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Sean Maloney (Chron File) – Monday, November 1, 1999

Stack:	Row:	Section:	Shelf:	Position:
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99 NOV 1 PM 4:19

The honour of your presence
is requested at the
marriage of
Deedee Mc Mullen Corradini
and
John Joseph Huelner
Saturday, the twenty-seventh of November
Nineteen hundred and ninety-nine
at four o'clock in the afternoon
Holladay United Church of Christ
Salt Lake City, Utah
and afterward at the reception
Log Haven, Millcreek Canyon

R.s.v.p.

No gifts please

11/1/99

From Ibarra -

Send to Scheduling?

& Burkhardt
for letter

Yes

No

✓

c

The favour of a reply
is requested before the tenth of November
M_____
will_____attend

DEEDEE CORRADINI
MAYOR

451 SOUTH STATE
SALT LAKE CITY, UTAH 84111
e-mail: deedee.corradini@ci.slc.ut.us

(801) 535-7704
FAX (801) 535-6331

President and Mrs. William Jefferson Clinton
The White House
Washington, DC 20500

Tab B: with pg 1 of cover memo: HRC/Berger/Podesta
Tab C: with pg 1 & 2 of cover memo: Berger/NSC WW Desk/Podesta
Tab E: Tab E only: Berger/NSC WW Desk/Podesta

Summary:

DOE/EPA Report on Carbon Dioxide Emissions: with pg 3 of cover
memo: Ballentine/Podesta

THE WHITE HOUSE
WASHINGTON

October 25, 1999

10-31-99

Copied
HRC
Berger
Podesta

INFORMATION

MEMORANDUM FOR THE PRESIDENT

FROM: SAMUEL BERGER

SUBJECT: Release of Paper on Gulf War Illness

On Tuesday, October 19, the Office of the Special Assistant for Gulf War Illnesses (OSAGWI) at the Department of Defense released a RAND study on the medical effects of the drug Pyridostigmine Bromide (PB). PB is an investigational new drug (IND) given to Service personnel during the Gulf War as a pretreatment to prevent death in the event of an attack by the nerve agent soman.

The author concludes that PB cannot be ruled out as a cause of long-term health problems of some Gulf War veterans. This is the first report that DOD has published that could be interpreted as finding a cause for some Gulf War illnesses. While the report only concludes that more research is needed, it has generated considerable interest. Previously, PB had been rejected as a possible cause for illnesses by both the Institute of Medicine and the President's Advisory Committee (PAC) on Gulf War Illnesses.

Pyridostigmine Bromide, because of its status as an IND, was given to Service personnel under special rules of the FDA. These rules allowed administration of INDs to troops without their informed consent and were the topic of heated medical ethics debates. In the FY99 Defense Authorization Act, Congress mandated that the President has sole authority to grant a waiver of informed consent. You signed an Executive Order (EO) on October 1, 1999 that established stringent procedures for considering such a waiver request for military use of INDs. At the same time, FDA issued a new interim final rule establishing the standards and criteria that will be applied in making a determination. Together, the EO and new FDA rule ensure the health and welfare of our troops, both on and off the battlefield.

cc: Vice President
Chief of Staff

Our public message on PB is that we are exploring all avenues to find the cause for Gulf War illness. There are currently 26 scientific studies underway, at a cost of over \$20 million, to help better understand the health consequences of PB as a nerve agent pretreatment. DOD, VA, and HHS will consider the recommendations of the RAND report for funding of additional research. The Institute of Medicine has been commissioned to conduct a more extensive study of PB, the results of which should be available by September 2000.

Because soman is a swift and sure killer, DOD will continue to consider use of PB as a pretreatment for our troops when there is a credible soman threat. While PB is the only known pretreatment for soman, we will be judicious and take the RAND study and all other pertinent research into account when considering any future PB use. If PB is issued, improved intelligence, chemical sensors, and protective clothing will help limit the dosage to what is absolutely necessary to save lives. Better medical record keeping by DOD will help track the health effects of PB after the conflict is over. The intent is to provide the best battlefield protection for our troops while also protecting their long-term health and well-being.

THE WHITE HOUSE
WASHINGTON

October 30, 1999

10-31-99

MEMORANDUM FOR THE PRESIDENT

FROM: LISEL LOY *LL*

SUBJECT: Recent Information Items

I am attaching the following recent information items:

- ✓* (A) **Summers memo on China trip** – Larry reports on his recent trip, during which his Chinese hosts “extended themselves” and allotted substantial time for top-level meetings (e.g., with Premier Zhu Rhongji and Vice Premier Wen Jiabiao); struck a cordial tone and did not mention contentious matters (e.g., embassy bombing); and showed a clear interest in restoring the U.S.-China relationship and on achieving WTO accession. Discussions focused on the WTO and China’s macroeconomic problems. Larry also notes several common U.S./China themes, including: the importance of expanding prosperity, particularly to areas that have been left behind; concurrent environmental protection and economic growth; the efficiency/stability tradeoff; and financial liberalization.
- CP* *✓* (B) **Berger memo on Gulf War illness study** – Sandy reports on DoD’s recent release of a RAND study on the medical effects of Pyridostigmine Bromide (PB), an investigational new drug (IND) used during the Gulf War as a pretreatment to prevent death in the event of attack by the nerve agent soman. The report concludes that PB cannot be ruled out as a cause of long-term health problems of some Gulf War veterans and is the first DoD-published report that could be interpreted as finding a cause for some Gulf War illnesses. Although the report only concludes that more research is needed, it has generated considerable interest. Because PB is an IND, it was given to service personnel under special FDA rules that allow the administration of INDs to service personnel without their consent. The FY99 Defense Authorization Act gave you sole authority to grant a waiver of informed consent; on October 1, 1999, you signed an Executive Order that established stringent procedures for considering such a waiver request for military use of INDs. Our public message on PB is that we’re exploring all avenues to find a cause for Gulf War illness; there are currently 26 studies underway. DoD will continue to consider PB as a pretreatment when there is a credible soman threat – PB is a swift and sure killer and PB is the only known pretreatment – but will be judicious and take all pertinent research into account when considering future PB use.
- ✓* (C) **Berger memo on President Carter’s interest in Sudan** – In response to an *LA Times* article reporting on Carter’s statement that you have resisted his efforts to resolve the Sudan crisis, you asked whether Carter is too close to Sudan’s leader. Sandy responds



JAMES A. HARMON
PRESIDENT AND CHAIRMAN

EXPORT-IMPORT BANK
OF THE UNITED STATES

10-31-99

Copied
Berger
Sperling
Podesta

October 13, 1999

C. Sastry/Gun

✓
The President
The White House
1600 Pennsylvania Avenue, NW
Washington, DC

Dear Mr. President:

During the week of September 12th, I visited Russia for the first time since November 1997. I am pleased to share my impressions with you. Although the financial crisis of August 1998 has had a profound impact upon Russia, we have already begun to see improvements in the economy that would have been difficult to foresee a year ago, and we are likely to see other positive developments in the long term.

The Russians may have finally begun to recognize that they can no longer expect significant amounts of assistance from the West and that maintaining the status quo will only stifle economic and systemic reform. In addition, the Russians may now realize that the ability of the government to be actively involved in the economy is limited and that businesses must be allowed to respond to market forces. In many companies in Russia, new management has taken control and is working to maximize profits and shareholder value and to operate within the parameters of good corporate governance and ethical business practices.

The U.S. Government should continue to urge Russia to strengthen the rule of law, to reform laws on bankruptcy and other business matters, and to encourage businesses to adhere to principles of transparency and good governance, all of which will encourage resumption of investment in Russia. The U.S. should continue to provide the Russians with advice and technical assistance in all of these matters. As in Indonesia, we have a delicate path to tread as we encourage government-sponsored reforms toward market-based principles, and at the same time, assist the people of the country as they endeavor to emerge from the crisis.

Ex-Im Bank is uniquely positioned among U.S. government agencies to play an important role in Russia. With the private financial sector still reluctant to assume the risks of doing business there, the only major source of financing will come from export credit agencies. As the official export credit agency of the United States, our mission is to support U.S. exports, but at the same time we can have a beneficial impact upon the countries and enterprises that acquire these exports. We currently have outstanding exposure of approximately \$2.3 billion to Russia, which has supported exports to the energy, aerospace, mining and other critical sectors of

the Russian economy. Our repayment record has been excellent despite the financial crisis.

Russia needs U.S. exports to revitalize virtually every sector of its economy. We can provide the appropriate financing support. Ex-Im Bank programs and disbursement procedures have always been designed to prevent the kind of corruption that has been the subject of intense media interest recently. Ex-Im Bank disbursements are carefully tied to proof of export of U.S. goods and services, payment of the U.S. supplier and other certifications. Unlike other lending institutions, our funds never leave U.S. shores.

We are currently developing a structure to enable private creditworthy Russian farmers to purchase American agricultural equipment. We will continue to work on similar programs for creditworthy entities in the forestry, aviation, fishing and mining sectors. We are looking for ways to work directly with the creditworthy cities and regions of Russia, including the Russian Far East. Finally, the right use of our financing can assist in the restructuring of the commercial banking sector and allow us to provide financing to small and medium-sized business that will be the backbone of the new Russian economy.

The U.S.-Russia bilateral relationship will occasionally have periods of difficulty, but we should not lose sight of the enormous importance to U.S. strategic interests in assisting Russia to accomplish its historic transition to democracy and a market economy. I believe that history will note the immense contribution the Clinton Administration has already made to the transformation of Russia. I further believe that during this critical period of the next 18 months, Ex-Im Bank can do more to nurture the establishment of a genuine and lasting market economy.

On October 15th I will leave for Africa- (Ghana, Nigeria, South Africa and Mozambique). The Ex-Im Bank program to increase financing for Sub-Saharan Africa to produce U.S. goods and services is making good progress. In fiscal year 1999, Ex-Im Bank support for U.S. exports was approximately 10 times the amount for fiscal year 1998, and we expect to expand further our support in the current fiscal year.

I would welcome the opportunity to discuss these matters further with you at your convenience.

