same time period, Idaho had its second wettest year to date, Rhode Island its third wettest, Nevada its fourth wettest, and Massachusetts, Oregon, and Pennsylvania their fifth wettest year to date. Outside of California and Arizona every state has had above average temperatures with 24 states experiencing much above normal temperatures (in the upper ten percentile). Thirteen states have had their warmest January - May period on record. Seventeen states had much above normal precipitation, nine states had both much above normal precipitation and temperature, and Maryland had both the wettest and warmest period on record to date.

While some regions experience heavy precipitation during El Niño, in others, increased global temperatures lead to conditions that are drier than normal. For example, during the past year, Indonesia and Central America have suffered droughts, which have contributed to catastrophic wildfires.

APPENDIX: JANUARY-MAY (YEAR-TO-DATE) TEMPERATURE AND PRECIPITATION RECORDS IN THE CONTIGUOUS UNITED STATES

Many temperature and precipitation records were broken in the United States during the January through May period, with several regions and 17 states setting records for precipitation and temperature for this period. The Northeast region and 13 states had the warmest January through May period on record, while the East North Central and Central regions and the states of Illinois, Indiana, Maine and Minnesota had the second warmest January through May periods on record. During the same period, the Southwest and West regions, and California, Maryland, North Carolina, South Carolina and Virginia broke records for precipitation dating back to 1985. Idaho also had the second wettest five-month period on record.

(Temperatures in degrees F, Precipitation in inches)

January-May 1998 was the wettest on record (back to 1895) for 2 regions and 5 states:

Region	1998 Value	1998 Percent of Normal	1961-90 Normal	Second Wettest Value & Year
Southeast	27.72"	134%	20.76"	27.31" in 1979
West	19.66"	218%	9.03"	19.04" in 1995

State	1998 Value	1998 Percent of Normal	1961-90 Normal	Second Wettest Value & Year
California	28.04"	228%	12.31"	27.49" in 1909
Maryland	24.55"	141%	17.39"	24.45" in 1924
North Carolina	29.20"	145%	20.08"	26.31" in 1979
South Carolina	29.98"	149%	20.17"	28.64" in 1929
Virginia	27.88"	162%	17.26"	23.30" in 1984

January-May 1998 was the second wettest on record (back to 1895) for 1 state:

State	1998 Value	1998 Percent of Normal	1961-90 Normal	Wettest Value & Year
Idaho	11.89"	134%	8.86"	12.17" in 1996

NOAA/NESDIS/National Climatic Data Center

January-May 1998 was the warmest on record (back to 1895) for 1 region and 13 states:

Region	1998 Value	1998 Dep. from Normal	1961-90 Normal	Second Warmest Value & Year
Northeast	40.9	+5.4	35.5	39.8 in 1921

State	1998 Value	1998 Dep. from Normal	1961-90 Normal	Second Warmest Value & Year
Connecticut	43.6	+5.2	38.4	42.8 in 1991
Delaware	50.0	+4.9	45.1	49.5 in 1991
Maryland	48.8	+4.5	44.3	48.6 in 1990
Massachusetts	41.8	+4.6	37.2	41.2 in 1949
Michigan	39.1	+6.1	33.0	38.6 in 1921
New Hampshire	37.9	+5.2	32.7	36.1 in 1953
New Jersey	47.7	+5.4	42.3	46.4 in 1991
New York	40.1	+5.8	34.3	38.9 in 1921
Ohio	46.4	+5.9	40.5	45.8 in 1921
Pennsylvania	44.5	+5.9	38.6	44.0 in 1921
Rhode Island	44.1	+4.5	39.6	43.0 in 1949
Vermont	36.9	+5.3	31.6	35.8 in 1953
Wisconsin	38.7	+7.2	31.5	37.9 in 1987

January-May 1998 was the second warmest on record (back to 1895) for 2 regions and 4 states:

Region	1998 Value	1998 Dep. from Normal	1961-90 Normal	Warmest Value & Year
East North Central	38.5	+6.4	32.1	39.0 in 1987
Central	48.3	+4.4	43.9	49.0 in 1921

State	1998 Value	1998 Dep. from Normal	1961-90 Normal	Warmest Value & Year
Illinois	46.6	+5.2	41.4	47.3 in 1921
Indiana	46.7	+5.3	41.4	47.1 in 1921
Maine	33.60	+4.3	29.3	33.62 in 1913
Minnesota	36.0	+7.3	28.7	37.4 in 1987

NOAA/NESDIS/National Climatic Data Center

MONTHLY CLIMATE HIGHLIGHTS

January 1998

Weather patterns only occasionally deviated from the classic El Niño structure, as Arctic air edged into the northern plains and Pacific storms hit parts of the Pacific Northwest. Frequent storminess continued across the south and east, including a powerful storm that produced flooding in the southeast and one of the worst ice storms on record in parts of New England. In terms of temperatures, arctic air was held at bay, although it occasionally reached the northern plains. Though the temperature fell to -40 F at Jordan, Mont., on the 12th, the only areas of the U.S. where monthly mean temperatures averaged below normal were across portions of Montana and southern California. Monthly mean temperatures were 10 degrees above normal across portions of the Great Basin, northern plains, Ohio Valley, and the Middle Atlantic region.

The persistent storminess lead to record breaking monthly precipitation totals at the following locations: New Orleans, LA (19.28 inches), Mobile, Ala (16.92 inches), Baton Rouge, La. (14.94 inches), Asheville, N.C. (9.96 inches), Roanoke, Va. (7.97 inches), Blacksburg, Va. (7.39 inches), and Burlington, Vt. (5.15 inches). Late in the month, an east coast storm caused beach erosion and dumped record snowfall across the central and southern Appalachians, with Flat Top, W. Va. accumulating 35.0 inches of snow in a 24-hour period on January 27-28. Elsewhere in West Virginia, 24-hour snowfall records were established at Bluefield (21.9 inches) and Beckley (31.0 inches). Storm total snowfall reached 42 inches in Ghent, W. Va. and 40 inches at Beech Mountain, N.C.

During the week of January 5-9, 1998, the eastern U.S. and eastern Canada were severely affected by a storm system with a very deep southerly flow and abundant moisture. This resulted in flooding rains from the lower Mississippi valley through the southeast and into the northeast, accompanied by several tornadoes, and a severe ice storm in parts of the northeast/New England and into Canada.

The heaviest rains and most severe flooding occurred in the mountains of North Carolina and northeast Tennessee, where up to 16 inches of rain fell in a two day period in Jackson County, N.C. Estimates indicated over 500 homes either destroyed or with severe damage in North Carolina, and over 200 homes severely damaged or destroyed in Tennessee. Tornado touchdowns produced some damage in Dublin, Ga. and Easley, S.C. Flooding also was a problem in parts of the lower Mississippi valley and upstate New York.

The severe ice storm mainly affected upstate New York, northern New Hampshire and Vermont, much of Maine, and southeast Canada. Some locations received over 3 inches of rain (in the form of freezing rain). Canada reported over 3 million utility customers without power immediately after the storm, while the northeast U.S. reported over 500,000 customers without power. In Maine, four out of five residents lost electrical service at some point during or after the storm, and nearly 3 million feet of power lines were destroyed. Overall damages were well over $2 billion for Canada and over $300 million for the U.S. The last U.S. ice storm to strike with this (or greater) intensity was during February 1994 in the southeast U.S.

February 1998

February was again very warm across most of the continental U.S. aided by the strong El Niño signal. Mean monthly temperatures were as much at 6-16 F above normal across portions of the northern plains. These warm temperatures resulted in many record temperatures including an average temperature of 29.1 F at Sault Ste. Marie, Mich., which was 15.1 F above normal. The only below normal areas in the contiguous U.S. were across portions of the southwest and west coast. Especially impressive was the lack of night-time cold, as temperatures remained above the 20 F mark for the entire month in Topeka, Kan. --the first occurrence since records began 102 years ago. At Madison, Wis., the month's extreme lowest daily temperature was only 11 F, which is equal to their normal daily average February minimum. Unusually cloudy weather continued across a large portion of the eastern half of the country, which acted as a night-time blanket and kept temperatures well above normal. At month's end, the water temperature of Lake Erie at Buffalo was 36 F, the highest on record for the end of the month. The only other seasons that the lake remained unfrozen were 1952-1953 and 1982-1983.

In terms of precipitation, across California and the southwest, four weeks of nearly continuous storminess resulted in widespread flooding, mudslides, and agriculture disruptions. Late in the month a shift in the weather pattern brought some of that storminess out of the southwest and into the northern plains. February precipitation records were set at nearly a dozen locations in the east and at least 19 stations in California. Santa Barbara, Calif., received an incredible monthly total of 21.74 inches, breaking the old record of 17.33 set in 1962 and establishing a record for any month. Records for that location date back to 1867.

Severe thunderstorms produced winds gusts to 104 mph in Miami, 90 mph in Hollywood, and 66 mph in Homestead on the 2nd and 3rd of the month. Over 220,000 Florida Power and Light customers were left without power, as the company said damage to its system was the worst since the "Storm of the Century" in March 1993. Another batch of severe thunderstorms spawned deadly tornadoes across central Florida on February 22-23, killing 42 people.

California Flooding

During the month of February 1998, California was struck by a series of storms due in part to the affects of El Niño. The current estimates indicate over $550 million in damages for the state, with that total expected to climb. The state also reported 17 storm-related deaths for the winter, and 35 counties were declared federal disaster areas. Clear Lake in northern California reached its highest level since 1909, flooding portions of Lakeport, about 90 miles north of San Francisco.

The west coast has dealt with severe flooding for each of the last four winters (including this year). However, the previous three winters were not significantly influenced by El Niño, thus showing that (as climatologists have pointed out in prior years) severe flooding can occur on the west coast during non-El Niño years.

Florida Tornadoes

During the late evening of February 22 and early morning of February 23, 1998, a series of tornadoes ripped across central Florida. At least one of the tornadoes reached an estimated F4 intensity. Forty-two fatalities occurred, over 800 residences were destroyed, another 700 were left uninhabitable, over 3500 were damaged to some extent, and 135,000 utility customers lost power at the height of the storms. Damages from the tornado outbreak exceeded $60 million, and Florida's overall storm damage total since last fall is approximately $500 million. Hardest hit locations in the tornado outbreak were Winter Garden, Altamonte Springs, Sanford, and Campbell. Overall, 54 of Florida's 67 counties were declared federal disaster areas due to storms over the past few months.

March 1998

March's weather featured an impressive cold outbreak (about 150 daily-record lows from March 7-13) followed by a summer-like warm spell (about 200 daily-record highs and more than 20 monthly record highs from March 22-31). The Arctic outbreak produced the coldest weather of the season in many locations across the Central and Southeastern States in an otherwise mild winter. Snow cover protected winter wheat on the central and northern Plains, but in the Southeast, tender vegetation and peach blooms were damaged by three consecutive freezes (March 11-13). March temperatures ranged from 2 to 7 F below normal on the Plains to as much as 5 F above normal in the Great Lakes and Northeastern States. Monthly readings averaged within 2 F of normal in California and the Southwest, although sharply cooler air arrived at month's end, in conjunction with a renewed series of storms.

In California, a month-long stretch without torrential rain--which allowed for recovery from the February deluge--was replaced by cold, wet conditions toward month's end. Monthly rainfall totaled more than 200 percent of normal across parts of southern California, the Southwest, and the southern Plains.

An active storm track across the Central and Midwestern States helped to provide abundant snowfall. Monthly totals of 13.6 inches in Wichita, Kan. and 12.3 inches in Norfolk, Neb. represented more than 50 percent of their respective season-to-date totals. On southern California's Mt. Laguna, the snow depth reached 19 inches on March 29. The last two weather systems also produced a wide variety of severe weather, including several tornadoes. On March 20, a total of 15 people were killed in Georgia and North Carolina. Nine days later, two people in Minnesota died in separate tornadoes.

During a 96-hour period early in the month (March 4-8), 4 to 12 inches of rain inundated parts of the Southeast. The downpours, a culmination of a 5-month wet spell, sent rivers to near-record levels in parts of Alabama, Georgia, and western Florida. Meanwhile in Virginia, a continuation of wet conditions through most of the month resulted in record January-March precipitation in locations such as Roanoke (21.17 inches; 232 percent of normal) and Richmond (19.33 inches; 193 percent).

On March 9, streaks of above-normal temperatures ended at 47 days in Moline, IL and 53 days in Milwaukee, WI. Across the Southeast, a 3-day spell of damaging cold commenced on March 11. In the East, the late-month record warmth came just a few days after a significant snowstorm. On March 22, 5.0 inches fell in New York's Central Park, boosting the season-to-date snowfall to 5.5 inches. Nine days later, the Park posted a March-record-tying high of 86 F. On the last 4 days of the month, highs soared to March-record levels in more than 20 locations. Monthly temperatures ranged from 1 to 14 F above normal in Alaska.

Serious drought continued in Hawaii through March. On Oahu, Honolulu experienced their third-driest March (0.03 inches; 1 percent of normal) and January-March (1.01 inches; 13 percent) periods on record. At the major reporting stations, 6-month rainfall ranged from 4.86 inches (28 percent of normal) in Honolulu to 16.68 inches (59 percent) in Lihue. Hilo received 37.47 inches (47 percent of normal) from October to March, but only 6.21 inches (18 percent) since January 1, 1998.

April 1998

Under the influence of a very strong southern branch of a split jet stream, below-normal temperatures prevailed from California into the Southeast. Monthly departures ranged from -2 to -5 F from California to the central and southern Plains. Meanwhile, readings averaged 2 to 7 F above normal across the Nation's northern tier. Because of the unusual warmth, some fruit trees across the Great Lakes and Northeastern States were already in bloom when more typical weather--resulting in several freezes--returned toward month's end.

The jet stream's active southern branch produced unsettled weather across California and the Southwest. Farther east, several April rainfall records were broken across the Ohio Valley and into the Southeast. At month's end, many rivers--including the middle Mississippi and lower Ohio Rivers--remained very high. In contrast, the procession of storms failed to dampen the South Central United States. The dry spell, which stretched to 6 weeks by the end of April, also affected the immediate Gulf Coast and most of Florida, although a late-month storm boosted topsoil moisture from eastern Texas to Florida.

Deadly tornado outbreaks struck on April 1, 8-9, and 16, claiming 45 lives across five Southeastern States. The last time more people died in April tornadoes was 1979. On the evening of April 8, an F5 (winds in excess of 260 mph) cut a 21-mile swath across Jefferson County, Ala., killing 31 people. Through the first 4 months of 1998, the nation's tornado toll reached 103, the highest calendar-year total since 1984, when 122 died.

During the first half of the month, several storms dumped significant snow from the Southwest to the central High Plains. In the Northeast, however, there was no April snowfall in Rochester, N.Y. for the first time since 1952. Meanwhile, record warmth developed across the Northwest. The last day of the month featured an April-record high of 90 F in Portland, Ore. Nearly all of Alaska wrapped up a third consecutive month with above-normal temperatures. Monthly departures ranged from 0 to +14 F. Drought continued throughout most of Hawaii, although significant improvement occurred in windward (east-facing) areas.

May 1998

The biggest weather story of the month was the tornadoes and severe thunderstorms which pummeled the northern Great Plains eastward across the Great Lakes states to upstate New York and New England from Saturday evening May 30th through Sunday May 31st. At 8:44pm May 30th a strong tornado, tentatively classified as an F4 on the Fujita damage scale, struck Spencer, South Dakota killing 6 persons, injuring 150 and literally destroying up to 90 percent of the town. As the storm system swept eastward during Sunday, 9 additional deaths occurred in Wisconsin, Michigan, Massachusetts and Pennsylvania due to tornadoes and severe thunderstorms. More than 34 tornadoes (preliminary estimate) occurred on Sunday across the northeastern states. Dozens of people were injured and 15 homes were destroyed in Mechanicville, New York. Winds gusted to 107 mph in Dodge County, Wisconsin, 92 mph near Grand Rapids, Michigan, and 70 to 80 mph around Minneapolis, St. Paul, Minnesota.

About the same time in the Pacific Northwest, heavy rains hit central Oregon from Thursday, May 28th through the weekend. The heaviest rains occurred in Crook, Deschutes, Wheeler, and Jefferson Counties with 7 inches near Prineville. Many small streams and rivers overflowed, resulting in the Governor declaring a state of emergency in Crook county. Fifty homes were damaged in Prineville and 400 were evacuated as water spilled over the Ochoco Dam.

The other major weather event was the fires that developed in Mexico and Central America and the resulting smoke plume which blanketed Texas and effected portions of the central part of the nation. By May 15th, 10,000 fires covering more than 6000 acres of Mexico and Central America generated enough smoke and particulate matter to trigger a health alert from the Texas Natural Resource Conservation Commission. The health alert remained in effect through May 25th.

Other significant events included heavy rains of up to 5 inches over the Midwest on May 2nd and 3rd sent roads under 4 to 5 feet of water in portions of Illinois, Indiana, Michigan, Ohio, and West Virginia. On May 7th, tornadoes struck South Carolina and North Carolina. One person was killed in Edgefield, South Carolina, crushed in their mobile home. Forty-five thousand persons were without power in Winston Salem, North Carolina, while 200 people were sent to shelters in Lincoln County, Georgia as a tornado struck near Lincolnton.

For the month of May, 10 persons were killed by tornadoes alone, not counting severe thunderstorm deaths. For the first five months of this year, 120 persons have been killed by tornadoes, compared to the long term average of 61.

Global Surface Mean Temperature Anomalies
January-May

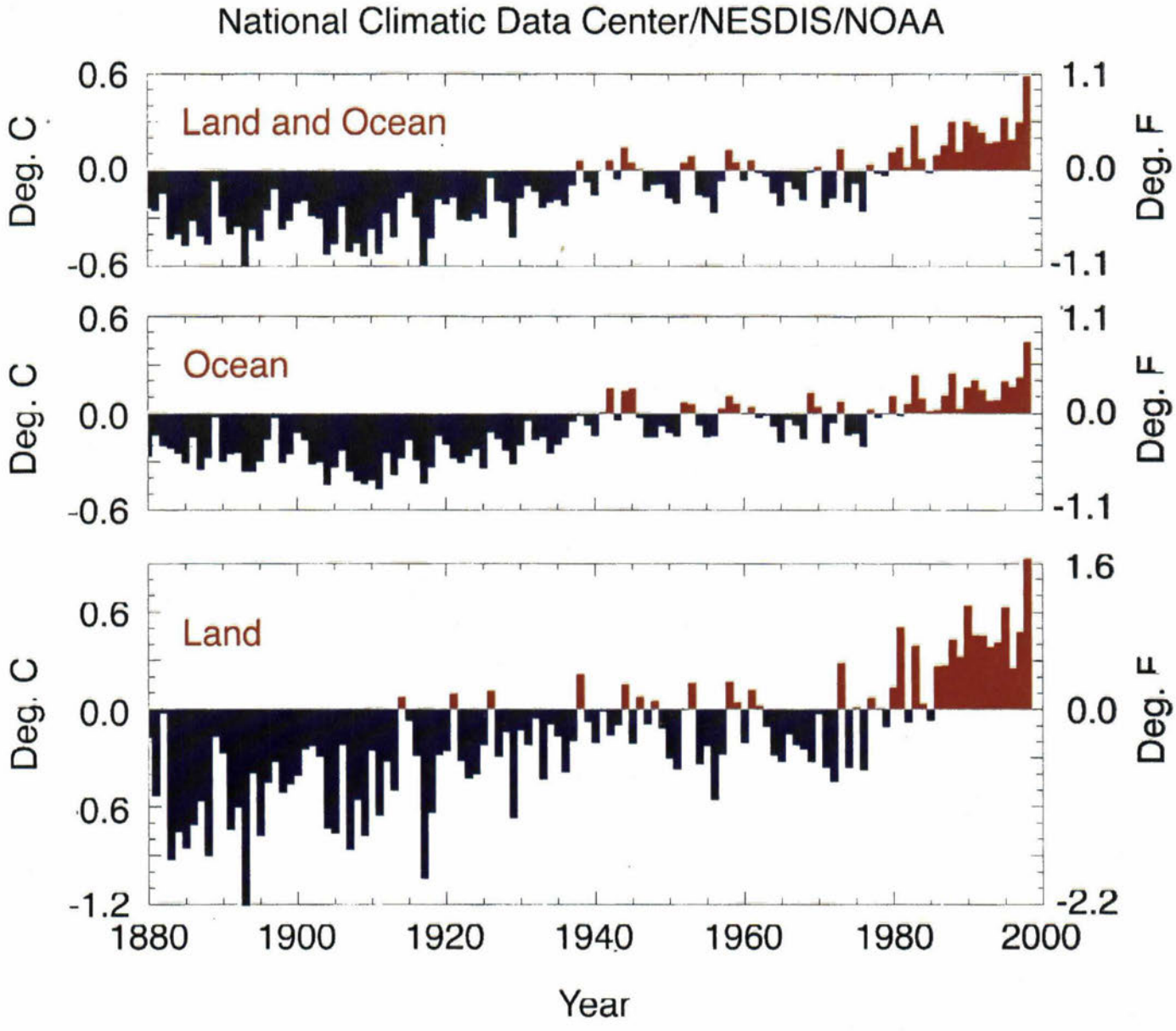


Figure 1
Global near-surface temperature deviations from the 1961-90. Average for land and ocean areas combined, and land and ocean areas separately. Data are based on weather stations, ships of opportunity and research vessels, ocean buoys, and polar-orbiting satellites.
Source: NOAA, National Climatic Data Center

Average 1998 Global Temperature vs. Previous Record for each Month Jan-May

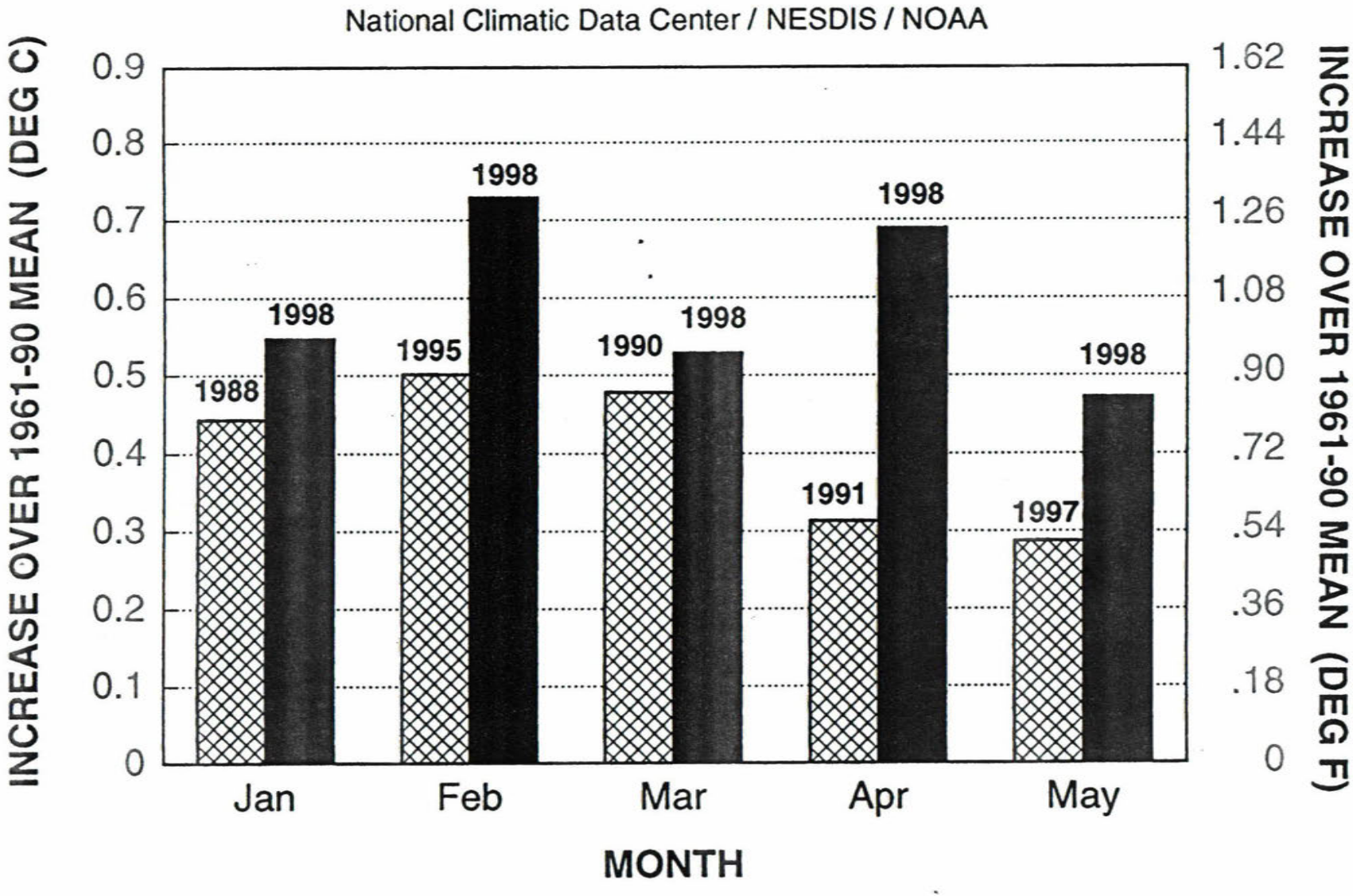
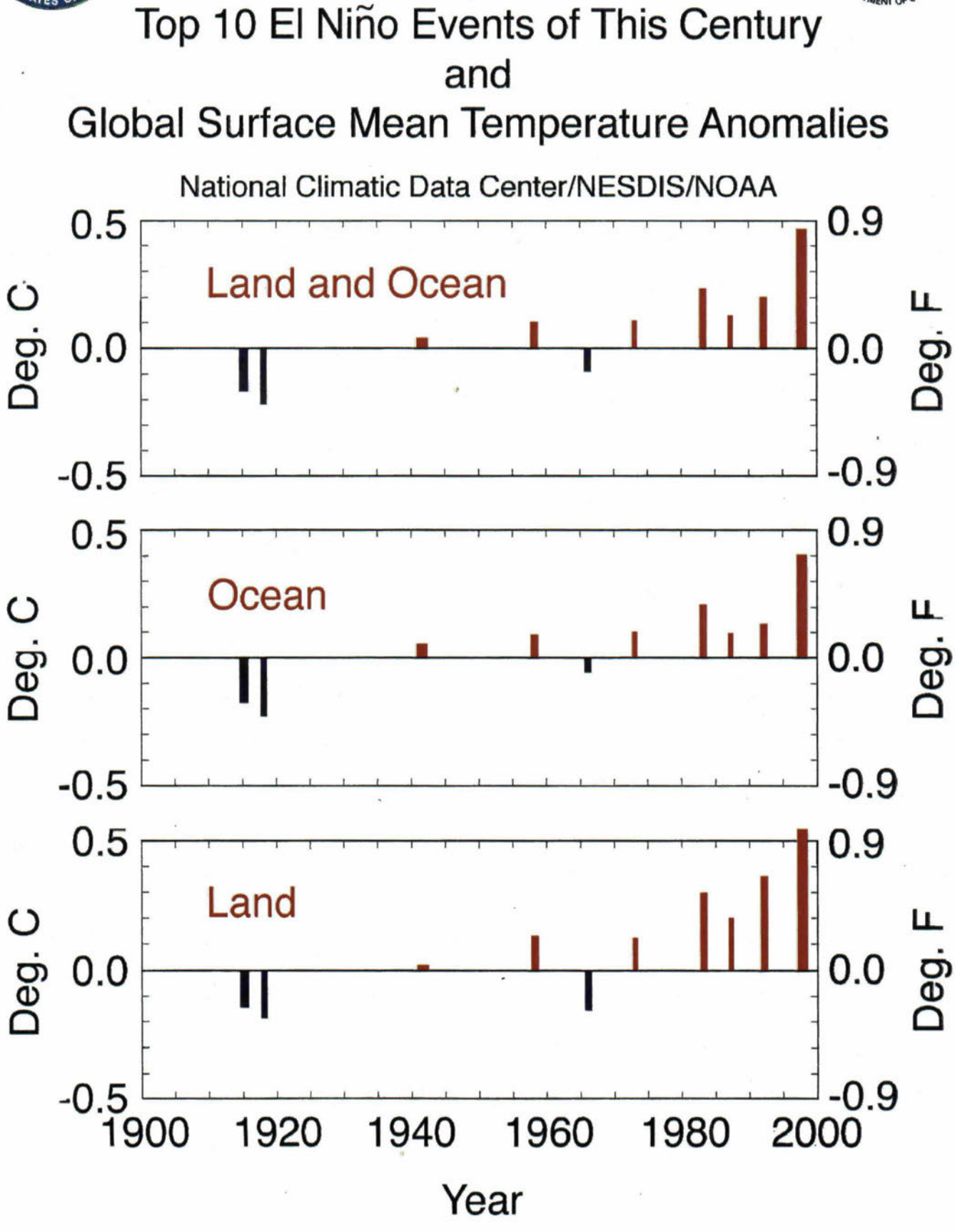
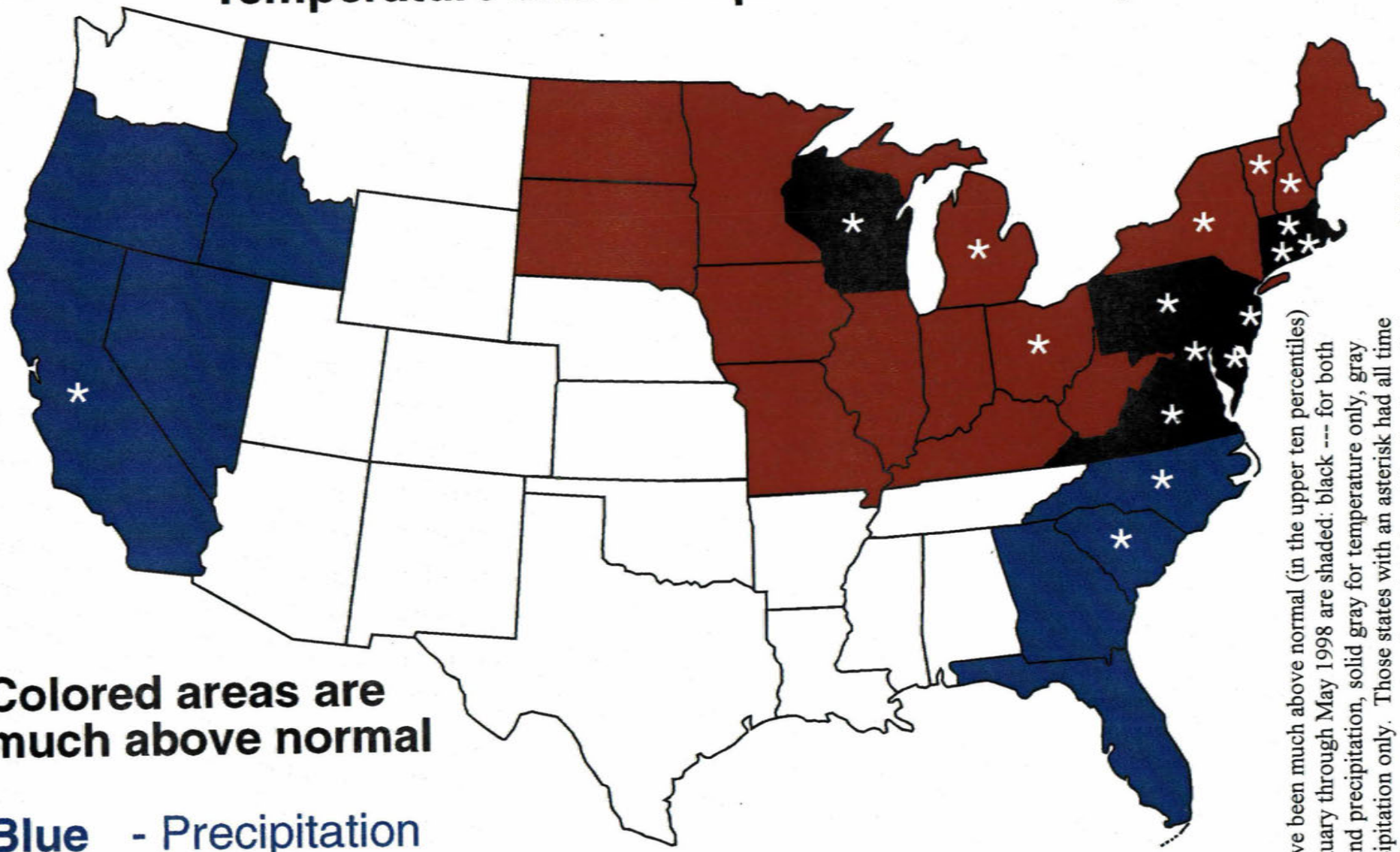


Figure 2
Month-by-month record high global near-surface temperature deviations from the 1961-90 compared to 1998 new-record high temperatures. Data are based on weather stations, ships of opportunity and research vessels, ocean buoys, and polar-orbiting satellites. Records date back to 1880.
Source: NOAA, National Climatic Data Center

Figure 3
Global near-surface temperature deviations from the 1961-90 average for the ten strongest El Niños of the Century. The shortest El Niño events persisted 6 months and the longest 15 months.
Source: NOAA, National Climatic Data Center



January - May
Temperature and Precipitation Summary

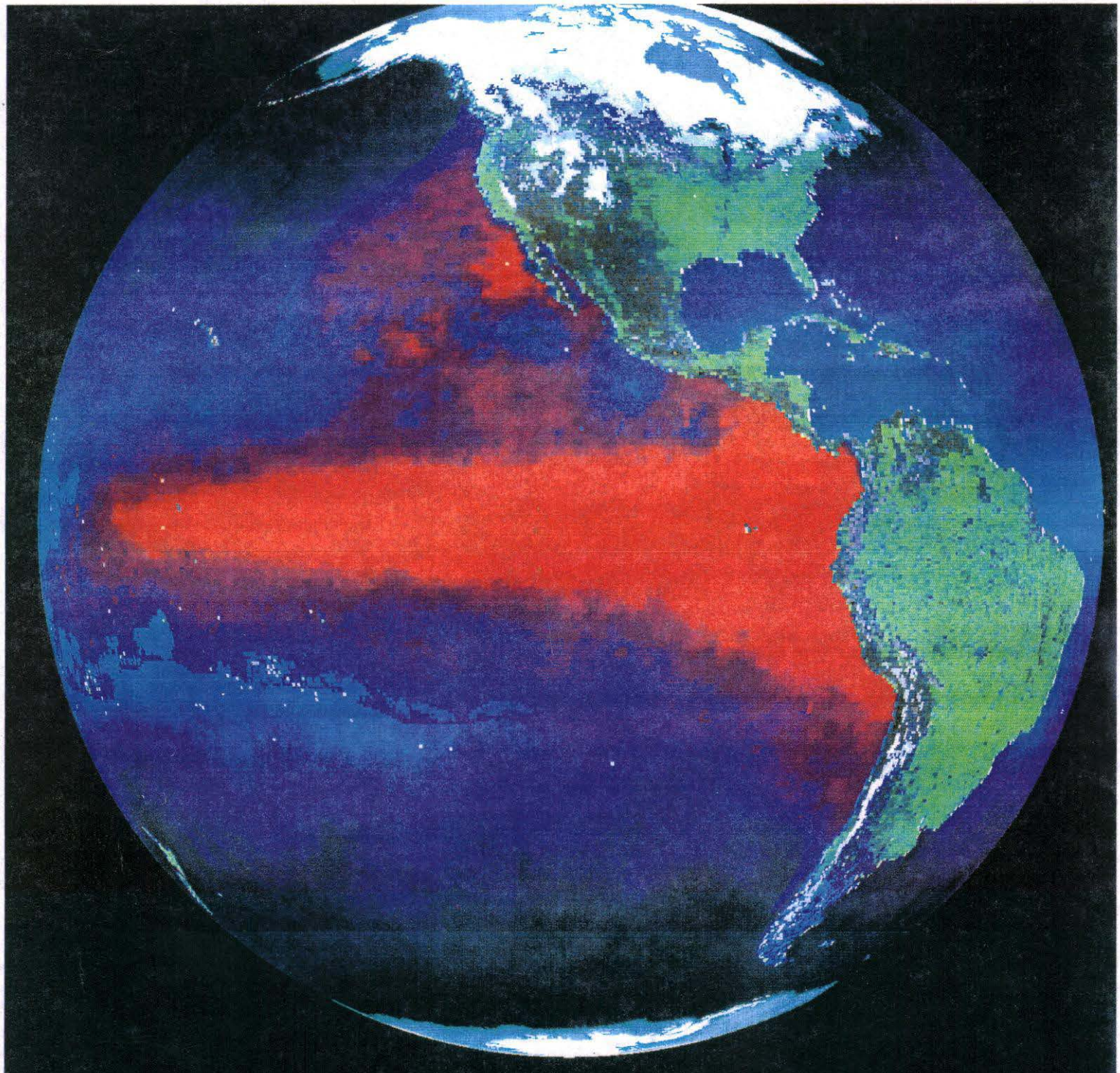


Colored areas are much above normal

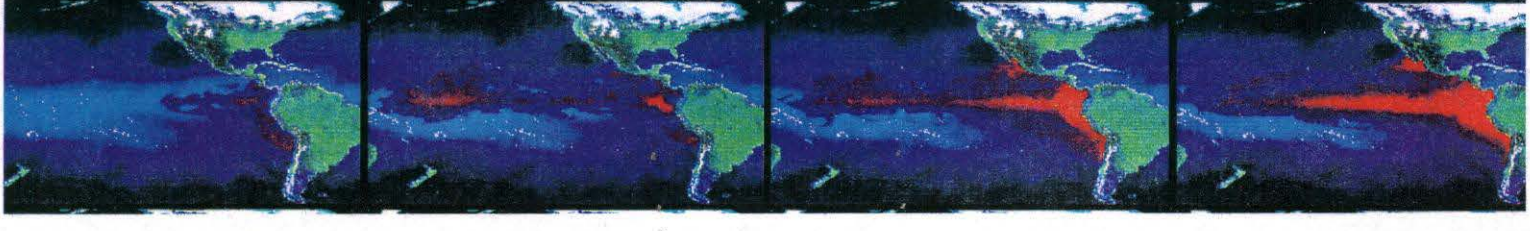
Blue - Precipitation
Red - Temperature
Black - Both Temperature and Precipitation

* = all time record high (since 1895)

Figure 4
States that have been much above normal (in the upper ten percentiles) for period January through May 1998 are shaded: black --- for both temperature and precipitation, solid gray for temperature only, gray wavy for precipitation only. Those states with an asterisk had all time record highs for temperature or total precipitation. Maryland set all-time record highs for both precipitation and temperature. Records date back to 1895.
Source: NOAA, National Climatic Data Center



NOAA'S SATELLITE VIEWS EL NIÑO - 1997/98



National Oceanic and Atmospheric Administration
National Environmental Satellite, Data, and Information Service

NOAA'S SATELLITE VIEWS
EL NIÑO 1997/98

These sea-surface temperature (SST) Images were made from satellite-derived, high-resolution, sea-surface temperature anomalies using data from NOAA's polar-orbiting satellite, NOAA-14. The area depicted in red is the SST anomaly that corresponds to the El Niño "warm pool." Other regions where SSTs exceed normal levels are not highlighted in red, nor are regions shown that might be below normal.

The sequence of eight images in the lower portion of this plate show the development of the El Niño from March 10, 1997 through February 10, 1998 (at approximately 6-week intervals). Shown at the top is the October 10, 1997 image (fifth in the sequence), enlarged onto the Earth's disc of the western hemisphere. At this time, the SST anomaly is roughly twice the size of the United States, extending from the South American shoreline of Chile, northward to the west coast of the United States, and westward to the International Date Line in the mid-Pacific Ocean. At times the SSTs were as much as +9°C above normal. These extremely high temperatures during the early development of the 1997/98 El Niño are the highest ever recorded during any April-July time period.

THE WHITE HOUSE

Office of the Vice President

For Immediate Release
Monday, June 8, 1998

Contact:
(202) 456-7035

VICE PRESIDENT GORE ANNOUNCES RECORD GLOBAL TEMPERATURES IN THE FIRST FIVE MONTHS OF 1998

New Data Suggests That Global Warming May Be Making Effects of El Nino Even Worse

Washington, DC -- Vice President Gore today announced new data showing record global temperatures in the first five months of 1998, and a new analysis by federal scientists suggesting that global warming may be making the effects of El Nino even worse.

The Vice President released a report by the Commerce Department's National Oceanic and Atmospheric Administration (NOAA) showing that average global temperatures for January through May far exceed previous records for those months. The report also shows that over the past century, El Ninos have become more frequent and progressively warmer.

"This century is the warmest in 600 years, 1997 was the warmest year on record, and we've set new temperature records every month since January," Vice President Gore said in remarks at the White House. "This report is a reminder once again that global warming is real, and that unless we act, we can expect more extreme weather in the years ahead."

The Vice President called on Congress to approve the Administration's Climate Change Technology Initiative, which would reduce greenhouse gas emissions by providing $6.3 billion over five years for tax and research incentives to spur the development and use of energy-efficient products and clean energy technologies. The package includes tax credits for consumers who buy super-efficient cars, homes and appliances.

"Regrettably, there are those in Congress who'd rather pretend that climate change is not real," the Vice President said. "It's time for Congress to wake up to the mounting evidence and help us meet this challenge head on. The time to act is now."

The NOAA analysis examined the 10 strongest El Nino events of this century and found that they have become more frequent and warmer. During El Nino, a naturally occurring phenomenon, rising ocean temperatures in the Southern Pacific Ocean set off climatic shifts that can produce extreme heat and extreme precipitation in different regions of the world. Although it is not clear that the increasing frequency and warmth of El Ninos is a direct result of global warming, the analysis suggests that the effects of El Nino are compounded by rising global temperatures.

For the first five months of 1998, new temperature records were set in five states, and new precipitation records in 13. Temperature or precipitation, and in some cases both, were far above normal in 32 states. Tornadoes have killed 122 people this year, matching the annual record set in 1984. Elsewhere around the world, unusually warm ocean temperatures have severely damaged fragile coral reefs from the Florida Keys to Australia, and prolonged drought have contributed to thousands of wildfires in Malaysia, Brazil and Mexico.

"This El Nino gives us a taste of the extreme, erratic weather our children and grandchildren can expect more of unless we reverse the trend of global warming," the Vice President said.

The Vice President directed NOAA and the Federal Emergency Management Agency to work with other agencies in preparing a detailed review of the 1987-88 El Nino, its impacts and its costs. He also announced a new National Aeronautics and Space Administration web site (http://modarch.gsfc.nasa.gov/fire_atlas/fires.html) tracking major forest fires around the world with state-of-the-art satellite imagery.

Dom Studies cornell University

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2 June, 1998

Todd Stern
Assistant to the President for
Special Projects
The White House
Washington DC

Dear Todd:

I appreciated meeting you at the AFL-CIO session on climate change. I hope that there are many ways that we can contribute to solutions as you proceed in the months ahead. I have enclosed a copy of the report we did prior to Kyoto **on Labor, Climate Change and the Environment**. It provides the most comprehensive survey of union approaches in the US and internationally. Our attempt was to focus on seeking positive solutions. Frankly, I wish that the meeting focused more on addressing issues and solutions than on how a letter was addressed or who called whom. The last section of the document lays out a number of very specific suggestions about ways to involve labor positively in the climate change action strategy.

