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PRESIDENT'S COUNCIL ON
SUSTAINABLE DEVELOPMENT

730 Jackson Place, NW Washington, D.C. 20503
Tel: 202/408-5296 Fax: 202/408-6839

97 JUL 18 PM2:13

Outreach

FAX TRANSMITTAL COVER SHEET

TO: The Honorable Todd Stern
FAX #: (202) 456-2215
FROM: Christine Ervin
DATE: 7-18-97
NUMBER OF PAGES TO FOLLOW COVER: 3

COMMENTS:

Thank you,
Bethelene J. Lawrence



**PRESIDENT'S COUNCIL ON
SUSTAINABLE DEVELOPMENT**

To: Todd Stern
Staff Secretary and Assistant to the President

From: Martin Spitzer *Martin*
Executive Director

Subject: PCSD and Climate Change

Date: July 18, 1997

Thank you for taking the time to meet on Tuesday. The discussion about the President's Council on Sustainable Development's potential role in shaping a successful climate change strategy was extremely productive. We believe that the nature of a multi-stakeholder presidential advisory council lends itself well to tackling the issue of climate change.

Attached is a list of ideas of how PCSD can help build support for a successful U.S. position on climate change. We look forward to your comments and await your direction.

cc: Katie McGinty
Dirk Forrister
David Sandalow

Attachment



**President's Council for Sustainable Development (PCSD)
Potential Role in Brokering A Successful Climate Change Strategy**

The PCSD can play a particularly useful role in broadening public and business community support for a successful U.S. position on climate change in Kyoto and beyond. Several features of the PCSD make this unique contribution possible:

- high-profile group of executives from business; multiple levels of government; and environmental, community, and other diverse organizations.
- nonpartisan
- proven track record in brokering consensus on difficult issues, showcasing successes in private and public sector, and in elevating sustainability issues in media.
- can serve as locus for unusual partnerships across interest groups
- can add transparency in climate dialogues to help allay business concerns
- can "filter" potentially controversial issues or act as sounding board
- can link Kyoto position into longer-term process to provide more certainty to business community.

The Council will need visible empowerment from the White House to mobilize its members for the following kinds of activities.

September 21-23 Council Meeting: The next scheduled Council meeting in Tulsa, Oklahoma has the potential to be a high-profile event in the "heartland" leading up to the White House conference in early October. Plans call for a major public dialogue and media opportunity centered around a series of expert briefings on the geopolitics of climate change, state of the science, technologies of the future, and market-based policy instruments including emissions trading. A roundtable with the local agricultural community will be held also to explore potential impacts of climate change on agriculture as well as opportunities for farm-based technologies to be part of the solution (i.e., changes in cultivation that simultaneously conserve water, chemical additives and carbon; raising crops to provide fuels, electricity, and substitutes for synthetic chemicals). A second roundtable with independent oil producers based in Oklahoma is being considered also.

"Climate Change Principles": The Council will begin crafting a set of principles for guiding U.S. climate strategies for public release before Kyoto--possibly at the Tulsa meeting. Such a statement from a broad-based and prestigious group could help demonstrate a broader foundation of support for climate change as sought by the President. Principles could address, for example, the compelling nature of the science, the importance of market mechanisms, the critical role of technology, the sound business sense in taking prudent action (per economist statement), and the role of the U.S. vis a vis developing countries.

November Council Meeting: A second Council meeting can be organized in another region, such as the Great Lakes, to fall between the White House Conference and Kyoto.

Business and Education Outreach: Since the Council includes CEOs from seven corporations (including British Petroleum, ENRON, and General Motors), its members can provide an immediate bridge to other CEOs. This outreach can be within particular sectors or innovative partnerships across businesses one would not ordinarily link. With special empowerment from the White House, the Council could engage the Business Roundtable in a dialogue about ways to avoid risks from climate change and to position themselves for a transition to a low-carbon economy. Because of its collective high profile, the Council can also engage major educational networks, like the federal extension service or small business association network, to raise public awareness about climate change.

Regional/Local Roundtables: A successful effort to engage the American public will make climate change a personal and local issue. Short of the full Council, groups of Council members can hold special roundtables around the country to bolster public discussion and conduct outreach to special interest groups as resources and time permit. Examples include:

- Use Council members to showcase and bring media attention to some of the 40 U.S. cities which have joined an international network of cities dedicated to doing their part to reduce greenhouse gas emissions. This is an excellent opportunity to bridge the gap between global warming and hometown USA by featuring "local heroes."
- Use Council members to heighten media coverage of innovative actions at the state level. For example, a workshop is already planned in November to highlight New Jersey's steps to protect their coastline from potential losses associated with climate change. Several members could also showcase Oregon's precedent-setting legislation requiring all new power plants to meet performance standards for carbon dioxide.
- Couple outreach sessions to one or more of the existing science-based workshops organized by the U.S. Global Change Research Program to examine regional vulnerabilities to climate change. Three workshops are currently scheduled in September in Arizona, New Hampshire, and Pennsylvania. Seventeen more are scheduled over the next 12 months.

* * *

Attachment A

POSSIBLE CORE INDUSTRY LEADERS GROUP
FOR STEP 2

Energy Sectors

- British Petroleum (John Browne)
- American Electric Power (Linn Draper)
- Ken Lay (Enron)
- PacifiCorp (Fred Buckman)

Manufacturing Sectors

- Lockheed Martin (Norman Augustine)
- DuPont (John Krol)
- Honeywell (Michael Bonsignore)
- Alcoa (Paul O'Neill)
- Georgia Pacific (Pete Corell)
- Holman Inc. (Paul Yhouse)
- UPS (Jason Kelly)
- FMC Corp (Robert Burt)
- General Electric (John Welch)

Financial/Insurance Sectors

- Employers Reinsurance (Kaj Ahlman)
- American Insurance Group
- Soloman Brothers

D. Industry: Manufacturing

*Alcoa (Paul O'Neill)
Dupont (John Krol)
*Lockheed/Martin (Norm Augustine)
Georgia-Pacific (Pete Correll)
FMC (Robert Burt)
Honeywell (Michael Bonsignore)
General Electric (John Welch)
Corning (Roger Ackerman)
Motorola (Christopher Galvin)
Bechtel (Riley Bechtel)
*USX (Tom Usher)
Steel Dynamics (Keith Busse)
Holnam Inc. (Paul Yhouse)
? Telecommunications
 AT&T ()

E. Transportation

NOTE: POTUS to meet with Big 3 in July?

UPS (Jason Kelly)
*Ford (Alex Trottman)
*General Motors (John Smith)
*Chrysler (Robert Eaton)
Boeing (Philip Condit)
Delta (Ronald Allen)
CSX (John Snow)

*=also on Daley's list of potential invitees

Attachment B

Roosevelt Room Roundtables
Organizations and CEOs**A. Environmental Groups**

NRDC (John Adams)
Sierra (Carl Pope)
EDF (Fred Krupp)
WRI (Jonathan Lash)
UCS (Bud Ris)
WWF (Katheryn Fuller)
? Greenpeace (Barbara Dudley)
Physicians for Social Responsibility (Robert Musil)

B. Labor

AFL-CIO (John Sweeney)
AFL-CIO (Richard Trumka)
OCAW, Chemical and Atomic Workers (Bob Wages)
IBEW, Electrical Workers (Jack Barry)
UMW, United Mine Workers (Cecil Roberts)
UAW, United Auto Workers (Steve Yokich)
Steelworkers (George Becker)
Boilermakers (Charlie Jones)
Building Trades (Bob Gorgine)
Transportation Trades Department (Ron Carey)

C. Industry: Energy

*BP (Steve Percy)
AEP (Linn Draper)
PacifiCorp (Fred Buckman)
*Enron (Ken Lay)
Shell (Phil Carroll)
TVA (Craven Crowell)
Cinergy (Jim Rogers)
Peabody Coal (Irl Englehardt)
*Amoco (Larry Fuller)
AES (Roger Sant)
Philips Petroleum (W. Wayne Allen)

Draft 7/15

Predecisional draft -- do not cite or quote

OPTIONS FOR ENGAGING KEY CONSTITUENCIES

OPTION 1: DEVELOP CORE INDUSTRY SUPPORT GROUP: EXPAND FROM THERE

Step 1: Hold two roundtables with leaders from (1) environmental/religious groups and (2) labor unions -- involve Cabinet members; President or Vice-President drop-by in Roosevelt Room.

- discuss policy framework and options
- identify key areas of agreement/disagreement
- establish staff level working groups to maintain dialogue, resolve issues and coordinate activities

Step 2: Meeting with 10 CEOs from key industry sectors who appear committed to action on climate change -- in Oval Office with President (see list in attachment A).

- review current policy framework
- identify points of agreement/disagreement
- work toward consensus policy framework
- identify coordinated strategy to reach out to others in industry
- define roles for them (as champions) and support from Administration
- establish staff level working group for follow-up
- work toward show of strong support for policy WH Conference

Step 3: 3 Follow-Up Meetings with Expanded Industry Groups -- in Roosevelt Room with Cabinet Secretaries (sample lists in attachment B).

- divide industry into sectors: energy producers/utilities; manufacturing; and insurance/financial
- core industry group serve as leaders in identifying participants and working toward resolution of issues

Step 4: WH Conference brings together scientists, industry leaders, environmentalists, religious leaders, and union leaders.

OPTION 2: HOLD ROUNDTABLES WITH KEY SECTOR GROUPS

Same as Option 1 without Step 2.

**White House Climate Change Task Force**

734 Jackson Place, N.W. • Washington, DC 20505

FAX**To:** TODD STERN**Organization/Title:****Fax:** 456 2215**Phone:****Pages (including cover):****Date:****From:** DIRK FORRISTER**Phone:**

Message: As promised, here is an improved draft of our industry outreach options. The sample industry lists are attached. Let me know if you have questions or want to discuss.

Also, we're drafting a sample letter for you to send to those you met with last week. It makes the doc's available here at Task Force HQ at 4 pm today. If you approve, I hope your team there can put it on WH letterhead & give us a copy to fax out (unless you want to handle).

- Dirk



INTERNATIONAL CLIMATE CHANGE PARTNERSHIP

ICCP 1997 MEMBERSHIP LIST

- 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
- Association of Home Appliance Manufacturers
- 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 (CEFIC) - European Fluorocarbon Technical Committee (EFCTC) 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

Jonathan A. Events
Outreach from OSTP

Climate Event Ideas From OSTP

Options for Enhanced Outreach: Background information is needed to facilitate the effective planning of future events: Where does each Senator stand on the issue? Where do the top 500 corporations stand (and most importantly, where do the Administrations allies stand)? How do these map geographically? Do the trade associations actually matter, and where do they stand?

A number of events could be useful over the next several months:

1. Industry/government roundtables hosted by Cabinet level or above officials could provide a forum for explanation of Administration positions and an opportunity for private sector input into final Administration decisions on targets, timing, and implementation.

There are a number of ways these could be designed:

- On a state by state basis, targeting key states where support is needed.
 - On a regional basis, especially where business stakeholders exert regional influence.
 - On a political basis, to solidify existing supporters, convince "fence sitters," and isolate critics.
 - On a sectoral basis, with message focused on benefits and or/assistance as appropriate.
2. A series of technology demonstration events with friendly companies and/or sectors could be defined, such as the POTUS solar shingle event that was never implemented. These would provide photo and sound bite opportunities.
3. We can also have a series of "impacts example" POTUS and VPOTUS photo and statement opportunities, such as a visit to a Mt. Rainier glacier, statements about floods and other extreme weather events, statements about sea-level rise vulnerability when visiting coastal areas, etc. We could also give regional recognition for climate mitigation achievements, such as Portland OR making major GHG emissions reductions.
4. A series of agency led events could be defined and implemented, with agencies conducting focused outreach to their own constituencies (see attached list).
5. A complimentary set of workshops can be arranged by federal agencies that would focus on the mitigation and technology side of the climate change issue. This activity would require close coordination with DOE and progressive elements of industry.

Modification of events that are already planned:

1. Cabinet members and/or other senior officials can attend each OSTP/USGCRP regional workshop and deliver address on Administration position, followed by a press conference.

- At the Seattle workshop, Dr. Gibbons speech and press conference resulted in 7 news stories in regional print media and extensive local TV coverage.
- This helps solidify the science message through regional repetition of compelling science case to take action now.

UNION OF CONCERNED SCIENTISTS

'97 JUL 21 AM 9:43

July 18, 1997

Todd Stern
Assistant to the President and Staff Secretary
The White House
Washington, DC 20500

Dear Todd:

Thank you for taking the time to meet with a number of us from the U.S. Climate Action Network last week. I look forward to working with you as you take on the challenge of coordinating the administration's public education and constituency outreach activities on climate change. As I noted, this is an effort that will have to continue well beyond the Kyoto Climate Summit if the President's goal of negotiating, ratifying and implementing an effective set of binding emissions reduction commitments is to be achieved.

I am enclosing a copy of the world scientists' statement on climate change, which I mentioned during our meeting. UCS is now circulating this statement to Nobel Laureates and members of national academies of science around the world. The initial sponsors include: nine Nobel Laureates; the Presidents of the Pan African Union for Science and Technology, the Chinese Academy of Sciences and the Max Planck Society; the former Presidents of the Royal Society of London, the Latin American Academy of Sciences, the American Association for the Advancement of Science, and the Indian National Science Academy; and the current Chairman of the Intergovernmental Panel on Climate Change.

We plan to release the statement at a "Science Summit" on climate change to be held in Washington on September 30th. I will keep you apprised as planning for that event proceeds. We would like to pursue the participation of some of the scientists who sponsored the statement in the President's Climate Change Conference in early October.

Again, I enjoyed meeting you, and look forward to working with you in the months ahead.

Sincerely,



Alden Meyer
Director of Government Relations

cc: Rosina Bierbaum, Dirk Forrister, Rafe Pomerance, David Sandalow, Steve Seidel

UNION OF CONCERNED SCIENTISTS

June 30, 1997

NOT FOR DISTRIBUTION

<<name>>
<<Address1>>
<<Address2>>
<<Address3>>
<<Address4>>

Dear <<salutation>>:

Four years ago the Union of Concerned Scientists prepared and distributed the "World Scientists' Warning to Humanity" regarding the global environment. That statement (pamphlet copy enclosed) was endorsed by 1,600 senior scientists from around the world, nearly all of them at the national academy level. It became a key statement of record in setting forth a consensus view from our community.

Unfortunately, progress in addressing many of the environmental trends cited in the "Warning" has not been adequate. In some areas, the trends have actually worsened. We believe, therefore, that the time has come for the scientific community to speak out again, both to highlight the failures and to seize an opportunity for favorable change. We invite you to join with us in supporting a new statement: "World Scientists' Call for Action at the Kyoto Climate Summit." (See enclosure.)

The purpose of the December 1997 Kyoto Climate Summit is to conclude a new treaty on climate change that will include legally binding limits on emissions of greenhouse gases. In our view, this meeting represents the next most important opportunity to make significant progress on a major global environmental problem. Given the controversy over the science related to climate change, scientists from both developed and developing countries have a special responsibility to help forge consensus for a new treaty. We must not let this key opportunity slip by.

The "Call for Action" summarizes the consensus reached by the Intergovernmental Panel on Climate Change, considered the world's leading authority on this issue. It points to linkages between climate change and other environmental trends, and is directed at political leaders worldwide. It is being circulated to thousands of senior scientists throughout the world. (A parallel statement directed solely at the United States government also is being circulated by a group of American scientists in the US.)

We plan to release the "Call for Action" well in advance of the Kyoto meeting. If you agree to be a signatory, please return the enclosed response form as soon as possible. Your endorsement will be limited to the contents of the statement, and your institutional affiliation will be listed for identification purposes only. We will keep you informed about the statement's distribution and impact.

Cambridge Headquarters: Two Brattle Square • Cambridge, MA 02238-9105 • 617-547-5552 • FAX: 617-864-9405
Washington Office: 1616 P Street NW Suite 310 • Washington, DC 20036-1495 • 202-332-0900 • FAX: 202-332-0905
California Office: 2397 Shattuck Avenue Suite 203 • Berkeley, CA 94704-1567 • 510-843-1872 • FAX: 510-843-3785

If you wish, please add on the response form a few sentences of comment that could be made public along with the "Call for Action." We would like to complete the process of gathering signatures by early August. Thank you.

Sincerely,

Kenneth J. Arrow
Stanford University, USA

Jane Lubchenco
Oregon State University, USA

Michael Atiyah
Trinity College, UK

Hubert Markl
Max-Planck Society, Germany

Edward Solomon Ayensu
Panafrican Union for Science and Technology,
Ghana

Ernst Mayr
Harvard University, USA

Hans A. Bethe
Cornell University, USA

Mario J. Molina
Massachusetts Institute of Technology, USA

Bert Bolin
University of Stockholm, Sweden
Intergovernmental Panel on Climate Change

John Polanyi
University of Toronto, Canada

Carlos Chagas
University of Rio de Janeiro, Brazil

Martin J. Rees
Cambridge University, UK

Thomas Eisner
Cornell University, USA

Frederick Sanger
Cambridge, UK

Rodrigo Gamez
National Institute of Biodiversity, Costa Rica

Jozef S. Schell
Max-Planck Institute for Research in Plant
Breeding, Germany

Carl-Olof Jacobsen
Royal Swedish Academy of Sciences, Sweden

Jack Steinberger
European Organization for Nuclear Research,
Switzerland

Henry W. Kendall
Chair, Union of Concerned Scientists
Massachusetts Institute of Technology, USA

Edward O. Wilson
Harvard University, USA

Rita Levi-Montalcini
Institute of Neurobiology, CNR, Italy

Zhou Guang-Zhao
Chinese Academy of Sciences, China

WORLD SCIENTISTS' CALL FOR ACTION AT THE KYOTO CLIMATE SUMMIT

Five years ago, in the World Scientists' Warning to Humanity, 1600 of the world's senior scientists sounded an unprecedented warning:

Human activities inflict harsh and often irreversible damage on the environment and on critical resources. If not checked, many of our current practices put at serious risk the future that we wish for human society and the plant and animal kingdoms.

Addressed to political, industrial, religious, and scientific leaders, the Warning demonstrated that *the scientific community had reached a consensus* that grave threats imperil the future of humanity and the global environment. However, over four years have passed, and progress has been woefully inadequate. Some of the most serious problems have worsened. Invaluable time has been squandered because so few leaders have risen to the challenge.

The December 1997 Climate Summit in Kyoto, Japan, presents a unique opportunity. The world's political leaders can demonstrate a new commitment to the protection of the environment. The goal is to strengthen the 1992 Framework Convention on Climate Change by agreeing to effective controls on human practices affecting climate.

This they can and must do, primarily by augmenting the Convention's voluntary measures with legally binding commitments to reduce industrial nations' emissions of heat-trapping gases significantly below 1990 levels in accordance with a near-term timetable. Over time, developing nations must also be engaged in limiting their emissions. Developed and developing nations must cooperate to mitigate climatic disruption. The biosphere is a seamless web.

Completion of an effective treaty at Kyoto would address one of the most serious threats to the planet and to future generations. It would set a landmark precedent for addressing other grave environmental threats, many linked to climate change. It would demonstrate that the world's leaders have now recognized, in deeds and words, their responsibility for stewardship of the earth. The stark facts carry a clear signal:

There is only one responsible choice—to act now.

We, the signers of this declaration, urge all government leaders to demonstrate a new commitment to protecting the global environment for future generations. The important first step is to join in completing a strong and meaningful Climate Treaty at Kyoto. We encourage scientists and citizens around the world to hold their leaders accountable for addressing the global warming threat. Leaders must take this first step to protect future generations from dire prospects that would result from failure to meet our responsibilities toward them.

The Web of Environmental Effects

Atmospheric Disruption

Predictions of global climatic change are becoming more confident. A broad consensus among the world's climatologists is that there is now "a discernible human influence on global climate."

Climate change is projected to raise sea levels, threatening populations and ecosystems in coastal regions. Warmer temperatures will lead to a more vigorous hydrologic cycle, increasing the prospects for more intense rainfall, floods, or droughts in some regions. Human health may be damaged by greater exposure to heat waves and droughts, and by encroachment of tropical diseases to higher latitudes.

The developing world is especially vulnerable to damage from climatic disruption because it is already under great stress and has less capacity to adapt.

Climate Change: Linkages and Further Damage

Destructive logging and deforestation for agriculture continue to wreak havoc on the world's remaining tropical forests. The burning of the Amazonian rain forests continues largely unabated. Other forests in developed and developing nations are under heavy pressure. Destruction of forests greatly amplifies soil erosion and water wastage, is a major source of loss of species, and undermines the environment's natural ability to store carbon. It releases additional carbon to the atmosphere, thereby enhancing global warming.

Fossil-fueled energy use is climbing, both in industrial nations and in the developing world, adding to atmospheric carbon. Efforts to enhance energy conservation and improve efficiency are much hindered by low energy costs and by perverse incentives that encourage waste. Without firm commitments, most industrial nations will not meet the carbon-emission goals they agreed to at the 1992 Rio conference. The transition to renewable, non-fossil-carbon-based energy sources is feasible but is not in sight for lack of aggressive political will.

The insurance industry has recognized the risks posed by climate change. Leading economists have identified viable policies for reducing these risks. Markets undervalue ecosystems worldwide and inflict few penalties against practices that do long-term environmental and resource damage. Political leadership must introduce incentives that reward sound practices.

Water Scarcity and Food Security

Humanity now uses over one-half of the total accessible freshwater runoff. Freshwater is the scarcest resource in the Middle East and in North Africa. Efforts to husband freshwater are not succeeding there, in East Asia, or in the Pacific.

Global food production now appears to be outpaced by growth in consumption and population. There is broad agreement that food demand will double by 2030. Most land suitable for agriculture is already in production. Sub-Saharan Africa's increase in agricultural production is one-third less than its population growth. The region now produces 80 percent of what it

consumes, and per capita production is declining. Projections indicate that demand for food in Asia will exceed the supply by 2010.

Thus, food consumption levels in many countries are likely to remain totally inadequate for good nutrition. Widespread undernutrition will persist unless extraordinary measures are taken to ensure food for all, measures not now even contemplated by governments. Climate change is likely to exacerbate these food problems by adversely affecting water supplies, soil conditions, temperature tolerances, and growing seasons.

Destruction of Species

Climate change will accelerate the appalling pace at which species are now being liquidated, especially in vulnerable ecosystems. One-fourth of the known species of mammals are threatened, and half of these may be gone within a decade. Possibly one-third of all species may be lost before the end of the next century.

Biodiversity gives stability to the ecosystems that we are so dependent on, enhances their productivity, and provides an important source of new foods, medicines, and other products.

6/16/97

**SEIA****SOLAR ENERGY INDUSTRIES ASSOCIATION**

'97 JUL 18 PM 1:43

July 15, 1997

TO: Todd D. Stern
Assistant to the President
FAX: 202-456-2883

FR: Scott Sklar 
Executive Director

RE: Thanks and Loose Ends (and copy of Roll Call ad)

Thanks for the meeting with us who comprise the Business Council for Sustainable Energy and I have attached a copy of the article many of our trade groups sponsored to promote targets for emissions causing climate change.

I have two issues that need your attention in your new role as climate change czar and I left papers on this with you at our meeting with the pile of other propaganda:

- The White House must call an interagency meeting to implement the President's commitment for a Million Solar Roofs. The other federal agencies WILL NOT truly cooperate with DOE on procurement, technology "buy down" and lending programs unless you drive the cooperation and build in OMB participation. I left you a two page concept paper -- but you need to address this now.
- Gibbons, who is leaving OSTP, is attempting to move Henry Kelly from the Associate Director of Technology (which he now occupies in an "acting" capacity) and I left a letter to Bob Nash signed by a bevy of groups in his favor. Because of Henry's stellar work in OTA, DOE etc. -- there is no one in The White House who knows energy and related strategic technologies like him. You will need his capability and you do not have it elsewhere within The White House or the agencies.

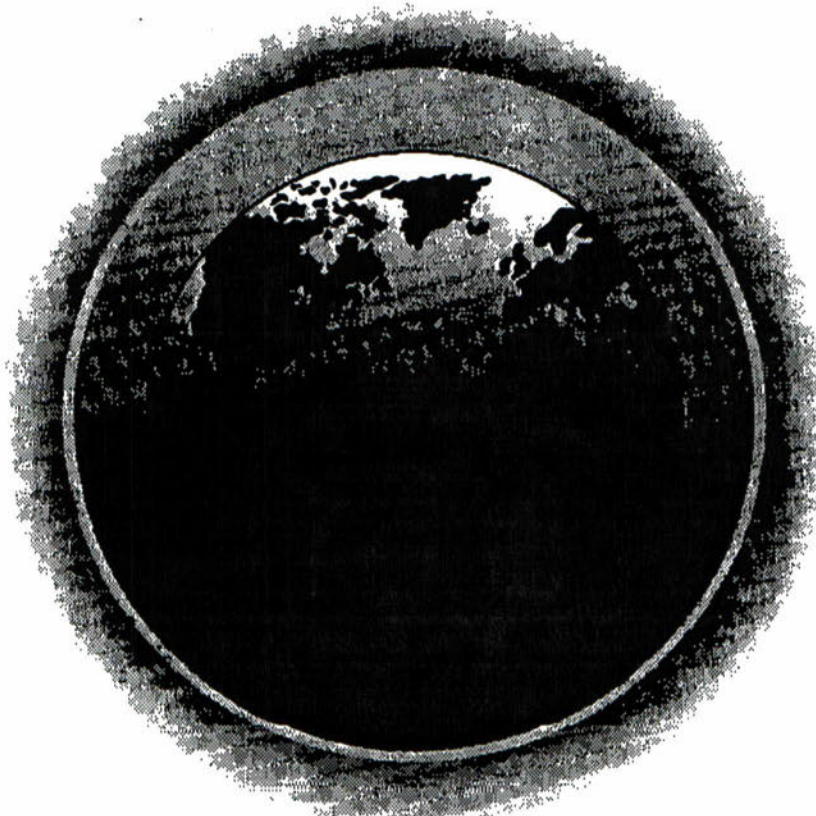
I have supplied a special events memo to CEQ for ribbon cuttings of new solar manufacturing facilities per their request. I look forward to hearing from you or an emissary on these matters. Many thanks.


Outreach

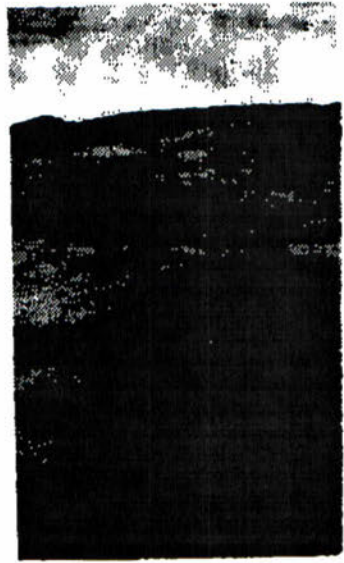
What Do

- 2,500 climate scientists
- 2,000 leading economists, and
- more than 10,000 U.S. companies representing more than \$25 billion in annual sales in energy efficiency, environmental mitigation, natural gas and renewable energy

Agree On?



**That the Congress
and Clinton administration
must actively support time tables
to reduce emissions that are altering
our global climate.**



Cattle grazing in Montana.

A Crisis o

By Rep. Jim Hansen

Much of our nation's history by the settlement of fec from the East to the West - first days of discovery to our preser of conservation and preservation.

Due to the foresight of our fore enjoy millions of acres of federal we manage for a wide variety of ing from maximum preservation t ment of resources from federal line our economy. This full range of m alternatives serves important funct izens today and for our future.

Of course, some of the most po emotional battles waged in Cong on policy issues on our federal lan we will manage these lands.

Our nation began our current syst servation by creating the National l vice and the National Park Service turn of the century, we have exp management capabilities throug tional arms of the federal govern ating more specialized agencies acting a multitude of environmen signed to enhance the managem federal assets.

During my tenure in Congress is today known as the House Reso mittee, it has become clear to me th all of these laws were enacted with intentions, the results we are seeing from and exceed the original inten or Congresses.

Indeed, the actions of the regula inability of Congress to curb the a exceed the bounds of these acts of deeply entrenched positions at the management of our federal la

Today, we face a crisis on our fo Our most treasured lands, the Nat face incredible problems that al source itself, the visitors to those

The extraction, conversion, and utilization of energy is the single largest contributor to air and water pollution and the emissions that cause global climate change.