Respectfully,



*I hope to be
with you in Turkey -
where we have alot of
activity -
JJD*

Copied
Berger
NSC WW Desk
Podesta

7543

'99 OCT 27 PM 9:38

THE WHITE HOUSE
WASHINGTON

October 27, 1999

10-31-99

INFORMATION

MEMORANDUM FOR THE PRESIDENT

FROM: SAMUEL BERGER

SUBJECT: Jimmy Carter's Interest in Sudan Negotiations

In a recent interview with the Los Angeles Times, Jimmy Carter said that your Administration has resisted his efforts to resolve the crisis in Sudan. You asked whether Carter is too close to Sudan's leader.

We haven't called upon Carter recently because, though not particularly close to northern Sudanese leaders, he seems to overestimate their willingness to negotiate seriously. Carter's understanding of the situation differs from ours, in that his approach to the NIF is more conciliatory than the current situation warrants. Carter believes he can prevail upon President Beshir, and the National Islamic Front's Hassan Turabi, to compromise. Though both would likely welcome Carter's involvement, we believe that the United States should continue to work through the regional, and internationally backed, Intergovernmental Authority on Development (IGAD) peace process rather than a parallel track led by Carter.

Carter might also be miffed that we appointed former Florida Congressman Harry Johnston as Special Envoy rather than asking him to initiate a new peace process. Carter's interest goes back to 1989, when he tried to broker a compromise between Turabi and Sudan Peoples Liberation Army leader Dr. John Garang. Like other peace efforts, Carter's effort floundered because it assumed the possibility of negotiating a middle-ground option between the NIF's ideological commitment to an Islamic Sudan, which by definition excludes the southern, non-Islamic majority, and the Sudan People's Liberation Army's (SPLA) demand for a secular state in which all citizens have equal rights.

cc: Vice President
Chief of Staff

We favor the peace process led by IGAD because it has set forth a "Declaration of Principles" (DOP) which assumes that a just and lasting solution requires resolution of two fundamental issues: separation of religion and the state; and the right of Sudan's peoples to self-determination. Past peace efforts, including the Addis Ababa Accord which was signed shortly after Sudan's independence, and a Nigerian effort in the 1980s, failed because the issue of equal rights -- regardless of religion or ethnicity -- was never addressed. Khartoum accepted the DOP in 1997 because the international community agreed that no other vehicles for negotiations would be provided. Khartoum has since sought alternatives including less rigorous peace initiatives of the kind favored by Carter.

Attachment

Article and Question

Sunday

10-5-99

7543

What about Sudan
is he too close to
U.S. interests?

Bo

copied
Berger
NSC WW Desk
Podesta

LOS ANGELES TIMES

(first-edition) Page 1 for Tuesday, Oct. 5, 1999:

Top of page:

Col 1: Foreign newsfeature. Moving later with art.

Cols 2-5: Master Cheng Yen is Taiwan's version of Mother Teresa
a woman ministering to the poor and hoping to educate the rich and the recent devastating earthquake in Taiwan has brought out the best of her highly regarded organization. (with art) (TAIWAN-CHARITY, moving Tuesday).

Col 6: An Illinois jury orders the nation's largest car insurer to pay \$456 million for allegedly cheating millions of customers by ordering body shops to fix their cars with low-cost generic replacement parts. (INSURE-TIMES, moved).

Above fold:

Col 2: Advances in medical treatment for radiation victims give hope that one or more of the three workers severely irradiated last week in Japan could survive, doctors say. (JAPAN, moved).

Cols 3-4: Newsfeature. Moving later.

Col 5: The Supreme Court clears the way for mandatory drug testing for school teachers, rejecting a constitutional challenge that called the program "an exercise in symbolism." (SCOTUS-TIMES, moved).

Below fold:

Col 4: National newsfeature. Moving later with art.

Bottom of page:

Cols 1-3: Foreign newsfeature. Moving later with art.

Cols 5-6: As recently as three or four years ago, if you spent your college career burrowing into English literature or Picasso's paintings and then went looking for a job in business, you might have had trouble getting the time of day with many top corporate recruiters, but not any more. (LIBERAL-ARTS, moving Tuesday).

With an Eye on His Legacy, a President Faces Aging Unashamed

By Jack Nelson

Los Angeles Times

ATLANTA Jimmy Carter, wearing faded, tight-fitting blue jeans and a white, yellow and blue polo shirt with the initials of the U.S. Naval Academy, relaxed in an easy chair and propped his loafers on a coffee table last week. In a few days, on Oct. 1, the former president would turn 75 years old. Now, in his spacious office at the Carter Center, he was spending an hour reflecting on questions about his presidency and post-presidency, his relations with President Clinton and three former presidents and even about life and death and his 53 years of marriage with Rosalynn.

Carter, who has been nominated several times for the Nobel Peace Prize, disclosed that he had expected to receive the award in 1994 for his efforts in North Korea, Bosnia and Haiti, but is now reconciled to never receiving that honor. He also voiced irritation that the Clinton administration has sometimes excluded the Carter Center from its international diplomacy. Yet, the former president was clearly at ease with himself and the life he has made since leaving the Oval Office in 1981.

He had just finished printing out a manuscript copy of his 14th book, a memoir about growing up in the South during the Depression. And he waxed enthusiastically about his 15th book, a novel-in-progress about the Revolutionary War that is three-fourths completed. He plans to write other books, he confides, but never another with Rosalynn because the tensions created by the one book they co-authored, dealing with health issues, almost wrecked their marriage.

The former president talks unabashedly about his deep love for his wife, and both of them say these are the best years of their lives. In his 1998 book, "The Virtues of Aging," Carter, writing about older couples continuing to enjoy sexual relations, observed that "well past 70, Rosalynn and I have learned to accommodate each other's desires more accurately and generously, and have never had a more complete and enjoyable relationship."

Question: You wrote about there still being a lot of prejudice against the aged, that it's like sexism or racism.

Answer: There is. A lot of that is self-criticism. It's the underestimation of people about growing older, about what they're still capable of doing, so they withdraw from active and expansive participation in life and lead an increasingly and unnecessarily restrictive life. ... In generic terms, America does slough away a tremendous reservoir of potentially beneficial human beings because they themselves, and the general society, put a limit on us. Like a mandatory retirement age of 60. Or almost all the major corporate boards require somebody to resign when they're 65. I'm fortunate in that that has not affected me. Rosalynn's mother had to retire from the post office when she was 70. She's now 94. She could have worked 15 more years, I think, and very beneficially. But I tried to outline in the book some things that might be used to accommodate that: part-time work, obviously beneficent work. We have people in their 90s that are still helping us build houses for Habitat for Humanity.

Q: You're just turning 75 and you're as busy as you were when you were 65 or 55. I want to know your secret.

A: I spent a year or two studying other people's aging processes when I wrote "Virtues of Aging." I talked to people and analyzed my own habits and those of Rosalynn and how other people in my family have done. But I think I've just been blessed. So far, I've had good health. We are vigorous. Rosalynn and I do everything together, which is one secret. But we take up new habits, like climbing mountains or bird watching or fly fishing or downhill skiing. We do it together. We're always together, just about. We have unique responsibilities.

But I think that keeps us vigorous and interested in things. I've had the Carter Center as an almost unlimited menu from which I could choose. ... We have, for any particular day, maybe 50 things presented to us that we could select, and we choose the ones that we want to do. It's never boring. Negotiating peace and dealing with human-rights problems at the highest possible level. We monitor elections and promote democracy. We have health programs, agriculture programs in Africa. We have programs in 65 foreign countries. And with a former president, the opportunities to consummate a desire are almost unlimited. When I go to an African country it is a big deal. It's not as big as the queen of England, but it's a big deal.

Q: President Clinton recently presented both you and Mrs. Carter with the Presidential Medal of Freedom. Can you say something

about your relationship with Clinton? It's been a little bit rocky in the past.

A: It's been quite rocky in the past. But, I think, the last few months, at least, both of us have gone out of our way to be reconciled and to understand each other a little bit better. I'd say the exclusion of the Carter Center by the Clinton administration from issues and assignments that I thought were appropriate for us is what caused my problem. ... When President Clinton went into office and The Washington Post and others began to report all the people that he brought in around him, in foreign policy, were Jimmy Carter people at that time, I really had a very low reputation my stature in the country was lower six years ago than it is now. But, I think, there was just a general statement, OK, we will not use Carter.

Q: Any particular projects you can think of?

A: I have offered a number of times to be directly involved when I had an opening in the Mideast. In recent years, since I came back from North Korea, I have had direct invitations from the North Koreans to come back and help resolve a crisis, and (from) Sudan.

Q: But has the Clinton administration resisted your going back to North Korea?

A: Yes. Yes. All three of those places.

Q: Any other place?

A: That's the only three I want to mention. What we've done is to carve out for the Carter Center in the fields of foreign policy although we have no authority those areas of the world where it does not create a problem with the White House or the State Department. And that's primarily the forgotten kinds of nations. ...

His people know what I'm doing, and I have never been on a trip overseas that I didn't send him immediately, the day after I returned home, a full report on everything I did that I think is important.

Q: What is your relationship with Vice President Al Gore?

A: Friendly, I would say. After Gore and Clinton were re-elected, I realized that we had a problem in this Carter Center relationship. I never have had a problem personally with President Clinton or anyone else, but I worried particularly to see if I had done things that aggravated the White House, and I know I'm pretty aggressive when I go overseas. Clearly when I went down to Panama

Tobacco Firms in Secondhand-Smoke Court Battle By Myron Levin

Los Angeles Times

LOS ANGELES Mobilizing against smoking bans and lawsuits that could cost them billions, tobacco companies are engaged in a far-reaching campaign to discredit evidence that secondhand smoke is harmful to human health.

Nowhere is the strategy more evident than in a legal battle over the evidence that has occupied at least 10 courts, including U.S. District Court in Los Angeles, where it appears likely to be resolved in the industry's favor.

In the latest phase of the discovery battle, Philip Morris is fighting University of Southern California researchers to get access to a single computer disk containing raw data from an influential five-city study, known as the Fontham study, that found a causal link between lung cancer and secondhand smoke. The company wants to scrutinize the data in hopes of casting doubt on the evidence, which is weaker for second-hand smoke than for some other environmental hazards.

Fontham and similar studies have provided the scientific bedrock for a small but growing wave of secondhand smoke litigation that the industry aims to head off. At the same time, cigarette makers are determined to slow the spread of California-style smoking bans to less-regulated areas of the United States and to foreign markets where smokers still light up wherever they choose. Research suggests that smoking restrictions reduce cigarette sales by inducing many smokers to cut down or even quit.