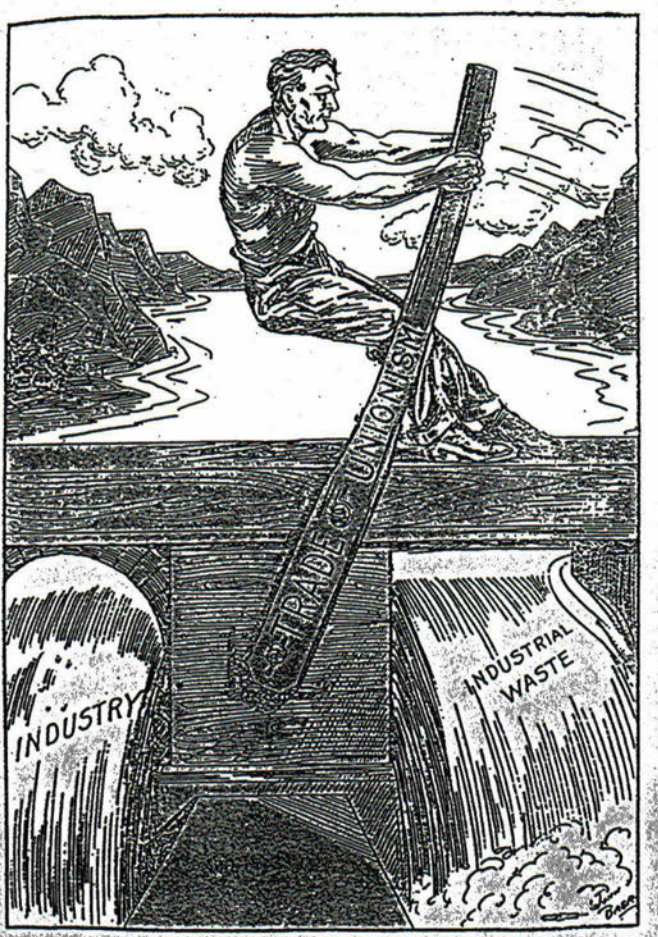
We would be glad to work with your staff and others in the Administration as you consider ways workers can contribute to meeting and exceeding our Kyoto targets, how to cost-effectively address transition issues and means to assure labor involvement in demonstration projects in the future. As Dan Reicher mentioned we are now going to be working with a coalition of five unions and their associated contractors to help in the design, training, installation and marketing of solar technologies. This is the kind of win-win approaches that we can build upon. I started working on this issue immediately after I heard President Clinton at the EarthSummit +5 a year ago where I was a member of the US delegation as a private sector representative of workers and their unions.

I look forward to our future collaboration.

Sincerely,

Edward Cohen-Rosenthal
Director, Work and Environment Initiative

Labor, Climate Change, and the Environment



Cover of American Federationist
June, 1927 Vol 34 No. 6

Prepared by:
Work and Environment Initiative
Center for the Environment
Cornell University
Ithaca, NY
November, 1997

NEW... CONNECTIONS
NEW PARTNERSHIPS
WORK AND THE ENVIRONMENT INITIATIVE

FOREWORD

Climate change is a highly charged debate. As such it is not easy to try to strike a balance among the various opinions. When I proudly sat in the UN General Assembly hall during Earth Summit + 5 as the U.S. delegate for workers and their unions, what became apparent was the lack of information by all parties on both the concerns that unions have with climate change policies as well as how they can be involved with potential solutions. I clearly heard President Clinton's call for labor to be a full partner in the decision making process for climate change policies. Our review of information that deals with "labor, climate change, and the environment," indicates that workers and unions in the U.S. and abroad are paying attention and engaging in numerous activities that can help improve the environment. There is a real foundation to build on—and build on it we must in order to ensure economic and environmental sustainability.

Sponsored by L.S. Gallegos and Associates, this document describes the relationship between labor, climate change, and the environment. The research process has included broad consultation with the labor movement, economists, and governmental policy experts. For the past five years, WEI has served as an international network of trade unionists, managers, environmentalists, and government officials. Through those connections we have had a head start on certain aspects of this report, and are confident that the paper includes most of the major issues presented by labor.

I want to particularly thank Bruce Fabens, Tad McGalliard and Jennifer Marsh for their hard work on this task. Any errors, misrepresentations, or omissions in this report are solely the responsibility of the Work and Environment Initiative.

Ed Cohen-Rosenthal
Director, Work and Environment Initiative
November 1997

ACKNOWLEDGMENTS

This paper was put together in a short amount of time with a lot of help. While WEI takes responsibility for the paper we had wide consultations with various organizations around the world on this subject. Each person noted below was spoken to regarding this paper. We note with particular appreciation:

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Mike Wright, USWA

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Robert Molosfky, Amalgamated Transportation Union

Denny Scott, United Brotherhood of Carpenters

Sam Weinstein, Utility Workers Union

Keith Romig, United Paperworkers International Union

Charles Bethge, United Transportation Union

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Larry Bankowski, American Flint Glass Workers Union

Steven Sleigh, International Association of Machinists

Will Paul, International Brotherhood of Electrical Workers

Carol Norman, National Education Association

Dennis Houlihan, AFSCME

Bill Butler, Sheetmetal Workers International Union

Eric Frumin, UNITE

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Brian Doherty, Bricklayers and Allied Craftsworkers

Edna Primrose-Coats, United Food and Commercial Workers

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Edward Wytkind, Transportation Trades Department

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Lamont Byrd, Teamsters

Tom Wooten, Operating Engineers

Herald Grandstaff, Graphic Arts International Union

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Sven Nyberg, LO- Sweden

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Ana Maria Montila, UGT, Spain

Mopholusi Marakong, NACTU, South Africa

Cornell University
Work and Environment Initiative

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EXECUTIVE SUMMARY--
LABOR AND CLIMATE CHANGE

Introduction

Global climate change has been discussed for a number of years, but why is it important for the labor movement and American workers to be concerned with this issue? There are two primary reasons. *First, American labor is concerned about the health and sustainability of our communities both for current and future generations.* Union members and their families live in communities where they work and labor has always been a guardian of the broader social welfare. *Second, there are critical issues about the economy that will be affected by decisions made on climate change.* These decisions will either propel us towards a better future or unnecessarily disrupt lives and livelihoods.

This paper examines climate change issues as they relate to workers and their unions. It starts with a brief review of the science of climate change, followed by a summary of the status of the international negotiations on a protocol amendment to the United Nations Framework Convention on Climate Change. Information on the positions of the Clinton Administration, the U.S. Congress, and business organizations are also presented. A review of the AFL-CIO position on climate change as well as those of other American unions follow. Around the world, numerous unions have various experience with climate change, the environment, and related activities, and these too are reviewed. Finally, a range of policy options are presented.

The purpose of this work is to summarize the most current information and views on climate change so that working people and their unions in the U.S. can formulate an acceptable strategy for contributing to the minimization of climate change effects. This paper does not take a particular policy perspective on the international negotiations on climate change, other than a commitment to broader information sharing and a search for positive solutions.

Section Summaries

- **Section 1.0 Labor and Climate Change--Introduction**.

- **Section 2.0 Life in the Greenhouse** presents (1) basic information on the natural greenhouse effect; (2) anthropogenic emissions of greenhouse gases, (3) the potential impacts of global climate change, and (4)an overview of the potential economic impacts including employment changes.

- **Section 3.0 Climate Change--Politics and Treaties** discusses the various international and domestic dimensions of climate change policies. The section covers several areas including: (1) an overview of international activities on climate change, (2) implementation strategies for climate change policies, (3) the U.S. policy position on climate change, (4) business positions on the international climate change negotiations for a protocol to the UNFCCC, and (5) labor

positions on climate change including the international negotiations for a protocol to the UNFCCC.

- **Section 4.0 Labor Perspectives on Climate Change, and the Environment.** This section outlines the importance of union values in contributing towards solutions of the climate change problem, as well as certain historical comparisons.

- **Section 5.0 The American Labor Movement--Preserving the Environment**, presents a number of case study examples of union activity on the environment. The section is divided into sector analyses which include: energy, manufacturing, transportation, wood products, and building trades.

- **Section 6.0, Perspectives of the International Labor Movement**, in similar fashion to **Section 5.0** discusses international union activities dealing with environmental improvement. The chapter includes information about the (1) International Confederation of Free Trade Unions (ICFTU), (2) the International Labour Organization (ILO), (3) The European Trade Union Council (4) European Foundation for Improvement of Living and Working Conditions, and numerous case study reviews from various developed and developing countries.

- **Section 7.0 Conclusion: Climate Change and Opportunities for Labor**, presents a series of findings and potential opportunities for labor involvement in seeking solutions to climate change.

- **The Appendix** has a collection of full text of resolutions on climate change in the US and internationally.

Discussion

Sections 1.0 to **3.0** present a general overview of the science, economics, politics, and global nature of climate change. Much of the information from these sections can be found elsewhere in more detail and specificity. The distinguishing factor of this report, however, is its central focus on workers, unions, and labor organizations.

Workers and their unions will be significantly impacted by climate change policies. Therefore understanding their concerns and opinions about a "protocol or other instrument" to the United Nations Framework Convention on Climate Change should be an important element of the decision making process of the U.S. government. Labor has expressed opinions on climate change through resolutions, policy discussions, and as observers. The latter part of **Section 3.0**, presents labor positions on climate change in more detail. Excerpts from the chapter are included below.

> *The AFL-CIO applauds President Clinton for his remarks today that invite discussion and dialogue from all quarters on the issue of global climate change . . .In these discussions, the AFL-CIO will not back down from our commitment to a cleaner, safer environment, nor will we compromise our commitment to assuring stable high paying jobs for workers who might be affected by any policy change . . .The American Labor movement is committed to participate in climate change solution talks whether or not there is a treaty compelling our country to do so.* (Press release by Richard Trumka of the AFL-CIO following President Clinton's climate change speech during the Earth Summit + 5. June 25, 1997).

The AFL-CIO has three major principles regarding both the Berlin Mandate and the current U.S. position.

1) Any treaty must be implemented universally. That is to say that exempting non-Annex I Parties (developing countries) from climate change targets and timetables for greenhouse gas emission reductions does not address environmental repair.

2) Any international treaty and resulting domestic policy initiatives must preserve the industrial base and standard of living of the United States.

3) Domestic implementation policies based on the treaty must insure that no worker is left behind in the process (Smith, 1997).

Various departments of the AFL-CIO have made their views known, as an example, the Transportation Trades Department of the AFL-CIO adds that:

> *. . . the U.S. should not be asked to shoulder an unfair level of responsibility that would jeopardize our economy and the millions of industrial and transportation jobs it supports . . . companies wishing to avoid emission control requirements will simply move their operations to countries that were able to evade the provisions embodied in the Berlin Mandate . . . Transportation labor is not opposed to reasonable steps that will reduce greenhouse gases, but we cannot support policies that unfairly harm American workers while allowing less developed nations to avoid any responsibility for solving this global problem* (Transportation Trades Department, AFL-CIO, 1997).

The United Mineworkers of America (UMWA) suggest that,

> *The United States, as the largest emitter of greenhouse gases, requires time to develop and implement more energy-efficient technologies. Any post-2000 greenhouse gas reduction obligations agreed to by the United States should involve the participation of all nations in an equitable framework, and should provide adequate time for the orderly attrition of capital stock* (United Mineworkers of America, 1997).

The UAW in 1992 issued a resolution on climate change that calls for:

> *. . . leadership in the Framework Convention on Climate Change to reduce carbon dioxide emissions and the threat of global warming. We recognize that efficiency standards should be tightened and conservation of resources encouraged in a manner that balances the world's need to move towards stabilizing the atmospheric concentration of greenhouse gases with its needs for economic development, minimal social dislocation, and as little job loss as possible* (UAW Resolution on Climate Change from the UAW Constitutional Convention, 1992).

The United Steelworkers of America has stated quite clearly that environmental issues including climate change are important to their members:

1. ***We must protect our children's world.*** Today, the greatest threat to our children's future may be the destruction of their environment. Some of the worst consequences of environmental damage, such as global warming and the death of the oceans will not occur in our lifetime, but they could devastate the world of our children.

2. ***Protecting the environment ultimately protects our jobs.*** Even in the short run, companies that exist only by destroying their resource base or pushing their environmental costs off onto others, will not be in business very long.

3. ***Environmental issues are linked to all other issues confronting us.*** Economic forces are the key to almost every union issue. Environmental issues are not different (USWA, 1990).

The International Confederation of Free Trade Unions (ICFTU), which represents 125 million workers worldwide, has been an outspoken proponent of connecting the environment and the workplace. Bill Jordan, General Secretary of ICFTU, speaking to a special session of the United Nations General Assembly discussed global climate change and unions.

> *. . . the trade union movement recognizes climate change as the most potentially disruptive of all environmental concerns. We know that the drastic measures required to deal with it could have an unprecedented impact on workers, not only in the coal, oil, gas, forestry, transportation, and fishing industries, but throughout manufacturing and many service industries as well. However, we also know that without equally dramatic action, the impact on workers and their families of massive climate change could be catastrophic* (Jordan, 1997).

In a recently released report, the ICFTU discusses climate change and offers a number of conclusions about the "vital role that unions must play in addressing the threat of climate change."

1. *Climate change and measures to mitigate its effects will result in major, direct impacts on worker's jobs, working conditions, and personal lives and property. So*

will interventionist measures to combat mankind's contribution to climate change.

2. *Increasingly, the direct and indirect costs of climate change will be born by workers and their families unless appropriate and timely financial mechanisms are adopted, coupled with agreements to properly compensate workers for damages when these occur.*

3. *Local, regional, and international targets to reduce greenhouse gases are essential. However, support for them in the workplace and community is contingent on the acceptance of comprehensive "just transition" measures to include at least the following: income protection, redundancy procedures, re-employment, as well as provisions for education and training.*

4. *The disruptive and costly effects of both climate change and measures to combat it can be reduced significantly, where workers and their trade unions are involved in the making and implementation of decisions through such programs as the workplace eco-audit and the TCO's 6E (International Confederation of Free Trade Unions, 1997).*

The International Federation of Chemical, Energy, Mine, and General Workers Unions (ICEM), an international trade union secretariat, has issued a resolution on climate change, that speaks to the needs of working people around the world.

Climate Change Resolution

The nations of the world are involved in United Nations negotiations pursuant to the Berlin Mandate for amendment to the Framework Convention on Climate Change (Rio Treaty). In view of the far-reaching implications of this Convention, not only for the future of the planet, but also for the livelihoods of workers involved in the resource and energy-using industries, and for global economic growth, the ICEM calls upon the parties to the Framework convention on Climate Change to insist upon a treaty amendment that:

1) *Places the highest priority on the needs of workers and consumers who will shoulder the greatest burdens of efforts to address global climate change.*

2) *Promotes improvements in energy efficiency in all countries, and provides assistance for this purpose to developing countries.*

3) *Includes the protection of existing jobs and the creation of new ones, and the improvement of living standards in all countries as a critical goal to be met in any climate treaty.*

4) *Provides adequate time for both developed and developing countries to meet the needs of the environment and the needs of working people.*

Resolution approved by the Executive Committee of the International Federation of Chemical, Energy, Mine, and General Workers Unions (ICEM) meeting in Cairnes, Australia, June 10, 1997.

Union Activities for the Environment

Labor unions and workers are key participants in the quest for sustainable development. In a number of ways, unions and workers have helped to make the global commons a better place. The global community has also recognized the importance of worker and union contributions to sustainable development. *Agenda 21* which is often referred to as a "blueprint for action" on the Earth's environment, discusses labor's role in environmental improvement and sustainable development in Chapter 29. The overall objective of this section is:

Agenda 21--Chapter 29, Strengthening the Role of Workers and Their Trade Unions

29.1 Efforts to implement sustainable development will involve adjustments and opportunities at the national and enterprise levels, with workers foremost among those concerned. As their representatives, trade unions are vital actors in facilitating the achievement of sustainable development in view of their experience in addressing industrial change, the extremely high priority they give to protection of the working environment, and their promotion of socially responsible and economic development

United Nations Conference on Environment and Development, 1992

> *. . . poverty alleviation and full and sustainable employment, which contribute to safe, clean, and healthy environments--the working environment, the community, and the physical environment. Workers should be full participants in the implementation and evaluation of activities related to Agenda 21 (United Nations Conference on Environment and Development, 1992).*

Section 5.0 uses case study reviews of domestic unions to present an overview of union activities on the environment and climate change. **Section 6.0** reviews international activities by focusing on union activities within a range of developed and developing countries. Each citation illustrates the many important ways by which labor unions and workers are striving to benefit the environment, improve their working conditions, and create sustainable communities. While the activities presented in these sections are not exclusively focused on climate change, they present a baseline of potential union participation in solutions to climate change. Table I below illustrates the breadth of activity involving unions and workers. These are discussed more fully in the report.

**Table I: Unions and Environmental Activities--
Examples of Implementation**

Environmental Activities	Examples of implementation
Policy Involvement (Federal, State, Local)	AFL-CIO - Convention Resolutions ATU - Surface Transportation Policy Project ICFTU - Called for by Resolution ETUC - Called for by Resolution Austria - Chamber of Labor Involvement Canada (CLC) - Retraining Resolutions Italy (CISL,CGIL) - National Proposal on the Environment. UK (TUC) - Promoting Climate Change Policies
Eco Auditing	Minnesota AFL-CIO - Toxic Chemical Training ICFTU - Called for by Resolution ILO - Called for by Resolution Australia (ACTU) - Implemented by locals Czech Republic (OS PHGN) - National Program Denmark (SiD) - Pilot Program Energy Industry UK (TUC) - Eco-Auditing Principles Sweden (TCO) - 6E Program
Transition for Workers	OCAW - Superfund for Workers UPIU - Sustainable Forestry Initiative ETUC - Called for by Resolution ILO - Called for by Resolution Canada (CEPU) - Sunset Industry Resolution
Green Job Development	LIUNA - Remediation Technology & Training IUOE - Remediation Technology & Training Australia (ACTU) - Green Jobs Program Denmark (SiD) - Promoting Green Employment Italy (CGI) - Green Jobs Development Netherlands (FNV) - Paper Sector Study Norway (LO) - Sustainable/Environ. Industries

Environmental Activities	Examples of implementation
Environmental Awareness & Job Training	OCAW - Superfund for Workers UBC - Oregon Ecosystem Workforce Project UPIU - Sustainable Forestry Initiative AFT - Clean Buildings Task Force NEA - Environmental Education ICFTU - Called for by Resolution ILO - Workers Education Project Australia (ACTU) - Environmental Training Program Canada (CLC) - Retraining Resolutions Ghana (TUC) - Rural Worker Training Netherlands (FNV) - Environment Training Programs Philippines (TUCP) - Ecology Camps
Energy Conservation	AFL-CIO - Model Energy Code ILO - Called for by Resolution Australia (UMW) - Coal Transition Programs Canada (CLC) - Retraining Resolutions Denmark (SiD) - Energy Reduction Plans Sweden (TCO) - Eco-Labeling
R&D, New Technology	UMWA - Promoting Clean Coal Technologies IUOE - Cooperative Agreements with DOE Germany (IG Metal) - New Transportation Alternatives
Pollution Prevention	UAW - Quality Initiative OCAW - Process and Productivity work NALC - Recycling Campaigns Australia (ACTU, AMWU) - Sector Strategies Denmark (SiD) - Pilot Program Energy Industry Japan (DENKIRENGO) - Electronics Industry Sweden (TCO) - 6E Program
Industry Conversion/ Adjustment Strategies	UMW - Plans for Reduction of Imports UPIU - Sustainable Forestry Initiative Sweden - Forest Workers Tripartite Program UK (TUC) - Coal Miners Hurt by Gas Conversion

Environmental Activities	Examples of implementation
Joint Union/Management Strategic Consultation	USWA - "New Directions" Agreements UAW - "WE CARE" Project with GM ICFTU - Called for by Resolution ILO - Called for by Resolution Italy (CISL,CGIL) - Joint Consultation System Japan (RENGO) - Envir Ethics and Conservation
Labor-Management and Union Only Committees	OCAW - Good Neighbors Program USWA - Committees with USX Sweden - Metalworkers/Company Cleanup Japan - Quality Circle Activities Many other countries have works councils for discussion of these issues
Green Contract Agreements	ILO - Called for by Resolution Canada (IWA) - Forestry Practice w/ INTERFOR India - Steel Industry Indonesia - Environmental Agreements
Union Capacity Building on the Environment	ILO - International Activities, Worker Education AFSCME - National Conferences on Envir. ICFTU - Called for by Resolution Australia (ACTU) - Green Jobs Program Sweden (TCO) - 6E Program

Conclusions

From the evidence gathered for this report, several broad observations about climate change, labor, and unions, can be made. First, climate change is an extremely complex issue that has and will continue to cross many traditional boundaries. Solutions to climate change will likely require effort in a number of broad areas including science and engineering, economics, social and cultural understanding, domestic politics, and international affairs. Second, there is widespread opposition to current elements of the Berlin Mandate, especially over the differing responsibilities between Annex I and non-Annex I countries.

However, despite widespread opposition to current elements of the Berlin Mandate, many groups, especially unions, are willing to work on potential solutions to the problem of greenhouse gas emissions. In the United States and the international community, unions, and their members are contributing to environmental improvement. From these emerging activities, energy, knowledge, and experience could be channeled towards seeking solutions to the globally important issue of climate change.

The next century will be one of transition to a new economy whose characteristics will likely include greater globalization of markets, and more attention to resource efficiency and environmental impacts. Therefore regardless of a treaty, strategies that prepare America for success in the next century will need to be developed in anticipation of these changes. The labor movement can be a leader in that transition by using influence within companies already organized, by offering capital and skills as incentives to work cooperatively with companies, and by aggressive organizing in emergent sectors.

The American labor movement believes that solutions to the climate change issue must be within the context of really fixing the environmental problem, keeping the economy strong and effective transition for affected workers and communities.

Recommendations--Policy Involvement at All Levels

The establishment of policy and implementation strategies on climate change occurs at all levels. In order to fully make a positive contribution, labor needs to be involved at all levels as well. The American labor movement should: (1) continue to participate in various policy forums addressing climate change, sustainable development, and the environment as well as (2) become involved in additional organizations and activities that deal with these issues.

- Labor representatives should participate throughout the international process of negotiating a protocol to the United Nations Framework Convention on Climate Change. Labor should be actively consulted as part of the US delegation and in preliminary development of positions. Labor's views should be strongly put forth as part of the negotiations leading up to and then at Kyoto. U.S. labor's cooperation with other international trade unions including the ICFTU and other trade union federations should be part of the overall strategy for addressing global issues.

- Labor should be involved, along with other stakeholder organizations, in the design of domestic climate change policies. President Clinton has asked all Departments and additional agencies to contribute to solutions that take action on international and domestic implementation. The American labor movement should be consulted by these departments, agencies, and interagency groups as they design and undertake their tasks.

- Encourage environmental and labor protection agreements linked to international trade agreements. The debate over climate change highlights the long standing AFL-CIO concerns

around adequate trade side-agreements on labor and environmental protection. The weak approaches to these issues in current trade agreements has undermined labor's support of a treaty on climate change. The fear of losing jobs overseas to countries where labor is exploited or the prospect of shifting pollution to developing countries are part and parcel of this debate.

- The President's Council on Sustainable Development (PCSD) was organized by President Clinton in order to "recommend a national action strategy for sustainable development." Trade unions are not currently represented on the PCSD and should seek a Council seat. Until 1995, Tom Donohue, past president of the AFL-CIO, sat on this body which includes high level government officials, business and community leaders. Labor needs a continuing voice on the PCSD.

- Unions could establish state and local forums for dialogue to seek common ground with community representatives, environmental organizations, business, and labor (see **Section 6.0**). The Canadian Roundtable on Environment and the Economy is such a forum for systematically encouraging this dialogue. Many unions and the AFL-CIO have participated in forums where common understanding has been developed. While talk alone will not be sufficient, it is a part of an overall strategy.

- State and local AFL-CIO Councils should be involved in efforts at all levels to respond to the climate change challenge. Agenda 21 implementation and policy development is encouraged at the state and local levels. At these levels, the voice of the AFL-CIO is from the Central Labor Bodies and these organizations need to be part of the climate change discussion.

- International activities on climate change especially those of the US should demonstrate fundamental respect for workers rights and help create capacity especially among trade unions in developing countries to play a positive role in sustainable and equitable economic development while assuring worker and community health.

- Further progress should be made on bringing the US labor movement together (1) to develop dialogue, understanding and consensus; (2) to seek a common perspective and a broadly agreed action plan; and (3) to build capacity in the US labor movement to contribute in this arena as outlined above.

Recommendations--Economic Sectors

Government policy discussions regarding the impact of climate change policies on particular economic sectors should include the relevant union(s) and/or the AFL-CIO as part of the dialogue. The impact of climate change action will vary across the economy and thus different strategies will be called for in different industries. For unions to part of the solution the representatives of workers in those industries must be at the table.

trade unions and environmentalists to create new employment in promising sectors. The Australian trade union movement also set up a union led training authority which focused first on land reclamation and had a broad mandate as well, to train and place workers in green jobs.

- Work with federal, state, and local governments and industry to develop programs for the safe shut down of polluting or aging industries or the implementation of remediation projects that will give priority employment to displaced workers. For example, mines will need to be decommissioned in ways that do not lead to groundwater contamination. Land and forest reclamation projects are being developed with the goal of providing work at wages commensurate with former employment. Unfortunately much of the work is currently contracted out to low wage contractors. This kind of transition is not just—family wages and decent working conditions must be part of the picture.

- Encourage adequate retraining and relocation assistance for affected workers with particular focus on union-based education programs. Economic disruptions are not a new phenomenon and organizations such as the Human Resources Development Institute of the AFL-CIO have been actively involved in counseling, training and finding workers new positions for nearly 40 years. Many union training programs and retraining programs include superior instruction and hands on applications, including the fields of environmental remediation.

- Establish income maintenance programs for senior, retiring, and disabled workers that are impacted by climate change policies. Some people will not be able to make the transition to new jobs either because of age, physical ability or other factors. They and their families must not become casualties in the new economy. They have worked hard and served their country and employers well. They must not be abandoned but should be respected and helped to make whole their losses. Income maintenance programs are not new in America. When containerization came to the docks, a special fund was established to help those longshoremen affected. Agricultural support aids farmers during disasters and stabilizes incomes during transitional times. Workers compensation is a form of insuring that injured workers don't become destitute.

- Encourage the establishment of funds for sustainable community redevelopment efforts in areas that could be especially hard hit by climate change policies. When the company gets shut down or cuts back in a mining town, local merchants and the local tax base are affected, thus impacting all local services and jobs. Those communities, will have an acute need for transition assistance for economic redevelopment. When federal or state dollars are being used for new environmentally friendly industries these communities should have priority in their location.

- To be able to pay for these efforts requires a hard look at various funding options, whether from special revenues raised as part of the effort to encourage reduction of greenhouse gases, or through specific appropriations at a level sufficient to get the job done.

Recommendations--Changing the Workplace

- Union health and safety committees could be expanded to include the environment There are hundreds of thousands of joint union-management health and safety committees across the country. A small percentage of them have environmental concerns as part of their mandate. Using this intact structure, which has demonstrated success in the lower accident rate in union versus non union shops, can be a vehicle for change. The UAW and General Motors are working with their joint health and safety representatives at the plant level to roll out an ambitious environmental quality program. In some locations, there may be local unions who prefer to set up a separate environment committee to consider these issues.

- Require eco-auditing with union and workforce involvement in companies of over 15 employees. Workers often know best what is going on inside their workplaces. With the advent of ISO 14000, outside auditors are brought in when corporations want certification of their environmental process. Although this is a start, it misses real opportunities. Cornell University's Work and Environment Initiative has done a convincing analysis of the role of worker participation in toxic chemical source reduction. It showed more than triple the reduction when workers are actively involved as opposed to relying on external advice or technology alone. Workers make a direct and measurable difference. If this is applied across the economy then significant emission, economic, and environmental benefits can accrue. Requiring this examination is not a command and control approach but a recognition of the basic responsibility of all workplaces to examine their activities and do better.

- Eco-auditing in the workplace has been advocated internationally by organizations such as the ILO and the ICFTU and a number of union national bodies throughout the world. An eco-audit is designed to highlight the things a company is doing well as well as things that could be done better. Audits can reveal production, energy, or environmental shortcomings and show where pollution prevention and energy efficiency measures could have a dramatic effect on the bottom line. The Swedish Labor Federation, TCO, has a significant staff, referred to above as the 6E program, designed for comprehensive eco-auditing,.

- Improve the overall energy efficiency and environmental performance of residential, commercial, industrial, and public buildings. Building trade unions and contractors should be consulted and adequate programs and continuously improving standards developed. Energy loss from buildings is a major factor contributing to greenhouse emissions. There are a number of job generating possibilities for union workers including manufacture and installation of photo-voltaic panels (including the President's million solar roof objective) or wind turbines, changing windows to much higher R values, installation of solar roofs, and use of alternative building materials. The Bricklayers and Allied Craftsworkers Union and the Sheet Metal Workers International Union are among those advocating wide scale use of new environmentally preferable materials and processes The Bricklayers are working with a new aerated concrete process that is faster to install, higher insulation value, flexible in application and environmentally sound. New approaches tearing down buildings involve "deconstruction"

through reclaiming useable materials and reusing them rather than destroying the through wholesale demolition.

- Following the lead of the UAW, other unions could examine the entire production chain of their particular industries in order to increase environmentally responsible manufacturing throughout the life-cycle of goods and services, "product stewardship." Product stewardship includes being aware of where products go and how they are used. Beginning in the design process, many ideas can be shared which avoid downstream waste including emissions. This can impact the next stop of a production process or use by a customer. For example, the aluminum industry has found ways to recycle end products which leads to much lower energy and life cycle costs. Concurrent with resource efficiency issues is the reduction of toxic materials and waste to improve worker and public health. A similar review of the entire production process can design out and safely handle toxic materials.

- The teacher's unions could be used as part of the educational process on climate change, environmental protection and preservation, and sustainability. Teachers unions and their members play a vital role in educating, from the young to college students, across a variety of disciplines regarding the importance of climate change action and how it can be accomplished. Schools, as working places, have their own energy issues. When more of the budget goes to pay fuel bills then less is available to pay teachers and aides to provide general education. Unions are concerned about these developments and want to see real energy conservation in their school districts and post-secondary institutions.

- Local unions and Central Labor Councils can take action themselves by establishing environment committees within locals, that monitor employer performance while seeking solutions, informing and educating members and their families, and doing community service in their local areas.

1.0 LABOR, CLIMATE CHANGE, AND THE ENVIRONMENT--INTRODUCTION

Global climate change has been discussed for a number of years, but why is it important for the labor movement and American workers to be concerned with this issue? There are two primary reasons. *First, American labor is concerned about the health and sustainability of our communities both for current and future generations.* Union members and their families live in communities where they work and labor has always been a guardian of the broader social welfare. *Second, there are critical issues about the economy that will be affected by decisions made on climate change.* These decisions will either propel us towards a better future or unnecessarily disrupt lives and livelihoods.

American unions and workers care about what happens in the U.S. and around the world. The people of the world share this planet and American labor has long been at the forefront of the struggle for raising standards of public health and prosperity. Everyone benefits from a world where every person has a decent standard of living and when our environmental commons are clean and safe.

Why do trade unions and their members wish to be involved in environmental issues?

1. Because trade unionists are concerned and affected as workers, consumers, and local citizens;
2. Because every worker has a responsibility to minimize the damage their work causes to fellow workers and future generations;
3. Because environmental pressures affect decisions about employment, pay, training, workloads, health and safety, and workforce cooperation;
4. Because union involvement and experience can improve environmental performance and thereby best protect jobs, pay, and conditions
5. Because trade unions are uniquely placed to identify and articulate worker concerns and practical ideas and solutions;
6. Because it can help raise the union's profile, aid union recruitment, and facilitate closer links with outside groups.

Trade Unions, Environment, and Development: A brief Outline of Some Principal Concerns. **International Confederation of Free Trade Unions**

The climate change issue is often presented as jobs vs. the environment. Working people have always been told that they must make the choice between a bad alternative and a worse one. No one wants to consider a reduction in the standard of living now or the potential for a reduced standard of living for our children. Workers do not want to hear that they will be targeted as a quick fix for global CO_2 emissions without any sort of safety net.

Throughout the history of the labor movement, numerous examples have shown that improvements for the environment, and health and safety do not necessarily lead to the detriment of working Americans. When OSHA laws were passed "naysayers" warned of calamitous results; the same was true for parental leave, minimum wage increases, and the establishment of the Environmental Protection Agency (EPA). That is not to say that simple application of ill conceived policies cannot do considerable damage to employment. In some sectors, there is no question that the results can be hard felt. But the truth of the matter is that these efforts improve working conditions, the global commons and have not led to the wholesale decline of the

American workforce. Working people have always taken an interest in how their jobs are performed, from on the job health and safety issues, to productivity, and now environmental performance. In a number of areas, from reducing toxic release emissions to product design in the workplace, when workers are empowered to contribute, great strides can be made. An informed look at climate change issues by working people and their unions can lead to solutions that will improve the environment while maintaining, growing, and improving jobs.

This paper will examine climate change issues as they relate to workers and their unions. It starts with a brief review of the science of climate change. This is followed by a summary of the status of the international negotiations on a protocol amendment to the United Nations Framework Convention on Climate Change. Information on the positions of the Clinton Administration, Congress, and business organizations are also presented. A review of the AFL-CIO position on climate change as well as those of other American unions follows. Further, around the world, numerous unions have various experience with climate change policies, the environment, and related activities, and these too are reviewed. Finally, a range of policy options are presented.

The purpose of this work is to summarize the most current information and views on climate change so that working people and their unions can formulate acceptable strategies for contributing to the minimization of climate change effects. This paper does not take a particular policy perspective on the international negotiations on climate change other than a commitment to broader information sharing and a search for positive solutions.

Sense and Sensibility

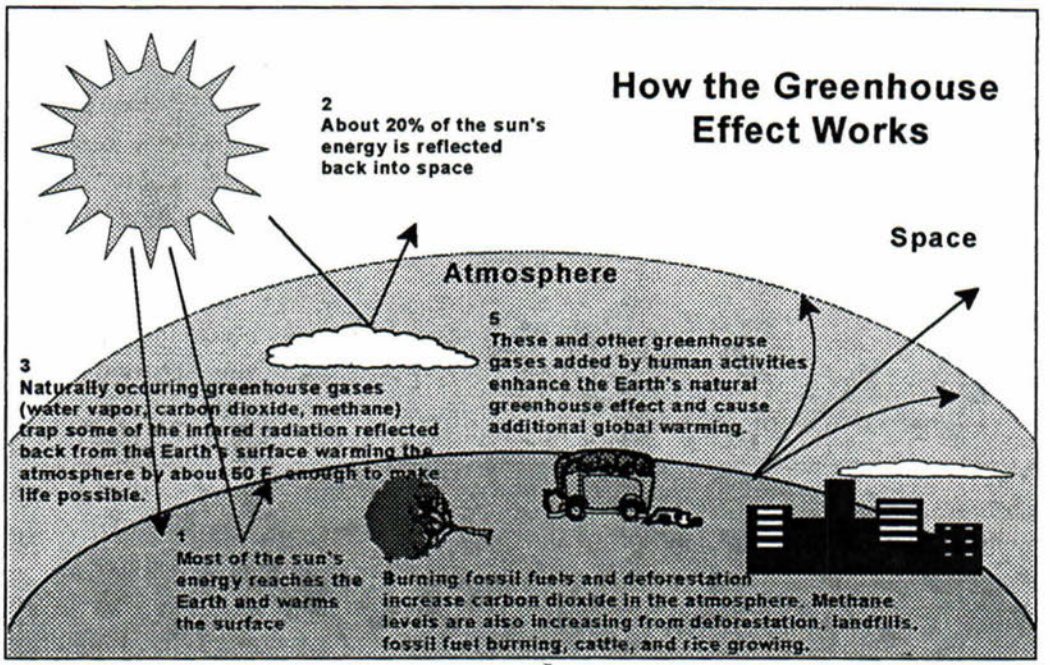
Many economic scenarios describe dire effects on the economy. And, while there will be winners and losers in preventing climate change, there will still be a need for energy to power our economy, transportation to move goods and people from one place to another, and input materials to be extracted, refined, and manufactured into products. The American economy has needed workers to build, install, maintain and operate its various components and will continue to do so. What will change-- and has already changed over the past century-- is how and where these activities will be done.

From this vantage point, the climate change issue becomes one of positioning and transitioning the American economy for a new prosperity suited to the next century and beyond. Those who have worked hard in negatively affected industries need to be honored for their contribution to the growth of a great nation. They cannot be discarded and left behind. For those who cannot find new jobs, a clear path towards well paying jobs must be paved; for communities whose economies are altered, new economic development and social services should be put in place; for older workers whose pensions and work mobility are limited, their incomes should be protected. More importantly the jobs of the next century, in developed ***and*** developing countries, need to be ones that respect the limitations of resource use while expanding the possibilities of people to earn a good living and live good lives. Developing countries do not need to take the same polluting path as the industrialized countries.

2.0 LIFE IN THE GREENHOUSE

The Natural Greenhouse Effect

Greenhouse gases occur naturally and are integral to the ***natural greenhouse effect.*** This process forms the Earth's "temperature control system that keeps the planet warm enough to sustain life, yet prevents it from overheating" (UNEP, 1993a; 6). As the glass ceiling of a greenhouse retains radiated heat, greenhouse gases trap heat in the Earth's atmosphere, warming the planet's surface. The figure below adapted from the World Resources Institute(WRI) illustrates the greenhouse effect.



Greenhouse gases absorb thermal radiation from the sun that has been reflected by the Earth back towards space. Water vapor is the most important greenhouse gas; however, its quantity in the atmosphere is not significantly impacted by human activity. However, concentrations in the atmosphere of several other gases are increasing. Scientific analysis suggests that "anthropogenic" emissions of greenhouse gases--those released by human activities such as transportation, electricity generation, manufacturing, agriculture, and forestry--are affecting the global climate system.

While most of the focus on climate change centers around carbon dioxide, there are several other greenhouse gases. Each of the greenhouse gases contribute to other environmental problems as well. For example, CFCs have been proven to destroy ozone. The Earth is surrounded by a thin ozone layer which protects the global ecosytem from harmful radiation from the sun. A reduction in the Earth's ozone layer will likely result in a number of harmful effects including higher incidences of skin cancer. The following figures and tables provide more information on greenhouse gases.

Greenhouse Gases

- ***Carbon Dioxide (CO_2).*** The carbon cycle is the global respiration process of the Earth's ecosystem. Humans and animals use oxygen and exhale carbon dioxide. Conversely, photosynthesis by plants and trees requires CO_2 and light to produce oxygen. Since the start of the industrial revolution, the total amount of CO_2 entering the atmosphere has been increasing faster than it breaks down and has resulted in higher concentrations in the upper atmosphere.

- ***Nitrous Oxide (N_2O).*** Nitrous oxide is a naturally occurring greenhouse gas. Concentrations of N_2O in the atmosphere have increased since the industrial revolution. Agriculture is also thought to be an important contributor.

- ***Halocarbons (CFCs, HFCs, and others).*** Production of CFCs, which are used in cooling systems, is being phased out because they destroy ozone in the atmosphere. CFCs make up a relatively small percentage of the overall concentration of greenhouse gases in the atmosphere, however for two reasons they are considered a major problem. First, CFCs have greater heat trapping characteristics than CO_2. Second, CFCs remain in the atmosphere for long periods of time (150-200 years) before they are destroyed. Other man-made chemicals such as hydroflourocarbon (HFC) and perflourocarbon (PFC), which are being used as substitutes for CFCs, are also greenhouse gases. In the atmosphere, there are significantly lower concentrations of CFCs and related chemicals than CO_2.

- ***Methane.*** Like CFCs, methane has a significantly greater greenhouse effect than CO_2. Concentrations of methane in the atmosphere have roughly doubled since the start of the Industrial Revolution.

Table 1: Greenhouse Gas Concentrations in the Atmosphere

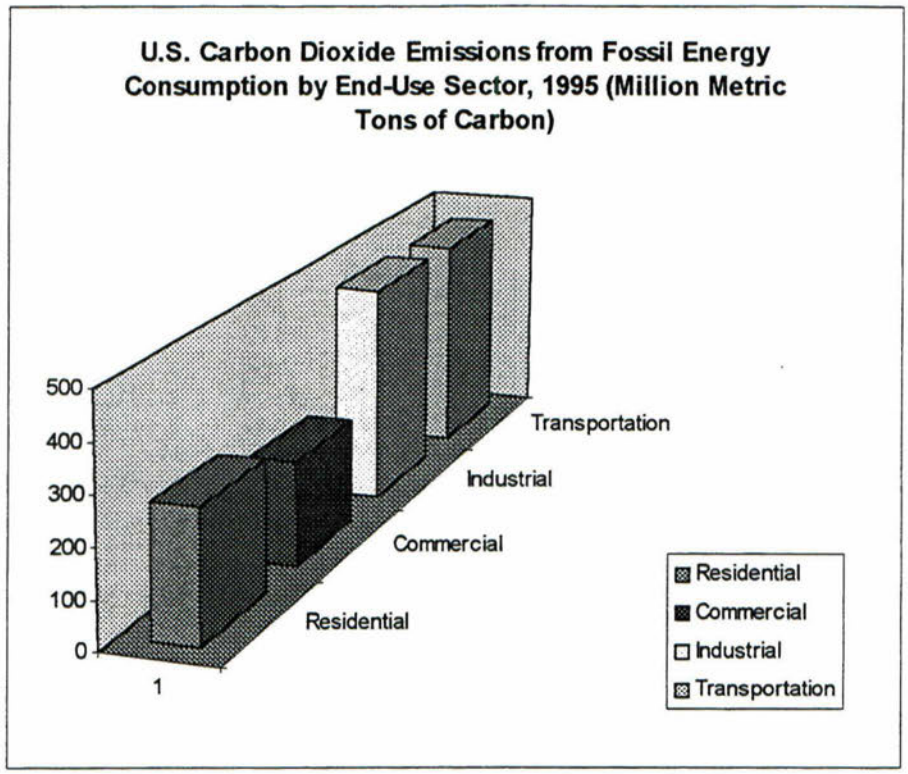
Greenhouse Gas	Pre-Industrial Concentration (parts per billion)	1992 Concentration (parts per billion)	Annual Rate of Increase
Carbon Dioxide	275,000	356,000	0.50%
Methane	800	1,750	0.60%
Nitrous Oxide	288	312	0.25%
CFC's	0	.790	-3.00%

Source: Cogan, Douglas. 1992 *The Greenhouse Gambit* and the Intergovernmental Panel on Climate Change.