Don't we owe it to our kids,
their kids, and ourselves to

Act Now?

ALLIANCE TO SAVE ENERGY

AMERICANS FOR CLEAN ENERGY

BUSINESS COUNCIL FOR SUSTAINABLE ENERGY

ENVIRONMENTAL EXPORT COUNCIL

NATIONAL BIOMASS ENERGY ALLIANCE

NORTH AMERICAN INSULATION MANUFACTURERS ASSOCIATION

POLYISOCYANURATE INSULATION MANUFACTURERS ASSOCIATION

SOLAR UNITY NETWORK

the viability of the Park Service hearing last Congress, the General Accounting Office found that the Park Service had not, balanced its books, and had not, balanced its books.

There is very little accountability for taxpayer dollars being spent in our parks. We must take action to make the situation better before additional funds are available. At the same time, the Park Service faces 20- to 30-year backlogs for operation, maintenance, repair, and land acquisition.

I personally favor funding our parks. I believe that we should find new funding, but at the same time, we must have accountability. Over the past ten years, the Park Service's budget has increased, but the funding backlogs keep growing and the condition of our parks continues to decline.

Congress has authorized new funding authority to the Park Service to allow the parks to help fund the maintenance of the most serious problems. We face additional problems.



THE BUSINESS COUNCIL FOR SUSTAINABLE ENERGY

1200 18th St., N.W. Ninth Floor Washington, DC 20036

FAX COVER PAGE

To: Carol Cleveland	Date: July 8, 1997
From: Jeff Schoenfeldt	For Information Call: (202) 785-0507
Pages: 2 (including this page)	Fax Number: (202) 785-0514

Carol -

The following is a list of the expected attendees for tomorrow's 2:00 PM meeting between Mr. Stern and Members of the Business Council for Sustainable Energy. At the moment, the list is complete. However, if we do receive any further RSVPs today or tomorrow morning, I will give you a call.

If you have any questions or need any additional information, don't hesitate to contact me.

Thanks for all your help!

Sincerely,

Jeff Schoenfeldt
The Business Council for Sustainable Energy

Fax: 456-2215

In 32 min

Overhead

Withdrawal/Redaction Sheet

Clinton Library

DOCUMENT NO. AND TYPE	SUBJECT/TITLE	DATE	RESTRICTION
001. list	[Personally Identifiable Information] [partial] (1 page)	07/09/1997	b(6)

COLLECTION:

Clinton Presidential Records
Staff Secretary
Todd Stern
OA/Box Number: 11213

FOLDER TITLE:

Climate-Outreach [2]

2019-0774-S

rs3416

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

Freedom of Information Act - [5 U.S.C. 552(b)]

P1 National Security Classified Information [(a)(1) of the PRA]
P2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P3 Release would violate a Federal statute [(a)(3) of the PRA]
P4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
P5 Release would disclose confidential advice between the President and his advisors, or between such advisors [(a)(5) of the PRA]
P6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

b(1) National security classified information [(b)(1) of the FOIA]
b(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
b(3) Release would violate a Federal statute [(b)(3) of the FOIA]
b(4) Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
b(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
b(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
b(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
b(9) Release would disclose geological or geophysical information concerning wells [(b)(9) of the FOIA]

C. Closed in accordance with restrictions contained in donor's deed of gift.
PRM. Personal record misfile defined in accordance with 44 U.S.C. 2201(3).
RR. Document will be reviewed upon request.



The Business Council for Sustainable Energy

1200 18th Street, NW
Ninth Floor
Washington, DC 20036

Phone 202-785-0507
Fax 202-785-0514

Attendance List Meeting -- Honorable Todd Stern -- July 9, 1997

Robert T. Boyd
Director of Government and
Regulatory Affairs
Enron Wind Corp.
SS#: [REDACTED]
DOB: (b)(6)

Chris Flavin
President of Research
Worldwatch Institute
SS#: [REDACTED]
DOB: [REDACTED]

George Phelps
Director, Government & Industry Affairs
North American Insulation
Manufacturers Association
SS#: [REDACTED]
DOB: [REDACTED]

Scott Sklar
Executive Director
Solar Energy Industries
Association
SS#: [REDACTED]
DOB: [REDACTED]

Jaime Steve
Director, Legislative Affairs
American Wind Energy Association
SS#: [REDACTED]
DOB: [REDACTED]

Michael Marvin
Executive Director
Business Council for
Sustainable Energy
SS#: [REDACTED]
DOB: [REDACTED]

Jeffrey S. Schoenfeldt
Business Council for
Sustainable Energy
SS#: [REDACTED]
DOB: [REDACTED]

Jan B. Eckert
Asia Program Specialist
US Export Council for
Renewable Energy
SS#: [REDACTED]
DOB: [REDACTED]

David Nemtsov
President
Alliance to Save Energy
SS#: [REDACTED]
DOB: [REDACTED]

Jennifer Schafer
Washington Representative
Engelhard/ICC
SS#: [REDACTED]
DOB: [REDACTED]

Mark Stanga
Vice President for
Government Affairs
York International
SS#: [REDACTED]
DOB: [REDACTED]

George Williams
Director, Congressional &
Federal Agency Affairs
Pacific Enterprises
SS#: [REDACTED]
DOB: [REDACTED]

Kirk Brown
Policy Director
Business Council for
Sustainable Energy
SS#: [REDACTED]
DOB: [REDACTED]

Brian Dolan
Government Relations
Brooklyn Union
SS#: [REDACTED]
DOB: [REDACTED]



Outreach

Natural Resources
Defense Council

July 1, 1997

40 West 20th Street
New York, New York 10011
212 727-2700
Fax 212 727-1773

The Honorable William J. Clinton
President
The White House
1600 Pennsylvania Avenue, N.W.
Washington, D.C. 20500

Dear Mr. President:

I am writing, on behalf of the Natural Resources Defense Council, to express our appreciation that you used your address on Thursday at Earth Summit II to make a compelling case that strong and binding commitments for action from the United States are essential to address the enormous threats presented by climate change. I also greatly appreciate your decision to accept Administrator Browner's recommendations to establish strong new air quality standards, announced earlier last week.

As you may expect, I am disappointed that you were not ready to propose specific reductions in greenhouse gas emissions to substantially below 1990 levels starting no later than 2005, as had been urged by the leaders of fourteen of the nation's largest environmental organizations in our letter of June 17th and as I had raised in my letter of May 9th.

Let me assure you that NRDC stands ready to assist you in any way we can with the task of building public and Congressional support for concrete emission reduction commitments and the measures required to implement them. Specifically, I would like to convey NRDC's views on two important near-term opportunities to build on the foundation you laid in Thursday's speech.

First, as your Administration completes preparations of its proposal for federal electric industry restructuring legislation, we believe that it is essential to incorporate strong provisions requiring a major reduction in air emissions from power plants. Such requirements would go a long way to implementing emission reductions needed both to achieve our National Ambient Air Quality Standards and our responsibilities to protect the Earth's climate. It makes good sense to get the air pollution ground rules straight for this industry at the start of the restructuring process. In this regard we commend to your attention the legislation introduced by Senator Jeffords (S. 687). Key provisions include:

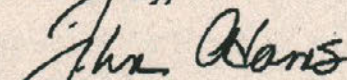
The Honorable William J. Clinton
July 1, 1997
Page Two

- Emission caps for carbon dioxide, nitrogen oxides, and sulfur dioxide at levels that support these goals. These caps can best be implemented through uniform output-based emissions performance standards for all fossil-fueled power plants. Under this program, generators could either achieve any needed reductions at their plants or purchase offsets from other emitters.
- A renewable energy portfolio standard that would ensure an orderly expansion of the U.S. market so that 10% of electricity generated in 2010 comes from non-hydropower renewable sources. The standard should rely on marketable credits that promote least-cost delivery of generation to the market. The million roofs initiative that you announced would be an important component of this market.
- A national system benefits trust, funded through a uniform volumetric transmission access charge, to match dollar-for-dollar qualifying state-level expenditures (up to 0.2 cents per kilowatt-hour) on electric energy efficiency, low-income services, and the use of renewable technologies to electrify remote locations.

Second, we believe that invitations to the White House Conference that you announced for the Fall should make it clear that the charge for that meeting is to come together around mechanisms for implementing a program to reduce U.S. greenhouse emissions to substantially below 1990 starting no later than 2005. The Conference should be used to further educate the public about the need to reduce emissions and about the technologies and policies that can be used to achieve these reductions while continuing to grow the economy, as you stressed last night.

In closing, I would like to reiterate my commitment, and the commitment of NRDC, to work with you to ensure that the Kyoto negotiations result in an effective agreement to protect the planet from dangerous climate change.

Sincerely,


John H. Adams
Executive Director



'97 JUL 22 PM 7:35

White House Climate Change Task Force

734 Jackson Place, N.W. • Washington, DC 20503

FAX**To:** Todd Stern**Organization/Title:****Fax:** 456-2215**Phone:****Pages (including cover):** 6**Date:****From:** Dirk Forrister**Phone:** 343-1060**Message:**

Here's the draft memo
you requested. Names
are all tentative -- want to
coordinate w/ public liaison
when you give go-ahead.
Also, still confirming cabinet
availability - see attachment
of info so far - Dirk + Lisa

SCHEDULE PROPOSAL

TODAY'S DATE: 7/22/97

☐ ACCEPT☐ REGRET☐ PENDING

TO: Stephanie Streett
Director of Scheduling

FROM: Todd Stern
Staff Secretary

REQUEST: Drop-by to meetings with 10-12 representatives of six (6) key constituency groups who will be most impacted by the Administration's climate change policies. [Also, Vice President or Chief of Staff drop-by would enhance effectiveness.]

PURPOSE: Follow-on to meeting tentatively scheduled for the week of July 28 with core group of corporate moderates. Meetings will engage an expanded group of industry CEOs and environmental leaders and include a broader range of views on climate change. Goals of meetings would be to discuss policy design; solicit feedback and new ideas; and garner support. The core industry group will serve as leaders in working toward resolution of issues. President, Vice-President or Chief of Staff involvement will demonstrate commitment to issue and help broaden support from moderates.

BACKGROUND: The six meetings will be the second step of the President's public dialogue on climate change. In general, the three industry groups selected are those who use or produce large amounts of energy. Environmental groups have been included to focus on the potential benefits of climate change mitigation. A group of representatives from financial institutions, insurance companies and high-tech firms were chosen to focus on lessons learned and innovative solutions. Labor, also a major constituency, is tentatively scheduled to meet with the Vice-President on August 5 and discuss climate change (among other issues); in all likelihood, an additional meeting with Cabinet and senior advisors with labor will be needed.

PREVIOUS PARTICIPATION: A few participants in each meeting may have met with the President in the week of July 28 on this issue.

DATE AND TIME: Industry: Energy August 6
Industry: Transportation August 8
Industry: Manufacturing August 13
Environmental Groups August 14
Finance, Insurance, High-Tech August 15 (?)
Labor TBD (in coordination
with VP meeting)

BRIEFING TIME: 10 minutes

DURATION: 15 minutes

LOCATION: Roosevelt Room

PARTICIPANTS:

Energy (tentative):
- Steve Percy (British Petroleum)
- Linn Draper (American Electric Power)
- Fred Buckman (PacifiCorp)
- Ken Lay (Enron)
Phil Carroll (Shell)
Craven Crowell (Tennessee Valley Authority)
Jim Rogers (Cinergy)
Irl Englehardt (Peabody Coal)
Larry Fuller (Amoco)
Roger Sant (Applied Energy Services)
W. Wayne Allen (Phillips Petroleum)
Thomas Casten (Trigen Technologies)

Cabinet: Federico Peña (or Betsy Moler), Carol Browner

Transportation (tentative):
Jason Kelly (United Parcel Service)
Alex Trotman (Ford)
John Smith (General Motors)
Robert Eaton (Chrysler)
Philip Condit (Boeing)
Ronald Allen (Delta)
John Snow (CSX)

Cabinet: Rodney Slater

Manufacturing (tentative):
Paul O'Neill (Alcoa)
John Krol (DuPont)
Pete Correll (Georgia-Pacific)

Aluminum?

Robert Burt (FMC)
Michael Bonsignore (Honeywell)
John Welch (General Electric)
— Roger Ackerman (Corning)
Riley Bechtel (Bechtel)
Tom Usher (USX)
Keith Busse (Steel Dynamics)
— Paul Yhouse (Holnam, Inc.)

Cabinet: William Daley, Federico Peña

Environmental Groups (tentative):

John Adams (NRDC)
Carl Pope (Sierra Club)
Fred Krupp (Environmental Defense Fund)
Jonathan Lash (World Resources Institute)
Bud Ris (Union of Concerned Scientists)
Katheryn Fuller (World Wildlife Fund)
Barbara Dudley (Greenpeace)
Robert Musil (Physicians for Social Responsibility)

Cabinet: Carol Browner, Bruce Babbitt

Finance, Insurance, High-Tech (tentative):

Richard Sandor (Centre Financial Products)
Hugh McColl, Jr. (NationsBank)
Deryck Maughan (Salomon Brothers)
— Maurice Greenberg (American International Group)
Kaj Ahlmann (Employers' Reinsurance Corp.)
Arthur Ryan (Prudential)
Edward Rust (State Farm)
Norm Augustine (Lockheed/Martin)
Robert Allen (AT&T)
Christopher Galvin (Motorola)
Ralph Larsen (Johnson and Johnson)
Andrew Grove (Intel)

Cabinet: Robert Rubin, William Daley, James Lee Witt

Labor (tentative):

John Sweeney (AFL-CIO)
Richard Trumka (AFL-CIO)
Bob Wages (OCAW, Chemical and Atomic Workers)
Jack Barry (IBEW, Electrical Workers)
Cecil Roberts (UMW, United Mine Workers)

Steve Yokich (UAW, United Auto Workers)
George Becker (USW, United Steelworkers)
Charlie Jones (Boilermakers)
Bob Gorgine (Building Trades)
Ron Carey (Transportation Trades Department)
(Industrial Union Department)
(Utility Workers)
(Teamsters)

Cabinet: Alexis Herman

Attending all six meetings:

Todd Stern
Gene Sperling
Daniel Tarullo
Katie McGinty

OUTLINE OF EVENTS: Private, drop-by conversation.

REMARKS REQUIRED: None.

MEDIA COVERAGE: Photo.

FIRST LADY'S ATTENDANCE: No.

VP ATTENDANCE: If possible.

RECOMMENDED BY: Todd Stern.

CONTACT: Todd Stern, 6-2702.

ORIGIN OF THE PROPOSAL: White House Staff generated.

SECOND LADY ATTENDANCE: No.

SOURCE OF PAYMENT: None.

CURRENT AVAILABILITY OF PARTICIPANTS**VPOTUS:**

In town: August 1,4,6,8,14 (see also printout)

Katie McGinty:

Out of town: August 1-8

In town: August 11-

Already scheduled: 8/11 lunch; 8/12 10-11:30

Gene Sperling:

In town: First two weeks

Dan Tarullo:

In town: First two weeks

Cabinet:

Peffa -- In town: 7/28-8/4; 8/20-22; 9/8-9/18
(Contact Peg Weathers, 785 5534)

Moler --
(Contact Kim Ortel, 586 8635)

Browner --

Daley -- Out of town: 8/4-8/8
(Contact Sarah Shroup, 482 5880)

Slater -- In town: 8/4-8/6; 8/24-8/26; 9/3-9/5; 9/9-9/12
(Contact Peter Dagher, 366 9922)

INTERNATIONAL CLIMATE CHANGE PARTNERSHIP

26 members, including

- FLUOROCARBON ASSNS: 4 associations including Alliance for Responsible Atmospheric Policy
- CHEMICAL: Dow, DuPont, ICI Americas,
- HOME APPLIANCES: Assn for Home Appliance Manufacturers, AB Electrolux/White Consolidated Industries, 3M
- OIL/GAS: BP America, Enron, Elf Atochem
- OTHER: Allied Signal, American Standard/Trane, AT&T, Carrier/United Technologies, Celotex, York International

1996 Membership List

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
American Standard/Trane
Assn of Home Appliance Manufacturers
AT&T
BP America (Chair of IPIECA is Kathryn Shanks of BP Exploration)
Carrier/United Technologies
Celotex/Centre for Applied Engineering
Dow
Dresser Industries
Dupont
Elf Atochem
Enron
European Chemical Industry Council (CEFIC) - European
Fluorocarbon Technical Committee (EFTEC) Sector
FMC Corporation
General Electric
ICI Klea
Japan Fluorocarbon Manufacturers Association
Polyisocyanurate Insulation Manufacturers Association
York International

Christopher Galvin, Motorola

Andrew Grove, Intel

Robert Catelle, Brooklyn Union Gas Corp.

Alternate: Bill Wood, Pacific Enterprises

Jim Kelly, UPS

Howard Lutnick, Cantor Fitzgerald

Hank Greenberg, AIG

Paul Yhouse, Holnam Inc.

Pete Corell, Georgia-Pacific

Livio D. DeSimone, 3M

Record Type: Record

To: Todd Stern/WHO/EOP

cc:

Subject: another update 

Robert Burt of FMC will attend.

Unfortunately, I just got a call from Dr. Coffman's office at Martin Marrietta. Upon further review of his schedule, he is now unable to make it on Monday.

This brings the total to:

7 - yes (BP, AEP, PacifiCorp, Enron, FMC, ~~Monsanto~~ & Honeywell)

1 - very likely (United Technologies)

2 - outstanding (DuPont & Alcoa)

Record Type: Record

To: Todd Stern/WHO/EOP, Maria Echaveste/WHO/EOP
cc: Cheryl M. Carter/WHO/EOP
Subject: Tomorrow's meeting

Here is the final list of attendees for tomorrow's 9:00am meeting in the Roosevelt Room:

Sam Maury
President
The Business Roundtable

Jack Faris
President & CEO
National Federation of Independent Businesses

Bruce Jostin
Senior Vice President
U.S. Chamber of Commerce

Hal Russell
Vice President
FMC Corporation



INTERNATIONAL CLIMATE CHANGE PARTNERSHIP

For Immediate Release**For Further Information
Contact:**

•Kevin Fay (U.S.) 703-841-0626 and/or
at Mon Repos, Geneva, 41 22 732 8010
•Maurice Verhille (France) 331 49 00 8476
•Tom Vant (Canada) 403-970-6959

***International Industry Coalition Urges Governments and Industry to Join to
Create Effective Global Climate Change Process***

Geneva, Switzerland, March 6, 1996 - The International Climate Change Partnership (ICCP), an international coalition of business and industry interests organized to participate responsibly in the global climate change policy process, today called for governments and industry to join together to create an effective "climate change policy process that can sustain us over the longer-term."

Scientists now recognize the relationship between human activity and the increase in greenhouse gas emissions. The relationship between the emissions of these gases, their retention in the atmosphere, and the potential effects on the planet's climate is much less certain.

"ICCP's members believe that it is appropriate for policy makers to act to slow the rate of growth of greenhouse gas emissions until we are better able to define a more specific goal," stated ICCP Executive Director Kevin Fay. He urged however that, "the international negotiators and policy makers address the Climate Change Convention objectives in a responsible, orderly process."

The coalition suggested several criteria for this process. According to ICCP, an appropriate process should be one that:

- 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.

The ICCP remarks were delivered in several forums, including: at the U.S. State Department Foreign Service; at the Subsidiary Body for Scientific and Technological Advice (SBSTA) Non-Governmental Organization (NGO) Workshop, in Geneva on Saturday, March 2, 1996; and to the participants of the Ad Hoc Working Group on the Berlin Mandate (AGBM) meeting in Geneva.

Tom Vant, of Alliance for Responsible Environmental Alternatives (AREA) Canada, a Canadian alliance sharing cross affiliation with the ICCP, urged that the international diplomats must find a means to bring industry technical and economic expertise into the process. "The current discussions indicate a great difficulty in finding an appropriate and flexible mechanism to utilize the business and industry expertise. It is unlikely that the goals of the convention can be achieved without a responsible and cooperative effort among governments and the private sector," he said.

Also, the ICCP is concerned that the negotiators focus on implementation of the Berlin Mandate, which was agreed upon last year and calls for the negotiation of a protocol or other legal instrument to the Climate Change Convention in 1997, has caused the Parties to lose sight of what is going to be a decades-long process.

ICCP members have pledged their support to participate in the policy process and in the work to implement the Convention at the national and international levels. The coalition also issued a call for businesses and industry groups around the world to join its growing membership. "There is a large and growing contingent of international business and industry leaders who understand the importance of working within this process in order to achieve the important environmental objectives while fostering the continued economic growth and the improvement of living conditions for all," concluded Mr. Fay.

Note: The membership of the ICCP includes: 3M Company; AB Electrolux/White Consolidated Industries; Air Conditioning and Refrigeration Institute; Alliance for Responsible Atmospheric Policy; Alliance for Responsible Environmental Alternatives - Canada; AlliedSignal; American Standard/Trane; Association of Home Appliance Manufacturers; AT&T; BP America; Carrier/United Technologies; Celotex/Center for Applied Engineering; Dow; Dupont; Elf Atochem; Enron; European Chemical Industry Council (CEFIC) - European Fluorocarbon Technical Committee (EFCTC) Sector; General Electric; ICI Klea; Japan Flon Gas Association; Polyisocyanurate Insulation Manufacturers Association; and York International.



The Business Council for Sustainable Energy

POSITION STATEMENT -- GLOBAL CLIMATE CHANGE

1997

PREMISE

CLIMATE POLICY SHOULD PROMOTE **ECONOMIC EFFICIENCY AND TECHNOLOGY INNOVATION**

Climate change policy should be developed based on principles of economic efficiency and promoting "climate friendly" product and process acceptance. Policies should be designed to achieve a series of clearly articulated targets designed to first stabilize, and then reduce, global greenhouse gas emissions.

POSITION 1 — Promoting economic efficiency and expanding market receptiveness for efficient and clean technologies and services require that the climate Protocol contain a **NEAR-TERM TARGET...**

The marketplace requires a near-term signal to foster investment in efficient and clean technologies. A target for measuring progress in controlling global greenhouse gas emissions should be set for 2005. **KEY CONCEPT:** the 2005 target could first be stabilization of emissions. Once the near-term target is met, Parties to the Convention should begin making progress towards a series of incremental emissions control goals. To allow clear measurements of progress, a series of goals should be set that ultimately will achieve an agreed upon long-term emissions concentration objective (e.g., a series of five percent reductions every five years — five percent reduction by 2010; 10 percent reduction by 2015; 15 percent reduction by 2020, etc., leading to an acceptable long-term emissions concentration goal.)

POSITION 2 — Developing countries should accept emissions control responsibilities once the developed countries have demonstrated progress on controlling their emissions...

Developed countries should demonstrate leadership by taking serious action to combat global warming and then the developing countries should accept further commitments to limit their emissions growth. A year 2005 emissions stabilization goal achieved by Annex I parties could serve as a trigger for expanding existing commitments of the developing countries. They would then assume obligations to limit emissions growth.

<< OVER >>



The Business Council for Sustainable Energy

POSITION STATEMENT -- GLOBAL CLIMATE CHANGE (CONT'D)

1997

POSITION 3 — A credible, verifiable emissions credit trading system will ensure an efficient reduction in emissions utilizing climate-friendly technologies...

Emissions credit trading should be allowed between Parties with emissions reduction obligations under the Protocol or other legal instrument. Other market-based tools such as joint implementation should be allowed between Parties with obligations under the protocol, but only for clearly verifiable and quantifiable emissions REDUCTION projects.

POSITION 4 — Long-term emissions averaging will make tracking progress on reducing emissions difficult and will dampen climate-friendly investments and technological innovation...

Using averages to track emissions over long time periods (e.g., ten years) will not be as effective as clear year-specific signals for spurring action to reduce greenhouse gas emissions. Instead, a series of targets could be used: for instance, Annex 1 stabilization by 2005, preliminary Annex 1 cuts by 2010, deeper Annex 1 cuts and developing country stabilization by 2015, and still deeper cuts on the part of both Annex 1 and developing countries by the year 2020 and in later years. If emissions averages are to be used to track progress towards meeting these goals, they should be based on a short time-period (e.g., two to five years).

POSITION 5 — Emissions banking could be allowed but emissions borrowing should be **REJECTED WHOLESALE**...

Emissions borrowing reduces the incentive to take action TODAY to combat global greenhouse gas emissions.

* * * * *

The Business Council for Sustainable Energy is comprised of business leaders from the energy efficiency, renewable energy, natural gas and utilities industries. Members of the Council work with senior officials from major environmental organizations to support energy-related policies and programs which will enable the United States to achieve a sustainable pattern of energy production and use that simultaneously contributes to global economic, environmental and security goals.

FOR MORE INFORMATION, CONTACT KIRK BROWN, POLICY DIRECTOR, BUSINESS COUNCIL FOR SUSTAINABLE ENERGY -- (202) 785-0507

AFL-CIO Executive Council
February 20, 1997
Statement

U.N. CLIMATE CHANGE NEGOTIATIONS

The U.S. government is involved in United Nations negotiations pursuant to the "Berlin Mandate" for an amendment to the Rio Treaty on Climate Change. The Rio Treaty committed the United States and other nations to voluntarily stabilize carbon emissions at 1990 levels by the year 2000. Current negotiations are aimed at mandatory reductions below 1990 levels after the year 2000.

The Berlin Mandate specifically excludes developing nations from emission reduction requirements while legally binding the United States to future emission reductions. By exempting developing nations from any future commitments, the Berlin Mandate ensures that there will be no meaningful worldwide effort to stabilize atmospheric concentrations of carbon dioxide.

We believe the parties to the Rio Treaty made a fundamental error when they agreed to negotiate legally-binding carbon restrictions on the United States and other industrialized countries, while simultaneously agreeing to exempt high-growth developing countries like China, Mexico, Brazil and Korea from any new carbon reduction commitments. As much as 60 percent of global carbon emissions are expected to come from such countries in the next few decades, with China becoming the single-largest emitter in the near future. The exclusion of new commitments by developing nations under the Berlin Mandate will create a powerful incentive for transnational corporations to export jobs, capital, and pollution, and will do little or nothing to stabilize atmospheric concentrations of carbon. Such an uneven playing field will cause the loss of high-paying U.S. jobs in the mining, manufacturing, transport and other sectors.

Carbon taxes, or equivalent carbon emission trading programs, will raise significantly electricity and other energy prices to consumers. These taxes are highly regressive and will be most harmful to citizens who live on fixed incomes or work at poverty-level wages.

As corporations shut down domestic factories, mines and mills as a result of higher energy costs, they will have additional incentives, beyond the search for cheap labor and anti-labor regulatory regimes, to locate new capacity off-shore, in countries with no carbon reduction commitments. Carbon emissions, therefore, will be transferred to the developing world along with the jobs, thus providing 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, even though U.S. negotiators have been at the bargaining table for over 18 months and have agreed to a December 1997 deadline for reaching agreement on this far-reaching treaty amendment.

U.N. Climate Change Negotiations

2

The AFL-CIO Executive Council calls upon the responsible agencies of the U.S. government to provide it and its affiliates with any existing studies of the economic impact of future treaty obligations and, further, make available the results of the economic modeling effort currently being undertaken by the government within 30 days of completion.

The AFL-CIO Executive Council further urges that in the ongoing negotiations to amend the Rio Treaty on climate change, the United States insist upon the incorporation of appropriate commitments from all nations to reduce carbon emissions; and seek a reduction schedule compatible with the urgent need to avoid unfair and unnecessary job loss in developed economies. The President should not accept and the Congress should not ratify any amendment or protocol that does not meet these standards.