Researchers from USC and other institutions involved in the Fontham study say the industry's relentless pursuit of the data could have a chilling effect on future health research. Citing promises of confidentiality to subjects in the study, they have resisted demands to cough up the data, which cigarette makers say they need to defend themselves in court.

The industry has been largely thwarted in this long-running game of cat and mouse, obtaining but a sliver of the data. But its five-year quest may be about to pay off. In Los Angeles, U.S. District Judge Richard A. Paez will decide if USC must honor an industry subpoena, and he has already ruled for the industry once.

Although tobacco companies have their hands full with litigation over primary smoking such as the huge case filed last month by the Justice Department secondhand smoke is an emerging threat, in

part because the industry's standard defense that victims accepted the risk is not applicable.

Cigarette makers won the only two secondhand smoke cases to be decided by juries, but in 1997 they agreed to settle a class action by airline flight attendants for \$349 million. The money was for health research and legal costs, not damages, but the agreement gave flight attendants a one-year window to sue once the settlement was final.

It became final last month, when lawyers opposed to the deal withdrew their challenge. As a result, a flurry of suits by flight attendants is likely over the next 12 months. A handful of secondhand smoke cases already are pending, including class actions on behalf of casino workers.

The industry counterattack produced a big victory last year when a federal judge in North Carolina ruled that the Environmental Protection Agency had made procedural and substantive errors in a landmark report in January 1993, concluding that secondhand smoke is a significant cause of lung cancer in nonsmokers. Federal officials have appealed the ruling.

In fighting to secure the Fontham data, the industry is taking aim at a major piece of research that helped persuade the EPA and other health organizations to declare secondhand smoke a significant hazard.

Named for Elizabeth Fontham, a principal investigator and lead author, the project teamed researchers from Louisiana State University, Emory University, the University of Texas and the California Department of Health Services, along with USC, in a study of nearly 2,000 nonsmoking women in Los Angeles, San Francisco, Houston, New Orleans and Atlanta including 1,253 subjects who were healthy and 653 with lung cancer. Their conclusion: Exposure to secondhand smoke raised the lung cancer risk about 30 percent.

The data sought by cigarette makers includes medical records and personal information on study subjects, such as work and marital histories, dietary habits and exposure to other toxic substances. But the researchers say they promised never to divulge that information, and that it will be hard to gain cooperation in future studies if they go back on their word.

But tobacco lawyers say it is perfectly natural they would want to examine the data. The Fontham study is "the No. 1 piece of evidence against us in any (secondhand smoke) lung cancer case," said Barry Davidson, a lawyer for Philip Morris.

Davidson called the confidentiality issue "a total red herring," noting that Philip Morris has sought a redacted copy of the data, with names, addresses and phone numbers of study participants deleted.

Patricia Buffler, one of the Fontham researchers, acknowledged some anxiety over the industry's intent to discredit the study. "If you know anything about statistics," she said, "adjustments can be made to produce conflicting results."

Indeed, secondhand smoke research may be uniquely vulnerable to the kind of torture test the industry would like to apply to the Fontham data. The reason is that even in the most incriminating studies, although the impact of secondhand smoke across the whole population may be substantial, the risk for each exposed person is low.

For a toxic agent to be deemed a proven risk to health, researchers typically insist that the rate of illness at least double, or increase 100 percent, for those who are exposed. Otherwise, other environmental factors or errors in classifying data might explain the difference.

The Fontham study, typical of research indicting secondhand smoke, found an added cancer risk of about 30 percent, well below the traditional threshold. By comparison, longtime smokers face a roughly twentyfold, or 2,000 percent, greater lung cancer risk than nonsmokers. Lifetime smokers have about one chance in eight of dying of lung cancer, compared with a risk of one in 200 for those who never smoked.

The industry's quest for the Fontham data began in 1994, when cigarette makers subpoenaed it from Louisiana State University as part of their defense of a secondhand smoke case in Texas. But Louisiana law provides sweeping protections against disclosure of confidential data in health studies, and the industry was turned down by three different state and federal judges when it tried to enforce its subpoenas.

Tobacco lawyers made two trips to state court in Georgia and finally got data from Emory University, but only for the Atlanta portion of the study.

In California, the first industry subpoena was quashed in 1997 by a San Francisco Superior Court judge. In Los Angeles, cigarette makers also subpoenaed the data from USC, first for defense of the flight attendants class action, and then in the secondhand smoke case of a Florida woman named Roselyn Wolpin.

THE WHITE HOUSE
WASHINGTON

October 30, 1999

10-31-99

MEMORANDUM FOR THE PRESIDENT

FROM: LISEL LOY *LL*

SUBJECT: Recent Information Items

I am attaching the following recent information items:

✓ (A) **Summers memo on China trip** – Larry reports on his recent trip, during which his Chinese hosts “extended themselves” and allotted substantial time for top-level meetings (e.g., with Premier Zhu Rhongji and Vice Premier Wen Jiabiao); struck a cordial tone and did not mention contentious matters (e.g., embassy bombing); and showed a clear interest in restoring the U.S.-China relationship and on achieving WTO accession. Discussions focused on the WTO and China’s macroeconomic problems. Larry also notes several common U.S./China themes, including: the importance of expanding prosperity, particularly to areas that have been left behind; concurrent environmental protection and economic growth; the efficiency/stability tradeoff; and financial liberalization.

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10-31-99

10-31-99
4:40 PM
I'm not sure
what to
do

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✓ (U) **Lane memo on Russian Proton launch failure** – Neal reports on the recent launch failure of the Russian Proton, Russia's heavy-lift expendable launch vehicle, and cautions that the accident could have implications for the International Space Station (ISS). There was a similar Proton accident last July, after which the Kazakhstan government banned Proton launches, and the government has now reinstated the ban pending the results of a failure investigation. If the investigation is prolonged, it would affect the ISS. The next piece of the ISS, the Russian Service Module, is scheduled to be launched on a Proton at the end of the year. If the Service Module is delayed beyond February, it could cause a costly delay for the overall ISS program (NASA spends approximately \$100M/month). NASA is talking with its Russian counterparts and Neal will keep you apprised of developments.

✓ (U) **Letter from James Harmon, Ex-Im Bank President (via Sosnik)** – Harmon reports on his recent visit to Russia and improvements in the Russian economy. He suggests that the U.S. should continue to urge Russia to strengthen the rule of law, reform bankruptcy laws and encourage businesses to adhere to principles of transparency, and that the Ex-Im Bank is uniquely positioned to play an important role in Russia, providing financing support while the private sector remains reluctant to do business in Russia. Harmon traveled to Africa on October 15th and reports substantial progress in the Bank's program to increase financing for Sub-Saharan Africa. *We have forwarded his letter to NSC for a response.*

✓ (F) **Congressional correspondence (via Chuck Brain)** – letters from (1) Rep. Horn (D-CA), thanking you for including him in the Arts and Humanities event and praising your efforts to bring together "our fellow citizens who are of diverse race and ethnicity"; and (2) Rep. Sherman (D-CA), thanking you for attending the event for him and for your remarks.

✓ We have also received the following items:

✓ **Corporation for National Service Board report (via Thurgood Marshall)** – The Board of Directors of the Corporation for National Service submits its first report to you, describing the Board's evolution into an "independent, cohesive, diverse and politically balanced entity," and recommending (1) increased dialogue between you/your representative and the Board re: your priorities and objectives; (2) giving the Board more

input into the selection of the Corporation's CEO; and (3) increased consultation with the Board regarding congressional strategies. *We have the report in our office if you would like to see it.*

✓ **DOE/EPA report on carbon dioxide emissions** – In April, 1999, coincident with the release of your Administration's proposed Comprehensive Electricity Competition Act, you directed DOE and EPA to prepare an annual report on recent trends in carbon dioxide emissions from the electric power sector. This first report finds that electricity generation by utilities and nonutilities accounts for approximately 40% of total CO₂ emissions in the U.S.; from 1997-1998, overall electricity generation increased by 3.6%, total CO₂ emissions from electricity generation increased 3.7%, and electric generation using fossil fuels grew by 4.8%. CO₂ emissions from all energy use in the U.S. grew at a much slower rate than emissions from electricity generation between 1997-98, reflecting the combined effect of emissions growth in electric generation and transportation along with an absolute decline in nonelectric energy use. *We have the report in our office if you would like to review it.*

Make Ann
Gill Curran Carney
Office

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Ballentine
Podesta



UNITED STATES DEPARTMENT OF ENERGY
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C.



October 22, 1999

The President
The White House
Washington, DC 20500

Dear Mr. President:

In April 1999, coincident with the release of the Administration's proposed *Comprehensive Electricity Competition Act*, you directed the Department of Energy (DOE) and the Environmental Protection Agency (EPA) to prepare an annual report reviewing recent trends in carbon dioxide emissions from the electric power sector. The enclosed report, *Carbon Dioxide Emissions from the Generation of Electric Power in the United States*, is the first to be submitted in response to that directive.

The report presents data on total carbon dioxide (CO₂) emissions from the electric power sector and the rate of CO₂ emissions per kilowatt-hour of electricity generated on both a national and regional basis. It also reviews changes in emissions from 1997 to 1998, estimates of CO₂ emissions reductions from voluntary programs, and Administration projections of the environmental effects of our electricity restructuring proposal.

Electricity generation by utilities and nonutilities currently accounts for approximately 40 percent of total carbon dioxide emissions in the United States. From 1997 to 1998, overall electricity generation increased by 3.6 percent and total CO₂ emissions from electricity generation increased 3.7 percent. Electric generation using fossil fuels, which produces CO₂ emissions, grew by 4.8 percent between 1997 and 1998, while electric generation from other sources grew by 0.7 percent.

Other data show that CO₂ emissions from all energy use in the United States grew at a much slower rate than emissions from electricity generation between 1997 and 1998. This outcome reflects the combined effect of emissions growth in electric generation and transportation together with an absolute decline

in nonelectric energy use by the nation's homes, businesses, and industries. Because weather fluctuations and other transitory factors significantly influence short-run patterns of energy use for electricity generation or the total energy system, emissions growth rates calculated over a single year should not be used to make projections of future emissions growth.