Table 2: Anthropogenic Sources of Greenhouse Gases

Greenhouse Gases	Anthropogenic Sources of Greenhouse Gases
Carbon Dioxide	energy, fossil fuel consumption, fuel production and processing, biomass and biomass fuel consumption, industrial processes, cement production, lime production, limestone consumption, soda ash production and consumption, carbon dioxide manufacture, forests and land use change
Methane	landfills, agriculture, enteric fermentation in domestic livestock, manure management, rice cultivation, field burning of agricultural wastes, coal mining, oil and natural gas production and processing, energy-related combustion activities, wastewater treatment, industrial processes, and changes in land use
Nitrous Oxide	agricultural soil management and fertilizer use, fossil fuel combustion, adipic acid production, nitric acid production
CFCs HFCs	air conditioning and cooling, byproducts of industrial processes

Source: Environmental Protection Agency. 1997. *Human Activities That Are Affecting Global Climate Change: EPA Report on Inventory of U.S. Greenhouse Gas Emissions and Sinks (1990-1994).*



Source: The chart is extracted from the U.S. Energy Information Administration's, 1996 publication, *Emissions of Greenhouse Gases in the United States, 1995.*

Note: Electric utility emissions are distributed across consumption sectors

Climate Change--Potential Impacts

Variations in climate are a natural occurrence. Ice core samples over the past 160,000 years have documented atmospheric changes including higher and lower annual temperatures. However, increasing concentrations of greenhouse gases in the atmosphere are believed to be enhancing or accelerating the natural greenhouse effect. If this is true, then global mean temperatures could rise between *three and eight degrees Fahrenheit.* More importantly, global warming potentially could lead to rising sea levels, severe changes in regional climates, and a host of related problems.

Higher global temperatures could drastically affect coastal areas. Sea levels would rise due to thermal expansion of water and from an influx of freshwater from melting snow, glaciers, and ice. Generally accepted predictions suggest that sea levels could rise from *one to three feet* by the year 2100. Such changes would flood many low lying lands, affecting the natural environment by disrupting coastal ecosystems. Moreover, higher sea levels could displace millions of people from coastal areas in numerous countries, many of them in the Third World.

Rising sea levels would also affect the industrialized world by disrupting harbor activities, shipping, tourism, and many other economic activities located in coastal areas.

Agriculture could be affected by climate change. Agricultural zones could shift towards the poles. Seasonal patterns of rain and dry spells could change in many areas. Livestock husbandry could become more difficult at local, regional, and national levels especially if rangelands, pasturelands, and grain production were affected. Significant changes in agricultural activities could lead to malnourishment and disease.

Ecosystems and biological diversity will likely be affected by shifting weather patterns and climate change. Ecosystems such as deserts could become more extreme. Human health could be affected by the spread of certain types of insects to new areas and changes in water quality.

I've sometimes said that if it were a civil court case, the global mean temperature would probably be convicted on the basis of preponderance of evidence. If it were a criminal case, I could visualize a hung jury with 11 saying yes and 1 saying no.

Dr. Jerry Mahlman National Oceanic and Atmospheric Administration testifying before Congress (1993) on measured temperature increases over the last century.

The list of potentially dramatic and severe disruptions that could affect the global climate is frighteningly long; however, there remains much uncertainty. Exactly how the climate will change is still anyone's guess. Nevertheless, the scientific evidence suggests that changes are likely. In 1996, the Intergovernmental Panel on Climate Change (IPCC) released its second assessment report, *Climate Change 1995*. The report concludes that "the balance of evidence suggests that there is a discernible human influence on the global environment" (Intergovernmental Panel on Climate Change, 1996).

The lack of certainty about the exact effects of climate change is one of the great challenges that must be faced when dealing with the issue socially, politically, and internationally. This difficulty is colorfully described by former Senator J. Bennet Johnston during an oversight hearing on international climate change negotiations:

> *Scientific research is often not conclusive. There is always one more experiment to be done, one more hypothesis to be examined. On most any issue, one can find a decent number of intelligent contrarians in the scientific community. This makes for stimulating and fruitful debate among scientists, and it often gets all aspects of a policy examined. But it confuses the political world, which looks to scientists for clear and simple answers. As one member of Congress supposedly said, "I am tired of hearing scientists tell me on the one hand this, on the one hand that. Cannot we get a one-handed scientist?" (U.S. Senate, Committee on Energy and Natural Resources, 1997).*

Expected Impacts on the Global Environment.
Excerpts from the International Confederation of Free Trade Unions, 1997

a) *The Mean Sea Level* : It is expected to rise 15-95 cm by the year 2100, causing flooding of low-lying areas and other damage. As the warming penetrates deeper into the oceans and ice continues to melt, the sea level will continue rising well after surface temperatures have leveled off.

b) *Regional and Seasonal Warming*: Some areas will warm much more than others, and climatic zones (and thus ecosystems and agricultural zones) could shift towards the poles by 150-550 km in the mid-latitude regions. Forests, deserts, range-lands, and other unmanaged ecosystems would face new climatic stresses; many will decline or fragment, with individual species facing the threat of extinction.

c) *Total Precipitation* is predicted to increase, but higher temperatures may mean drier soils for some regions in the summer. The frequency and intensity of extreme weather events such as storms and hurricanes will result from changes to ocean surface temperatures. Disruptions of normal patterns of precipitation will yield unpredictable patterns of droughts and floods.

d) *Food and Water*: Food security is likely to be threatened in some regions. Water resources will be affected as precipitation and evaporation patterns change. Since already 2/3s of the world's population are experiencing some shortages of fresh water, climate change will aggravate this problem. Physical agriculture infrastructures will be damaged by sea-level rise and by extreme weather events.

e) *Biological and Human Health* would be affected as cardiovascular, respiratory, and other diseases, and injuries, psychological disorders, and deaths would result from a greater intensity and duration of heat waves, floods, storms, and other extreme climate events. Food and water-related diseases will also increase, as will cholera, salmonellosis, and other such infections resulting from warmer temperatures, reduced water supplies, and proliferating micro-organisms. A long list of other potential health effects include: malnutrition and hunger, asthma, allergic disorders, and cardio-respiratory diseases from climate-induced changes in the formation and persistence of pollens, spores, etc.

f) *Ecosystem Disturbances*: In the longer term, the disturbing of ecological systems and natural resources will interfere with sanitation and other infrastructures, causing social and economic dislocations and exposing more people to diseases transmitted by insects, water, and other factors. Higher incidences of infectious diseases such as diarrhea, malnutrition and hunger are predicted. These results will not be evenly felt, as the poor and disadvantaged and ecological and socio-economic systems have the greater sensitivity and the least ability to adapt to climate change. People who live in arid or semi-arid lands, low-lying coastal areas, flood-prone areas, or on small islands would be more vulnerable to hazards such as storms, floods, and droughts.

g) *Climate Extremes and Disasters*: Natural variability will lead to extreme heat waves, frosts, floods, droughts, severe storms, and other extremes. Today's frequent reports of record-breaking events show that climate extremes are becoming more frequent. Responses to these by humans and other forms of life that are already under stress for other reasons, may cause further problems, as they attempt to shift current living patterns to compete for increasingly scarce means of survival, thus creating a wide range of secondary effects that have not been assessed.

6. The insurance industry is the first to wake up to the threat which climate change poses to its market security, as it is already experiencing a dramatic escalation in losses resulting from storms and drought-related wildfire claims. Industry figures point to a potential global collapse of the industry, which would have negative consequences in many areas of economic activity. In some developing countries, meanwhile, withdrawal of catastrophe insurance coverage already threatens development.

Employment and Climate Change

Arguably, from a union standpoint, the most important numbers generated by economic modeling concern the affects that climate change policies will have on employment. There is little agreement on the probable effects of policy measures. However, recent studies suggest some disturbing numbers. The section discusses a number of the studies. Union, business, and government responses are presented in later sections.

A 1992 study by the U.S. Department of Commerce estimated that a carbon tax that would help the U.S. achieve emissions reductions, of the scale being discussed in the U.N., would result in 1.7 million fewer U.S. industrial jobs over the range of the study compared to a no-tax scenario.

A study of the impact of climate change policies on six energy intensive industries was conducted by the Argonne National Laboratories in 1996. It shows that chemicals, refining, aluminum, paper, cement, and steel would suffer serious job loss due to energy price increases.. The study concludes that the higher energy prices in the U.S. would result in the loss of production to countries that are not required to meet carbon dioxide reduction targets.

WEFA explains that the implementation of a plan to reduce emissions to their 1990 levels would act as a series of shocks to the economy through its impact on energy costs. The plan would permanently reduce economic performance, put the U.S. economy at a competitive disadvantage, reduce resources available for needs such as education, health care, and aid to low income households. WEFA estimates that some workers would lose their jobs and all workers would have lower wages. Employment in the year 2010 would be 1.8 million less than in an economy without the carbon emissions

More recently, the Administration's Interagency Task Force (IAT) has conducted two studies estimating the economic impact of meeting emission reduction targets. The first was released in June of 1996 and the second is in draft form dated June 1997. The draft study shows that 900,000 jobs could be reduced as a result of climate-change policies. Jobs would be lost in nearly every region of the country and across a broad range of sectors. The 1997 Administration study does not attempt to measure the impact of the job loss to international competitors who are not subject to emission limitation requirements.

The report concluded by DRI/McGraw-Hill in July, 1997, for the United Mineworkers of America, analyzes four cases. In each of the four cases many jobs, varying up to 1.6 million, are expected to be lost in traditional industries during the period 2000-2020. However as a report by the Economic Policy Institute (EPI) suggests:

> *The DRI model provides one way to estimate . . . in the past such modeling exercises have produced estimates that have proved, in retrospect, to significantly overestimate the costs of new pollution controls. However, even if the models discussed in this report overestimate the costs of GHG policies by 50% or more, the actual costs would still be large and significant* (Scott, 1997).

Several reports have generated sector analyses which suggest, through sophisticated modeling, that certain economic activities could be at risk. For example, the EPI analysis of the most recent DRI/McGraw Hill study suggests that at the two digit level of Standard Industrial Classification (SIC) codes, a number of industries could be hit by climate change policies. EPI suggests that potential "loser" industries could be rubber and plastics, footwear, coal mining, other leather goods and electric utilities while winners could be construction, elevators and materials handling equipment, motor vehicles, and service industry machinery. (See **Table 4** below). The box below outlines three of the analytic scenarios employed in the recent DRI/McGraw Hill study.

Economic Analysis Assumptions: DRI/McGraw Hill, 1997. *The Impact of Carbon Mitigation Strategies on Energy Markets, the National Economy, Industry, and Regional Economies.*

Policy Case Information: All policies are assumed to be gradually phased-in over the 2000-2010 period. Annex I countries (OECD member countries, Eastern Europe, and the former Soviet Union) are assumed to follow.

- **Case 1 (Grandfathered Permits).** The Federal Government grants permits to businesses to emit carbon up to 1990 levels based upon businesses' 1990 level of emissions.

- **Case 2 (Grandfathered Permits, 90% of 1990 Emissions).** The Federal Government grants permits to businesses to emit carbon up to 90% of 1990 levels based upon businesses' 1990 level of emissions.

- **Case 3 (Auction, Deficit Reduction).** The Federal Government auctions permits to emit carbon up to 1990 levels and uses the revenues from the auction to reduce the deficit.

Various runs of the economic models generate employment impacts. Selected elements of these impacts are presented in **Tables 3** and **4**.

Table 3: Employment Change by Industry in 2020 Relative to Base Case

	Case 1		Case 2		Case 3	
Employment Sector	**Percent Change**	**Jobs Lost (Thousands)**	**Percent Change**	**Jobs Lost (Thousands)**	**Percent Change**	**Jobs Lost (Thousands)**
Civilian Employment	-0.4	(600)	-0.3	(500)	-0.1	(100)
Mining	-22.2	(100)	-24.4	(110)	-22.2	(100)
Transportation, Public Utilities	-5.6	(350)	-6.4	(400)	-5.0	(310)
Retail Trade	0.9	240	1.1	290	0.9	250
Wholesale Trade	0.1	10	-0.2	(20)	0.8	70
Manufacturing	-1.1	(170)	-2.1	(330)	1.5	240
Nondurables Man.	-2.5	(180)	-3.1	(220)	0.4	30
Food & Prod.	-1.3	(20)	-1.1	(17)	-1.1	(17)
Tobacco Prod	0.0	0	0.0	0	9.1	1
Textiles & Prods.	-2.5	(12)	-2.5	(12)	3.3	16
Apparel & Prod.	-8.8	(49)	-9.1	(51)	3.9	22
Paper & Prods	-1.3	(8)	-2.4	(15)	0.0	0
Printing & Publishing	-1.0	(17)	-0.9	(15)	0.4	7
Chemicals & Prod.	-2.4	(24)	-4.9	(48)	0.1	1
Petroleum Prod.	-20.0	(20)	-24.0	(24)	-17.0	(17)
Rubber & Plastics	-1.7	(20)	-2.6	(30)	0.9	10
Leather & Prod.	-21.6	(11)	-27.5	(14)	5.9	3
Durables Man.	0.0	0	-1.2	(110)	2.4	210
Lumber & Wood Prod.	0.1	1	-0.3	(2)	3.8	27
Furniture & Fixtures	1.5	6	1.0	4	5.9	24
Stone, Clay & Glass	-0.9	(4)	-2.4	(11)	1.5	7
Primary Metal	-2.8	(15)	-5.9	(32)	-0.2	(1)
Fabricated Metal	-0.2	(3)	-1.0	(15)	2.3	33
Nonelectrical Mach.	2.5	38	2.2	33	0.8	12
Electrical Mach.	-4.0	(51)	-7.0	(90)	1.9	25
Transportation Equip.	3.1	45	2.3	34	3.7	55
Instruments & Parts	1.3	8	-0.5	(3)	3.6	22
Misc. Manufacturing	-5.7	(22)	-7.3	(28)	2.1	8

Source: Economic Policy Institute's analysis of DRI/McGraw Hill 1997 Study.

Table 4: Industrial Winners and Losers: Sectors Experience Gains or Losses of More than 5% in Output in 2020 with Grandfathered Permits

Potential Losers	Potential Winners
Rubber & Plastics Footwear	New Construction
Coal Mining	Elevators & Materials Handling Equipment
Other Leather Goods	Motor Vehicles
Electric Utilities	Other Service Industry Machinery
Natural Gas	Packaging Machinery
Gas Utilities	Partitions & Fixtures
Household Audio & Video Equip.	Lawn & Garden Equipment
Petroleum Refining Ex. Fuel Oil	

Source: Economic Policy Institute, 1997.

Cornell University
Work and Environment Initiative

Economic Analysis and Assessment

The nature of computer modeling of the economy is a difficult one to assess. Simply put the longer the time frame the less reliable the projections may be. What the models are best for is demonstrating short-term impacts of economic policies based on extensively researched models of economic behavior in response to certain levels of stimulus. Many of the models compare what would be the effect of a particular action on the level of growth of the economy. When a drop in jobs is reported they can be of two varieties. They can be actual declines in employment-- such as those projected for mining and some other energy intensive industries from raising energy prices as a means towards greenhouse gas reduction. It can also refer to the amount of jobs that would have been created compared to projections of what would have occurred if the policy had not been initiated. These are loss of potential new jobs but do not necessarily reflect retrenchment.

Further, none of the economic models account for environmental costs and benefits which are external to most modeling processes. The attempt to factor in "environmental externalities" or to place value on air, land and water is at best methodologically tenuous. The model used by DRI is considered very accurate at describing economic behavior within a near time frame. The problem is that climate change discussions are about what will happen over the next century and longer. No economic model can be reliably predictive in that time frame.

What do the models tell us that are useful for determining policy? They can play out the effects of particular policy initiatives, e.g.. a carbon tax, within the near term. They can identify what sectors or segments of the economy may be impacted. This awareness helps to make judgements between various alternatives and illustrates areas where compensatory action may be required.

Economic modeling has been used to predict the effects on the U.S. economy of implementing climate change measures. The assumptions vary from model to model and lead to different predictions, ranging from catastrophic to economically and environmentally positive over time. A summary of the most significant assumptions appears in *The Costs of Climate Protection: A Guide for the Perplexed* (Repetto and Austin, 1997). The authors, from the World Resources Institute, distinguish between *macro* models which make predictions based on prior economic behavior and *optimizing* models which predict changing consumer and producer behavior resulting from policy or price changes. The *optimizing* models tend to be more optimistic about the impact of climate change measures. In addition, the authors extracted seven assumptions that characterized the major differences in the models' predictions. Not surprisingly, more restrictive assumptions resulted in predictions of greater economic downturn and job loss. That is, if the answer to one or more of the questions below is "NO" then the model would make a more dire prediction. In brief summary, the assumptions are:

1. Will non-carbon fuels be available at near constant cost in the future?
2. Does the economy efficiently reallocate resources in response to price and demand?
3. Is there energy and product substitution as a result of the measures?
4. Are joint implementation strategies available among companies and countries?

5. Are revenues from the measures recycled efficiently or as a lump sum?
6. Are air pollution damages averted as a result of the measures?
7. Are climate changes and their projected costs averted or not?

There are problems associated with the optimizing models. There is a point in time projection which assumes market adjustment. They do not take into account the transition costs to the future. These are real people, personal savings and jobs which are hidden by the numbers. There is no reasonable person who analyzes the data who will not admit that to achieve significant goals it will require significant adjustment. There are differences on where the end point will be—more positive or negative. But the transitional costs need to be a major part of the discussion of what path to take.

Some economists while concerned about the threat of greenhouse gases suggest that radical price shocks would not solve the problem. William Nordhaus worried that large price increases similar to the oil shocks of the 1970s would throw the economy into a tailspin. Modest price signals increasing over the next century at a reasonable rate to industry as a part of a mix of other strategies could help propel the country into a period of lower emissions, especially if price increases provide seed funds for the development and diffusion of new technologies and processes while maintaining a solid safety net. A large amount of emissions are linked to transportation and residential buildings. If there are large dislocations during the transition there will be limits on consumer spending to invest in energy saving vehicles or for home improvements.

There is no agreement on the probable effects on the U.S. economy of implementing climate change measures. Not only are the models at odds, but the extent of global implementation will also affect the models due to uncertainty about the relocation of capital investment. For example, other studies by Frank Muller (1997) and Bob Shackleton (1997) suggest that when all potential factors are accounted for, the motivation for firms to move overseas is not as great as some models predict. Muller contends that two-thirds of emissions come from buildings and transportation and these are not subject to export. Shackleton's analysis of global capital exchanges shows minimal export effects from climate change policies because there are offsetting effects due to cost of capital and cost of energy in other countries. He suggests that it is entirely possible that "if you take into account capital flows and exchange rate effects on imports and exports" then capital flight from the developed world may not be all that significant. Similarly, the draft report of the Interagency Analytical Team (IAT), made up of economists and other professionals from the Departments of Energy, Commerce, Treasury, Labor, State, and the Environmental Protection Agency, suggests that there is "no evidence of wholesale capital flight from the United States" (1997).

Jorgenson (1997) suggests "by using the revenues (from carbon taxes) to reduce the most burdensome taxes, namely taxes on income from capital, economic growth can be stimulated rather than retarded." Some have suggested that revenue derived from any taxes or permit auctions be used for conversion assistance and thus providing an economic incentive for investments in new technologies and processes. There are also potential economic risks that

could arise from doing nothing to reduce greenhouse gas emissions. For example, economic disruptions in agriculture could be significant. Similarly, employment losses could result from forced relocation of facilities because of sea-level rise physical destruction of facilities because of weather extremes.

A study released in October, 1997, by Friends of the Earth (FOE) showed that cutting carbon dioxide emission in the UK by 20% by 2010 would create 226,000 new jobs in Britain through the expansion of public transportation, rapid development of renewable energy sources and big increases in energy efficiency. The research foresees a range of policy measures including a $1 per barrel of oil equivalent carbon tax rising by $1 per year and a reduction of the VAT on energy efficient materials to 5%. The study assumes that in the electricity production sector nuclear and coal are phased out by 2020, natural gas use is more than doubled and renewable energy grows four times to 8% of 2010 generating capacity. Other aspects of the study include residential energy efficiency programs for heating and insulation as well as a focus on environmental impact of consumer appliances. At the industry level, suggestions are made concerning use of best available technology, professional energy management requirements for industry, and recycling standards. It is suggested that priority be given to renewables and cogeneration though percentage obligations to producers and other market supports. Transportation emissions are addressed through fuel efficiency standards, traffic reduction planning, and planning controls to ban out of town shopping centers and business parks.

The overall emphasis demonstrated by the FOE study is that a 20% reduction is not only achievable, but that more would provide better improvements. It also stresses that the government's commitment is not dependent on a Kyoto treaty but could be implemented unilaterally without negative economic effects for the UK.

As the climate change discussion moves forward, the science seems fairly compelling and debatable in degree, but probably not in direction. The economic analysis has been more contentious. The following section on the international treaty summarizes its history and various perspectives on its value. To some, the treaty is an important and necessary first step towards addressing climate change issues. To others, it appears badly crafted, and a real threat to industries, jobs, and the economies of developed countries.

3.0 CLIMATE CHANGE--POLITICS AND TREATIES

Introduction

Global climate change poses a policy problem rarely encountered. In order to combat the possibility of climate change, cooperation is required at the *international* level, yet must be implemented in many different ways in countries, states, and localities all across the world. Climate change is also an *intergenerational* problem. Future generations are the potential heirs of changes in climate. While many people alive today may see some of the affects, more damaging difficulties will likely affect generations not yet born. Climate change is also an issue of concern to many key interest groups including labor, business, NGOs, and government. Finally, policies for climate change also involve equity issues. For example, how will poorer countries and low income people be asked to deal with climate change? These core sets of issues and questions present real problems in designing policies and strategies to combat climate change and/or the ability to adapt to its consequences.

International Activities

In 1979, the First World Climate Conference helped publicize climate change as a serious problem, worthy of global attention. During the 1980s and early 1990s a number of conferences were held. In 1988, the United Nation's Environment Program (UNEP) and the World Meteorological Organization (WMO) established the Intergovernmental Panel on Climate Change (IPCC).

The IPCC is considered the foremost collection of climate change research in the world. The Panel released its first report in 1990 which concluded that there was scientific evidence for climate change brought on by human activity. Later in that year, at the Second World Climate Conference, an international treaty on climate change was called for, and discussions began among the nations of the world. Approved by the United Nations, the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change (INC/FCCC) was established for the sole purpose of having a signable treaty by the Earth Summit in 1992.

> *The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve in accordance with the relevant positions of the Convention, the stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.*
>
> **United Nations Framework Convention on Climate Change, 1992. Article 2**

For the next two years, negotiations for an international treaty on climate change were carried out by representatives from over 100 countries. And at the 1992 Earth Summit, held in Rio de Janeiro, nearly 160 nations signed the United Nations Framework Convention on Climate Change

(UNFCCC), which committed the countries of the world to work together to address the common problem.

The UNFCCC was a first-step, global response that came about after years of scientific discovery, domestic debate, and international negotiations. It outlined a series of general commitments for both developing and developed countries. Industrialized countries--Annex I Parties in the language of the UNFCCC--are committed to adopting policies to attempt to return to 1990 levels of greenhouse gas emissions by the year 2000. Further, each country will submit "national communications" that outline their climate change mitigation strategies along with a number of other activities designed to support efforts in energy conservation, sustainable management, technology transfer, public awareness and education. Actions by the developing world--non-Annex I Parties in the language of the UNFCCC--are more limited and depend on financial, technical, and organizational support from the developed world.

The Conference of the Parties or "COP" is the governing body of the UNFCCC and is made up of representatives from each signatory nation. The Conference of the Parties meets annually, and first met in 1995 in Berlin (commonly known as COP-1). During COP-1, it was generally agreed that new commitments for developed countries for the period after 2000 were needed. This commitment eventually became known as the "Berlin Mandate." A second meeting in Geneva (COP-2) was held in July 1996. A third meeting of the Conference of the Parties is scheduled for December 1997 in Kyoto, Japan.

Excerpts from The Berlin Mandate

The Conference of the Parties, at its first session,

Having reviewed Article 4, paragraph 2(a) and (b), of the United Nations Framework Convention on Climate Change, and having concluded that these paragraphs are not adequate, agrees to begin a process to enable it to take appropriate action for the period beyond 2000, including the strengthening of the commitments of the Parties included in Annex I to the Convention. . . .

The Process will not introduce any new commitments for Parties not included in Annex I, but reaffirm existing commitments in Article 4.1 . . .

The process should begin without delay, and be conducted as a matter of urgency, in an open-ended ad hoc group of the Parties, hereby established which will report to the second session of the Conference of the Parties on the status of this process. The sessions of this group should be scheduled to ensure completion of the work as early as possible in 1997, with a view to adopting the results at the third session of the Conference of the Parties.

The Ad Hoc Group on the Berlin Mandate (AGBM) was formed to draft a new resolution or protocol that deals with the post-2000 period of the UNFCCC. Negotiations among representatives of the signatory nations to the UNFCCC are ongoing and the AGBM is expected to have the draft protocol ready for approval at COP-3 in Kyoto, Japan. The primary purpose of this effort is to set quantified goals and limits for reducing greenhouse gases. Time frames for the Protocol are expected to be in the period between 2005 and 2020.

Implementing Climate Change Policies

Crafting effective policies to mitigate climate change or designing programs that will allow adaptation to its potential effects have been the focus of many studies. Several of the proposals are market based mechanisms such as tradable permits or a carbon tax. Others are more command and control (see figure below).

Tradable Emissions Permitting could be used to reduce greenhouse gas emissions. Following an agreement on greenhouse gas emissions, permit entitlements can be allocated, auctioned, or sold to emitters. From this point market forces would take over. If a polluter found a means of reducing its emissions, then that entity might decide to sell its remaining credits to a company that may not have an immediately available emissions reduction option and thus needs more than its annual allotment. **International Trading** is another variation that has been discussed.

Deposit-Refund Systems could be established that would encourage people to trade in older heavy goods such as automobiles and appliances for ones that are more energy efficient.

Technology and Performance Standards on items such as automobiles and appliances could be used to encourage production of more energy efficient products. A system of rewards and penalties could be established for products that do not meet specified performance standards. A possible example in the transportation sector is higher CAFE standards.

Technology Transfer to the developing world is one means of helping those rapidly growing areas of the world meet potential greenhouse gas emissions standards and reduce overall emission levels.

Voluntary Agreements, such as Climate Wi$e and Energy Star which are used in the U.S. are designed to reduce emissions without regulatory enforcement, could be adopted and expanded.

Targeted Subsidies to private sector activities such as renewable energy, more energy efficient production, or mass transit could be used to reduce greenhouse gas emissions. Similarly **Direct Government Investments** through R&D in new technologies and processes will help alleviate the problem.

Taxes are a frequently mentioned means of reducing greenhouse gas emissions. The most widely discussed element of a tax strategy is a "carbon tax" that is based on its content in fossil fuels. Tax theory suggests that this will discourage fossil fuel use and thus reduce emissions and stimulate use of other alternatives. A twist on a carbon tax strategy would be tax shifting. For example, if a carbon tax were combined with a reduction in other taxes, making it revenue neutral, it could minimize the effects of the tax and could be directed towards the development of alternatives to fossil fuels.

Border Tax Adjustments. Traded goods are subject to the taxes of the importing country and exempted from taxes of the exporting country. For climate change, a border tax adjustment could be used to rebate the carbon tax on fuels used to produce energy-intensive exports and a comparable tax would be imposed on energy-intensive imports, in order to level the playing field and prevent flight of basic industries from industrialized countries.

Use of Revenues. The revenue collected from a carbon tax or permit auctioning could be used in a variety of ways to minimize the economic effects as well as funding programs for job creation, technology advancement, and just transition.

Energy Efficiency is a cost effective means of reducing the generation of greenhouse gases that can be applied in a number of economic sectors including manufacturing, electricity, transportation, and agriculture. For example, new energy technologies and practices such as fuel switching, combined cycle power production, cogeneration, and renewable energy can lead to significant reductions.

U.S. Policy Position on Climate Change

President George Bush signed the UNFCCC at the Rio Earth Summit in June 1992. In the months leading up to the Summit, the most contentious issues of the treaty negotiations were on quantitative limits for CO_2. The U.S. was in the forefront against definite limits and this opposition centered on three main arguments:

1) *they are premature given the present level of scientific knowledge about climate change;*
2) *early enactment of narrow carbon dioxide targets would bind nations to costly measures that might be hard to reverse even if later found to be unnecessary;*
3) *targets would obstruct negotiation of a comprehensive long-term management system (Parson and Zeckhauser, 1995).*

In 1993, President Clinton released, *The Climate Change Action Plan* (Clinton and Gore, 1993). It was a policy shift from the Bush Administration's opposition to targets and timetables, as President Clinton committed the nation to at least attempting to return emissions to 1990 levels by 2000. Speaking at the Earth Summit +5 held at the United Nations in New York in late June 1997, President Clinton discussed climate change and the United States:

> *Here in the United States we must do better. With four percent of the world's population, we already produce more than twenty percent of its greenhouse gases. Frankly our record since Rio is not sufficient. We have been blessed with high rates of growth and millions of new jobs over the last few years, but that has led to an increase in greenhouse gas emissions in spite of the adoption of new conservation practices. So we must do better and we will. . . In order to reduce greenhouse gases and grow the economy, we must invest more in the technologies of the future. I am directing my Cabinet to work to develop them. Government, universities, business, and labor must work together. All these efforts must be sustained over years, indeed, over decades.*

At the second meeting of the Conference of the Parties (COP-2) to the United Nations Framework Convention on Climate Change, the United States called for next steps under the Climate Convention for the post-2000 period to reduce the threat of climate change consistent with economic prosperity

United States 1996. Proposals on Possible Elements of the Protocol or Another Legal Instrument. Submitted to the Ad Hoc Group on the Berlin Mandate.

The Clinton Administration has been a leading advocate for a protocol to the UNFCCC and binding targets and timetables for reducing greenhouse gas emissions. According to a "Fact Sheet on U.S. Climate Change Proposal" (June, 1997) the broad framework of the U.S. position includes a number of key points.

U.S. Policy Position on International Climate Change Treaty

1) **Emissions Targets and Timetables**. A new concept is set forth to guide the establishment of developed country emissions targets. Building on the concept of cumulative and averaged emissions, the U.S. proposes creation of an "emissions budget." Multiple emissions budget periods are proposed, including a second period in which emissions are equal to or less than the first period, thus assuring continued progress toward achievement of the Convention's objective.

2) **Reporting and Compliance**. The proposal establishes procedures to ensure adequate reporting, measurement, review, and compliance.

3) **Developing Country Efforts**. The proposal advances implementation of developing country commitments under the Convention by requiring developing countries (1) to identify and adopt "no-regrets" measures to mitigate net greenhouse gas emissions and (2) to prepare annual emissions inventories and report on steps taken to reduce emissions as well as (3) establish a process for reviewing developing country reports and improving emissions reduction strategies.

4) **Emissions Trading and Joint Implementation**. The U.S. submission provides for full emissions trading among countries with emissions budgets (provided they are in compliance with all obligations under the agreement); it also provides for joint implementation, through which countries without emissions budgets could create and transfer emissions reduction credits achieved by qualified projects.

5) **Long-Term Efforts Under the Convention**. The U.S. proposal calls for periodic review of the agreement as scientific knowledge and information grow. It also requires the Parties to seek establishment of a long-term goal for atmospheric greenhouse gas concentrations. The proposal calls for establishment of a date for negotiation of emissions obligations for all Parties and calls for development of graduation mechanisms to strengthen the obligations of developing nations.

In late October, 1997, President Clinton, in a speech before the National Geographic Society and many invited guests outlined the Administration's climate change proposal.

> *Today we have a clear responsibility and a golden opportunity to conquer one of the most important challenges of the 21st Century--the challenge of climate change . . . In so many ways the problem of climate change reflects the new realities of the new century. Many previous threats could be met within our own borders, but global warming requires*

> *an international solution. Many previous threats came from single enemies, but global warming derives from millions of sources. Many previous threats posed clear and present danger; global warming is far more subtle, warning us not with roaring tanks or burning rivers but with invisible gases* (Clinton, 1997).

The more specific proposal put forth by the President includes several key elements:

1. **Binding targets to reach 1990 emission levels by 2008-2012 and reductions below 1990 levels in the 5-year period that follows.** A critical component of the President's comprehensive framework is a realistic, achievable, and binding target of reducing greenhouse emissions to 1990 levels by 2008-2112 and reductions below 1990 levels in the 5-year period that follows.
2. **$5 billion program of tax cuts and R&D for new technologies.** In order to spur energy efficiency and the development of new technologies the President proposes a major new package of tax cuts and R&D spending amounting to $5 billion over five years.
3. **Industry-by-industry consultations and early credit.** The Administration challenges key industries to prepare plans over the next 9 months on how they can best reduce emissions. To provide an incentive for near-term actions to cut emissions, the President is committed to ensuring appropriate rewards for firms that act early.
4. **Developing countries must participate.** Climate change is a global problem, and requires a global solution. That's why the United States has spear-headed joint implementation projects, and the President has committed that the United States will not adopt binding obligations without developing country participation.
5. **Broad-based domestic and international emissions trading system begins after a decade of experience has accumulated.** The President is committed to a market-based emissions trading system, both domestically and internationally, that will harness the power of the market to reduce emissions to 1990 levels by 2008-2012. The trading system would begin after a decade's worth of experience with tax incentives, R&D, early credit, electricity restructuring, Federal efforts, and other measures.

Many people have testified before Congress about the various economic, scientific, and policy dimensions of a global climate change treaty. A very contentious debate is centered around the roles and responsibilities of the developed and developing world. Deputy Undersecretary of State for Global Affairs Tim Wirth has testified a number of times over the past three years about the U.S. positions on climate change. During recent testimony on the negotiations, Undersecretary Wirth outlined the U.S. position on developing nations:

The U.S. proposal acknowledges that the list of "developed country parties" established by the Convention's Annex I in 1992 no longer reflects current realities. A number of developing countries have joined the ranks of the developed world, through membership in the OECD and in other ways, and more are poised to do so. Our proposal to establish an "Annex B" would enable such countries on a voluntary basis, to move beyond their current non-Annex I status, and take on binding greenhouse gas emissions obligations, reflecting their rapidly changing economic status and enabling them to engage in emissions trading with industrialized countries . . .

(T)he U.S. proposal calls on developing country Parties to adopt, by 2005, binding provisions so that all Parties have greenhouse gas emissions obligations and so that there is a mechanism or "trigger" for automatic application of those obligations, based on agreed criteria (Wirth, 1997).

The U.S. stance is tougher on developing countries because it calls for binding obligations at some point. Because developing countries, especially China, Brazil, Malaysia, Indonesia, Korea, Mexico, and India are expected to surpass the developed world in greenhouse gas emission levels in roughly thirty years, it has become important to the United States that limitations be considered for them as well.

In recent months, Congressional attention has intensified as the Berlin Mandate deadline for a protocol to the United Nations Framework Convention on Climate Change approaches. In 1996 and 1997, several House and Senate committees have called witnesses from the U.S. negotiating team. Other witnesses have been called from business, labor, environmental groups, and the scientific community. In general, Senators and Representatives from both sides of the aisle have expressed reservations regarding the U.S. positions. A significant amount of concern has been expressed over the possibility that any modification to the UNFCCC could result in an economic disadvantage for the U.S. Congress has also indicated that any treaty that does not include timetables and targets for developing nations--primarily because they are rapidly growing economic competitors of the U.S.--would be rejected.

As emphasis of this position, on June 12, 1997, Senator Robert Byrd, a Democrat from West Virginia and Senator Charles Hagel, a Republican from Nebraska introduced a resolution that speaks specifically to the climate change negotiations. On July 25, 1997, in a unanimous vote of 95-0, the U.S. Senate passed *Senate Resolution 98, Expressing the Sense of the Senate Regarding the United Nations Framework Convention on Climate Change (*excerpted below*)*. The *Sense of the Senate* resolution includes several key line items. Because any major change to the treaty would have to be ratified with a two-thirds vote by the Senate, this resolution is politically important.

Excerpts from Senate Resolution 98, Expressing the Sense of the Senate Regarding the United Nations Framework Convention on Climate Change

Resolved, That it is the sense of the Senate that--

(1) the United States should not be a signatory to any protocol to, or other agreement regarding, the United Nations Framework Convention on Climate Change of 1992, at negotiations in Kyoto in December 1997, or thereafter, which would--

(A) mandate new commitments to limit or reduce greenhouse gas emissions for the Annex I Parties, unless the protocol or other agreement also mandates new specific scheduled commitments to limit or reduce greenhouse gas emissions for Developing Country Parties within the same compliance period, or

(B) would result in serious harm to the economy of the United States; and

(2) any such protocol or other agreement which would require the advice and consent of the Senate to ratification should be accompanied by a detailed explanation of any legislation or regulatory actions that may be required to implement the protocol or other agreement and should also be accompanied by an analysis of the detailed financial costs and other impacts on the economy of the United States which would be incurred by the implementation of the protocol or other agreement.

Business on Climate Change

A number of business associations are active in the climate change policy arena including the Global Climate Coalition, the National Association of Manufacturers, the Business Roundtable, and several other trade associations. In the late summer of 1997, the Global Climate Information Project, a campaign against the current climate change negotiations was launched. The project is supported by many business and some labor organizations The project includes advertising in major newspapers and on television as well as a web site (www.climatefacts.org).

In general, the positions of business groups have been conservative, urging caution and restraint in moving forward. Key concerns have included mandatory limits and reductions of greenhouse gases, implementation costs, and loss of international competitiveness to the developing world. Other organizations representing businesses such as natural gas, renewable energy, energy efficiency equipment, and environmental technologies have come out in favor of policies that will lead to market developments for their constituents. Speaking before Congress on behalf of the Business Council for Sustainable Energy, Michael Marvin outlined his organizations perspective:

> *The ultimate objective is the stabilization of the atmospheric concentration of greenhouse gases and maintaining the preeminence of the U.S. economy. The longer we delay, the more difficult the first objective becomes. By starting early, and starting small, we can*

> *encourage U.S. businesses to invest in more efficient technologies and we can send a strong and immediate signal to the rest of the world that the U.S. will accept its responsibilities as a global leader* (Marvin, 1997).

The International Climate Change Partnership (ICCP) is a "global coalition of companies and trade associations from diverse industries committed to constructive and responsible participation in the in the international policy process concerning global climate change" (International Climate Change Partnership, 1997). The ICCP recognizes that climate change is a serious concern; however the Partnership suggests that the best strategy for confronting it is a long-term approach.

> *Current policy proposals to address emissions of greenhouse gases focus on short-term targets and timetables over the next 25 years, rather than on truly long-term objectives. As a result, policy discussion focuses on short-term policies and measures that come from a laundry list of unfinished environmental proposals from the last 20 years. This is a direct threat to existing private-sector capital investment and the current way of doing business, and fails to recognize the decision-making process that the private sector uses in making investment decisions, or the increasing globalization of the competitive marketplace* (Fay, 1996).

International Climate Change Partnership Members

- 3M Company
- AB Electrolux/White Consolidated Industries
- Aerospace Industries Association
- Air Conditioning and Refrigeration Institute
- Alliance for Responsible Atmospheric Policy
- Alliance for Responsible Environmental Alternatives--Canada
- AlliedSignal
- AT&T
- Boeing
- BP America/BP Exploration
- Carrier
- Celotex/Center for Applied Engineering
- Dow Chemical
- Dresser Industries
- DuPont
- Eastman Kodak
- Elf Atochem
- Enron
- European Chemical Industry Council--European Fluorocarbon Technical Committee Sector
- FMC Corporation
- General Electric
- ICI Klea
- Japan Fluorocarbon Manufacturers Association
- Japan Industrial Conference for Ozone Layer Protection
- Lennox International
- Polyisocyanurate Insulation Manufacturers Association
- Trane
- United Technologies
- Whirlpool Corporation
- Wisconsin Electric
- York International

In order to establish an effective long-term climate change policy process, the ICCP has suggested several criteria:

- the process identifies a scientifically-based, long-term comprehensive goal;
- includes organization of an effective technical and economic assessment mechanism that includes a significant role for business and industry expertise and participation;
- recognizes the long lead times necessary for technological innovation and dissemination;
- includes commitments, possibly differentiated, for developed and developing countries;
- preserves maximum national flexibility in achieving the commitments;
- avoids establishment of industry specific regulatory regimes; and
- provides a concrete mechanism for monitoring and enforcement to ensure that all nations are participating fairly and on an equal basis (International Climate Change Partnership, 1996).

In a speech at Stanford University, John Browne, Chief Executive Officer for British Petroleum (BP) discussed his view of global climate change:

> *Karl Popper once described all science as being provisional. What he meant by that was that all science is open to refutation, to amendment, and to development. That view is certainly confirmed by the debate around climate change. There's a lot of noise in the data. It is hard to isolate cause and effect. But there is now an effective consensus among the world's scientists and serious and well informed people outside the scientific community that there is a discernible human influence on climate, and a link between the concentration of carbon dioxide and the increase in temperature . . . The time to consider the policy dimensions of climate change is not when the link between greenhouse gases and climate change is conclusively proven . . . but when the possibility cannot be discounted and is taken seriously by the society of which we are a part. We in BP have reached that point* (Browne, 1997).

However, with exceptions such as John Browne, major business associations and many companies have lined up against a protocol to the UNFCCC. Brief excerpts from several position and policy statements are found below.

Excerpts from Position Statements on Climate Change

Global Climate Coalition. The Global Climate Coalition advocates the following principles as a reasoned approach to general climate change. First the issues relating to global climate change are serious ones that must be addressed comprehensively and equitably by all nations. Second, science must serve as the foundation for overall global climate policy decisions and enhanced scientific research must be the first priority. Third, even if all of the scientific uncertainties were resolved, sound policy decisions must consider the economic and social impacts of alternative policy choices. Fourth, the United States can make important contributions to improving the global environment and conditions for development by encouraging technology transfer to developing nations, Eastern Europe, and the Soviet Union. Fifth, the Coalition encourages members of the business community and trade associations to voluntarily commit to "Guiding Principles for Business" that are consistent with good business practices, are technically feasible, and economically practicable (Global Climate Coalition, 1997)

National Association of Manufacturers. The National Association of Manufacturers recognizes the international significance of the climate change issue. However, the absence of proof on the science of climate change highlights the uncertainty about the extent of future damage. The NAM opposes any federal or state government actions regarding climate change that could adversely affect the international competitiveness of the U.S. marketplace economy. Any climate change policies should be based on voluntary, cost-effective actions by the marketplace, involve our trading partners, and take into account all greenhouse sources and sinks. Technological advances have greatly minimized, and continue to reduce the environmental impact of domestic energy production and consumption. The NAM encourages policies that recognize these technological advances and allow for balance between economic growth and protection of the environment. (National Association of Manufacturers. 1997. Global Climate Change Position Statement.)

Business Roundtable. Until the scientific and economic issues are better understood, there should be no rush to impose climate change policy measures, either by individual nations or collectively. Further, agreements reached must include a requirement or negotiating process to bring all countries, developed and developing, into the commitment making process. However, it is critical that an analysis and assessment of the impact on the U.S. economy be completed before any new commitments on climate change are made. Effective solutions to address climate change will require a healthy national and international economic order; hasty actions which undermine economic vitality will only deter our ability to responsibly address this issue over the longer-term. (Business Roundtable, 1997. Position Statement: Global Climate Change.)

There is a schism between winners and losers displayed in the business community. Sunrise industries see opportunity. Others are centered on the probability of precipitous drops in revenues while absorbing significant new costs. Many companies are rooted in fossil fuel

combustion and a major energy switch is both threatening and uncertain. Automobile companies are opposed to new CAFE standards. Coal, and hence freight railroads, see a huge drop in business. While there will be new investments and growth in other industries and new formulations in most of the affected industries, this is harder to project than the downsides.

Labor on Climate Change

International and domestic labor unions have spoken out on the international climate change treaty. A number of perspectives are evident.