###

FROM : TWENTIETH CENTURY FUND

JUN. 27, 1997 2:34PM P 2
PHONE NO. : 212 535 7534**American Federation of Labor and Congress of Industrial Organizations**615 Sixteenth Street, N.W.
Washington, D.C. 20006
(202) 637-6000**EXECUTIVE COUNCIL****JOHN J. SWEENEY**
PRESIDENT**RICHARD L. TRUMKA**
SECRETARY-TREASURER**LINDA CHAVEZ-THOMPSON**
EXECUTIVE VICE PRESIDENTEdward T. Hanley
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Jay Mazur
George J. Keourlas
Michael Sacco
Gloria T. Johnson
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Morton Saxe
Lenora Miller
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Douglas H. Dority
Clydia Brown
Michael Goodwin
Carroll Haynes
Doug McCannon
Arturo S. Rodriguez
Alfred K. Whitehead
John M. BowersVincent R. Sombrotto
Robert A. Georgine
John J. Barry
Frank Hanley
Arthur A. Cole
George F. Becker
M.A. "Mac" Fleming
Joe L. Greene
James LaBate
Andrew McKenzie
Robert A. Soardellott
Andrew L. Stern
Sandra FeldmanGerald W. McIntee
Gene Upshaw
Mos Biler
James J. Norton
Frank Hurt
Stephen P. Yokich
Carolyn Forrest
Sunny Hall
William Lucy
A.L. "Mike" Monroe
Robert E. Wages
Edward L. Fire

For information:

Deborah Dion 202-637-5036

703-437-8640 (h)

FOR IMMEDIATE RELEASE**Statement by Richard Trumka
Secretary-Treasurer, AFL-CIO
on President Clinton's Climate Change Statement
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. We agree with him that before we commit our nation to a course of action, this topic and the solutions that we might employ to address it, must be better understood by the American people.

To this end we should measure any proposal by two criteria. First, that there is material environmental benefit. Merely reducing emissions in one place does not accomplish this end. Second, we must insure that transition costs are fully understood and broadly shared.

We have been outspoken about our concern that the current negotiation path will cause significant economic disruption and the losses of hundreds of thousands of American jobs without achieving global concentration reductions. By any measure such outcomes would be bad for American interests.

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. We are committed to exploring the widest range of solutions with all parties, provided that all are committed to include economic as well as environmental consequences on their list of key concerns.

The American labor movement is committed to participate in climate change solution talks whether or not there is a treaty compelling our country to take action. Our members and their families know that we must all participate in the effort to find a solution that promises long run benefit for all of us who share this global village.

We look forward to working with President Clinton toward these ends.

**White House Climate Change Task Force**

734 Jackson Place, N.W. • Washington, DC 20503

FAX**To:**

Todd Stern

Organization/Title:**Fax:**

456 2215

Phone:**Pages (including cover):**

11

Date:

July 3

From:

Judi Greenwald & Steve Seidel

Phone:

343 1060

Message:

We will be in T.J. Glautin's office this morning if you need us. We will be here at the office from 11:30 on.

NOTE TO TODD STERN

RE: Key Contacts for First Set of Climate Change Meetings

I. Three key industry groups and contacts are:

A. Global Climate Coalition: Gail McDonald, President (202) 637-3158

Members include: National Mining Association; Western Fuels Assoc.; Edison Electric Institute and several coal-based utilities (Southern, Duke Power); manufacturing associations including NAM, the aluminum, forest and paper, and iron and steel associations; AAMA and the three U.S. auto manufacturers; American Petroleum Institute and six of the seven large oil companies and several railroads (Norfolk Southern and CSX).

B. International Climate Change Partnership: Kevin Fay, Executive Director, 703-841-0626

Members include: major chemical companies (Dow, DuPont, 3M, Allied Signal); British Petroleum; Enron; General Electric; Carrier/United Technologies; Association of Home Appliance Manufacturers; Air Conditioning and Refrigeration Institute; and AT and T.

C. Business Council for Sustainable Energy Future: Michael Marvin, Executive Director, 785-0514

Members include: American Gas Association; Enron; Honeywell; Brooklyn Union Gas; Southern California Edison; American Wind Energy Association; AES Corporation; Trane Corporation.

II. Environmental Groups: organized through the Green Group (CEOs of almost 20 major environmental groups). Contact: Julie Waterman, 861-2242.

Key members involved in climate change issue: Natural Resources Defense Council, Sierra Club, Union of Concerned Scientists, Environmental Defense Fund, World Wildlife Fund, Environmental Information Center, Greenpeace, U.S. PIRG, Ozone Action. Physicians for Social Responsibility, National Wildlife Federation..

III. Labor-AFL-CIO. John J. Sweeney, President. Richard L. Trumka, Secretary Treasurer. Staff Contact: Jane Perkins (202) 686-5004. General phone number: (202) 637-5000.

Membership is as broad as the U.S. economy. The most active unions are the Autoworkers, the Mineworkers, the Steelworkers, and the Chemical and Atomic Workers.

Steve Seidel
Judith M. Greenwald

'97 JUL 18 PM5:36

C O V E R

S H E E T

FAX

'97 JUL 18 PM5:36

To: Todd Stern
Fax #: 456-2215
Subject: Global Climate Change Business Outreach
Date: July 18, 1997
Pages: 4, including this cover sheet.

COMMENTS:

Jeffrey Hunker requested that I fax you this information. Please do not hesitate to call me if you have any questions. Have a good weekend.

Outreach
1

From the desk of...

Jennifer Johnson
Deputy Director, Office of Business Liaison
U.S. Department of Commerce
Room 5062, 14th & Constitution
Washington, DC 20230

(202) 482-1360
Fax: (202) 482-4054



UNITED STATES DEPARTMENT OF COMMERCE
Office of the Secretary
Washington, D.C. 20230

July 18, 1997

MEMORANDUM FOR TODD STERN

FROM: Cheryl Bruner
Jeffrey Hunker

SUBJECT: Business Outreach re: Global Climate Change

Listed below are the business leaders the Department of Commerce planned to contact for any events scheduled with the Secretary on Global Climate Change. Given that this list is the core group that we would be working with for a Daley event, we would like to coordinate with you and develop a plan before these people are contacted.

Please don't hesitate to contact either one of us if you have any questions. We can be reached at the following numbers:

Jeffrey Hunker 482-4127
Cheryl Bruner 482-1360.

Thank you and we look forward to working with you.

Robert Eaton
Chairman, President and CEO
Chrysler Corporation
1000 Chrysler Drive
Auburn Hills, MI 48326-2766

John (Jack) Smith, Jr.
Chairman, President and CEO
General Motors Corporation
3044 West Grand Boulevard
Detroit, MI 48202

Alexander Trotman
Chairman, President and CEO
Ford Motor Company
The American Road
Dearborn, MI 48121

Thomas Usher
Chairman and CEO
USX Corporation
600 Grant Street
Pittsburgh, PA 15219-4776

George David
Chairman, President and CEO
United Technologies Corporation
United Technologies Building
Hartford, CT 06101

Laurance Fuller
Chairman and CEO
Amoco Corporation
200 East Randolph Drive
Chicago, IL 60601

Livio DeSimone
Chairman and CEO
3M
3M Center
St. Paul, MN 55144-1000

Robert Burt
Chairman and CEO
FMC Corporation
200 East Randolph Drive
Chicago, IL 60601

Luoise Gerstner, Jr.
Chairman and CEO
IBM
Old Orchard Road
Armonk, NY 10504

Paul O'Neil
Chairman and CEO
ALCOA
Alcoa Building
425 Sixth Avenue
Pittsburgh, PA 15219-1850

Kenneth Lay
Chairman and CEO
Enron
P.O. Box 1188
Houston, TX 77251-1188

George Fisher
Chairman and CEO
Eastman Kodak Company
343 State Street
Rochester, NY 14650

Curtis (Hank) Barnette
Chairman and CEO
Bethlehem Steel Corporation
1170 Eighth Avenue
Bethlehem, PA 18016-7699

Dana Mead
Chairman and CEO
Tenneco
1275 King Street
Greenwich, CT 06831-2946

Donald Fites
Chairman and CEO
Caterpillar Inc.
100 N.E. Adams Street
Peoria, IL 61629

Walter Shipley
Chase Manhattan

John Browne
British Petroleum

Dr. Richard Sandor
Centre Financial Products

OUTREACH/MEETINGS

Date: August 12, 1997

Requested Meeting	Time Sensitivity	Recommended Action	Status
American Portland Cement Alliance Andrew T. O'Hare VP, Env Affairs 1225 Eye St NW, #300 WDC 20005 202 408 9494 202 408 0877 (fax) Discuss CC, "white paper"	7/14 fax to Stern	Task team. In August.	Forrister will schedule.
American Recreation Coalition Derrick Crandell 1225 NY Ave NW, #450 WDC 20005 202 682 9530 202 682 9529 Katie to speak at Recreation Policy Forum	7/8 letter to McGinty Sept 9, 2-4 pm	Need list to determine -- who are they?	Pending information. Check with CEQ. Call to determine if they want sub. Agency surrogate?
Arkenol Rus Miller COO 27401 Los Altos, #400 Mission Viejo, CA 92691 714 588 3767 714 588 3972 (fax) Pilot project/money	7/30 letter to Stern	Send back to agency?	Pending.
Bonneville Power Administration Alexandra Smith, VP for Env, Fish and Wildlife Debbie Stout 503 230 5136 503 230 4565 (fax) Meet on global warming.	8/8 letter and phone to Forrister In town Sept 8-9	Forrister to schedule.	Pending.

OUTREACH/MEETINGS

Date: August 12, 1997

Requested Meeting	Time Sensitivity	Recommended Action	Status
Center for Business Intelligence 3rd Emission Reduction Strategies for Power Cos Conf. Patty Lee (-0934) 70 Blanchard Rd #4800 Burlington, MA 01803 617 270 6200 617 270 6204 (fax) Dirk to speak at conf.	7/30 letter to Forrister Conf: Nov 17-18.	Tentative yes -- but need flexibility in schedule this far out. (See Center for Env Info conf.)	Pending phone call. Call to determine if they want sub. Agency surrogate?
Center for Env. Information 13th Conference -- Kyoto and Beyond: Climate Change Policy Moves to Center Stage Liz Thorndike 607 277 2604 Request for Dirk to speak and info on an additional speaker	7/28 to Peterson Conf: Nov. 17-18 Requested times: Keynote, 1st talk on 11/17 am; or U.S. Strategy presentation, 2nd talk on 11/17 pm	Conflicts with Center for Business Intelligence mtg Forrister tentatively committed to. Need to call to find sub.	Pending phone call. Call to determine if they want sub. Agency surrogate?
Center for Strategic & International Studies Karl Hausker 1800 K St NW WDC 20006 202 887 0200 202 775 3199 (fax) Attend 2nd CC roundtable	7/10 to Stern & Forrister Roundtable Sept. 22 10-3	Fold into Sept. strategy Forrister and Task Force will attend.	Scheduled. Task Force will prepare necessary briefings for McGinty (if she attends). Check agenda r. little time. Presenter level?

OUTREACH/MEETINGS

Date: August 12, 1997

Requested Meeting	Time Sensitivity	Recommended Action	Status
City U. Of NY Graduate School Marie Antoinette Manca Energy Forum 33 W. 42 St NY, NY 10036-8090 Yasemin Celik 212 802 6730 212 802 6742 (fax) Dirk to address Forum	7/10 letter to Forrister late Sept or early Oct. (9/15 - maybe 9/29 - no 10/6 - no)	Forrister will handle.	Pending phone call. Call to determine if they want sub. Agency surrogate?
Department of Commerce Jeffery Hunker Kyoto Global CC Briefings to ISAC/IFAC Advisors Tiffany Smith 202 482 3268 Attend briefings	8/8 fax to Forrister RSVP by fax Aug. 13, 2-4pm (later briefings on 9/3 and 9/24)	Forrister to attend if possible.	Pending.
Edison Electric Institute Bob beck, Senior VP 701 PA Ave, NW WDC 20004-2696 202 508 5555 Dialogue with POTUS on CC	7/24 letter to POTUS followed by phone request	Stern should do soon.	Action request to Carol (8/6). Stern will do.
Edison Electric Institute Thomas Kuhn 202 508 5555 Meeting w/ EEI CEO's	July 7 letter to McGinty Sept 4 in Kansas City, MO	McGinty should attend.	Pending.
Global Environmental Change Council Lelani Arris 250 968 4401 CC & economic rpt.	7/23 phone call to Stern; referred by Tony Phipps DOC	Gather more info: - list of members - agenda	Pending info.

OUTREACH/MEETINGS

Date: August 12, 1997

Requested Meeting	Time Sensitivity	Recommended Action	Status
GLOBE -- Global Legislators Org. For a Balanced Env. John Bond, Dir. 409 Third St SW, #204 WDC 20024 202 863 0153 202 479 9447 (fax) Mtg on CC Internat'l resol.	7/10 fax to Stern Monday or Friday	Stern meeting with senior env staff. Incoming letter for Member mtg with Stern and Cabinet in post-Labor Day period.	Waiting for letter. Hold for evaluation by Foley.
Green Group Gene Karpinski, Exec Dir Contact: Julie Waterman 202 861 2242 Speak at next mtg to CEOs	7/17 fax to Stern Mtg. is Sept. 4	Stern should do, perhaps with a small group.	Action request to Carol (8/6). Stern will attend.
ICLEI Nancy Skinner Cities for Climate Protection- US 15 Shattuck SQ, #215 Berkeley, CA 94704 510 540 8843 510 540 4787 (fax) 4th Training workshop for Campaign jurisdictions	7/2 letter to Forrister Sept 6-10 in Atlanta	Need more information.	Request being prepared for Fred Duval (IGA) to request opinion on who should cover.
Independent Power Producers' Society of Ontario Jake Brooks 163-C Eastbourne Ave Toronto Ontario Canada M5P 2G5 416 322 6549 416 481 5785 (fax) Dirk to speak at conf.	7/24 letter to Forrister 9th Annual Ind. Power Conf. Nov 11-12 Want to hear by 8/15	Conflict with Sunoco commitment. Will call to see if they need help finding a sub.	Regret letter from Mary will be sent after call.

OUTREACH/MEETINGS

Date: August 12, 1997

Requested Meeting	Time Sensitivity	Recommended Action	Status
Wilson W. Orr City of Scottsdale City Manager's Office Advanced Technology Prgm. 3939 Civic Center Blvd PO Box 1000 Scottsdale, AZ 85252-1000 602 994 7832 602 994 7797 (fax) Local CC; planning mtg with VPOTUS in 1998	7/27 note from Bob Nash to Stern -- contact and resource person	Gathering more info.	Being passed to OVP.
A.W. Dahlberg Chairman, Pres, CEO Southern Co. Participate in industry mtgs.	8/1 fax from Jim Free to Stern	Include in next CEO mtg or in a Cabinet level mtg.	Pending.
Sunoco J. Robert Banks VP Health, Env and Safety 864 885 9748 Dirk to attend Corporate Env, Health and Safety Management Roundtable	6/24 letter to Forrister Nov 11-12 at Ritz Carlton in Pentagon City	Forrister already committed.	Forrister will schedule.
Sustainable Energy Coalition Ken Bossong 315 Circle Ave, #2 Takoma Park, MD 20912-4836 301 270 2258 301 891 2866 (fax) Discuss with Stern & Forrister on work w/EPA & DOE	7/9 letter to Stern	Most member groups covered in CAN and BCSE meetings. Forrister w/Stern drop-by? Forrister will call Ken and discuss what they need.	Scheduled w/Forrister 8/13.

OUTREACH/MEETINGS

Date: August 12, 1997

Requested Meeting	Time Sensitivity	Recommended Action	Status
US Export Council for Renewable Energy (ECRE) Griffin Thompson Asia Program/Climate Change 122 C Street NW, 4th Fl WDC 20001-2109 202 383 2550 202 383 2555 (fax) Discuss Jakarta Conf on clean energy, CC, Asia Initiative	7/14 letter to Stern Jakarta Conf on clean energy -- Oct. 14-16	Met with them with BCSE. Assign to task team? Forrister to handle	Being scheduled w/Forrister.
US ECRE Conf. -- Opportunities for Int. Investment in Carbon Offset Projects Judy Siegel 202 383 2550 Christiana Figueres Anne Hambleton 202 588 0155 202 588 0765 (fax) Dirk to speak on FCCC neg.	6/5 letter to Forrister Currently scheduled for Sept. 17; Talk from 9:15 - 10:00	Forrister agreed to do in spring -- then they postponed?	Being scheduled w/Forrister.
West Associates David Steele 520 321 1111 2000 East Horsetooth Road Ft. Collins, CO 80525 970 229 5210 970 229 5225 (fax) Jacqueline Howells Lori Glazer 202 543 5740 Dirk to attend conf.	6/17 letter to Forrister Congressional Energy Forum, Aug. 18-20, Sante Fe	List of attendees and agenda requested and received (8/5). Peterson should attend?	Pending. Info passed to Peterson for decision.

OUTREACH/MEETINGS

Date: August 12, 1997

Requested Meeting	Time Sensitivity	Recommended Action	Status
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James Wolfensohn Pres, World Bank State Contact: Debbie Jones 202 647 6205 Luncheon with CC Deputies	7/16 fax to Stern from Wirth Sept. 3 12:30-2:00 Henry Clay Rm, Main State	Stern should go if available.	Action request to Carol (8/6). Stern will attend.
Funding foundations Meeting w/Todd on funding	Per Arlie Stuart letter	Phone calls -- is this appropriate?	Pending.

OTHERS INTERESTED IN JOINING DIALOGUE:

Scott Sklar Solar event (panel on WH?), solar roofs (internal), green group (pep rally)	Wants to schedule the 3 events soon.	Contact: Judi Greenwald	Pending.
Paul Yhouse Holnam Cement Contact: Mike Mullin 313 529 4310 Discuss CC		Try task team.	Pending.
Robert Kappelman Jacksonville Electric Authority (Public Power) 21 West Church St Jacksonville, FL 32202-3139 904 632 6249 904 632 7376 (fax) Get involved in process		Contact: Judi Greenwald Utility group?	Pending.

OUTREACH/MEETINGS

Date: August 12, 1997

Requested Meeting	Time Sensitivity	Recommended Action	Status
Kenneth Mentzer Exec VP North American Insulation Manufacturers Assoc. 44 Canal Center Plaza, #310 Alex., VA 22314 703 684 0084 703 684 0427 (fax) Get involved in process		Contact: Judi Greenwald 	Pending.
Bruce A. Steiner American Iron & Steel Institute 1101 17th St NW, #1300 WDC 20036-4700 202 452 7112 202 463 6573 (fax) Get involved with process		Contact: Judi Greenwald Set up task team.	Pending.
Business Council for Sustainable Energy Wants another meeting			
American Gas Association Murray Leibman Want dialogue <i>Dave Parker</i>			
National Association of Manufacturers Wants dialogue		Contact: Judi Greenwald (follow-on to previous meeting)	
Nuclear Energy Institute Wants dialogue		Contact: Judi Greenwald (follow-on to speech)	
AFL-CIO Wants follow-up and dialogue		Contact: Judi Greenwald	

Does call

OUTREACH/MEETINGS

Date: August 12, 1997

Requested Meeting	Time Sensitivity	Recommended Action	Status
Amory Lovins Rocky Mountain Institute 907 927 3128 970 927 4178 (fax) Wants to participate in WH Conf.	Phone call -- in DC Aug 16-17		
American Transport Assoc. (Airlines) Dialogue on position on air transport emissions.		Hold meeting with FAA, NASA, OSTP, and industry (Forrister).	Pending.

OUTREACH/MEETINGS

Date: August 12, 1997

Requested Meeting	Time Sensitivity	Recommended Action	Status
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COMPLETED MEETINGS			
Global Climate Coalition		Hold initial meeting	COMPLETED (Stern, 7/ 8)
ICCP		Hold initial meeting	COMPLETED (Stern, 7/ 9)
BCSE		Hold initial meeting	COMPLETED (Stern, 7/ 9)
Climate Council		Hold initial meeting	COMPLETED (Stern, 7/10)
AFL-CIO		Hold initial meeting	COMPLETED (Stern, 7/ 9)
Enviro leaders		Hold initial meeting	COMPLETED (Stern, 7/ 8)
BP		Hold initial meeting	COMPLETED (Stern, 7/)
Embassy of Australia 1601 Mass Ave, NW WDC 20036 Justine Brown 202 797 3209 202 797 3201 (fax)			COMPLETED (Forrister w/ DOS, 7/24)
Amory Lovins Rocky Mountain Institute 907 927 3128 970 927 4178 (fax) Paper on climate profits	In DC July 24-26	Several requests to agency asst. secs. Should coordinate in one meeting.	COMPLETED (Asst. Sec's met w/him on 7/?)



GLOBAL CLIMATE COALITION

Beane comments

GLOBAL CLIMATE COALITION MEMBERSHIP

Board Membership

- ✓ Air Transport Association
- ✓ Allegheny Power
- ✓ Aluminum Association, Inc.
- ✓ American Automobile Manufacturers Association
- ✓ American Commercial Barge Line Co.
- ✓ American Forest & Paper Association
- ✓ American Iron & Steel Institute
- ✓ American Petroleum Institute
- ✓ American Portland Cement Alliance
- ✓ Association of American Railroads
- ✓ Association of International Automobile Manufacturers
- ✓ Atlantic Richfield Coal Company
- ✓ Chemical Manufacturers Association
- ✓ Chevron
- ✓ Chrysler Corporation
- ✓ Cinergy
- ✓ Council of Industrial Boiler Owners
- ✓ CSX Transportation, Inc.
- ✓ Cyprus-Amax
- ✓ Drummond Company
- ✓ Duke Power Company
- ✓ Edison Electric Institute
- ✓ Exxon
- ✓ Ford Motor Company
- ✓ General Motors
- ✓ Greencool
- ✓ Illinois Power Company
- ✓ Mobil Corporation
- ✓ National Association of Manufacturers
- ✓ National Lime Association
- ✓ National Mining Association
- ✓ National Rural Electric Cooperative Association
- ✓ Process Gas Consumers
- ✓ Southern Company
- ✓ TECO Energy, Inc.
- ✓ Texaco, Inc.
- ✓ U.S. Chamber of Commerce
- ✓ USX Corporation
- ✓ Union Electric Company
- ✓ Western Fuels Association

General Membership

- ✓ Amoco Corporation
- ✓ BHP Minerals
- ✓ CONRAIL
- ✓ Consumers Power
- ✓ Dow Chemical Company
- ✓ ELCON
- ✓ Eastman Chemical
- ✓ Goodyear Tire & Rubber Co.
- ✓ Hoechst Celanese Chemical Group
- ✓ Kaiser Aluminum & Chemical Corp.
- ✓ McDonnell-Douglas
- ✓ Norfolk Southern
- ✓ Northern Indiana Public Service Co.
- ✓ Ohio Edison
- ✓ Shell Oil Company
- ✓ Society of the Plastics Industry
- ✓ Union Carbide

For further information on the Global Climate Coalition, please contact John Shlaes, Executive Director. [see address below]

FAX MEMO**August 15, 1997**

TO: Todd Stern
FROM: Dirk Forrister

Per your instruction, I spoke with Rich and Kevin about their ideas for White House outreach. I spent a few minutes with Cherri Carter to get her ideas, and the attached draft benefits from her initial views. However, she did not have time yesterday or today to discuss it at length. She is reviewing the draft over the weekend. She and I are scheduled to meet on Monday morning to discuss and revise. I know she will have some helpful suggestions on specific companies, plus other ideas.

At this time, I am leaning against the WWF suggestion of another major CEO meeting with the President -- although it runs counter to my instincts to turn away the chance to use our best advocate with industry. (For example, we could try to use it as a carrot for those who are close to ready to offer a commitment.) I think you discussed this in person with Rich and Kevin, so you know their views against it. I'd like to test that with a couple of other folks before giving you a final recommendation.

I'm heading to the mountains for the weekend. I can be reached at 304/897-6077.

DRAFT *DRAFT*DRAFT
(8/15/97)

White House Climate Change Outreach Plan

Background:

- The President's meeting with the 10 CEO's of "Fortune 500" companies created a new spark of interest in industry toward becoming part of the solution to climate change -- so long as the Administration's proposed policy framework is achieved (combining binding emissions budgets with reasonable timing, emissions trading and joint implementation).
- One CEO proposed an intriguing possibility: in exchange for a "reasonable target" (such as 2010 - 2020), industry would step forward to enter voluntary agreements "with real teeth" in the period leading up to the binding regime.
- Other CEO's stressed the importance of a stronger public-private commitment to an effort to research, develop and deploy climate-friendly technologies.

Objectives:

- Build positive momentum from CEO meeting.
- Develop enhanced voluntary CEO commitments that could be unveiled at October White House Conference.
- Follow-up on other suggestions from CEO meeting through more focused, sectorally-focused discussions on how best to deliver:
 - technology strategies and other market-based domestic policies;
 - international policy framework (binding emissions budget alternatives, JI, international emissions trading, developing country commitments);
- Begin to create the coalition of supporters for an American position for Kyoto.

1. The Electric Power Sector

Desired Outcome: Companies could agree to rally other electric utilities for new, improved commitments for the October conference. The President could assure credit for early action. In addition, these companies could be expected to support and participate in a "climate technology for the future" drive. Later, when the President reinforces his commitment to U.S. policy framework and announces the terms of the "realistic, achievable and binding target," these commitments (and tonnes pledged) would serve as a show of force in American resolve to combat climate change.

Guests: 1. Linn Draper, AEP
 (Illustrative list) 2. Fred Buckman, PacifiCorp
 3. Craven Crowell, TVA
 4. William Dahlberg, Southern Co.
 5. William Davis, Niagra Mohawk
 6. Charles Bayliss, Tuscon Electric Co.
 7. Roger Sant, AES Corp.
 8. Thomas Casten, Trigen Energy

*how about
positive gas -*

9. Gregory Boyce, Kennecott Energy Co.
10. Irl Englehardt, Peabody Coal

- WH/Cabinet:
1. Todd Stern (Chairs meeting)
 2. Secretary Pena (alternative: Dep. Sec. Moler)
 3. Secretary Daley
 4. Gene Sperling/Tarullo
 5. Katie McGinty
 6. Jack Gibbons
 7. Janet Yellin
 8. Secretary Rubin

2. Oil & Gas

Desired Outcome: These companies have yet to pledge voluntary commitments. Building on the utility model, these CEO's could develop an industry-wide voluntary reduction framework. This would set up the parameters for compacts for voluntary reductions from companies that take action prior to the binding target by assuring credits for early reductions.

- Guests:**
(Illustrative list)
1. Ken Lay, Enron
 2. Steve Percy, BP
 3. Phil Carroll, Shell
 4. Larry Fuller, Amoco
 5. Ken Derr, Chevron
 6. Mike Bowlin, Arco
 7. Bob Catelle, Brooklyn Union
 8. Richard Farmer, Pacific Enterprises
 9. Wayne Allen, Phillips Petroleum
 10. Layton Stewart, _____ (Big LA independent oil producer)

- WH/Cabinet:
1. Todd Stern (Chairs meeting)
 2. Secretary Pena (alternative: Dep. Sec. Moler)
 3. Secretary Slater
 4. Gene Sperling/Dan Tarullo
 5. Katie McGinty
 6. Jack Gibbons
 7. Janet Yellin

3. Manufacturing

Desired Outcomes: These companies have yet to pledge voluntary commitments. Building on the utility model, these CEO's could develop an industry-wide voluntary reduction framework. This would set up the parameters for compacts for voluntary reductions from companies that take action prior to the binding target by assuring credits for early reductions. This effort could benefit from the strong public-private R&D partnerships (DOE's "Industries of the Future")

- Guests:**
(Illustrative list)
1. Robert Burt, FMC
 2. Michael Bonsignore, Honeywell
 3. Hank Barnett, Bethlehem Steel
 4. Pete Corell, Georgia-Pacific
 5. Paul O'Neil, Alcoa
 6. George David, United Technologies

7. William Stavropoulos, Dow
8. Paul Yhouse, Holnam
9. John Krol, DuPont
10. Joseph Cannon, Geneva Steel
11. Glen Hiver, Owens-Corning
12. Amstead?(A foundry?)
13. [Norm Augustine][successor?], Lockheed-Martin
14. Gary Tooker (or Chris Galvin?), Motorola
15. Harold Wagner, Air Products and Chemicals
16. Jack Creighton, Weyerhaeuser
17. DiSimone, 3M

- WH/Cabinet:
1. Todd Stern (Chairs meeting)
 2. Secretary Pena (alternative: Dep. Sec. Moler)
 3. Secretary Daley
 4. Administrator Browner (alternative: Dep. Adm. Hanson)
 5. Gene Sperling/Dan Tarullo
 6. Katie McGinty
 7. Jack Gibbons
 8. Janet Yellin

Additional Steps with Other Industries: The sectors noted above cover the bulk of U.S. greenhouse gas emissions, but other sectors are important.