In May 1999, DOE released the *Supporting Analysis for the Comprehensive Electricity Competition Act* that quantified both the economic and environmental benefits of the Administration's electricity restructuring plan. The analysis indicates that the proposal would decrease CO₂ emissions from the electric sector by 162 to 243 million tons (40 to 60 million metric tons measured in carbon-equivalent terms) annually by the year 2010. DOE and EPA see no recent developments that would change this projection.

We hope that you find the enclosed report to be useful and informative. We look forward to continued efforts under your leadership to pursue electricity restructuring policies that can benefit consumers, the economy, and the environment.

Respectfully,



Bill Richardson
Secretary
Department of Energy



Carol M. Browner
Administrator
Environmental Protection Agency

Enclosure

Carbon Dioxide Emissions from the Generation of Electric Power in the United States

October 15, 1999

U. S. Department of Energy
Washington, DC 20585
U. S. Environmental Protection Agency
Washington, DC 20460

Contacts

This report was prepared jointly by the staff of the U.S. Department of Energy and the Environmental Protection Agency. Questions about this publication, as well as other energy inquiries may be directed to the National Energy Information Center on (202) 586-8800.

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Carbon Dioxide Emissions from the Generation of Electric Power in the United States

Introduction

The President issued a directive on April 15, 1999, requiring an annual report summarizing carbon dioxide (CO₂) emissions produced by electricity generation in the United States, including both utilities and non-utilities. In response, this report is jointly submitted by the U.S. Department of Energy and the U.S. Environmental Protection Agency. The data on CO₂ emissions and generation of electricity were collected and prepared by the Energy Information Administration. This report is structured to address the five areas outlined in the Presidential Directive.

- The emissions of CO₂ are presented both on the basis of total mass (tons) and output rate (pounds per kilowatthour). The information is stratified by the type of fuel used for electricity generation and presented on the regional and national levels. The percentage of generation produced by each fuel type or energy resource is indicated.
- The CO₂ emissions and generation by fuel type for 1998 are compared to the previous year, 1997. Factors contributing to regional and national level changes in the amount and average output rate of CO₂ are identified and discussed.
- The Energy Information Administration's most recent projections of CO₂ emissions and generation by fuel type for 1998 are compared to the actual data summarized in this report to identify deviations between projected and actual CO₂ emissions and generation.
- Information on voluntary carbon-reducing and carbon-sequestration projects reported by the electric power sector and the amount of CO₂ reductions are presented. Included are programs undertaken by the utilities themselves as well as programs

supported by the Federal government to support voluntary CO₂ reductions.

- Appropriate updates to the Department of Energy's estimated environmental effects of the Administration's proposed restructuring legislation are included.

Electric Power Industry CO₂ Emissions and Generation Share by Fuel Type

In 1998, emissions of CO₂ in the United States resulting from the generation of electric power were 2,447 million short tons¹ (606 million metric tons carbon), an increase of 3.7 percent from 1997. During this same time period, total generation of electricity increased 3.6 percent. Electricity generated by fossil-fueled plants, the source of CO₂ emissions in this report, increased by 4.8 percent, while nonfossil-fueled generation increased by 0.7 percent. The greater proportion of fossil-fueled generation in 1998 than in 1997, and the smaller proportion of nonfossil-fueled generation resulted in an increase in the average output rate² of CO₂ per kilowatthour. In 1998, the average output rate for CO₂ was 1.352 pounds per kilowatthour (lbs/kWh), up from 1.350 in 1997 (Table 1).

Other data show that CO₂ emissions from all energy use in the United States grew at a much slower rate than emissions from electricity generation between 1997 and 1998. This outcome reflects the combined effect of emissions growth in electric generation and transportation together with an absolute decline in non-electric energy use by the nation's homes, businesses, and industries. Because weather fluctuations and other transitory factors significantly influence short-run patterns of energy use in all activities, emissions growth rates calculated over a single year should not be used to make projections of future emissions growth.

¹ Short tons of carbon dioxide equal metric tons carbon times 1.1023 times 44/12.

² The average output rate is the ratio of pounds of carbon dioxide emitted per kilowatthour of electricity produced. The average output rate is based on kilowatthours produced from all energy sources for a region or the Nation.

Table 1. Summary of Carbon Dioxide Emissions and Net Generation in the United States, 1997 and 1998

	1997	1998	Change	Percent Change
Carbon Dioxide				
Coal				
Thousand Short Tons	1,957,553	1,978,928	21,375	1.09
Thousand Metric Tons Carbon ^a	484,331	489,620	5,289	1.09
Petroleum				
Thousand Short Tons	90,158	121,962	31,804	35.28
Thousand Metric Tons Carbon	22,307	30,175	7,869	35.28
Gas				
Thousand Short Tons	283,563	317,146	33,583	11.84
Thousand Metric Tons Carbon	70,158	78,467	8,309	11.84
Other Fuels ^b				
Thousand Short Tons	28,580	29,420	840	2.94
Thousand Metric Tons Carbon	7,071	7,279	208	2.94
Total				
Thousand Short Tons	2,359,853	2,447,457	87,604	3.71
Thousand Metric Tons Carbon	583,867	605,541	21,675	3.71
Generation (million kWh)				
Coal	1,844,041	1,873,668	29,627	1.61
Petroleum	92,796	131,337	38,541	41.53
Gas	451,951	496,570	44,619	9.87
Other Fuels ^b	19,386	22,803	3,417	17.63
Total Fossil-fueled	2,408,175	2,524,378	116,203	4.83
Nonfossil-fueled ^c	1,087,127	1,094,846	7,719	0.71
U.S. Total	3,495,302	3,619,224	123,922	3.55
Output Rate ^d (pounds CO₂ per kWh)				
Coal	2.123	2.112	-0.011	-0.52
Petroleum	1.943	1.857	-0.086	-4.43
Gas	1.255	1.277	0.022	1.75
Other Fuels ^b	2.948	2.580	-0.368	-12.48
U.S. Average	1.350	1.352	0.002	0.15

^aOne short ton of carbon dioxide equals one metric ton carbon times 1.1023 times 44/12.

^bOther fuels include municipal solid waste, tires, and other fuels that emit anthropogenic CO₂ when burned to generate electricity.

^cNon-fossil includes nuclear, hydroelectric, solar, wind, geothermal, biomass, and other fuels or energy sources with zero or net zero CO₂ emissions.

^d Average output rate is based on generation from all energy sources.

Note: 1998 data for CO₂ emissions are preliminary.

Sources: •Energy Information Administration, Form EIA-759, "Monthly Power Plant Report"; Form EIA-767, "Steam-Electric Plant Operation and Design Report; Form EIA-860B, "Annual Electric Generator Report - Nonutility"; and Form EIA-867, "Annual Nonutility Power Producer Report," 1997. •Federal Energy Regulatory Commission FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."

In the United States, about 40.5 percent³ of anthropogenic CO₂ emissions was attributed to the combustion of fossil fuels for the generation of electricity in 1998.⁴ The energy sources used for electricity generation and the output rates for CO₂ vary across the United States according to the type of fuels available. All regions use

some fossil fuels, but several States have almost no fossil fuel generation which results in extremely low output rates of CO₂. For example, in Vermont almost all electricity is produced with nuclear power, while in Washington, Idaho, and Oregon almost all electricity is produced with hydroelectric power. At the other

³ About 37 percent of CO₂ emissions are produced by electric utility generators, as reported in the GHG inventory for 1998. Included in the 40.5 percent are nonutility power producers, which are included in the industrial sector in the GHG inventory.

⁴ Energy Information Administration, *Emissions of Greenhouse Gases in the United States 1997*, Chapter 2, "Carbon Dioxide Emissions," DOE/EIA-0573(97) (Washington, DC, October 1998).

extreme, Kentucky, Indiana, New Mexico, West Virginia, and Wyoming—some of the Nation's largest coal-producing States—generate most of their electricity with coal.

Coal

Emissions of CO₂ produced by coal-fired generation of electricity increased by 1.1 percent in 1998 to 1,979 million short tons (Table 2). CO₂ emissions from coal-

fired electricity generation represent 81 percent of the total CO₂ emissions produced by the generation of electricity in the United States. In 1998, coal-fired generators produced 1,874 billion kWh, a 1.6-percent increase from 1997. The share of generation from coal plants declined from 52.8 percent in 1997 to 51.8 percent in 1998 (Table 3). The average output rate for coal-fired generators improved from 2.123 lbs/kWh in 1997 to 2.112 lbs/kWh in 1998, reflecting an increase in thermal efficiency at coal-fired plants (Table 4).

Table 2. Estimated Carbon Dioxide Emissions From Generating Units at U.S. Electric Plants by Census Division, 1997 and 1998
(Thousand Short Tons)

Census Division	1997					1998				
	Total	Coal	Petroleum	Gas	Other ^a	Total	Coal	Petroleum	Gas	Other ^a
New England	62,009	21,922	21,981	W	W	58,591	17,352	24,708	9,733	6,799
Middle Atlantic	204,447	152,606	12,446	W	W	217,803	153,921	19,176	36,267	8,439
East North Central	463,764	447,315	3,619	11,139	1,691	470,285	450,393	4,796	13,439	1,657
West North Central	224,693	219,032	W	3,178	W	239,476	231,336	1,672	5,141	1,328
South Atlantic	470,977	408,135	30,455	24,839	7,547	496,585	411,228	48,570	28,472	8,314
East South Central	248,461	237,889	W	7,367	W	247,964	232,650	5,495	9,716	103
West South Central ...	378,534	240,669	6,409	131,376	80	390,827	236,463	6,345	147,903	116
Mountain	227,381	215,800	W	W	14	241,642	227,354	979	13,309	—
Pacific Contiguous	66,343	11,938	2,633	49,714	2,058	71,961	16,049	2,966	50,810	2,136
Pacific Noncontiguous .	13,245	2,247	7,870	2,587	541	12,322	2,182	7,254	2,357	528
U. S. Total	2,359,853	1,957,553	90,158	283,563	28,580	2,447,457	1,978,928	121,962	317,146	29,420

^aOther includes municipal solid waste, tires, and other fuels that emit anthropogenic CO₂ when burned to generate electricity.

-- = Not applicable.

W = Confidential data withheld.

Note: Data for CO₂ emissions for 1998 are preliminary.

Sources: •Energy Information Administration, Form EIA-759, "Monthly Power Plant Report"; Form EIA-767, "Steam-Electric Plant Operation and Design Report; Form EIA-860B, "Annual Electric Generator Report - Nonutility," 1998; and Form EIA-867, "Annual Nonutility Power Producer Report," 1997. •Federal Energy Regulatory Commission FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."