> *The AFL-CIO has spoken frequently about our concerns in these global climate change negotiations. They are serious and often our remarks are interpreted as opposition to any climate change treaty. This is not true. A treaty that both moves the world toward a safer sustainable environment and that respects and protects the interests of American industry and workers will have our support.*
>
> **David A. Smith, AFL-CIO Research Department (July 24, 1997) Testimony on Global Climate Negotiations to the House Committee on International Relations.**

AFL-CIO

The AFL-CIO has stated quite clearly that it is prepared to work constructively towards implementing strategies that will minimize climate change and move the world towards a safer more sustainable environment. Following President Clinton's speech at the Earth Summit +5, Richard Trumka, Secretary-Treasurer emphasized this point in a press release on June 27, 1997:

> *The AFL-CIO applauds President Clinton for his remarks today that invite discussion and dialogue from all quarters on the issue of global climate change . . . In these discussions, the AFL-CIO will not back down from our commitment to a cleaner, safer environment, nor will we compromise our commitment to assuring stable high paying jobs for workers who might be affected by any policy change . . .The American Labor movement is committed to participate in climate change solution talks whether or not there is a treaty compelling our country to do so* (Trumka, 1997).

A major AFL-CIO concern expressed in their resolutions, testimony, and other documents is that jobs will move out of the country because the rise in energy prices could place U.S. industry at a competitive disadvantage. As energy prices rise to reach higher emission targets, jobs may move to countries (non Annex I) that do not have to meet those targets. The AFL-CIO has cited studies that state that in those industries where jobs move, emissions of carbon dioxide as well as other air and water pollutants are likely to rise, since industries in the U.S. must meet more stringent environment requirements.

The AFL-CIO has three major principles regarding both the Berlin Mandate and the current U.S. position. These points are reflected in Resolution No. 10, adopted at the September 1997 AFL-CIO Convention (see below).

1) Any treaty must be implemented universally. That is to say that exempting non-Annex I countries (developing countries) from climate change targets and timetables for greenhouse gas emission reductions does not address environmental repair.

2) Any international treaty and resulting domestic policy initiatives must preserve the industrial base and standard of living of the United States.

3) Domestic implementation policies based on the treaty must insure that no worker is left behind in the process (Smith, 1997).

The Industrial Union Department (IUD) of the AFL-CIO has issued a resolution that:

> *. . . calls upon Congress and the President . . . to refrain from entering into or ratifying any treaty amendment or protocol that causes the loss of U.S. jobs (and) that the U.S. renegotiate the Berlin Mandate to ensure that all nations have appropriate commitments to reduce carbon emissions, to prevent the transfer of jobs, and emissions to the developing world* (Industrial Union Department, 1996).

Similarly, the Transportation Trades Department adds that

> *. . . the U.S. should not be asked to shoulder an unfair level of responsibility that would jeopardize our economy and the millions of industrial and transportation jobs it supports . . . Transportation labor is not opposed to reasonable steps that will reduce greenhouse gases, but we cannot support policies that unfairly harm American workers while allowing less developed nations to avoid any responsibility for solving this global problem* (Transportation Trades Department, AFL-CIO, 1997).

In language similar to the Industrial Union Department, the Maritime Trades Department of the AFL-CIO "resolved:"

> *That the Maritime Trades Department, AFL-CIO, calls upon the Clinton Administration and the Congress to refrain from entering into an amendment to the Rio Treaty that (1) binds the U.S. to emission reductions without appropriate commitments from all nations, or (2) causes the loss of U.S. jobs* (Maritime Trades Department, 1997).

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AFL-CIO Resolution No. 10
Safe Jobs in a Safe World, Adopted September 1997

Workers, Community, and Environment
Workers, workplaces, and the environment have been targeted by corporate strategies that reduce job security and increase both economic and environmental threats to community and the globe. At the same time, ill-conceived environmental requirements can cause substantial job loss. It is crucial for workers and their communities to avoid both environmental degradation and mass unemployment.

The American labor movement knows that communities are extensions of the workplace. Our commitment to community is based on the strength of our commitment to the workplace and the worker. Our pledge to protect the environment is meant to achieve the highest quality of life for workers, their families and their communities.

Often the collective forceful voice of the labor movement has not been heard on major environmental issues because we lack the mechanisms that would enable us to explore these complex issues jointly from a trade union perspective. It is in the interests of our members and their communities that the AFL-CIO provide resources and develop processes that engage affiliates around these complex issues in a way that enables us to find common ground among ourselves whenever possible. The AFL-CIO will seek the broadest possible agreement, exploring issues that can unite the labor movement with one voice in support of environmental and economic progress

Guiding Principles
The AFL-CIO is committed to finding one strong voice on these matters. Through a process of engagement that invites debate and discussion in our movement, we will develop our unique perspective on solutions to environmental challenges and we will provide a clear consistent, public point of view in these complicated issues. To begin, we will embrace these Work/Environment Principles and use them as a foundation from which to reach out to our brothers and sisters in order to find the highest common-ground agreement on the problems, as well as solutions, inside the labor movement. We will use these principles in the same manner with our allies in the environmental debate. We will establish, where we wish to do so, our own collective long-term view, find allies who share that view and then build lasting political alliances that connect our workplace, community, and global concerns with theirs. We will make long-term plans to build the political power required to insure that proposed environmental changes have a positive impact on working men and women, including the changes in fiscal mechanisms that will be needed to protect workers, jobs, and communities during period of transition.

The ***Principle of Economic Rights*** asserts that it is the responsibility of the American labor movement to protect worker and community economic interests, both long and short term, in the face of environmental challenges. The ***Principle of the Highest Common Denominator*** acknowledges that community for the labor movement is an extension of the workplace, and the concerns we have for quality of life for our members at work automatically apply to them as citizens. We are committed, at every level of the issue discussion, to finding the highest level of agreement on environmental solutions. The ***Principle of Just Transition*** recognizes that to move from one economic or environmental paradigm to another requires transition on many levels. We agree to analyze the effects of change on workers, industries, consumers, and communities and plan for effective, smooth transition for all parties affected by environment-induced change. The ***Principle of Common Sense*** requires that we proceed sensibly in the pursuit of new direction on environmental matters, but proceed with a purpose and with the widest possible input within the labor community and with all allies in the environmental debate.

Environmental Issues
Environmental issues increasingly demand our attention. Our mechanisms of engagement must allow us to respond to challenges that present themselves day to day, as we always have, but must also require us to take a long view, and prepare ourselves to be at the front of future challenges, with our members' livelihood at the center of our concern.

The AFL-CIO following an executive resolution adopted in February 1996 is fully engaged in debate, discussions, and negotiations on the international climate change treaty. Our motives are: assuring global environmental repair of the carbon dioxide concentration problem, with the formal participation of the ***entire*** international community committed to a mutually agreed upon binding solution; protecting the industrial base of the United States with ***no*** movement of jobs or pollution to other countries because of perverse incentives as a result of a flawed international agreement; and providing a just transition for American workers so that ***no*** American worker loses economic ground in our pursuit of more sustainable and environment-positive global practices.

Service Employees International Union (SEIU)

In 1996, and as part of a resolution on energy policy, SEIU addressed Climate Change:

> *Another important development affecting energy consumers and workers will be theories on global warming. Although scientists agree that humans are changing the climate, they continue to debate how fast it is happening and how sharply we must reduce the burning of wood and fossil fuels.*
>
> *The warming occurs because greenhouse gases for a layer of insulation around the earth, preventing it from releasing heat into outer space. Energy consumption is the biggest single source of greenhouse gases, producing about 56% of the total. The United States is currently working with other governments to set international limits on greenhouse gas production. Of course any policy to substantially limit or alter U.S. energy usage would have important economic consequences.*
>
> *SEIU supports efforts to negotiate a comprehensive solution to global warming. Natural gas should play a part in any scheme to reduce U.S. greenhouse gas emissions, as it produces less air pollution than any other fossil fuel. Changes should be made to those sections of the Clean Air Act that discourage coal users from switching to natural gas.*
>
> *SEIU calls on the Administration and Congress to develop long-term energy solutions. These solutions should reflect a balance between vigorously developing reliable sources of energy within reasonable bounds of environmental concerns and consumer health and safety. SEIU supports government policies that create a long-term framework for energy conservation and the development of alternative energy sources* (Service Employees International Union, 1996).

United Mineworkers of America

For the coal industry, the consequences of any climate change treaty are potentially severe. The United Mineworkers of America (UMWA) share the basic AFL-CIO position on the UN Climate Change Treaty. The union feels that the Berlin Mandate fails to adequately address global climate change because it currently limits responsibility to industrialized nations while exempting developing nations who will soon account for the majority of the world's carbon emissions.

> *The United States, as the largest emitter of greenhouse gases, requires time to develop and implement more energy-efficient technologies. Any post-2000 greenhouse gas reduction obligations agreed to by the United States should involve the participation of all nations in an equitable framework, and should provide adequate time for the orderly attrition of capital stock.*
>
> **United Mineworkers of America, 1997.**

Under current proposals, the miners would suffer the most immediate and severe economic impacts from emissions reduction goals. Because carbon from coal is greater than emissions from other fossil fuels, and because coal miners represent a relatively small voter constituency, the industry expects to be targeted by global warming legislation which avoids the more politically treacherous issues of automobile emissions and general reductions in energy use.

United Automobile, Aerospace, & Agricultural Implement Workers of America International Union (UAW)

As part of their WE CARE activities, the UAW has come out in support of international initiatives on climate change as well as other efforts to reduce the impact of transportation on the global environment.

Because the burning of fossil fuels produces carbon dioxide, one of the most common of the gases that produce the "greenhouse" effect and global warming, the reliance of the U.S. transportation system on petroleum products makes it a contributor to this problem. While we support intensified efforts to develop alternative fuels for motor vehicles and increased funding for public transportation, we also support improving the fuel efficiency of vehicles in ways that do not threaten job displacement (UAW, 1992).

The UAW calls for . . .

. . . . leadership in the Framework Convention on Climate Change to reduce carbon dioxide emissions and the threat of global warming. We recognize that efficiency standards should be tightened and conservation of resources encouraged in a manner that balances the world's need to move towards stabilizing the atmospheric concentration of greenhouse gases with its needs for economic development, minimal social dislocation, and as little job loss as possible.

UAW Resolution on Climate Change from the Union's Constitutional Convention. 1997

The UAW has also issued progressive resolutions on energy, which is seen as an important national security and environmental issue. Union resolutions include support for alternative fuels, alternative fuel engines, the energy efficiency of the overall transportation system, and "responsible revisions in corporate average fuel economy (CAFE) standards" (UAW, 1997). A more detailed examination of the UAW's views on the nation's energy policies are presented below.

Our Country's Energy Policies Should Include . . .
(Excerpts from the Constitutional Convention Resolutions)

- *Cost effective energy conservation measures that can be put in place in homes, offices, and industrial facilities across the country.*
- *Focus on the development of energy-efficient products and new energy saving technologies that will be domestically produced and used here and elsewhere around the world.*
- *Increased funding for research on non-petroleum alternative fuels for use by households and businesses.*
- *Substantial infrastructure investment for the U.S. transportation system to increase energy efficiency and conservation.*
- *Increased research and development funding for alternative fuels*
- *Revisions to the CAFE standards that promote improvements in fuel efficiency of new vehicles*

United Steelworkers of America (USWA).

In their document, *Our Children's World*, the Steelworkers present environmental degradation as the most serious issue confronting future generations. The results of the document suggest that problems such as climate change, acid rain, and ozone depletion are "essential union issues" for several reasons (USWA, 1990).

1. ***We must protect our children's world.*** *Today, the greatest threat to our children's future may be the destruction of their environment. Some of the worst consequences of environmental damage, such as global warming and the death of the oceans will not occur in our lifetime, but they could devastate the world of our children.*

2. ***Protecting the environment ultimately protects our jobs.*** *Even in the short run, companies that exist only by destroying their resource base or pushing their environmental costs off onto others, will not be in business very long.*

3. ***Environmental issues are linked to all other issues confronting us.*** *Economic forces are the key to almost every union issue. Environmental issues are not different* (USWA, 1990).

International Confederation of Free Trade Unions (ICFTU)

The International Confederation of Free Trade Unions (ICFTU), which represents 125 million workers worldwide, has been an outspoken proponent of connecting the environment and the workplace. Bill Jordan, General Secretary of ICFTU, speaking to a special session of the United Nations General Assembly discussed global climate change and unions.

> *. . . the trade union movement recognizes climate change as the most potentially disruptive of all environmental concerns. We know that the drastic measures required to deal with it could have an unprecedented impact on workers, not only in the coal, oil, gas, forestry, transportation, and fishing industries, but throughout manufacturing and many service industries as well. However, we also know that without equally dramatic action, the impact on workers and their families of massive climate change could be catastrophic (Jordan, 1997).*

In a recently released report, the ICFTU discusses climate change and offers a number of conclusions about the "vital role that unions must play in addressing the threat of climate change."

1. *Climate change and measures to mitigate its effects will result in major, direct impacts on worker's jobs, working conditions, and personal lives and property. So will interventionist measures to combat mankind's contribution to climate change.*

2. *Increasingly, the direct and indirect costs of climate change will be born by workers and their families unless appropriate and timely financial mechanisms are adopted, coupled with agreements to properly compensate workers for damages when these occur.*

3. *Local, regional, and international targets to reduce greenhouse gases are essential. However, support for them in the workplace and community is contingent on the acceptance of comprehensive "just transition" measures to include at least the following: income protection, redundancy procedures, re-employment, as well as provisions for education and training.*

4. *The disruptive and costly effects of both climate change and measures to combat it can be reduced significantly, where workers and their trade unions are involved in the making and implementation of decisions through such programs as the workplace eco-audit and the TCO's 6E (International Confederation of Free Trade Unions, 1997).*

International Federation of Chemical Energy, Mine, and General Workers Unions (ICEM)

The International Federation of Chemical, Energy, Mine, and General Workers Unions (ICEM), an international trade union secretariat, has issued a resolution on climate change, that speaks to the needs of working people around the world.

Climate Change Resolution

The nations of the world are involved in United Nations negotiations pursuant to the Berlin Mandate for amendment to the Framework Convention on Climate Change (Rio Treaty). In view of the far-reaching implications of this Convention, not only for the future of the planet, but also for the livelihoods of workers involved in the resource and energy-using industries, and for global economic growth, the ICEM calls upon the parties to the Framework Convention on Climate Change to insist upon a treaty amendment that:

1) *Places the highest priority on the needs of workers and consumers who will shoulder the greatest burdens of efforts to address global climate change.*

2) *Promotes improvements in energy efficiency in all countries, and provides assistance for this purpose to developing countries.*

3) *Includes the protection of existing jobs and the creation of new ones, and the improvement of living standards in all countries as a critical goal to be met in any climate treaty.*

4) *Provides adequate time for both developed and developing countries to meet the needs of the environment and the needs of working people.*

Resolution approved by the Executive Committee of the International Federation of Chemical, Energy, Mine, and General Workers Unions (ICEM) meeting in Cairn, Australia, June 10, 1997.

European Trade Unions

The following section describes recent activities and current dilemmas encountered by European trade unions on issues related to climate change. [1]

[1] Dave Feickert, 1997. *The New Challenge to Employment - the legal instrument to be agreed at the UN Climate Change Treaty Summit in Kyoto, 1 - 12 December 1997: A European trade union view.* Brussels, Belgium

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EU Environment Council, March 1997

At the Geneva meeting Germany and the UK put forward proposals for 10-20% greenhouse gas reductions by 2010. In the Environment Council, on 2-3 March 1997, preparing for the Ad Hoc Group on the Berlin Mandate meeting in Bonn a few days later, EU Environment Ministers agreed a Dutch Presidency proposal to cut Carbon Dioxide (CO_2) emissions by 15% on 1990 levels by the year 2010. Within this overall target countries have different commitments (for example, Luxembourg - 30% reduction; Germany and Denmark - 25% reduction; UK - 10% reduction; France 0%; Greece, Ireland, Portugal, Spain and Sweden are allowed to increase their CO_2 emissions).. The reductions listed in the table would achieve an average 10% overall EU cut; so further action to achieve the additional 5% reduction would be necessary. A fringe pre-accession meeting with Environment Ministers from Central and Eastern European countries discussed the emissions strategy as well. One country, Denmark, has taken drastic action already, banning the construction of new power plants that are wholly or partially coal-fired.

Employment - making the jobs crisis worse?

The EU jobs crisis is already severe enough without adding to it in unpredictable ways. Moreover, it is very complex and proving to be extremely difficult to solve, given the mix of global and high technology restructuring of companies, the depth of the recession in Germany and France and the paradoxical character of the process leading towards Economic and Monetary Union. The EU is re-situating itself as a result but it is running out of "spare political capacity". To plunge into yet another round of radical economic change may well use up this spare capacity when it is needed to solve other problems.

This is not an argument for doing nothing about global warming. Rather it is an argument for preparing the ground thoughtfully and effectively. For example there has been no detailed assessment of the employment impact of the range of policies that would need to be put in place to achieve a 15% reduction in 1990 CO_2 levels by 2010. Member States have discussed only in very general terms the impact on employment of various measures (tax etc.). No estimate has been made of the overall numbers likely to be affected or of the industrial sectors most likely to be hit hardest. Workers in those sectors which are most "exposed" are generally well-paid and well-unionised. If they lose their jobs they will not automatically find new jobs in new sectors where employment is being created by energy conservation, for example. In the light of the high (20 million), and increasing levels of unemployment in the European Union, it would be unwise to agree to binding commitments at Kyoto, without properly assessing the economic and social impact of various strategies. We have only eight months to prepare such an assessment.

Developing countries - no action?

The Berlin Conference of the Parties to Rio in 1995 accepted that developing countries would have exemption from further treaty commitments. These countries argued that they had not caused the problem, and that they were still engaged in the arduous struggle to develop their economies. They could not afford to take such drastic action. This decision is especially

important in the case of China and India where coal use is expected to increase sharply. China is building electricity generating capacity at a rate of 15 GW per year. Total capacity between 1987 - 2000 is expected to treble. China depends on coal for 80% of its energy consumption. Coal is China's main indigenous energy resource and it is committed to using this resource to industrialise just as Britain, Germany, France and the US did in the 19th century. Consumption is set to increase from 1.3 billion tonnes in 1995 to 2.3 billion tonnes in 2015, according to the East West Centre (Financial Times 19 February 1997). The EU Energy Commission has made a similar projection of Chinese coal use.

The cost of building new power station capacity in China has been estimated to be $83 billion between 1996-2000 (Financial Times 27 June 1996). Around 20% of the capital investment will come from outside sources. This huge cost means that China is unwilling to pay for the state of the art clean coal use technology that has been developed in the United States and Western Europe. India is in a similar position as are the former Soviet Union and Central and Eastern European countries where fossil fuel plant is coming up for replacement. This underscores the need to ensure that the Global Environment Facility, the interim financial mechanism of the Climate Change Convention is provided with much greater resources. More effective action against increasing CO_2 emissions can be achieved in this way than through some of the more job-destroying policies in the industrialised countries. Such action would require that clean coal technology programmes are scaled up rather than cut back in the developed countries, in order to keep testing and improving the best available technology.

Summary for an action programme on CO_2

This paper does not reject the majority scientific assessment of global warming, made by the Intergovernmental Panel on Climate Change. What it does dispute is the general complacency with which action programmes are being put forward, without consultation. It argues that trade unions should take a positive approach to resolving the dilemmas inherent in action to reduce greenhouse gas emissions. While this paper concentrates on CO_2 and energy issues there are important issues related to methane, nitrous oxide and other greenhouse gases.

Suggested action

1) *A full employment impact assessment* is required, estimating the impact on a scenario and sector by sector basis, especially for the energy producing and energy intensive industries. The employment losses should be set beside the employment gains from conservation, efficiency and cogeneration strategies, while analysing what possibility there is for transferring from one sector to another. Workers will not be convinced by global arguments about more employment being created if energy taxes allow a reduction in taxes on employment. They are much more likely to react, as in the cases of Ford Halewood, German coal mines or Renault Vilvoorde if they suddenly find themselves being made redundant. Our political leaders should not force workers to choose between their jobs and their environment when we can have both.

2) *Consultation* between trade unions, employers and various international bodies (EU, US, OECD) is already taking place but this remains limited and unsatisfactory. There needs to be a much greater effort made to find a way through a very difficult and contradictory set of policy options to maximise the benefits and minimise the costs.

3) Among the considerations that need to be borne in mind are these:

Nuclear power
* If nuclear power stations are phased out prematurely - or even just not replaced - then much greater pressure will fall on the coal generating plants, encouraging an even faster switch to burning natural gas;

Employment in electricity
* As coal and nuclear plant have, typically, ten times the employment levels (including related employment) of automated CCGT plant, society will incur huge costs with their closure, when 20 million are already unemployed in the EU;

Security of supply
* As the global fossil fuel reserve base is shifting eastward (to the middle East and the former Soviet Union) the dependency of the EU and the US will become even more dangerously high with oil and gas and Japan is already 90% dependent. The Euro-Med and European Energy Charter initiatives are vitally important but the situation remains unpredictable at best;

Transport
* If transport policy is not fundamentally changed many of the gains made in the generating sector will be lost; but changing the reliance on petrol/diesel transport in favour of public, mass transit is enormously difficult and even more so in the US. The employment impact is huge, as every car production job, according the European Commission, has 10 others linked to it;

Developing countries
* If action is not taken by developing countries (China and India especially) then their doubled coal use by 2015 will more than undo the improvements made in the developed countries and remind us that global warming is truly a global problem;

These are difficult equations to solve, but there are some elements of a solution:

Cogeneration
* If all new generating plant is required to be cogenerating (using the waste heat normally expelled through cooling towers) then 80% efficiency levels will reduce overall energy consumption;

Clean coal technology
* If cogeneration is used with clean coal technology, 80% efficiency levels can also be reached and CO_2 emissions reduced to a level equivalent to a CCGT without CHP; furthermore, these

clean coal technologies, which must be made available to China and other developing countries dependent on coal, need to be tested in many different commercial operations to improve their performance. The best place to test these systems is in the generating systems of the developed countries;

Renewables and conservation
If we make an enormous effort in catching-up with renewables an important but not huge dent can be made in CO_2 emissions. To move substantially down the road to the "solar age" will require large amounts of state aid. Energy conservation and energy efficiency, sometimes called the "fifth fuel" is cheaper and available now. It is a question of organisation, incentives and judicious regulation.

Funds for technology transfer
* If the Global Environment Facility is re-established with adequate funding technology transfer of this kind can be made possible to pre-empt massive CO_2 increases from developing countries. If not, these countries will install dirty, conventional plant as that is all they can afford. This plant will then last 40 years;

Transport
* In transport a much more serious effort needs to be made to achieve a break through with electric cars as well as in mass transit (Toyota's decision to mass produce a petrol/electric hybrid car is welcome). If there is a significant breakthrough then the impact on the oil market and on the income of the oil producing countries could be substantial and ways in which this may be lessened must be investigated as a priority.

Finally, it is one thing for EU Ministers to sign up to aspirational politics on global warming but quite another thing to manage a process of change and transition that is likely to be very deep, far-reaching and continuous. The European Commission White Paper on "Growth, Competitiveness and Employment" , 1993 began a debate on sustainable development that has yet to be completed. It called for a more optimal relationship between labour and nature, two of the key resources and, in developing the new model of sustainable development, placing a special emphasis on clean technology. As with action on greenhouse gas emissions this new model can only be successful if it is developed by consent and with the co-operation and the consultation of all those affected.

Australian Council of Trade Unions (ACTU)

The Australian Council of Trade Unions (ACTU) issued a resolution in 1992 on the environment that addresses climate change and other issues around adapting the economy to meet environmental needs. Excerpts from the resolution are included below.

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1. Introduction
1.1 Congress believes that the long term interests of workers and the community depend upon developing an economy which maximizes job creation, job security, and improves workers' living standards while at the same time is environmentally sustainable for the future. Any policy must recognize that the environment and economic development are closely inter-dependent.

1.3 Congress notes with grave concern that worsening environmental problems like the greenhouse effect, ozone depletion, oceanic pollution, and soil degradation threaten the livelihood and health of workers and their families.

1.4 The number and nature of jobs, the pattern of economic development, . . . education, training and retraining, occupational health and safety and quality of life issues, . . . are all inextricably connected with the question of environmental management. In particular, Congress believes the union movement must promote job creation, training and retraining for workers in industries changed because of environmental issues.

2.4 Cost of Structural Adjustment
2.4 (ii) If a decision is made that particular processes or certain industries are ecologically unsustainable then the costs of social and economic dislocation must be integrated into the decision making process. The costs to labor, the wider community and the government must be treated as an integral part in achieving environmental sustainable development, not simply as consequential problems to be solved by the market.

2.4 (iii) In particular, planning in relation to employment impacts should be a key feature of any set of environmental sustainable development principles applying to any industry or sector. The trade union movement must promote job creation, training, and retraining for workers in industries changed because of environmental considerations and the costs associated with this restriction should be born by the community and not the individuals affected.

2.5 Best Environmental Practice
2.5 (iv) The environmental sustainable development process requires a shift in emphasis towards best environmental practice, e.g. promoting the most fuel efficient and environmentally sustainable production methods.

2.5 (ix) Fundamental, however, to any successful implementation of best environmental practice is the education and involvement of unions and workers at all levels of an enterprise to help identify and quantify the problems and to seek creative solutions to those problems.

8. Energy Production, Distribution, and Use
8.1 Emissions from carbon dioxide resulting from fossil fuel combustion is one of the major sources of greenhouse gases. Much of Australia's electricity generation depends on black and brown coal combustion which generates CO_2 emissions. Combined with Australia's use of fossil fuel in transport and industry this produces a high level of per capita CO_2 emission. It is imperative that Australia acts to reduce its emissions of all greenhouse gases. Strategies to achieve this goal should recognize that:

8.1 (ii) Australia only emits around 1.3% of global anthropogenic carbon dioxide and therefore there are major limits to the impact we can have on global emissions;

8.3 Recognizing the environmental problems associated with energy production, distribution and use
8.3 (ii) Congress endorses the adoption by the Federal Government of the target of seeking to stabilize carbon dioxide emissions at 1988 levels by 2000 and reducing them 20% by 2005, provided that measures which have set adverse economic impacts or adversely affect Australia's trade competitiveness will not be implemented in the absence of similar action by major greenhouse gas producing countries

8.3 (iii) Congress recognizes that there are a range of low cost measures available that will reduce greenhouse emissions and calls for their implementation forthwith.

8.3 (iv) Congress cautions that measures which may have major implications in terms of cost or social dislocation should not be implemented in the absence of international agreement for all countries to act in concert. Should such international agreement be reached there will be a need to develop comprehensive labor market adjustment programs to facilitate the necessary industry restructuring whilst minimizing the associated social costs.

Kyoto and Beyond

The third meeting of the Conference of the Parties is scheduled for December, 1997 in Kyoto, Japan. At this meeting, it is believed that a protocol to the United Nations Framework Convention on Climate Change for the post-2000 era will be formally introduced and signed. Starting with the Berlin Mandate in 1995, negotiations by Conference of the Parties representatives have focused on amending or adding to the treaty in a number of areas, including controversial targets and timetables for emissions reduction.

The issue of climate change operates on different dimensions at the same time. From a value perspective that cares about the future, the evidence is disturbing enough to warrant real action. But when those actions are considered through an economist's lens then strongly negative impacts are possible. The reaction to the current debate has in fact been a mixed response. Some companies and unions that anticipate negative consequences are pushing back hard. Other companies and unions who see this as a potential benefit are positively inclined to a treaty.

Would a strong worldwide treaty that met the tests of broad application internationally and across sectors, sufficient conversion and worker protection strategies, and a search for positive solutions that range from international and national policy to office or shop floor levels be desirable? Absolutely yes. Such a solution would have more positive impacts and offer easier and less costly transitions. Absent these additions or changes the issue becomes much more problematic. The AFL-CIO has said that it is willing to move forward on this issue, regardless of a treaty. As later sections will discuss workers and their unions are becoming active participants in the process to achieve a better environment.

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Work and Environment Initiative

4.0 OVERVIEW OF UNION APPROACHES TO CLIMATE CHANGE AND THE ENVIRONMENT

The Importance of Union Values

Climate change is an issue that spans international borders, industries and workplaces, and calls for new ways of thinking about solutions. It is an opportunity for unions and their members to critically review the processes they work with in order to reduce energy use as well as greenhouse gas emissions and other byproducts of the production process. Similarly, the well-being of communities and families have always been high priorities for unions. A number of unions have local environmental programs integrated into their recreation and leisure time activities often reflecting the outdoorsman aspect of environmental concern. These make a difference in protecting local ecosystems and give meaning to the phrase "Think Globally, Act Locally;" a concept similar to "Union Solidarity" in that it seeks sustainable communities through collective action.

The global community has recognized the importance of workers and trade union contributions to sustainable development in documents from the United Nations including *Agenda 21* which is often referred to as a "blueprint for action" on the Earth's environment. The overall objective of this section is:

> *. . . poverty alleviation and full and sustainable employment, which contribute to safe, clean, and healthy environments--the working environment, the community, and the physical environment. Workers should be full participants in the implementation and evaluation of activities related to Agenda 21* (United Nations Conference on Environment and Development, 1992).

Agenda 21--Chapter 29, Strengthening the Role of Workers and Their Trade Unions

29.1 Efforts to implement sustainable development will involve adjustments and opportunities at the national and enterprise levels, with workers foremost among those concerned. As their representatives, trade unions are vital actors in facilitating the achievement of sustainable development in view of their experience in addressing industrial change, the extremely high priority they give to protection of the working environment, and their promotion of socially responsible and economic development

United Nations Conference on Environment and Development, 1992

The importance of ***community*** and ***family well being*** into the future are in stark contrast to the predictions of job losses in some climate change policy analysis. There are suggestions of massive job dislocations caused by the reorientation of energy consumption.

Unions have recognized that the implementation of sustainable development practices are important for ***job quality*** and ***security***. Industries which exhaust their raw material supply or produce products that pollute after their useful life are not going to support sustainable

employment. Further, there is an integral relationship between environmental and occupational health.

The issue of climate change is also one of ***equity*** and ***environmental justice***. In cases where companies with high greenhouse gas emissions are preparing to expand or replace production it is likely they would lean towards relocating production to areas with less strict regulations. The debate about this pulls two ways. On the one hand, developing countries welcome capital investment and the jobs it brings. On the other hand, this trend could send the dirtiest industries to less developed countries open to worker exploitation and violation of workers' basic rights to self-determination. Many trade unionists use this example to stress that climate change agreements must include the developing countries as well as the industrialized ones. They feel that it is also important that best technology be used in new development to ensure both employee safety and environmental improvement. Trade unions worldwide agree that the flexibility and relative ease of movement of transnational companies demonstrates that climate change is a global issue that requires a global approach.

The Worker, Community, and the Workplace

The environmental movement has hit the mainstream. In communities across America, curbside recycling has become a normal part of life. Homeowners are aware of the R-value of their roof insulation or the efficiency levels of their heating and air conditioning units. The motivations are both financial and environmental, and have become part of everyday life. Communities work together to develop or maintain local park land for common use. Union locals volunteer their time in these projects for the benefit of their families and their communities. Americans are conscious of the need and some of the steps necessary to preserve their environment. Like other Americans, union members want a clean environment ***and*** good jobs.

However, at the workplace, this may not always be the case. The quest for profits and the pressure to eliminate costs from current production techniques are not always in line with preserving or improving the environment. Workers may find themselves arriving at work after a weekend of re-insulating their roof or volunteering at a nature preserve to be confronted with dumpsters full of trash, factory or office windows that do not have insulation, or cooling water that is used once and then sent to the sewer. On a personal level, to have an environmental consciousness in one's community and then be required to ignore it at the workplace is an unwelcome contradiction.

Alternatively, in many cases, labor and management have implemented highly successful environmental improvements to production or service processes and even to the plant or office. The initial expense was generally recouped in a very short time following which further cost savings continue to accrue. The benefits to the company as well as the worker's sense of participation, has become more common in world class companies willing to work with unions in constructive ways. This method has two advantages. First, environmental performance, productivity, and resource utilization can be improved. Second, the workers and unions that are

involved become more empowered to continue making recommendations and changes that can improve the workplace and their lives at home.

Historical Comparisons

Unions, both in the US and globally, have led the way in protecting workers, families, and communities. From advocating child labor laws, the eight hour day, "right-to-know," and health and safety issues, workers and their unions have pressed forward on the issues that protect people's lives.

Republic Engineered Steel and the United Steelworkers Save Money and Jobs

In the first twenty months of Project 80, employees suggested about 1,000 improvements, about half of which are being put in place. Some $63 million in savings have been identified, and $45 million have been achieved. . . . The single largest money saving idea was for improved recycling of steel scrap, which cut more than $3.5 million off the budget. . . . More efficient use of water has been another huge money saver. One group of workers figured out a way to reduce water used during the heat-treating process. Water consumption has dropped 80 percent, from more than 9 million gallons a month in 1991 to under 2 million two years later. Savings are close to $50,000 a year.

Source: Joseph Romm, *Lean and Clean Management*. 1994.

The question of American labor's concerns about resource use is not new. In 1927, the *American Federationist*, the official publication of the American Federation of Labor published a whole edition on the elimination of waste in industry. William Green, President of the AFL stated; "The unwarranted destruction of raw materials, natural resources, and finished products, the uneconomic use of the means of production, negligence in the care of machinery and mechanical devices, indifference to the saving and protection of property and the failure to utilize all facilities available which make for economic production fall within the category of material waste." Green goes on to discuss human waste in not providing opportunities for workers to gainful employment and earn a decent living and spiritual waste that diminishes "the right of workers to develop their spiritual, intellectual and moral powers."

Traditionally, arguments are made that if workers pushed on these issues, companies would fold, jobs would be lost, and the standard of living would fall. These arguments have largely proven false. Such arguments assumed fixed conditions, fixed markets, no changes in technology, and neglected the creativity of workers improving the conditions of their workplaces. Changes in production techniques, reduced energy use, and waste recycling have already changed the expectations to show that production can be dramatically improved through the implementation of environmentally-oriented changes.

The current strategies used by trade unions, under the banner of the AFL-CIO Workplace Democracy Program, such as mutual gains bargaining, joint committees, union-friendly work teams, and the advent of workplace eco-auditing, puts workers, their unions, and the companies in even stronger positions to reduce greenhouse emissions effectively. However, a baseline concern stressed by the AFL-CIO and by international labor organizations is that environmental progress must ***not*** come at the expense of working people's jobs and standard of living. There is concern now that workers who may be displaced from current industries will not be able to find comparably paying work. In part, this is seen as function of the economy in America encouraging lower paying jobs. Companies are also more mobile now. Transnational companies compare production between factories in different countries. Therefore the task at hand is to level the playing field so that one country's environmental standards and labor pool are not played off against another.

> *Trade unionists represent the world's largest standing army, mobilized and motivated to spread knowledge, establish values, change attitudes, harness commitment. All to bring positive change in the world of work for themselves and a more just and equitable society for their families. . .Consider the potential of such an army marshaled in the cause of sustainable development.*
>
> **Bill Jordan, General-Secretary, ICFTU, Address to the Special Session of the United Nations General Assembly, New York, June, 1997**

Union Activities of the Future

Unions can and have made a difference in regards to environmental improvement at home, in the community, and at the workplace. **Sections 5.0** and **6.0** illustrate activities by workers and unions in the United States and internationally that are helping to create a better world. Several examples are discussed in more detail below.

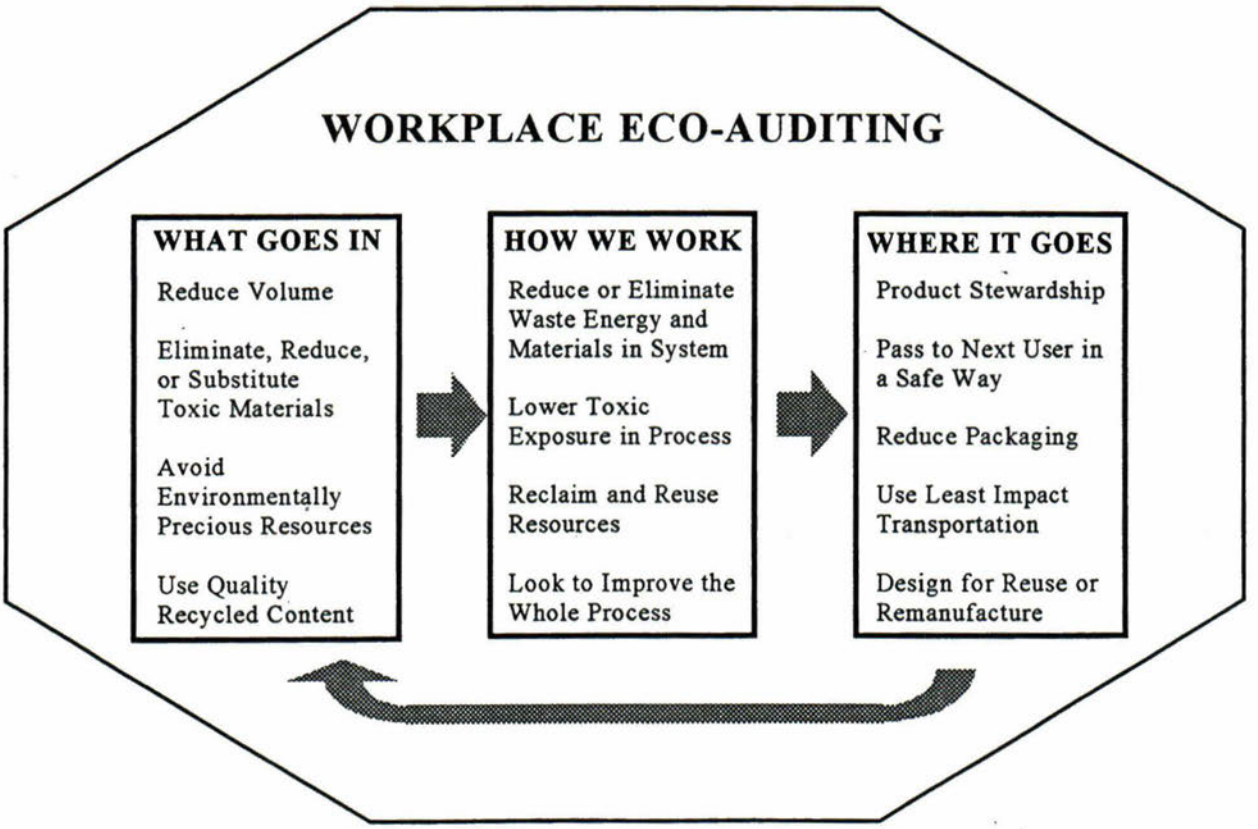
Workplace-Based Eco-Auditing

Auditing methods are increasingly being used as a means of evaluating environmental performance of individual processes as well as firms and entire corporate organizations. The emergence of ISO 14000 standards for environmental performance will likely bring about increased implementation of auditing activities. Over the last few years, the number of firms offering environmental auditing as a service have ballooned. Traditional environmental auditing is sometimes referred to as compliance auditing, which as one author notes,

> *. . .is a legalistic and narrowly technical perspective--as a means of fending off fines and lawsuits, and as a means of preparing to deal with government regulations which may require the attention of high-level management and sometimes serious corporate investment* (Callenback, et al., 1993).

Traditional objectives of an environmental audit are normally limited to: (1) assurance of compliance; (2) definition of liabilities; (3) protection against liabilities for company officials; (4) fact-finding in acquisition and mergers; (5) tracking and reporting of compliance costs; (6) information transfer among operating units; and (7) accountability of management. These types of audits are usually conducted by specialized auditing firms. However, a supplementary practice which can have demonstrable positive effects on a firm's environmental performance is workplace-based eco-auditing.

Workplace based eco-auditing is a process of engaging workers--at their jobs--in a comprehensive evaluation of the work process. It starts with individual work groups making an inventory of material and energy use in their area of production. From this inventory, current practice can be evaluated based on factors such as quantity used, toxicity, waste produced, and cost. Some improvements to current practice can be directly implemented within the workgroup. Some suggested improvements will affect other areas of production and inter-group analysis and broader consultation will be required. The workplace-based eco-auditing process is an on-going process in all phases of production and in all parts of an enterprise, from engineering, purchasing, and production, to design, sales, and distribution. Coupled with access to technical solutions at all levels, workplace based eco-auditing brings an environmental awareness to production focused on reducing waste, use of toxic substances, and energy use while increasing environmental and business performance. Access to best practice technical solutions is essential component for success in developing countries.



The implementation of eco-auditing is analogous to the shift from end of the line quality inspection to making quality a continuous part of doing business. With eco-auditing, end of pipe pollution compliance is replaced with integrating environmental awareness and action into the entire process. It is a framework for realizing continuous improvement in environmental performance through a systematic process of reviews, evaluation, identification of options for change, and participation in implementation.

Transition Programs

The issues of conversion planning are not new and labor has considered these options in various situations. Defense conversion has been a major issue as the Cold War wound down and bases were closed. A report by Labor's Agenda for Economic Conversion in New England articulated a set of principles about how this would best be done. Environmental issues were a high priority part of the analysis. They suggest the following agenda:

Sustainable Development

When military force was the focus of our industrial policy during the cold war, the ventral organizing focus of our post cold-war policy should be top address the largest threat in our current times-- the destruction of our environment. Resources should be redirected to research and technology development on sustainable economic development, focused on using our natural and human resources so that they are not depleted or degraded. Conversion efforts should encourage the development of new products that enhance the environment and the redesign of programs that deplete our natural resources."

Labor Agenda for Economic Conversion in New England, 1994

1. Provide incentives for firms to convert; hold them accountable for results
2. Worker involvement in decision-making must be central to conversion efforts
3. Significant funding is needed to accomplish conversion
4. New government purchasing should make up for some defense spending cuts.
5. Federal regulations should be used to redirect industry
6. Conversion should be part of a broad effort to rebuild U.S. manufacturing
7. Training should be linked to economic development, not just training after dislocation.
8. Displaced workers need income support and training for high wage jobs.
9. Streamline and coordinate administration between agencies and levels of government.
10. Trade policy should not hurt U.S. workers.

"Just Transition" involves a hierarchy of response. The first effort must be to find ways to retain jobs within an industry by significant internal improvement. The next effort should be to find or create comparably paying jobs through local development to minimize economic disruption. A

further possibility is to provide training and transition assistance to those who seek work in other industries or locations. A final backstop for workers affected by climate change policy is to assure income maintenance and pension protection. The OCAW proposal for a "Superfund for Workers" provides a basis for discussion of effective 'just transition' measures.

OCAW Proposal for a Superfund for Workers

The only way out of the jobs versus environment dilemma is to make provision for the workers who lose their jobs in the wake of the country's drastically needed environmental clean-up, or who are displaced or otherwise injured by economic restructuring, or military cutbacks and shifts of manufacturing facilities overseas. What it will take is an ambitious, imaginative program of support and reeducation . . . Education remains just as powerful a force today and is the basis of a concept supported by OCAW called "The Superfund for Workers"

Source: OCAW, 1992

In the U.S. Northwest, where logging has been hard hit by environmental restrictions, pilot training programs have been initiated. The Ecosystem Workforce Project was set up in Oregon and Washington to provide training and ecosystem management experience for dislocated timber workers. The goal of the project has been to provide worker training in improved forestry practices while at the same time demonstrating to the Bureau of Land Management that sustainable practices are often more cost effective than lowest bidder strategies. The development of transition programs is enhanced when best practice methods are promoted and workers trained with those skills can be paid a family supporting wage.

Conclusion

Workers and their unions are making a positive contribution to environmental improvement. **Sections 5.0** and **6.0** illustrate many of the ways in which they are doing so.