- The President will meet in early October with CEO's of the **"Big 3" automobile manufacturers**.
- Secretary of Transportation Slater, NASA Administrator Goldin and Undersecretary of State Wirth or Eisenstadt could be helpful in meeting in September with CEO's of leading **airlines** (Northwest, American, United, Delta, etc.) and **aircraft manufacturers** (Boeing) on some specific proposals that could garner their support (relating to international standards and enhanced air traffic control proposals).
- Secretary Daley and Administrator Browner could be helpful in meeting with the **electronics and telecommunications industries** (Intel, Microsoft, AT&T, US West, Ameritech) that use modest amounts of CFC substitutes and are participating now in voluntary efforts to reduce. They could possibly expand their commitments to continually improve post 2000.

MARKING INITIALS: MI DATE: 12/2/97

Outreach

2011-07-12
 Sixth-draft full content (to be edited to various forms & lengths)
 for business audiences, 28 August 1997. **Strictly confidential.**
 For personal review only. Do not cite, copy, forward, or quote.
Strictly embargoed until ultimate release at a date to be set.

Citations to come; kindly ignore square-bracketed placeholders for the full references.

Climate: Making Sense and Making Money

AMORY B. LOVINS, DIRECTOR OF RESEARCH, AND L. HUNTER LOVINS, PRESIDENT
 ROCKY MOUNTAIN INSTITUTE

1739 Snowmass Creek Road, Snowmass CO 81654-9199, USA, <http://www.rmi.org>
 1 970 927 3128, FAX -4178, ablovins@rmi.org + hlovins@rmi.org

On 19 May 1997, the chief executive of British Petroleum said: "[T]here is now an effective consensus among the world's leading scientists and serious and well informed people outside the scientific community that there is a discernible human influence on the climate, and a link between the concentration of carbon dioxide and the increase in temperature." He continued: "[W]e must now focus on what can and what should be done, not because we can be certain climate change is happening, but because the possibility can't be ignored."

The prospect of having to reduce carbon emissions has aroused dismay, foreboding, and resistance among many in the business community who fear it would hurt profits and growth. That is unfortunate, especially because their reaction stems from one unexamined assumption—which is incorrect.

Predictions of dire consequences from those on all sides—climate-protectors and cost-avoiders, interventionists and laissez-fairers, those concerned about their grandchildren and about their shareholders—freeze stakeholders into seemingly opposed positions. Their preoccupation with defending those positions masks vast opportunities for mutual gain. It might be more productive for all sides to acknowledge the hopes they share. All of us want to be safe, prudent, profitable, productive, and competitive. All want flexibility, entrepreneurship, and markets doing what they do best. All want the poor, at home and abroad, to have a fair chance to live better. And nearly all can get what they want, simultaneously and without compromise—a stable climate *and* a vibrant economy—if practical business experience is allowed to replace theoretical assumptions.

Economist Robert J. Samuelson, in the 14 July 1997 *Newsweek*, concluded: "It would be political suicide to do anything serious about [climate]....So shrewd politicians are learning to dance around the dilemma." Climate policy is in this rut because such influential economists *assume* that protecting the climate will be costly: in Samuelson's widely held view, saving a ton of carbon emissions would happen only under a roughly \$100 tax, a level he thinks might only cut 2010 emissions back to 1990 levels. Thus "Without a breakthrough in alternative energy—nuclear, solar, something—no one knows how to lower emissions adequately without crushing the world economy." Congress "won't impose pain on voters for no obvious gain to solve a hypothetical problem. And if the United States won't, neither will anyone else."

This eminent economist holds that belief because it's the conclusion reached by many economic computer models. He may not realize, however, that the models find carbon abatement to be costly *because that's what they assume*. This assumption masquerading as a fact has been so widely repeated as the input and hence the output of supposedly authoritative models that it's often deemed infallible.

Yet an enormous body of overlooked empiricism, including government-sponsored studies [e.g., ICF 1990, NAS *Pol Implns of Grnhs Wrng*, D J Evans ed, 1992, & E S Rubin et al., "Realistic Mitigation Options for Global Warming," *Sci* 257:148ff, 10 July 1992, Okken et al. 1991, Krause, MDLevine&MABrown *Scenarios for U.S. Carbon Reduction* LBNL-40533 9/97] and worldwide business practice, shows that the breakthrough Samuelson seeks has already happened. Protecting the climate can be *not costly but profitable*—just as many industries are al-

ready turning the costs of environmental compliance into the profits from pollution prevention.¹ To prove that, this paper will:

- show how firms are starting to capture these profit opportunities, and can greatly broaden and intensify that success even on a national and global scale;
- examine how eight kinds of practical obstacles that have retarded implementation can be turned into lucrative business opportunities;
- explain how climate/economic models ignore those opportunities and wrongly assume that rapid adoption requires high energy prices;
- clarify how least-cost climate solutions can foster vibrant competitiveness and employment; and
- demonstrate that the climate issue represents a largely unexploited and underrecognized business bonanza.

Consider a few examples. Southwire, the top independent U.S. maker of rod, wire, and cable (a very energy-intensive business), cut its electricity use per pound of product by 40%, gas by 60%, during 1981–87—then kept on saving even more energy and money, still within two-year paybacks. The resulting savings created nearly all the company's profits in a tough period when competitors were going under. The two engineers who led the effort may have saved four thousand jobs at ten plants in six states. The lead engineer, Jim Clarkson, says the technologies are all simple and available; their effective use takes only "an act of management will and design mentality, consistently applied." Indeed, Southwire found that such dramatic energy savings both require and facilitate better management and production systems that are vital anyhow for competitiveness, so the energy savings—sufficient "to cut American industrial energy use in half," as Southwire did—tag along almost for free.

In 1981, Dow Chemical's 2,400-worker Louisiana division started prospecting for overlooked savings. Engineer Ken Nelson quietly set up a shop-floor-level contest for energy-saving ideas. Proposals had to offer at least 50% annual return on investment. The first year's 27 projects averaged 173% ROI. Startled at this unexpected bounty, though expecting it to peter out quickly, Nelson persevered. The next year, 32 projects averaged 340% ROI. Twelve years and almost 900 implemented projects later, the workers had averaged (in the 575 projects subjected to *ex post* audit) 202% predicted and 204% audited ROI. In the later years, the returns and the savings were both getting bigger, because the engineers were learning faster than they were exhausting the "negawatt" resource. In only one year did returns dip into double digits (97% annual ROI). The whole suite of projects paid Dow's shareholders \$110 million every year.

DuPont expects to save the equivalent of 18 million tons of CO₂ by 2000 through simple measures that will also save \$31 million each year. Roche Vitamins (Belvedere, NJ) has profitably cut its steam use per unit of production by more than half in five years. A new chiller and related improvements at a Kraft ice-cream plant saved 33% of its electricity and 2,500 tons of CO₂ a year; productivity rose 10% and the plant turned from a money-loser into one of the most competitive. A process innovation at Blandin Paper Company (Grand Rapids, MN) saved each year 37,000 tons of CO₂ and more than \$1.8 million.² The first two years of billion-dollar carpetmaker Interface Corporation's efficiency efforts, *The Wall Street Journal* reports [11 July 1997 p B1], have saved "a stunning \$25 million..., with another \$50 million expected the next two years." Greenville Tube Corporation's demonstration of new drivesystems under DOE's Motor Challenge program boosted productivity 15% and energy efficiency 30%, reduced scrap 15%, and saved \$77,000 a year with a five-month payback [Romm present'n]. And Southern Company's 1984–94 improvements in the thermal efficiency of its fossil-fueled power plants saved 400,000 tons of SO₂, 35 million tons of CO₂, and an annual \$108 million.

Because such examples are the exception, not yet the rule, America is confronted, as Pogo said, by insurmountable opportunities. Those opportunities can create enough practical ways to mitigate climatic concerns *and* save more money than they cost, without ascribing any value to the abatement itself, to turn climate change into an unnecessary artifact of the uneconomically wasteful use of resources. Specifically³:

- Over half⁴ of the threat to climate disappears if energy is used in a way that saves money. In general, *it's far cheaper to save fuel than to burn it*.
- Another one-fourth or so of the threat can be abated by farming and forestry practices that take carbon out of the air and put it back in the soil and plants where it belongs, in the rich tilth and diverse biota that create lasting value. Soil-conserving and -building practices are generally at least as profitable as soil-mining, chemical-dependent methods [NRC 1989, AREE], so let's call them at least a breakeven.

- The rest of the threat vanishes when we replace CFCs with the new substitutes which, thanks to industrial innovation, work the same or better and typically cost about the same or less. (They're also required by global treaty to protect the stratospheric ozone layer.)

So if the "cost" of protecting the climate ranges from strongly negative to roughly zero or irrelevant, what are we waiting for?

Assuming the conclusion

Climate policy has been held hostage to a tacit presumption that if saving a lot more energy were possible at an affordable price, it would already have been implemented. That's like not picking up a \$100 bill from the sidewalk because if it were real, someone would previously have picked it up; or like an entrepreneur who abandons a good business idea because if it were sound, it would have been done earlier.

All economists know that real markets are far from theoretical perfection. But most climate/economy models assume that almost all profitable energy savings must already have been bought—as if in a perfect market. On this basis, the modelers suppose, buying significantly bigger savings will be worthwhile only at higher energy prices. They then use big computer models to calculate how big an energy tax is needed (based on historic elasticities), how much that will depress the economy, and hence what the "cost" of protecting the climate must be.

Those models have driven policy for the past two decades. They may get the amount of money about right—but flowing in the wrong direction. A model popular in the Reagan-Bush years trumpeted the notion that meeting the Toronto carbon-reduction goals would *cost* the U.S. about \$200 billion a year; but the empirical evidence of what energy savings actually cost showed that saving that much fossil fuel would *save* the U.S. about \$200 billion a year compared with buying and burning that fuel. Ever more elaborate models, discussed further below, continue to be built on the same fundamental assumption—that saving energy isn't profitable at present prices and hence will require higher prices that will burden firms and the national economy.

Had those theorists ever run an energy-saving business, they'd know better. GE Chairman Jack Welch said of American industry [*Fortune* Cover Conversation, 11Dec95], "Our productivity is at the beginning stages. There's so much waste. There's so much more to get, it's unbelievable. And somehow or other people think all these things are finite." Practitioners often find that the more the waste that pervades industry is corrected, the more new opportunities emerge to save even *more* resources, even faster and cheaper—especially electricity, which is the costliest and most climate-affecting form of energy.⁵

Big, cheap energy savings

- Consider a simple example about pumping—the biggest use of electric motors. Leading American carpet-maker Interface was recently building a factory in Shanghai. One of its processes required 14 pumps. The top Western specialist firm sized them to total 95 horsepower. But a fresh look by Interface/Holland's engineer Jan Schilham, applying methods learned from Singapore expert Eng Lock Lee, cut the design's pumping power to only 7 hp—a 92% or 12-fold energy saving. It also *reduced* the system's capital cost, and made it easier to build and maintain and more reliable and controllable.

These astonishing results required two changes in design. First, Schilham chose big pipes and small pumps instead of small pipes and big pumps: friction falls as nearly the fifth power of pipe diameter. Second, he laid out the pipes first, then installed the equipment, not the reverse: the pipes are therefore short and straight, with far less friction, requiring still smaller and cheaper pumps, motors, inverters, and electricals. The straighter pipes also allowed him to add more insulation, saving 70 kilowatts of heat loss with a two-month payback.

Schilham marveled at how he and his colleagues could have overlooked such simple opportunities for decades. His redesign required, as inventor Edwin Land used to say, not so much having a new idea as stopping having an old idea; not rocket science but rather correcting a common error in engineering economics. The original specification used a rule-of-thumb that balanced the extra capital cost of fatter pipe only against the saved *operating* cost of reduced pumping energy. The new design instead optimized for lifecycle savings in pumping energy *plus* capital cost—not just of the pipes but the *whole system*. The extra cost of the slightly bigger pipes was far smaller than the cost reduction for the dramatically smaller pumps and drivesystems. Such whole-system lifecycle costing is widely

used in principle but rarely in practice. Optimizing energy-using components in isolation tends to pessimize the whole system and hence the bottom line.

Such opportunities exist in more than just pumping. Major energy savings are available in valves, ducts, dampers, fans, motors, wires, heat exchangers, insulation, and most other technical design elements, in most technical systems that use energy, in most applications, in all sectors. Virtually all energy uses are designed using rules-of-thumb that are wrong by about three- to tenfold. Substituting economically rational design would therefore save much of the energy used by industry, while *reducing* capital costs. Many of those savings can also be profitably retrofitted into existing plants, either immediately or as part of routine renovations and expansions.

Similar rethinking of building design has lately yielded, among hundreds of examples,

- houses that are comfortable with no heating or cooling equipment in climates ranging from -47°F in the Colorado Rockies [H1] to $+115^{\circ}\text{F}$ in central California [ACT² refs, TM-93-5], yet cost less to build;
- air-conditioning savings ranging from 90% in a new Bangkok house, at no extra cost [Suntoorn], to 97% in a cost-effective California office retrofit design [F4];
- total energy savings from over 50% to nearly 90% in cost-effective U.S. house and small-office retrofits [F4, ACT² Sunset/ENSAR]; and
- a retrofit design to save 75% of the energy in a typical 20-year-old Chicago curtainwall office tower [ASHRAE J], providing far greater comfort and a simple payback of -5 to $+9$ months.⁶

A particularly effective retrofit strategy, illustrated by the last example, is to coordinate energy efficiency with renovations needed anyhow, such as replacing aging glazings and mechanical systems. New superwindows can insulate fourfold better and let in six times as much daylight but a tenth less unwanted heat. That can trigger further savings, notably in lighting, that can cut air-conditioning needs fourfold. Then the mechanical system can be replaced with a redesigned version four times smaller, four times as efficient, and cheaper than renovating the old one. That saves about enough money to pay for the extra costs of the superwindows and other improvements. Every city in America has such buildings ripe for similar treatment—100,000 of them nationwide.

Careful scrutiny of actual market prices for equipment ("In God we trust; all others bring data") reveals that even at the single-component level, many technical devices—motors, valves, pumps, rooftop chillers, etc.—show no correlation whatever between efficiency and price. A 100-hp American motor, for example, can be cheaper at 95.8% efficiency than an otherwise identical 91.7%-efficient model. But if you don't know that—if you assume, as economic theory predicts, that more efficient models always cost more—then you probably won't shop for it. And that can be costly. If the motor runs continuously, then each one-percentage-point gain adds about \$50 per horsepower to the bottom line, so not choosing the most efficient 100-hp motor can slash present-valued profits by \$20,000.

Again, the key is not so much adopting new technologies, though they're important, as using proper recipes for combining the best available technologies in the optimal manner, sequence, and proportions. Some of the recipes are embarrassingly obvious. In hot cities, heat-reflecting roofs can save nearly 70% of cooling energy. Up to 40%—90% for houses—can be saved by combining light-colored paints and pavement with revegetation to help bounce solar heat away. An urban tree keeps about 10–14 times as much carbon out of the air as the same tree planted in a forest where it can't also save air-conditioning energy by keeping people and buildings cooled and shaded. Such effects multiply: traditional passive cooling methods formerly provided summer comfort even in steamy Bangkok, and can do so again if superefficient cars and buildings are gradually introduced so the waste heat from cars' engines and air conditioners stops making the city too hot.⁷

Proven examples abound in every kind of business:

- Properly choosing office equipment and commercial and household appliances has saved over two-thirds of their energy use with the same or better service and comparable or lower cost [Shepard et al. 1990]. (Such choices cut our household electric bill to \$5 a month with a 10-month payback using 1983 technology.)
- Skilled retrofits have saved 70–90% of office and retail lighting energy, yet the light quality is more attractive and the occupants can see better. In many cases, the better lighting equipment more than pays for itself by costing less to maintain [Lovins & Sardinsky 1988, Piette et al. 1989].
- Motors use three-fourths of industrial electricity, three-fifths of all electricity, and more primary energy than highway vehicles. This use is highly concentrated: about half of all motor electricity is used in the million larg-

est motors, three-fourths in the three million largest. Since big motors use their own capital cost's worth of electricity every few *weeks*, switching to more efficient motors can pay back quickly. This plus retrofitting the rest of the motor system saves about half its energy and pays back in around 16 months [Lovins et al. 1989, Fickett et al. 1990]. Doing this right requires integrating up to 35 kinds of improvements to the motors, controls, electrical supply, and drivetrains, but the resulting saving is twice as big, yet one-fifth as costly, as conventional retrofits that use only two kinds of improvements.

- The chemical industry saved half its energy per unit of product during 1973–90 by plugging steam leaks, installing insulation, and recovering lost heat. Now it's discovered that better catalysts and matching heat to the required temperature can often save 70% or so of what's left, yet pay back within two years.⁸ Next-generation industrial plant design, now moving from the chemical industry into semiconductors, is uncovering 50–75% savings with lower capital cost, faster construction, and better performance. Early adopters will prosper.

Many of these examples illustrate a new design concept: that whole-system engineering can often make it cheaper to save a large than a small fraction of energy use. This "tunneling through the cost barrier" typically comes from integrating the design of an entire package of measures so they do multiple duty (such as saving on both energy *and* equipment costs), or piggyback on renovations being done anyway for other reasons, or both. Good engineers think this is fun. Most economic theorists assume it's impossible.

Moreover, the cornucopia of efficiency opportunities keeps expanding far into the future:

- Just selling "waste" heat to other users could cost-effectively save up to about 30% of U.S. and 45% of Japanese industrial energy. (America's power stations waste more heat than Japan's total energy use.)
- Still largely unexploited are new kinds of heat exchangers and motors, membrane separators and smart materials, sensors and controls, rapid prototyping and ultraprecision fabrication, and radically more frugal processes using enzymes, bacteria, and biological design principles.
- Saving materials also saves the energy needed to produce, process, transport, and dispose of them. Product longevity, minimum-materials design and manufacturing, recovery of any scrap not designed out, repair, reuse, remanufacturing, and recycling together present a formidable menu of business opportunities that also save energy, pollution, mining, and landfilling. Japan cut its materials intensity by 40% just during 1973–84; but far more is yet to come. Americans throw away enough aluminum to rebuild the country's commercial aircraft fleet every three months, even though recycling aluminum takes 95% less energy than making it from scratch. Smart manufacturers now take their products back for profitable remanufacturing, as IBM just did with computers in Japan and Xerox does with photocopiers worldwide. Interface, the world's top carpet-tile maker, reckons to cut its materials flow by about tenfold, ultimately by a hundredfold, by leasing floor-covering services instead of selling carpet, remanufacturing old carpet, and ultimately mining nylon from landfilled carpet.
- Innovative new approaches also seem about to solve the most intractable part of the climate problem—road vehicles.⁹ Ultralight, ultralow-drag, hybrid-electric "hypercars" [refs] with 70–90% fuel savings, better performance in all respects¹⁰, and competitive costs have attracted about \$2.5 billion of private investment by 25-plus firms worldwide, half of them new market entrants. GM has announced it's developing cars with half the weight, half the drag, and hybrid drive (hypercars in all but name). In autumn 1997, Ford will test a dozen 40%-lighter 6-passenger cars (including two kinds with hybrid drive), meeting essentially the goals of the government's tripled-efficiency car program but 3–6 years early, while Toyota will mass-market in Japan a hybrid Corolla-class car with doubled efficiency, tenfold lower emissions, and only \$4,000 higher initial price. Daimler-Benz has pledged to be making 100,000 fuel-cell cars a year by 2005. With such progress being *announced*, imagine what's going on behind closed doors. Ultimately hypercars will save, probably at a handsome profit, as much oil worldwide as OPEC now sells.
- Many energy savings reduce climatic threats from more gases than just CO₂. Advanced refrigerators, using vacuum insulation and helium-engine coolers, can save over 90% of standard refrigerators' energy, thus avoid burning enough coal to fill the refrigerator every year. This also eliminates climate- and ozone-disrupting CFCs from insulation and refrigerant. Landfill and coal-mine gas recovery turns heat-trapping and hazardous methane emissions into a valuable fuel while making electricity that displaces coal-burning. Recycling paper (the average person in a rich country uses as much wood for paper, mostly wasted, as the average person in a poor country uses for fuel) saves it from turning cellulose's carbon into landfill methane, and also saves fossil-fueled manufacturing and transportation. Superefficient cars simultaneously reduce at least eight classes of heat-trapping gases. These and scores more examples represent business opportunities with multiple profit streams.

What do you do when efficiency runs out?

Providing the energy that a severalfold larger global population, many of them desperately poor, will need for a decent life mainly requires much more efficient use. This offers about threefold greater relative scope, and meets an even more urgent developmental need, in the South than in the North. But it will also require energy production. Where will that energy come from if not fossil fuels?

Such firms as British Petroleum and Enron are investing heavily in renewables—for good reason [Romm & Curtis *Atl* 4/96 “Mideast Oil Forever?”]. London’s Delphi Group advised its institutional investors in 1995 that alternative energy industries not only help “offset the risks of climate change,” but also offer “greater growth prospects than the carbon fuel industry” [Mansley rpt on Gelbspan 87]. In 1990, five U.S. National Laboratories reported that either fair competition plus restored research priority¹¹, or proper counting of environmental benefits, could cost-effectively expand renewables to a level equivalent to three-fifths as much energy as the United States uses today; renewable electricity supply could be one-fifth *more* than present usage [SERI 1990]. In 1997, a new five-Labs study [Levine & Brown 97] found that efficiency, renewables, and other low-carbon options could profitably or very cheaply hold 2010 U.S. carbon emissions at about the 1990 level—reducing the carbon intensity of the economy at a 1997–2010 average rate of 2.3–2.5% per year.¹² Just in the buildings sector, reducing the 1990–2010 carbon increase from 26% to 4% would save about \$22 billion a year more (1995 \$ in 2010) than it would cost [*id.* 3.6].

Best of all, sunlight is most abundant where most of the world’s poorest people live. In every part of the world between the polar circles, freely distributed and efficiently used renewable energy is adequate to support a good life continuously, indefinitely, and economically using present technologies [Sørensen 1979, Reddy & Goldemberg 1988, Lovins et al. 1981, Johansson et al. 1989, 1992]. And this potential, once considered visionary, is starting to be validated in the marketplace. The world’s fastest-growing energy source, outpacing even energy savings, is now...windpower, up 26% during 1995–1996, and led by Germany (which just overtook American installed capacity), India, Denmark, and Spain. Double-digit annual growth in solar cell shipments is bringing costs steadily down, and counting some of the dozens of kinds of “distributed benefits” can make those cells cost-effective right now in many uses [Lovins & Lehmann 1997]. (The Sacramento utility even found it’s cheaper to hook alley lights to solar cells than to the existing wires.) Adding other advanced renewables can cut utilities’ carbon emissions by as much as 97% with unchanged reliability and essentially the same cost [Johansson et al. *rens. bk.* 1992 pp 23ff].

Meanwhile, doubled-efficiency combined-cycle gas turbines, with only one-fourth the carbon-intensity of coal-fired power plants, have quietly grabbed more than half the market. The new dark horse is low-temperature polymer fuel cells: equally efficient but silent, clean, reliable, scaleable from large to computer-battery-sized, and likely to transform global power markets. Indeed, converting wellhead natural gas to hydrogen for fuel cells could offer a new option. That separation is already cost-justified by the fuel cell’s high efficiency, so its free byproduct—CO₂—can be reinjected into a depleted gasfield. This cheaply sequesters all the carbon—up to about twice as much as the field’s natural gas originally contained—and is nearly paid for by the extra gas recovered by repressurizing the field [Williams 1996].

In contrast, the products of socialized costs and central planning have not fared well. The world’s slowest-growing energy source is nuclear power—under 1% in 1996, with no prospect of improvement. Despite strenuous effort, its global capacity in 2000 will be a tenth, and its ordering rate is now only a hundredth, of the lowest official forecasts made a quarter-century ago. In America, civilian nuclear technology ate \$1 trillion, yet delivers less energy than wood. It died of an incurable attack of market forces. The only question is whether, as many analysts believe, a third or more of U.S. nuclear plants will retire early because their operating and repair bills are unaffordable. The writing is on the wall: worldwide, around 90 nuclear plants have already retired after serving fewer than 17 years. Even in France, nuclear expansion was far outpaced by its poor cousin—unheralded, unnoticed, unsupported, but more cost-effective energy efficiency.

The collapse of nuclear power—once the great hope for displacing coal-burning—might at first appear to be bad for climate. But since nuclear power is the costliest way to displace fossil fuels, every dollar spent on it displaces less climatic risk than would have been avoided by spending that same dollar on the best buys first. This opportunity cost is why nuclear power actually makes climatic threats worse rather than better.

Whole countries, especially heavily industrialized ones, can achieve big energy savings, and alternative supplies, just by adding up individual ones. During 1979–86, in the wake of second oil shock, America got nearly five times as much new energy from savings as from all net expansions of supply, and 14% more energy from sun, wind, water, and wood but 10% less from oil, gas, coal, and uranium. By 1986, CO₂ emissions were one-third lower than they would have been at 1973 efficiency levels. The average new car burned half the fuel (4% of that gain came from making cars smaller, 96% from making them smarter) and emitted almost a ton less carbon per year. Annual energy bills fell by ~\$150 billion. Annual oil-and-gas savings grew to become three-fifths as large as OPEC's capacity [Rosenfeld et al. 1990a in AREE]. In those seven years, GDP rose 19% but energy use shrank 6%. No problem.

All that effort in the '80s only scratched the surface. In 1989, the Swedish State Power Board (Vattenfall) published—without, by order of its CEO, the usual disclaimer saying it didn't represent official policy—a thorough and conservative technical study of Sweden's further potential to save electricity and heat (which are often made jointly, or "cogenerated") [ref]. The team found that fully using mid-1980s technologies could save half of Sweden's electricity, 78% more cheaply than making more. That plus switching to less carbon-intensive fuels and relying most on the least carbon-intensive power stations could enable Sweden simultaneously to

- achieve the forecast 54% GDP growth during 1987–2010,
- complete the voter-mandated phaseout of the nuclear half of the nation's power supply,
- reduce the utilities' carbon releases by one-third, and
- reduce the private internal cost of electrical services by nearly \$1 billion per year.

If this is possible in a country that's full of energy-intensive heavy industry, cold, cloudy, very far north, and among the most energy-efficient in the world to start with, then countries not so handicapped must have important opportunities too. A year later, a study for the Indian state of Karnataka found that even a limited menu—several simple efficiency improvements, small hydro, cogeneration from sugarcane waste, biogas, a small amount of natural gas, and solar water heaters—would achieve far greater and earlier development progress than the fossil-fueled plan of the state utility, with two-fifths less electricity, two-thirds lower cost, and 95% less fossil-fuel CO₂ (Reddy & Goldemberg 1990).¹³ These two analyses spanned essentially the full global range of energy intensity and efficiency, technology, climate, wealth, income distribution disparities, and social conditions. Yet they both found that efficiency plus renewables yielded a highly profitable carbon-reducing investment package.

That Karnataka study exposes the twin canards that climate is the North's problem and that reducing the South's carbon emissions would inequitably cripple development. Precisely because energy waste hobbles economic progress, some governments in the South and East have lately been quietly cutting subsidies to energy-intensive industries and even to fossil fuels themselves—the latter more than twice as fast in the South as in the North. Reformers are also opening up the energy sector to greater competition, innovation, and efficiency. Such policies have achieved better overall economic efficiency *and*, as a free byproduct, much lower carbon emissions. Such countries are saving carbon about twice as fast as OECD countries have committed to do, and they're probably saving more carbon in absolute terms than OECD countries actually will do, while boosting their own economic growth. In short, they're saving energy for *economic* reasons and reaping the incidental environmental benefits. Among the strongest economic advantages is that building superwindow and efficient-lamp factories instead of power stations and transmission lines can use a thousandfold less capital [Gadgil] and recover it ten times as fast for reinvestment—thus liberating for other development needs the one-fourth of global development capital now consumed by the power sector [Asian paper].

China has three times the energy intensity of Japan (which itself has surprisingly big efficiency opportunities still untapped). But China is improving rapidly. Spurred by energy shortages that idle an estimated 25–30% of its manufacturing capacity, China now gets a quarter of its total primary energy from renewables and over an eighth of its electricity from cogeneration. It's converting all large industrial boilers to cogeneration. It's cut its coal subsidies from 37% to 29% (1984–95) and its oil subsidies from 55% to 2% (1990–95). These and other policy initiatives reduced the 1980–90 growth in China's carbon emissions by 40%. Now, encouraged by internal rates of return on recent manufacturing energy efficiency projects all exceeding 12% and usually exceeding 20%, China is tackling a further savings potential which the World Bank last year estimated would reach in 2020 a level greater than China's entire 1990 energy consumption [Reid & Goldemberg 1997]: in steelmaking alone, best practice could reduce the typical 1990 energy per ton by 64% promptly and 82% ultimately [UNDP 1997 p 72].