Table 3. Percent of Electricity Generated at U.S. Electric Plants by Fuel Type and Census Division, 1997 and 1998
(Percent)

Census Division	1997					1998				
	Coal	Petroleum	Gas	Other ^a	Nonfossil ^b	Coal	Petroleum	Gas	Other ^a	Nonfossil ^b
New England	21.0	23.7	W	W	31.0	17.3	26.3	17.2	5.1	34.1
Middle Atlantic	39.4	3.2	W	W	41.2	38.4	5.2	13.6	1.3	41.4
East North Central	76.8	0.5	3.6	0.4	18.7	76.3	0.8	3.8	0.4	18.8
West North Central	74.5	W	1.6	W	23.0	75.5	0.7	2.4	0.3	21.0
South Atlantic	58.0	4.8	6.7	0.6	29.9	55.3	7.2	6.7	0.7	30.2
East South Central	68.1	W	2.5	W	28.3	66.2	2.1	3.3	*	28.4
West South Central ...	42.0	0.8	38.4	0.1	18.7	39.1	0.8	42.6	0.3	17.2
Mountain	66.3	W	W	*	27.5	67.9	0.2	6.9	*	25.0
Pacific Contiguous	3.1	0.7	22.2	0.5	73.5	4.4	0.7	23.2	0.7	71.0
Pacific Noncontiguous .	12.2	49.9	22.7	2.1	13.1	12.2	52.3	21.3	2.4	11.9
U.S. Total	52.8	2.7	12.9	0.6	31.1	51.8	3.6	13.7	0.6	30.3

^aOther includes municipal solid waste, tires, and other fuels that emit anthropogenic CO₂ when burned to generate electricity.

^bNon-fossil includes nuclear, hydroelectric, solar, wind, geothermal, biomass, and other fuels or energy sources with zero or net zero CO₂ emissions.

W = Confidential data withheld.

* = Absolute value less than 0.05.

Sources: •Energy Information Administration, Form EIA-759, "Monthly Power Plant Report"; Form EIA-860B, "Annual Electric Generator Report - Nonutility"; and Form EIA-867, "Annual Nonutility Power Producer Report," 1997.

Table 4. Estimated Carbon Dioxide Emissions Rate From Generating Units at U.S. Electric Plants by Census Division, 1997 and 1998
(Pounds per Kilowatthour)

Census Division	1997					1998				
	Average ^a	Coal	Petroleum	Gas	Other ^b	Average ^a	Coal	Petroleum	Gas	Other ^b
New England	1.215	2.046	1.814	1.128	2.845	1.091	1.873	1.748	1.054	2.480
Middle Atlantic	1.091	2.067	2.052	1.122	3.466	1.119	2.059	1.889	1.366	3.328
East North Central	1.683	2.114	2.536	1.115	1.696	1.676	2.105	2.233	1.249	1.609
West North Central	1.738	2.274	1.540	1.515	3.369	1.768	2.262	1.751	1.596	2.864
South Atlantic	1.370	2.046	1.827	1.085	3.804	1.349	2.022	1.827	1.162	3.311
East South Central	1.453	2.042	1.898	1.726	NM	1.445	2.048	1.507	1.733	3.791
West South Central	1.456	2.204	2.976	1.317	NM	1.431	2.213	2.810	1.270	NM
Mountain	1.540	2.204	1.864	1.254	NM	1.572	2.179	2.803	1.255	-
Pacific Contiguous	0.382	2.211	2.198	1.288	2.431	0.421	2.158	2.385	1.283	1.819
Pacific Noncontiguous	1.598	2.221	1.904	1.373	3.108	1.532	2.223	1.726	1.375	2.791
U. S. Average	1.350	2.123	1.943	1.255	2.948	1.352	2.112	1.857	1.277	2.580

^aAverage output is the ratio of pounds of carbon dioxide to total kilowatthours produced from all energy sources (fossil fuels and nonfossil energy sources) in a region or the Nation.

^bOther includes municipal solid waste, tires, and other fuels that emit anthropogenic CO₂ when burned to generate electricity.

- = Not applicable.

NM = Data are not meaningful because generation and fuel consumption for this fuel type represented less than 0.5 percent in the region.

Note: Data for CO₂ emissions for 1998 are preliminary.

Sources: •Energy Information Administration, Form EIA-759, "Monthly Power Plant Report"; Form EIA-767, "Steam-Electric Plant Operation and Design Report; Form EIA-860B, "Annual Electric Generator Report - Nonutility," 1998; and Form EIA-867, "Annual Nonutility Power Producer Report," 1997. •Federal Energy Regulatory Commission FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."

Coal-fired generation dominates the East North Central, West North Central, East South Central, Mountain, and South Atlantic Census Divisions (Figure 1) where the Nation's coal-producing States are located. These regions have high output rates for CO₂ because coal is the dominant fuel and has a higher carbon intensity than other fossil fuels. In 1998, West Virginia, Ohio, Kentucky, Indiana, Iowa, North Dakota, Wyoming, Colorado, New Mexico, and Utah generated over 85 percent of their power at coal-fired plants. The region with the greatest share of CO₂ emissions from coal-fired plants is the East North Central Census Division, which produced 23 percent of the CO₂ emissions associated with coal-fired generation. At the State level, Texas had the greatest amount of CO₂ emissions in tons from coal-fired generation, followed by Ohio, Pennsylvania, Indiana, West Virginia, and Kentucky.

Petroleum

CO₂ emissions from petroleum-fired generation were 122 million short tons, 35.3 percent higher than in 1997. Petroleum-fired generation was 41.5 percent higher and accounted for 3.6 percent of total generation, up from 2.7 percent in 1997. The increase in petroleum-fired generation was the result of a drop of 26 percent in the average price of petroleum delivered to electric utilities. The CO₂

emissions from petroleum-fired plants contributed 5 percent of the total from electricity generation in 1998. The average output rate for all petroleum-fired generation was 1.857 lbs/kWh in 1998, a decrease from the rate of 1.943 in 1997.

Petroleum-fired generation is concentrated mainly in the New England, South Atlantic, and Pacific Noncontiguous Census Divisions. In these regions, Connecticut, Maine, Massachusetts, Delaware, Florida, Alaska, and Hawaii use petroleum-fired generation to provide a substantial portion of their electricity. In 1998, Florida, New York, and Massachusetts contributed the largest amounts in tons of CO₂ emissions from petroleum-fired plants.

Natural Gas

Emissions of CO₂ from natural gas-fired generation were 317 million short tons, 11.8 percent higher in 1998 than in 1997. Emissions of CO₂ from natural gas-fired plants represented 13 percent of total CO₂ emissions from electricity generation in 1998. Natural gas-fired electricity generation increased by 9.9 percent and accounted for 13.7 percent of total generation in 1998, up from 12.9 percent in 1997. Gas-fired plants were slightly less efficient in 1998 than in 1997. The output rate in 1997 was 1.255 lbs/kWh, rising to 1.277 lbs/kWh in 1998.

Figure 1. Census Regions and Divisions



Note: Map not to scale.

Source: Adapted from U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States, 1998* (Washington, DC, October 1998), Figure 1.

Gas-fired generation is concentrated in the West South Central Census Division in Texas, Oklahoma, and Louisiana. Also, Rhode Island, California, and Alaska use natural gas for a substantial portion of their generation. The largest amount in tons of CO₂ emissions from natural gas-fired generation was in Texas, followed by California, Louisiana, New York, and Florida.

Nonfossil Fuels

Nonfossil-fueled generation from nuclear, hydroelectric and renewable sources (wind, solar, biomass, and geothermal) represented 30.3 percent of total electricity generation in 1998, compared with 31.1 percent in 1997. The use of nonfossil fuels and energy sources to generate electricity avoids the emission of CO₂ from combustion of fossil fuels. Due to lower marginal costs, nuclear and hydroelectric generation typically displace fossil-fueled generation.

Hydroelectric generation declined 9.5 percent in 1998. This caused the generation share from hydroelectric plants to be 8.4 percent of the total electricity generated, down from 9.6 percent in 1997.⁵ The availability of hydroelectric power is affected by the weather. The Northwest began 1998 with a lower than normal snowpack level (despite 1998 being one of the wettest years on record⁶). However, the seasonal variation and distribution of precipitation were not as favorable in 1998 as in 1997 for hydroelectric generation, particularly in the Northwest.

More than one-half of all U.S. hydroelectric generation is located in the Pacific Contiguous Census Division, which includes California, Oregon, and Washington. In 1998, Oregon and Washington experienced lower hydroelectric generation by 15 and 23 percent, respectively. Montana, Idaho, South Dakota, Maine, New York, and Arizona also generate a substantial share of their power

⁵ Energy Information Administration, *The Electric Power Monthly*, DOE/EIA-0226(99/03) (Washington, DC, March 1999).

⁶ Energy Information Administration, *The Cost and Quality of Fuels for Electric Utility Plants, 1998*, http://www.eia.doe.gov/cneaf/electricity/cq/cq_sum.html.

from hydroelectric plants. Due to poor weather conditions in 1998, hydroelectric generation decreased in all regions of the United States, except the South Atlantic Census Region.

Nuclear-powered generation increased by 7.2 percent in 1998, nearly returning to the record level of 1996. Nuclear power plants generated 18.6 percent of the total electricity in 1998, an increase from 17.9 percent in 1997.⁷ The increase can be attributed to the reopening of plants that were offline in 1997 and to the trend of increasing nuclear plant capacity factors.⁸ In 1998, the national nuclear capacity factor reached an all-time high of 78 percent compared to 71 percent in 1997. Almost half of nuclear power is generated in the New England, South Atlantic, and Middle Atlantic Census Divisions. About one-third of generation in these Divisions is produced at nuclear plants. At the State level, Pennsylvania, Illinois, and South Carolina generate the most nuclear-powered electricity.

The increase in nuclear generation offset much of the decrease in hydroelectric generation, resulting in a net increase of 0.7 percent for nonfossil-fueled generation in 1998 from 1997. Still, nonfossil-fueled electricity generation contributed a smaller share of total generation than in the previous year. The effect on CO₂ emissions is an increase in the average output rate, since a larger share of electricity was generated using fossil fuels.