5.0 THE AMERICAN LABOR MOVEMENT: PRESERVING THE ENVIRONMENT

Introduction

Over the last 25 years, substantial progress has been made in cleaning up, protecting, and preserving the environment; however, there are many gains still to be made on the path to sustainability. Starting with an overview of the AFL-CIO position on the climate change treaty, and some examples of union initiatives around the country, the following sections highlight a few of the many examples of union activities on the environment that are occurring in the U.S.

American Federation of Labor--Congress of Industrial Organizations (AFL-CIO)

In recent years, the AFL-CIO has increased the amount of attention that it gives to environmental matters. A high level committee of affiliates helps guide emerging AFL-CIO policy. An environmental liaison has been brought on board. New alliances are being forged with environmental groups and critical issues such as chlorine use are on the table.

The AFL-CIO supports a balanced global climate change treaty, but has expressed strong concerns with the current calls for carbon emission reductions in industrialized nations to below 1990 levels by the year 2000. Because most countries want legally binding targets and timetables only for the US and other industrialized nations, the export of pollution and jobs to developing nations such as China, India, Malaysia, and Mexico appears to be a likely and unwelcome outcome. There is valid concern that under this plan global carbon emissions would not actually be reduced, while the burden of economic dislocation would fall disproportionately on US workers.

The AFL-CIO supports domestic environmental programs such as the Model Energy Code which has been adopted by twenty states to set efficiency standards for heating and air conditioning in new construction. Developed by the Council of American Building Officials, it is supported by thousands of AFL-CIO union members, employed in manufacturing and construction industries. The results of the Code have been substantial savings for homeowners as well as reduced energy consumption.

In Minnesota, the state AFL-CIO passed a resolution in support of pollution prevention training. Following this, the state federation enacted a program with Citizens for a Better Environment, an environmental organization, to reduce the use of toxic chemicals in the workplace. The pilot Labor/Environment Project will review more than 500 plants across Minnesota to determine which organized companies would welcome assistance in reducing chemical use. The project will develop a program to educate workers to become active participants who contribute to controlling and removing toxic chemicals. The strategy is to also educate workers about the principles of sustainable development and the connection between preventing pollution and job security.

In Baltimore, AFL-CIO unions pledged support of the innovative new concept of eco-industrial development. A number of areas of support were outlined in the resolution including: recruitment, construction, high performance workplaces, training, education, and financing.

Ecological Industrial Park Development Resolution
Metropolitan Baltimore AFL-CIO

Resolved, the Metropolitan Baltimore Council AFL-CIO Unions actively supports the development of high quality jobs through the Empowerment Zone process and the creation of the an Ecological Industrial Park centered in Fairfield. The Baltimore AFL-CIO believes that the best route to decent wages, safe working conditions, and career opportunities is through making these union jobs. The Baltimore AFL-CIO wants employers to be successful when locating in Baltimore so that these benefits can be fairly shared with the employees who contribute to that success. We invite employers and local governments to work with us to make these the best possible jobs and workplaces.

The Metropolitan Baltimore Council AFL-CIO Unions fully support the efforts of local citizens in and near the Empowerment Zones and assure that the jobs that come with the Empowerment Zone are environmentally responsible and lead to sustainable careers with good wages and benefits. The Baltimore AFL-CIO offers a five point program to help create high quality jobs for Baltimore:

1. ***Recruitment:*** The Metropolitan Baltimore Council AFL-CIO Unions is committed to assisting in the recruitment of new businesses into Baltimore that do not pirate jobs from other communities.

2. ***Construction:*** The Baltimore Building Trades Council commits that all construction within the Empowerment Zone that is built all union will be done on time, within budget, with high quality, and in an environmentally responsible manner.

3. ***Total Quality/High Performance Workplaces:*** In accordance with the call of the AFL-CIO Executive Council nationally for high performance workplaces the Baltimore AFL-CIO pledges to work with the Maryland Alliance for Labor-Management Cooperation and with new and existing employers to assure a quality oriented, highly productive, safe workplace built upon active involvement of the union and its members.

4. ***Training and Education:*** Union education and training activities in the Baltimore area can assure the continuing skill development of employees that lead to high quality work and career opportunities. Some Baltimore area unions are all especially skilled in teaching environmental remediation and pledge to provide these skills for new workers, thus making them broadly employable in manufacturing, construction, and environmental service jobs within the Empowerment Zone and elsewhere.

5. ***Financing:*** Union pension funds provide a major source of investment capital for building new business in Baltimore at reasonable rates and with less paperwork. Union pension funds are available from jointly trusteed pension asset funds for responsible investments that include the use of union labor in construction and operation.

The Energy Sector

In 1995 electric utilities generated roughly 35% of CO_2 emissions in the U.S. (EIS, 1995). When 56% of the electricity generated in the U.S. comes from coal fired power plants the questions is, to reduce emissions, will less electricity be produced or will the turbines be turned by other energy sources? The suggestions of a carbon tax or trading of carbon permits to implement CO_2 reductions makes coal miners and refinery workers fearful for their jobs. Transitioning to an economy which emits less CO_2 has the potential to radically change the face of the world's energy production.

United Mineworkers of America (UMWA)

International treaties and domestic policies on climate change are extremely important for mineworkers and their communities. Under current proposals, the United Mine Workers of America (UMWA) would suffer the most immediate and severe economic impacts from plans for CO_2 reductions. Because the carbon and sulfur emissions from coal are greater than other fossil fuels, and because coal miners represent a relatively small voter constituency, the industry expects to be targeted by pollution control legislation which avoids the more politically treacherous issues of automobile emissions and general reductions in energy use. The UMWA has supported environmental legislation which uses technology to reduce emissions, while maintaining coal production, rather than imposing taxes specifically aimed at decreasing the demand for coal.

The UMWA's policy statements regarding the environment are focused on global climate change, revision of air quality standards for ozone and particulate matter, and federal versus state implementation of ozone regulations.

> *Mineworkers support strong workplace health and safety protections and environmental safeguards. We were instrumental in breaking the impasse over acid rain control legislation through the 1988 Mitchell-Trumka compromise, a technology-based bill that would have cut electric utility sulfur emissions in half while preserving local coal markets.*
>
> **UMWA, *Environmental Issues Affecting Coal Mining Jobs*, UMWA Research, 1997**

Mineworkers have stressed the importance of developing clean coal technologies, in addition to further study on the effects of particulate health effects and ozone transport. Their concern is to prevent very expensive abatement technologies from being instituted based on what they consider premature data.

Utility Workers Union of America (UWU)

The UWU has expressed concern over the EPA's proposal to modify the National Ambient Air Quality Standards for ozone and particulate matter (PM). In line with the Mineworkers, they are concerned that the scientific evidence on PM and ozone is not adequately focused and point out

that there is no available technology to measure compliance to the new standards. They believe that significant added expense would be added to industry without clear demonstration of commensurate public health and environmental benefits.

> *This is an issue of considerable importance to the nation and to America's working families. We believe we can continue to enjoy air quality improvements without imposing additional costly and potentially unnecessary rules like those proposed by the EPA for particulate matter and ozone. We urge the EPA to reaffirm the current standards, conduct additional monitoring of PM and related air quality issues, and allow states to complete action on the ambitious clean air standards that are already in place, including existing standards on ozone, before embarking on entirely new and costly undertakings.* (Donald E. Wightman, 1997.)

Oil, Chemical and Atomic Workers (OCAW)

The Oil Chemical and Atomic Workers International Union (OCAW) confronts environmental issues on a daily basis. The OCAW has been proactive in proposing solutions to the conflict between the environment and some of the industries in which they work. For example, in 1990, OCAW began publishing *New Solutions*, a policy journal which provides a forum for debate on environmental issues among trade unionists, environmentalists, and policy makers. As the title of the journal indicates, the purpose is to look for ways to improve the transition from older environmentally unsound industries to new industries and technologies which will lessen environmental impact.

New Solutions

We want this journal to be a place where trade unionists and community activists can learn about the latest scientific and medical research, and where scientists and physicians can learn more about the concerns of working people and their families. We want it to be a forum where trade unionists and environmentalists can work together to find answers to the critical question that confront both our movements.

Tony Mazzocchi, Publisher of *New Solutions: A Journal of Environmental and Occupational Health*

The OCAW also provides its membership with valuable guidelines on taking a credible position when their company's environmental policies are at odds with the interests of their communities. Rather than siding with a polluting company in an attempt to save their jobs, the OCAW recommends that union members research an environmentally sound position of their own or remain neutral. This is based on the realization that a clean environment benefits the workers as well as the community because the workers are in direct contact with toxic substances and are the first to face adverse health effects.

While the OCAW hopes that taking a stand on environmental issues will improve working conditions for their members, they recognize that in some cases, entire industries may eventually be phased out. OCAW has suggested an innovative proposal, the *Superfund for Workers,* which

would help all workers who have lost their jobs due to improvements in environmental standards find new and meaningful employment at a similar standard of living. Based on the precedent of the GI bill, the Superfund for Workers would be a federal transition program that would pay workers to be retrained and reeducated. The Superfund for Workers would go beyond the government's current retraining programs, which often fail, and would offer full tuition and wages to workers in order for them to pursue careers in other fields. Anthony Mazzochi, assistant president of OCAW, and others argue that workers' ill health and lost jobs are also the residue of polluting practices as much as reclaiming the polluted groundwater and land and thus deserve compensation and assistance to maintain an income while learning new skills and transitioning to new jobs with similar earnings.

OCAW has built coalitions with progressive environmental groups while pushing their employers to clean up their production processes and examine new products that are more benign to the environment, such as substitutions for chlorine based processes. The OCAW in Philadelphia has worked closely to develop Good Neighbor Agreements (Lewis, 1993.) that bring the community into the plant for environmental monitoring and problem solving. In Louisiana, the Labor/ Neighbor Project, with participation by OCAW Local 4-620, worked with communities in three parishes to improve monitoring of air and ground water. Good Neighbor Agreements have included a number of unions as part of community coalitions to even the power imbalance between corporate and community interests. These agreements provide greater technical assistance, and access to facilities and information for worker and community activists.

International Brotherhood of Electrical Workers (IBEW)

Members of the IBEW work in many utilities around the country and are directly affected by efforts to change energy technology and use patterns. John Barry, president of the IBEW, said in a letter to President Clinton in 1997:

> *We are justifiably proud of the gains we have made in cleaning up our air and water in this country. The IBEW has always prided itself on standing with the proponents of a cleaner environment and has supported the legislative and regulatory measures needed to move our nation forward in these endeavors.*

The IBEW has expressed concern though about the timing and nature of changes to air quality standards.

Manufacturing Sector

The manufacturing sector in the U.S. runs on fossil fuels and electricity generated from fossil fuels. The industrial sector accounts for 34% of electrical utilities sales. CO_2 emissions, from manufacturing, including that attributed to electricity generated for industry, represent about 33% of the total U.S. emissions. In response to environmental goals, many manufacturing facilities have reduced waste and emissions by focusing on more efficient production. Energy costs, which for some industries are a significant portion of production expenses, could be impacted by climate

change strategies. The industrial sector also represents a large number of workers in diverse industries who could have a positive impact on improving the environment through cleaner production and reductions in energy use.

United Steelworkers of America (USWA)

The United Steelworkers of America (USWA) have given significant attention to environmental issues and their impact on union families by creating a task force to examine environmental problems and the role that unions might play in solving them. The result has been an eloquent report entitled, *Our Children's World* which sets forth a strong position to guide future USWA initiatives.

The Steelworkers are prepared to take a leadership role in protecting the future of their children and the environment. Through collective bargaining and political action, USWA promises to make the environmental cause their own. They are pressuring their companies to improve standards with the knowledge that an environmentally sound company has a better future than a company that destroys its resource base. The Steelworkers are confident that new technologies will increase the compatibility of their industries with the environment, and they plan to take the lead in developing and implementing those technologies.

> *In the long run, the real choice is not jobs or environment. It's both or neither. What kind of jobs will be possible in a world of depleted resources, poisoned water and foul air, a world where ozone depletion and greenhouse warming make it difficult even to survive?*
>
> **USWA, 1991. *Our Children's World: Report of the USWA Taskforce on the Environment.***

Recognizing that unions need to be involved in decision making which will affect climate change and the environment at the workplace level, USWA has entered into partnership agreements with several companies. The United Steel Workers of America have negotiated broad ranging contractually based partnership agreements with the large steel makers and organized it under a "New Directions" banner. One of the characteristics of the agreement is to make environmental discussions a mandatory issue of their partnership. At USX, the largest steel company in the US, there is a top level labor-management committee dedicated to environmental issues. The union has also put forward, in several locations, the possibility of a tripartite committee that includes local environmental groups. This was successfully negotiated at Ravenswood Aluminum where environmental pressures played a major role in the new contract.

Although the Steelworkers have enjoyed some success with labor-management partnerships, they also understand that the implementation of USWA initiatives and policies will ensure a safe and sustainable environment even when the company is unwilling to cooperate. Some companies only expect the union to run interference for the company when a difficult environmental issue surfaces. The Steelworkers have a different idea. They plan to contribute to real environmental improvement. USWA has developed a plan of action for its local unions to follow. They call for locals to create an environmental committee or to include environmental issues in their health and safety departments. These committees and the workers in the plants can effectively research the company's environmental record and monitor their practices. Locals can use their negotiating power to force companies to clean up, to protect "whistleblowers," and to extend exemptions which protect workers from especially hazardous tasks so that work which threatens community health or violates regulations can be refused. They also urge locals to form coalitions with environmental groups and to take responsibility for educating their membership.

> *Steelworkers have heard the jobs argument before. For many years companies have tried to use economic and environmental blackmail on the union and its members. In every fight for a new health and safety regulation, or better wages, or improved pensions, there is a corporate economist to tell us that if we persist, the company or the industry will fold, with hundreds or thousand of lost jobs. It rarely turns out to be true, and for good reason. Someone has to design the cleaner process or equipment. Someone has to build it. Someone has to install it. Someone has to maintain it.*
>
> **USWA, 1991. *Our Children's World: Report of the USWA Taskforce on the Environment.***

At the same time, the Steelworkers are making themselves heard through national lobbying and support for international sustainable development initiatives. They support a variety of legislation which will improve air and water quality and reduce pollution. They also back bans on imports of products made under conditions that do not meet US standards, and they support international environmental agreements.

USWA recognizes that in some cases plants may close and workers will lose jobs because of compliance with new environmental standards. They believe that the mere creation of new jobs in industries which protect the environment is not enough to protect Steelworkers' futures, and they are taking action to insure that displaced workers do not bear the bulk of the cost of environmental protection. USWA lobbies for legislation that will provide workers with income protection and job retraining. They also advocate that companies who are installing new equipment or shutting down at intervals to meet pollution controls should pay their workers full wages during the interim.

Transportation Sector

Transportation issues, in relation to the environment, touch all working people, from commuting to work to family vacations. Unfortunately, our choices have costs and environmental impacts. Estimates are that the transportation sector contributes 30% of the CO_2 emissions by the U.S. Climate change could create winners and losers in transportation. For example, roughly 40% of the nation's rail traffic is hauling coal, which brings in $21 billion in revenues. Thus, if coal takes a hit, then railroads will need new markets. For the trucking industry greater emissions controls and fuel expenses could cost many jobs. Airlines are sensitive to the costs of fuel and major price hikes can cause significant problems. Maritime transport would see major impact from global warming and may have a slight increase in traffic. Mass transit and alternatively fueled vehicles could see revenues soar. The following sections discuss various initiatives by transportation-related unions on the environment.

United Auto Workers (UAW)

The United Auto Workers (UAW) actively promote environmental conservation and protection through community efforts and through their collective bargaining power. By sponsoring such activities as Earth Day and encouraging UAW families to act locally in community programs, the union addresses environmental issues from a community standpoint. They have also adopted policies at their conventions to guide bargaining and legislative goals. These positions speak to the issues of greenhouse gases, air and water quality, and population growth.

> *Environmental and related safety laws can act in our direct economic interest as well as protecting public health. Requirements which add value to our products -- such as pollution control, safety equipment, or more sophisticated engines -- add jobs. Improved technology and investment at our work sites, such as the installation of pollution control equipment, makes for better jobs. Environmental restoration creates jobs. Forced private spending for these activities stimulates the overall economy as well.*
>
> **UAW Resolutions Committee, 1995**

On transportation and energy policy, the UAW resolution calls for a rational, coordinated and environmentally sound national transportation policy including: (1) safe and dependable public transportation redesigned around changing community transportation patterns; (2) government commitment to fund alternative fuel technologies; (3) major investment in transportation infrastructure including bridges, rail, airports, and harbors; and (4) defense conversion to stimulate high speed inter-urban rail lines.

One of the most far reaching examples of environmental partnership has been recently developed by the General Motors Corporation and the United Auto Workers. Linked to their joint Quality Network, labor and management have been working diligently over the past ten years to build higher quality cars. Labor and management have worked through a jointly funded and

administered mechanism to establish a set of quality standards that are applied throughout the corporation on a partnership basis. Recently they added a new quality standard on environmental issues titled *WE CARE: Waste Elimination and Cost Awareness Reward Everyone*. This represents the first joint statement by the UAW and General Motors on environmental issues.

According to Mike Warchuck, UAW Quality Network representative, part of what the group was able to do that distinguished it from normal corporate environmental activity was to "unionize the issue so that UAW-represented employees understood what was in it for them, and the impact on the community and surrounding area." The new standard is being implemented with hourly and salaried health and safety representatives who are conducting the training and facilitating the implementation of the process.

WE CARE Objectives

The objective of the WE CARE strategy is to conserve resources (raw materials and energy) and prevent pollution effectively through teamwork and continuous improvement toward an ultimate goal of becoming a global leader in environmental stewardship.

UAW, 1992. *WE CARE.*

Amalgamated Transit Union (ATU)

The ATU, in its 1995 National Convention, asserted the importance of mass transportation systems in the U.S. as an effective response to energy conservation problems and traffic congestion. They point out the importance of allowing communities more flexibility to transfer funds between highway and transit programs. They relate the importance of mass transit to reducing emissions of greenhouse gases and to communities which need public transit systems for workers, the elderly, the disabled, the poor and the young. The ATU is an active member of the Surface Transportation Policy Project, the goals of which are focused on energy conservation.

Surface Transport Policy Project (STPP).

STTP's goal is to ensure that transportation policy and investments help conserve energy, protect environmental and aesthetic quality, strengthen the economy, promote social equity, and make communities more livable. It emphasized the needs of people rather than vehicles, in assuring access to jobs, services, and recreational opportunities.

Wood Products Sector

The wood products sector has both experienced and responded to environmental demands and expectations. It is also an important part of the climate change debate because of the role that forests play as "carbon sinks" for CO_2. Logging practices and forestry management have changed radically over the past decade. Wood is recognized as a renewable resource for consumer

products and energy production. But this has not happened without dislocations and massive changes to the industry. The unions discussed below have been involved in these changes.

United Brotherhood of Carpenters and Joiners of America (UBC)

As the union which represents a number of forestry and wood product workers, the United Brotherhood of Carpenters and Joiners (UBC) has been very involved in environmental issues around forestry management as well as around building technologies. They have also been aware of the issues concerning the export of American jobs due to the export of unprocessed logs as well as the loss of logging jobs due to reduced cutting of Northwestern forests.

One way the UBC has addressed these issues is through working with the Ecosystem Workforce Project to provide training and ecosystem management work experience for dislocated timber workers. According to Denny Scott, UBC economist,

> *We believe it's appropriate to link income maintenance with the condition that people are in training, increasing skills, and adding skills to their portfolio so that they could eventually be employed at higher wage jobs. Workers want quality jobs and long-term employment at family wages. We all want the same things for our families. We want to send our children to school. It is no different for an unemployed mill worker who lost his or her job because of a change in timber harvest laws in the national forest . . . Workers also want a comprehensive, multi-skill training program. They need broad diversified knowledge so they can do more than a narrow piece of the work. Broader skills make for higher quality, more versatility, and in the end, the Forest Service and BLM will find it to be a lower cost method. I propose we dedicate ourselves to forming a state-wide apprenticeship that sets out uniform standard curriculum for all forest restoration work* (Scott, 1995).

This project combines the long-term goals of creating a quality workforce for the forest industry, implementing watershed based ecosystem management systems, and assisting communities to take on ecosystem management as a part of their economic base. The project has been operating in communities in Oregon, Washington, and California, working closely with the Bureau of Land Management to orient that agency towards using high skilled, high productivity labor for land reclamation rather than lowest bidder contracts. The training has been provided by the Labor Education Research Center at the University of Oregon and the program has been running since 1994.

United Paperworkers International Union (UPIU)

The Paperworkers are on record as opposing signing or ratifying the Climate Change Treaty unless it addresses the issues of concern listed by the AFL-CIO. They have spoken strongly to the importance of including all countries in the agreement in order to insure that real progress is made in reducing greenhouse gases and to prevent polluting industries from relocating to

developing countries. They also call on the U.S. government to conduct a thorough study of the economic and social impacts of greenhouse gas limits.

> *There is no sense to attempt to deal with a global problem by regulating only one part of the world. Not only is it wrong, it just won't work. The irony is that if developing countries were subjected along with the rest of the world to reasonable curbs on greenhouse gases, these nations and their investors would have a large incentive to develop energy efficient industries from the start, and would not then have to spend enormous resources on re-tooling when their greenhouse emissions "catch up" with the rest of the world.*
>
> **Boyd Young, International President, United Paperworkers International Union, October, 1997 editorial in "The Paperworker"**

The Paperworkers have already felt the impacts of environmental regulations in their industry as well as the effects of changes in logging practices that have affected most wood based industries. Solid wood production fell significantly in the Northwestern U.S. following environmental policy decisions in 1993 which caused pulp production to shift to the southeastern soft pine forests. As a result there is now some concern about over-harvesting in that part of the U.S. In the mean time, the American Forest & Paper Association, which represents over 400 wood products firms that maintain 90% of U.S. paper capacity, has adopted a forward thinking sustainable forestry initiative that is expected to have a positive impact in the southeast where timber holdings are predominantly privately held. This initiative includes extensive training for loggers in sustainable harvesting practices. However, with the price of pulpwood in the South at a 30 year high there is concern that tropical forests could be targeted for pulp wood harvesting, with the potential for moving paper mills out of the U.S.

Another area under discussion has been the use of alternative fibers in paper products. Kenaf is an annual crop, related to cotton plants, which has shown potential for use in newsprint and other ground-fiber papers. In addition to technical research, a small mill in New Mexico has been using parts of the plant in making writing papers. Other non-wood sources could be wheat straw or corn stalks, which use fewer chemical fertilizers than the current soft pine plantations. Each of these provide an alternative source of fiber.

> North American paper companies have always had a huge "comparative advantage" over other countries with their plentiful fiber, skillful workers and ready-access to U.S. consumers, the largest market for paper products in the world. A few in the industry are now warning that environmentalists and the federal government are locking up enough timber that our industry will lose its comparative advantage and thousands of paperworker jobs. If companies begin relying on Latin America for pulp, it will destroy jobs here as well as rain forests there.
>
> Source: *The Paperworker*, March, 1996

The increased role of paper recycling has also led to the location of mini-mills in urban locations that tap into large sources of office paper--the urban forest. This approach has been driven by some environmental and economic-justice groups as an entrepreneurial approach to recycling. Although generally successful, there have been some growing pains to these operations. These and other alternatives are areas that the Paperworkers review in their national publications.

Building Trades Sector

Residential and commercial sectors account for about 20 and 16 percent, respectively, of carbon dioxide emissions from fuel consumption. Both sectors rely heavily on electricity for meeting energy needs, with two-thirds to three-quarters of their emissions attributable to electricity consumption. End use applications include lighting, heating, cooling, and operating appliances. The remaining emissions are largely due to the consumption of natural gas and oil, primarily for meeting heating and cooling needs. (U.S. Environmental Protection Agency, 1996)

Energy efficient construction methods and building operations, alternative and newly developed building materials, integration of solar, wind, and geothermal energy technologies are all possible directions for the future of the building trades. In this industry, many say that the future is happening now. Architects are specifying more energy efficient buildings. Retrofitting older buildings and homes is a growing industry. Safe and efficient cleanup of once polluted sites and cleaner more environmentally friendly construction methods are other aspects of this sector's responsible standards of practice. For glaziers, new and much better windows need to be installed; for roofers, they can help make good on President Clinton's "million solar roofs" pledge; sheet metal workers, electricians, and plumbers can all benefit from retrofitting buildings

Bricklayers and Allied Craftworkers International Union (BAC)

The Bricklayers and Allied Craftworkers International Union (BAC) has an innovative set of contractually based programs that seek to increase market share for masonry products, enhance apprenticeship and employee skills and to conduct research and development in the industry. In the early 1980's, the International Masonry Institute, a jointly trusteed body that administers these programs, published software for the building industry on the passive solar potential of masonry products. Recently, as part of market promotion and in an effort to create further work in the residential market, BAC has been working together with a European based masonry products company which produces an environmentally preferable shell, with high R value and recyclability. The BAC has developed a training program to support the installation of this new building material.

Sheet Metal Workers International Association (SMWIA)

Sheet Metal Workers International Association (SMWIA) has focused its attention on indoor air quality by working nationally with building contractors and the American Institute of Architecture on HVAC systems. Training programs through their National Training Fund are on going around worker skills such as welding and forming. The union has been working with the Department of Energy in the Northwest to transfer unused federal properties to a local Port Authority for worker training and modifying, and for building rail cars. SMWIA also supports a new proprietary technology which removes pollutants and wastes from air using specially generated high voltage, high frequency electrical pulses within a reaction chamber. This is an example of their pursuit of

21st century technology that will provide employment for their members. In the late 1970s, SMWIA was a leader in supporting solar energy technology by encouraging contractors to enter the business and to provide a guarantee on the quality of the workmanship. This program has since been transferred to others in the private sector.

Laborers International Union of North America (LIUNA)

LIUNA is making a major push into the environmental arena. This includes hazardous waste and recycling activities along with exploration of more environmentally sound construction practices. Local 445 in Brooklyn is a recyclers local. They have developed school based programs working with their member's children "to inform kids about what recycling really is and the type of work their parents do."

The National Training Center of the Laborers-Associated General Contractors (AGC) based in Pomfret, Connecticut has an environmental staff of 22 professionals who design and deliver training programs for hazardous waste removal and other environmental endeavors. The training time is double the federally required minimum. Through this training, the Laborers have moved from less than 5% of the market share to over 60% of large remediation projects. Through use of modern instructional technology and hands on experience for members, employees in the industry are taught not only the safest but also the most efficient practices. The training includes broad awareness about the environment through hands on assignments, videos and other curriculum. The Laborers have set up a program to spread environmental training to Mexico and other Latin American countries and in Eastern Europe. LIUNA is also developing a strategic perspective for further expansion in the environmental industry.

International Union of Operating Engineers (IUOE)

IUOE represents a large portion of Western coal miners which number about 15% of miners nationally. They are also involved in hazardous waste removal operations and remediation work. In addition, IUOE has been working with DOE and private contractors in the development of improved handling techniques, equipment, and protective clothing for use in the waste removal field. The union sees this area as an important area for their growth as well as fundamentally important to the health and safety of their members and their communities.

In cooperation with the U.S. Department of Energy, the IUOE Stationary Department is coordinating the development of a 75-hour course in energy conservation. Following on the success of the enormously popular indoor air quality course, President Hanley envisions this new course will be the road map on how to maximize energy efficiency in commercial and industrial facility environments. The course will address facility operations, maintenance, retrofits and modifications.

President Hanley is inviting members to become part of the course development process by submitting energy conservation information they have found most beneficial and job applicable over the years. The membership represents a vast untapped expertise.

International Brotherhood of Painters and Allied Trades of the United States and Canada

The International Brotherhood of Painters and Allied Trades has formed, in cooperation with their contractors, a partnership called the Model Pollution Prevention Project for the Construction Painting Industry. Through workshops, distribution of information, and technical assistance, the project enables painters to use their experience and practical knowledge of their trade to identify appropriate pollution prevention practices and behaviors that also impact workers' health and safety.

United Union of Roofers, Waterproofers, and Allied Workers

The Roofers Executive Board have recently passed a resolution (excerpts below) in support of the Million Solar Roofs Program. They have pledged to seek a partnership with the Administration to promote the use of alternative roofing materials and to work with manufacturers and contractors to promote high quality products and efficient installation.

> *NOW, THEREFORE BE IT RESOLVED, that the United Union of Roofers, Waterproofers, and Allied Workers fully supports President Clinton in his Million Solar Roof Initiative and pledges to seek a partnership with him to meet that goal;*
>
> *BE IT FURTHER RESOLVED, that the Roofers' Executive Board pledges to work closely with the US Department of Energy to assure the high quality installation of these new roofing materials through skilled union craftsmen and contractors.*
>
> *BE IT FURTHER RESOLVED, that manuals for roofing installation be amended to include these new kind of materials and that additional means for training explored* (United Union of Roofers, Waterproofers, and Allied Workers, 1997).

Service and Education Sector

The service sector is generally expected to be the fastest growing in the U.S. Offices, hospitals, and consumer services are large consumers of energy and potential producers of waste. Energy saving programs have proven very successful in many different areas of this sector using techniques such as new efficient lighting in offices, alternative packaging for food service, and recycling efforts for office paper, to name just a few. Educational opportunities abound for engaging the U.S. population in waste and energy use reduction plans and the educational unions have been involved in those efforts. The following section outlines a number of other initiatives.

American Federation of State, County, and Municipal Employees (AFSCME)

AFSCME, is addressing environmental issues at several levels. Approximately half a million AFSCME members are involved in some form of environmental work, from recyclers to forest rangers, waste water plants to pollution cleanup crews. They are doing the work that protects our natural resources. By holding several National Conferences on the Environment, AFSCME has provided a forum for locals and union activists to meet with academics and environmentalists to discuss strategies that will educate and involve union members in environmental protection.

> *(We hold the conferences) "because we want to transform all the members of the union into environmental activists, AFSCME-style. We're not doing this because it's a nice thing to do or because it's politically correct. It is fundamental to protect the jobs, the rights, and the health of members and the well-being of their communities."*
>
> **William Lucy, 1994. "AFSCME: The Environmental Union." *AFSCME Public Employee.* (January).**

Environmental issues are a regular subject for discussion at the union's conventions. For example at the 1992 convention, the union declared, "AFSCME members are on the front lines of the struggle to achieve a clean and healthy environment in their workplace and in their communities." Resolution 40, submitted by a very active environmental local in California states that "AFSCME shall encourage locals and councils to negotiate environmentally related issues into their contract language and will provide examples of this upon request." The resolution also stated that "AFSCME locals and councils can create environmental responsibility in their own offices as well as in their workplaces through contract language; and this can be accomplished by such means as forming joint union-management committees to pressure employers to apply an environmental ethic at the workplace." AFSCME also views coalition building with grassroots environmental organizations as a way to increase awareness and ensure the safety of the community. One example is a negotiated Joint Ecology Committee in the San Francisco Bay area. Initially the committee focused on reduction of pesticides through integrated pest management. Over the years, the committee has developed a much broader agenda for continuous environmental improvement.

American Federation of Teachers (AFT)

The American Federation of Teachers (AFT) has, since the 1970s, been in support of environmental education programs. This has also included support for clearing houses for the dissemination of environmental information. More recently, they have focused on indoor air quality and the issues such as sick building syndrome. This has been a particular issue to Florida locals where heat and humidity contribute to mold problems in the buildings.

NEA[2]

The National Education Association(not affiliated with the AFL-CIO) believes that the nation's priorities must include the protection of our environment. The Association urges the establishment and maintenance of Federal Wilderness Areas, Recreational Areas, Refuge Areas, and designated local green areas. The Association further urges the development and improvement of educational programs that will:

1. Promote the concept of the interdependence of humanity and nature
2. Develop an awareness of the effects of past, present, and future population growth patterns on world civilization, human survival, and the environment
3. Promote an understanding of the necessity to protect endangered, threatened, and rare species
4. Promote an understanding of the necessity to protect the earth's finite resources
5. Promote the concept of pollution reduction
6. Promote the use of reusable and recyclable products and discourage the use of disposable products
7. Promote the use of disposal methods that do not contaminate the environment
8. Promote the recognition of and participation in Earth Day activities
9. Promote the understanding of the value of the world's forests, waters, wetlands, deserts, and grasslands.

The National Education Association believes that atmospheric changes caused by human activities pose a significant environmental threat. The Association urges the development of educational programs that explore the causes and effects of atmospheric problems such as global warming, ozone depletion, and acid precipitation and deposition, and possible solutions to such problems. The National Education Association believes that educational programs should increase understanding of energy, alternative energy sources, and energy conservation. The Association urges its affiliates to support a National Energy Education Day and to encourage energy education programs at all levels.

The National Education Association believes that businesses and governmental agencies should be responsible for designing, producing, and using products that are reusable, recyclable, biodegradable, or disposable without contaminating the environment. The Association encourages its affiliates and members to include these criteria in selection of products for use and to work with school systems and educational institutions in developing purchasing policies using these criteria. The Association further believes that business and governmental agencies should dispose of waste in a manner that will have the least possible impact on the environment.

[2] Information for this section has been excerpted from information on the National Education Association's world wide web page (www.nea.org)

National Association of Letter Carriers (NALC)

The NALC is acutely aware of the amount of waste paper that travels through the postal system. A number of local branches have been involved in plans to recycle and reduce the amount of waste paper. In 1992, the U.S. Postal Service claimed roughly $1 million in revenues from recycling. The NALC also highlights how their joint employee involvement activities have proposed new delivery vehicles that generate less air pollution through conversion to natural gas. In addition, the union provides tips to its members on greener lifestyle choices.

Service Employees International Union (SEIU)

SEIU supports efforts to negotiate a comprehensive solution to global warming. Natural gas should play a part in any scheme to reduce U.S. greenhouse gas emissions, as it produces less air pollution than any other fossil fuel. changes should be made to those sections of the Clean Air Act that discourage coal users from switching to natural gas.

SEIU calls on the administration and Congress to develop long-term energy solutions. These solutions should reflect a balance between vigorously developing reliable sources of energy within reasonable bounds of environmental concerns and consumer health and safety. SEIU supports government policies that create a long-term framework for energy conservation and the development of alternative energy sources.

Moving Forward

As seen in the numerous examples in the previous sections, unions and workers in the United States are contributing to environmental improvement in a variety of ways. Workers are making a difference in their workplaces through policy discussions and workplace practices. The following chapter reviews activities by unions internationally and in a wide range of industries.

Cornell University
Work and Environment Initiative

6.0 PERSPECTIVES OF THE INTERNATIONAL LABOR MOVEMENT

The focus of the international labor movement on climate change has been to "Think Globally, Act Locally." Improving the environmental performance of all sectors of the economy has been stressed. One suggested mechanism is through worker involvement at the initial stages of discussion: on the shop floor, at the state or provincial legislature, and within the national governments and international forums. This is not a strategy that has been widely embraced as yet. It is, however, supported by all of the signatories of *Agenda 21* and is clearly stated in Chapter 29 of that document. This chapter, "Strengthening the Role of Workers and Their Trade Unions" stresses the importance of tripartite discussions about climate change and environmental issues. It points out the importance of drawing on the expertise workers can bring because of their daily involvement with production and the importance of creating change in the way production is conceived. Unfortunately international and national governments and companies have been reluctant to work with Chapter 29.

> *. . . the movement for sustainable development can be traced back beyond the Industrial Revolution, when workers first engaged in action to mitigate the worst effects of unsustainable production. They did so by forming trade unions, the first manifestations of workplace democracy and probably the first organized groupings in history to promote sustainable development--a role they proudly carry forward today.*
>
> **Gereluk and Royer, *Trade Union Action: A Paradigm for Sustainable Action*, 1996.**

A review entitled the *Overall Progress Achieved Since the UN Conference on Environment and Development* was presented to the Commission on Sustainable Development at the UN in April, 1997 (International Confederation of Free Trade Unions). Progress on Chapter 29 issues were reviewed in this document. Many trade unions see sustainable development as an opportunity for creating jobs while protecting the social and environmental fabric of life. Despite the general view that sustainable development efforts may mean unemployment for workers as unsound production processes are phased out, workers have identified sustainable development as a rapidly growing industrial sector in which workers should play a strategic and proactive role.

As witness to progress in cooperation with employers, the social partnership project carried out by the German Chemical Workers' Union and the German Chemical Industry was cited. It enabled agreements at the works council level to involve workers in the administration of a company's environmental welfare. Consultation on such issues as technological change within companies is mandatory, and employers meet with the works council regularly. However the ICFTU has also expressed strong concern about the lack of support for union concerns by the Commission on Sustainable Development. The table below outlines several of the main objectives Chapter 29 and their status at this time according to the ICFTU.

Table 5: Objectives of Chapter 29 of Agenda 21
Assessment of Implementation by the ICFTU

Objective	Direction	Comments
Full participation of workers in Agenda 21 implantation	--No Change--	Workers and trade unions have taken action at the workplace, however it is not clear whether they are fully included in governmental or enterprise level decision making processes
Establishing partnership mechanisms	--No Change--	Some cases exist, however further data is necessary to assess the existing partnership mechanism.
Increasing number of environmental collective agreements	?-Unclear-?	There are some instances of environmental clauses in collective agreements, but it is not clear whether sustainable development is a significant part of such agreements
Reducing occupational accidents and injuries	?-Unclear-?	Where regulations and voluntary health and safety programs have been established and enforced, accidents and injuries tend to decrease; however overall figures are not readily available
Increasing workers education and training efforts	/\-Increasing-/\	Workers, as well as many business and relevant international organizations, conduct education and training on sustainable development in the workplace

International Confederation of Free Trade Unions (ICFTU)

The ICFTU has been at the forefront of positioning labor in the climate change discussion. They have continually preached that the climate change issue must be dealt with globally and acted on locally. They have stressed the importance of including all nations of the world in climate change planning, and at the same time have asserted the necessity of including working people directly in the processes. They point out that with 125 million ICFTU represented workers in more than 2 million workplaces around the world, the potential exists for very broad based creative thinking on climate change solutions right at the source. They illustrate the past successes of workplace driven change and the importance, as with health and safety issues, of basing strategies on local conditions. The workplace based eco-audit, coordinated with management, is suggested as a starting place.

From the ICFTU document "From Rio to the Workplace," based on their 1993 conference in Manchester, England, and from comments by the unions there follow a number of references to environmental laws, technology and production, and developing countries.

There needs to be global harmonization of strict environmental laws and terms of reference. Governments have to ensure that development is based on best prevailing technology and practice and these technologies and practices must be made available to those who wish to adopt them.(ICFTU, 1993).

International trade agreements . . . need to be modified to include social and environmental provisions necessary to prevent competitive forces from undermining social and environmental standards. Products and processes which are clearly unsustainable or dangerous cannot be allowed to compete unhindered with the products and processes of companies with higher standards (ICFTU, 1993).

In developing countries working people are already bearing the burden of under-development with poverty and poor health. Any global climate change policy must ensure the rights of these people to further economic development (Jordan, 1997)

The notion of equity or the 'level playing field' has to be extended. Developing countries committed to improving standards must be given every assistance to do so and should not be penalized by virtue of their relative newness in the industrial field or because of lack of resources. In short, international trade agreements need to be so structured as to encourage continuous innovation and the raising of standards in the health, safety, and environmental fields in all countries (ICFTU, 1993).

The ICFTU has repeatedly called for implementing Chapter 29 of Agenda 21. To promote this strategy the ICFTU has made supportive statements about workplace eco-audits, tripartite cooperation and the importance of just transition and sustainable development. They have consistently acknowledged that the working world will be different as a result of strategies to reduce greenhouse gases. But they have insisted that workers be involved in the process of redesigning the workplace and setting the priorities for implementing the changes. Emphasis has been placed on workers' knowledge of the workplace which has in the past led to significant health and safety improvements and which can be directed towards environmental issues.

A recent briefing paper issued in October 1997 by the ICFTU addressed critical climate change issues and makes strong recommendations for actions to mitigate climate change: Excerpts from this paper follow on the issues of expected impacts on workers and moving ahead with a trade union plan of action.[3]

[3] International Confederation of Free Trade Unions, 1997. Health Safety and Environment Committee Briefing Document, Brussels, Belgium.

International Confederation of Free Trade Unions, 1997.
Occupational Health, Safety, and Environment Working Party

Expected impacts on workers

7. Decision-makers have been slow to pay attention to the impacts of climate change on workers and the world of work, and as a consequence, working people will be asked to bear a disproportionate share of the costs of dislocation and mitigation. The disruptions caused by climate change will be like nothing seen in the past, and it is therefore a major condemnation of decision-makers at the national and international levels that the effects of climate change and its environmental impacts on employment and work remains a largely-unexamined area. Expected effects can be roughly grouped in two categories:

a. Impact of Dislocation and Emergency Relief:

8. Dislocation of workplaces and industry is potentially immense as is the dislocation of entire communities, including the separation of workers from their homes and property. According to some predictions, some 60 million environmental refugees may be created by the year 2030, as 70 per cent of the world's population live and work within 60 kilometers of the coast, and many inhabit coastal lowlands that would disappear with rising of sea levels.

9. Direct costs associated with this area would include: preventive measures; measures to reduce losses to a tolerable level; measures to spread or share losses as through government disaster relief; adaptive changes, such as the re-fitting of production, and the restoration of damage already caused by effects of climate change. Other costs will be more difficult to quantify but will be perhaps even greater. They will include the costs of ill health, lifestyle deterioration, disruption of food and water supply, and the other effects which workers will disproportionately bear.

b. Disruptions to Employment patterns

10. Climate change would have considerable impact on industry and productivity, due to such contingencies as forced relocation of factories because of sea-level rise. The costs of cleaning up aquifers contaminated by salt water incursion, or the physical destruction of unprecedented weather extremes would lead to tremendous employment losses.

11. In calculating job loss, the disruptions caused by measures to mitigate effects of climate change must be distinguished from disruptions caused by reducing emissions and other positive "interventions". The tendency to focus on job loss and disruptions caused by positive measures only should be avoided by showing that the costs of inaction could be substantially more. Since three quarters of greenhouse gas emissions come from the manufacturing industry, energy production and supply, as well as from the transportation and construction sectors, and since industrialized nations have contributed the vast majority to these, it is understandable that these workers will feel most threatened.

17. Implementation measures are slow in coming, especially nationally where changes must take place - and the longer they take, the more drastic will be the needed changes in production and consumption patterns. This is especially true of operations requiring high inputs in energy or natural resources and those affecting the depletion of carbon sinks in forests and oceans. Energy production sectors will also be affected by lowered demand in energy. (CONTINUED ON NEXT PAGE)

18. Trade unions have a potentially huge role to play in the implementation of targets, both at the production level by way of membership participation in improving workplace processes and practices, as well as nationally and in the community.

19. One area in which trade unions have proven their competence is in worker training and education. Another is the Workplace Eco-Audit, which is especially well suited to the reduction of emissions of greenhouse gases and energy conservation, as it promotes enterprise-level plans of action in which unions work closely with employers to monitor progress and make suggestions for improvements, review plans annually, and revise targets. These results can then be fed into the national and international reporting systems so that overall evaluations could take place. More recently, the TCO's 6E shows how trade unions and employees can establish joint environmental policies and set priorities to improve both the working and overall environmental performance of an enterprise.