Similar conclusions have been found at scales ranging from New England (Krause et al. 1991a) and California (Calwell et al. 1990) to the five largest western European economies (Krause et al. 1991) to the world (LCE, Goldemberg et al. 1988). Studies for the governments of Canada (DPA Group 1989) and Australia (Greene 1990) confirmed that ~20% CO₂ cuts would be highly profitable. In Australia, for example, a 36% energy and 19% CO₂ reduction from projected 2005 levels would save \$6.5 billion (Australian) of private costs per year by 2005, because each \$5 invested in efficiency would save \$15 worth of fuel purchases *and* 1 ton of CO₂. A new U.S. study [E Innovns 6/97] similarly found that saving 26% of carbon emissions and 15% of primary energy by 2010 would also save 13% of national energy costs—\$85 billion a year, or \$205 per ton of avoided carbon emissions, or \$530 per household per year—and create nearly 800,000 net jobs. Investments in more efficient energy-using devices to 2010 would average \$29 billion a year, but direct monetary savings would average \$48 billion a year, excluding any value of stabler climate and cleaner air.

Such profitably efficient energy futures are simply a logical extension of past achievements. Energy savings since 1973 have cut this country's energy bill by \$150–200 billion a year¹⁴ *and* carbon emissions by one-fourth. We did all that quietly, easily, and profitably—but now we know how to do far better: America, and the world, have barely begun to capture the energy efficiency that's available and worth buying. Modern cars, after a century of devoted engineering refinement, use only 1% of their fuel energy to move the driver. An ordinary light-bulb converts only 3% of the power-plant fuel into light. The entire U.S. economy is only about 2% energy-efficient compared with what the laws of physics permit. National materials efficiency is even worse: only about 1% of all mobilized materials are actually put into and remain in the average product six weeks after its sale. Thus despite impressive achievements so far, America still wastes upwards of \$300 billion a year worth of energy: more than the entire military budget, far more than the federal budget deficit, and enough to increase personal wealth by more than \$1,000 per American per year. That waste begs to be turned into profits.

Marketplace energy savings: turning obstacles into opportunities

So if such big savings are both feasible and profitable, why haven't they all been done? Because the free market, effective though it is, is burdened by subtle imperfections that inhibit the efficient allocation and use of resources. It is necessary at the outset, writes Professor Stephen DeCanio, Senior Staff Economist for President Reagan's Council of Economic Advisers [sp sic][cite JGM],

...to discard the baggage carried by most economists (the author confesses membership of that much-maligned group) that immersion in a market environment guarantees efficient behavior by the market participants. Much of modern economic theory practically *defines* efficiency as the outcome of competitive market exchanges. But the bloodless "competition" of mathematical general equilibrium models bears only a partial relationship to the actual experience of real firms.

This is tacitly conceded whenever market economists, as a senior government official recently wrote, "are unpersuaded that just because an act seems to make good economic sense it will happen." That is true—precisely because of real-world obstacles and complexities that aren't reflected in the perfect-market economic models relied upon for the conventional conclusion that saving much energy will require much higher energy prices. In fact, those barriers block economically optimal investment in efficient use of energy in at least eight main ways. The good news is that *each of these obstacles represents a business opportunity* [F4Pt2]. Some examples of how they match up:

Obstacles

Capital misallocation

Energy is only 1–2% of most industries' costs, and most managers pay little attention to seemingly small line-items, even though small savings can look big on the bottom line. Surprisingly many executives focus on the top line and forget where saved overheads go; and without their attention, nothing happens. In addition, manufacturing firms tend to be biased toward investments that increase output or market share and away from those that cut operating costs [Levine & Brown 1997 p. 2.2].

Opportunities

A few years ago, one of us was able to tell the CEO of a Fortune 100 company that one of his sites had an outstanding energy manager who was saving \$3.50 per square foot-year. The CEO said, "That's nice—it's a million-square-foot facility, isn't it? So that guy must be adding \$3.5 million a year to our bottom line." He got that right—until he added in his next breath, "I can't really get excited about energy, though—it's only a few percent of my cost of doing business." He had to be

shown the arithmetic to realize that similar results, if hypothetically achieved in his 90-odd million square feet of facilities worldwide, would boost his corporation's net earnings that year by 56%. The energy manager was quickly promoted so he could spread his practices across the company.

About four-fifths of firms don't assess potential energy savings using discounted-cashflow criteria, as sound business practice requires; instead, they require a simple payback whose median is 1.9 years [DeCanio JGM]. At (say) a 36% total marginal tax rate, a 1.9-year payback means a 71% real aftertax rate of return, or around six times the marginal cost of capital. (For example, before state and then federal standards required them, high-efficiency magnetic ballasts, with a 60% real internal rate of return, won only a 9% market share [Levine et al AREE '95]. Many capital-constrained industries use even more absurd hurdle rates: in some, the energy managers can't buy anything beyond a six-month payback.

Many supposedly sophisticated firms count lifecycle cost only for big items and make routine "small" purchases based on first cost alone. Thus 90% of the 1.5 million electric distribution transformers bought every year, including the ones on utility poles, are bought for low first cost—passing up an aftertax ROI of at least 14% a year and many operational advantages, and misallocating \$1 billion a year.¹⁵

If you invest to save energy in your business or home, you probably want your money back within a couple of years, whereas utilities are content to recover their power-plant investments in 20–30 years—about ten times as long. Thus both managers and householders typically require about tenfold higher returns for saving energy than for producing it.¹⁶ This is equivalent to a tenfold price distortion. It makes us buy far too much energy and too little efficiency. Not fairly comparing ways to save with ways to supply energy means not choosing the best buys first, hence grossly misallocating capital—lots of capital. Until the late '80s, the U.S. wasted on uneconomic power plants and their subsidies (each roughly \$30 billion a year) about as much as it invested in all durable-goods manufacturing industries. This misallocation badly crimped the nation's competitiveness.

High consumer discount rates are especially tough: folks used to paying fifty cents for an incandescent light-bulb are often unwilling or unable to pay \$15–20 for a compact fluorescent lamp which, over its life (about 13 times that of the incandescent lamp), keeps nearly a ton of CO₂ out of the air and saves tens of dollars more in power-plant fuel, replacement lamps, and installation labor than it costs. It's a good deal, but sounds like too much

Top finance firms have joined the U.S. Department of Energy in an International Performance Measurement and Verification Protocol [IPMVP, DOE/EE-0081(97), 9/97, www.ipmvp.org]. This industry-consensus approach, like FHA mortgage rules, standardizes streams of energy-cost savings so they can be aggregated and securitized. That's creating a booming market in which loans to finance energy and water savings can be originated as fast as they can be sold into the new secondary market. Achieving the savings therefore no longer requires one's own capital, can be affordably financed, and needn't compete with other internal investment needs.

A new generation of building is overcoming the psychological barrier of supposedly higher capital cost. A hundred case-studies [GDS bk] demonstrate that energy savings of 75% or more can come with superior comfort, amenity, and real-estate market and financial performance—yet *identical or lower* capital cost, because integrated design creates synergies that drastically cut equipment and infrastructure costs. Major developers are starting to move such buildings into mainstream practice.

Arbitrageurs make fortunes from spreads of a tenth of a percentage point. The spread between the discount rates used in buying energy savings and supply are often hundreds of times bigger than that—surely big enough to overcome the transaction costs of marketing and delivering lots of small savings.¹⁷ (Scores of utilities proved this in well-designed '80s and early '90s programs that delivered efficiency improvements at total costs far cheaper than just *operating* existing thermal power stations [Nadel, ABL/Joskow].) This is the basis of the Energy Service Company concept, where entrepreneurs offer to help cut your energy bills for nothing up front—just a share of the savings. Skilled firms of this type are flourishing worldwide, although the domestic ESCO industry is still in its shakeout phase.

Southern California Edison Company gave away more than a million compact fluorescent lamps because that cost less than running power stations. SCE then cut the lamps' retail price by about 70% via a temporary subsidy paid not to buyers but to lamp manufacturers, thus leveraging all the markups. Some other utilities *lease* the lamps for, say, \$0.20 per lamp per month, with free replacements; customers can thus pay over time, just as

money.

Most international vehicles for investing in national or utility-level electric power systems consider only supply-side, not demand-side, options and have no way to compare them. The resulting misallocation is like the recipe for Elephant and Rabbit Stew—one elephant, one rabbit—and it's the wrong way around.¹⁸

Organizational failures

Old habits die hard. A famous company that hasn't needed steam for years still runs a big boiler plant, with round-the-clock licensed operators, simply to heat distribution pipes (many uninsulated and leaking) lest they fail from thermal cycling; nobody has gotten around to shutting the system down. Why rock the boat to make someone else look good? Why stick your neck out when the status quo seems to work and nobody's squawking?

Schedules conquer sensible design. One of us once called the chief engineer of a huge firm to introduce opportunities like a cleanroom that uses a small fraction of the energy he was used to, performs better, costs less, and builds faster. His reply: "Sounds great, but I pay a \$100,000-an-hour penalty if I don't have the drawings for our next plant done by Wednesday noon, so I can't talk to you. Sorry. Bye." The result is "infectious repetitis"—like the semiconductor plant where a pipe took an inexplicable jog in mid-air as if it were going around some invisible obstacle. The piping design had been copied from another plant that did have a structural pillar in that location. In short, intense schedule pressures combine with design professionals' poor compensation and prestige, overspecialized training, and utterly disintegrated processes to yield commoditized and pervasively poor technical design.

Few firms carefully measure how their buildings and processes actually work. Their design assumptions are therefore untested and often incorrect. Their design process is linear—require, design, build, repeat—rather than cyclic—require, design, build, measure, analyze, improve, repeat. No measurement, no improvement. And no discoveries—like the plant that for decades had been unwittingly running a 40-kilowatt electric heater year-round under its parking lot to melt snow. Nobody remembered or noticed until measurement found the books didn't balance, and the wiring was traced to track down the discrepancy.

Departments often don't or can't cooperate. A noted firm calculated that its proposed new office building should get all-new, superefficient office equipment, because the

they now pay for power stations, but the lamps are cheaper.

Rapidly growing new investment funds, partly funded by the climate-risk-averse insurance industry, are bypassing utilities altogether and investing directly in developing-countries' house-level "leapfrog" efficiency-plus-solar power systems. Those often cost less than villagers typically pay now for lighting kerosene and radio batteries, and represent a new market of two billion people.

Columbia University had entrenched practices too. When a tough new energy manager, Lindsay Audin, was told to cut 10% off its \$10-million-a-year energy bill, with uncompromised service and no upfront capital, authorizations were painfully slow—until he showed they were costing \$3,000 a day in lost savings, more than the delayers' monthly paychecks. Five years later he was saving \$2.8 million a year, 60% of it just in lighting; had won 9 awards and \$3 million in grants and rebates; and had brought 16 new efficiency products to market [CS-94-1].

Both such designers and their clients can get away with this, and probably won't notice it, so long as their competitors use the same methods, consultants, and vendors. But once such striking improvements are introduced to a given market segment, the laggards must adopt them or lose market share. Thus competitive forces can do automatically much of the marketing and outreach normally required. Rocky Mountain Institute, having successfully promoted superefficient buildings and cars by this method, is now helping with a new initiative to overhaul the semiconductor industry, which has \$100 billion worth of fabrication plants on the drawing boards worldwide, all inefficient. The opportunity for clean-sheet redesign is intriguing industry leaders who now understand that they cannot compete without leapfrogging over old methods.

The late economist Kenneth Boulding said hierarchies are "an ordered arrangement of wastebaskets, designed to prevent information from reaching the executive." But letting viscous information flow freely to those who need it stimulates intelligence, curiosity, and profits. At a large hard-disk factory, the cleanroom operator started saving lots of money once the gauge that showed when to change dirty filters was marked not just in green and red zones but in "cents per drive" and "thousand dollars' profit per year." In another plant, just labeling the light-switches, so everyone could see which switches controlled which lights, saved \$30,000 in the first year.

Electric utilities traditionally dis-integrate their operations too. But Canada's giant Ontario Hydro inverted its culture to make end-use efficiency and distribution plan-

extra cost of buying it early (rather than waiting for normal turnover) would be less than the up-front savings from smaller cooling equipment. No deal: the chiller was in one budget, office equipment in another. Similarly, Federal buildings are bought from one budget, then operated by a different organization from another; in some cases, they're prohibited from sharing investments so as to reduce taxpayers' total costs.

If you save, the beancounters simply cut your budget some more. Institutional or personal rewards for cutting energy costs are rare, even in the private sector.

Corporate turmoil spoils continuity. Many firms, assuming they'd already done all the worthwhile energy savings, downsized their energy managers right out of a job, stuffed the task onto other overloaded agendas, and watched it slip to an invisible priority. How many economists does it take to screw in a compact fluorescent lamp? None, goes the joke—the free market will do it. But we all know that somebody actually has to get the lamp from shelf to socket; otherwise the wealth isn't created. In many firms, that somebody doesn't exist.

Companies full of smart, competent, rational, and profit-oriented people often fail to optimize because of even deeper kinds of inherent organizational failures well described in the economic literature.¹⁹

Regulatory failures

All but a handful of states and nations reward regulated utilities for selling more energy²⁰ and penalize them for cutting your bill, so shareholders and customers have opposite goals—with predictable results. Many proposed restructuring efforts would enshrine the same perverse incentive in new commodity-based market rules—rewarding the sale of as many kilowatt-hours as possible at the lowest possible price, rather than rewarding better service at lower cost [Negawatts: 12 Transitions].

In some (though increasingly rare) cases, obsolete codes, standards (as for cement composition [Levine & Brown 97 4.41]), specifications (including those for corporate and military procurement), and laws actually prohibit sound and efficient practices. Far more often, standards meant to set a floor—like “meets code” (euphemism for “the worst building you can put up without being put in jail”), or the British expression “CATNAP” (Cheapest Available Technology Narrowly Avoiding Prosecution)—are misinterpreted as a ceiling or as an economic optimum.

ning its primary focus and generation an afterthought. Its first three experiments in meeting customers' needs by the cheapest means—typically demand-side investments plus better wires management—rather than reflexively building transmission and generating capacity cut its investment needs by up to 90%, saving US\$600 million. Such achievements can motivate deep structural and cultural reforms.

Washington State routinely shares the savings between their achievers, the General Fund, and an account reserved for reinvestment in more savings.

After Ken Nelson, the sparkplug of the remarkable Dow/Louisiana savings, retired in 1993, a reorganization disbanded his organizing committee, tracking ceased, and it became impossible to evaluate how much progress, if any, continued without him. (Lacking a champion, the neighboring Texas division reportedly never undertook a comparable effort in the first place.) But now Mr. Nelson, like Southwire's Mr. Clarkson, is an independent consultant, sharing his skills with more firms.

Proper measurement and incentives help: a utility that started paying its efficiency marketing staff a dollar for every measured kilowatt they saved quickly found that verified savings got bigger and cheaper—both by an order of magnitude.

Simple accounting innovations in a few states decouple utilities' profits from their sales volumes, and let utilities keep as extra profit part of whatever they save off their customers' bills. The nation's largest investor-owned utility, PG&E, thus added over \$40 million of riskless return to its 1992 bottom line while saving customers nine times that much. In California alone, Governor Wilson's PUC found that efficiency investments rewarded and motivated by this incentive system's emulation of efficient market outcomes, just during 1990–93, had saved customers a net present value of nearly \$2 billion. Thoughtful utility restructuring can do the same.

To encourage developers to exceed the minimal energy-saving requirements of building codes, Santa Barbara County entitled overcompliers (by 15–45+%) to jump the queue for approvals—a valuable reward at no cost. Elsewhere, some builders of superinsulated homes that leapfrogged far beyond code requirements have won credibility, and dominant market share, by offering to pay any heating bills over, say, \$100 a year, or all utility bills for the first five years' ownership.

The transportation sector is the fastest-growing and seemingly most intractable source of carbon emissions precisely because it is the most socialized, subsidized²¹, and centrally planned sector of the U.S. economy—at least for favored modes like road transport and aviation. It has the least true competition among modes, and the most untruthful prices, with hidden costs of hundreds of billions of dollars per year per year for U.S. road vehicles alone [refs]. These distortions leverage more billions into otherwise uneconomic infrastructure and locational decisions.

The dispersion of uses that causes so much excessive driving is mandated by obsolete single-use zoning rules meant to segregate noxious industries that scarcely exist today. Congestion is specifically caused by non-pricing or underpricing of the road resource: most roads are supported by taxes, not users, so they look free to drivers who behave much as Soviet customers did in demanding a great deal of energy when it looked free. Congestion is further exacerbated by building more subsidized roads that elicit even more traffic, and by requiring developers to provide as much parking as people use when they pay nothing for it. Future generations will marvel that the incredible social costs of these policies—costs deeply intertwined with many inner-city ills—went so long unremarked and uncorrected.

Thailand loses a sixth of its GDP to Bangkok traffic jams, so it's building Los Angeles-style freeways that will create more traffic.

Informational failures

The extremely high returns implicitly required for buying efficiency often reflect a paucity of accurate and up-to-date information. Do you know where to get everything you would need to optimize your own energy use, how to shop for it, how to get it properly installed, who would stand behind it? If any of the preceding examples of big, cheap savings surprised you, you've just observed a market barrier: if you didn't know something is possible, you can't choose to do it.

Strong evidence is emerging that co-locating where people live, play, shop, and work creates such desirable, friendly, low-crime, walking-and-biking-dominated neighborhoods that they yield exceptional market performance. Such co-location, and land-use policies that integrate housing and jobs with transit, can be further encouraged by "locationally efficient mortgages"—the subject of a \$1-billion Fannie Mae experiment—that effectively let homebuyers capitalize the avoided costs of a car they no longer need in order to get to work.

Employers can profit from "cashing out" employee parking spaces—charging fair market value for each space, and paying each employee a "commuting allowance" of equal aftertax value. By monetizing competition between all means of getting to work (or, through telecommuting, of not needing to), this will typically reduce demand for parking spaces, which often cost \$10–30,000 apiece, by more than it enriches the Treasury through the newly taxable perk.

Real-estate developers can profit from annuitizing perpetual transit passes rather than providing a \$25,000 parking place with each housing unit (which yields less but costlier housing). Allowing residents to rent out their daytime parking spaces can pay their home property tax [Shoup 1997].

Singapore is almost congestion-free because it charges drivers their true social cost and invests the proceeds in effective public transit and coordinated land-use.

Labeling tells buyers how competing models compare. Some voluntary labeling systems (as of a quarter-million San Francisco houses in 1978–80) have swept the market because buyers quickly became suspicious of any house that *wasn't* labeled. EPA's voluntary Energy Star standard for office equipment did the same, now embracing over 2,000 products by more than 400 manufacturers, because the efficient machines worked better, cost the same or less, and were therefore mandated for federal purchasing. They're saving a half-billion dollars a year, and promise a profitable ten-million-ton-a-year carbon saving by 2005. Other voluntary programs that provide informational, technical, and trade-ally support, like EPA's Green Lights [www.epa.gov/appdstar/green/glb-home.html], are succeeding because they create competitive advantage. Involving more than 2,300 organizations, Green Lights' retrofits save over half the lighting energy with 30% ROI and unchanged or improved lighting quality. The national potential for this effort alone is a \$16-billion annual saving, plus a 12% reduction in utilities' carbon and other emissions.

"Hassle factor" and transaction costs prevent efficient microdecisions in day-to-day life. For example, how much do you pay at home for a kilowatt-hour of electricity, and how many kilowatt-hours does your refrigerator—typically the biggest single user in the household unless you have electric space or water heating—use each year? If you don't know, because you're too busy living to delve into such minutiae, then you're part of another market barrier. And if you do know, then there's probably another barrier, because for the same price, you could have bought a seemingly identical refrigerator 2–3-fold more efficient, or nearer 20-fold with advanced techniques not yet brought to the mass market.

Risks to manufacturers and distributors

Industry lacks information too—about what customers really want and whether they'll put their money where their mouths are. Manufacturers often hesitate to take the risk of developing and making new energy-saving products, because of limited confidence that they'll sell in the face of all the obstacles listed here.

Efficient equipment often isn't available when and where it's needed—as anyone knows who's tried to replace a burned-out water-heater, furnace, refrigerator, etc. on short notice. Yet distributors, aware of the slow uptake of efficient devices, don't want to take the risk of carrying inventory that may sell slowly or not at all. Thus British Columbia Hydro found that the huge motors in that Province's mining and pulp-and-paper mills were virtually all inefficient, simply because that's what local vendors customarily stocked; anything else took too long to order, and the mills couldn't afford to wait.

Perverse incentives

Compensation to architects and engineers worldwide is based directly or indirectly on a percentage of the *cost* of the building or equipment specified. Designers who work harder to eliminate costly equipment therefore end up with lower fees, or at best with the same fees for more work. Such backwards incentives have led the U.S. to misallocate about \$1 trillion to air-conditioning equipment (and utility systems to power them) that wouldn't have been bought if the same buildings had been optimally designed to produce the same or better comfort at least cost [SOA:SC or ?SCTA or SIP2].

The real-estate value chain is full of incentives so perverse that each of the 25 or so parties in a typical large

It's precisely to make such decisions hassle-free—and because most appliances are bought not by billpayers but by landlords, homebuilders, and public housing authorities—that Congress almost unanimously approved mandatory efficiency standards for household appliances. They merit further extension to commercial and industrial devices. Such standards knock the worst equipment off the market and reward manufacturers for continuous improvement. That's largely why careless shopping for a same-priced refrigerator can sacrifice only 2–3-fold efficiency gains in America, vs. 6-fold in Europe. Smart utilities also reinforce standards by rewarding customers for beating them.

Swedish official Hans Nilsson pioneered contests for bringing efficient devices into the mass market. A major public-sector purchasing office issues a Request for Proposal guaranteeing to buy a large number of devices, bid from certain prices, if they meet certain technical specifications, including energy savings highly cost-effective to the user. This explicit expression of market demand has already elicited many important innovations giving a strong advantage to Swedish industry in both home and export markets. A "golden carrot" devised by Dr. David Goldstein of the Natural Resources Defense Council followed suit with improved U.S. refrigerators.

BC Hydro paid a small, temporary subsidy to stock only efficient models, so vendors' extra carrying cost was covered. In three years, premium-efficiency motors' market share soared from 3% to 60%. The subsidy was then phased out, supported by a modest backup standard. Similarly, PG&E found in the '80s that rather than paying customers a rebate for buying efficient refrigerators, it could improve refrigerator efficiencies faster, at less than a third the cost, by paying retailers a small bonus for each efficient model stocked, but nothing for stocking inefficient ones. The inefficient models quickly vanished from the shops, so when you wanted the next unit the dealer could put on the truck, it'd be efficient, because that's all they'd have.

Pilot projects launched by RMI are now testing how much more efficient buildings become if their designers are rewarded for what they save, not what they spend, by letting them keep several years' measured energy savings as extra profit. Early results are highly encouraging. The German and Swiss architectural associations are pursuing similar reforms.

Careful case-studies are revealing that in well-designed, highly efficient buildings, the better visual, acoustic, and

deal is systematically rewarded for inefficiency and penalized for efficiency [SIP2]. The 75% energy saving designed for the Chicago office tower mentioned earlier, with instant payback, wasn't bought: the property was controlled by a local leasing office, incentivized on dealflow, that didn't want to delay its commissions a few months by retrofitting before leasing up the building. The building then proved unmarketably costly and disagreeable, so it had to be sold off to a bottom-feeder. Yet the owner wasn't unsophisticated—it was one of the world's largest fiduciaries.

Split incentives—one party selecting the technology, another paying its energy costs—limit ultimate consumers' choices by substituting intermediaries who don't bear the cost of their poor decisions [DOE '96 @ 5L 2.2]. This issue is ubiquitous. Why should you fix up your rented premises if you don't own them? Why should the landlord do it if you pay the energy bills? Alternatively, if you *don't* pay the bills, why use energy thoughtfully (for example, why maintain or efficiently drive a company car whose costs are paid for you)? In the Shanghai pumping example above, the pipefitters don't mind putting in lots of extra bends, because they're paid by the hour and they won't pay the equipment or electricity bills.

Similar split incentives apply to the makers and users of all kinds of equipment used in buildings and factories. Such equipment is almost always inefficient, optimized on first cost alone, since those who sell it won't pay the operating costs and most buyers won't shop carefully. (Indeed, for most kinds of equipment, efficient equipment simply isn't available—until a big customer demands better, as Wal-Mart successfully did for day-lighting and air-conditioning equipment.)

In one respect the market works all too well: wasteful old equipment often gets salvaged for resale in the secondary market—mainly to poor people who can least afford the high running costs that motivated the scrappage in the first place. Such “negative technology transfer” can cripple development efforts [Asian paper].

False or absent price signals

Energy prices are often badly distorted by subsidies and by uncounted external (larcenous) costs not internalized by the Clean Air Act's laudable trading system. The U.S. still subsidizes energy supply by about \$21–36 billion per year [Koplow ASE93 for '89; EIA92 omits many terms], mostly for the least competitive options and essentially all for supply—implying significant costless reductions in carbon emissions just by removing subsidies [Shelby et al. 1995]. And that doesn't count an even

thermal comfort enables people to do about 6–16% more and better work. In a typical office, where people cost 100 times as much as energy, that boost in labor productivity is about 6–16 times as valuable to the bottom line as eliminating the entire energy bill! Analogous benefits, big enough to create decisive competitive advantage, are also being found in retail sales and manufacturing. These results may help to explain why firms participating in EPA's voluntary Green Lights lighting-efficiency programs showed stronger earnings growth than nonparticipants [cite DeCanio in Feldman bk]. Increasingly educated tenants will not long tolerate buildings that don't contribute to their success.

Lease riders can fairly share savings between landlords and tenants so both have an incentive to achieve them. Energy utilities could also (as some water/wastewater utilities already do) apply “feebates” to new building hookups: you pay a fee or get a rebate to connect to the system, but which and how big depends on how efficient you are, and each year the fees pay for the rebates. Unlike building codes and appliance standards—which are better than nothing, but become instantly obsolete and offer no incentive to do better—such a revenue-neutral economic instrument drives continuous improvement. It also signals lifecycle costs up front when long-lived investments are being made.

The world's largest maker of air conditioners, Carrier Corporation, is leasing comfort services—much as elevator-maker Schindler leases vertical transportation services and Dow leases solvent services. This improves not only resource efficiency but also incentives: the *more* efficient, durable, and flexible Carrier's air-conditioning systems become, the *greater* its profits, and the better the service it provides at lower cost to more customers. Service leasing aligns the providers' incentive with its customers' objective.

Some big California utilities buy up inefficient old motors, refrigerators, and other devices in order to scrap them before they enter the second-hand market: they're worth far more dead than alive. Unocal even bought and scrapped polluting old cars in order to gain pollution credits for its refinery near Los Angeles.

Subsidies are under increasing pressure by a more skeptical Congress and a better-informed public. Utility regulators in about 30 of the United States also take account of some externalities in considering utilities' proposed resource acquisition decisions. Some proposals for industry restructuring would worsen but others would help to correct these longstanding distortions.

bigger item: subsidies to security of supply that make the true cost over \$100 per barrel²² for Persian Gulf oil, all of it unnecessary.²³ (Yes, more was at stake in the Gulf War than just oil, but we'd hardly have sent a half-million troops there if Kuwait just grew broccoli.)

Energy price signals are diluted by other costs. For example, U.S. gasoline, cheaper than bottled water, is only an eighth of the total cost of driving, even though the car is cheaper per pound than a Big Mac. Why buy a 50- instead of a 20-mpg car when both cost about the same per mile to own and run?

Few firms track energy costs as a line-item for which profit centers are accountable. Firms in rented space may have energy bills prorated rather than submetered. Most billing systems give no end-use information that lets customers link costs to specific devices. Many firms, especially chains and franchises, never even see their energy bills, which are sent directly to a remote accounting department for payment. Some large firms still assume that utility bills are a fixed cost not worth examining.