Factors Contributing to Changes In CO₂ Emissions and Generation

The primary factors that change CO₂ emissions from electricity generation from year to year are the growth in demand for electricity, the type of fuels or energy sources used for generation, and the thermal efficiencies of the power plants. Many factors could contribute to these primary causes of change including economic growth, the price of electricity, the amount of imported electricity, weather, fuel prices, available generation from hydroelectric, renewable, and nuclear plants, demand-side

management programs that encourage energy efficiency, programs that directly or indirectly limit other air emissions, such as requirements for the Clean Air Act Amendments of 1990, and the installation of new capacity with advanced technology that increases plant efficiency, such as combined-cycle plants and combined heat and power projects. The annual changes in CO₂ emissions are a net result of these complex and variable factors.

The increase of 3.7 percent in CO₂ emissions in 1998 is accounted for by the increase in fossil-fueled generation to meet the demand for electricity. Consumption of electricity in the United States grew by approximately 3.5 percent⁹ in 1998. Most of the 3.6 percent increase (124 billion kWh) in generation of electricity in 1998 was produced by fossil-fueled plants, which increased generation by 4.8 percent (116 billion kWh). Emissions of CO₂ increased at a higher rate than total generation because of a greater increase in fossil-fueled generation in relation to nonfossil-fueled generation.

Economic Growth

The demand for electric power is influenced by economic factors. In 1998, a strong economy was measured by the 3.9-percent increase in the Gross Domestic Product (GDP). Electricity consumption for the industrial and commercial sectors grew by 1.2 and 5.5 percent, respectively. Another economic factor that could increase demand for electricity is lower retail price. The national average revenue per kilowatthour (real price) fell 2.6 percent from 6.14 cents in 1997 to 5.98 cents¹⁰ (in chained 1992 dollars) in 1998. Although the growing demand for electricity is mostly met by a corresponding growth in generation, a small amount is met by imported power, primarily from Canada. Net imports of electricity were 28.8 billion kWh in 1998, down from 31.9 billion kWh in 1997.¹¹

Weather

Another factor that affects the year-to-year changes in demand for electricity is the weather. The year 1998

⁷ Energy Information Administration, *The Electric Power Monthly*, DOE/EIA-0226(99/03) (Washington, DC, March 1999).

⁸ Capacity factor is the ratio of the amount of electricity produced by a generating plant for a given period of time to the electricity that the plant could have produced at continuous full-power operation during the same period. Based on national level consumption and generation data presented in the *Electric Power Monthly*, and assuming a net summer nuclear capability of 99,000 megawatts, a 1-percent increase in the annual nuclear plant capacity factor (equivalent to 8,672,400 megawatthours of additional nuclear generation) translates into a reduction in annual consumption of either 4.4 million short tons of coal, 14 million barrels of petroleum, or 92 billion cubic feet of gas, or most likely a combination of each.

⁹ Energy Information Administration, *Electric Sales and Revenue 1998*, DOE-0540(98) (Washington, DC, October 1999).

¹⁰ In nominal dollars, average revenue per kilowatthour was 6.85 cents/kWh in 1997 and 6.74 cents/kWh in 1998.

¹¹ Energy Information Administration, *Monthly Energy Review*, August 1999, at <http://www.eia.doe.gov/emeu/mer/contents.html>.

was one of the warmest years on record for the United States, and the warmest summer on record in Florida and Texas. All regions, except the Pacific and Mountain Census Divisions, had more cooling degree days¹² in 1998 than in 1997.

Many electric utilities reached record peak loads in the summer of 1998, driven mostly by the demand for power for air conditioning. Electric utilities consumed a record amount of coal to meet the higher than normal demand. Warmer summer weather in 1998 caused electricity generation in June, July, and August to be 6.5 percent higher¹³ than in the same months of 1997. Although the winter was also warmer than normal, generation of electricity for January, February, and December of 1998 was down by about 1 percentage point from 1997, not enough to completely offset the summer increase. Increased demand in the summer of 1998 contributed to increases in CO₂ emissions of 6.5, 5.4, 6.6, and 3.3 percent in the Middle Atlantic, South Atlantic, West North Central, and West South Central Census Divisions, respectively.

Demand-Side Management

The demand for electricity can be reduced by energy efficiency programs and demand-side management (DSM) programs. Some examples of DSM are improving insulation and replacing lighting and appliances with more energy efficient equipment. The reductions in demand achieved by DSM programs contribute to avoided CO₂ emissions. In 1998, 49.2 billion kWh of energy savings were achieved by DSM activities at electric utilities, a decrease from 56.4 billion kWh in 1997. Declining levels of energy savings reflect, in part, lower utility spending on DSM programs. Utilities' total expenditures on DSM were \$1.4 billion, a decrease of 13.1 percent from the previous year, and nearly 50 percent below the 1994 spending level.

Fossil and Nonfossil Fuels for Electricity Generation

The type of fuel or energy source used to generate electricity affects the amount of CO₂ emissions produced. Since hydroelectric and nuclear generation displace

fossil-fueled generation when available, CO₂ emissions increased where hydroelectric power was unavailable and fossil-fueled generation was used to replace it.

As stated earlier, the amount of hydroelectric power that is available is affected by precipitation patterns. Consequently, hydroelectric generation was lower in 1998 in all regions, except the South Atlantic Census Division and California. Oregon and Washington typically generate over 90 percent of their power at hydroelectric plants and export hydroelectric power to California. Because fossil-fueled generation was used to replace the hydroelectric power in these States, CO₂ emissions increased 8.5 percent in the Pacific Contiguous Census Division and 6.3 percent in the Mountain Census Division. In these Census Divisions, coal- and gas-fired generation likely increased to replace the loss of hydroelectric power. Even though hydroelectric generation increased in California, it was not enough to make up for the loss of imported power from the Northwest.

On the other hand, in the New England Census Division, gas-fired generation and its resultant CO₂ emissions decreased due to a 26-percent increase in nuclear generation. Higher nuclear generation in Florida, New Jersey, and Wisconsin also helped avoid emissions of CO₂ that would have occurred if fossil-fueled generation were used to meet the increased demand for electricity during the warmer than normal summer.

Fuel Quality and Price

CO₂ emissions from the combustion of fossil fuels to generate electricity vary according to the quality of the fuels, defined by the carbon content and the heating value (Btu)¹⁴ content. The Btu content of fuels is a determinant of the number of kilowatthours that can be produced¹⁵ and carbon content is a determinate of the amount of carbon dioxide released when the fuel is burned. Fossil fuels are categorized as either coal, natural gas and other gaseous fuels, or petroleum and petroleum products. Coal-fired generation had the highest output rate of carbon dioxide per kilowatthour produced, averaging 2.112 lbs/kWh in 1998. Petroleum-fired generation averaged 1.857 lbs/kWh, and natural gas-fired plants had the lowest rate of 1.277 lbs/kWh.

¹² Degree-days are relative measurements of outdoor air temperature. Cooling degree-days are deviations of the mean daily temperature above 65 degrees Fahrenheit. For example, a weather station recording a mean daily temperature of 78 degrees would report 13 cooling degree-days.

¹³ Energy Information Administration, *Electric Power Monthly*, DOE/EIA-0226(99/03) (Washington, DC, March 1999).

¹⁴ Heating value is measured in British thermal units (Btu), a standard unit for measuring the quantity of heat energy equal to the quantity of heat required to raise the temperature of 1 pound of water 1 degree Fahrenheit.

¹⁵ Boiler type and efficiency, capacity factor, and other factors also affect the number of kWh that can be produced at a particular plant.

With coal-fired plants generating the majority of electricity in the Nation and having the highest output rate, they produced the greatest share of CO₂ emissions from electricity generation, almost 81 percent of the total.

Some plants are capable of switching fuels to take advantage of the least expensive or the most available fuels. In 1998, the price of crude oil reached its lowest level since 1976, causing the price of petroleum delivered to electric utilities to fall below that of natural gas for the first time since 1993. This is important when considering the capability of some electric plants to burn the least expensive of these two fuels. Some natural gas-fired generation was displaced by petroleum-fired generation, especially in New York and Florida. Since petroleum has a higher output rate of carbon dioxide than natural gas, switching to petroleum contributed to a higher average output rate for CO₂ emissions.

Thermal Efficiencies of Power Plants

CO₂ emissions from electric power generation are influenced by the efficiency with which fossil fuels are converted into electricity. In a typical power plant, about one-third of the energy contained in the fuel is converted into electricity, while the remainder is emitted as waste heat. Substantial improvements in generation efficiency can be achieved in the future through replacement of traditional power generators with more efficient technologies, such as combined-cycle generators and combined heat and power (CHP), thereby reducing wasted energy and resulting CO₂ emissions.

The national average efficiency of power generation from fossil fuels in 1998 was 32.7 percent, which was unchanged from the previous year. The average thermal efficiency of coal-fired plants increased slightly in 1998, reflected by the decrease in the average CO₂ emissions output rate of coal plants from 2.123 lbs/kWh in 1997 to 2.112 lbs/kWh in 1998. Petroleum-fired plants also showed an increase in thermal efficiency, with the average output rate going from 1.943 lbs/kWh in 1997 to 1.857 lbs/kWh in 1998. On the other hand, the thermal efficiency of gas-fired plants was lower in 1998 than in 1997, with the average output rate rising from 1.255 lbs/kWh to 1.277 lbs/kWh.

The emission of CO₂ by electric power plants is not controlled, since no standards or required reductions currently exist. Some technology is available to limit CO₂

emissions, but it is extremely expensive. The most feasible options to limit the emission of CO₂ from electricity generation are to reduce the overall consumption of electricity, to improve combustion efficiency at existing plants or install more efficient units such as combined cycle units and combined heat and power (CHP) technologies, and to replace fossil-fueled generation with nonfossil-fueled alternatives, such as nuclear, hydroelectric, and renewable energy sources.

Comparison of Projected with Actual CO₂ Emissions and Generation by Fuel Type

The Energy Information Administration prepares the *Annual Energy Outlook*, which contains annual projections of selected energy information, including carbon dioxide emissions and generation by fuel type. To evaluate the accuracy and usefulness of the forecast, a comparison was made between the latest forecast for 1998¹⁶ and the actual data for 1998 (Table 5). The actual total CO₂ emissions were about 3.3 percent below the projected emissions, while the actual total generation was about 0.2 percent above the projected generation. The actual emissions were less than the projected level because not only was there less generation from coal than projected, but coal-fired plants operated more efficiently in 1998 than in 1997, therefore emitting less CO₂ per kWh than projected. Compared to the projection, the actual data show that coal was replaced by petroleum and nuclear energy for electricity generation, thus lowering the expected CO₂ emissions.