20. As demands increase for quantum leaps in changes to unsustainable patterns, support for trade union involvement may increase as a matter of public necessity. The setting of trade union targets, accompanied by trade union measures for implementation (e.g. by coordinated trade union eco-auditing) in the ICFTU's 2.2 million workplaces alone would have a tremendous impact on climate change. Agreement among affiliates and the ITS' would be needed and sufficient resources identified for such a program to take place. It would provide the key, however, to building of political support among workers and public sector groups in such areas as employment transition programs.

C. Moving Ahead With a Trade Union Plan of Action

23. Certain conclusions may be reached about the vital role that unions must play in addressing the threat of climate change:

1. Climate change and measures to mitigate its effects will result in major, direct impacts on workers' jobs, working conditions and personal lives and property. So will interventionist measures to combat mankind's contribution to climate change.

2. Increasingly, the direct and indirect costs of climate change will be born by workers and their families unless appropriate and timely financial mechanisms are adopted, coupled with agreements to properly compensate workers for damages when these occur.

3. Local, regional and international targets to reduce greenhouse gases are essential. However, support for them in the workplace and community is contingent on the acceptance of comprehensive "just transition" measures to include at least the following: income protection, redundancy procedures, re-employment as well as provisions for education & re-training.

4. The disruptive and costly effects of both climate change and measures to combat it can be reduced significantly, where workers and their trade unions are involved in the making and implementation of decisions through such programs as the workplace eco-audit and the TCO's 6E.

International Labour Organization (ILO)

The ILO, a tripartite United Nations Agency, has positions similar to the ICFTU although it is also tasked with an oversight role at the international level and for implementation of Chapter 29 of Agenda 21. The ILO has gone beyond Agenda 21 to suggest that there are a number of examples which demonstrate that **"worker/management/government"** cooperation and planning will yield far superior results than just **"management/government planning**."

> *. . . workers and their organizations have also attached high priority to the protection of the general environment. The predictions of plant closures and economic disruption due to environmental protection policies have not proved correct. The workers instead believe that, if properly formulated and implemented, environmental policies can lead to new employment opportunities. It is also understood that environmentally unsound jobs are not sustainable (ILO, 1992).*

The ILO's views suggest that unions and their members should be involved from the earliest stages in all aspects of environmental policy:

> *These include consultation at an early stage on all environmental issues, including the formulation of national legislation, and participation in the establishment of enterprise environmental strategies and policies and environmental audits. The workers play a crucial role in the design and development of training programs for workers. . . Their participation in environmental activities at the local community level enhances the exchange of views and influences consumer as well as policy-makers in promoting "green" products.*

> *. . . Tripartite action can only become effective and meaningful if carried out within the spirit of mutual cooperation between the governments and the employers' and workers' organizations. Recent experience in the field has shown that the establishment of tripartite national safety and health and environmental associations is both possible and effective in cementing concerted effort (ILO, 1993).*

The ILO Workers Education Project has prepared a program of study on the environment to be conducted with workers, especially in developing countries, using the study circle format. They are designed to promote worker involvement and understanding of the workplace environment as well as the global environment. The workshop projects have been implemented at sites in Asia, the Caribbean, and Southern Africa. They have also produced reports on the link between environmental change and national adoption of ILO resolutions.

A second phase of the project was recently completed which broadened the viewpoint to look at issues of trade unions and sustainable development. The issues discussed included: poverty, population pressures, urbanization, unemployment, social security, equality, world trade, transportation, housing, health, and global problems of air, soil, and water pollution. These booklets were produced from the viewpoint that trade unions recognize that trying to further environmental concerns is impossible without a good understanding of their relationship to political, economic, and social concerns.

ILO Workers' Education and Environment Study and Action Planning Booklets

1) Workers and Environment,
2) The Workplace and Environment,
3) The Community and Environment,
4) World Environmental Issues, and
5) The New Bargaining Agenda.

Trade Unions and Environmentally Sustainable Development Worker Education Booklets

1) Environmental Indicators of Development
2) Political Indicators of Development
3) Economic Development and Security
4) Social Development
5) Equality of Opportunity and Treatment
6) Education and Training
7) International Development

Under the Environment and World of Work Project, national reviews were done on sustainability and the world of work from industrialized and developing countries. Environmental management programs were also developed. In summary, the ILO is unequivocal about the inclusion of workers and their unions in the process of environmental improvement. Their viewpoint is based on local and concerted action and communication between all parties.

The European Foundation for Improvement of Living and Working Conditions

The Dublin-based Foundation, funded by the European Community, is a forum for the discussion of issues in which the social partners are involved or should become involved. Growing environmental awareness led to the organization of several Round Table events on the environment. The fourth Roundtable held in 1994 focused on "Cooperation and the Role of the Social Partners in the Environment." Sustainable development was the primary topic of this Round Table event and topics covered included: (1) Employment and Sustainability, (2) Eco-Auditing and Environmental Performance, (3) Industrial Relations and the Environment, and (4) Education, Training, and Environmental Performance.

A number of case study references and examples were presented at this forum, some of which are referenced in the boxes below.

Environmental Management Systems in Novo Nordisk, Denmark

This multinational company faces public pressure about environmental issues which results in a fundamental re-think of environmental policy. The company hires an environmental consultancy to undertake a major "eco-programme". . . . 22 environmental targets are identified with the idea of measuring improvements for each item. . . .A new communications strategy, described as "proactive environmental communications" involves dialogue with stakeholders, employees, "green" NGOs, neighborhood representatives, and senior management. Feedback from these meetings with the stakeholders is incorporated into the company's environmental strategy and its implementation.

The Foundation examined the link between industrial relations and the environment in 10 countries. They conclude that such connections are in the very early stages, but certain breakthroughs provide models for the future.

The Works Council Agreement on Environmental Protection in BASF, Ludwigshaven, Germany

In 1993, after long negotiations, a "Betriebsvereinbarung" between the Works Council and the management of BASF was signed containing rights for employees and their representatives to be informed on and to participate in all important environmental issues alongside the rights already granted to the Works Council by law in the field of safety. Examples are: (1) Consideration of corporate strategy in relation to environmental relevance of old and new product lines, (2) Inspection and evaluation of substances for recycling and substitution where appropriate, (3) Capital expenditure in the field of environmental protection, (4) Waste disposal, (5) Training, and (6) Compliance with the requirements of the authorities relating to environmental protection.

National Examples

Initiatives are underway in numerous countries around the world. This section reviews some of those efforts. In 1996, the International Labour Organization prepared a series of National Reviews on Environment and the World of Work. The reviews provide excellent summaries of activities and are used as supplemental material for several of the following national examples.

Argentina[4]

A public sector union has launched a reforestation project to improve the natural environment at the same times as it supplements the retirement income of members and generates badly needed jobs.

In 1993, the National Civil Personnel Union (MUPCN, Sante Fe) in partnership with the National Civil Personnel Mutual, launched the Forestry reversion as Retirement Investment Income in Sante Fe State in Argentina.

Tree planting will improve the regional environment because trees recycle carbon dioxide, The program will create one direct and two indirect jobs for each hectare planted. When the project expands to 8000 hectares by the year 2003, production and other activities will generate almost $4 million annually based on an estimated harvest of 950 hectares. Each union member will receive a Certificate of Participation from the Mutual Company, guaranteeing access to the plan benefits. If all goes as planned, trade union retirees can look forward to an extra $150/month as a supplement to meager pension earnings.

Australia

As noted in **Section 3.0** of this paper, regarding union positions on climate change, the Australian Council of Trade Unions (ACTU) has been explicit in their support for environmental improvement and international participation to address climate change issues. As an export oriented country, their position is clearly stated against unilateral climate change measures. Additionally, with coal as a major source of foreign exchange, ACTU and the United Mine Workers of Australia have prepared studies on issues of transition, technology, and energy policy, looking at the short, medium, and long term.

In a focus similar to European unions, the ACTU has approached the climate change issue from the point of view of worker involvement. They have written model clauses that can be used in contract language to assert union involvement in improving corporate environmental performance. This activist, workplace oriented approach, is indicative of the belief that climate change issues are not going to go away, and from a labor perspective the important thing is to get to the table. Because working people are going to be the most affected by climate change decisions, it is important that they have a say at the workplace where the strategies will be implemented. This also acknowledges that the shape of the future job market will most likely change, and because of this workers need to be involved. No union would want to be in the position of working with management to decide how many workers to lay off from changes in production strategies. However if workers and their unions have been involved from the beginning, more often than not, technological changes have gone smoother, and fewer jobs have

[4] Excerpted from ICFTU. 1997. *Sustainability through Trade Union Action at the Workplace.*

Belgium[5]

The General Belgian Labour Federation (FGTB) wants to promote the development of humane and environmentally-friendly industries and to hinder the development of harmful industries. According to the FGTB, the introduction of "soft" technologies should in the long run lead to the creation of greater numbers of jobs and qualitatively better work than short-term choices for employment during a limited period of time in a polluted industry.

The Confederation of Christian Trade Unions, (CSC) argues that today our society is confronted very frequently with one or another form of important pollution. The CSC is of the opinion that industry has a very important responsibility with regard to this pollution; too many firms are still polluting the environment by discharging toxic waste, release toxic vapors, etc.

During its national congress held in April 1990, the CSC proclaimed that concern for the environment was a new trade union priority which implied that a healthy environment was as important as optimal economic growth and full employment. The CSC stated that it was ready to contribute actively to a better environment (within and outside the firm). This workers' organization emphasizes that a prevention policy be implemented first of all in order to prevent or at least limit pollution.

Canada

The Canadian Labour Congress (CLC) has taken strong stands on environmental issues. There is a standing committee on the environment at the top level of the Canadian labor movement. In their 1991 statement on environmental policy the CLC proposes the principle that all workers whose jobs are affected by environmental reforms should be fully retrained and compensated. They state the importance of evaluating environmental policies for their economic repercussions and suggest that the Canadian government view industrial development strategies in the context of environmental issues as well as the conventional economic growth scenarios. The CLC also asks that environmental organizations support environmental retraining and compensation as a positive means to full environmental protection.

The CLC Executive Council adopted a further Position on Climate Change Measures and the Carbon Tax in December, 1994. It included calling for:

1. a program of retrofitting and refurbishing existing buildings to decrease energy use and thus greenhouse gas emissions;
2. a program for raising the energy efficiency standards of industrial equipment and consumer appliances;

[5] Material for this Section was excerpted from: Marc de Greef. 1993. *Industrial Relations and the Environment: Belgium*, European Foundation for the Improvement of Living and Working Conditions. Dublin, Ireland.

3. a comprehensive set of transportation recommendations around increased fuel economy standards, rail system development, and reduction of private car use;
4. development of renewable and alternative energy sources including agricultural ethanol;
5. capturing methane from land fills;
6. a tax on greenhouse gas or climate change potential.

The final portion of the CLC position specifically states acceptable conditions for implementation of a "carbon tax". The revenues from such a tax must be used to finance climate change measures such as energy conservation or "green job creation" such as in alternative energy industries. This tax strategy should be transferable based on current socio-economic needs of the Canadian economy. The tax would apply to domestic as well as import products with an environmental effect, but should not be a double tax such as additional environmental taxes on automotive fuel. And finally they support the institution of international greenhouse gas agreements with all parties.

The Communication, Energy and Paperworkers Union of Canada discussed issues of "just transition" in a presentation in June, 1995 and in their September 1996 policy on "Just Transition." There was acknowledgment that the economy will change due to environmental needs. There will be sunset industries and this will result in workers losing their jobs, many at a point late in their lives where retraining is unlikely to return them to a job of similar pay scale. This is a societal problem, and labor, management and government must take a role in considering the transition issues for workers in sunset industries. It is not enough to say that the environment will be improved by reducing greenhouse gases and therefore some industries must go. So far the record of workers leaving the chemical industry has resulted in an average wage at the new job which is 50% of the old wage. With transitions like this, the burden of the environment is falling predominantly on the worker.

The point is well made in this example that dislocations will occur and every effort must be made to provide a safety net for those workers and their families. The issues span the range from pension plans in sunset industries, to retraining workers, to insuring higher education opportunities for the children of workers whose standard of living was negatively effected by technology changes. However the point has repeatedly been made and documented that worker involvement in industrial planning and policy as well as transition planning is more favorable for all workers.

The Canadian International Woodworkers of America Locals in British Columbia have addressed concern for the environment and the change in forestry practice by working with the large forest products company INTERFOR and other companies to protect their jobs as well as the environment. Their collective bargaining agreement now includes language which allows the worker to refuse work which is environmentally unsound.

To back this up, training has been instituted for all categories of employees that broadens their view of the logging process and makes them a part of the decision process which determines harvesting plans in advance. The structure of the joint environmental committees includes at least equal number of workforce members as management, representation from each main phase of operations and rotating chairmanship. This has been viewed as a major step forward in maintaining employment in the industry by improving yields and reducing the environmental impact of logging through more effective harvesting which has resulted in less costly follow-up remediation. IWA members are involved in environmental improvements at the strategic levels in the woods, at base camps, and in local communities. Issues such as erosion control and riparian repair are on the agenda.

IWA-Canada / INTERFOR
Joint Environmental Program

Vision Statement

IWA-Canada, INTERFOR and its contractors set the standard for cooperative and environmentally responsible and safe work practices in all forest product operations.

Principles

1. The program will include the Joint Environment Committees at all stages of forest planning and the implementation and monitoring of the plans.
2. The program will result in environmentally responsible and safe work practices including soil conservation, waste management, water and air protection, fish and wildlife maintenance and renewal of the resource among others.
3. The program will take into consideration environmental protection and the economic needs and stability of communities.

Czech Republic[6]

The Czech Mine, Geology, and Oil Industry Workers Union (OS PHGN) has 95,000 members in 207 employers' organizations in mining, construction, engineering, transport, and other industries that have a direct impact on the environment. The environment has been a top priority since the November, 1989 transformation of their country. Following an evaluation of their enterprises a determination was made that in addition to technical deficiencies in production, environmental consciousness was very low and activities were typically carried out with very little consideration for possible environmental damage, unless financial sanctions were a direct result.

The basic objective was to improve the ecological consciousness of members, their families, and other community members by means of training and participation in the use of eco-audits. This training was "pyramided" first to specialists and activists in the field of living environment, then carried to the members and the public. The goal was to reach 6,500 voluntary labor safety

[6] The information in this section is excerpted from an address by Vlastimil Altner of the OS PHGN at the Trade Union Dialogue session of the UN Commission on Sustainable Development in April 1997 in New York.

inspectors who can then train the members and other employees in a very short time. Using this method there is the potential to reach 120,000 employees who will influence their family members to eventually improve the ecological behavior of some 400,000 citizens.

Labor safety specialists are evaluating 12 companies with 30,000 employees and the cooperation of the employers. The next step will be to continue with another 30,000 employees and further develop tools for education, mass media and collective bargaining on these issues. As part of the Czech Republic's economic transition to privatization, companies must perform an eco-audit on current conditions and plans for improvement. The union also audits the company's audit to confirm if it is actually happening.

Denmark[7]

The Danish Union of Graphical Workers (Grafisk Forbund) has concluded a framework agreement with the Danish Graphical Employers' Association to promote cleaner production in the industry.

As the agreement was concluded in co-operation with the National Agency of Environmental Protection, specific projects receive financial support from the Ministry of the Environment. Broad representation from the union, employers, and government has developed a coordinated framework for action especially in low cost projects among small employers.

The General Workers Union in Denmark (SiD), the largest union in that country, has encouraged the development of new methods in waste handling and recycling, especially in connection with landfill, incineration plants, sorting plants and in the collection of waste and re-usable materials. It has also suggested a number of alternatives to the government's plans for the energy sector, in particular its goal to reduce CO_2 emissions. Suggestions include substitution for electrical heating, increased wind power and solar heating, modification of individual gas supplies to a collective system, and energy saving through employee training - the latter alone may achieve a 12 per cent reduction of electricity use in industry. Training courses have been developed in cooperation with various employers' organizations and held at the tripartite vocational training centers.

The SiD is aware of, and has accepted, the fact that the introduction of environmental standards to the workplace can have an impact on the working environment; some may even result in the closure of a plant, with subsequent loss of employment.

On the other hand, to show that concern for the environment does not only create unemployment, SiD has put considerable effort into promoting the concept of "green employment". Manpower will be required, for instance, when central power stations have to be decentralized and converted

[7] The information in this section is excerpted from Bodil Gavnholt and Kruse Kristiansen, 1995 *ILO National Review on Environment and World of Work: Denmark.*.

into bio- or natural gas, wind or solar energy. According to SiD, implementation of alternative energy sources, as described above, could result in an additional 12,000 jobs in Denmark. One of the main problems faced with promoting the concept of green employment is finding a means to finance the scheme, since there is often no immediate profit gained from creating these jobs.

SiD has also been working with municipal utilities developing a program of worker training around safety in the workplace and environmental improvement suggestions coming from within the workforce. The main objectives of this project were to document the contributions that employees could make to the development of cleaner technologies, and to identify the obstacles and potentials that can occur at the company level which might serve to encourage or discourage the participation of employees.

There is a common consensus that the level of activities before the project began was pretty low. All four municipalities that completed the course have developed action plans and started to incorporate the environmental dimension in projects whenever new activities and constructions are initiated. Overall, the project is quite cost effective, because the only resources the municipalities have to provide are: materials (stationery, etc.), rooms for the training course and the time of a number of employees and managers.

All groups at the company level have been working with the integration of work environment and the outside environment. A clear result is that management is very dependent on the participation process and the employees' knowledge when they want to save resources or make green accounts.

The Women Workers' Union (KAD) are supporting a training and local awareness programme at the Rahbaek Fishing Industry in Fredericia. The objective of this three-year project, which began in 1992, is to register the amount of energy used and waste generated in the production process in order to improve the quality of the end product, as well as the internal and external environment. This was done via an eight weeks training programme offered to all 300 employees (two-thirds of whom are women).

During the first two weeks of the course, held at the tripartite AMU centers, each team of 12 employees was divided into four groups, with the task of describing one part of the factory production processes and making suggestions on how to improve the process within the existing limits. In this theoretical part of the course, employees are required to list the kind of raw materials and additives used, the final and byproducts of the process, as well as details on how they affect the work force and how conditions might be improved. By the end of the two week period each group must have developed a final objective. To help them carry out this exercise, each person receives training in the use of a personal computer.The next four weeks of the course are spent at the workplace, where 22 hours are set aside to register the conditions in the factory concerning consumption of electricity, water, etc. The final two weeks are again spent at the AMU Centre in developing plans of action, which then form the basis for negotiations with management on how changes might be achieved, with particular emphasis being given to how the

use of natural resources might be reduced. When this concept was first introduced to the Rahbaek Fishing Industry, management was quite skeptical. Now, however, they also participate in the training programme which, from Autumn 1995, will be available nationwide at all AMU centers. Many large and smaller companies have already signed up for the programme.

Finland[8]

A hotel and restaurant workers' union participated with selected tourist enterprises in a pilot project that employed an "eco-audit" as an environmental management tool to achieve environmental and cost savings objectives.

In 1994, a cross section of the Finish tourist industry including hotels, a highway service center, a health resort, a tourist farm, and exercise center, a spa, campgrounds and a ski resort developed and implemented a eco-audit process in collaboration with the Hotel and Restaurant Workers Union, the Association of Nature Conservation and the Association of Finnish Travel Agents

The process resulted in changes in purchasing practices, maintenance, energy and water consumption, human waster management, food preparation ands coordination of related leisure activities. In addition to environmental goals, operators realized considerable cost saving due to changes in waste management and consumption of energy and other inputs.

France[9]

French unions have traditionally been fragmented along political, religious, and ethnic lines. Because of these limitations and the French economic and social crises of the 1980s, the environmental policies of French unions are in a relatively formative phase in comparison with other European trade unions. However, the environment has been addressed as a growing concern for workers. Each of the three major confederations has created an environmental commission and have promoted union-consumer groups.

The largest French union, the CGT, has focused on environmental issues as they relate to the interests of workers. Often, this has produced silence on the possibility of environmental impact because it was perceived to conflict with the promotion of production and consumerism. However, in a few instances, when worker interests directly coincide with environmental initiatives such as the expansion of water purification facilities, the union has shown strong support for the environment.

[8] Excerpted from ICFTU. 1997. *Sustainability Through Trade Union Action at the Workplace.*

[9] Materials for this section was excerpted from: Denis Duclos. 1993. *Industrial Relations and the Environment: France*, European Foundation for the Improvement of Living and Working Conditions. Dublin, Ireland.

The CFDT, the socialist union confederation, has taken a more proactive stance on the environment and climate change. The CFDT has argued in favor of the, "Polluter Pays" principle, and for "Green Labeling". They recognize the "necessity of reducing CO2 emissions" and they have addressed climate change as a global issue. The CFDT has thus participated in forums with German and Italian unions. They look to the DGB and the environmentalist movement in Germany as a model in the promotion of sustainable development.

Germany

DGB, the German federation of unions, has been active in formulating environmental policies and demanding pro-environment legislation since the early seventies. In 1990, DGB, approved a program to implement environmental measures at the company level. Their primary demands are:

- an Environmental Protection Officers' Act
- rights of access to information concerning all relevant environmental data
- rights of co-determination concerning all relevant environmental decisions of the company
- installation of an environmental management system including environmental control and monitoring
- environmental training during work-time and integration of environmental issues into vocational training
- leave from work for work council members charged with environmental protection duties

Numerous examples exist of initiatives on the part of sectoral unions. IG Metall has presented a particularly interesting paper, containing proposals on how to achieve an environmentally-friendly and efficient transport system, arguing for car manufacturing without hazardous substances, a reduction in emissions, an extension of public transport, and an integrated transport system. Manfred Muster an IG Metall official and author of *Full Steam into the Abyss*, has argued for variation in transportation vehicles, greater export of environmentally preferable systems to developing countries and less congestion in German cities.

The Food Industry Union (NGG) has established so-called "Food Forums", assembling trade unionists, environmentalists and scientists with the intention of working out practical concepts for healthy food production and committing union members to environmental activities at plant level.

The DGB is also working to ensure that they will be actively involved in the enforcement and improvement of the European Union's Environmental Audit standards. The EU regulation currently allows firms to receive "environmentally friendly" certification. The DGB hopes to expand the implementation of the regulations. They demand that the regulations should specifically call for employees and trade unions to participate in the implementation process, and that employees' health and safety concerns be addressed in the regulations. While lobbying for these changes, the DGB is positioning itself to be an equal partner in continuous environmental improvement by taking the lead in providing employee training and workshops on environmental management, creating model works council agreements, sponsoring pilot projects, and producing research information on the subject.

> *Workers' groups looking at alternative manufacturing and environmentally-friendly products had already emerged at the beginning of the eighties. In the metal industry, particularly in the ship yards and mechanical engineering companies, workers joined special innovation circles, as opposed to management initiated circles, developing arms conversion work in order to prevent unemployment... They achieved a remarkable resonance within the Metalworkers Union and made the idea of an environmentally-orientated production policy and the concept of environmental co-determination quite popular.*
>
> **Eberhard Schmidt, 1993. Industrial Relations and the Environment.**

Ghana[10]

Two national unions affiliated to the TUC (Ghana) play an active role in environmental management. These are the General Agricultural Workers' Union (GAWU) and the Timber and Woodworkers' Union (TWU). The activities of these unions are funded from their own resources as well as from donors such as the Netherlands Trade Union Federation, the Food and Agricultural Organization of the United Nations and the ILO.

The GAWU has an active Rural Workers' Organization which currently has a Housing Cooperative in Fiankonya village in the Greater Accra Region. Some of GAWU's projects are in villages like Likpe Agbozume, Likpe Bakua, Likpe Alavanyo, Likpe Mate, and Kpandu Agudzi in the Volta Region where the Union has organized rural workers into farming units and provides them with education on issues such as grain storage, community reforestation, bee-keeping and the processing of gari (a local staple food). In Ajumako, in the Central Region, the Union has organized its rural members into a Palm Oil Processing Cooperative.

The Union believes that rural workers abuse the environment through improper farming methods, such as shifting cultivation, because of their poverty level. Therefore, by assisting them with

[10] The information in this section is excerpted from Dennis K.Y. Vormawor and Joshua Awuku-Apaw 1996 *ILO National Review on Environment and World of Work: Ghana*, ILO.

techniques for achieving improved crop yields, their incomes should be enhanced, which could help in the long-term struggle against environmental degradation.

Greece[11]

The Greek trade unions are concerned about environmental issues and their effects on workers and quality of work life and some have recently developed plans to address the issue. In particular, the Athens Labour Centre (ALC) has formed a special department headed by an environmental engineer with the goals of reducing industrial and automobile air pollution in Athens, educating trade union members and the public, presenting studies and proposals to the government, and developing relationships with other environmentalist groups.

Mr. Pan Ploumis, President of the ALC, believes that trade unions should actively intervene in environmental issues and that this would not change trade union characteristics, or divert them from the purpose they had been established to achieve. On the contrary, their targets would widen and develop, as would their contact with parts of society sensitive to these problems. In so doing unions would be seen as organizations capable of facing modern problems, dealing with them and protecting workers from the consequences of environmental crises.

Indonesia

The Indonesian government follows five year economic plans supplemented by annual plans. The government industrial relations policy stresses harmony as a prerequisite for economic and social development including labor-management cooperation to work for higher productivity, to share profits earned, and to reduce industrial disputes. Air quality is a major problem due to fog caused by frequent forest fires, as well as increased motor vehicles in cities.

In a survey by the Asian Productiviity Organization into labor-management cooperation in environmental protection, it was noted that several firms were trying to promote the cause of clean and safe environment through awareness programs and training. All but one company in the survey reported that their workers were fully involve in promoting safety and health at the workplace through committees, suggestion schemes, and quality circles.

Italy

Italy's major trade unions include the General Italian Confederation of Workers (CISL), the Italian Confederation of Workers Union (CGIL) and the Italian Union of Workers (UIL). They have presented a proposal to the government which recognized the importance of the environment and issues of domestic unemployment. The proposal opposes the loosening of

[11] Material for this section was excerpted from Dr. Christina Theohari and Illias Banoutsos. 1993. *Industrial Relations and the Environment: Greece.*

environmental standards in large scale construction projects and instead asserts the importance of the "adoption of incentives for the support and the penetration of new environmentally compatible production and products." They call for state funded projects to address a number of environmental problems in several areas of Italy. They also recognize the necessity of addressing transportation issues, both for moving goods and materials and for environmental and community reasons.

Further, tax reform is suggested " in order to reduce the cost of work, above all for the most vulnerable categories of workers, and to increase the taxation of the consumption of natural and environmental resources, whilst encouraging at the same time businesses' environmental production techniques." In the European market there is often the suggestion that environmental taxes be shifted from labor to pollution, thus providing the potential for making labor relatively less expensive and allowing for a shift of resources from capital to labor.

The following information is excerpted from Daniele Guidi 1996 *ILO National Review on Environment and World of Work: Italy*.

For many years the major unions have been involved in negotiations with government and industry representatives on occupational safety and health issues. Over the last decade, these issues have been integrated into the more general context of environmental protection and pollution prevention.

One of the most significant results of trade union negotiations with Confindustria - the association representing industry's employers - was the founding of the Observatory for environmental, health and safety issues in 1992. The Observatory is a bipartite body with participation from CGIL, CISL, UIL and Confindustria. Through a participatory approach, the social partners can define common purposes and, if possible, elaborate joint environmental goals. The Observatory is made up of nine members appointed by Confindustria and nine members appointed by the trade unions.

India[12]

Sohan Passey, Secretary of the Indian National Trade Union Congress (INTUC) and an international activist on health, safety, and the environment discussed the role of labor in his country at a 1993 symposium.

[12] This material is excerpted from Sohan Passey's 1993 Presentation at the International Symposium on Work and the Environment on the Indian National Trade Union Congress.

It was in 1984 that the Indian National Trade Union Congress (INTUC) took this issue out as a subject for which we were not only responsible within the four walls of the factory, but also we felt that it was our bound duty as social vitals of the society to protect the life and health of the people outside the factory. That is why we then created the Environmental Health, and Safety Department.

We have twenty-five industrial organizations and twenty-six states in India, and all these state branches and industrial organizations were asked to establish safety, health, and environment departments. Many of them have done it, many do not know how to do it, and many of them want to do it but do not have the facilities to do anything. In the private sector, we have a couple of very shining examples ... Particularly in the public sector we have been able to succeed a lot because of the government policy...Here we have less resistance and we have created national joint committees in the steel industry and similarly in the emerging metals industry.

Memorandum of Understanding
National Joint Committee
for the Steel Industry

4.5 Environmental Management
With growing realization of importance of environmental preservation in the country, the management have initiated several measures to curb pollution in the plants and mines. Environment wings have been set up at various units for coordinating environmental activities.
Environmental preservation efforts are based on pollution control.

The Management and the Unions agree to undertake joint measures for Pollution Control, Resource Conservation, and Environmental Plantation

They further agree to evolve joint Environmental Awareness Campaigns and educational programs at all levels to ensure proper implementation of t he agreed environmental policies.
The management agree to ensure periodic Environmental Audits for assessing the operations of the plant and identifying areas of improvements.

New Delhi, India, 1995

The laws that have been created up to now are unfortunately unable to be enforced because of the inspectorate which most people call corrupt. I find that they are ignorant. They do not know even as much as we do about the safety, health and environment. They come from some mechanical sections, maybe two percent of them are from the chemical sector. None of them know what is out there in the factories and workplaces.

But trade unions never lose hope. That is one thing that you have and there are now about 3,000 people who are now committed in my union who work on safety, health, and the environment. They have been expecting from us one magazine or one paper where we can tell them what is the latest on health, safety and environment. We have 5.5 million members with membership cost at two American cents a year for the national. Many union have gone through a lot of struggles trying to establish their rights only to be recognized as spokesmen for the people. They are unable to meet their responsibilities due to those constraints. We are eager to learn.

Japan[13]

Worker participation in energy and natural resource conservation is common practice in Japan. Investigation in the 1980s revealed that Japanese workers were much more involved than American workers in conservation projects with larger net savings and more advanced energy savings approaches. In Japanese energy conservation committees, 67% had union member involvement compared with 11.9% of the companies surveyed in the US. In fact, many of the prize winning energy conservation projects are submitted by teams at work. In Japan, worker involvement is a major part of their energy conservation approach though it is rarely noted in the literature. (Kornbluh, Crowfoot, and Cohen-Rosenthal, 1985)

Participation of workers' organizations is stressed, especially in the "The Japan Committee for Global Environment" (established in 1991) and other meetings for decision-making concerning the environment and development. Workers' organizations are expected to play an active role in the implementation of environmental training and studies for the purpose of promoting awareness among workers of the importance of environmental conservation, as well as in the promotion of participation of workers' representatives in activities for sustainable development. The Japan Trade Union Confederation (RENGO) was inaugurated in 1989. Since then, it has been recognized as the national center of the trade union movement

There are three main areas where RENGO and its affiliates are active: the establishment of environmental ethics to promote awareness at the business level of the need to pursue environmentally sound business operations; the development of an environment-oriented economic structure; and active promotion of international cooperation for the improvement of the global environment.

In its report to the ICFTU Safety, Health and Environment Working Party, October 14, 15, 1997, RENGO summarized some of its environmental activities as follows:

- Union workers are pushing eco-activities by presenting demands to the government and performing various campaigns and educational activities through their organizations.
- RENGO, in association with the Federation of Employer's Associations, carried out joint research into creating employment opportunities in the recycling industry.
- Labor-management consultation on safety and health or working environment is broadly practiced at many companies. RENGO aims to address all topics concerning the environment in these labor-management consultations.
- The Chemical Unions Group in RENGO have initiated a responsible care campaign regarding chemicals in the workplace and the surrounding environment.

[13] The information following the first paragraph is excerpted from Tomoyuki Hanaoka 1996 *ILO National Review on Environment and World of Work: Japan*.

Electrical Electronic and Information Unions (DENKIRENGO) are mainly related to the electronic and electric appliance industries. The Union has therefore been active in environmental conservation, including issues such as energy reduction and conservation from chlorofluorocarbons (CFCs). In 1990, the Union expanded its activities to address more general environmental problems including: establishment of bipartite management-labor organizations for environmental conservation problems in businesses. (The emphasis is on environmental inspection that should be included in activities of these organizations, with active participation of the workers in these organizations.); promotion of the establishment and development of production systems and waste disposal procedures which minimize the amount of wastes being discharged to the environment; environment-oriented assessment of products and establishment of its standards; construction of systems that recover and treat discarded home-electronics appliances; reduction of energy use and development of new energy sources; transfer of environmental technologies and international cooperation.

Some other constituent unions, such as the Sharp Workers' Union and the Matsushita Denko Workers' Union, also undertake relevant activities such as participation in local cleaning campaigns in cooperation with municipal governments. The Sharp Workers' Union is, for example, raising funds for international cooperation in promoting education, including environmental training for trade unions.

Netherlands[14]

Trade unions have begun to incorporate world of work issues into their environmental policies and discussions. The Federation of Dutch Trade Unions (FNV), for the manufacturing industry, began investigating the social and economic impacts of their packaging covenant (Doelman and Krozer. 1993). Observers feared that a reduction in packaging, coupled with a rise in worker productivity, would cause a radical decline in the demand for employment in the paper and cardboard sectors. Nevertheless, the FNV study concluded that innovative new products and supply industries can eliminate these unemployment problems; new products mean new activities for the manufacturing industry. Recently, the unions for the manufacturing and construction industries began researching environmentally sound employment.

Trade unions in the Netherlands have also devoted a considerable amount of time and effort to environmental training - staff training for active members, educational programmes for works council members and professional training for apprentices. Environmental care systems have now become a major theme for this training.

[14] The following information is excerpted from Mayke Hoogbergen and Mickey Hordijk 1996 *ILO National Review on Environment and World of Work: Netherlands.*

New Zealand

The New Zealand Congress of Trade Unions (CTU) is engaged in dialogue on issues affecting the environment as an issue"totally consistent with the role of unions in working to protect the interests of members, both at work and in the wider community". They base their environmental policy on the following principles:

1. That the CTU focus on environmental hazards insofar as they are created by industrial production and extend beyond the workplace and put workers at risk.

2. That job security is best protected where efforts are made to improve environmental performance and plan for the future.

3. The precautionary approach of giving the benefit of the doubt to the environment and human health, rather that the contaminant, be supported.

4. That the CTU approach to protection of the environment be integrated and coordinated with OSH, industrial relations, and workplace reform strategies.

5. That the implementation of CTU environment policy be seen as an opportunity for unions to be involved in, and demonstrate a concern for, a wider community issue.

Norway[15]

The environment has become an important area of planning and action for The Norwegian Peak Labor Confederation (LO). LO with its more than 800,000 members, is the largest and most influential workers organization in Norway. The unions efforts to improve the working environment have a record of more than 100 years. The focus on the natural environment is of a more recent date. Today's efforts for the working environment, for safety and health, are the result of the persistent and systematic work of the trade union movement. It is today a logical consequence for the trade union movement to direct its attention at securing the global commons.

The LO revealed its new attitude towards the environment during the international conference on sustainable consumption and production in Oslo in February 1995 by demanding a change in Norway's economic policies. At this time, LO claimed that "traditional economic systems do not combine protection of the environment and employment in a sustainable way." The LO and its Nordic counterparts went on to endorse the document presented at the conference and thus openly acknowledged the need for dramatic changes in the production and consumption process in industrialized countries. According to some experts, by accepting this document, labor groups

[15] The following information is excerpted from Bjorn Jahnsen and Christian Ruge Holmboe 1995 *ILO National Review on Environment and World of Work: Norway.*

proved that they had taken a significant step in reshaping their approach to the environment. The document states that:

> *the production and consumption patterns in the industrialized countries are not sustainable . . . The Nordic trade unions will spearhead the development of new economic policies and new consumption and production patterns that combine employment and the protection of the environment in a sustainable way both in the Nordic region, in the EU, and globally.*

Pakistan

Pakistan is still a predominantly agricultural country. There has been a significant thrust towards labor-management cooperation in the form of defining responsibilities of stewards, works councils, and joint management boards including issues regarding the environment. At the level of the individual firm however there has been noticeable progress. Works councils by law are responsible for obtaining employee input into environmental concerns. Central safety committees have been formed to review, approve and finally implement work practice changes. However a general lack of environmental awareness has slowed the process and overall, strategies by labor and management have been lacking in effective implementation on a national level.

Philippines[16]

The trade unions, particularly the Trade Union Congress of the Philippines (TUCP) and the Labour Advisory Consultative Council (LACC), implement a number of initiatives in response to environment and sustainable development issues related to the world of work. These activities extend beyond concerns for an improved working environment to action in the general environment. This response has developed from an increased recognition within the trade unions of the relationship between the internal working environment and the external natural environment, and an increased awareness of how health and safety arrangements at the workplace can contribute to environmental protection.

Different types of sustainable livelihood projects, such as reforestation and solid waste management, have also been initiated by the TUCP. At the national level, negotiations are ongoing with DENR to obtain stewardship of a 50 hectare area in Rizal East, close to Metro Manila. As soon as this is received, the TUCP plans to start a reforestation programme and use it as a showcase and site for Ecology Camps. The TUCP envisages that these camps will be used as a venue for alternative training on environmental management, as well as for team-building within the trade unions.

[16] The following information is excerpted from Lurraine Baybay Villacorta and Leentje Van Meirhaeghe 1995 *ILO National Review on Environment and World of Work: Philippines.*

The above-mentioned activities are being undertaken despite the absence of an Environmental Focal Point with TUCP. It is claimed, however, that environment issues are "mainstreamed" into all of their activities and that special efforts are taken to respond to the link between the working environment and the natural environment. For specific environmental programmes, such as the development of training materials on sustainable development in rural areas, consultants are hired on a short-term basis under the ILO project "Workers' Education and the Environment". A series of training sessions on environmental protection for trade unions have already been organized and conducted.

Spain[17]

Spanish trade unions have been legal only since the late 1970s and they are still fighting for such provisions as a "General Occupational Health and Working Conditions Law" which will implement the directives of the EU and the ILO. However, even as informal organizations in the early 1970s, the trade unions adopted a very progressive stance on the environment and allied themselves with environmentalist groups.

Trade unions have denounced the dangers of the nuclear power industry, the risk of desertification in Spain and the pollution of the Mediterranean for example, tending to adopt the positions of the environmental movement. But only on very few occasions have they included environmental grievances in their negotiations with companies or the government, although this is changing.

The Workers' Commission (CCOO) has passed a resolution demanding the right for unions to participate in and be consulted at all decision-making levels, concerning health and the environment and proposes the creation of a network of union environmental representatives. The Congress also voted for the creation of a department of ecology and environment within the union. This department has taken various initiatives and has promoted contact between the union and a wide range of ecological groups.

The General Workers' Union (UGT) is in favor of more industrial expansion and more economic growth, with the proviso that companies apply necessary measures to curb environmental deterioration. The tone of conciliation between both elements is very high. It has even been said that industry ought to maintain present production without "any pollution or wastefulness." The UGT has organized varied debates and has designed a course on "health and the environment" for its staff training school.

[17] Material for this section was excerpted from Garcia, Ernest et al. 1993. *Industrial Relations and the Environment: Spain*, European Foundation for the Improvement of Living Working Conditions. Dublin Ireland.

Cornell University
Work and Environment Initiative

Sweden

LO, the largest Swedish Trade Union Confederation, representing industrial sectors of the workforce, has also developed a detailed environmental policy. Their view of the role that trade unions can play in creating sustainable development is summarized by the following statements:

1. *The main motive for trade union commitment to environmental protection is that we must assume our part of the responsibility and make our resources available to solve environmental problems.*
2. *The trade union movement should work in support of more environmentally adapted production, which meets the members needs as consumers, secures jobs and reduces health risks both at work and outside work.*
3. *LO's Members have knowledge and experience which could contribute to a far greater extent to the work of environmental protection in general. The local trade union organizations responsibility and role in this needs strengthening (LO's Environment Program)*

The following information is excerpted from Sven Nyberg who is responsible for the LO's environment program in 1996 *ILO National Review on Environment and World of Work: Sweden.*

A few years ago, some local branches of the Metal Workers' Union began a cleaning up project on harmful chemicals in small and medium-sized companies in southern Sweden. The Union let their regional health and safety delegates visit the companies and recommend certain measures needed to reduce environmental and health and safety risks. Follow-up activities for the project, which is considered quite successful, have been initiated.

The Industrial Union (formerly the Factory Workers' Union) represents workers in the chemical industry and has participated in several local environmental initiatives (e.g. the bipartite project, "Eco-raise", sponsored by one of Sweden's largest chemical industries). General and special training programmes were launched and quickly resulted in numerous improvements such as reduced leakage and better energy efficiency at the workplace.

The Paper Workers' Union, in agreement with the employers' organization, Swedish Pulp and Paper Association, provided all employees with the opportunity to attend an environmental training course on the paper and pulp industry. The course was carried out in study circles and the Union provided the study material. According to the agreement, the study circles were scheduled during working hours. On occasion, however, when the courses took place during leisure time, employees received regular wages. Approximately 70 per cent of the Union's 30,000 members participated in the training courses.

The Forest Workers' Union, in cooperation with employers' organizations and the Swedish government, facilitated the creation of a tripartite education programme which subsequently became an important part of the timber industry's sustainable production process. The programme concentrates on making employees, especially those operating different machines, "environmental workers" at the same time as timber workers, which implies that they learn skills which combine the preservation of flora and fauna with efficient production.

TCO, the Swedish Confederation of Professional Employees, composed primarily of white collar workers, has developed a comprehensive plan of action entitled *The Way to 6E – A Practical Model for Sustainable Workplaces* through which all workers can address environmental concerns in the office or factory. They recognize, that as a group, the organized workforce has vast potential to prevent the causes of global climate change.

The "6 Es" stand for concepts which must all be considered in order to attain a sustainable workplace. They include: *ecology, energy, economics, ergonomics, efficiency, and emissions.* The model provides a vision for workers; steps through which they can become competent in environmental improvement, conservation, and problem solving; and support materials for education and evaluation of the workplace. The document also outlines four basic principles which should guide workplace action: recycling, precaution, substitution, and integration of jobs and the environment.

TCO - 6E Program

At work, as producers of goods and services, we can act to discover and solve environmental problems before they are able to grow into major difficulties. It's during planning that the environment must be considered – the most effective way to deal with an environmental problem is to make sure it never happens in the first place.

Source: TCO, *The Way to 6E*, 1997

TCO's development of these training materials for all of their members, who include the vast majority of the Swedish white-collar workforce, ensures that Sweden will be at the forefront of the movement toward sustainable industry. According to TCO, action like that recommended by 6:E will enable industrialized countries to change their behavior and shift their attitude from compliance to greater initiative.

A linked initiative at the TCO is an eco-labeling project, primarily in the computer industry, that was first launched in 1992. This was later revised as TCO'95 which includes the complete personal computer, i.e. the display, system unit and keyboard, and touches on ergonomic qualities, emissions (electrical and magnetic fields, noise, and heat), energy efficiency and ecology (with demands for environmental adaptation for both the product and the production processes at the manufacturing plant). These labels are proudly displayed by computer parts manufacturers to symbolize their environmental and ergonomic suitability. They are the union/environmental label.

Tanzania[18]

Dr. Erica Malekia spoke at a 1993 conference and discussed labor and the environment in Tanzania.

[18] This material is excerpted from Dr. Erica E. Malekia's 1993 Presentation at the International Symposium on Work and the Environment on the Organization of Tanzanian Trade Unions (OTTU).

Tanzania has a population of roughly 25 million people of whom 700,000 are employed. Eighty-five percent of the population lives in the rural areas and depend on agriculture as a source of income. Like all other developing countries, we face three major problems: poverty, ignorance, and disease. Trade Union membership is over 600,000 in all sectors of economy. These include agriculture, manufacturing, commerce (formal and informal), and other services.