Appraisers rarely credit efficient buildings for their actual energy savings, so efficiency's value isn't capitalized. Most leasing brokers base pro forma financials on average assumed operating costs, not actual ones. Few buildings have efficiency labels. Few renters have access to past energy bills.

Tax asymmetries further distort energy choices. For example, energy purchases are deductible business expenses, but investments to save energy get capitalized.

Market prices don't include many environmental costs and risks: the Clean Air Act, for example, creates a cap-and-trade regime for sulfur but not for carbon emissions.

Incomplete markets and property rights

There is no market in saved energy: "negawatts" aren't yet a fungible commodity subject to competitive bidding, arbitrage, secondary markets, derivatives, and all the other mechanisms that make real markets in copper, wheat, and sowbellies. You can't yet go bounty-hunting for wasted energy, trade negawatt futures and options (or bid them in a spot market against megawatts), or even, in general, bid them fairly against expansions of energy supply. You can seldom sell reduced demand or reduced uncertainty of demand; yet both are valuable resources that deserve markets. Property rights in most forms of depletion and pollution are incomplete or absent and hence cannot be traded.

Feebates (above) can reward turning over big capital stocks like car fleets more quickly, so we get the worst ones off the road soonest. This offers a huge new market opportunity—especially if the rebate for your efficient new car depends on the *difference* in efficiency between the new one you buy and the old one you scrap.

New bill-paying and -minimizing service companies are springing up to meet exactly this need. Many provide submetering and two-way communications to pinpoint opportunities for improvement. Such simple efforts as ensuring that each meter generating a bill is actually on the customer's premises often generate big savings.

Some jurisdictions have right-to-know laws; others get similar results by training renters and buyers to be assertively inquisitive. Smart leasing brokers are distinguishing their services by offering valuable advice on minimizing occupancy costs. Home and commercial-building energy rating systems are rapidly emerging.

Some countries do better. When the Japanese government wanted to clean up sulfur emissions from power plants, it allowed them to be expensed the same year.

Natural Resources Defense Council published an index of relative exposure to carbon-tax risks for all U.S. utilities and let capital markets adjust ratings accordingly.

When Morro Bay, California, ran short of water, it simply required any developer wanting a building permit to save, somewhere else in town, twice as much water as the new building would use. Many creative transactions occurred as developers discovered what saved water is worth. Two-fifths of the houses were retrofitted with efficient fixtures in the first four years. A more comprehensive market transformation effort enabled Goleta, California, to cut per-capital residential water use by over 50%, and total water use by over 30%, in one year and with no loss of service quality—thereby deferring indefinitely a multi-million-dollar wastewater-treatment-plant expansion.

So which models are unreliable?

Critics of climate protection often cast doubt on the elaborate computer models that simulate the physical processes of the earth's climate. But those models, which now closely fit the climate data, are far more detailed and realistic than the climate-economics models used to claim that climate protection is too costly. The pervasive barriers to buying energy efficiency make the economic models' perfect-market assumption as otherworldly as if the physical climate models omitted atmosphere, clouds, and oceans, and relied instead on a theoretical assumption based on a simple historical regression linking CO₂ levels to global average temperatures.

Compare the "actually existing market" in the left column above with the requirements of a *theoretical* free market: perfect information about the future, perfectly accurate and complete price signals, perfect competition, no monopoly or monopsony (sole buyer), no unemployment or underemployment of any resource, no transaction cost, no subsidy, and so forth. It's a different universe. Ignoring those real-world distinctions leaves most of the climate-economics models riddled with flaws: for example,

- The economic models all forget that renewable sources get cheaper as you produce them in higher volumes, as they've done for decades—leading Royal Dutch/Shell Group Planning to consider it plausible that over the next half-century, renewables could grow to supply more than half the world's energy [Sustained Growth scenario, Kassler 1994, from UNDP 1997 p 110].
- The economic models also don't let technologies improve as price incentives increase, even though rising prices are well known to spur innovation [Newell et al 1996, Grubb et al 1995, Goulder & Schneider 1996].
- Most models quietly assume that carbon-tax or -permit-auction revenues are simply rebated (which lowers GDP) instead of being used to displace the distorting taxes that discourage savings, work, or investment (which would raise GDP) [WRI pp 23-26].
- The relatively few models that allow international trading of emissions and reductions assume that all countries have essentially perfect market economies—even those, like the former USSR and China, that don't have economies at all, but only giant machines for eating resources (and hence the biggest opportunities for improvement).
- Most economic models are very sensitive to how fast, if at all, energy efficiency is assumed to improve by itself at present prices: one model, for instance, found that as this rate was increased from 0.5 to 1.5% per year (it actually averaged 1.54% per year during 1973–95²⁴), the calculated cost of cutting carbon emissions to 20% below 1990 levels fell from \$1 trillion nearly to zero [Manne & Richels 1990s; see WRI p 19].
- Very few of the models take any explicit account of efficiency technologies, and those that do (like the government studies that show ways to save 20–25% of the carbon at negative cost, with much further potential at low cost [IPCC 1996b, NAS 1991, OTA 1991, Levine & Brown 1997,...]) are ultraconservative: they use outmoded, costly, incremental, component-based technologies rather than reflecting the modern whole-system approach.

A lucid guide to 162 predictions by the 16 top climate/economy models [WRI] found that seven underlying assumptions explained 80% of the differences in their results. Does a model assume there's any "backstop" energy source, such as renewables or nuclear, that can be widely adopted if fossil-fuel prices get high enough? Does it assume the economy responds efficiently to price signals and can make significant substitutions between fuels and between products? Can different countries trade their savings opportunities? Are revenues recycled efficiently? Does the model count the value of avoiding climate change (perhaps a relatively minor term, but enough, with efficient revenue recycling, to improve economic welfare [Nordhaus & Young 1996, Jorgensen et al 1995, Nordhaus 1994, 1993])? Does it count the benefit of abating associated forms of conventional air pollution as a free byproduct of burning less fossil fuel—benefits large enough to offset 30–100% [IPCC 1996b] or more [Ekins 1995, Jorgenson et al 1995, Boyd Krutilla & Viscusi 1995] of the assumed cost of carbon abatement?²⁵ For (say) a 60% carbon reduction in 2020, *these seven assumptions can predetermine whether the model shows by then a 7% reduction or a 5% increase in GDP* [WRI 1997].²⁶ That noted economists should find such wildly divergent results underscores not only their lack of unanimity on whether climate protection is disastrous or beneficial for the economy, but also that the difference arises from divergent model structures and assumptions.

In sum, most economic models—especially the extreme ones publicized by fossil-fuel companies' \$30-million ad campaign—calculate large costs because they assume rigid, constrained, and unintelligent responses to economic signals. The few models that show economic *benefit* from protecting climate, even if they assume outmoded energy-

efficiency techniques and impute no value to reducing carbon or other pollution, merely assume that people and firms behave with the ordinary sagacity and flexibility that market mechanisms offer.

Even cheap energy can be saved quickly

Energy efficiency can be implemented very rapidly, by either or both of two quite different methods. One method, demonstrated in the 1970s and '80s, is to have high or rising energy prices and a sense of urgency:

- During roughly 1975–85, most new U.S. energy-using devices—cars, buildings, refrigerators, lighting systems, etc.—*doubled* their efficiency, improving at an annual rate averaging around 7%.
- If all Americans saved electricity as quickly and cheaply as ten million people served by Southern California Edison Company did during 1983–85, then each year they'd decrease the forecast need for power supplies a decade hence by about 7%, at a cost to the utility around one-tenth that of today's cheapest new power stations [Lovins 1985 pp 180–83, Fickett et al. 1990].
- In the 1980s, skillful utilities captured ~70–90+% of particular efficiency micromarkets, mainly difficult ones like retrofitting house shells, in just one or two years.
- Speed can extend to renewables as well as efficiency. Maine used auctions and other competitive processes to raise its private share of power generation from 2% in 1984 to 20% in 1989 to 36% in 1995—and more than two-thirds of that new production was renewable.

Of course, a lot has changed since the '80s. At first, U.S. primary energy consumption “froze at about 74 quads” (quadrillion BTU per year) during 1973–86 “while the GNP grew by 35%” [Levine & Brown 1997 p x]. Those huge energy savings largely caused the mid-1980s crash in energy prices. This in turn retarded further savings: “Starting in 1986, [real] energy prices began their descent...that has continued to the present. As a result, energy demand grew from 74 quads in 1986 to 91 quads in 1995”—a 22% increase, while GDP grew 23%. With more fuel being burned, “carbon emissions have been increasing at a similar pace” [Levine & Brown 1997 p x].

This history makes it natural for economists to suppose that resuming rapid energy savings will require a return to the costlier energy that propelled rapid savings before. But lower and still-declining fuel prices don't bar us from regaining that decade-old momentum. Today's better technologies and smarter delivery methods can far outweigh the lower energy prices and the used-up initial opportunities, achieving quick savings even *without* the spur of high prices:

- During 1990–96, utility facilitation enabled electric customers in Seattle—with the cheapest electricity of any major U.S. city—to save electric load nearly 12 times as fast as those in Chicago, and electric energy more than 3,600 times as fast, even though Seattle electricity prices are about half of Chicago's.²⁷ This conclusively shows that making an informed, effective, and efficient market in energy-saving devices and practices—as Seattle City Light's efforts helped to do—can fully substitute for a bare price signal, and indeed can influence energy-saving choices even more than can price alone. That is, *people can save energy faster if they have extensive ability to respond to a weak price signal than if they have little ability to respond to a strong one.*²⁸
- Investor-owned utilities, when rewarded for cutting bills, sold efficiency ever faster and more skillfully despite falling electricity prices. In 1990, New England Electric System captured 90% of a small-commercial pilot retrofit market in two months. Pacific Gas and Electric Company captured 25% of its entire new-commercial-construction market—150% of the year's target—in three months, so it raised its 1991 target...and captured all of it in the first nine days of January.

Higher energy prices do not automatically yield substantial energy savings, as can be seen simply by comparing the virtually identical electricity-using devices found in U.S. cities that pay severalfold different electric rates. Nor, as the Seattle/Chicago comparison shows, do low energy prices preclude rapid energy savings where policy encourages and support them. Thus higher energy prices do help spur savings and reflect true social costs. But high energy prices are neither a necessary nor a sufficient condition for economically and technically efficient use of energy: not necessary because vast savings are already worthwhile at present prices but blocked by the barriers described earlier, and not sufficient because the same obstacles, if not deliberately removed, would persist even at higher prices.

Honest energy prices do increase economic efficiency: if we don't know what energy really costs, we won't know how much is enough. Combining desubsidized and internalized energy prices with policy “trimtabs” that reduce the barriers would yield the fastest possible savings. The most balanced approach to price, however, is not to focus spe-

cifically on *energy* prices, but to shift taxation from jobs and income to *all* forms of resource depletion and pollution—just as the British, Danes, Dutch, Finns, and Swedes are starting to use revenues from environmental taxes to cut taxes on labor. Today's outmoded U.S. tax system penalizes work and employment while often subsidizing depletion and pollution. The present system rewards, and therefore gets, just the opposite of what we want. In a 21st-century world of more abundant people and scarcer natural capital, it makes good theoretical and practical business sense to rebalance factor inputs by correctly signaling their relative scarcities.²⁹

Energy prices and national competitiveness

If for whatever reason the price of emitting CO₂ into the atmosphere were raised above its current value of zero, Americans need not fear damage to national competitiveness. After all, the nations that have traditionally been the toughest competitors, like Japan and Germany, have long had energy prices two to three times those of the U.S. This simply made them use the energy about twice as efficiently. Learning how to do this drove their industrial innovation on a broad front, further widening the competitive gap against a cheap-fuel America. Similar flexibility, and more, exists in our own economy—as Americans have already proved by invisibly cutting the nation's annual energy bill by some \$150–200 billion compared with 1973 levels of inefficiency. And there's a hidden bonus: just as energy efficiency created the conditions that crashed world oil prices in 1986 and have made them decline ever since, triggering a durable boom [Schwartz 1997], so repeating and accelerating that success can continue to suppress OPEC's cartel power and dampen oil prices. This would cut America's oil trade deficit (\$61 billion in 1996 alone) while not causing material adverse trade shifts of other kinds [WRI p 9].

Nor need we fear that costlier energy in industrial countries would make American jobs (and carbon emissions) flee to an untaxed South—akin to the “pollution haven” notion which analysts have searched for in the data but not yet found [DeCanio new MS cite]. Electricity prices would be the most sensitive to any carbon tax or emissions trading; yet 1994 electricity bills averaged only 1.3% of the value shipped by average U.S. manufacturing firms, 3.4% for the most electricity-intensive sector (pulp and paper) [EEI Stat Yrbk 1995, p. 82].³⁰ If electricity is too small a factor cost to worry about saving, it's hardly big enough to justify moving one's factory overseas. Conversely, if its price rises enough to motivate moving abroad, it's certainly a strong enough reason to save most of that electricity, at a profit, and stay at home.

After all, a small saving in such a tiny factor cost is far less important to industrial competitiveness than the many-fold saving that's *already* available in the biggest factor cost—labor. Yet most American jobs have remained here: firms that haven't already exported jobs in search of cheap labor have generally concluded that other countries don't have the infrastructure, skills, local markets, laws, tax rules, or other conditions they need. Differences in energy price would be a much weaker incentive to migrate—as we can infer from American firms' failure to move to the few countries, like Venezuela and Saudi Arabia, that have long had even cheaper energy than we do. Another thought-experiment reveals the absurdity of this notion that energy prices are the sole or main determinant of industrial location. If this were true, then Japan and Europe would long ago have transplanted all their factories to America to take advantage of our severalfold lower energy prices. They didn't.

Those who prefer pricing to obstacle-busting policy instruments for climatic protection contemplate price increases far smaller than the differences that already exist: for example, a 1–2¢/kWh rise in electricity price—less than the differences that already exist between different parts of the United States, or even between some adjacent utilities, without triggering industrial mass migrations. Japanese industry pays about 10¢/kWh more than its American counterparts, but as Japan long ago discovered, even such a threefold difference in energy price can be offset by more productive energy use. That's the durable source of competitive advantage; and it's far easier to sustain amidst the rich infrastructure and skill base of the North than of the South, so migrating Southwards would generally lose advantage, not gain it.

Almost everyone wins

Using energy far more efficiently does mean that less fossil fuel would be sold than if we continued to waste it so profligately. Lower physical volumes may not mean lower profits, but vendors fear that they would make less profit than expected if demand grew more slowly, or stabilized, or even declined—as it would have done eventually from depletion. (For example, a standard model of stabilizing emissions at 1990 levels through a carbon tax [Jorgenson et al. 1992] shows U.S. coal output 25% below the rapid growth in its baseline projection—but output would still grow.) Where is it written, however, that coal companies or OPEC countries have an inalienable right to sell ever

more of their product—or, as their mouthpieces³¹ now urge, to be compensated for lost profits if their hoped-for demand growth slackens or reverses?

This nation has never been good at helping workers or industries in transition, and now would be a good time to get better at it. Much of the Rust Belt is now recovering, but little thanks to outside help. In today's climate-induced shifts, a similar failure to help coal miners, depressed communities, and even disappointed shareholders will encourage them to oppose measures that benefit society. But those measures are also profitable enough that society can afford to ease their difficulties. The total payroll of all U.S. coal-miners is about \$5 billion, or 1% of the nation's energy bills—less than spontaneous gains in energy efficiency save in any typical year. Climate policies threaten miners' jobs much less than do the coal companies, which since 1980 have eliminated more than half of the miners' jobs for which they profess such concern.

As for the shareholders, hard-nosed free-marketeers might say they should have foreseen that climate would become an issue, so they should have invested in natural gas, efficiency, or renewables instead of coal, or in gas pipelines instead of coal-hauling railways. If efficient energy use costs less than coal, then coal will lose in fair competition, and no friend of a thriving economy should wish otherwise. But the best outcome, especially for the workers, would be to structure the incentives so that the companies at risk in the transition will start selling a more profitable mixture of less fuel *and* more efficiency in using it—as a few oil companies and hundreds of electric and gas utilities are already successfully doing to improve both customer service and their own profits. That's the same logic that has already led the likes of BP, DuPont, Ford, Tokyo Electric, Norsk Hydro, and ABB to fund both internal and consortium research to protect the climate while advancing their own business interests [ChrSciMon editorial "21st Century Weather," 6Aug97p20].

Time to dump the myths

With this understanding of how modern technologies and creatively used markets can profitably protect the climate *and* the economy, we can see the aridity and irrelevance of the myths underlying the conventional climate debate:

- *It's about climate science.* No; it doesn't matter what the climate science says, or even whether it's right, because we ought to be purchasing energy efficiency anyway just to save money.
- *It's about decision-making under uncertainty.* The uncertainty doesn't matter, because the robust economic benefits depend only on private internal costs and benefits, not on any imputed environmental values or risks.
- *It's about carbon taxes.* No; they may be helpful and appropriate, especially as part of a general tax shift from people to resource depletion and from production to consumption, but present prices are ample to elicit all the energy savings we need—if we just get serious about vaulting the barriers that inhibit people from buying energy efficiency.
- *It's about command-and-control.* Wrong; it's about helping markets to work properly—and then letting them do their job.
- *It's about who should bear the costs.* What costs? The interesting question is who should get the *profits*. That's a good thing to compete about in the marketplace, but it shouldn't require difficult negotiations.³² The "polluter pays principle"—OECD doctrine since 1974—remains valid, but this time the polluter can profit.
- *It's about sharing sacrifices for the common good.* On the contrary, it's about helping individuals, firms, and nations behave in their economic self-interest.
- *It's about changing to a lifestyle of privation and discomfort*—as the Chairman of Chrysler Corporation recently put it, "dimming the lights, turning off the air conditioning, sacrificing some of our industrial competitiveness and curtailing economic growth" [WPost 7/17/97 p A19]. No; it's about living even better with less, by using smarter technologies that yield the same or better service. The showers will be as hot and tingly as now, the beer as cold, the rooms as well-lit, the homes as cozy in winter and as cool in summer, the cars as peppy, safe, and comfortable; but we'll have substituted brains for therms and design for dollars.
- *It's about keeping the poor down.* Quite the opposite; if equitably provided as the cornerstone of the development process [Asian paper], energy efficiency could be a boost for those most burdened with the least efficient buildings and equipment, and least able to afford such waste. Even if the price of fossil fuels did rise, that's not very regressive, because poor people spend more of their income directly on energy but less indirectly (embodied in goods and services). Any disproportionate harm to the poor could be corrected by straightforward adjustments elsewhere in the tax or welfare systems [WRI, p 8, pp 32–33]. Equity issues merit careful attention, but are no reason to keep on subsidizing energy for the rich.

- *It's about consuming too much in the North and not enough in the South.* That's a real issue, and we in the North have to start thinking hard about what we want, how much is enough, how to meet nonmaterial needs by nonmaterial means, what will make us better human beings, and the difference between a good life and what scripture calls "vanity." But the resource-efficiency revolution described in two new books³³ can buy much time by simultaneously sustaining or enhancing Northern *and* greatly improving Southern living standards while dramatically reducing the use of energy and materials.

Protecting the climate for fun and profit

A proper grasp of the practical engineering economics of energy efficiency (and of other climate-stabilizing opportunities) can thus give nearly all the parties to the climate debate what they want. Those who worry about climate can see it stabilized. Those who don't will still make more money. Those who worry about costs and burdens will see them replaced by profits. Those who want improved jobs, productivity, competitiveness, quality of life, public and environmental health, and individual choice and liberty will get those things too. Two emphases—energy efficiency, and climate-protecting farming and forestry practices that treat nature as model and mentor—can deal profitably not only with climate but with about 90% of EPA's pollution concerns. These actions are therefore not inimical but vital to a vigorous economy, a healthful environment, sustainable development, social justice, and a livable world. As an eminent group of economists supported by more than 2,000 of their colleagues recently concluded, in short, "policy options exist that would slow climate change without harming American living standards, and these measures may in fact improve U.S. productivity in the longer run" [Arrow et al. 1997].

The true pragmatists in this debate are those who suggest that we have at hand—and should elevate to the central role in climate policy—the tools we need to turn climate into a business opportunity, at home and worldwide. This can, but need not, involve changing energy prices. Innovative, market-oriented public policies, especially at a state and local level, can focus chiefly on barrier-busting to help markets work properly and reward the economically efficient use of fuel and money. This requires much *less* intervention in the market than we now have with regulatory rules and standards: it properly assumes that the role of government is to steer, not row, and that market actors guided by clear and simple rules can best figure out what will make sense and make money. But we need to steer in the right direction—the line of least resistance and least cost—guided by a detailed and exact understanding of the barriers that now block energy efficiency, and thereby damage global development and national security [Nitze W Post A22 2 July 1997].

A bizarre irony lurks beneath the climate debate. Why do the same people who favor competitive markets in other contexts seem to have the least faith in their efficacy for saving fossil fuels? Let's recall what happened the last time this gloom-and-doom attitude overcame these people's better instincts. Just before Congress approved in 1990 the cap-and-trade system for reducing sulfur dioxide emissions, environmentalists predicted that reductions would cost about \$350 a ton, or ultimately (said the optimists) perhaps \$250. Government economic models predicted \$500–750; the higher figure was the most widely cited. Industry models upped the ante to about \$1,000–1,500. In fact, the sulfur-allowance market opened in 1992 at about \$250 a ton; in 1995, it cleared at \$130 a ton; in 1996, at \$66.³⁴ Moreover, national sulfur emissions have fallen 37% in just the past decade—and 38% faster than the Clean Air Act envisaged, because of simple incentives to reward early achievers. Much the same thing is happening with CFCs.

The genius of private enterprise and advanced technologies found a way billions of dollars cheaper than command-and-control regulation. It would do so again if we competed to save the most carbon in the cheapest ways. In fact, a double bonus would emerge: we'd automatically and profitably meet most of the stringent new ozone and fine-particle standards too, via the same reduced combustion that helps the climate and cuts our energy bills; and we could easily use similar incentives for doing so early.

In the past half-century, global carbon emissions have quadrupled. But in the next half-century, the climate problem could become as faded a memory as the energy crises of the '70s are now³⁵—because it's not an inevitable result of normal economic activity, but an artifact of energizing that activity in extraordinarily inefficient ways.

Let's vault the barriers, use energy in a way that saves money, and put enterprise where it belongs: in the vanguard of sound solutions. Climatic change is a problem we can't afford, don't need—and can avoid at a resounding profit.

* * *

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Notes [references to be added]

¹ That switch saves \$8 billion in the pulp and paper industry alone [*Agenda* 2020, Am. Forest & Paper Assn., 11/94, ref'd by Romm present'n]; similar findings of a DOE/industry process include 20% energy savings in glass, 50% in aluminum, and 15% in chemicals.

² These case-studies are from the USDOE ClimateWise Case Study Compendium, Report 1, DOE/GO-10096-217.

³ For detailed documentation on each of these matters, omitting only the newest developments such as hypercars, please see our survey paper “Least-Cost Climatic Stabilization,” *Ann. Rev. En. Env't.* 16:433–531 (1991).

⁴ The exact percentages don't matter because such big and profitable savings are available in each gas, source, and sector [*id.*].

⁵ Average U.S. industrial electricity in 1996 cost the heat-equivalent of oil at about \$79 per barrel, over three times the world crude-oil price. Commercial and residential electricity prices averaged respectively 75% and 83% higher yet. Electricity is therefore the most lucrative form of energy to save. It is also the form whose savings yield the greatest climatic leverage: each unit saved saves 3–4 units—in developing and socialist economies, more like 5–6 units—of power-plant fuel, and that fuel is mainly the most carbon-intensive kind—coal. (U.S. electricity is 52% coal-fired, and 88% of U.S. coal makes electricity.) For these reasons, our case-studies focus on new ways to save electricity, although similarly large savings are profitable for most directly used fuels too [AREE].

⁶ The negative figure means the building would have saved a capital investment equivalent to five months' worth of operating cost before you even turn it on.

⁷ The engines are especially inefficient when running air conditioners in cars stuck in traffic (*i.e.*, most cars most of the time), and all of the 5–6 GW of electricity brought into the city ends up as heat. Dr. Suntoorn [ref] notes that together, these heat sources add nearly as much artificial heat per square meter as is delivered by all the sunlight striking the city. In the nearby countryside, ingenious ventilative and radiative passive designs still work fine.

⁸ Just the temperature optimization typically saves 50% in new plants, and pays back in six months in retrofits [Levine & Brown 97 4.20].

⁹ Hypercar-like heavy road vehicles look attractive too, and new uses of information technology to smooth or displace the flow of goods can make much freight traffic unnecessary. Major savings are also available in other transport modes. Ships and passenger aircraft doubled their efficiency in the 1970s and '80s and can do it again: the National Research Council has called for 40% less fuel per seat by 2010–15 [Levine & Brown 97 5.31]. As one hint of what's possible, a 1996 Lockheed-Martin Skunkworks fighter-plane design, made of 95% carbon-fiber and the like, cut weight 35% and cost 65%. Other new vehicles are starting to enter the market, from tenfold lighter and cheaper trains to convertible road-rail vehicles (like GM's Roadrailer) and Lufthansa's freight dirigible to hybrid-electric bikes.

¹⁰ A sophisticated model perhaps a decade or two from now could combine Lexus comfort and refinement, Mercedes solidity and stiffness, Volvo safety, Porsche acceleration, roughly Taurus price, 100–200 miles per gallon-equivalent (the upper range using hydrogen fuel cells), and zero or equivalent-zero emissions. All the technologies needed to do this exist today.

¹¹ Costing only one reactor's worth (\$3 billion) spread over 20 years. Federal renewable-energy R&D was slashed 89% in real terms during 1979–89, and remains under continual attack. In consequence, American industry must already import many renewable energy technologies that were invented here, then left to wither on the vine. Effi-

ciency R&D has a similar history, with drastic cuts, slow rebuilding interrupted by continual sniping, and little attention to the \$28 billion energy saving achieved through 1996 from just five of the numerous technologies developed or demonstrated with DOE's \$28-billion efficiency RD&D budget during 1975-95 [Levine & Brown 97 p 2.5].

¹² This potential is economically consistent with the National Academy of Sciences' 1992 findings (*Policy Implications of Greenhouse Warming*) but about one-fourth to one-third as large, because the Academy examined long-term potential without regard to timing, while the five-Labs study explicitly counted retrofit and replacement dynamics.

¹³ This is possible because efficiency is abysmal to start with—so low that when an Indian village switched from kerosene to fluorescent lamps, illumination rose 19-fold, energy input decreased ninefold, and household lighting expenditure fell by half [Reddy 1994 cited at UNDP 1997 p 70].

¹⁴ This range [Levine & Brown 1997, p x] depends on what fraction of the 1973-96 reduction in primary-energy/GDP ratio is due to improved technical efficiency; with most authorities, we estimate upwards of two-thirds, the DOE estimate for 1973-86 [*id.*, p. 2.1]. The rest is due to shifts in composition of economic output and to minor behavioral changes.

¹⁵ Bill Howe, "Distribution Transformers: A Growing Energy Savings Opportunity," E SOURCE TU-93-10, 12/93; dominant models are ~96-98.5% efficient, the best amorphous-iron model 99.33%, but it costs \$680 instead of \$320, so its market share is only 10%. Compared with the best standard model, it yields a 14%/y aftertax ROI, a 20-year saving more than twice its marginal cost, a longer life, and far greater service flexibility. This analysis assumes 25-kVA oil-filled units, 0.50 load factor, 0.95 power factor, 6¢/kWh, 5%/y real discount rate, 36% marginal tax rate. The misallocation is assessed as the present value, over a 20-y minimum life, of avoided generation at 2¢/kWh and generation-plus-transmission at \$700/kW (busbar) with 3% transmission loss; each 10,000 transformers sold at 98.44% instead of 99.33% waste 2.5 peak MW and ~22 GWh/y (*id.*). One-third are bought by nonutilities; 35 million units are U.S. service; and virtually all electricity flows through similar transformers.

¹⁶ Implicit real discount rates for buying efficiency typically range upwards from 60% a year [refs], while big energy supply firms have traditionally been content with 5-6%.

¹⁷ Some theorists argue that "transaction costs"—the supposedly prohibitive cost and hassle of searching out every little source of energy inefficiency and negotiating with its owner to correct it—will eat up any profits and make further energy savings impractical. Nonsense. Transaction costs in some poorly designed early utility programs were up to tens of percent of total costs—which were still severalfold smaller than the savings they achieved. But more mature programs cut those transaction costs by tenfold, to just a few percent overhead, making the net profits even juicier [AREE p 3n/SCE pri ref].