Electricity restructuring and the opening of retail competition in a number of States have added to the uncertainty of forecasting electricity demand and the generation mix that will be dispatched to meet this demand. The comparison of the data reflects these differences as well as possible differences in generating plant efficiencies and heat content of fossil fuels.

Voluntary Carbon-Reduction and Carbon-Sequestration Programs

The Department of Energy (DOE) and the Environmental Protection Agency (EPA) operate voluntary

¹⁶ The last projection for 1998 was made in October 1998 and published in the *Annual Energy Outlook 1999*. Actual data for 1998 becomes available in April 1999 for generation and September 1999 for carbon dioxide emissions.

Table 5. U.S. Electric Power Industry Projected and Actual Carbon Dioxide Emissions and Generation, 1998

	Projected	Actual
CO₂ Emissions (million short tons)^a		
Coal	2,057	1,979
Petroleum	109	122
Natural Gas	364	317
Other Fuels (gas)	4	*
Other Fuels ^b	**	29
Total	2,530	2,447
Generation (billion kWh)^c		
Coal	1,900	1,874
Petroleum	120	131
Natural Gas	517	497
Other Fuels (gas)	5	*
Other Fuels ^b	**	23
Non-Fossil Fuels ^d	1,072	1,095
Total	3,613	3,619

^aTable 17, *Annual Energy Outlook 1999*, NEMS run-base case (calculated for cogenerators, see worksheet).

^bOther includes municipal solid waste, tires, and other fuels that emit anthropogenic CO₂ when burned to generate electricity.

^cTable 8, *Annual Energy Outlook 1999*, NEMS run-base case.

^dHave zero or net zero carbon emissions.

* Included in Natural Gas in Actual Data.

** Not counted as anthropogenic emissions in the projected estimates.

Notes: Data for CO₂ emissions for 1998 are preliminary. Components may not add to total due to rounding. Emissions for cogenerators is based on the estimated fuel consumed only for electricity generation (excludes the fuel consumed for useful thermal output).

programs for reducing greenhouse gas emissions and reporting such emission reductions. Voluntary programs which contribute to emission reductions in the electricity sector include DOE's Voluntary Reporting of Greenhouse Gases Program and EPA's ENERGY STAR program.

The Energy Information Administration's (EIA) Voluntary Reporting of Greenhouse Gases Program collects information from organizations that have undertaken carbon-reducing or carbon-sequestration projects. Most

electric utilities participate in voluntary emission reduction activities through the Climate Challenge program. In 1998, 123 organizations in the electric power sector reported on 1,224 projects. By undertaking these projects, participants indicate that they reduced CO₂ emissions by 172 million short tons of CO₂ (42.6 million metric tons of carbon)¹⁷ (Table 6). The organizations almost universally measured their project-level reductions by comparison with what emissions would have been in the absence of the project. Reported reductions are 7.0 percent of 1998 CO₂ emissions attributed to the generation of electric power in the United States. Foreign reductions, largely from carbon-sequestration projects, account for 7.0 percent of total reported reductions.

The Climate Challenge program has become the principal mechanism by which electric utilities participate in voluntary emission reduction activities. Participants that reported the CO₂ emission reductions summarized in this report include electric utilities and holding companies, independent power producers, and landfill methane operators. Climate Challenge participants negotiate voluntary commitments with the U.S. Department of Energy to achieve a certain level of emissions reductions to participate in specific projects. Companies making Climate Challenge commitments accounted for about 71 percent of 1990 U.S. electric utility generation.¹⁸ Climate Challenge participants are required to report their achieved emissions reductions to the Voluntary Reporting Program.

Results from the Climate Challenge program cannot be compared directly to other figures in this report because the Climate Challenge program allows participants to report emissions reductions using baselines and calculation methods different from those applied elsewhere. For this reason, EIA keeps an accounting of reports submitted by Climate Challenge participants but the United States counts only a fraction of these reported reductions in comprehensive assessments of overall reductions in greenhouse gases.¹⁹

The largest reductions claimed for 1998 are from major U.S. electric utilities: the Tennessee Valley Authority (29 million tons), TXU (22 million tons), Duke Energy (13

¹⁷ The EIA also receives numerous reports on projects and emission reductions from reporters outside the electric power sector. Many reports (including electric power sector reports) include reductions of greenhouse gases other than carbon dioxide.

¹⁸ U.S. Department of Energy, Climate Challenge Fact Sheet (1998), and conversation with Lawrence Mansueti, August 10, 1999. See also <http://www.eren.doe.gov/climatechallenge/execsumm/execsumm.htm>.

¹⁹ See the 1997 *Climate Action Report* (the Submission of the United States of America under the United Nations Framework Convention on Climate Change), p.100, for one such assessment.

Table 6. Electric Power Sector Carbon Dioxide Emission Reductions, 1997 and 1998
(Million Short Tons of CO₂)

Type of Reduction	1997	1998
Domestic Reductions		
Emission Reduction Projects	124.6	144.2
Sequestration Projects	0.3	0.6
Total Domestic Reductions	124.9	144.8
Foreign Reductions		
Emission Reduction Projects	0.4	*
Sequestration Projects	10.7	10.9
Total Foreign Reductions	11.1	10.9
Total Long Form Emission Reductions	136.0	155.7
Reductions Reported on Short Form	7.2	16.5
Total CO₂ Reductions Reported	143.3	172.1

* = Less than 0.05 million short tons.

Note: Preliminary data from the 1998 reporting cycle. This data cannot be compared directly to other figures in this report because Climate Challenge participants can report emissions reductions using baselines and calculation methods different from those applied elsewhere.

Source: Energy Information Administration, Form EIA-1605, "Voluntary Reporting of Greenhouse Gases," and EIA-1605EZ, "Voluntary Reporting of Greenhouse Gases (Short Form)."

million tons), and FirstEnergy (12 million tons).²⁰ These four companies account for more than half of the CO₂ emission reductions reported in 1998 by electric utilities in the United States. Each of these companies owns one or more nuclear power plants, and the bulk of their reported reductions is calculated by comparing either actual or additional nuclear output from their plants with the emissions that would have occurred if the same quantity of electricity had been generated using fossil fuels.

Electric power industry companies reported on many other types of activities, including construction of low emitting or zero-emitting generation capacity, demand-side management activities, distribution and transmission system upgrades, cogeneration projects, and coal ash recycling.

Utilities also undertook a number of carbon-sequestration projects. Although these projects do not directly affect CO₂ emissions from the electric sector, they do offset utility emissions. Foreign carbon-sequestration projects saved 10.9 million tons of CO₂ emissions, and domestic projects saved 0.6 million tons. These activities are dominated by three independent power producer subsidiaries of the AES Corporation, which reported 8.4 million tons of carbon sequestration annually from three

projects with activities in Belize, Bolivia, Ecuador, Peru, and Guatemala. These projects undertake tropical rain forest management, preservation, or reforestation.

In addition, more than 40 companies reported on their pro-rated share of their participation in the Edison Electric Institute's Utilitree program. The Utilitree program is a carbon-sequestration mutual fund in which electric utilities purchase shares. Utilitree uses the funds to participate in forest management and reforestation projects in the United States and abroad.

The United States' voluntary programs are reducing domestic emissions of greenhouse gases in a number of sectors across the economy through a range of partnerships and outreach efforts. For example, the ENERGY STAR Program, run by the EPA in partnership with DOE, is reducing energy consumption in homes and office buildings across the Nation. EPA and DOE set energy-efficiency specifications for products ranging from office equipment, heating and cooling equipment, residential appliances, televisions and VCRs to new homes. The ENERGY STAR label for buildings serves as a benchmarking tool that allows building owners to evaluate the efficiency of their building relative to others. On average, buildings across the country can improve efficiency by 30 percent through a variety of

²⁰ TXU was formerly known as Texas Utilities, while FirstEnergy is the result of a merger between Ohio Edison and Centerior Energy (Cleveland Electric).

improvements. Manufacturer and retailer partners in the program may place the nationally-recognized ENERGY STAR label on qualifying products.

In the past several years, the ENERGY STAR label has expanded to include over 27 products and 3,400 product models. In 1998, energy consumption was reduced by more than 20 billion kWh due to the program, reducing

greenhouse gas emissions by nearly 16 million short tons of CO₂ (Table 7). Through EPA's ENERGY STAR Buildings and Green Lights Partnership, more than 4 percent of U.S. buildings have undergone efficiency upgrades resulting in electricity savings in excess of 13 billion kWh and emissions reductions of 10 million short tons of CO₂.²¹

Table 7. CO₂ Emission Reductions and Energy Savings from EPA's Voluntary Programs, 1997 and 1998

	1997		1998	
	Million Short Tons of CO ₂ Reduced	Billion kWh Saved	Million Short Tons of CO ₂ Reduced	Billion kWh Saved
ENERGY STAR Labeled Products	8	10	16	20
ENERGY STAR Buildings and Green Lights	6	7	10	13
Climate Wise	6	2	11	3

Source: U.S. Environmental Protection Agency, Climate Protection Division, *1998 Annual Report: Driving Investment in Energy Efficiency, ENERGY STAR and Other Voluntary Programs* (EPA 430-R-99-005), July 1999.

Environmental Effects of Federal Restructuring Legislation

In April 1999, the Administration submitted to Congress the Comprehensive Electricity Competition Act (CECA), a bill to restructure the U.S. electricity industry and foster retail competition. CECA was designed to ensure that the full economic and environmental benefits of electricity restructuring are realized. The expected environmental benefits are the result of both the effects of competition and specific provisions included in the Administration's proposal, such as a renewable portfolio standard, a public benefits fund, and tax credits for combined heat and power. Competition itself will also provide incentives to generators to improve their own efficiencies, and create new markets for green power and end-use efficiency services, all of which will reduce greenhouse gas emissions.