Workers live in polluted, overcrowded environments, exposed to industrial wastes and hazards with inadequate waste disposal services. Both rural and urban workers are exposed to a multitude of occupational hazards of varying kinds and degree. While the environment is becoming more visible, policy in Tanzania is poorly coordinated and not prioritized in practice. Unions have not been active enough in environmental policies or practices. They have been marginalized from state policy formation on the environment and have not effectively coordinated with other agencies active in the environment. They are also not actively integrated or asked to participate in policy formulation though the environment badly affects the members.

Speaking of environment protection in Trade Unions means creating an environment that is most supportive of the human nature and well-being for the future generation of labor. One of the primary environmental struggles is thus to control or have greater say in the use of natural resources. The struggle for total participation in stipulating and enforcing rules on our natural resources--land, minerals, water, air, and industrial wealth. Conditions which will restrict dumping of industrial wastes and poison on our living areas and working conditions are an important necessity. Sometimes the environment in Africa does not belong to the majority, but rather to foreigners and the rich investors. People want to be recognized for what they produce, they want to have a say in their labor. Women want to be recognized for the work they do in workplaces and beyond their home areas. The community wants to share the harvest of their labor efforts in healthy living conditions.

The trade union realizes the critical role it has to play in protecting and advancing workers' rights in health, safety and environment. My department organizes, mobilizes, and negotiates for the members' safe working environment. The organization is focusing its work on: (1) trade union education; (2) health and safety agreements; (3) accidents/diseases prevention; (4) environment protection; (5) health and safety rights and legislation

United Kingdom[19]

Through motions passed at its 1997 Congress, the Trade Union Congress (TUC) "recognized the importance of the major environmental considerations arising out of the 1992 Rio Earth Summit."

[19] Some of the following information is excerpted from Paul Hackett 1995 *ILO National Review on Environment and World of Work: United Kingdom.*

They express support for continued research on climate change issues and stress the importance of an increased role for workers and their trade unions to provide meaningful consultation on environmental issues. An integrated transport strategy is called for which addresses CO_2 emissions reductions in that sector. The TUC also calls for the Government to rigorously evaluate any climate change measures to protect the interest of affected employees and to set "a good example to other employers by conducting and acting on environmental audits of civil service departments and agencies."

The TUC has expressed strong concern that since the mid 1980's the Conservative Government, since replaced by Labour, has taken aim at coal fired electrical generation and supported the development of combined cycle gas turbines by regional power distributors. Although the government has pointed to the reduction in CO_2 emissions the policy implementations have resulted in the closing of numerous coal fired generators and lead to reductions in both coal production jobs and power plant jobs due to one tenth the staffing needs of the new plants. However the cost of electricity from the plants has been as much as 50% higher than coal fired power plants.

It is therefore not surprising that the TUC and its affiliates have been much more critical than employers' organizations with regard to the outcomes of UK government-inspired consultations on Agenda 21 and national sustainable development policies. For example, the TUC highlights the UK government's disregard for Chapter 29 of Agenda 21 (Strengthening the Role of Workers and their Trade Unions) and to world of work and environmental issues in general. To illustrate this point, the TUC points to the government's Sustainable Development Strategy, where no direct reference is made to the role of trade unions, while only slight references are made to environmental issues and the world of work. The issues are similarly overlooked in the government's other policy statements on the environment.

Manufacturing, Science and Finance Union (MSF) is Britain's fifth largest union with 550,000 members working in industry and the service sector. The union's approach to the environment is aimed at raising members' awareness via information action packs and briefings, including a recent report on clean production. MSF also runs weekend courses on health, safety and environmental issues. MSF representatives last year concluded an environmental agreement at the GEC Ferranti plant in Scotland. The union successfully raised the issue of energy efficiency with the company as part of consultation about redundancies, pointing out the savings that could be made from more efficient use of energy.

National Communications Union (NCU), is the principal union representing 120,000 workers in the telecom sector. In 1991 it produced a green code for its union officials; this seeks to integrate the unions' health and safety activities with workplace environmental issues. The union reached an agreement with the main employer, British Telecom, for the joint monitoring and discussion of environmental initiatives launched by the company.

The TUC is currently discussing with its affiliates the possibility of introducing regular environmental management training programmes as part of its national union education

programme. However, the TUC admits that funding for such course is hard to come by since the UK government terminated all support grants for trade union education.

The British TUC took early initiative to raise environmental questions. In 1991 they published *Greening the Workplace: A TUC Guide to Environmental Policies and Issues at Work.* One of the areas they discussed at length was the use of environmental auditing by workers and unions. The basic approach and objectives of the TUC audit methodology follow.

Approach to Audit

- Does the employer have an environmental policy? How does it relate to health and safety policy?
- What office is responsible for environmental policy and what monitoring and assessment is being conducted?
- What steps have been taken to raise employer awareness of environmental issues?
- Is the employer prepared to set up a joint union/management group on environmental auditing or bring the issue under the umbrella of existing health and safety committee?
- Is the employer prepared to negotiate an Environment Agreement on auditing which sets out the union role, joint procedures, methods, and issues to be addressed?

Objectives of Audit

- Determine and improve overall environmental performance of operation processes, facilities, and equipment.
- Verify and improve compliance with international, federal, state or local laws and regulations.
- Assess and improve compliance with employer policies, standards, and targets.
- Provide information on all aspects of environmental protection (including employment and training implications

Asian Productivity Organization (APO)

The Asian Productivity Organization published in 1996 a study on *Labor-Management Cooperation in Environmental Protection* (C.S. Venkata Ratnam, 1996). It surveys firm level practice in nine APO countries. The study found some interesting examples in various countries on union involvement in these areas but in most countries worker and union involvement is kept to a minimum. Problems of employment tradeoffs for investment in cleaner technology, corrupt inspectorates and lack of education on the issues combine to make rhetoric far more common than actual action." Only three countries-India, Hong Kong and Indonesia - reported that environmental clauses are finding their way into collective bargaining agreements. Some of the collective agreements signed in core sectors like steel and coal in India, for instance, have separate chapters on safety, health and environments. Labor management committees are found in 50 percent of the firms surveyed in Bangladesh, Hongkong and Indonesia and over one-third of the firms in India. The presence of labor--management committees, by itself, is not guarantee of labor management cooperation on the subject" The fact that APO commissioned such a study and set a baseline for investigating this issue is a significant indication of the importance of the issue at a policy level in Asia.

APO also has a growing "Green Productivity" program which examines in industrialized and developing nations ways to assure in different sectors that firm level practice uses the most environmentally preferable procedures suited to that country. Funded by the Government of Japan, this activity is a major initiative to help improve the environmental and resource efficiency in Asian countries. Americans need to be aware that Asian countries are not standing still on these issues and are preparing a path to assure environmental competitiveness in the future.

7.0 CONCLUSION: CLIMATE CHANGE AND OPPORTUNITIES FOR LABOR

From the evidence gathered for this report, several broad observations about climate change, labor, and unions, can be made. First, climate change is an extremely complex issue that has and will continue to cross many traditional boundaries. Solutions to climate change will likely require effort in a number of broad areas including science and engineering, economics, social and cultural understanding, domestic politics, and international affairs. Second, there is widespread opposition to current elements of the Berlin Mandate, especially over the differing responsibilities between Annex I and non-Annex I countries.

However, despite widespread opposition to current elements of the Berlin Mandate, many groups, especially unions, are willing to work on potential solutions to the problem of greenhouse gas emissions. In the United States and the international community, unions, and their members are contributing to environmental improvement. From these emerging activities, energy, knowledge, and experience could be channeled towards seeking solutions to the globally important issue of climate change.

The previous two sections of this report (**5.0** and **6.0**) discuss a number of ways trade unions and their members are contributing to environmental improvement. It is by no means a complete list of all activities. It provides a framework or starting point to design additional activities to resolve the climate change problem.

The next century will be one of transition to a new economy whose characteristics will likely include greater globalization of markets, and more attention to resource efficiency and environmental impacts. Therefore regardless of a treaty, strategies that prepare America for success in the next century will need to be developed in anticipation of these changes. The labor movement can be a leader in that transition by using influence within companies already organized, by offering capital and skills as incentives to work cooperatively with companies, and by aggressive organizing in emergent sectors.

The American labor movement believes that solutions to the climate change issue must be within the context of really fixing the environmental problem, keeping the economy strong, and effective transition for affected workers and communities.

Policy Involvement at All Levels

The establishment of policy and implementation strategies on climate change occurs at all levels. In order to fully make a positive contribution, labor needs to be involved at all levels as well. The American labor movement should: (1) continue to participate in various policy forums addressing climate change, sustainable development, and the environment as well as (2) become involved in additional organizations and activities that deal with these issues. The efforts should squarely take aim at the future, participating in plans that benefit that benefit American workers in the century ahead.

- Labor representatives should participate throughout the international process of negotiating a protocol to the United Nations Framework Convention on Climate Change. Labor should be actively consulted as part of the US delegation and in preliminary development of positions. Labor's views should be strongly put forth as part of the negotiations leading up to and then at Kyoto. U.S. labor's cooperation with other international trade unions including the ICFTU and other trade union federations should be part of the overall strategy for addressing global issues.

- Labor should be involved, along with other stakeholder organizations, in the design of domestic climate change policies. President Clinton has asked all Departments and additional agencies to contribute to solutions that take action on international and domestic implementation. The American labor movement should be consulted by these departments, agencies, and interagency groups as they design and undertake their tasks.

- Encourage environmental and labor protection agreements linked to international trade agreements. The debate over climate change highlights the long standing AFL-CIO concerns around adequate trade side-agreements on labor and environmental protection. The weak approaches to these issues in current trade agreements has undermined labor's support of a treaty on climate change. The fear of losing jobs overseas to countries where labor is exploited or the prospect of shifting pollution to developing countries are part and parcel of this debate.

- The President's Council on Sustainable Development (PCSD) was organized by President Clinton in order to "recommend a national action strategy for sustainable development." Trade unions are not currently represented on the PCSD and should seek a Council seat. Until 1995, Tom Donohue, past president of the AFL-CIO, sat on this body which includes high level government officials, business and community leaders. Labor needs a continuing voice on the PCSD.

- Unions could establish state and local forums for dialogue to seek common ground with community representatives, environmental organizations, business, and labor (see **Section 6.0**). The Canadian Roundtable on Environment and the Economy is such a forum for systematically encouraging this dialogue. Many unions and the AFL-CIO have participated in forums where common understanding has been developed. While talk alone will not be sufficient, it is a part of an overall strategy.

- State and local AFL-CIO Councils should be involved in efforts at all levels to respond to the climate change challenge. Agenda 21 implementation and policy development is encouraged at the state and local levels. At these levels, the voice of the AFL-CIO is from the Central Labor Bodies and these organizations need to be part of the climate change discussion.

- International activities on climate change especially those of the US should demonstrate fundamental respect for workers rights and help create capacity especially among trade unions

in developing countries to play a positive role in sustainable and equitable economic development while assuring worker and community health.

- Further progress should be made on bringing the US labor movement together (1) to develop dialogue, understanding and consensus; (2) to seek a common perspective and a broadly agreed action plan; and (3) to build capacity in the US labor movement to contribute in this arena as outlined above.

Economic Sectors

Government policy discussions regarding the impact of climate change policies on particular economic sectors should include the relevant union(s) and/or the AFL-CIO as part of the dialogue. The impact of climate change action will vary across the economy and thus different strategies will be called for in different industries. For unions to be part of the solution the representatives of workers in those industries must be at the table.

- Unions and workers should participate in R&D strategies in order to bring their experience and knowledge to the design of technologies and production processes that aid in reducing greenhouse gases, contribute towards sustainable development, and help protect worker, community, and ecosystem health.

- Through collective bargaining, unions could ensure that involvement with strategic and operational environmental issues as part of any agreement signed with management. A number of countries have developed model contract language on environmental activities including the right to refuse environmentally unsafe work.

- Union pension funds can provide investment capital for converting older industries or developing new industries willing to work cooperatively with labor. Pension funds, derived from union contracts, are currently the largest source of investment capital in the U.S., valued at over 600 billion dollars. Prudent investments that protect pension assets and contribute to converting older industries or growing new green industries have a strong investment return record. Labor has capital to bring to the table, in addition to skills, for the right kind of investments.

- Several economic sectors could face significant restructuring and transitioning as policies are put into place to combat climate change. These are likely to include transportation industries, certain types of manufacturing, electrical utilities, wood products, and coal mining. Unions could work with these and other sectors to design strategies for: (1) reducing greenhouse gas emissions and (2) transitioning to new economic activities that have minimal climate change impacts. Included in this section are public or private sector investments that can better preserve and create new jobs, enhance the environment, and help speed the transition. Examples might include:

- Encourage the establishment of funds for sustainable community redevelopment efforts in areas that could be especially hard hit by climate change policies. When the company gets shut down or cuts back in a mining town, local merchants and the local tax base are affected, thus impacting all local services and jobs. Those communities, will have an acute need for transition assistance for economic redevelopment. When federal or state dollars are being used for new environmentally friendly industries these communities should have priority in their location.

- To be able to pay for these efforts requires a hard look at various funding options, whether from special revenues raised as part of the effort to encourage reduction of greenhouse gases, or through specific appropriations at a level sufficient to get the job done.

Changing the Workplace

- Union health and safety committees could be expanded to include the environment There are hundreds of thousands of joint union-management health and safety committees across the country. A small percentage of them have environmental concerns as part of their mandate. Using this intact structure, which has demonstrated success in the lower accident rate in union versus non union shops, can be a vehicle for change. The UAW and General Motors are working with their joint health and safety representatives at the plant level to roll out an ambitious environmental quality program. In some locations, there may be local unions who prefer to set up a separate environment committee to consider these issues.

- Require eco-auditing with union and workforce involvement in companies of over 15 employees. Workers often know best what is going on inside their workplaces. With the advent of ISO 14000, outside auditors are brought in when corporations want certification of their environmental process. Although this is a start, it misses real opportunities. Cornell University's Work and Environment Initiative has done a convincing analysis of the role of worker participation in toxic chemical source reduction. It showed more than triple the reduction when workers are actively involved as opposed to relying on external advice or technology alone. Workers make a direct and measurable difference. If this is applied across the economy then significant emission, economic, and environmental benefits can accrue. Requiring this examination is not a command and control approach but a recognition of the basic responsibility of all workplaces to examine their activities and do better.

- Eco-auditing in the workplace has been advocated internationally by organizations such as the ILO and the ICFTU and a number of union national bodies throughout the world. An eco-audit is designed to highlight the things a company is doing well as well as things that could be done better. Audits can reveal production, energy, or environmental shortcomings and show where pollution prevention and energy efficiency measures could have a dramatic effect on the bottom line. The Swedish Labor Federation, TCO, has a significant staff, referred to above as the 6E program, designed for comprehensive eco-auditing,.

- Improve the overall energy efficiency and environmental performance of residential, commercial, industrial, and public buildings. Building trade unions and contractors should be consulted and adequate programs and continuously improving standards developed. Energy loss from buildings is a major factor contributing to greenhouse emissions. There are a number of job generating possibilities for union workers including manufacture and installation of photo-voltaic panels (including the President's million solar roof objective) or wind turbines, changing windows to much higher R values, installation of solar roofs, and use of alternative building materials. The Bricklayers and Allied Craftsworkers Union and the Sheet Metal Workers International Union are among those advocating wide scale use of new environmentally preferable materials and processes The Bricklayers are working with a new aerated concrete process that is faster to install, higher insulation value, flexible in application and environmentally sound. New approaches tearing down buildings involve "deconstruction" through reclaiming useable materials and reusing them rather than destroying the through wholesale demolition.

- Following the lead of the UAW, other unions could examine the entire production chain of their particular industries in order to increase environmentally responsible manufacturing throughout the life-cycle of goods and services, "product stewardship." Product stewardship includes being aware of where products go and how they are used. Beginning in the design process, many ideas can be shared which avoid downstream waste including emissions. This can impact the next stop of a production process or use by a customer. For example, the aluminum industry has found ways to recycle end products which leads to much lower energy and life cycle costs. Concurrent with resource efficiency issues is the reduction of toxic materials and waste to improve worker and public health. A similar review of the entire production process can design out and safely handle toxic materials.

- The teacher's unions could be used as part of the educational process on climate change, environmental protection and preservation, and sustainability. Teachers unions and their members play a vital role in educating, from the young to college students, across a variety of disciplines regarding the importance of climate change action and how it can be accomplished. Schools, as working places, have their own energy issues. When more of the budget goes to pay fuel bills then less is available to pay teachers and aides to provide general education. Unions are concerned about these developments and want to see real energy conservation in their school districts and post-secondary institutions.

- Local unions and Central Labor Councils can take action themselves by establishing environment committees within locals, that monitor employer performance while seeking solutions, informing and educating members and their families, and doing community service in their local areas.

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Cornell University
Work and Environment Initiative

APPENDIX

A number of unions resolutions on climate change, the environment are included in the appendix. Items included as part of the appendix are listed below.

1. AFL-CIO, "Resolution Number 10"
2. AFL-CIO Industrial Union Department, "Resolution on UN Climate Change Negotiations"
3. AFL-CIO Maritime Trades Department, "Resolution on UN Climate Change Negotiations"
4. AFL-CIO Transportation Trades Department, "A Sensible and Fair Policy on Greenhouse Emissions."
5. United Mine Workers, "Policy Statements"
6. OCAWU, "Resolution on Just Transition
7. OCAWU, "Resolution on Environmental Justice"
8. United Union of Roofers, "Million Roofs Resolution"
9. Canadian Communications, Energy, and Paper Workers Union, "Just Transition"
10. Canadian Labor Council, "Position on Climate Change Measures"
11. International Confederation of Free Trade Unions, "Trade Unions, Environment, and Development"
12. International Confederation of Free Trade Unions, "Environment and Development, The Trade Union Agenda."
13. International Confederation of Free Trade Unions, "Climate Change and Jobs: Towards a Strategy for Sustainable Employment, Trade Union Statement to the Kyoto Conference (DEC, 1997).
14. International Federation of Chemical, Energy, Mine, and General Workers' Unions, "Climate Change Resolution"
15. British Trade Union Council, "Resolution on the Environment"

Safe Jobs in a Safe World

Protecting the safety and health of workers is among the labor movement's most important responsibilities. Safe workplaces, secure jobs and a clean environment are critical to preserving and improving our quality of life. As representatives of workers and as citizens, we understand the link between workplaces and communities, and the relationship between healthy jobs, a healthy environment and a sound economy. Our goals have been and must continue to be the greatest possible protections, economic progress and growth.

Many of the safety, health and environmental protections and gains won by the labor movement are now under attack. We must strengthen and expand our political alliances with others committed to safe and healthy workplaces and communities, and organize and fight to assure a sustainable future for coming generations.

Workers' Safety and Health

In the last quarter-century, tremendous progress has been made in reducing the toll of workplace injury, illness and death suffered by American workers. But far too many workers remain at risk. Each year more than 6,000 workers die from workplace injuries and 50,000 from occupational diseases. Seven million workers are injured and 60,000 are permanently disabled. Changes in the workforce and technology have put new groups of workers at risk and created new hazards.

Employer and conservative congressional opposition to new and existing protections is growing. Further progress in reducing job injuries and illnesses will require intensified efforts to educate, mobilize and organize workers, union members and our political allies.

Defend and Strengthen Worker Protections

For more than two decades, the Occupational Safety and Health Act and Mine Safety and Health Act have formed the cornerstone of the nation's safety and health efforts. Enacted largely as a result of the labor movement's efforts, these laws promised workers safe workplaces free of hazards, to be achieved through strict standards and enforcement, with the participation of workers and unions.

These job safety protections have reduced injury and illness, but are now under attack by some employer groups and anti-worker politicians who want to limit the government's enforcement role and the rights of workers and their representatives. Since the commencement of the 104th Congress, these opponents have waged an unrelenting campaign to make OSHA compliance voluntary, cut the job safety budget, block new protections (particularly on ergonomics) and impose barriers to improved protections that would make the issuance of new standards difficult if not impossible. This assault is now broadening, with employer groups attempting to block even government safety research and hazard assessments.

These attacks on job safety have taken their toll on agencies' programs. The setting of job safety standards has slowed to a crawl and enforcement efforts have diminished as a result of budget cuts, government shutdowns and some government reinvention initiatives.

American workers need more safety and health protection, not less. Protective standards, strong enforcement and the active involvement of workers, unions and allies are a prerequisite for further progress. The AFL-CIO will fight measures to roll back safety and health protections and to make compliance with the job safety law voluntary. We will press for new standards against workplace hazards and for strong enforcement of job safety laws to deter violators and to punish those who put workers and their communities in danger. And we must defend and strengthen workers' compensation laws so that workers injured on the job receive timely and fair compensation.

As efforts are being made to weaken the job safety law, millions of workers remain unprotected. More than 7 million state and local public employees are excluded from OSHA coverage. Transportation workers, energy workers and farm workers are covered under other laws, which fail to provide workers adequate protection or comprehensive rights. Throughout industry, thousands of workers, most of them unorganized, are fired each year or face other employer retaliation for raising

job safety concerns as legal issues, and enforcement in this area remains weak.

We must continue the fight to extend legal coverage to all workers and for stronger anti-discrimination protections and enforcement so workers can raise safety and health concerns without fear of employer retaliation.

Changing Workforce and Workplace

Changes in the workforce and workplace are having major effects on job safety. As employment has shifted to the service sector, so has the workplace injury and disease burden. Service-sector workers now experience the greatest number of workplace injuries, with certain industries, such as health care, experiencing increased rates of injuries while overall rates have been falling. Workplace violence and poor indoor air quality put millions of workers at risk. Safety and health efforts must be expanded to address these growing problems, while assuring that hazards in high-risk industries such as construction, manufacturing, food processing and mining continue to receive the necessary attention.

Ergonomic hazards from poor job design, overexertion and repetitive work are the leading cause of injury across all sectors, with more than 700,000 workers suffering serious repetitive strain injuries (RSIs) each year. Prevention of these injuries is critical for further progress in workplace safety. The AFL-CIO will continue its campaign to "Stop the Pain" from these injuries and seek an OSHA ergonomics standard, action from employers to correct these hazards and fair compensation for workers who are injured.

Competitive pressures, downsizing and restructuring are raising additional safety and health concerns. Workers are forced to work longer hours, staffing levels are being cut, new workers aren't provided adequate training and employers' safety and health capacity is being reduced. In the rail industry, where downsizing and competitive pressures have been severe, accidents and worker fatalities have skyrocketed in recent years.

Workers' safety and health should not be sacrificed in the name of economic efficiency. We must do more to determine the impacts of downsizing and restructuring on injuries and illnesses, and demand adequate staffing levels and training so jobs can be performed safely.

Workers, Community and Environment

Workers, workplaces and the environment have been targeted by corporate strategies that reduce job security and increase both economic and environmental threats to community and the globe. At the same time, ill-conceived environmental requirements can cause substantial job loss. It is crucial for workers and their communities to avoid both environmental degradation and mass unemployment.

The American labor movement knows that communities are extensions of the workplace. Our commitment to community is based on the strength of our commitment to the workplace and the worker. Our pledge to protect the environment is meant to achieve the highest quality of life for workers, their families and their communities.

Often the collective, forceful voice of the labor movement has not been heard on major environmental issues because we lack the mechanisms that would enable us to explore these complex issues jointly from a trade union perspective. It is in the interests of our members and their communities that the AFL-CIO provide resources and develop processes that engage affiliates around these complex issues in a way that enables us to find common ground among ourselves wherever possible. The AFL-CIO will seek the broadest possible agreement, exploring issues that can unite the labor movement with one voice in support of environmental and economic progress.

Guiding Principles

The AFL-CIO is committed to finding one strong voice on these matters. Through a process of engagement that invites debate and discussion in our movement, we will develop our unique perspective on solutions to environmental challenges and we will provide a clear, consistent, public point of view in these complicated issues. To begin, we will embrace these Work/Environment Principles and use them as a foundation from which to reach out to our brothers and sisters in order to find the highest common-ground agreement on the problems, as well as solutions, inside the labor movement. We will use these principles in the same manner with our allies in the environmental debate. We will establish, where we wish to do so, our own collective long-term view, find allies who share that view and then build lasting political alli-

ances that connect our workplace, community and global concerns with theirs. We will make long-term plans to build the political power required to insure that proposed environmental changes have a positive impact on working men and women, including the changes in fiscal mechanisms that will be needed to protect workers, jobs and communities during periods of transition.

The ***Principle of Economic Rights*** asserts that it is the responsibility of the American labor movement to protect worker and community economic interests, both long and short term, in the face of environmental challenges. The ***Principle of the Highest Common Denominator*** acknowledges that community, for the labor movement, is an extension of the workplace, and the concerns we have for quality of life for our members at work automatically apply to them as citizens. We are committed, at every level of issue discussion, to finding the highest level of agreement on environmental solutions. The ***Principle of Just Transition*** recognizes that to move from one economic or environmental paradigm to another requires transition on many levels. We agree to analyze the effects of change on workers, industries, consumers and communities and plan for effective, smooth transition for all parties affected by environment-induced change. The ***Principle of Common Sense*** requires that we proceed sensibly in the pursuit of new directions on environmental matters, but proceed with a purpose and with the widest possible input within the labor community and with all allies in the environmental debate.

Environmental Issues

Environmental issues increasingly demand our attention. Our mechanism of engagement must allow us to respond to challenges that present themselves day to day, as we always have, but must also require us to take a long view, and prepare ourselves to be at the front of future challenges, with our members' livelihood at the center of our concern.

The AFL-CIO, following an Executive Council resolution adopted in February 1996, is fully engaged in debate, discussion and negotiation on the ing solution; protecting the industrial base of the United States with *no* movement of jobs or pollution to other countries because of perverse incentives as a result of a flawed international agreement; and providing a just transition for American workers so that *no* American worker loses economic ground in our pursuit of more sustainable and environment-positive global practices.

Likewise, in trade negotiations, the AFL-CIO must press for stricter enforcement of international labor and environmental protection rights. Multinational corporations seek to play workers and communities in different nations against each other by locating production or sourcing in areas with the weakest labor rights, health, safety and environmental enforcement. Certain national governments may also seek economic advantage with weak enforcement of such rights. These unfair practices victimize workers all over the world.

Failure to make progress on labor rights, including health and safety rights, has been recognized by U.S. trade legislation as a principle of unfair trade practice. The AFL-CIO must press for expanded recognition of this principle in all trade agreements, and should add substandard environmental enforcement to the list of unfair trade practices. The AFL-CIO should sponsor and participate in efforts to better identify deficiencies in protection of health, safety and environmental health with U.S. trading partners, publicize the results of these activities and support efforts to equalize protections at the highest levels globally.

Our attention also has been called to chlorinated compounds, environmental remediation and restoration, natural resource issues and food safety and other concerns. We will, with interested affiliates, grapple with these and any other issues, according to the principles articulated herein and our collective common sense.

Educate, Mobilize and Organize

The goal of safe jobs, safe workplaces and safe communities in a sustainable world can only be achieved if workers and unions continue the strug-
tives are: assuring global environmental repair of the carbon dioxide concentration problem, with the formal participation of the *entire* international community committed to a mutually agreed upon, bind-
view. Overcoming the opposition will require a level of worker and union political involvement greater than ever before. The labor movement must, with our allies, intensify efforts to educate

and organize union members, workers and the public to fight proposals to weaken pro-worker laws and to seek new protections.

We must expand safety and health training opportunities so workers can be armed with information to take action on job hazards. We must provide support and assistance to unorganized workers who face workplace hazards, and through organizing and collective bargaining bring workers the kind of protection that only a union contract can guarantee.

We must carefully and aggressively apply our principles to the critical issues that are affecting our country and the globe after 100 years of industrialization. We cannot allow poor environmental habits by developing nations to be ignored. We must lead a movement of change and find the sensible paths that provide sound economic choices for our nation, our industrial base and our members, and that offer better technology and ideas to our neighbors. We must apply our principles and be heard with one clear and unmistakable voice at workplaces, in communities, in the halls of Congress and in international gatherings in the debates that will determine the kind of planet we leave to future generations. We will meet that challenge.

Referred to the Policy Resolutions Committee, Labor and the Community Subcommittee

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IUD Resolution On
U.N. CLIMATE CHANGE NEGOTIATIONS

The United States is involved in United Nations Negotiations pursuant to the "Berlin Mandate" for an amendment to the Rio Treaty on Climate Change.

The Berlin Mandate specifically excludes developing nations from emission reduction requirements while legally binding the U.S. to future emission reductions.

The exclusion of new commitments by developing nations under the Berlin Mandate will create an uneven playing field in favor of developing nations such as China, India, Mexico and Brazil in the competition for jobs and economic growth.

Such an uneven playing field will cause the loss of high-paying U.S. jobs in the mining, utility and manufacturing sectors.

Processes which generate carbon emissions will be transferred to the developing world along with the jobs, thus providing little or no real benefit to the environment.

The U.S. government has not completed a thorough economic analysis of the effects of a treaty amendment on the U.S. economy;

THEREFORE, BE IT RESOLVED:

That the Industrial Union Department of the AFL-CIO calls upon the Congress and the President of the United States to refrain from entering into or ratifying any treaty amendment or protocol that causes the loss of U.S. jobs; and

That the U.S. renegotiate the Berlin Mandate to ensure that all nations have appropriate commitments to reduce carbon emission to prevent the transfer of jobs and emissions to the developing world.

Adopted by IUD November 13, 1996

815 16TH STREET NW ▪ WASHINGTON, DC 20006 ▪ FAX 202-842-7838

Resolution No. 22

UN Climate Change Negotiations

Submitted by:
United Mine Workers of America

WHEREAS: The United States is engaged in negotiations to amend the 1992 United Nations Framework Convention on Climate Change (also known as the Rio Treaty) pursuant to the Berlin Mandate; and

WHEREAS: The Berlin Mandate, negotiated in 1995, specifically exempts fast-growing "developing" nations such as China, Korea, Indonesia, Mexico and Brazil from any new commitments while binding the United States to new controls on carbon dioxide and other greenhouse gases; and

WHEREAS: It is clear that greenhouse gas emission reductions by developed countries alone will do nothing to prevent climate change since reductions made here will be overwhelmed by increased emissions from fast-growing developing nations; and

WHEREAS: The structure of the Berlin Mandate provides a powerful incentive for corporations to relocate in order to avoid greenhouse gas restrictions in the U.S.; and

WHEREAS: Numerous analyses have found that policies being negotiated will have a tremendous affect on the U.S. economy, including the loss of well over one million U.S. jobs, a 50% reduction in wage growth, increases in gasoline and electricity prices, and a significant increase in the U.S. trade deficit; and

WHEREAS: Hundreds of thousands of jobs at risk are jobs in the transportation sector of the economy; and

WHEREAS: Methods to achieve these reductions, either through a direct carbon tax or through an equivalent carbon emission trading program, are extremely regressive taxes that will harm working families and seniors living on fixed incomes; **now, therefore be it**

RESOLVED: That the Maritime Trades Department, AFL-CIO, calls upon the Clinton Administration and the Congress to refrain from entering into an amendment to the Rio Treaty that 1) binds the U.S. to emission reductions without appropriate commitments from all nations, or 2) causes the loss of U.S. jobs.

A SENSIBLE AND FAIR POLICY ON GREENHOUSE EMISSIONS

As the international community takes steps to reduce the levels of greenhouse gases in the environment, the United States should not be asked to shoulder an unfair level of responsibility that would jeopardize our economy and the millions of industrial and transportation jobs it supports. In 1992, the United States signed the Rio Framework Convention on Climate Change which required a reduction in greenhouse gases such as carbon dioxide to 1990 levels by the year 2000. In 1995, the United States and other parties to the 1992 climate convention agreed in the "Berlin Mandate" for a process of new negotiations to establish emission reduction goals for the next century. The Berlin Mandate calls for developed countries, such as the United States, to take the lead in combating climate change, but excludes developing nations from any new obligations to further reduce greenhouse emissions.

This double standard means that while global warming is an international problem and that most of the world's future growth of carbon emissions will come from high-growth countries like Mexico, China, and Korea, the U.S. is being asked to do more than its fair share. Even more troubling is the fact that the problem of global warming will not be adequately addressed. Companies wishing to avoid emission control requirements will simply move their operations to countries that were able to evade the provisions embodied in the Berlin Mandate.

The United Nations is currently conducting negotiations that will determine the magnitude of the reductions that the U.S. will have to undertake under the Berlin Mandate and the timetable required for meeting these objectives. In these negotiations the Clinton Administration is supporting an emission control program modeled after the 1990 Federal acid rain law. In order to meet the goals of this program, an increased energy tax on carbon fuels several times larger than all current state and federal energy taxes combined, or an equivalent permit trading program, would have to be imposed on consumers of fossil fuels. The negative impact this would have on our economy cannot be overstated.

It is clear that the use and transportation of coal would be greatly curtailed if not eliminated, gasoline prices would skyrocket, and the increased cost of basic electricity would be felt in the production of almost every consumer good. The Department of Commerce has estimated that a carbon tax sufficient to reduce CO2 emissions by 20% would result in 800,000 jobs lost by the year 2000 and 1.7 million jobs by 2010. An independent research corporation found that 1.4 million American jobs could be "severely at risk" under a carbon tax of $24 per ton. This includes over 132,000 rail workers, 76,300 transit employees, 157,000 involved in water transportation, and 625,200 aviation workers. The entire economy would be placed at risk with little or no environmental benefit. Transportation labor is not opposed to reasonable steps that will reduce greenhouse gases, but we cannot support policies that unfairly harm American workers while allowing less developed nations to avoid any responsibility for solving this global problem.

AFL-CIO, TRANSPORTATION
TRADES DEPARTMENT

THEREFORE BE IT RESOLVED:

■That transportation labor call on the Clinton Administration to renegotiate the terms of the Berlin Mandate so that all nations bear an equal level of responsibility for addressing the concerns arising out of greenhouse emissions;

■That TTD will urge the Clinton Administration and the Congress not to accept any treaty or other agreement that will force the U.S. to adopt policies that will damage our economy and result in massive job loss; and

■That TTD will educate and inform transportation workers about the damage the Berlin Mandate could have on the financial health of the transportation industry and the security of thousands of jobs.

Resolution No. 2-97(f)
Submitted by: UMWA
(Adopted February 15, 1997)

United Mine Workers of America

UNION YES Return to UMWA on Climate Change, UMWA Research Department, UMWA Home Page.

Environmental Issues Affecting Coal Mining Jobs

The UMWA represents coal miners nationally. Our members are threatened with job losses due to productivity improvements in the mining industry, and shifts in fuel demand from environmental protection initiatives.

Mineworkers support strong workplace health and safety protections and environmental safeguards. We were instrumental in breaking the impasse over acid rain control legislation through the 1988 Mitchell-Trumka compromise, a technology-based bill that would have cut electric utility sulfur emissions in half while preserving local coal markets. The Bush Administration's "market-based" acid rain law has cost the UMWA thousands of jobs and has resulted in net economic losses of $2 billion annually to coalfield communities and families.

Since 1990, we have fought to protect our members' employment interests as the acid rain law is implemented, and as new regulatory initiatives are proposed by the Clinton Administration. We are extremely concerned about the potential impacts on our members' jobs of regulatory programs in three areas:

- Global climate change;
- Revision of Air Quality Standards for ozone and particulate matter; and
- Federal usurpation of state implementation efforts for ozone attainment.

Global Climate Change

In April 1995, the United States and other industrial signatories to the Rio Framework Convention on Climate Change agreed to let developing nations off the hook in negotiations for emission control requirements for the post-2000 period. The Clinton Administration recently proposed a market-based "cap-and-trade" system for carbon emissions similar to the acid rain program. This proposal would devastate the coal mining industry and would lead to the export of American capital and industrial jobs to developing nations on a massive scale. Unilateral reduction of emissions by industrial nations could have more severe labor market impacts than NAFTA and GATT combined.

Policies encouraging the export of American jobs and capital to developing nations, effectively

transferring carbon emissions abroad, must be avoided. Indeed, this fundamental principle was recognized in the February 1995 Economic Report of the President:

"Given the global scope of the issue, it will become increasingly important to coordinate national responses in order to avoid excessively costly or perverse outcomes. For example, focusing only on emissions in today's advanced industrialized countries would do little to prevent 'leakage' of emissions to other countries that are expanding their industrial bases."

Without effective participation by developing nations in a global program to combat climate change, unilateral efforts by industrial nations would lead to widespread loss of jobs and major increases in energy costs for low-income and fixed-income consumers least able to afford them, with no significant impact on future atmospheric concentrations of greenhouse gases.

The United States, as the largest emitter of greenhouse gases, requires time to develop and implement more energy-efficient technologies. Any post-2000 greenhouse gas reduction obligations agreed to by the United States should involve the participation of all nations in an equitable framework, and should provide adequate time for the orderly attrition of capital stock.

Ozone and Particulate Matter Standards

U.S. EPA recently proposed revisions to the national ambient air quality standards for ozone and particulate matter. These proposed standards may be unattainable in many areas of the nation, and would cost tens of billions of dollars annually to implement. Each would discourage the use of coal, and would lead to the retirement of many existing coal-fired generating stations.

EPA is proposing to replace the current one-hour ozone standard (120 parts per billion, with one allowable exceedance annually) with an 8-hour, 80-ppb standard. An 8-hour measuring period is considered more appropriate than the current standard because most adverse health effects of urban smog are only detectable with longer exposure times such as 3 to 5 hours.

In setting a new ozone standard, EPA should give weight to the findings of its Clean Air Science Advisory Committee by selecting a standard of equivalent stringency to the one-hour standard, not one that would create hundreds of new "nonattainment" areas throughout the country. CASAC's review of the health effects of ozone concluded that there are no significant health benefits associated with proposed alternative 8-hour forms of the standard, compared to attainment of the current standard.

Many cities have difficulty attaining the ozone standard because a brief spell of hot weather can cause multiple ozone exceedances at monitors. More advanced statistical measurements of compliance with an 8-hour standard, such as percentile methods and averaging of monitoring data, would be preferable to the mechanical "third-highest daily maximum" approach proposed by EPA. An 8-hour standard of 90 ppb with multiple exceedances measured across several monitoring sites would provide health protection comparable to the current one-hour standard.

Concerning the proposed new standard for PM2.5, or very fine particulate matter, EPA should consider setting a "place holder" of equivalent stringency to the current standard for larger PM10 (dust) particles to provide adequate time for further scientific research. There was a wide diversity of views among CASAC members on the need for and form of a PM2.5 standard. CASAC panel members representing the medical profession expressed doubt about the existence of a "plausible biological pathway" for adverse health effects that could explain the epidemiological studies relied upon by EPA.

The causal linkage between very fine particulates and adverse health effects is not clear-cut like the linkage between coal dust and black lung, or between tobacco use and cardiopulmonary diseases. The epidemiological studies supporting EPA's proposed standard show a relatively weak statistical association between premature mortality and high levels of very fine particulate matter. However, caution may dictate a gradual approach to the adoption of a new standard until more precise determinations have been made linking mortality effects to particular varieties of fine particulates.

Without evidence linking specific kinds of particulate matter to adverse health effects, there is no assurance that emission control strategies would produce meaningful health benefits. For example, EPA may prescribe costly emission controls for coal-fired power plants, while research may conclude that fine particulates from diesel and automotive exhaust or other industrial processes are responsible for most of the mortality effects in EPA's epidemiological studies.

Some proponents of a new fine particulate matter standard argue that eastern coal miners could benefit because electric utilities would install additional flue gas scrubbers to reduce emissions of sulfur dioxide, a key precursor emission. However, utilities faced with huge new capital investment requirements in a competitive environment may choose to shut down existing coal plants in favor of natural gas generation or purchased power. Any new fine particulate matter standard should be based on an objective analysis of credible health effects data.

State Implementation Plans for Ozone

UMWA participates in the Ozone Transport Assessment Group (OTAG) stakeholder process that U.S. EPA has created to define cost-effective solutions to ozone nonattainment problems in the eastern United States.

Despite more than two years of effort and millions of dollars of research on ozone formation and transport, U.S. EPA has announced plans to issue a "State Implementation Plan call" that would preempt OTAG's decision-making process. Dozens of states could be forced to adopt emission controls for rural coal-fired powerplants exceeding the requirements of the 1990 Clean Air Act, with little impact on urban smog. EPA estimates that compliance costs for such a program would range from $2 to $4 billion annually, some two to four times larger than the cost of the 1990 acid rain control program.

Ozone modeling studies performed to date by OTAG demonstrate that ozone is not transported over long distances, unlike acid deposition. The "half-life" of transported ozone appears to be on the order of 100 miles downwind. In most urban areas, controls on sources within 100 to 150 miles capture 75% or more of predicted ozone reductions. Moreover, controls on transported ozone would not allow more seriously congested urban areas to demonstrate attainment with the current ozone standard. Substantial reductions of local mobile and stationary source emissions may be needed to permit the most polluted cities to attain the current ozone standard.

EPA should allow OTAG adequate time to complete its ongoing modeling studies. If the results of such studies so indicate, state or regional control options for ozone attainment should be pursued by the states in lieu of the "one-size-fits-all" control policies for electric utilities favored by EPA. Such control options should include emission reduction requirements for mobile and other local sources sufficient to enable states to demonstrate attainment. EPA in turn should refrain from imposing a Federal Implementation Plan on the states to achieve selective emission reductions from coal-fired powerplants. Options for additional control of emissions from utility and mobile sources should be left to the judgment of the states whose workers, consumers and industries would be most affected by control decisions.

Resolution on Just Transition

Whereas Corporate America is boosting its bottom line by destroying our jobs, harming our heath, and polluting our environment; and

Whereas we are deeply committed to both protecting our livelihoods, our health and safety, and the public's health, and protecting the environment; and

Whereas we are discovering that many of the products and processes we work with can be extremely harmful to workers, communities and the environment: and

Whereas governments around the globe are considering bans and phaseouts of these harmful products and processes; and

Whereas the costs of such bans and phaseouts will be born primarily by the workers and their communities in the form of job loss, even though society as a whole will benefit from such bans and phaseouts; and

Whereas we believe in a fair and just transition to sustainable production that protects both health and safety and the environment as well as our livelihoods and makes corporations accountable;

Therefore be it resolved That we demand the creation of a national Just Transition Fund to provide full income protection, access to sustainable jobs, and education for workers in toxic industries, and economic support for impacted communities, and

Be It Further Resolved That such a fund be set up by the federal government and consist of corporations contributions via a surcharge on the substances that are to be banned and phased out through general revenue;

Be It Further Resolved That we agree to commit ourselves towards making such a Just Transition Fund a reality, including working with our allies in other unions and in the environmental and environmental justice communities

Therefore Be It Resolved That we agree to support sound public policy initiatives (as interpreted by the President and Executive Board) that call for the phaseouts or bans of extremely harmful substances provided that working people who are dislocated and their communities are made whole during the transition to sustainable production.