¹⁸ Most of the misallocation is driven also by the enormous personal profits for dealmakers. Those transactional rewards drive many investments with unsound fundamentals (like most recent Asian project-financed power plants), just as they propelled the '80s real-estate bubble and S&L fiasco. Those tens of billions of dollars per year get tied up for a decade or more and can't be invested instead in cheaper efficiency. But efficiency doesn't offer fat commissions.

¹⁹ Firms are not individuals and are not of a single mind—hence often experience [DeCanio Epol p 907...] the "divergence between goals and actions" familiar in all bureaucracies. Indeed, economic theory correctly states that in general, "rational, self-interested individuals will not act to achieve their common or group interests." Corporate inefficiency may be invisible if profits are positive and competitors use similarly inefficient practices. As Nobel economist Herbert Simon convincingly describes, firms do not in fact fully maximize profits but rather resort to "satisficing" because of the inherent complexities of their environment and the limits of their processes for making and executing decisions. Shareholders hold diversified asset portfolios, but managers whose careers ride on the success of specific projects are far more risk-averse, so they go only for extremely high-return investments—and so on down the hierarchical chain of control, where subordinates bear the personal risks of failure while superiors see the results and know which projects were chosen but not why. This leads to systematic suboptimization—to second-best solutions perceived as less risky individually, but less profitable overall than they should be. In summary, the reasons for corporate (or for that matter government) underinvestment in energy efficiency are described by economists as bounded rationality, principal-agent problems, and "moral hazard" (an old insurance term for situations where behavior can take advantage of and thereby change actuarial odds or prices, as where people are more likely to abuse a rental car than one they own, forcing the rental firm to raise its price). Overlaid on these is widespread myopia—hurdle rates for capital budgeting generally (not just to save energy) well above investors' required returns. The complex reasons for this relate mainly to takeover and investment-analyst pressures.

²⁰ When regulators convert revenue requirements for a fair return on and of capital into a schedule of tariffs (cents charged per kWh used by various customers), they must assume how much energy will be sold. If the utility then sells more energy than assumed, its profits go up; if less, its profits go down. The solution is to decouple profits

from sales volumes via a simple balancing account, so the utility is no longer rewarded for selling more energy nor penalized for selling less. This also eliminates the incentive to game the forecast (lowball forecast sells so you can sell more), and does not make utilities' profits depend on things they cannot control such as weather [EPol].

²¹ Developing countries subsidize their energy by an estimated \$111 billion per year, but America subsidizes just its car drivers by more than that (the gap between their public direct costs and their fee and tax payments) [Worldwatch ref: Vital Signs '97?]. We pay to create the problem and we pay to deal with it. It would be cheaper and smarter to pay no subsidy and thus avoid the problem.

²² The military costs of forces whose primary mission is intervention in the Persian Gulf totaled at least \$73 billion in 1994—plausibly 3+ times that [Cavallo 1996]. Allocating that cost generously to all, not just Gulf, oil use is equivalent to a hidden shift of about \$2–7 per million BTU, or \$13–37 per barrel, from energy bills to tax bills.

²³ The U.S. wouldn't have needed a drop of oil from the Gulf if it had kept on saving oil as fast after 1986 as it did for the previous nine years. During 1975–87, the U.S. had boosted its oil productivity four-fifths faster than it had to in order to match both economic growth and declining domestic oil output. By 1986, the annual energy savings, chiefly in oil and gas, were providing two-fifths more energy than the entire domestic oil industry, which had taken a century to build; by 1995 the savings had surpassed *all* oil use. But after doubling, new-car efficiency stagnated for a decade and is now declining again under the weight of inefficient light trucks, vans, and sport-utilities.

²⁴ But with localized spurts, like New England's 6%/y gains during 1978–80 (the period of the second oil shock). To be sure, national improvements were much faster before the 1986 price crash than since, but if a lower-than-historic rate is to be assumed because greater energy efficiency will continue to lower energy prices, then the stimulative effect of that cheaper energy must also be considered.

²⁵ EPA's 1994 *Emission Trends Report* states that conventional energy use causes 95% of U.S. CO₂ and NO_x emissions, 73% of volatile organic compounds, and 70% of CO, so as *The Economist* remarked in June 1990, "Using energy in today's ways leads to more environmental damage than any other peaceful human activity."

²⁶ Such a long-term change is quite small in annual terms: a review of nearly 100 modeling studies showed that holding long-term CO₂ emissions at about current levels (much more stringent than current proposals for stabilizing emissions) "may if carried out in an efficient manner be expected to reduce...average GNP growth rates over the period [to the mid-21st century] by less than 0.02–0.03% per year" [M. Grubb *et al.*, "The Costs of Limiting Fossil Fuel CO₂ Emissions: A Survey and Analysis," *Ann. Rev. En. Env't.* 18:397–478 (1993) at 472].

²⁷ Seattle City Light's measured savings achieved through 1990–96 investments in demand-side management, emphasizing energy rather than peak-load savings, were 313 GWh/y or 38 average MW—3.2% of 1996 energy sales and average load (J. Todd, personal communication, 7 August 1997, documented in annual *EMSD Accomplishment Reports*). By 1996, but nearly all during 1995–96, the nearly tenfold larger Chicago utility Commonwealth Edison saved 51 peak MW (0.27% of its 19-GW peak load), or an 11.8-fold smaller fraction of load. ComEd made essentially no effort to save electrical energy, yielding savings of only 800 MWh/y, or 0.00088% of its sales [M. Brandt, personal communications, 13 and 21 August 1997]—a 3,640-fold smaller fraction than in Seattle. The ComEd figures are not corrected for any offsetting sales increases resulting from promotional tariffs and practices. Big customers in Seattle in 1996 paid 1.9 times less and small customers paid 2.3–2.4 times less per kilowatt-hour than in Chicago.

²⁸ This is not surprising, since "nonprice measures have an important role in improving economic efficiency....All markets in open societies and in all sectors of economic activity...function within a framework of laws,...standards and public and private information services designed to improve the clarity and integrity of economic transactions and in so doing improve economic efficiency....[P]ure market transactions, in which prices, along with other economic variables such as income and wealth are the sole variables, are rare" [D. Anderson, World Bank, AREE '95, pp 563–4].

²⁹ Environmental taxes certainly work: as *The Economist* [28 June 1997] summarizes, "the OECD says that in Sweden, where dirtier automotive diesel has been taxed relatively heavily since 1991, almost all diesel is now of the cleanest type and sulfur emissions from diesel vehicles have fallen by 75%. In Norway, the carbon-dioxide tax has prompted a switch away from fossil fuels, cutting emissions from power stations and factories by one-fifth since 1991." Making "labor taxes less damaging...is worthwhile anyway." Tax-shifting simply combines both benefits. Phased-in, revenue-neutral tax shifts [Jeff Hammond, Peggy Duxbury, Alan Sanstad, & Stephen DeCanio, *Tax Waste, Not Work*, Redefining Progress, SFO, 1997] offer rich potential for strengthening the public and private economy and for avoiding many social costs whose remediation now increases the total burden of taxation. Tax-shifting would signal managers to fire the unproductive tons, gallons, and kilowatt-hours, and thereby help them to keep the people, who'd then have more and better work to do. There is an intimate link between the waste of people, resources, and money—and the solutions to all three problems are also intertwined [NatCap/MJ].

³⁰ Moreover, less than half the price of electricity is fuel, and under a mere \$20–40/ton carbon tax, coal-fired electricity would be quickly displaced by modern gas-fired plants that emit only one-fourth as much CO₂ per kWh and are hence only one-fourth as sensitive to the tax—or even by competitive renewable sources.

³¹ Including some leading non-oil-exporting Southern diplomats whom OPEC has coöpted for this purpose.

³² As chief U.S. negotiator Tim Wirth put it [Intl Env'tl Reporter 2 Oct 1996], “probably the most complicated scientific, environmental, economic and political challenge in history.”

³³ *Factor Four: Doubling Wealth, Halving Resource Use* [cite] and the forthcoming book *Natural Capitalism: The Worthy Employment of People and Resources* [cite]. The European Union, German, and Dutch Environment Ministers have endorsed the Factor Four approach as a new basis for sustainable development—the only dissent coming from Sweden which, farsighted as ever, prefers a Factor Ten goal, as do the OECD Environment Ministers. Fair enough: the latest technical findings described in *Natural Capitalism* do make that a realistic goal. But four is on the way to ten and is much better than zero.

³⁴ See Bohi & Burtraw, *EI J* Aug/Sept 97 pp 67–75. The price subsequently spiked up to \$115 in spring 1997 as Enron and other traders bought the cheap allowances. By mid-1997 it had fallen back to \$90. One could well conclude [Ackerman & Moomaw, *EI J* Aug/Sept 97 pp 61–66] that “If pollution reduction is so cheap, perhaps society should buy more of it.”

³⁵ In the 1970s, experts were nearly unanimous that energy use and GDP must forever march in lockstep. The Chairman of Chrysler Corporation still holds this view and more: although his 17 July 1997 *Washington Post* op-ed “Global Warming: Industry’s Reponse” [p A19] acknowledges that “new technology will allow us to continue to grow our economy while managing the level of CO₂ output,” he also states that curtailing fossil-fuel use “in the next dozen years by more than 20 percent” by obliging ourselves to “heavily tax or somehow rigidly ration our own energy use” would have the “certain consequence” of “a decline in the country’s economic growth by a similar amount,” so without sustaining historically high levels of energy use, the U.S. is “not likely to remain” a developed country. Of course, GDP and energy have long since parted ways—we now produce 44% more GDP per unit of energy than we did in 1970—and that’s only the beginning. Even those who wonder how much further such progress can persist should be happy to try the experiment; both economically and politically, they have nothing to lose but their waste.

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UNDER SECRETARY OF STATE
FOR GLOBAL AFFAIRS
WASHINGTON, D.C. 20520-7250

Outreach

97 AUG 22 PM4:14

Todd Stern -

*Attached is a very interesting idea,
submitted by my former Chief Counsel. Idea is
to find a group of retired Bd Member
types - might this be something we
could get Augustine to lead?
Let me know if we can help.*

Vim

Aug 17

>From MAILER-DAEMON@natstrat.com Tue Jul 29 23:43:17 1997
Date: Tue, 29 Jul 1997 23:42:55 Eastern Daylight Time
From: "Mailer-Daemon" <MAILER-DAEMON@natstrat.com>
To: "David Aylward" <daylward@natstrat.com>
Date: Tue, 29 Jul 1997 23:42:55 Eastern Daylight Time
Subject: Message rejected by system

----- Transcript of session follows -----

Reason: User twirth_state@juno.com unknown at destination site.

-----First 8192 bytes of-----

----- Unsent message enclosed after this line -----

Received: by mail.natstrat.com from localhost

(router,SLmail95 V2.4); Tue, 29 Jul 1997 23:26:03 Eastern Daylight Time

Received: by mail.natstrat.com from david

(205.246.56.33::mail daemon; unverified,SLmail95 V2.4); Tue, 29 Jul 1997 23:25:25

Eastern Daylight Time

Message-Id: <3.0.1.32.19970730065928.006cd434@mail.natstrat.com>

X-Sender: "David Aylward" <daylward@natstrat.com>

Disposition-Notification-To: <daylward@natstrat.com>

X-Mailer: Windows Eudora Pro Version 3.0.1 (32)

Date: Wed, 30 Jul 1997 06:59:28 -0400

To: twirth_state@juno.com (Timothy E Wirth)

From: "David Aylward" <daylward@natstrat.com>

Subject: Re: Climate Change Testimony

In-Reply-To: <19970712.093036.15087.29.global_state@juno.com>

Mime-Version: 1.0

Content-Type: text/plain; charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

Tim:

A fine statement.

The operative question I have is where does the political constituency come to make this happen. The President's commitment to talk about it is certainly valuable, particularly within the bureaucracy.

But where is the muscle to sustain this effort over time? Certainly the opposition has the muscle, and the long term interest to fight you all the way.

The general public may get a little excited about clean air because it affects it today, but not about changes that hit the grandchildren.

Based on our conversation a year ago, we conducted a pretty detailed analysis of the private sector interests that might help.

The bottom line is that there ain't much other than the natural gas people, led by Enron. Whatever you can do to maximize this should be done. The rest of the alternative fuels people have little power and fewer resources. You have been there and done that.

While you and your allies have gotten lots of press mileage out of citing insurance industry support, I know that industry well and I can't see how or why they would support any effort to restrict the activities of business-- their customers.

They may become increasingly afraid of weather calamities, and adjust their pricing and sales accordingly, but that is a far sight from lobbying hard to impose restrictions on fossil fuel use. I don't see the analogue to the salutary prospective effect that the withdrawal of insurance for toxic waste disposal has had on industrial uses of toxics. (By making companies "self insurers" for toxics, that forced management to get serious about disposal practices and toxic reduction.)

Pulling out of markets where the seas will rise or storms hit doesn't serve

DA & Tim
I didn't want to
send this to a
general email address
at State. Do you
have a private
email address?
Best,
David

your purpose.

I ran into Phil Clapp on the street the other day and suggested at least one strategy. I call it the "wealthy grandfather/board member" strategy.

I think you need to build on the Republican conservationist ethic of Teddy Roosevelt, and the noblesse oblige of retired chief executive officers who have made their pile of money and are no longer driven by short and medium term stock performance.

There are a lot of these guys who sit on the boards of our major corporations. And the vast majority are guys -- and they are members of a series of interlocking and exclusive clubs: social, golf, religious, etc. These are the perfect places to educate peers.

If they adopt the cause, it could become their way of looking down on the "short term thinking managers" who have succeeded them. It could become the "right think" of the established set. =20

I would launch a sophisticated, long term effort to enlist missionaries for the cause in that community who will carry the message into their companies, and to their colleagues, as part of their legacy to their grandchildren and their world. Using the millenium as a focal point is a useful adjunct. Until you are close to 50, you don't even think about your impact on the world. When you get to be 65, you think a lot about it.

Such an effort will take a lot of time, a lot of money, and a lot of attention by top government officials in private single and small group meetings. Standard environmental pitches will be counter productive.

Many of the same kinds of people own our media. I would use the same approach with them. Forget the editors. Go for the publishers.
=20

At 10:34 AM 7/17/97 EDT, you wrote:

>Following is recent testimony on Climate Change, with special reference
>to the issue of Developing country participation. I'd be delighted with
>any comments you might have.

>

>With best wishes,

>

>Tim Wirth

>

>

>

>Statement of=20

>The Honorable Timothy E. Wirth

>Under Secretary of State for Global Affairs

>

>before the

>

>Subcommittee on Energy and Power

>Committee on Commerce

>U.S. House of Representatives

>July 15, 1997

>

>

>Chairman Schaefer and Members of the Subcommittee=85

>

>I am pleased to be with you today to discuss the ongoing

>negotiations toward next steps under the United Nations Framework

>Convention on Climate Change. These negotiations began in August 1995

>and are scheduled to end in December, at the Third Conference of the

>Parties in Kyoto, Japan, with the adoption of a new protocol or other

>legal instrument.

>

>In his address last month to the United Nations General Assembly

>Special Session, President Clinton noted that =93[t]he science is clear and



August 14, 1997

'97 AUG 20 AM 9:22

The President
The White House
Washington, D.C. 20500

Dear Mr. President:

I want to thank you for the opportunity to meet with you, the Vice President, and others from your Administration on the critical issue of climate change.

At our meeting, you outlined principles that the Administration plans to use to guide U.S. participation in international negotiations.

You also graciously invited the meeting participants to participate in the policy process as your Administration develops and asserts the United States' position prior to and at the Third Conference of the Parties in Kyoto later this year. PacifiCorp stands ready and eager to work with you on this profoundly important matter.

As we discussed, while there is disagreement over the issue of complete scientific certainty, it appears an international set of binding emissions targets and timetables is a global political inevitability. If such targets and timetables are truly reasonable, I believe much of the business community will work diligently to find cost-effective ways to implement them.

Reasonable targets and timetables must:

- ◆ include all countries and not harm U.S. economic interests relative to our international competitors;
- ◆ cover all sectors of the economy so that each sector contributes its proportionate share to the solution;
- ◆ include all important carbon-based greenhouse gases to ensure achievement of environmental goals;
- ◆ provide an adequate timetable for compliance to allow for the orderly depreciation of our capital assets and those of our customers; and,

The President
August 14, 1997
Page Two

- ◆ allow all forms of flexibility to lower the cost of compliance as much as possible. For PacifiCorp, flexibility means there must be credit for all legitimate efforts to reduce emissions or sequester carbon, trading across borders, credit for international projects (i.e., Joint Implementation), and credit for early emission reductions or sequestration projects.

Without a reasonable timetable and all necessary flexibility, a climate change protocol will find little public support. With flexible implementation, achievement of the target goals becomes increasingly possible at lower economic cost.

In the interim, voluntary measures can create a glidepath toward more formal targets to address climate change. Both Dr. Draper and I pointed to the many successes of the utility industry which has already begun implementing emission reductions and offset projects on a voluntary basis.

The successes of our voluntary efforts to date suggest there is more we and others can do to address climate change concerns. The Administration can assist us in this regard in two tangible ways.

First, we have undertaken these voluntary efforts with no clear policy to provide emissions credits. We are risking our investments of time and resources not only to begin efforts to reduce greenhouse gases now, but also with the expectation that PacifiCorp will receive tangible credit for these at a later time. A governmental commitment to credit for early reductions will provide a strong incentive for PacifiCorp and others to increase voluntary actions.

Second, the voluntary effort must be broadened beyond utilities. As is evident by the statements of other participants in the August 5 meeting, industry leaders are willing to take action if asked. Your leadership in seeking voluntary reductions from all US emitters would significantly advance this cause.

There are important initiatives underway within the business community and among some environmentalists to explore methods of stepping up voluntary efforts and to pool credits all in advance of a mandatory program. I commend this effort to you in hopes that the administration gives it full support. PacifiCorp will aggressively pursue these voluntary actions if assured that appropriate credit is ultimately provided.

The President
August 14, 1997
Page Three

There are also efforts ongoing to give substance to the type of framework the US can advocate which allows for the type of flexible implementation I previously described as absolutely essential to any acceptable protocol. You also have my commitment that PacifiCorp will work with your Administration and other interests to help shape that framework.

Once again, I sincerely thank you for the opportunity to meet with you and am encouraged that you are taking a very personal interest in this issue. I hope, through this letter and subsequent discussions, PacifiCorp can remain fully engaged in your difficult deliberations regarding our country's position at Kyoto. I personally pledge our support in your efforts and very much look forward to our continuing dialogue.

Sincerely,

A handwritten signature in black ink, appearing to read "Fred Beutner", with a long horizontal line extending to the right.

cc: The Vice President
Mr. Dirk Forrister
✓Mr. Todd Stern

Proposed Outreach Plan & Path Forward on Climate Change

The last several weeks of activity have increased industry's focus on the climate issue. The involvement of President Clinton in the issue has been noted and highlights the administration's interest. The challenge in moving ahead is to develop a path forward that advances the policy framework and addresses the issue of providing industry credit for early action. These are the goals of some in industry and only a focus on these issues will continue to constructively engage industry in the deliberations.

I. Policy Construct--

The largest single fear in the continued climate discussions, among those that participated in the meeting with President Clinton, is that the administration signs onto a bad agreement. Although the construct of such an agreement is unclear, the most talked about scenario would be for the administration to agree to a binding target, and not gain agreement on the necessary policy framework to allow a target to be achieved. Even those company's that you have identified as the "constructive middle" fear an agreement with a target and two sentences on emissions trading and global joint implementation leaving the details to later. This means that they are making significant investment in projects without any certainty that such investments are beneficial. This could lead to the system collapsing on its own weight. There is a good reason for this fear. Many of the administration's most senior economic policy-makers continue to downplay the potential for emissions trading and joint implementation to work due to complexity, and the potential wealth transfers involved. This is damaging the administration's credibility with those that like the policy instruments in the administration's submissions to the secretariat. The failure of the administration to support it's own framework combined with the lack of a clear signal on the administration's intent on how to treat voluntary investment is severely damaging to the administration.

Thus, in order to address these concerns, the President could make a speech stating that the US. will not sign onto an agreement without gaining international agreement on the US. positions on flexible policy instruments while stating his support for voluntary measures which would receive credit for real reductions. The speech also provides an opportunity to advocate the US. framework that was originally tabled internationally in January of this year. Many who closely follow this issue do not believe that the administration has aggressively advocated its approach. As stated previously, many inside the administration are raising questions about the framework. Thus, without joint implementation and emissions trading to achieve a target the only options left would be a large tax or coordinated policies and measures, neither of which have any support among large affected groups. The speech could be delivered to be timed prior to the White House Conference, or to the negotiations in late October. If the administration fully believes that the climate issue is a threat, it is perfectly natural for the President to make such a speech. It is no different from President's articulating the national interest on more traditional issues prior to arms control and trade negotiations.

The effects of the speech would certainly have major implications internationally, and would calm the fears of many in the business community. It also allows the administration to continue its outreach and request initial voluntary commitments from some industry sectors and enhanced commitments from others in exchange for credit. If the administration is prepared to go out on the limb and take such a position on not signing onto a target without all the flexibility, (The President has hinted at it in speeches and the recent meeting) it needs to request something in return from the business community. Regardless if agreement is achieved in Kyoto or not, expansion of the voluntary system is necessary. If structured correctly, the voluntary commitments will assist the US. get reductions prior to the first budget period reducing impacts on the economy if there is a budget, benefits the environment and reduces the impact on industry. If there is not going to be an agreement,

and industry advocates that based upon the context of a bad deal, then both parties require the additional progress. The administration requires the progress to hold its position internationally, industry needs to provide additional reductions so that the administration knows that progress is being made domestically and companies start the trajectory of reducing emissions growth without an intrusive mandatory system. The discussions initiated with industry requires commitments from both parties. The administration needs to commit to credit (details to be developed) and aggressively advocating its policy framework and industry needs to commit to reductions.

The effects of moving in this direction could be extremely beneficial. Industry would be assured that the administration will not sign onto the target without all of its policy framework, and voluntary initiatives will be credited. In stating this construct, the administration is perfectly positioned to seek voluntary commitments from industry which will have economic and environmental benefits while also allowing the US. to seize the high ground internationally.

II. Other Actions That Are Required--

The focus on voluntarism is not the only initiative that the administration can initiate. As you know, there continues to be on-going discussions on technology initiatives. If the administration does go in this direction, a major push needs to come from the White House. This is because the Department of Energy is not adequately organized at the present time to focus given continued pressures on downsizing, no political official with a background in these matters is yet in place at the Department to organize such an effort, and unfortunately, every time there is a clarion call for an emphasis on technology, money goes out the door to the Department's labs and there is a disconnect between the funding, and results. Thus, if the administration is gearing towards a major technology initiative, someone fully knowledgeable of the issue, and the laboratory system needs to be in charge of the effort.

III. Process to Deliver The Construct--

What follows is an outreach process designed to engage the business community on the construct outlined earlier on in the memo. First, the President had a successful meeting with 10 industry leaders. If you sought to schedule another meeting with C.E.O's, this could dilute the resources available as those same staff that delivered the last meeting would have to staff this one as well. This would take them away from the alternative that follows.

o Follow-up calls to C.E.O's by Todd Stern or Vice President stating that you will be back to them in two weeks regarding a proposed path forward and that you would welcome their ideas for such. However, it would also be mentioned to those that spoke out on the potential for further initiatives that you will be meeting with their staff to discuss ideas in that regard. You may also ask them to call five colleagues and communicate results of meeting and potential for further dialogue and actions on the climate issue. In order to expedite process and discussions, meetings could be held with CEO's and V.P for follow-up and request staffs to work together to move forward. Obviously, follow-up calls from the Vice President could continue the momentum.

The difficulty in this process is that the President has not yet addressed the worst fears of signing onto a bad deal. Thus, whoever makes the calls could communicate that the President is prepared to make such a speech and credit would be provided for all voluntary actions.

o Todd Stern to meet with staff to C.E.O's that spoke about potential additional commitments on process forward on how to operationalize commitments. Industry needs to be a partner in developing the process and ideas. If it is seen as being driven solely by administration, it will be met with resistance. Timelines for ideas and process should be agreed to.

o Once ideas for path forward are devised, meetings should be held in cabinet room with Secretary's Rubin, Daley, Pena and others on the path forward with appropriate industry sectors. Industry's are utility, and all others. Bob Burt may be enlisted based upon attendance at the meeting and role in the Business Roundtable.



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Tel (202) 672-1260
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Samuel L. Maury
President

Patricia Hanahan Engman
Executive Director

August 13, 1997

HAND DELIVERED

The President
The White House
Washington, D.C. 20500

Dear Mr. President:

I am sure the ten Chief Executive Officers at last Monday's meeting appreciated the opportunity to discuss the global climate change issue with you, the Vice President, and other members of the Administration.

You made several points with which I feel the business community could readily agree:

- Any commitments made in Kyoto should not have a negative impact on the US economy.
- Measures to be taken should encourage research and development both into reducing carbon dioxide emissions and reducing the uncertainties surrounding future climate change projections.
- The agreement must be global in scope and fully involve the developing countries.
- Any approach we, as a nation, adopt on this issue should be based on flexible market-based approaches which allow for continued growth in our economy.

August 13, 1997

Page 2

As you know, I chair The Business Roundtable's Environment Task Force. We at the Roundtable welcome further discussion with you and members of your Cabinet on this vital issue. I am personally delighted that you are devoting your time, ability, and considerable energy to understand this most challenging set of issues. We at the BRT, and I personally, would be pleased to facilitate additional dialogues with members of the larger business community. Please let me know how I may best work to move these conversations along. I can be reached on (312) 861-5822.

Sincerely,

Robert N. Burt

Robert N. Burt
Chairman and CEO
FMC Corporation
Chairman, Environment Task Force
The Business Roundtable

cc: The Honorable Albert Gore, Jr.
The Honorable Robert E. Rubin
The Honorable Federico F. Peña
The Honorable William M. Daley
The Honorable Erskine B. Bowles
The Honorable Janet L. Yellen
The Honorable Gene B. Sperling
The Honorable Franklin D. Raines



WWF



'97 AUG 11 07:10

WWF Climate Change Campaign
1250 Twenty-fourth Street, NW
Washington, DC 20037
Tel: (202) 861-8388
Fax: (202) 331-2391

Visit our website at
<http://www.panda.org/climate>

To: Todd Stern, Staff Secretary to the President.
From: Adam Markham, World Wildlife Fund
Date: 11 August 1997
Re: Gaining Business Support for Climate Initiatives.

To follow-up on the discussion we had with Mark Childress the other day, and on today's brief phone conversation, I wanted to outline a proposal for you as to how we might take this initiative forward. The critical issue being the positive involvement of business leaders in supporting an environmentally meaningful agreement in Kyoto.

We propose that during September a meeting be organized between a select group of corporate CEOs and the President, with the aim of developing a constructive relationship on climate change prior to Kyoto. I spoke to Roger Sant, Chairman of World Wildlife Fund, and of the AES Corporation, about this idea last Friday, and he was enthusiastic about moving forward with it. Indeed, he offered to help facilitate making such a meeting happen, and to work with us to create an informal forum of business leaders that would put meat on the bones of any proposals discussed at a White House meeting.

Most of the current initiatives by environmental groups for dialogue with business and industry are aimed at developing post-Kyoto strategies. This meeting and its follow-up would be strongly focused on stimulating businesses to articulate their support for action prior to Kyoto. I believe we could pull together an impressive group of large, multinational companies for a meeting with the President, and that such a meeting could catalyse more assertive and productive policy inputs by those companies in the lead-up to Kyoto.

The objective of the meeting would be to go beyond the debate about science, and instead discuss the conditions under which corporate America could most constructively address the need to reduce carbon emissions. Most of these businesses have their own ideas about measures that could be taken to reduce emissions whilst still keeping the economy growing. Many US companies are at the cutting edge of technology development and are already positioning themselves in the marketplace to become global leaders in a world where carbon has a price. Not enough is being heard about these innovations, many of which are supported through DOE and EPA programs.