Following an exhaustive interagency review, the Department of Energy issued a *Supporting Analysis*²² that quantified both the economic and environmental benefits of the Administration's plan in May 1999. The

analysis focused on the impacts of full national retail competition relative to continued cost-of-service regulation. The results showed that the Administration's proposal will reduce carbon emissions by 238 million short tons (59 million metric tons carbon) in 2010. An EIA study²³ using the same assumptions from the supporting analysis produced similar results. Carbon emissions were 214 million short tons (53 million metric tons carbon) lower in the competitive case than in the cost-of-service reference case in 2010. A number of key uncertainties, however, can affect these projections, and some of the reductions could be realized due to actions already taken by individual States. Recognizing uncertainties and the need to avoid double-counting, the Administration projected that its proposal would reduce carbon dioxide emissions from energy use by 162 to 243 million short tons (40 to 60 million metric tons carbon) annually by 2010. The Department of Energy and the Environmental Protection Agency see no recent developments that would change this projection. While competitive electricity markets can play an important role in reducing CO₂ emissions from electric power generation, additional measures could offer potential for cost-effective emission reductions in the electric power sector.

²¹ U.S. Environmental Protection Agency, Climate Protection Division, *1998 Annual Report: Driving Investment in Energy Efficiency, ENERGY STAR and Other Voluntary Programs* (EPA 430-R-99-005), July 1999.

²² U.S. Department of Energy, *Supporting Analysis for the Comprehensive Electricity Act*, May 1999.

²³ Energy Information Administration, *The Comprehensive Electricity Competition Act: A Comparison of Model Results*. Internet site at <http://www.eia.doe.gov/oiaf/servicerpt/ceca.html>.

Appendix A

Presidential Directive

April 15, 1999

MEMORANDUM FOR THE
SECRETARY OF ENERGY
ADMINISTRATOR OF THE ENVIRONMENTAL PROTECTION AGENCY

SUBJECT: Report on Carbon Dioxide (CO₂) Emissions

My Administration's proposal to promote retail competition in the electric power industry, if enacted, will help to deliver economic savings, cleaner air, and a significant down payment on greenhouse gas emissions reductions. The proposal exemplifies my Administration's commitment to pursue both economic growth and environmental progress simultaneously.

As action to advance retail competition proceeds at both the State and Federal levels, the Administration and the Congress share an interest in tracking environmental indicators in this vital sector. We must have accurate and frequently updated data.

Under current law, electric power generators report various types of data relating to generation and air emissions to the Department of Energy (DOE) and the Environmental Protection Agency (EPA). To ensure that this data collection is coordinated and provides for timely consideration by both the Administration and the Congress, you are directed to take the following actions:

- On an annual basis, you shall provide me with a report summarizing CO₂ emissions data collected during the previous year from all utility and nonutility electricity generators providing power to the grid, beginning with 1998 data. This information shall be provided to me no more than 6 months after the end of the previous year, and for 1998, within 6 months of the date of this directive.
- The report, which may be submitted jointly, shall present CO₂ emissions information on both a national and regional basis, stratified by the type of fuel used for electricity generation, and shall indicate the percentage of electricity generated by each type of fuel or energy resource. The CO₂ emissions shall be reported both on the basis of total mass (tons) and output rate (e.g., pounds per megawatt-hour).
- The report shall present the amount of CO₂ reduction and other available information from voluntary carbon-reducing and carbon-sequestration projects undertaken, both domestically and internationally, by the electric utility sector.
- The report shall identify the main factors contributing to any change in CO₂ emissions or CO₂ emission rates relative to the previous year on a national, and, if relevant, regional basis. In addition, the report shall identify deviations from the actual CO₂ emissions, generation, and fuel mix of their most recent projections developed by the Department of Energy and the Energy Information Administration, pursuant to their existing authorities and missions.
- In the event that Federal restructuring legislation has not been enacted prior to your submission of the report, the report shall also include any necessary updates to estimates of the environmental effects of my Administration's restructuring legislation.
- Neither the DOE nor the EPA may collect new information from electricity generators or other parties in order to prepare the report.

WILLIAM J. CLINTON

Appendix B

Data Sources and Methodology

This section describes the data sources and methodology employed to calculate estimates of carbon dioxide (CO_2) emissions from utility and nonutility electric generating plants.

Electric Utility Data Sources

The electric utility data comes from several forms. The Form EIA-767, "Steam-Electric Plant Operation and Design Report," collects information annually for all U.S. power plants with a total existing or planned organic- or nuclear-fueled steam-electric generator nameplate rating of 10 megawatts (MW) or larger. Power plants with a total generator nameplate rating of 100 MW or more must complete the entire form, providing, among other things, information about fuel consumption and quality. Power plants with a total generator nameplate rating from 10 MW to less than 100 MW complete only part of the form, including information on fuel consumption.

The Form EIA-759, "Monthly Power Plant Report," is a cutoff model sample of approximately 360 electric utilities drawn from the frame of all operators of electric utility plants (approximately 700 electric utilities) that generate electric power for public use. The monthly data collection is from all utilities with at least one plant with a nameplate capacity of 50 megawatts or more (note: includes all nuclear units). Data are collected on an annual basis from the remaining operators of electric utility plants. The Form EIA-759 is used to collect data on net generation; consumption of coal, petroleum, and natural gas; and end-of-the-month stocks of coal and petroleum for each plant by fuel-type combination.

The Federal Energy Regulatory Commission (FERC) Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants," is a monthly record of delivered-fuel purchases, submitted by approximately 230 electric utilities for each electric generating plant with a total steam-electric and combined-cycle nameplate capacity of 50 or more megawatts. The Form FERC-423 is used to collect data on fuel contracts, fuel type, coal origin, fuel quality and delivered cost of fuel.

Nonutility Data Source

The Form EIA-860B, "Annual Electric Generator Report - Nonutility," (prior Form EIA-867, "Annual Nonutility Power Producer Report") collects information annually from all nonutility power producers with a total generator nameplate rating of 1 megawatt (MW) or more, including cogenerators, small power producers, and other nonutility electricity generators. Facilities with a total generator nameplate rating of 1 MW or more must complete the entire form, providing, among other things, information about fuel consumption and quality. Facilities with a combined nameplate capacity of less than 25 megawatts are not required to complete Schedule V, "Facility Environmental Information," of the Form EIA-860B.

CO_2 Coefficients

The coefficients for determining emissions of CO_2 from electric utility power plants come from the publication, "Emissions of Greenhouse Gases in the United States," (DOE/EIA-0573). The nonutility coefficients were developed to be consistent with the utility coefficients.

Methodology

The methodology for developing the CO_2 emission estimates for steam utility plants and nonsteam utility plants (calculations done on a plant basis by fuel), as well as for nonutility plants (calculations done on a facility basis by fuel), is as follows:

Steam Utility Plants

- Step 1. $\text{Sum of Monthly Consumption (EIA-767) times Monthly Average Btu Content (EIA-767) divided by Total Annual Consumption (EIA-767) = Weighted Annual Btu Content Factor.}$
- Step 2. $\text{Annual Consumption (EIA-767) times Weighted Annual Btu Content Factor (Step 1) = Annual Btu Consumption.}$

- Step 3. Annual Btu Consumption (Step 2) times CO₂ factors = Annual CO₂ Emissions.
- Step 4. Reduce Annual CO₂ Emissions (Step 3) by 1 percent to assume 99 percent burn factor.
- Step 5. Divide Annual CO₂ Emissions (Step 4) by 2000 to obtain result in short tons.

Nonsteam Utility Plants

- Step 1(a). If monthly EIA-759 and monthly FERC-423 is available: Sum of Monthly Consumption (EIA-759) times Monthly Average Btu Content (FERC-423) divided by Total Annual Consumption = Weighted Annual Btu Content Factor.
- Step 1(b). If monthly EIA-759 is available, but not monthly FERC-423: Sum of Monthly Consumption (EIA-759) times Average Monthly Btu Content (calculated from FERC-423) divided by Total Annual Consumption = Weighted Annual Btu Content Factor.
- Step 1(c). If only annual EIA-759 is available: Annual Consumption (EIA-759) times Average Annual Btu Content (calculated from FERC-423) divided by Total Annual Consumption = Weighted Annual Btu Content Factor.
- Step 2. Annual Consumption (EIA-759) times Weighted Annual Btu Content Factor (Step 1) = Annual Btu Consumption.

- Step 3. Annual Btu Consumption (Step 2) x CO₂ Factors = Annual CO₂ Emissions.
- Step 4. Reduce Annual CO₂ Emissions (Step 3) by 1 percent to assume 99 percent burn factor.
- Step 5. Divide Annual CO₂ Emissions (Step 4) by 2000 to obtain result in short tons.

Nonutility Plants

- Step 1. Annual Consumption (EIA-867) times Average Annual Btu Content (calculated from FERC-423) divided by Total Annual Consumption = Weighted Annual Btu Content Factor.
- Step 2. Annual Consumption (EIA-867) times Weighted Annual Btu Content Factor (Step 1) = Annual Btu Consumption.
- Step 3. Annual Btu Consumption (Step 2) x CO₂ Factors = Annual CO₂ Emissions.
- Step 4. Reduce Annual CO₂ Emissions (Step 3) by 1 percent to assume 99 percent burn factor.
- Step 5. Divide Annual CO₂ Emissions (Step 4) by 2000 to obtain result in short tons.

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October 27, 1999

The President of the United States
and Mrs. Clinton
The White House
Washington, District of Columbia 20500

Dear Mr. President and Mrs. Clinton:

On Friday, September 22, 2000, Wolf Trap, America's National Park for the Performing Arts, will celebrate 30 years of outstanding performances on the Stage of the Filene Center at Ball 2000. We would be honored if you would serve as The Patrons of the Ball, and if possible, be our personal guests for the evening.

Sir Christopher Meyer, K.C.M.G. Ambassador of the United Kingdom of Great Britain and Northern Ireland and Lady Meyer are the Sponsors for Ball 2000 whose theme is

*"All the world's a stage,
And all the men and women merely players"*

*William Shakespeare
As You Like It*

We look forward to hearing from you at your earliest convenience. Should you or your staff have questions please call us at 540-882-3102 or 941-435-0328.

Most Sincerely,



Mollie and John Ottina, Chairmen
Wolf Trap Ball 2000

cc: Mr. Robert Stanton, Director, National Park Service
Mrs. Debra Schiff, Assistant Chief of Protocol, Department of State
Mrs. Margaret M. Welch, President, Wolf Trap Associates
Mrs. Margaret Deane Gray, Director, Wolf Trap Associates

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