Adopted as R-4, August 19, 1997

Oil Chemical, and Atomic Workers Union

Resolution on Building Environmental Justice Coalitions

Whereas Corporate America is destroying decent blue-collar jobs in the name of profits, efficiency, and shareholders demands for a meaner and leaner corporation which translates into more profit and fewer workers; and

Whereas the OCAW is the target of these corporate attacks for profitability through job destruction and downsizing, we need to seek out like-minded allies; and

Whereas many environmental justice groups are engaged in battle for equity and fairness for those in fence-line communities surrounding our facilities; and

Whereas many environmental justice advocates are people-to-people grassroots organizations doing their work on the "shopfloor" of communities; and

Whereas many environmental justice groups primarily advocate for the politically, socially, and economically disenfranchised; and

Whereas the environmental justice movement is engaged in these battles with many of the same opponents of the OCAW; and

Whereas the OCAW and environmental justice advocates often share common vision and goals to halt corporate injustice; and

Whereas there are many more issues that the OCAW and environmental justice advocates have in common than have in dispute; and

Whereas it has been in the tradition of the OCAW to recognize the common goals of other institutions and individuals, to work with these institutions and individuals and fight for the common good;

Therefore Be It Resolved That the OCAW actively work to seek out and identify environmental justice individuals and groups that have interests and goals in common with the OCAW; and

Be It Further Resolved That the OCAW identify these environmental justice groups with common goals and interests for the purpose of forming coalitions and alliances around these goals;

And Finally Be It Resolved That the OCAW make every effort to form partnerships and coalitions with environmental justice groups and individuals for the purpose of furthering the interest of workers, individuals, and communities against our common enemies.

Adopted as R-5, August 21, 1997

Oil, Chemical, and Atomic Workers Union

United Union of Roofers,
Waterproofers and Allied Workers
AFFILIATED WITH AFL-CIO AND BUILDING AND CONSTRUCTION TRADES DEPARTMENT

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JOHN C. MARTINI
PAUL F. BICKFORD

ADOPTED BY EXECUTIVE BOARD
OCTOBER 27, 1997
NASHVILLE, TENNESSEE

RESOLUTION

WHEREAS, the AFL-CIO in its recent convention noted that the threat of global warming is one America and the labor movement must take seriously and begin to act on now;

WHEREAS, President Clinton has called for the installation of at least One Million Solar Roofs by 2010 in order to help reduce greenhouse gas emissions through renewable energy sources;

WHEREAS, the President has called for making Federal installations a showcase for the solar roofing initiative;

WHEREAS, quality roofing installations can assure greater energy efficiency and use new technology;

WHEREAS, the organized roofing industry has the experience and capability to help make this a reality and integrate solar materials with other waterproofing techniques to assure customer satisfaction;

NOW, THEREFORE, BE IT RESOLVED, that the United Union of Roofers, Waterproofers and Allied Workers fully supports President Clinton in his Million Solar Roof Initiative and pledges to seek a partnership with him to meet that goal;

BE IT FURTHER RESOLVED, that the Roofers' Executive Board pledges to work closely with the US Department of Energy to assure the high quality installation of these new roofing materials through skilled union craftsmen and contractors.

BE IT FURTHER RESOLVED, that manuals for roofing installation be amended to include these new kind of materials and that additional means for training be explored.

CANADIAN COMMUNICATIONS, ENERGY,
AND PAPER WORKERS UNION

Canadian Union Endorses Just Transition

In September 1996 the Canadian Communications, Energy and Paper Workers Union (CEP) formally adopted the Just Transition concept at their national convention. The following is that resolution:

WHEREASlegitimate public and scientific concerns about environmental and human health effects are forcing governments to consider bans on certain products and production methods;

ANDWHEREAS previous bans on chlorofluorocarbons or tetraethyllead have left us either at the mercy of our employers or in a position to bargain only severance pay for our members;

ANDWHEREAS the demand for a ban on organochlorine chemicals is only the latest example of a growing public anxiety about environmentally damaging industries;

ANDWHEREAS we absolutely must preserve the environment, but at the same time examine the economic and social needs of society;

ANDWHEREAS labour has its own independent perspective on environmental issues, understanding that our members' interests and our union's future will not be advanced by throwing our lot in wih either environmental extremists or multinational corporations;

ANDWHEREAS a move to a more sustainable economy will mean major change in consumption and production patterns, which willl cause massive shifts in employment patters;

ANDWHEREAS workers, their families, and their communities must not be asked to bear 100 per cent of the costs of a transition to sustainability;

THEREFOREBEITRESOLVED that CEP demand the creation of a "Just Transition" program to deal with and facilitate the transition to a more sustainable economy;

BEITFURTHERRESOLVED that the "Just Transition" program address at least the following needs of workers affected by environmental changes: full income and benefit protection; access to new jobs; educational assistance; and support for affected communities;

CANADIAN LABOR COUNCIL

POSITION ON CLIMATE CHANGE MEASURES AND THE CARBON TAX ADOPTED BY THE CLC EXECUTIVE COUNCIL DECEMBER 14, 1994

1. The position adopted.
2. Reservations and qualifications.

1. THE POSITION ADOPTED

A. BUILDINGS, INCLUDING RETROFITTING

The Council adopted the following measures: a programme of retrofitting existing buildings, which is repair and refurbishing to decrease energy use and thus greenhouse gas emissions; tighter energy standards for new buildings; financial measures to encourage energy efficiency, including loans to low-income families; a renovation and refit training programme; and a programme for government buildings at all levels of government.

B. CLIMATE FRIENDLY INDUSTRIES, APPLIANCES AND EQUIPMENT

A programme for raising the energy efficiency standards of industrial equipment and consumer appliances.

C. A CLIMATE FRIENDLY TRANSPORT SYSTEM

This programme, as adopted by the Council, comprises: raising the Corporate Average Fuel Economy Standards (CAFE); a vehicle fuel efficiency tax (or fuel economy tax); developing high speed rail systems and urban light rail systems; a National Urban Transportation Demand Management Programme, based on diverting up to half of existing road transport revenues to programmes aimed at reducing private car use; and a public and private sector car fleet procurement and management programme.

D. THE ENERGY SUPPLY, INCLUDING ENERGY UTILITIES

A programme of renewable and alternative energy sources and an agricultural ethanol programme, to be managed both in generation and distribution by public sector.

E. NON-ENERGY SOURCES OF GREENHOUSE GASES

This includes the capture and use as a fuel, of methane from garbage dumps.

F. A CARBON TAX

The Council supported a carbon tax of $10 a tonne by the year 2000 and $15 a tonne by 2005. The Carbon Tax at this level was supported according to the proposal of April, 1994, as follows:

1. A greenhouse gas tax must be effective in terms of the incentives which it generates and the climate change measures to be financed by the revenue from the tax. It should aim to resolve an explicit and stated portion of the problem of climate change.

2. The tax is to be levied on the production or import of substances and forms of energy which result in greenhouse gases, not on use or disposal. Since much of this tax will be passed on to consumers, we also need "differential energy pricing", whereby basic household energy needs are priced low and any excess priced much higher.

3. The tax is to be on greenhouse gas or climate change potential and not, e.g., on carbon content.

4. The tax is to be in the form of "dedicated revenue" or a Loop Tax, whereby the revenue generated is to be spent on climate protection measures, such as energy conservation, energy retrofitting of dwellings, "green job creation" in alternative industries such as renewable energy sources or "soft energy paths", etc. The effects of such expenditures must be explicitly stated; otherwise the greenhouse gas tax will be merely an additional tax contributing to general government revenue.

5. The tax schedule and arrangements must be modified in the light of socio-economic factors such as Canadian employment, i.e., the distribution of benefits and burdens may be shifted in the light of socio-economic considerations.

6. The CLC will support such moves in the context of general tax reform, such as the abolition of the GST. We will not support "environmental double taxation" such as an additional BTU (British Thermal Unit) tax on energy or further environmental taxes on gasoline.

7. The problem of climate change is an international one, e.g., coal-fired power stations in China. Therefore, it is in Canada's interest to work for an international greenhouse gas tax regime with revenue dedicated to international purposes. This would also prevent our energy prices from placing us at an international disadvantage. But such moves should not stop us from taking unilateral national action.

2. RESERVATIONS AND QUALIFICATIONS

All industrial changes among the measures, including funds for industrial restructuring, must have a central provision for re-employment and retraining. All change is conditional on the employment of union labour.

The vehicle fuel efficiency tax must be equitable and related to vehicle capacity; it must not, e.g., discriminate against mini-vans. The fuel efficiency tax is not the same as a gas guzzler tax, which the CLC does not support, either in fact or in name.

Except for unavoidable exceptions such as industrial co-generation, energy generation and distribution must be in the public sector. Energy efficiency measures in all new and refurbished buildings must include indoor air quality improvements and improved climate control measures within buildings.

A principle supported by the labour movement is the payment by employers of employees' transport costs, e.g., bus passes.

INTERNATIONAL CONFEDERATION OF
FREE TRADE UNIONS

Trade Unions, Environment and Development: A brief outline of some principal concerns

Introduction

As far as trade unions are concerned, environmental protection and economic development are two sides of the same coin. Either we achieve both or we achieve neither.

Environmental protection and economic development can only be achieved with the participation and cooperation of all of the 'social partners' governments, industry, organised labour and citizens.

Environmental protection and economic development cannot be separated from political pluralism and democracy. Unless there is a thriving and representative 'civic culture' no progress can be made or sustained. It is no accident that some of the worst environmental problems can be found in countries which have, or have had in the recent past, non-democratic governments.

Respect for and observance of human, including trade union, rights is a cornerstone of democracy and, conversely, neglect and abuse of human rights is a defining characteristic of despotic, tyrranical and unrepresentative regimes. No 'civic culture' can be developed unless individuals have rights to freedom of expression and organisation.

Civil society consists of a series of rights and obligations. There can be no obligations without rights.

Trade unions: General principles

The term 'trade unions' is taken to mean free and independent trade union, that is, trade unions that are independent of any outside dominating influence; derive their authority only from their members; and have a freely and democratically elected leadership. The term 'trade unions' used in this paper has no other meaning and necessarily excludes those organisations which do not meet these basic criteria.

Why do trade unions and their members wish to be involved in environmental issues?

There are a number of reasons:

* because trade unionists are concerned and affected as workers, consumers and local citizens;

* because every worker has a responsibility to minimise the damage their work causes to fellow workers and future generations;

* because environmental pressures affect decisions about employment, pay, training, workloads, health and safety, and workforce cooperation;

* because union involvement and experience can improve environmental performance and thereby best protect jobs, pay and conditions;

* because, in practice, successful environmental protection at work begins with sound health and safety performance;

* because trade unions are uniquely placed to identify and articulate worker concerns and practical ideas and solutions;

* because unions have the structure and machinery to raise awareness and facilitate change;

* because involvement in joint strategies with the employer can create opportunities for discussing other corporate policy issues;

* because it can help raise the union's profile, aid union recruitment and facilitate closer links with outside groups;

In order for workers and their trade unions to be able to play a full and informed role in the protection of the environment, they need a number of basic rights. The following represents a list of the most important of these:

i) The right of individual workers to freedom of association and protection of the right to organise as laid down in International Labour Organisation (ILO) Convention 87 as well as the right to organise and collective bargaining as laid down in ILO Convention 98.

ii) The right of workers to timely consultation, and to be given all information relevant to the health, safety and environmental aspects of their work regardless of 'business confidentiality' but including appropriate protection of genuine business confidentiality.

iii) The right to participate in the formulation of "green agreements" at the workplace including:

* the setting out of both the union's and the employer's commitment to improving environmental performance;

* establishing the principles of participation, partnership and active cooperation;

* laying down the framework for a joint environmental policy and the identification of specific issues;

* establishing responsibilities, joint procedures and workplace support mechanisms;

* setting clear goals and objectives to be regularly assessed and developed;

* seeking to integrate environmental objectives with the employer's statutory health and safety policy and risk assessment.

iv) The right to participate in workplace 'environmental audits' in order:

* to evaluate and thereby improve environmental performance;

* to ensure compliance with laws, regulations and company policies;

* to identify potential efficiency gains and improve effective use of resources;

* to enable comparision and interchange of information between sites;

* to increase employee awareness and participation;

* to identify new market opportunities;

* to evaluate training needs and employment implications;

* to improve workplace morale and communications;

* to improve hazard prevention and health and safety at work;

* to improve public image and public confidence.

v) The right to participate in Environmental Impact Assessments (EIAs) on both new and on-going projects at the local, national and international levels in order:

* to assess the overall effects of proposed or current project in terms not only of the natural environment but in terms of the effect on workers involved or likely to be affected.

* to make proposals for dealing with any hardships likely to be caused workers as a result of a proposed course of action.

* to make proposals for improvement or amendment to the form and/or content of an EIA in those instances where it is shown to be deficient in one or more respect.

vi) The right to participate - at the local, national and international levels - in decision making processes leading or likely to lead to changes in industrial structure and strategy as a result of environmental considerations or obligations - whether these decision-making processes are industry or government led.

Trade union priorities

Trade unions believe that so far as environmental issues are concerned, it is important that they be tackled at the international level as well as the local and national levels. There are a number of elements involved:

i) International trade has to be governed by international regulation such that minimisation of the use of non-renewable resources is encouraged and the use of scarce renewable resources (such as tropical timber) is either discouraged or maintained at a sustainable level. International trade agreements such as the GATT need to be completely revised to take fully into account the environmental aspects of international trade. A 'level playing field' has to be agreed globally so that social and environmental dumping are no longer acceptable ways of trading.

ii) The 'precautionary principle' and the 'the polluter pays principle' should inform environmental decision-making at the global level and need to be incorporated into the decision making processes of the international financial institutions and aid agencies.

iii) The 'human environment' has to be considered along with the 'natural environment' in the decision-making processes to ensure that measures

15GA/8.1(Final Draft)

ENVIRONMENT AND DEVELOPMENT: THE TRADE UNION AGENDA

The 15th World Congress of the International Confederation of Free Trade Unions, meeting in Caracas from 17 to 24 March 1992:

RECALLING resolutions on occupational health and safety and the environment, and on international cooperation for development, employment and an end to poverty, adopted by the 14th ICFTU World Congress meeting in Melbourne in 1988;

ENDORSING the ICFTU 15th World Congress report 'Environment and Development: The Trade Union Agenda';

ALARMED by the increasing evidence showing the extent and scope of global environmental damage and the likely effects of this damage on the health of the planet and survival of future generations; and by the fact that, despite the end of the cold war and the collapse of communist regimes in the former Soviet Union and the countries of Central and Eastern Europe, much needs to be done to eradicate the environmental threat posed by the continued production and stockpiling of weapons of mass destruction and the testing of nuclear weapons;

NOTES that in a world of finite resources there must be a reconciliation between growth and environmental protection - in particular regarding the exploitation of non-renewable resources and the invasion and abuse of the 'global commons' such as the atmosphere, water resources and natural ecosystems;

STRESSES that protection of the environment and sustainable development can only be achieved within the framework of fully responsible, democratic forms of government and an equitable, just economic world order;

WELCOMES the convening of the United Nations Conference for Environment and Development (UNCED) in Rio de Janeiro, Brazil in June 1992; and looks forward to the adoption of an 'Earth Charter' elaborating a series of global environmental principles;

PROPOSES the setting up of an international environmental court under the auspices of the United Nations;

URGES the United Nations, together with the ILO, to establish a tripartite body charged with follow-up activities arising out of the UNCED in Rio de Janeiro through:

- the promotion of the restructuring of production and employment;
- the participation of trade unions and employers in the global drive for sustainable development;
- the development and implementation of harmonized environmental guidelines;
- the provision by UN agencies of information demonstrating the social, economic and environmental benefits of clean production, products and activities; and the development of technical assistance for developing countries;
- an international fund to be used to support environmental initiatives such as research on clean technologies and the cleaning up of the environment - especially in developing countries;

CALLS upon all governments to cooperate fully in the elaboration and implementation of a global programme of action for environmental security and sustainable development;

PLEDGES the ICFTU to participate actively in the UNCED process up to and following the Rio Conference;

STRESSES the commitment by free and independent trade unions to the preservation and enhancement of the global ecosystem and the creation and maintenance of socially useful, individually fulfilling and environmentally sound employment as part of the drive for sustainable development in all countries;

BELIEVES that the free trade union movement has a uniquely important capacity and obligation in the field of environmental protection based on its role as a representative of working men and women at the workplace, in industry generally, on issues of national policy, and through the ICFTU, in the coordination of international action;

INSISTS that the world's environmental and developmental problems are linked not only with each other but with broader issues and, in particular, with the struggle for democracy, human rights, equity and social justice; and that imaginative new measures are needed to enable all countries to achieve the goal of sustainable development as soon as possible;

RECOGNIZES that a threat to the world's resources and to the global commons comes from the production and consumption patterns of the highly industrialized countries; that since some of the most serious environmental problems in the world are directly attributable to the pattern of development and consumption in the highly industrialized countries, these countries have a special responsibiity for the cleaning up of the global environment and for ensuring that the financial and technological means are made available to help the developing and formerly communist-controlled countries achieve sustainable development;

- recognize the right of workers' representatives to seek independent expert help if they so wish;

- recognize the right of workers, to refuse to undertake dangerous or environmentally unsound work, subject to independent arbitration where necessary;

FURTHER STRESSES the need for trade unions, as the legitimate representatives of the interests of workers, to be able to carry out their work free from harassment and interference from government, and for workers to have full rights of freedom of association as well as the freedom to organize and bargain collectively;

WELCOMES the ILO Director-General's 1990 Report 'Environment and the World of Work' and calls on the ILO to extend and strengthen its environment-related work in order to give full effect to the proposals and recommendations contained in the Report;

REAFFIRMS the trade union conviction that conversion programmes for the arms industry and military establishments should place special emphasis on using the skills of the workers concerned on socially useful, sustainable activities; that future research and development including those resources previously devoted to military purposes should be directed towards environmentally progressive ends such as the development of efficient public transport systems, the conservation of energy and the development of renewable sources of energy, the reduction of all pollutants - with an emphasis on the 'greenhouse gases' together with the minimisation and treatment of all types of waste;

DEMANDS that governments in all industrialized countries commit themselves to the elimination of the production and use of ozone-destroying CFCs and that wide ranging efforts are made to ensure that new technologies are made available to developing countries to enable them also to eliminate the use of such CFCs;

INSISTS that all governments accept their environmental obligations by adhering to national and international treaties, accords, protocols and conventions;

EMPHASIZES the need for all governments to work towards global cooperation on environmental and developmental issues and to commit themselves to the enhancement and reinvigoration of the United Nations system with particular regard to standard setting, monitoring and enforcement procedures in order to ensure that standards are universally applied;

DEPLORES the granting of aid and assistance for projects which are environmentally damaging and for development which is unsustainable and calls for the elaboration of global rules of procedure on the granting of aid and donor funding based on Social and Environmental Impact Assessments (SEIAs);

SUPPORTS the principle of environmental conditionality which should be developed so as to encourage the progressive introduction of environmental standards into international aid and donor funding;

EXPRESSES concern that the current internationally recognized system of national accounting includes little or no consideration of environmental costs often resulting in an overestimate of a country's real economic growth and the underassessment of the cost of environmental degradation; accordingly, supports the efforts being made by the United Nations to develop a system of international accounting for environmental costs and benefits;

PROPOSES that discussions on international trade matters, particularly within the framework of the General Agreement on Tariffs and Trade (GATT) and the Generalized System of Preferences (GSP), should be started to elaborate measures which would prevent countries gaining competitive advantage by refusing to observe international environmental standards;

CALLS on free and independent trade unions all over the world to continue to work towards the realization of harmonized policies designed to protect the environment and achieve sustainable development and to:

- develop local, national and international policies aimed at ensuring that the trade unions play a full and active role in the debate on environment and development;

- develop education and training programmes designed to raise awareness and skills amongst trade union members and officials on environmental issues - especially as these relate to employment, and health and safety matters;

- ensure that international trade union solidarity funding and other assistance is provided so that trade unions in developing and formerly communist-controlled countries can develop their own competences, programmes and strategies; and

- press their respective governments to ratify ILO Convention 170 concerning Safety in the Use of Chemicals at Work;

COMMITS the ICFTU to an extended programme of environmentally related activities and, in particular:

- a continuation and broadening of the work of the ICFTU/ITS Occupational Health, Safety and Environment Working Party through, inter alia, continued cooperation with the TUAC-OECD, ETUC and the ICFTU's regional organizations;

- the development and extension of ICFTU input into the activities of international organizations working towards the goal of sustainable development;

- the organizing of a series of high level meetings with key international agencies to present ICFTU policies and, in particular, the case for increased recognition of the trade union role in environmental protection and sustainable development;

- a special emphasis on the work of the ILO in following up the excellent 'Environment and the World of Work' report of the Director-General to the 1990 ILO Conference;

- the publication of ICFTU occasional papers and policy statements dealing with environmental issues and the creation and maintenance of a directory of trade union specialists in the field of occupational health, safety and the environment;

- the holding in 1993 of an international, high level, trade union conference on 'Environment Employment and Economics' as part of the international trade union movement's coordinated follow-up activities to the UNCED;

- the extension of the ICFTU's work with ITS, particularly in the field of nuclear safety, the production and use of chemicals, forestry and the transport of hazardous materials;

- the raising at international conferences, symposia and meetings of the trade union perspective on environmental issues;

- the development of an electronic information network designed to provide rapid contract, communication and information exchange between the ICFTU, its affiliates and the associated ITS on health, safety and environmental issues;

- the production of a detailed report on the progress made by the ICFTU in the environmental field for presentation to the ICFTU 16th World Congress;

- the integration of the concept of sustainable development into all ICFTU projects, programmes and educational work with particular attention being paid to the needs of the workers in developing countries so far as these differ or conflict with ideas and policies developed in the highly industrialized countries;

- the further development of initiatives designed to raise media and public profiles of the ICFTU with regard to environment and development issues.

International Confederation of Free Trade Unions

CLIMATE CHANGE AND JOBS:
TOWARDS A STRATEGY FOR SUSTAINABLE EMPLOYMENT

TRADE UNION STATEMENT TO THE KYOTO CONFERENCE (DEC. 1997)

Time for action

1. The world is painfully awakening to the reality of climate change. El Nino, and the drought which contributed to the persistence of the catastrophic forest fires in Indonesia, is widely thought to be a precursor of the sort of extreme climatic event which may become all too common in the next century. The Kyoto Conference is therefore a vital opportunity for governments to set out a strategy for the international control of emissions that contribute to global warming. Ministers face the challenge of finding a consensus for action now that will avert the threat of major disruption to the lives of the next generation, but which calls for large scale changes in industry and employment over the next decade. Trade unions are concerned about the job losses and other costs that will be caused to workplaces and communities by measures designed to meet current and more ambitious post-2000 targets and deadlines, but are also well aware that failure to plan for deep cuts in greenhouse gas emissions will also have grave consequences for working people and their families.

The danger of policy conflicts

2. Forging an international agreement on the targets for cutting greenhouse gas emissions and their implementation is proving to be one of the most difficult problems faced by governments at the present time. Ministers face the dilemma of making commitments that meet the imperative of action to slow down and arrest global warming but do not compromise the economic growth needed to reduce unemployment and poverty. There is a grave danger that environmental and employment policies will be pointing in contradictory directions. Yet in the debates about what should be the global programme on climate change, there is very little discussion of what constitutes a sustainable employment strategy. Coincidentally, employment ministers are also meeting in Japan at the G8 Employment Summit in Kobe only two weeks before the Kyoto Conference, but they too are not expected to discuss the implications of environmental policies for jobs either. This trade union statement therefore focuses on some of the key considerations for a sustainable employment policy which are essential for a credible international effort to reduce and arrest climate change.

The scale of the environmental problem

3. The Assessment Reports of the Intergovernmental Panel on Climate Change (IPCC) issued in 1990 and 1995 confirmed that human activities have already begun to affect the world's climate. In particular, emissions of greenhouse gases (GHG), primarily carbon dioxide (CO2), but also

others such as methane (CH4), and nitrous oxide (N2O), are producing a thickening blanket of gases around our planet, which absorbs infra-red radiation from the sun, and prevents excess energy from escaping our atmosphere. Both the European Commission and the IPCC predict that CO2 emissions will increase world-wide by 36-55% over 1990 levels by 2020, led by sizeable increases (58-76%) in non-OECD countries, thus doubling pre-industrial CO2 concentrations by 2030, and trebling them by 2100.

The consequences of inaction

4. Predicted consequences can no longer be ignored: e.g., rising sea levels, regional and seasonal warming, disruption of precipitation patterns, threats to food and water supplies, illnesses, ecosystem disturbances, and climate extremes and disasters. It is particularly sobering that even an immediate cut in global greenhouse gas emissions would not fully prevent these impacts, as they would only be stabilised at double their pre-industrial concentrations sometime in the 22nd century if emissions are immediately reduced to less than 30% of current levels.

A failure to consider the employment effects

5. Governments and other decision-makers have been far too slow to respond to the growing threat of climate change. Trade unions are concerned that, for the most part, policy-makers have not considered the impact it may have on workers and workplaces. As a result, working people around the world could well find themselves bearing a disproportionate share of the direct and indirect costs of either dislocation as a result of failure to arrest global warming or of large scale changes in employment structures as a result of action to reduce emissions. Because of a lack of research, we cannot predict with any certainty the possible effects on employment patterns and communities of continued climate change or of policies to counteract global warming. Precious time needed to plan for change is being lost. Furthermore the underlying problem of the social and economic consequences of environmental policy is being ignored, thus leading to divergent views about what needs to be done and what is politically feasible.

PHYSICAL DISLOCATION AND EMERGENCY MEASURES

Potential impact of climate change on workers and their families

6. It is estimated that rising sea levels could create a potential 60 million environmental refugees by the year 2030, as 70 per cent of the world's population live and work within 60 kilometres of the coast. If this is the case, workers and their communities will bear the cost of disruption caused by: preventive measures or measures to reduce losses to tolerable levels; measures to spread or share losses, as through government disaster relief; adaptive changes, such as the re-fitting of production, and the restoration of damage caused by the effects of climate change. Other costs that may be more difficult to quantify could include: ill health, lifestyle deterioration, disruption of food and water supply, and the other effects.

DISRUPTION TO EMPLOYMENT PATTERNS

Spreading the burden across the generations

7. It is crucial that losses resulting from measures to mitigate effects of climate change be distinguished from losses resulting from measures to reduce greenhouse gas emissions and other "interventions". While job loss caused by positive measures may be substantial, the ultimate cost of inaction could be even higher, if it includes such contingencies as: relocation of workplaces, restoration of contaminated aquifers, wildfires, and physical destruction caused by unprecedented weather extremes. Given the paucity of research, however, we cannot accurately predict the cost in jobs involved. An additional problem is that the effects of inaction on climate change will build up over the longer term affecting the next generation of workers acutely, while preventive action will have a more immediate effect on today's workers.

The front-line sectors

8. As the vast majority of greenhouse gas emissions come from the manufacturing industry, energy production and supply, as well as from transportation and construction sectors in industrialised nations, workers in these sectors are most at risk from proposals to reduce emissions. The first studies conducted in the US and the EU provide a glimpse of the potential employment impact of interventionist policies. One commissioned by the US Department of Energy and prepared by the Argonne National Laboratory, for example, estimates job losses of over 340,000 in some US industries alone, to meet targets set in 1995 in Berlin. When indirect losses are included, the total figure could be well over 900,000 jobs. While some job loss may be balanced by new job creation in "green" industries, there is no basis for predicting that such employment can do more than marginally offset the tremendous job losses that are likely to occur.

OVERCOMING GRIDLOCK: THE NEED FOR POSITIVE ACTION

Building consensus

9. Over twelve years have passed since the Vienna Convention for the Protection of the Ozone Layer provided the world's first climate protocol, and a full five years since the UN Framework Convention on Climate Change (FCCC) provided a basic framework for an international response to climate change. However, in spite of growing recognition of the threat of climate change, progress towards firm agreements or concrete action has been mired in debate and deadlock. A clear position must be developed on the core issues.

Target-Setting

Targets and the perception of what is needed and what is possible

10. There is a growing consensus on the need for higher target levels for reduction of greenhouse gas emissions, but little agreement on how these targets should be defined or performance

measured. As well, even the most ambitious targets being proposed would not fully prevent climate change impacts, only postpone them. Expanding economies and growing populations will require dramatic and fundamental changes in production and consumption patterns.

Even modest targets have major job consequences

11. Whatever targets are decided, trade unions intend to insure that employment transition issues are dealt with in an international context. Resistance to high targets will come from those sectors which will suffer most and, given crisis levels of global unemployment, may be opposed by workers unless strong employment transition measures are part of target-setting. Proposals to soften the effect of targets on companies through such mechanisms as "tradable permits", could result in the closure of industries in one country to allow an increase emissions in another.

TARGET IMPLEMENTATION

Failure to implement existing targets

12. The record of FCCC Parties to date in meeting agreed targets is of major concern. The sad truth is that, by the time of the Third Conference of the Parties takes place in Kyoto, no Annex 1 Party will have achieved the 1990/2000 targets on account of policies explicitly addressing climate change. This can only call into doubt the value of adopting yet another "protocol" or legal instrument.

Targets for developing and transition countries

13. Needed changes have been slow to come, especially in operations that require high energy or resource inputs, or that deplete the "carbon sinks" in forests and oceans. As well, there is considerable reaction to the prospect of granting developing countries preferential treatment with respect to targets and deadlines, that could nullify the effect of positive action undertaken by Annex I countries. Unfortunately, it has not been adequately communicated that the Kyoto discussions will also deal with commitments for these countries. Of concern, as well, are targets and plans for the "emerging states" of Central and Eastern Europe and the former Soviet Union. Industrialised country financial support for action on emissions in the developing world is vital to a serious effort to change development strategies.

PAYING THE BILLS

Social equity and environmental policy

14. Costs involved with climate change can be grouped in four categories:

Emergency Response and Disaster Relief;
Employment Pattern Disruption and Transition;
Restoration and Repair; and
Prevention and Restructuring.

If history is any guide, workers have good reason to fear that most of these costs will be born by them. As existing programmes and insurance schemes become increasingly inadequate, governments at all levels will come under pressure to assume greater responsibility for compensation measures, mitigation programs and reparation of damage. National revenue schemes must be reviewed, as must be the role of transnational corporations in any proposed solutions.

Ensuring a just transition

15. Throughout this, workers will demand an equitable distribution of costs through "Just Transition" policies that include measures for equitable recovery of the economic and social costs of climate change programmes. Companies, which have profited from unsustainable practices must assume their share of responsibility, but any mechanism to insure this must be carefully structured to avoid further adverse employment effects.

TOWARDS A STRATEGY FOR SUSTAINABLE EMPLOYMENT:

A Trade Union Plan of Action

Avoiding the dilemma of jobs versus the environment

16. The ICFTU, through its Working Party on Occupational Health, Safety and the Environment is developing trade union proposals to meet the challenge of climate change and other environmental imperatives. Our over-riding concern is to try as far as possible to ensure that action to prevent environmental degradation and to clean up the damage of the past is consistent with the goals of full employment and the eradication of poverty. This will not be achieved by relying on market mechanisms or by suppressing workers legitimate concerns about their jobs. It will require careful planning by governments, employers, trade unionists and all those concerned about the environment. We believe that trade unions acting with employers at the workplace can ensure that global targets are translated into action in a socially and environmentally sustainable fashion.

Coordinating environmental and employment policies

17. Climate change and measures to mitigate its effects will have a major impact on workers' jobs, working conditions and personal lives and property, as will interventionist measures to combat it. Employment cannot therefore fail to be a key issue for governments, employers and trade unions, as even the most modest targets will carry significant employment implications. Governments and business must begin now to fashion transition and conversion programmes, and trade unions must be in the forefront to ensure that these adequately address the issue of losses to workers' jobs and the communities.

Research on employment vital

18. The ICFTU urges decision-makers at COP-3 to initiate large-scale detailed studies of the employment implications of any targets they adopt. The ILO should be asked to establish a tripartite team to work on sustainable employment programmes to be part of climate change programmes. Trade unions are ready to work with the ILO and other agencies to ensure that such a study stimulates greater awareness of the challenges it is sure to identify. Trade unions will also work to influence public policy by collaborating with other sectors in society.

Recognition of employment issues vital to action on climate change

19. Trade unions believe that it is necessary to reach consensus on the need for regional and international targets for greenhouse gas emissions, and later on specific levels as they are shown to be necessary. At all times, our support for targets that affect the workplace and community will be contingent on the existence of "just transition" measures that provide, as a minimum: income protection, redundancy procedures, re-employment, and education and re-training.

Social partnership for action on emissions

20. As the need for quantum leaps in changes to unsustainable patterns become more pressing, the contributions that trade unions can make in the setting of targets and implementation of measures in the thousands of workplaces they have organised around the world will be increasingly recognised. Trade unions, through the ICFTU and the International Trade Secretariats that group unions by sector internationally, are prepared to become increasingly involved in international and national target setting decision-making, and implementation measures.

Sustainable employment and development

21. Developing countries must be encouraged to participate for two reasons. Firstly, emissions from these countries are rising fast and will soon reach significant levels. Secondly, once locked into a high emissions development pattern, it becomes increasingly costly to break out of it. As prime contributors to global warming, however, industrial countries have a responsibility to take the lead, both by cutting emissions and by providing financial and technical assistance.

Translating global targets into action at the workplace

22. The disruptive and costly effects of both climate change and measures to combat it can be reduced significantly if trade unions are involved. They can play an important role in initiating workers participation at the workplace, in the community and nationally, as they have already demonstrated through other Agenda 21 initiatives. Collective bargaining has proven to be an effective means for resolving conflict and establishing processes to achieve environmental objectives. As well, education program are important to workplace initiatives for climate change, as many of our members have yet to be convinced of the threat posed by climate change and the efficacy of programs to counter it.

Worker participation in eco-auditing

23. Trade unions have already proven that such tools as the workplace eco-audit are suited to the reduction of greenhouse gas emissions and energy conservation. The eco-audit promotes enterprise-level plans of action in which unions work closely with employers to monitor progress and make suggestions for improvements, review plans annually, and revise targets. They also fit in well with systems for national and international reporting. Comprehensive programs such as the 6E developed by the white-collar workers union TCO in Sweden have shown that trade unions and employers can establish joint environmental policies and set priorities to improve the working and overall environmental performance of the enterprise.

The international voice of the trade unions

23. The ICFTU, its affiliates and International Trade Secretariats will continue to press for responses that address climate change in a way that is equitable to workers and their communities. We intend to present our ideas to the Third Conference of the Parties in Kyoto, Japan, as well as at subsequent meetings, such as the Environment Ministers of the OECD in March 1998.

Growing recognition of the role of trade unions on the environment

24. The trade union position on climate change asserts the central role of workers, trade unions and workplaces in achieving Agenda 21 objectives, and has already received recognition in a number of fora, particularly at the United Nations, where the ICFTU has been asked, once again, to participate in the Sixth Session of the Commission on Sustainable Development in New York in April 1998. An ICFTU delegation will make presentations during a 2-day session on the role of Industry, in co-ordination with Business, the NGO's, and the United Nations (through the Commission on Sustainable Development).

Practical politics

25. At the CSD, as at all other fora, we will be seeking for recognition and support for the participation by workers and their trade unions in environmental programmes from the UN level to the workplace. We believe that it is the only way in which just and adequate solutions can be found to the problems posed by climate change, and thus a broad base of political support for action on climate change developed.

ICEM

International Federation of Chemical, Energy, Mine and General Workers' Unions
Fédération internationale des Syndicats de Travailleurs de la Chimie, de l'Energie, des Mines et des Industries diverses
Internationale Föderation von Chemie-, Energie-, Bergbau- und Fabrikarbeitergewerkschaften
Internationella Kemi-, Energi-, Gruv- och Fabriksarbetarefederationen
Federación Internacional de Sindicatos de Trabajadores de la Química, Energía, Minas e Industrias Diversas
国際化学エネルギー鉱山一般労連

Hans Berger, *President* • Victor E. Thorpe, *General Secretary* • Peter Michalzik, *Deputy General Secretary*

Kenneth S. Zinn
North American
Regional Coordinator

Climate Change Resolution

Resolution approved by Executive Committee of the International Federation of Chemical, Energy, Mine and General Workers' Unions (ICEM) meeting in Cairns, Australia, June 10, 1997

The nations of the world are involved in United Nations negotiations pursuant to the Berlin Mandate for amendment to the Framework Convention on Climate Change (Rio Treaty).

In view of the far-reaching implications of this Convention, not only for the future of the planet, but also for the livelihoods of workers involved in the resource and energy-using industries, and for global economic growth, the ICEM calls upon the parties to the Framework Convention on Climate Change to insist upon a treaty amendment that:

1. Places the highest priority on the needs of workers and consumers who will shoulder the greatest burdens of efforts to address global climate change.

2. Promotes improvements in energy efficiency in all countries, and provides assistance for this purpose to developing countries.

3. Includes the protection of existing jobs and the creation of new ones, and the improvement of living standards in all countries as a critical goal to be met in any climate treaty.

4. Provides adequate time for both developed and developing countries to meet the needs of the environment and the needs of working people.

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RESOLUTION FROM THE TRADE UNION COUNCIL 1997 CONGRESS

C15 Environment

Motions 69, 70, 71, 72, and 73

Congress recognises the importance of the major environmental considerations arising out of the 1992 Rio Earth Summit and notes that these issues will be revised at the Kyoto summit later this year.

Congress is concerned that, despite the efforts of the UK Government, the UN session in New York demonstrated a clear lack of progress on issues of global environmental importance. The government is urged to take every step to enhance international commitment to the environment at Kyoto.

Congress welcomes the commitment given by the Government to integrate environmental concerns into all aspects of policy making. The General Council is instructed to make urgent representation to the Government to ensure:

i) the UK maintains a strong base of research into climate change, as recommended by the recent report of the Science and Technology Committee into *The Natural Environment Research Council and Research into Climate Change*;

ii) the role of employees and their trade unions as environmental stakeholders in the workplace, local communities, and nationally is fully recognised and that mechanisms are established at all levels to provide full and meaningful consultation on environmental issues;

iii) targets on CO_2 emissions are met by means of a balanced and equitable energy policy, giving greater emphasis to renewable energy sources, and not simply at the expense of the UK mining and coal generation industries;

iv) an integrated transport strategy covering road, rail, air and water is developed as a matter of priority for reducing greenhouse gas emissions and to ensure that a fair proportion of any CO_2 emission reduction target is borne by private motorists, taking into account the essential needs of less populated rural communities that are unlikely to be prioritised for public transport investment;

v) the consequences for employment of moving to greener growth are rigorously evaluated and measures introduced to protect the interests of employees affected; and

vi) the Government sets a good example to other employers by conducting and acting on environmental audits of civil service departments and agencies.

Congress notes the failure of the previous Government to recognise the potential contribution of waterborne transport to 'greener' transport policies, and calls for measures to safeguard and arrest the decline of the British merchant fleet; ensuring that the UK retains a safe and efficient shipping industry with the necessary levels of maritime skills and expertise.

Congress also notes that globally coal will remain the dominant feed stock for electricity generation with demand set to increase substantially in the third world. Congress notes that in large degree the UK's success in reducing CO_2 emissions has largely been at a price of colliery closures in 1993.

Congress is aware that the existing contracts for the supply of coal to electricity generators will come to an end during 1998. Congress is also aware that the Prime Minister has committed the United Kingdom to achieve a 20% reduction in CO_2 emissions over the next 12 years and that the reason why the United Kingdom was able to meet its last set of targets was largely related to the artificially imposed 'dash for gas'.

Congress is appalled at the proposal for a Council Directive prepared by the European Commission relating to the emission of acid gasses such as sulphur and nitrogen oxides. If implemented, Britain would pay half the total

EU costs and it would lead to the premature closure of all remaining pits and remaining coal-fired power stations before the expiration of their design lives, resulting in substantial economic disbenefits to the UK's national interests. This is of particular concern as it appears that the EU's proposals have been based on inadequate scientific analyses and would deliver no discernible benefit. The General Council is instructed to press both the DTI and the Department of Environment to block this destructive proposal in its present form, and demand that a scientifically rigorous cost benefit analysis be undertaken by the European Commission before any further proposals are promulgated.

Further, the General Council is instructed to brief all MEPs on the destructive nature of this proposal to the UK's national interest and to the disproportionate advantage of other EU member states.

Congress is concerned that Britain's pre-eminence in the development of new environmentally friendly clean coal technologies may be compromised by recent emission constraints issued by the Environment Agency. It is also concerned that recent proposed European directives COM(97)30 and COM(97)88 could further damage the ability to develop new technologies, which if sold to the third world would have an environmentally beneficial effect of reducing anticipated future emissions.

Congress calls for economic and environmental agencies at all levels to co-ordinate their work better to achieve a correct balance between the environment and economic growth, and to ensure that all sectors of the economy bear reductions in emissions which are proportionate to the sector in question.

The TUC report *Trade Unions and the Environment - A Multi-Stakeholder Initiative* is a useful starting point for further work in this area, on which the General Council is asked to report to Congress in 1998.

In addition the General Council and affiliates are urged to:

a) ensure that the UK Government continues to take a strong stand on global, European and UK environmental standards, targets and enforcement; and

b) use all other national and international channels available to secure a successful outcome to the World Environment Conference (Kyoto) in December 1997.

Mover: ***Institution of Professionals, Managers and Specialists***

Seconder: ***Engineers and Managers Association***

Supporters: ***British Association of Colliery Management***
National Union of Marine, Aviation and Shipping Transport Officers

C16 Equality legislation

Motion 87 and amendments

Congress notes the importance of making adequate provisions for paid time off for those with caring or parental responsibilities, and the need for comprehensive civil rights legislation for people with disabilities.

Congress further recognises the complexity and limitations of current rules associated with these issues, including for example, those concerning maternity rights; and the negative effect these can have on the economy in keeping the vital skills of women workers.

Congress recognises that many women are trapped in low paid, part-time work because of the structure of National Insurance. With a national minimum wage there is a danger that some employers will trap women into working very short hours to ensure that they do not earn above the Lower Earnings Limit and National Insurance payments are avoided. This distortion to the labour market is inefficient, and creates costs to the Exchequer in lost tax and National Insurance receipts and additional payments on in-work benefits. Congress believes that legislation should provide for all workers to qualify for benefits currently linked to the Lower Earnings Limit.

Congress notes the outcomes of recent successful equal pay claims. In most cases these could not have been made without the backing of a trade union, and Congress congratulates affiliates for their positive approach towards equal pay which is one of the most important industrial issues facing women members.

Congress condemns the fact that some cases are taking over ten years to be settled, and calls for legislation to strengthen and streamline equal pay as a priority. In particular, this must include a new collective right to redress and a requirement for employers to carry out pay audits jointly with the trade union.

Dom Studies

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20502

May 14, 1998

FILE

MEMORANDUM FOR TODD STERN

FROM: ROSINA M. BIERBAUM RB

'98 MAY 15 AM9:39

RE: *Our Changing Planet*, FY99

CC: Jonathan Adashek

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Attached please find the FY1999 edition of *Our Changing Planet*, the annual report of the interagency US Global Change Research Program (USGCRP). This document, mandated by Congress, provides an overview of the government's scientific research activities, including research on climate change and climate variability, such as the El Niño phenomenon.

One of the most exciting new projects underway in the USGCRP is the first National Assessment of the Consequences of Climate Change for the U.S. The National Assessment will examine the potential impacts of climate change on various regions of the country, and will also address the vulnerability of human health, coastal areas, forests, agriculture, and water resources due to climate change. We expect a National Assessment synthesis report to be issued at the end of 1999.

Our Changing Planet will be distributed to Congress over the next few days with a cover note from Bob Corell, Chairman of the Subcommittee on Global Change. If you have any questions please call me at 456-6077.

(*Note*: The USGCRP is a science program & has nothing to do with the Climate Change Technology Initiative, which is energy-focused.)