Companies that could be approached at short notice include GM, Johnson and Johnson, Hewlett-Packard, SC Johnson, Electrolux, Enron, IBM, AT&T, Honeywell, Gillette, Monsanto, DuPont, BP, 3M, PG&E and SunOil, to name a few that WWF has particularly

good contacts with.

In addition to providing a venue for companies to get their points of view across to the President, I think the meeting could be used to formally request their help. Perhaps the President could ask the CEOs present to put together some proposals for action in time for the White House Conference in October? A tight schedule, I know, but one that could probably be adhered to if we start working on it now. The President could also press for greater voluntary commitments by businesses and public support for action.

I hope that you agree that this proposal could help to solidify business support for effective action at Kyoto. I believe that the involvement of Roger Sant and his willingness to help us put together a winning mix of corporate leaders to help frame the policy debate for Kyoto could make this a powerful initiative. Our team is ready to work with you to take this on and make it a success. I look forward to hearing from you,

Best regards,

A handwritten signature in black ink, appearing to read "Adam Markham", followed by a period.

N.B. For your background, AES is a fast-growing independent power producer (IPP) founded by Roger Sant and Dennis Bakke in 1981. The company owns or operates 75 power plants in 12 countries, including the US and China, and has more than \$5 billion of projects in construction or the late stages of development.



PROTECTING OUR PLANET FROM GLOBAL WARMING



WWF Climate Change Campaign

1250 Twenty-fourth Street, NW
Washington, DC 20037

Tel: (202) 861-8388

Fax: (202) 331-2391

Visit our website at

<http://www.panda.org/climate>

197 AUG 18 PM 4:25

To: TODD STERN, STAFF SECRETARY.

FR: ADAM MARKHAM

DATE: 8/18/97

RE: BUSINESS & CLIMATE

Todd,

Attached is the one page draft statement I
mentioned.

Let's talk Tuesday about this again.

Cheers,
Adam

*DISCUSSION DRAFT 2 – May 6, 1997***STATEMENT OF CORPORATE PRINCIPLES**
GLOBAL CLIMATE CHANGE

The United Nations' Intergovernmental Panel on Climate Change and additional peer-reviewed scientific research has found that human activity is adversely impacting the world's climate. As a group of [X] U.S. industry leaders employing [X] people throughout the United States and the world, we accept these findings and affirm our support for action by the U.S. and 167 other nations that are currently negotiating an agreement to limit global greenhouse gas emissions.

We are concerned that not taking action to mitigate climate change will lead to significant costs in all sectors of the economy, including energy development, transportation, agriculture, insurance, finance, manufacturing, and tourism. We believe that timely action on mitigating the threat of climate change will present not only challenges but also growth opportunities for the United States economy. We concur with the February 1997 statement by over 2,500 economists that "sound economic analysis shows that there are policy options that would slow climate change without harming American living standards."

We urge the U.S. government to take action domestically in support of policies and programs to address the risks of climate change while increasing U.S. competitiveness and productivity. Further, taking into account the overwhelming strength of the scientific evidence and the strong prospects for addressing climate change in a pro-growth manner, we call upon the U.S. to lead the international community in negotiating an agreement that effectively mitigates the threat of global climate change.

**White House Climate Change Task Force**

734 Jackson Place, N.W. • Washington, DC 20503

FAX**To:** Jonathan**Organization/Title:****Fax:****Phone:****Pages (including cover):** 18**Date:** 9/3**From:** Lisa McNelly**Phone:** 343-1091**Message:**

- ① Meetings list - Does not reflect add'l requests rec'd today (sorry, I'm not feeling well and ^{maybe} am leaving early). Todd has not seen the highlighted ones; a few of the highlighted ones are also new to Dirk.
- ② EIC letter - I have a request in for more info on what they've already done. Will fax to you separately.

Thanks,
Lisa

OUTREACH/MEETINGS

Date: September 2, 1997

Requested Meeting	Time Sensitivity	Recommended Action	Status
George Abar Env. Info Center 202 887 8850 Meet w/Stern	8/12 phone call to Stern	Good contact to make when time -- Stern will meet CEO of EIC at Green Group mtg.	Pending.
Env. Information Center George Abar 1200 18th St NW, 5th Fl WDC 20036 202 887 8800 202 887 8877 (fax) Administration participants in 3 town mtgs.	8/27 fax to Forrister New Orleans, Oct 3 Minneapolis, mid-Oct Other Midwest	Discuss who should participate. [Handwritten: "discuss" with an asterisk]	Pending.
American Gas Association Murray Leibman Wants mtg with new Pres. and Stern	8/7 letter to Stern October	Important contact -- Stern should meet w/new President soon.	Action request sent to Adashek 8/26. Need to prepare 1-pager.
AFL-CIO Wants follow-up and dialogue		Contact: Judi Greenwald Refer to Asst. Secs for sub-group mtg.	Pending.
American Portland Cement Alliance Andrew T. O'Hare VP, Env Affairs 1225 Eye St NW, #300 WDC 20005 202 408 9494 202 408 0877 (fax) Discuss CC, "white paper"	7/14 fax to Stern also a 8/20 fax to Forrister to get invite to WH Conf.	Assign to Asst Secs subgroup Coordinate request re: Conf. W/OPL	Forrister will schedule through Sandalow/Orzag

OUTREACH/MEETINGS

Date: September 2, 1997

Requested Meeting	Time Sensitivity	Recommended Action	Status
American Public Power Assoc. Rebecca Blood 2301 M St NW WDC 20037-1484 202 467 2900 202 467 2910 (fax) Forrister mtg w/public power reps.	8/15 letter to Forrister Sept 11, anytime	Mary to schedule for Forrister. Forrister or Hunker/Romm	Pending. 8/26 to Washington
American Recreation Coalition Derrick Crandell 1225 NY Ave NW, #450 WDC 20005 202 682 9530 202 682 9529 McGinty or Forrister to speak at Recreation Policy Forum	7/8 letter to McGinty also 8/25 letter to Forrister Sept 9, 2-4 pm	McGinty cannot attend. Forrister or Hunker/Romm	Pending.
American Transport Assoc. (Airlines) Carol Hallett, Pres, CEO 1301 PA Ave NW, #1100 WDC 20004 202 626 4168 202 626 4166 (fax) Dialogue on position on air transport emissions.	7/7 letter to Wirth	Assign to Asst. Secs subgroup (Meeting with FAA, NASA, OSTP, and industry: perhaps combine with other aircraft groups who have written on same topic.	Pending.
Arnold & Porter Jonathan Martel 555 12th St NW WDC 20004-1202 202 942 5470 202 942 5999 (fax) Sandalow or Forrister to speak at seminar	8/12 fax to Sandalow Seminar is Sept 12, speaker needed for 30 min btw. 12 and 2 pm.	Request invitation list and agenda. Forrister as back-up to Sandalow	Tentatively schedule for Forrister.

OUTREACH/MEETINGS

Date: September 2, 1997

Requested Meeting	Time Sensitivity	Recommended Action	Status
Bonneville Power Administration Alexandra Smith, VP for Env, Fish and Wildlife Debbie Stout 503 230 5136 503 230 4565 (fax) Meet w/Forrister on global warming.	8/8 letter and phone to Forrister In town Sept 8-9	Forrister to schedule.	Scheduled, Sept 9, 10:30
CADER - CA Alliance for Distributed Energy Resources Peter Carroll Judith Chinn 202 293 4327 Forrister to speak at conf.	8/1 letter to Forrister Sept. 15-17 in San Diego Carroll to call 8/15	Forrister cannot attend DOE is a sponsor - Romm/Chupka or other sub-Cabinet level? Current agenda and proposed spot received 8/26.	Check Cabinet plans to see if someone will be in area. Pending.
Center for Business Intelligence 3rd Emission Reduction Strategies for Power Cos Conf. Patty Lee (-0934) 70 Blanchard Rd #4800 Burlington, MA 01803 617 270 6200 617 270 6204 (fax) Dirk to speak at conf.	7/30 letter to Forrister Conf: Nov 17-18.	Send to agency for surrogate.	Pending phone call. Call to arrange surrogate.
Center for Env. Information 13th Conference -- Kyoto and Beyond: Climate Change Policy Moves to Center Stage Liz Thorndike 607 277 2604 Request for Dirk to speak and info on an additional speaker	7/28 to Peterson Conf: Nov. 17-18 Requested times: Keynote, 1st talk on 11/17 am; or U.S. Strategy presentation, 2nd talk on 11/17 pm	Send to agency for surrogate.	Pending phone call. Call to arrange surrogate.

OUTREACH/MEETINGS

Date: September 2, 1997

Requested Meeting	Time Sensitivity	Recommended Action	Status
Center for Strategic & International Studies Karl Hauser 1800 K St NW WDC 20006 202 887 0200 202 775 3199 (fax) Attend 2nd CC roundtable	7/10 to Stern & Forrister Roundtable Sept. 22 10-3	Fold into Sept. strategy Likely to use Asst. Secs, depending on final agenda.	Awaiting further info.
City U. Of NY Graduate School Marie Antoinette Manca Energy Forum 33 W. 42 St NY, NY 10036-8090 Yasemin Celik 212 802 6730 212 802 6742 (fax) Dirk to address Forum	7/10 letter to Forrister late Sept or early Oct. (9/15 - maybe 9/29 - no 10/6 - no)	Timing problems for Forrister; possible agency surrogate.	Pending phone call. Call to determine if they want surrogate. Agency surrogate?
Department of Commerce Jeffery Hunker Kyoto Global CC Briefings to ISAC/IFAC Advisors Tiffany Smith 202 482 3268 Attend briefings	9/1 fax to Forrister Briefings on 9/3, 2-4 pm (Third one on 9/24)	Hunker will lead briefing on domestic policy issues and have guest speakers. Hunker, Pomerance and Forrister spoke at first 8/13 event.	Pending. Get list of attendees (left msg 8/13).
The Conference Board Meredith Whiting Senior Fellow, Govt. Affairs 1113 M St NW WDC 20005 202 371 8126 202 842 3867 (fax) Forrister to speak at Chief EH&S Officers Council	8/29 referral from Reilly Conf is Sept 11 in Boston.	No one at State can attend. Group has offered to pay travel expenses.	Pending.

OUTREACH/MEETINGS

Date: September 2, 1997

Requested Meeting	Time Sensitivity	Recommended Action	Status
Corn Refiners Association Jennifer White, Director of Technical Affairs 1701 PA Ave NW WDC 20006-3805 202-331-1634 202-331-2054 (fax) Speaker at Plant Management Committee	8/15 letter to Task Force Mtg is Sept 25, 12-3 pm	Given to Peterson for scheduling 8/26.	Pending.
Distributed Power Coalition of America Conference	Sept 10-11	Staff to attend (Greenwald, McNeilly)	Pending.
DuPont Peter Chantaine Corporate Energy Leadership Team (CELT) 613-548-5025 Forrister to speak at mtg.	8/20 fax from Chupka to Forrister Sept 18 mtg in Wilmington, DE	Referred by Chupka. 8/26 to Seidel for scheduling.	Pending.
Edison Electric Institute Thomas Kuhn 202 508 5555 Meeting w/ EEI CEO's	July 7 letter to McGinty Sept 4 in Kansas City, MO	McGinty will attend.	Scheduled.
Edison Electric Institute Washington reps mtg. Randal Ihara 701 PA Ave, NW WDC 20004-2696 202 508 5456 202 508 5403 (fax)	8/12 letter to Forrister 8:30 am on Sept 10	Forrister should attend.	Scheduled.

OUTREACH/MEETINGS

Date: September 2, 1997

Requested Meeting	Time	Recommended Action	Status
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Just trying to figure out
what it
jammed.

White House Climate Change Task Force

734 Jackson Place, N.W. • Washington, DC 20503

FAX

To: Jonathan

Organization/Title:

Fax:

Phone:

Pages (including cover): 18

Date: 9/3

From: Lisa McMillen

Phone: 343-1091

Message:

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② EIC letter - I have a request in for more
info on what they've already done will
fax to you separately.

Thanks,
Lisa

OUTREACH/MEETINGS

Date: September 2, 1997

Requested Meeting	Time Sensitivity	Recommended Action	Status
Energy Resources International David South 1015 18th St NW, #650 WDC 20036 202 785 8833 202 785 8834 (fax) Forrister to speak at National Capital Area Chapter of Int. Assoc. Of Energy Economics luncheon	8/22 fax to Forrister Luncheon on climate change on Sept 19	More information on agenda and attendees requested 9/2.	Pending.
Global Environmental Change Council Lolani Arris 250 968 4401 CC & economic rpt.	7/23 phone call to Stern; referred by Tony Phipps DOC	Gather more info: - list of members - agenda	Pending info.
GLOBE -- Global Legislators Org. For a Balanced Env. John Bond, Dir. 409 Third St SW, #204 WDC 20024 202 863 0153 202 479 9447 (fax) Mtg on CC Internat'l resol.	7/10 fax to Stern Monday or Friday	Stern meeting with senior env staff. Incoming letter for Member mtg with Stern and Cabinet in post-Labor Day period.	Waiting for letter. Hold for evaluation by Foley.
Green Group Gene Karpinski, Exec Dir Contact: Julie Waterman 202 861 2242 Speak at next mtg to CEOs	7/17 fax to Stern Mtg. is Sept. 4	Stern should do, perhaps with a small group.	Scheduled.

OUTREACH/MEETINGS

Date: September 2, 1997

Requested Meeting	Time Sensitivity	Recommended Action	Status
ICLEI Nancy Skinner Cities for Climate Protection- US 15 Shattuck SQ, #215 Berkeley, CA 94704 510 540 8843 510 540 4787 (fax) 4th Training workshop for Campaign jurisdictions	7/2 letter to Forrister Sept 6-10 in Atlanta	Need more information.	Request referred to Fred Duval (IGA) for advice. Faxed 8/13
Independent Power Producers' Society of Ontario Jake Brooks 163-C Eastbourne Ave Toronto Ontario Canada M5P 2G5 416 322 6549 416 481 5785 (fax) Dirk to speak at conf.	7/24 letter to Forrister 9th Annual Ind. Power Conf. Nov 11-12 Want to hear by 8/15	Conflict with Forrister's Sunoco commitment. Not high priority -- group primarily foreign firms, though some US.	Regret letter from Mary will be sent after call.
International Development Center of Japan Kimiko Abe 813 3630 8031 813 3630 8095 (fax) Research mission on CC and development assistance	8/20 letter to Forrister Mission in DC Sept 1-5	8/26 to Seidel and Greenwald for scheduling.	Pending.
National Petroleum Refiners' Assoc. June 1899 L St NW, # 1000 WDC 20036 202 457 0480 Forrister to attend mtg (McInty to speak)	8/20 letter to Forrister Fall Board of Directors Mtg. Colorado Springs, CO Sept 14-16	McInty cannot attend.	Pending.

OUTREACH/MEETINGS

Date: September 2, 1997

Requested Meeting	Time Sensitivity	Recommended Action	Status
Wilson W. Orr City of Scottsdale City Manager's Office Advanced Technology Prgm. 3939 Civic Center Blvd PO Box 1000 Scottsdale, AZ 85252-1000 602 994 7832 602 994 7797 (fax) Local CC; planning mtg with VPOTUS in 1998	7/27 note from Bob Nash to Stern -- contact and resource person	Add to experts list (state & local).	Passed to Fred Duval along with ICLEI request 8/13.
Poly. Insulation Manufacturers Assoc. Jared Blum 1001 PA Ave NW, 5th Floor WDC 20004 202 624 2709 202 628 3856 (fax) Forrister or Stern to speak to senior exec. annual mtg.	8/20 fax to Forrister Mtg is Nov 18, 2- 5 pm.		Pending.
SEREP Scott Sklar Coordination of RE Summit w/WH Conf	8/13 fax to Stern Summit in early Oct.	?	Pending.
Southern Co. A.W. Dahlberg Chairman, Pres, CEO Participate in industry mtgs.	8/1 fax from Jim Free to Stern	Include in next CEO mtg or in a Cabinet level mtg.	Pending.
State Environmental Dept. Meeting Speaker	Sept. 24, Burlington, VT	Fred Hansen? Coordinate w/ Duval.	Pending.

OUTREACH/MEETINGS

Date: September 2, 1997

Requested Meeting	Time Sensitivity	Recommended Action	Status
Sunoco J. Robert Banks VP Health, Env and Safety 864 885 9748 Dirk to attend Corporate Env, Health and Safety Management Roundtable	6/24 letter to Forrister Nov 11-12 at Ritz Carlton in Pentagon City	Forrister already committed.	Forrister will schedule. 8/11 to Washington.
US Export Council for Renewable Energy (ECRE) Griffin Thompson Asia Program/Climate Change 122 C Street NW, 4th Fl WDC 20001-2109 202 383 2550 202 383 2555 (fax) Discuss Jakarta Conf on clean energy, CC, Asia Initiative	7/14 letter to Stern Jakarta Conf on clean energy -- Oct. 14-16	Mct with them with BCSE. Forrister to assess.	Being scheduled w/Forrister. 8/11 to Washington.
US ECRE Conf. -- Opportunities for Int. Investment in Carbon Offset Projects Judy Siegel 202 383 2550 Christiana Figueres Anne Hambleton 202 588 0155 202 588 0765 (fax) Dirk to speak on FCCC neg.	6/5 letter to Forrister Currently scheduled for Sept. 17; Talk from 9:15 - 10:00	Forrister agreed to do in spring -- then they postponed. Good group of renewables exporters.	Being scheduled w/Forrister. 8/11 to Washington.
Washington Int. Energy Group Pam Smith 202 835 7152 202 331 9864 (fax) Speak at brownbag lunch	8/12 letter to Forrister Aug. 22	Forrister postponed previously. Good way to reinforce w/trade assn. reps	Washington rescheduling.

OUTREACH/MEETINGS*Date: September 2, 1997*

Requested Meeting	Time Sensitivity	Recommended Action	Status
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James Wolfensohn Pres, World Bank State Contact: Debbie Jones 202 647 6205 Luncheon with CC Deputies	7/16 fax to Stern from Wirth Sept. 3 12:30-2:00 Henry Clay Rm, Main State	Stern should go if available.	Action request to Carol (8/6). Stern will attend.
Funding foundations Meeting w/Todd on funding	Per Arlie Stuart letter	Decline.	Pending.

OTHERS INTERESTED IN JOINING DIALOGUE:

Paul Yhouse Holnam Cement Contact: Mike Mullin 313 529 4310 Discuss CC		Refer to Asst. Secs for sub-group mtg.	Pending. Sandalow.
Robert Kappelman Jacksonville Electric Authority (Public Power) 21 West Church St Jacksonville, FL 32202-3139 904 632 6249 904 632 7376 (fax) Get involved in process		Contact: Judi Greenwald Refer to Asst. Secs for sub-group mtg.	Pending. Later meetings.
Kenneth Mentzer Exec VP North American Insulation Manufacturers Assoc. 44 Canal Center Plaza, #310 Alex., VA 22314 703 684 0084 703 684 0427 (fax) Get involved in process		Contact: Judi Greenwald Refer to Asst. Secs for sub-group mtg.	Pending.

OUTREACH/MEETINGS*Date: September 2, 1997*

Requested Meeting	Time Sensitivity	Recommended Action	Status
Bruce A. Steiner American Iron & Steel Institute 1101 17th St NW, #1300 WDC 20036-4700 202 452 7112 202 463 6573 (fax) Get involved with process		Contact: Judi Greenwald Refer to Asst. Secs for sub-group mtg.	Pending.
Business Council for Sustainable Energy Wants another meeting		Refer to Asst. Secs for sub-group mtg.	
National Association of Manufacturers Wants dialogue		Contact: Judi Greenwald (follow-on to previous meeting) Refer to Asst. Secs for sub-group mtg.	
Nuclear Energy Institute Wants dialogue		Contact: Judi Greenwald (follow-on to speech) Refer to Asst. Secs for sub-group mtg.	

OUTREACH/MEETINGS

Date: September 2, 1997

Requested Meeting	Time Sensitivity	Recommended Action	Status
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COMPLETED MEETINGS			
Global Climate Coalition		Hold initial meeting	COMPLETED (Stern, 7/ 8)
ICCP		Hold initial meeting	COMPLETED (Stern, 7/ 9)
BCSE		Hold initial meeting	COMPLETED (Stern, 7/ 9)
Climate Council		Hold initial meeting	COMPLETED (Stern, 7/10)
AFL-CIO		Hold initial meeting	COMPLETED (Stern, 7/ 9)
Enviro leaders		Hold initial meeting	COMPLETED (Stern, 7/ 8)
BP		Hold initial meeting	COMPLETED (Stern, 7/)
Embassy of Australia 1601 Mass Ave, NW WDC 20036 Justine Brown 202 797 3209 202 797 3201 (fax)			COMPLETED (Forrister w/ DOS, 7/24)
Amory Lovins Rocky Mountain Institute 907 927 3128 970 927 4178 (fax) Paper on climate profits	In DC July 24-26	Several requests to agency asst. secs. Should coordinate in one meeting.	COMPLETED (Asst. Sec's met w/him on 7/?)
Department of Commerce Jeffery Hunker Kyoto Global CC Briefings to ISAC/IFAC Advisors Tiffany Smith 202 482 3268 Attend briefings	8/8 fax to Forrister RSVP by fax Aug. 13, 2-4pm (later brieings on 9/3 and 9/24)	Forrister to talk if possible.	COMPLETED (Forrister 8/13) September mtgs also pending.

OUTREACH/MEETINGS*Date: September 2, 1997*

Requested Meeting	Time Sensitivity	Recommended Action	Status
Agency for International Dev. Developing Country Climate Change Initiative David Hales Forrister -- Implementation planning mtg.	8/20 fax to Forrister Aug 28, 2 pm, 1300 PA Ave, Rm 209D	Forrister scheduling conflict	Declined.
Redefining Progress Jeff Hamond One Kearny Street, 4th Fl San Francisco, CA 94108 415 781 1191 415 781 1198 (fax) Meet w/Forrister on tax issues	8/5 letter to Stern In town Aug 18- 20	Forrister should meet. [Documents came with letter.]	COMPLETED (Forrister, 8/19)
Sustainable Energy Coalition Ken Bossong 315 Circle Ave, #2 Takoma Park, MD 20912- 4836 301 270 2258 301 891 2866 (fax) Discuss with Stern & Forrister on work w/EPA & DOE	7/9 letter to Stern	Most member groups covered in CAN and BCSE meetings.	COMPLETED (Forrister, 8/14)
West Associates David Steele 520 321 1111 2000 East Horsetooth Road Ft. Collins, CO 80525 970 229 5210 970 229 5225 (fax) Jacqueline Howells Lori Glazer 202 543 5740 Dirk to attend conf.	6/17 letter to Forrister Congressional Energy Forum, Aug. 18-20, Sante Fe	List of attendees and agenda requested and received (8/5). Peterson may attend, depending on level of attendance.	COMPLETED (Ervin)

OUTREACH/MEETINGS*Date: September 2, 1997*

Requested Meeting	Time Sensitivity	Recommended Action	Status
Edison Electric Institute Boh beck, Senior VP 701 PA Ave, NW WDC 20004-2696 202 508 5555 Dialogue with POTUS on CC	7/24 letter from Kuhn to POTUS followed by phone request	Stern meeting.	COMPLETED (Stern, Forrister, 8/14)

Outreach

DRAFT *DRAFT*DRAFT
(8/20/97)
White House Climate Change Outreach Plan

Background:

- The President's meeting with the 10 CEO's of "Fortune 500" companies created a new spark of interest in industry toward becoming part of the solution to climate change -- so long as the Administration's proposed policy framework is achieved (combining binding emissions budgets with reasonable timing, emissions trading and joint implementation).
- One CEO proposed an intriguing possibility: in exchange for a "reasonable target" (such as 2010 - 2020), industry would step forward to enter voluntary agreements "with real teeth" in the period leading up to the binding regime.
- Other CEO's stressed the importance of a stronger public-private commitment to an effort to research, develop and deploy climate-friendly technologies.

Objectives:

- Build positive momentum from CEO meeting.
- Develop enhanced voluntary CEO commitments that could be unveiled at October White House Conference.
- Follow-up on other suggestions from CEO meeting through more focused, sectorally-focused discussions on how best to deliver:
 - technology strategies and other market-based domestic policies;
 - international policy framework (binding emissions budget alternatives, JI, international emissions trading, developing country commitments);
- Begin to create the coalition of supporters for an American position for Kyoto.

1. Energy Producers

Desired Outcome: Electric utilities could agree to rally other electric utilities for new, improved commitments for the October conference. Most gas utilities are not yet committed to voluntary actions, so a compact could be beneficial (though conceivably quite different than electrics.) Coal companies have participated, but their action plans are not in high gear.

The President could assure credit for early action. In addition, the companies could be expected to support and participate in a "climate technology for the future" drive. Later, when the President reinforces his commitment to U.S. policy framework and announces the terms of the "realistic, achievable and binding target," these commitments (and tonnes pledged) would serve as a show of force in American resolve to combat climate change.

Guests: 1. Linn Draper, AEP
 (Illustrative list) 2. Fred Buckman, PacifiCorp
 3. Craven Crowell, TVA
 4. William Dahlberg, Southern Co.
 5. William Davis, Niagara Mohawk

6. Charles Bayliss, Tuscon Electric Co.
7. Roger Sant, AES Corp.
8. Thomas Casten, Trigen Energy
9. Gregory Boyce, Kennecott Energy Co.
10. Irl Englehardt, Peabody Coal
11. Ken Lay, Enron
12. Bob Catelle, Brooklyn Union
13. Richard Farmer, Pacific Enterprises
14. Wayne Allen, Phillips Petroleum

- WH/Cabinet:
1. Todd Stern (Chairs meeting)
 2. Secretary Pena (alternative: Dep. Sec. Moler)
 3. Secretary Daley
 4. Gene Sperling/Tarullo
 5. Katie McGinty
 6. Jack Gibbons
 7. Janet Yellin
 8. Secretary Rubin

2. Manufacturing & Heavy Industry

Desired Outcomes: Most of these companies have yet to pledge voluntary commitments. Building on the utility model, these CEO's could develop an industry-wide voluntary reduction framework. This would set up the parameters for compacts for voluntary reductions from companies that take action prior to the binding target by assuring credits for early reductions. This effort could benefit from the strong public-private R&D partnerships (DOE's "Industries of the Future")

- Guests:
(Illustrative list)
1. Robert Burt, FMC
 2. Michael Bonsignore, Honeywell
 3. Hank Barnett, Bethlehem Steel
 4. Pete Corell, Georgia-Pacific
 5. Paul O'Neil, Alcoa
 6. George David, United Technologies
 7. William Stavropoulos, Dow
 8. Paul Yhouse, Holnam
 9. John Krol, DuPont
 10. Joseph Cannon, Geneva Steel
 11. Glen Hiver, Owens-Corning
 12. Amstead?(A foundry?)
 13. [Norm Augustine][successor?], Lockheed-Martin
 14. Gary Tooker (or Chris Galvin?), Motorola
 15. Harold Wagner, Air Products and Chemicals
 16. Jack Creighton, Weyerhaeuser
 17. DiSimone, 3M
 18. Steve Percy, BP
 19. Phil Carroll, Shell
 20. Wayne Allen, Phillips Petroleum
 21. General Electric

- WH/Cabinet:
1. Todd Stern (Chairs meeting)
 2. Secretary Pena (alternative: Dep. Sec. Moler)
 3. Secretary Daley

4. Administrator Browner (alternative: Dep. Adm. Hanson)
5. Gene Sperling/Dan Tarullo
6. Katie McGinty
7. Jack Gibbons
8. Janet Yellin

Additional Steps with Other Industries: The sectors noted above cover the bulk of U.S. greenhouse gas emissions, but other sectors are important.

- The President will meet in early October with CEO's of the **"Big 3" automobile manufacturers**.
- Secretary of Transportation Slater, NASA Administrator Goldin and Undersecretary of State Wirth or Eisenstadt could be helpful in meeting in September with CEO's of leading **airlines** (Northwest, American, United, Delta, etc.) and **aircraft manufacturers** (Boeing) on some specific proposals that could garner their support (relating to international standards and enhanced air traffic control proposals).
- Secretary Daley and Administrator Browner could be helpful in meeting with the **electronics and telecommunications industries** (Intel, Microsoft, AT&T, US West, Ameritech, that use modest amounts of CFC substitutes and are participating now in voluntary efforts to reduce. They could possibly expand their commitments to continually improve post 2000.